City of Kingston
Information Report to Environment, Infrastructure & Transportation Policies Committee
Report Number EITP-24-008

To:	**Chair and Members of the Environment, Infrastructure & Transportation Policies Committee**
From:	**Brad Joyce, Commissioner, Infrastructure, Transportation & Emergency Services**
Resource Staff:	**Ian Semple, Director, Transportation & Transit**
Date of Meeting:	**February 13, 2024**
Subject:	**Williamsville Corridor Study, Neighbourhood Cycling Network, and Green Streets**

Council Strategic Plan Alignment:

Theme: 3. Build an Active and Connected Community

Goal: 3.3 Improve public transit and active transportation options.

Executive Summary:

This report provides the technical analysis and engagement completed to date on the Williamsville Transportation Study, with discussion of the next steps that will be undertaken ahead of the study being presented to Council.

The scope of the Williamsville Transportation Study (Exhibit A) includes design concepts for the Princess Street corridor from Bath Road to Division Street, development of a neighbourhood cycling network, and exploration of Green Street concepts that can be implemented on neighbourhood streets. This transportation study is a critical component of the City's intensification and redevelopment strategy for the neighbourhood, aligning with next steps to be undertaken to support the land use changes adopted in December 2020 as part of the updates to the Williamsville Main Street Study.

Design concepts for Princess Street were developed from the transportation operations analysis (Exhibit B) which concluded that the short- and long-term development envisioned for the corridor could be accommodated provided non-auto trips were supported and prioritized, particularly as it related to transit and pedestrians. It was also concluded that simultaneously providing infrastructure to support pedestrians, cyclists, transit, and automobiles was not possible given the limited public right-of-way for this arterial roadway.

The study developed six design alternatives for Princess Street to understand the fit and function of the various modes in the right-of-way. The alternatives all removed on-street parking and minimized vehicle travel lane width to allocate the maximum space to the non-auto modes. The concept that allowed for the widest pedestrian area, transit priority, and greatest space for trees, benches, and other pedestrian elements, identified as Alternative 1 in this report, was shared with the public in spring 2023 for input. The removal of the existing on-street cycling lanes was a point of great concern in the public engagement with requests for additional information and options to be developed that retained two-way cycling facilities on Princess Street.

In response to these concerns a design concept that includes the on-street cycling lanes and transit priority measures was developed further and shared with the public in October 2023 for comment and comparison with Alternative 1. This concept, referred to as Alternative 5 in this report, allows the existing cycling infrastructure to be retained however providing a 2.0 metre sidewalk is compromised in many locations with some sections below the required 1.5 metre width and as little as 0.8 metres in some areas. Providing greening elements such as street trees, benches, and other landscaping is limited to the eastern sections of Princess Street closer to Division Street. Despite these issues public engagement showed a strong preference for Alternative 5 while consultation with the accessibility stakeholders noted a desire to maximize the available area for pedestrians and transit users best represented by Alternative 1.

From a technical standpoint, a review with City and Utilities Kingston staff highlighted several challenges in both alternatives, including issues related to constructability, utility conflicts, and operational considerations such as snow removal, parking, and emergency services access that must be addressed in the detailed design stage. Each alternative presents unique challenges and potential benefits to different users given the constrained area available in the public right-of-way.

The study also evaluated various configurations for a neighbourhood cycling network, aiming to create a supportive network that would support cyclist needs within the neighbourhood. The cycling network developed includes a variety of facilities that can be retrofit onto the existing streets to prioritize cycling and other active travel.

In addition, Green Street concepts were developed with a goal of improving pedestrian safety and environmental sustainability on neighbourhood streets through infrastructure changes such as bulb-outs, raised crosswalks, plantings, and additional trees. Three concepts, varying in level of intervention, were developed with a strong preference from participants for the highest level of intervention, although concerns were raised related to the trade-off required in the removal of on-street parking.

The information presented in this report and exhibits provides detailed analysis on two design concepts for Princess Street, both of which can be supported by formalizing a neighbourhood cycling network and incorporating Green Street design into local roadway reconstruction. Next steps for the full Williamsville Transportation Study are as follows:

- Incorporate input received from the EITP Committee on the design alternatives, neighbourhood cycling network, and Green Streets into a report for Council planned for spring 2024.
- Use direction provided by Council to finalize the preferred design concept for Princess Street and commence detailed design on the segment from Alfred Street to Division Street.
- Incorporate direction on the cycling network into capital projects planned for identified streets.
- Adopt the Green Street definition and concepts and further integrate design details into neighbourhood streets slated for reconstruction in the approved capital budget.

Recommendation:

This report is for information only.

Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

Brad Joyce, Commissioner,
Infrastructure, Transportation &
Emergency Services

ORIGINAL SIGNED BY CHIEF ADMINISTRATIVE OFFICER

Lanie Hurdle, Chief
Administrative Officer

Consultation with the following Members of the Corporate Management Team:

Paige Agnew, Commissioner, Growth & Development Services	Not required
Jennifer Campbell, Commissioner, Community Services	Not required
Neil Carbone, Commissioner, Corporate Services	Not required
David Fell, President & CEO, Utilities Kingston	Not required
Peter Huigenbos, Commissioner, Major Projects & Strategic Initiatives	Not required
Desirée Kennedy, Chief Financial Officer & City Treasurer	Not required

Options/Discussion:

This report provides a summary of the analysis, engagement, technical considerations, and next steps of the transportation study for the Princess Street corridor in Williamsville, along with the associated neighbourhood cycling network and Green Street concept development that was completed in addition to the original scope of the study.

Detailed information is contained within the Williamsville Transportation Study included in Exhibit A and associated appendices contained in Exhibits B through E with this report focused on summarizing important considerations ahead of a future Council report.

Background

The Princess Street corridor within the Williamsville neighbourhood is identified as an important area for population and housing growth through intensification and redevelopment. The land use and growth planned for this area was updated through a comprehensive review and adopted by Council in December 2020. In support of this work, a transportation operational needs assessment was completed to understand how the transportation network would perform in the short and long term with this anticipated growth.

The transportation operations analysis concluded that the increased transportation demand could be accommodated and recommended the prioritization of pedestrian and transit modes within the area. The analysis also noted that the limited width of the right-of-way would limit the street from simultaneously prioritizing all modes of travel with a recommendation to look at reducing travel lanes for vehicles, removing on-street parking, and exploring alternate routes for cyclists through the area if required. Full details of the 2020 study can be found in Report Number PC-20-065 and the transportation operations analysis is included in this report as Exhibit B.

The adoption of the land use changes in 2020 also included a recommendation to complete a more detailed transportation study of Princess Street within this area to develop a conceptual design of what the street and intersections would look like to support this growth and prioritize these transportation modes. This second more detailed transportation study, referred to as the Williamsville Transportation Study, was commissioned to deliver on these objectives.

Analysis

The Williamsville Transportation Study began in spring 2022 with technical and design work that identified alternative design concepts for review that were analyzed against the transportation goals and priorities adopted in the 2020 update to the Williamsville Main Street Study.

From this work, a concept aligned with the transportation priorities adopted was shared with the public and stakeholders for comment in February 2023. The analysis also considered how to best accommodate the goals within the known constraints that exist along this section of Princess Street including:

- Relatively narrow public right-of-way that varies from 18 metres to 22 metres along the length of the study area.
- Short block lengths with 13 intersections that increase the complexity of incorporating continuous features.
- Limited opportunities to acquire additional right-of-way in the short term to provide space for all desired elements.

This conceptual design, referred to as Alternative 1 for the remainder of this report, included the following elements: widened pedestrian sidewalks to a minimum of 2 metres, transit priority areas at two locations, and expanded areas for benches, street trees and other landscaping or amenities. To accommodate these elements, vehicle travel lanes are minimized, on-street parking is removed, and the existing on-street cycling lanes are removed and shifted to other streets in Williamsville. Details of this technical analysis are included in Exhibit C – Princess Street Cross Section Study.

Engagement on Alternative 1 showed a strong desire from the Williamsville community and active transportation groups to retain the cycling lanes on Princess Street and to better understand the other alternatives considered and technical analysis completed. There was also a strong desire to understand how the neighbourhood cycling network could be developed further and how Green Street concepts could be included.

Based on this input the project team modified the deliverables of the project to provide the following:

- Sharing of additional technical information related to the alternatives considered for Princess Street, presentation of this information at a public information session, and further developing an alternative concept that included cycling lanes to allow direct comparison.
- Expanded bicycle network scope to further develop the neighbourhood cycling concepts that could be implemented within Williamsville.
- Development and public engagement on Green Streets concepts that can be used in Williamsville and other areas of the city as part of the reconstruction of neighbourhood streets.

A summary of these three deliverables is provided below with full details found in Exhibit A.

Princess Street Corridor Alternatives

The Princess Street Cross-Section Study (Exhibit C) developed concepts that could provide an improved environment for pedestrians, cyclists, and transit users along the Williamsville section of Princess Street.

The alternative concepts developed considered the following features as most desirable based on the conclusions reached in the 2020 study:

- Maximize areas for street trees and furniture to create a more welcoming streetscape,
- Sidewalks at least 2 metres wide to recognize the growing pedestrian trips and to ensure accessibility for all users.
- Transit priority measures to allow Kingston Transit to operate with headways of five minutes.
- Two-way cycling facilities to enhance cycling access.
- Reduced lane width for vehicles to encourage traffic calming and maximize space available for other amenities.

Six alternatives were developed for review based on these desirable features with all alternatives prioritizing spaces for active and transit modes by removing parking and reducing travel lane width to the minimum possible. A summary of the alternatives is as follows:

- **Alternative 1 (Widened Pedestrian Realm)**: Prioritized the pedestrian realm by removing bike lanes and adding street trees and rest areas where possible to maximum extent of available space. Widened sidewalks to 2.0 metre minimum where possible.
- **Alternative 2 (Cycle Tracks)**: Substituted existing street-level bike lanes with grade separated cycle tracks. Cycle tracks would be a minimum of 2.0 metre wide on both sides of the street. Sidewalks would be designed to 2.0 metre widths where possible.
- **Alternative 3 (Bi-directional Cycle Track)**: Replaced the existing street-level bike lanes with a bi-directional cycle track on the north side of Princess Street. Bidirectional cycle track would be a minimum of 3.5 metre wide. Sidewalks would be designed to 2.0 metre widths where possible.
- **Alternative 4 (One-way Cycle Track):** Replaced existing street-level bike lanes with a one-way cycle track on the north side of Princess Street. Cycle track would be a minimum of 2.0 metre wide, with additional space between cycle tracks and sidewalks. Sidewalks would be designed to 2.0 metre widths where possible.
- **Alternative 5 (On-road Cycle Lanes):** Provide conventional street-level cycling lanes, similar to the current condition. Cycle lanes would be a minimum of 1.5 metre wide plus a 0.3 metre wide gutter to provide extra width for maneuvering. Sidewalks would be designed to 2.0 metre where possible.
- **Alternative 6 (Continuous Transit Lane):** Created a dedicated westbound transit lane throughout Princess Street to improve transit travel times. Sidewalks would be designed to 1.5 metre widths where possible.

Alternative 1 was identified to best address the pedestrian and transit objectives set forward in the adopted plan for Williamsville and was determined to be feasible with the public space available in the right-of-way. However, this option did not include on-street dedicated cycling infrastructure. This alternative was advanced to more detailed review and comment from the public in spring 2023.

Alternative 5 was also determined to be feasible within the right-of-way while maintaining two-way cycling facilities and allowing transit to be prioritized. However, this alternative cannot meet the minimum pedestrian infrastructure design throughout the corridor. This alternative was advanced to more detailed design following feedback received from the public engagement held in spring 2023 that indicated a desire to better understand if cycling lanes could be maintained.

Alternate 2 and 3 could not fit continuously through the corridor and Alternative 4 only provided one-way cycling infrastructure so all three were not advanced further. Alternative 6 would create unacceptable delays for eastbound transit service, removed all cycling infrastructure, and required sidewalk widths of 1.5 metres so was similarly not advanced further.

A more detailed description of Alternative 1 and Alternative 5 is provided below.

Alternative 1

Alternative 1 prioritizes the pedestrian experience along Princess Street while allowing for transit priority to be included. A rendering of this alternative compared to existing conditions is shown below in Figure 1.

Figure 1 – Existing Conditions and Conceptual Drawing of Alternative 1

This alternative provides a 2.0 metre sidewalk along 98% of the corridor and protects an additional minimum 1.85 metre area for benches, street trees, and other amenities along 60% of the corridor. Cyclists and vehicles will share the travel lanes and the design can include infrastructure at intersections where possible to assist cyclists in making turns. Vehicle travel lanes are reduced to between 3.3 metres and 3.5 metres and parking lanes are removed, which creates a maximum vehicle area of 7.0 metres in mid-block sections. This configuration is expected to lead to slower traffic speeds creating safer shared spaces for cyclists and drivers.

No on-street parking is included in this alternative with the expectation that these needs are accommodated on the side streets or within the private developments. It is expected that some motorists may attempt to park or stop illegally by pulling up onto the curb, blocking the travel lane. However, the narrow, single lane of travel in each direction is expected to discourage this behaviour to a much greater degree than other alternatives where at-grade cycling lanes or transit priority lanes may be improperly used for this purpose. Appropriate side street loading and parking areas along with enforcement will be necessary to minimize illegal parking and stopping. Some parking to address accessible or loading concerns may be able to be included in the eastern sections of Princess Street close to Division Street if the pedestrian realm is reduced.

Alternative 1 addresses accessibility requirements for pedestrian areas and would encourage increased pedestrian use for trips within the neighbourhood and to comfortably access transit. It also allows greening elements to be provided more consistently along the entire corridor. Transit priority needs are protected where warranted and vehicle operation is slowed to allow shared use with cyclists.

Alternative 5

Alternative 5 maintains on-road cycling lanes in both directions as a priority and encourages cycling as a sustainable option of transportation along Princess Street. A rendering of this alternative compared to existing conditions is shown below in Figure 2.

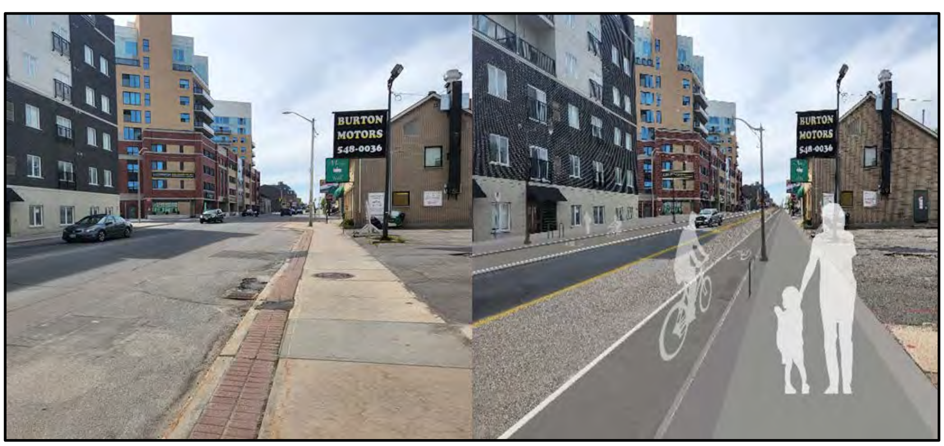

Figure 2 – Existing Conditions and Conceptual Drawing of Alternative 5

The narrowing of vehicles lanes to between 3.3 metres and 3.5 metres along with the removal of on-street parking allows for a continuous on-road, unbuffered 1.5 metre cycling lanes to be retained in both directions. This continuous cycling lane and removal of on-street parking obstacles will maintain the current level of infrastructure for confident cyclists that are comfortable traveling in on-road cycling lanes. This on-road cycling lane configuration is no longer recommended in the updated Ontario Traffic Manual guidelines in this situation but is recognized as an existing condition.

The remaining area is allocated to the pedestrian realm with 86% of the corridor able to provide a 2.0 metre sidewalk however the areas where the sidewalk width cannot be accommodated, mostly located in the central and western areas of Princess Street, includes sections that are below AODA standards of 1.5 metres and in some cases expected to be as narrow as 0.8 metres. Some areas, largely in the eastern section of Princess Street closest to Division Street will allow for some pedestrian amenities such as benches and street trees.

The overall asphalt width of the roadway with cycling lanes will be approximately 9.7 metres to 10.0 metres wide in mid-block areas. As the cycling lanes are not physically buffered, there will be increased instances of vehicles stopping or parking within the cycling lane area compared to Alternative 1. Appropriate side street loading and parking areas along with enforcement of correct use of the cycling lane will be necessary to minimize these occurrences.

This alternative provides the best option to retain cycling infrastructure in this section of Princess Street and best encourages neighbourhood and city-wide cycling trips. It does not address accessibility issues for pedestrian areas and may discourage increased pedestrian trips within the neighbourhood. It also reduces the opportunity for greening opportunities, including planters, particularly in the western half of the study area. Transit priority needs are protected where warranted and vehicle speeds may be slowed through this section if cycling lanes are respected.

Engagement on Alternative 1 and Alternative 5

Following completion of the initial Princess Street Cross-Section study (Exhibit B), Alternative 1 was shared on the City’s Get Involved platform to allow questions and feedback from the public and interested stakeholders. Public feedback through the Get Involved platform and at a town hall meeting organized by the Williamsville Community Association indicated a strong concern over the lack of cycling lanes in the design and a strong desire to better understand the alternatives that were considered that could allow cycling to be included in the final design.

To address these concerns and to increase transparency for the design process, the Princess Street Cross-Section study was revised to add more details about the alternatives considered and the technical analysis completed. The design concept for Alternative 5 was advanced to a similar stage as Alternative 1 to be shared with the public. This expanded information, including updated concepts for Alternative 1 and 5, was presented at a public information session on

October 26, 2023, and made available on the Get Involved platform through late November 2023 for comment.

Comments and survey results from this engagement indicated a preference for keeping and/or enhancing the existing cycling lanes along Princess Street. Cycling lanes were ranked as the most important feature to include in the design, followed by wider sidewalks, street trees and furniture, and transit priority lanes. Residents noted that the existing Princess Street cycling lanes do not feel safe to ride on and preferred physically separated cycling lanes. This prioritization is best reflected in the Alternative 5 concept although the physically separated cycling lanes cannot be accommodated in the available space while protecting for other required features.

Participants also noted that the existing Princess Street corridor in Williamsville does not feel inviting from a pedestrian standpoint and should be enhanced particularly for persons with accessibility needs. It was noted that some existing intersections along Princess Street do not have accessible elements such as tactile plates or audible cues. Other concerns raised pertained to short crossing times at intersections, which are not suitable for individuals with accessibility concerns. Participants also noted that the removal of on-street parking on Princess Street would make it harder to find accessible parking. Pedestrian enhancements, including crossing areas at the intersections, sidewalks that meet accessibility requirements, and space for rest areas is best addressed by the Alternative 1 concept.

Consultation with Municipal Accessibility Committee on Alternatives 1 and 5

Consultation with the Municipal Accessibility Advisory Committee (MAAC) was completed with a three-person project team. The MAAC project team noted that there is a requirement to comply with the Access for Ontario Disabilities Act (AODA) where possible and that maintaining and improving transit service in the Williamsville area is critical for ensuring the Williamsville area remains accessible to residents who rely on the service. It was noted that for many individuals, transit serves as the gateway to the rest of the city, particularly for those that do not drive as their primary mode of travel.

The MAAC project team expressed concerns with the sidewalk widths proposed for Alternative 5, particularly in the western end of the study area where sidewalk widths in the Drayton Avenue area, will be compromised below 1.0 metre unless additional land can be acquired. It was also noted that there are a number of medical institutions that require accessibility accommodation within the corridor and it is important to provide accessible infrastructure where possible. The team also stressed that the success of accessible infrastructure relies on its continuity with gaps or barriers being a significant concern for the accessibility of users. It was noted that the final design for Princess Street must emphasize accessibility at intersections so that they do not become a barrier themselves with suggestions to include raised intersections, scramble crossing signals, and shortening the crossing distance for larger intersections during detailed design.

The MAAC representatives noted challenges with the existing cycling lanes on Princess Street and concern that the cycling lanes proposed in Alternative 5 would not address these issues. The lack of physical barriers may not prevent vehicles from encroaching on the cycling lanes and cyclists may be forced into the roadway if there are stopped vehicles blocking the cycling lanes. In the discussions about Alternative 1, it was noted that unintended impacts to accessibility can also occur with the removal of the existing on-street cycling lanes as the likelihood of non-confident cyclists riding on the sidewalk may increase, posing a hazard for pedestrians. It was also noted that for many residents, cycling is an easier way to travel and preferable to walking longer distances. There is also concern that non-confident cyclists would need to alter their traveling routes, potentially increasing the total distance travelled significantly.

The MAAC project team offered some compromises for consideration during detailed design including add cycling lanes to the eastern side of the corridor where there is enough space to allow a minimally accessible sidewalk or adding a cycling lane in the westbound direction.

Constructability and Operations Review on Alternative 1 and 5

Technical staff from Public Works, Engineering, Transportation, Transit, and Utilities Kingston completed a preliminary constructability review of Alternative 1 and Alternative 5 to compare the impacts for multiple areas including: utility conflicts, maintenance, snow removal, intersections, traffic signals, emergency services, operating costs, and safety.

The technical group noted that the constrained right-of-way in this section of Princess Street is expected to create reconstruction challenges in any scenario, particularly as it relates to unknown or unexpected historic infrastructure. Staff noted that Alternative 1 best addresses accessibility requirements under the AODA and there is an identified need to reduce barriers for pedestrian and transit riders in this area. As portions of Alternative 5 cannot accommodate AODA-compliant sidewalks with existing right-of-way, acquiring additional public lands will be required.

It was noted that the narrower streets proposed for Alternative 1 limits the available space for utilities and increases the cost of repairs and maintenance if needed, whereas Alternative 5 provides more space to work within the right-of-way. It was also noted that there is a significant amount of telecommunications utility infrastructure throughout the corridor, creating challenges for locating remaining utilities. That said, Alternative 5 provides limited space to install traffic signals and street lighting, particularly in the western areas of the study at Drayton Avenue. Single poles could be used to reduce pole pollution and free up space while turning movements to and from constrained intersections may need to be limited or removed. Similarly, street trees and the associated Silva Cells may be difficult to implement and maintain in either alternative due to the depth needed for the soil and drainage interfering with utilities. These issues are mitigated if raised planters or plants with shallow roots are used but space to accommodate these elements in Alternative 5 are very limited.

From an operational perspective, both alternatives pose challenges for snow removal as the elimination of the parking lanes restricts the snow storage capacity for the initial clearing of vehicle travel lanes. To meet City minimum maintenance standards, snow removal is most challenging in Alternative 5. Alternative 1 has some snow storage capacity and would allow Public Works to return to clear snow from the boulevard and sidewalk. The narrow roadway in both alternatives may cause traffic delays during snow removal operation however this can be mitigated by completing this work overnight or in off-peak hours. Snow removal costs would likely increase to levels similar to existing costs for lower Princess Street in both alternatives.

Removal of accessible parking is a concern for both alternatives, however, with Alternative 1 there is more space available to include accessible parking in the eastern section in the final design at the expense of some of the pedestrian realm or greening space. Alternative 5 does not include space within the right-of-way to accommodate temporary on-street parking or passenger loading. Lack of loading zones is a concern for both alternatives and there may be traffic delays if vehicles stop in the middle of the road to load/unload. There is a concern that the on-street cycling lane proposed in Alternative 5 will attract illegally parked vehicles to a greater degree than Alternative 1. Staff noted that the side streets will need to accommodate all parking and loading in both alternatives as there is limited rear lane access to buildings along Princess Street.

Waste collection is currently done on-street with curbside placement. Solid Waste staff noted concerns that collection vehicles could block traffic movement when collecting waste under both alternatives. Off-peak waste collection and vehicle assignment similar to that used within other areas of the downtown core may be required to minimize disruption.

There is concern that the narrow roadway in Alternative 1 could impact emergency response time as there is less space for vehicles to maneuver to make way for emergency vehicles. Using mountable curb instead of barrier curb may alleviate this issue although this may lead to undesirable parking behaviours by motorists who can more easily mount the curb area.

Neighbourhood Cycling Network

In addition to developing a future concept for Princess Street there is a need to develop supporting infrastructure within the Williamsville neighbourhood to further encourage active travel and shift trips away from vehicles. As part of the transportation study, a network of potential neighbourhood cycling routes was developed for public engagement in spring 2023.

The network developed through this process is shown in Figure 3 with the green lines representing the corridors most preferred.

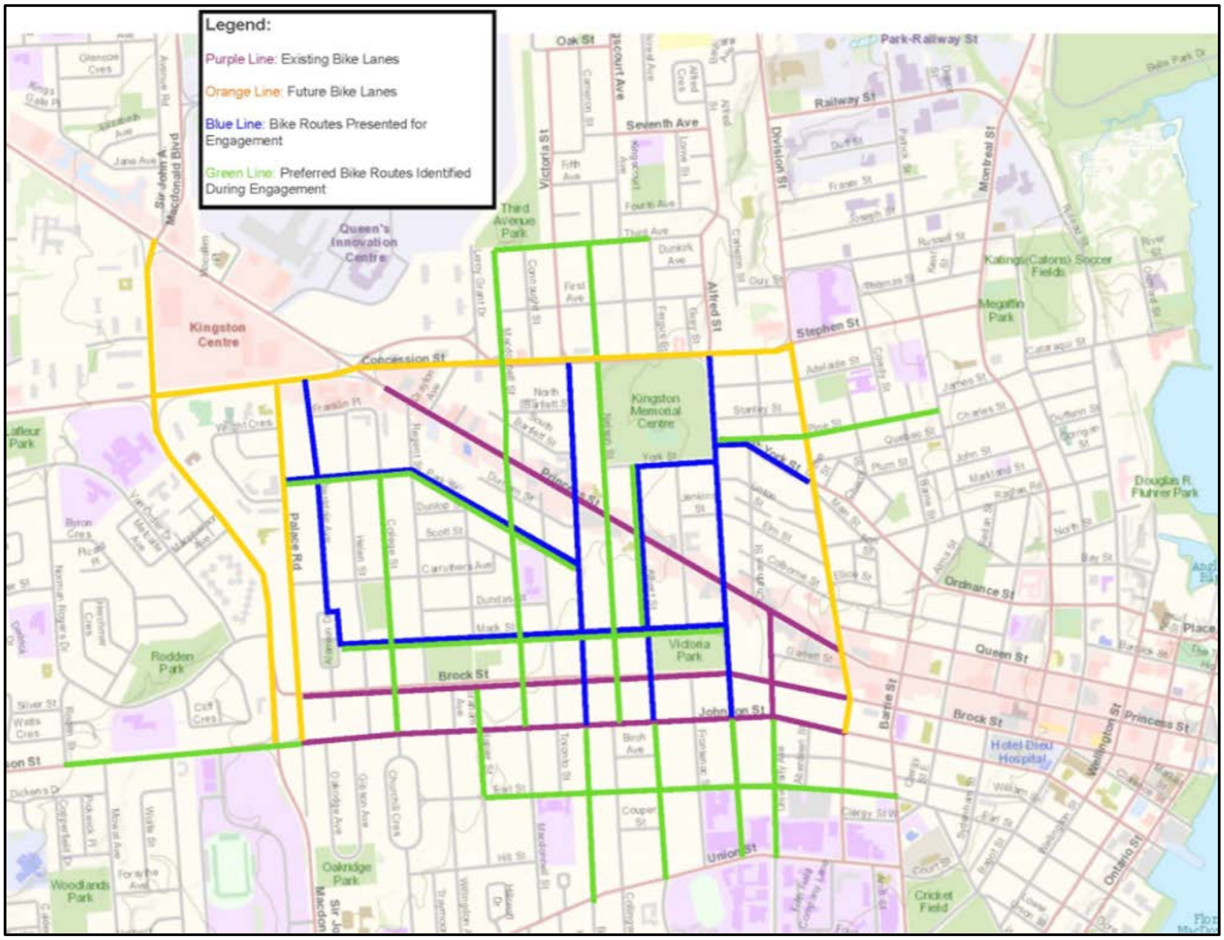

Figure 3 – Cycling Network Options Developed for Williamsville

Using these network options, the study developed a recommended facility type for the proposed network. These facility types were determined using the Cycling Facilities guidelines of the Ontario Traffic Manual (OTM Book 18). Based on this review and technical analysis there are three facility types recommended for the Williamsville neighbourhood streets – shared streets, neighbourhood bikeways, and advisory bike lanes. Details of each of these facility types are presented in the WTS (Exhibit A) and further in Exhibit E. The resulting network and recommended facility type is captured in Figure 4.

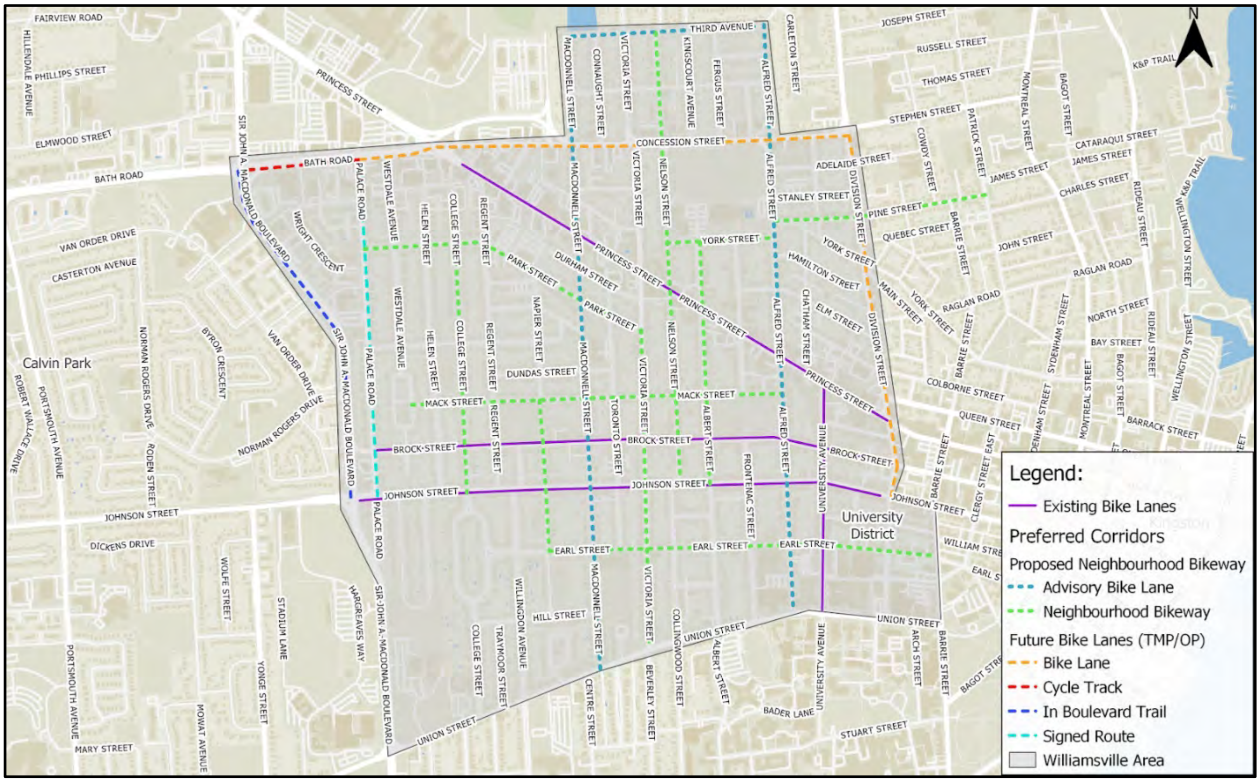

Figure 4 – Recommended Cycling Network and Facility Type

This neighbourhood network can be developed in conjunction with either Alternative 1 or Alternative 5 for Princess Street. The priority of developing key east-west routes along Mack and Park streets may be greater if Alternative 1 is selected as the preferred concept for Princess Street.

Public engagement on the neighbourhood cycling network was completed in spring 2023, with additional comments gathered on the facility types at an in-person open house and online through the Get Involved platform in October and November 2023. Participants in the engagement were generally supportive of the network that was being developed and the proposed locations for the advisory cycling lanes.

Participants in the engagement expressed a desire for more robust vehicle restrictions on local roads, including modal filters, traffic diverters and bollards. There were mixed responses to using bump-outs as a traffic-calming measure, with concerns related to diverting cyclists to the centre of the road and visibility of the bump-outs, especially during winter.

Consultation with the MAAC project team noted strong support for additional cycling infrastructure in the surrounding area for residents with accessibility needs. It was noted that the importance of a holistic approach to the overall design should be a priority so that the additions to the neighbourhood cycling network are included as part of the design of the Princess Street areas. The MAAC project team noted a concern that the options proposed consisted primarily of painted cycling lanes and stated a preference for more robust infrastructure that included physical barriers between cyclists and vehicles, particularly if the cycling lanes along Princess Street are removed.

The MAAC project team also noted a concern that vehicles may not respect advisory cycling lanes and that a public education campaign would not be sufficient for maintaining the safety of cyclists, particularly with larger vehicles that are commonly used in the city. There was concern with the use of bump-outs and the possibility that they would force cyclists into the centre of the road.

Green Street Concept Development

The Green Street concept was developed at a high level within the original Williamsville Main Street Study and carried through in the 2020 update as a concept that the community strongly desired to see on neighbourhood streets in the future. This concept was further supported in Council's Strategic Plan directing staff to "explore other options to support 'greening' the city, such as green infrastructure in municipal rights-of-way".

Five Principles

Based on this direction and the interest expressed by the Williamsville residents, the study scope was expanded to develop Green Street concepts that could be used on neighbourhood and local roadways. The work developed five principles that would define the Green Street approach as follows:

1. Intersections should be designed with a focus on vulnerable user safety. Techniques to consider should include intersection narrowing, reduced curb radii, raised crossings/intersections, conspicuous pavement marking, and improved lighting.
2. Vehicular lane widths will be minimized to encourage reduced travel speeds and reduce impermeable surface area within the road right-of-way.
3. Traffic calming techniques should be considered for local roadways where speed or volume is a demonstrated concern to improve multi-modal safety and discourage use of private vehicles within the Williamsville area.
4. Planting of street trees and landscaped boulevards/islands should be considered to provide shade and visual interest. If required, existing on-street parking should be considered for removal to provide additional space. Where parking cannot be removed, parking lane widths will be minimized.

5. Where feasible, based on space and soil conditions, low-impact development features, including rain gardens and permeable pavements, should be used to improve the quality and decrease the volume of stormwater entering waterways.

From these principles, three preliminary concepts – lite, medium, and heavy – were developed for public engagement. These concepts can all be implemented regardless of the final direction of the Princess Street design however there could be conflicts with some of the features considered for the neighbourhood cycling network that would be reviewed at a detailed design stage. A summary of these concepts is as follows:

Green Lite Concept

As the name suggests, the Green Lite concept requires the fewest infrastructure changes on the street and can be implemented at the lowest cost. The concept focuses on adding bump-outs at the intersections, seasonal centreline bollards, and minimizes the loss of on-street parking and opportunities for green elements to be added. A rendering of this cross-section concept and the layout on a block of Frontenac Street is shown in Figure 5 and 6.

Figure 5 – Green Lite Cross-Section Rendering

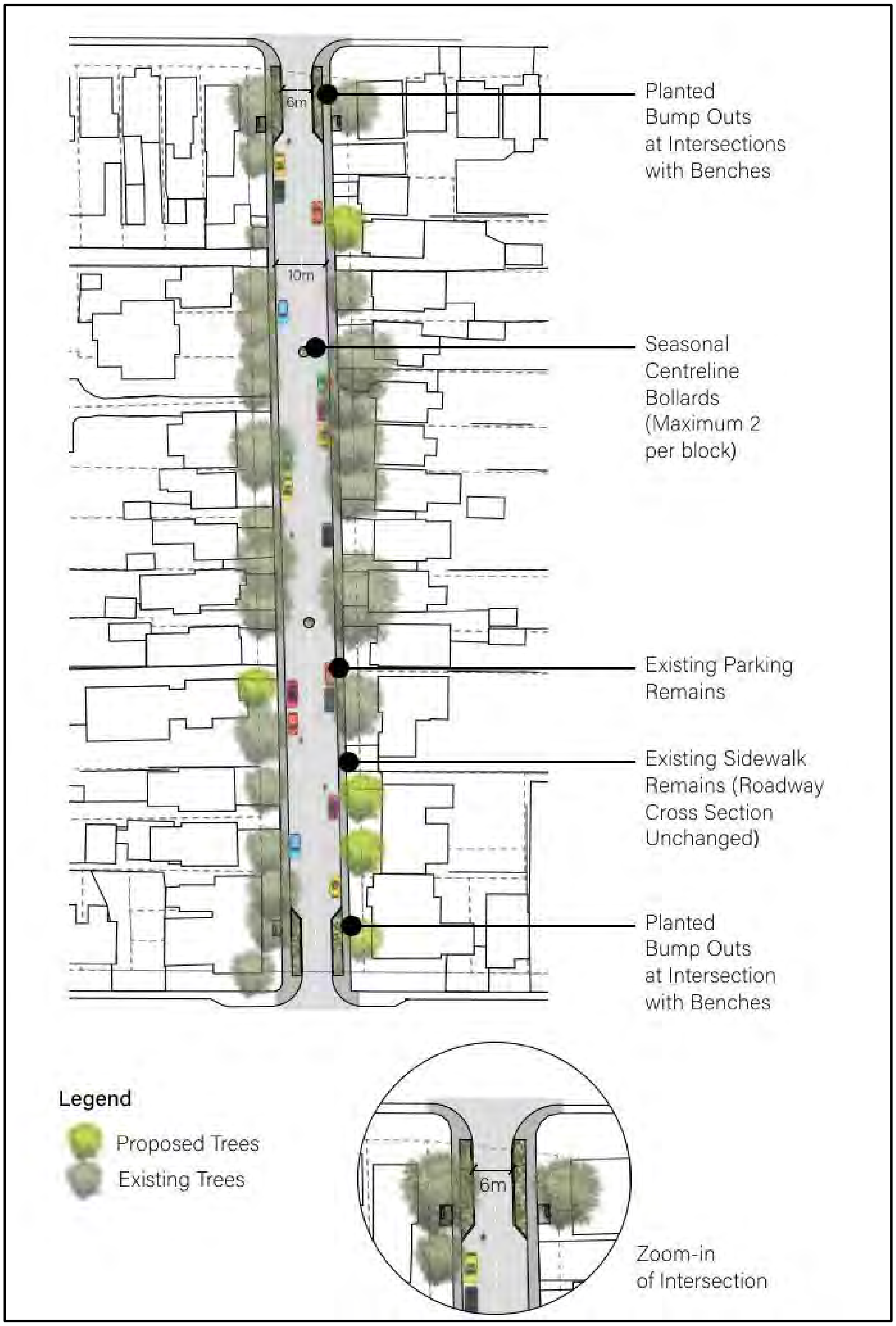

Figure 6 – Green Lite Concept Layout

Green Mid Concept

The Green Mid concept expands on the features developed for the Lite concept and includes some additional mid-block bump-outs that would provide opportunities for additional traffic calming and greening elements. This concept requires removal of existing on-street parking areas to a greater degree than the lite concept.

A rendering of this cross-section concept and the layout on a block of Frontenac Street is shown in Figure 7 and 8.

Figure 7 – Green Mid Cross-Section Rendering

Figure 8 – Green Mid Concept Layout

Green Heavy Concept

The final concept, Green Heavy, represents the greatest degree of change to the streetscape with a focus on bumped-out areas at along the entire street length and at the intersections. This concept maximizes the traffic-calming elements and provides the greatest space for additional trees and other greening elements to be added. Raised crosswalks are also introduced at the intersections to further enhance the pedestrian elements.

A rendering of this cross-section concept and the layout on a block of Frontenac Street is shown in Figure 9 and 10.

Figure 9 – Green Heavy Cross Section Rendering

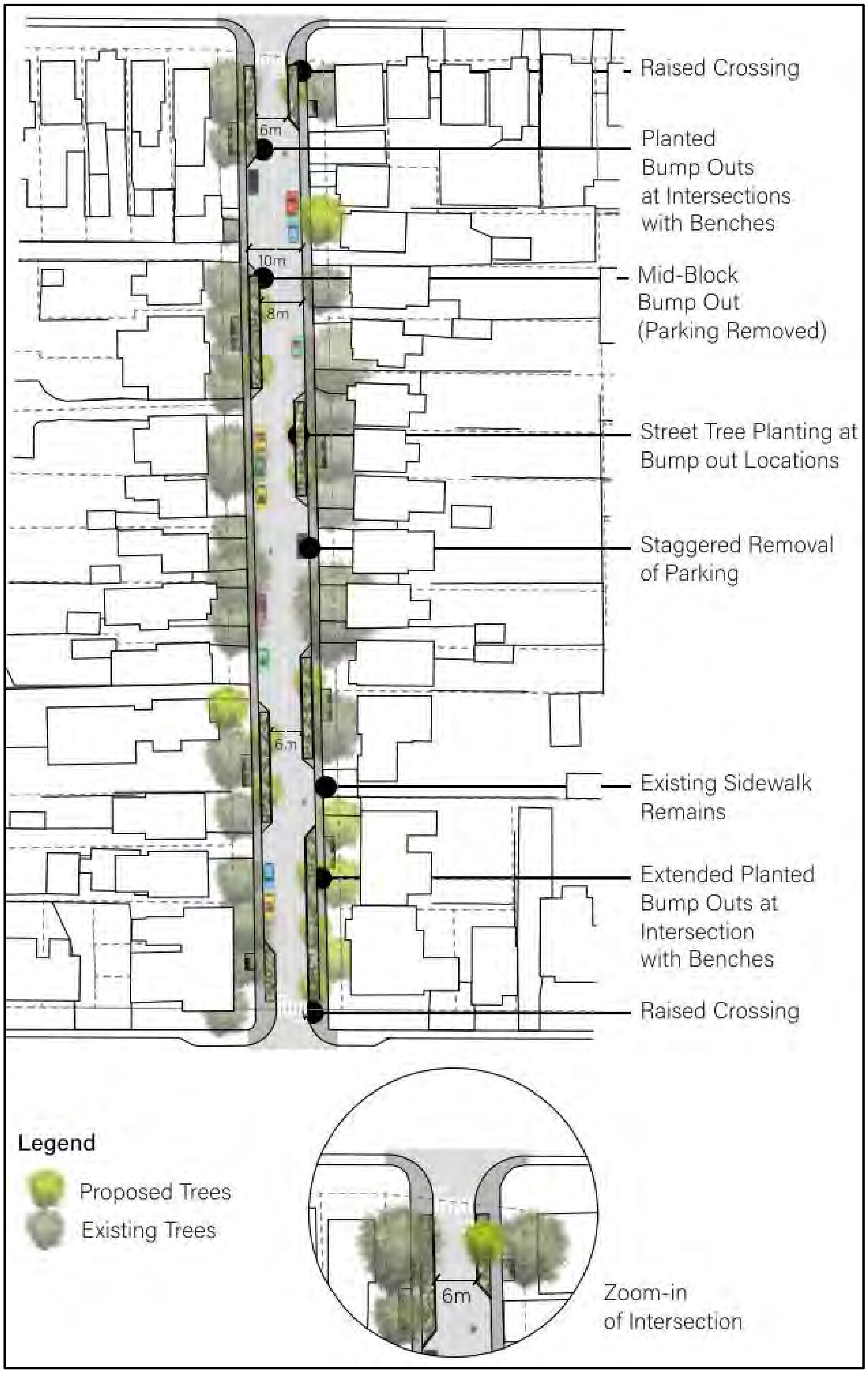

Figure 10 – Green Heavy Concept Layout

Public engagement on the Green Streets concepts was undertaken in October and November 2023 as part of an in-person information session and through the Get Involved platform. Participants were asked to rank their preferred alternative for the Green Streets concepts with strong preference shown for the Heavy concept and the Lite concept being the least preferred.

Participants were receptive to the idea of Green Streets and when asked about the Green Street elements that were most important the responses indicated that the preferred design should involve wide sidewalks and tree planting where possible. Participants were least receptive to the use of bump-outs and removal of on-street parking suggesting that support for the implementation of the Heavy option may not be as broadly supported as it is at the conceptual level. Adding Green Street elements will require the reduction of on-street parking.

Consultation with the MAAC project team noted broad support for the Green Street concepts, particularly as it pertains to the added rest areas and greenery. Comments supporting maintaining and enhancing access for crossings, especially on major arterials such as Johnson and Brock Streets, was noted as being vital in reducing a major barrier to access.

Public Engagement

Public engagement for the project has been an iterative process with initial review of Alterative 1 and the neighbourhood cycling network completed through the Get Involved platform in February and March 2023, followed by participation at a town hall organized by the Williamsville Community Association in April 2023.

Comments received during this phase of the project informed the expansion of scope to include additional development on Alternative 5, the refinement of the cycling facility types, and the inclusion of preliminary work on the Green Street concepts.

Engagement on the findings contained in Exhibit A occurred during a public information session held on October 26th within the Williamsville neighbourhood and through the opportunity to review and provide comments on the materials through the Get Involved site through late November 2023.

A summary of the feedback received during the project to date can be reviewed in Exhibit D.

Next Steps

The information presented in this report and exhibits provides detailed analysis on two design concepts for Princess Street, both of which can be supported by formalizing a neighbourhood cycling network and incorporating Green Street design into local roadway reconstruction. Next steps for the full Williamsville Transportation Study are as follows:

- Incorporate input received from the EITP Committee on the design alternatives, neighbourhood cycling network, and Green Streets into a report for Council planned for Spring 2024.
- Use direction provided by Council to finalize the preferred design concept for Princess Street and commence detailed design on the segment from Alfred Street to Division Street.
- Incorporate direction on the cycling network into capital projects planned for identified streets.
- Adopt the Green Street definition and concepts and further integrate design details into neighbourhood streets slated for reconstruction in the approved capital budget.

Climate Risk Considerations

The concepts considered as part of all three aspects of this report contribute to increased active transportation, opportunities for lower green house gas emissions, and the addition of additional trees and greening elements in neighbourhoods.

Indigenization, Inclusion, Diversity, Equity & Accessibility (IIDEA) Considerations

The concepts considered in this information report consider how to prioritize access and use of a section of Princess Street and the surrounding neighbourhood by those who may walk, roll, cycle, use transit, or drive a vehicle. The work completed to date is informed by Council direction, public engagement, and work with members of the Municipal Accessibility Advisory Committee on the project team.

The findings in this report were reviewed with the MAAC project team in detail, with comments incorporated into this report summary based on the section presented.

Financial Considerations

There are no direct financial considerations associated with the information provided in this report however the concepts for Princess Street, neighbourhood bikeways, and Green Streets will provide direction for future capital projects.

Contacts:

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Other City of Kingston Staff Consulted:

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Luke Follwell, Director, Engineering Services

Karen Santucci, Director, Public Works

Exhibits Attached:

Exhibit A – Williamsville Transportation Study, January 2024

Exhibit B – Appendix - Operational Needs Analysis

Exhibit C – Appendix - Princess Street Cross Section Study

Exhibit D – Appendix - Princess Street Study Engagement Results

Exhibit E – Appendix - Neighbourhood Bikeway Design Toolbox

DILLON CONSULTING

City of Kingston

Williamsville Transportation Study

January 2024 - 23-6663

January 08, 2023

City of Kingston
Henk Brilliams, P.Eng
Project Manager, Transportation Infrastructure
1211 John Counter Blvd
Kingston, ON K7L 2Z3

Williamsville Transportation Study Report - Draft

Dear Henk Brilliams:

Dillon Consulting Limited (Dillon) is pleased to provide you with an initial draft of the Williamsville Transportation Study Report. We trust that the report covers the topics request by the City in a way that is logical and presented in plain language.

Please let us know if you have any questions or concerns as we work towards preparation of a final report.

Sincerely,

DILLON CONSULTING LIMITED

Maria King, P.Eng.
Project Manager, Associate

cc: Ian Semple

Our file: 23-6663

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Executive Summary

Dillon Consulting Limited (Dillon) was retained by the City of Kingston (City) to conduct a transportation study of the Princess Street corridor, specifically within the Williamsville neighbourhood between Bath Road/Concession Street and Division Street. This study aims to support the planned growth of the Williamsville area and prioritize sustainable modes of transportation to mitigate potential traffic impacts. To this end, the study has been divided into three parts, which all relate to each other and support the overall vision for a sustainable and accessible Williamsville area.

Part one of the study focuses on Princess Street and the work which has been completed to date related to the traffic operations analysis, proposed cross-section alternatives, and previous engagement. The two shortlisted alternatives are the widened pedestrian realm and cycle lane alternatives. These alternatives most closely aligned with the priorities of the Williamsville area and it is recommended that these alternatives be presented to City council for further consideration. The responses received from the public engagement indicated that the public has a strong preference for keeping bike lanes on Princess Street.

Part two of the study relates to Neighbourhood Bikeways concepts for the surrounding Williamsville neighbourhood area. These bikeways were introduced as supportive infrastructure to enhance the cycling experience and provide additional signed connections to other cycling routes. Based on previous engagement, a list of preferred corridors was selected for neighbourhood bikeway treatments. These corridors were then further analyzed to determine which neighbourhood bikeway treatments would be most appropriate for them. Both advisory bike lanes and neighbourhood bikeways were selected as appropriate facilities for the area and sample renderings and designs were developed. MacDonnell Street, Alfred Street, Mack Street, and Park Street were selected as the key north-south and east-west corridors to prioritize. Additional studies should be conducted to explore the transition between these shared facilities and dedicated facilities at major intersections.

Part three of the study involves implementation of ‘green streets’ within the broader Williamsville area. These design concepts refer to streets that are intentionally designed to reduce impacts on the social and natural environments. These types of streets are being considered for multiple local roads in the Williamsville area. The green street concepts included traffic calming measures, increased greenery, and reduced on-street parking. Public engagement revealed that the top priorities for green streets were tree plantings, wide sidewalks, and curb bump-outs. Participants ranked the "Green Heavy" alternative as the most preferred. It is recommended that the next steps for this part of the study are the identification of candidate sites within the Williamsville area and development of a prioritization plan for implementation.

It is recommended that the following additional steps are taken:

- Investigate opportunities to maximize accessibility of the short-listed alternative options presented for Princess Street and select a preferred design option.
- Develop an implementation plan and identify preferred traffic calming measures for the neighbourhood bikeways. Determine a timeline for implementing the proposed network with a focus on the priority corridors.
- Identify and screen candidate corridors for implementing the green streets concepts. Determine a preferred green-street design given the public feedback and preferred alternative.

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by the City of Kingston (City) to conduct a transportation study of the Princess Street corridor, specifically within the Williamsville neighbourhood between Bath Road/Concession Street and Division Street. Princess Street is identified in the Official Plan as an area for intensification in the City and as an important transportation corridor. Similarly, the Williamsville neighbourhood serves as a major destination and connection to Downtown Kingston, characterised by its high use and continued growth of active and sustainable modes of travel, including walking, cycling, and transit. More recently, the City has explored options for defining success in Williamsville, including aspirations for strategic and timely infill development to meet smart growth goals by updating the area secondary plan. As smart growth becomes more embedded in the principles and mandates of the City, there is an emphasis on ensuring the transportation network is refined to meet the changing needs of the community, primarily through a multimodal lens. This multimodal lens prioritizes active and sustainable modes of travel throughout Williamsville, providing safer and more equitable access for all users.

1.1 Scope

One of the overarching transportation goals for Williamsville is supporting growth in walking, cycling, and transit mode share as they relate to the significant development and evolution of character the area is experiencing. The scope of this transportation study has three main parts that support Kingston in creating an implementation strategy that is well-suited to accommodate priority transit and active transportation in Williamsville. Part One looks at multi-mobility options along the Princess Street corridor between Bath Road/Concession Street and Division Street. This includes exploring alternative design solutions that emphasize shifting mode share in favour of transit and active transportation. While the intention is not to eliminate vehicular use along Princess Street, there is a great need to explore ways to minimize auto-dependency. The redesign of Princess Street will provide a strong foundation for establishing a more comprehensive multimodal network within Williamsville. Part Two explores implementation of a more comprehensive cycling network throughout the Williamsville neighbourhood, accomplished through the principles of “Green Streets”, which are explored in Part Three of this report. The goal of Parts Two and Three is to determine the most feasible approach to increase the desirability of cycling at all ability levels. This includes layering concepts such as Neighbourhood Bikeways and Advisory Bike Lanes on top of the facilities already proposed through the City’s Active Transportation Master Plan. The outcomes of Parts Two and Three will complement the redevelopment of Princess Street by improving transportation options and implementing design changes that encourage reduced auto dependency.

1.2 Background

The 2012 *Williamsville Main Street Study* was originally completed to examine existing land uses and redevelopment potential in the Williamsville area. It provided recommendations about transportation, servicing, and cultural heritage in the area. The *Study* was approved by City Council on February 21, 2012 and included a provision for cycling infrastructure on Princess Street.

As per the direction of City Council, an updated Williamsville Main Street Study began in 2019 and included the *Williamsville Transportation Plan Operational Needs Assessment*. On December 1, 2020 City Council passed amendments to implement the update to the Williamsville Main Street Study including adopting the conclusions from the Operational Needs Assessment. This resulted in an update to the Official Plan and Zoning By-law for the Williamsville Main Street Secondary Plan. Further direction was given to undertake a more detailed second phase to develop a design concept for the Princess Street corridor.

In the 2020 transportation study, the City confirmed that Princess Street is theoretically capable of accommodating additional growth and related transportation demand, inclusive of walking, cycling, and transit use. The physical constraints of the Princess Street right-of-way (ROW) could, however, limit the street's actual ability to meet the demands of all modes. This means that it may not be feasible for Princess Street to simultaneously serve as a transit priority corridor, cycling spine route, pedestrian-friendly corridor, and a primary vehicular connection to the Downtown core.

The current study is an extension of the *Williamsville Transportation Plan Operational Needs Assessment Study* completed in 2020 and explores how all modes can be accommodated on Princess Street, and within Williamsville as a whole. This study and report have been prepared in three parts:

- Part 1: Princess Street Study,
- Part 2: Neighbourhood Bikeways, and
- Part 3: Green Streets Concepts.

2.0 Existing Policy Context

The City of Kingston is the largest municipality in southeastern Ontario, with considerable opportunity to continue to grow. To promote growth, while simultaneously meeting the community's unique and evolving needs, the City of Kingston requires policy frameworks that guide its development into the future.

The following section speaks to the policies in several overarching planning documents and guidelines that are related to sustainable transportation and community development. The policies are augmented by the City's studies and guidelines, which guide towards establishing more inclusive and accessible rights-of-way that promote compatibility between mobility and land use.

2.1 City of Kingston Official Plan

The City of Kingston Official Plan (OP), consolidated in December 2022, provides direction on how the City will grow to the year 2036. The OP outlines goals, objectives, and policies that manage and direct the physical changes of the City and its effect on the social, economic, built, and natural environments. The policies that are contained in the OP guide how development will evolve over the prescribed planning horizon and how initiatives must be adapted to support the forecasted growth.

The OP's Vision strives to attain sustainability of development to become the most sustainable municipality in Canada. To successfully achieve this Vision, the OP details a set of policies that are focused on implementing green infrastructure, managing growth through sustainable planning principles, and promoting compact development within the Urban Boundary. All of these will reduce the need for automobile-dependent travel. The OP recognizes:

- The importance of intensification and redevelopment along major corridors, continuing to grow within the City's existing urban boundary.
- The need to utilize existing City infrastructure more efficiently to address climate change resiliency, including mitigation and adaptation strategies.
- The need to carry out expansion of the transportation system in a systematic and timely fashion to maximize use of facilities and minimize associated costs and disruption.

- The importance of implementing an integrated and diverse transportation system through land use patterns and a multi-modal network that supports walking, cycling, and transit, fostering sustainable community development.

More specific to the role of transportation planning, the OP acknowledges the important role long-term transportation planning plays in readying the City for future travel needs, while meeting its goals for fostering sustainability. To this end, the **City's OP has included policies that are supportive of transit, active transportation, and pedestrian-friendly facilities that will increase usage, safety, and access for all.** Part of the OP's strategic direction is to reduce reliance on the automobile by satisfying travel demand through the efficient use of existing infrastructure, providing facilities and services that prioritize walking, cycling and transit as universal modes.

2.2 City of Kingston Official Plan - Princess Street Corridor Specific Policy Area (2022)

The Princess Street Corridor Specific Policy Area is a detailed policy directive that provides a cohesive plan for future development along the Princess Street Corridor. It includes consideration for principles such as sustainability, active transportation, and economic development. The Specific Policy Area extends from Ontario Street to Midland Avenue, including the Williamsville Main Street Study, which extends between the westerly limits of the Central Business District at Division Street and the Bath Road/Concession Street Intersection. The Williamsville Main Street policies focus on development in a pedestrian-oriented form that will provide support for the Princess Street transit corridors and more sustainable means of growth. **The primary vision for the Williamsville Main Street is to establish a corridor that is vibrant and active, inclusive of improved, pedestrian-oriented streetscape.** Additionally, the Williamsville Main Street policies denotes a set of directives for Green Streets. Policy 10E.1.43 states that "Green streets are defined as tree-lined corridors that establish important visual links and enhance active transportation connections between areas within and surrounding the Williamsville Main Street." This policy directive is directly linked to Part 3 of this report, where the City explores options for green street treatments along specific streets within the broader Williamsville area.

2.3 City of Kingston Transportation Master Plan (2015)

The City of Kingston Transportation Master Plan (TMP) provides the long-term direction for the development of transportation networks, supporting policies, programs, and services for the next 20 years. The TMP, originally received by Council in 2015, intended to support the City of Kingston with achieving its Official Plan and overall strategic vision of sustainability. **It established mode share goals, based on afternoon peak period travel, for the purposes of identifying policies, programs, and initiatives that put the City on the trajectory of change.** Council ultimately adopted aspirational mode share goals for the TMP to reduce reliance on the automobile and instead support mobility needs through sustainable modes of travel. The mode share goals are as follows:

- Active Transportation (Walking and Cycling): 20%
- Transit: 15%
- Auto: 65%

These mode share goals are increased for the Williamsville neighbourhood to further prioritize active transportation and transit as follows:

- Active Transportation (Walking and Cycling): 50%
- Transit: 15%
- Auto: 35%

The mode share goals noted above are critical to the design and operation of Princess Street. They serve as rationale for why potential trade-offs may be required if the City is to meet its objectives and strategic policy directions highlighted in both the Official Plan and the policies adopted specifically for Williamsville.

2.4 City of Kingston Active Transportation Master Plan (2018)

The City's Active Transportation Master Plan (ATMP) is a strategic document that builds upon the Official Plan and further develops the active transportation elements included at a high level in the TMP. The goal of the ATMP is to achieve the long-term city-wide active transportation mode share target of 20%. It encompasses a series of tools and strategies that are specific to neighbourhood transportation planning, including: traffic calming, expanded pedestrian crossings, cycle routes, and neighbourhood programs. The Williamsville neighbourhood falls within "Area K" of Kingston's Transportation

Focus Area in the ATMP. **Through the ATMP, it was identified that a more detailed multi-modal transportation study is required to guide future decision-making and support the City with identifying improved conditions and facilities for pedestrians, cyclists, and transit users.**

3.0 Part 1: Princess Street Study

Part 1, the Princess Street Study, reviews the operational needs and design options of the Princess Street Corridor in Williamsville, aiming to support the growth and intensification projected along the Corridor. This Princess Street Study is a continuation of the *Williamsville Transportation Plan Operational Needs Analysis (2020)* and the *Princess Street Corridor Cross-Section Study (2023)*.

It is important to note that as per the City's Official Plan, Princess Street is identified as the corridor meant to accommodate significant infill and intensification. The City's Transportation Master Plan (2015) and the Active Transportation Master Plan (2018) consider Princess Street as a corridor that would be at once pedestrian friendly and serve as an arterial for vehicular movement, a transit priority corridor, and a cycling-spine. The feasibility of simultaneously achieving all of these objectives is challenged by Princess Street's narrow right-of-way, which has sections that are less than 20 metres between Bath Road/Concession Street and Division Street. It is not possible to provide ideal facility widths for all modes (automobiles, transit, cycling, and walking) within the constrained 20 m right-of-way. Compromises must be made, with a focus on meeting both City of Kingston and Accessibility for Ontarians with Disabilities Act requirements.

3.1 Previous Studies

Background context from previous studies is required to establish an underlying understanding of existing conditions and to arrive at the proposed alternative designs for this Study. The following sections summarize the key findings and recommendations from the previous studies that have informed the development of this present study. More details are provided in the following sections.

- Princess Street Operational Needs Analysis (2020) recommended that a specific strategy be developed to reduce single occupancy vehicle dependence and improve the safety and desirability of transit and active modes; and
- Princess Street Cross-Section Study (2023) looked at alternative design solutions that could provide an improved environment for pedestrians, cyclists and transit users along Princess Street between Bath Road and Division Street.

- These studies were recommendation of the OP and Zoning updates for the Williamsville Main Street Study in December 2020.

3.1.1 Williamsville Transportation Plan - Operational Needs Analysis (2020)

The *Williamsville Transportation Plan - Operational Needs Analysis (2020)* study was completed by Dillon to review the road network's existing performance and assess how the network may perform under two future land use/development scenarios. This study focused on performing traffic modelling for the following primary transportation corridors in Williamsville:

- Princess Street between Bath Road/Concession Street and Division Street.
- Concession Street between Princess Street and Division Street.
- Division Street between Concession Street / Stephen Street and Princess Street.

The ultimate development conditions considered a total of 3,265 person trips in the PM peak period by the 2036 planning horizon. The analysis of transportation network impacts resulting from the planned growth was completed for two mode share scenarios:

- Auto mode share of 22% (based on previous studies of existing residential developments within the Princess Street Corridor), and
- Auto mode share of 35% (based on the preliminary mode share results for Williamsville from the City's 2019 household travel survey).

Travel times were predicted to increase along Princess Street and Division Street under both mode share scenarios. This outcome was anticipated based on the approved growth and the city's desire to avoid widening of roadways. The analysis indicated that intersections will only operate at satisfactory levels to 2036 if aggressive modal split targets are achieved within Williamsville. **The study recommended that a specific strategy be developed to reduce single occupancy vehicle dependence and improve the safety and desirability of transit and active modes.** The current study is a component of this strategy.

Further details on the land use scenarios and operational analysis can be found in **Appendix A**.

3.1.2 Princess Street Cross-Section Study (2023)

In 2023, Dillon conducted the *Princess Street Cross-Section Study* to identify alternative design solutions that could provide an improved environment for pedestrians, cyclists and transit users along Princess Street between Bath Road and Division Street. The study included a review of transit operations and transit travel time for Princess Street needed to achieve the City's goal of providing transit headways of 5 minutes or less.

The features identified as most desirable for Princess Street included the following:

- Street trees and furniture,
- 2 metre sidewalks,
- Transit priority measures (queue jump lanes), and
- Two-way cycle facilities.

Traffic modelling identified that without any mitigation measures, one-way peak hour transit travel time on Princess Street will increase by approximately one to two minutes by the year 2036. In combination with increased transit frequency, this could result in up to 20 minutes of transit delay per hour compared to existing travel times.

Design alternatives such as queue jump lanes, left turn lanes, and transit signal priority were considered as potential mitigation measures for Princess Street. Queue jump lanes act as a transit priority measure that allow transit vehicles to "jump" the queue of vehicles by introducing a "transit only lane" at intersections that buses may pull into. The following recommended operational improvements were made based on the traffic modelling analysis:

- Signalize the intersection and implement a westbound queue jump lane and transit signal priority at Princess Street and Drayton Avenue.
- Provide an eastbound left turn lane at Princess Street and MacDonnell Avenue.
- Provide an eastbound left turn lane at Princess Street and Victoria Street.
- Implement a curbside queue jump lane in the westbound direction and implement transit signal priority at Princess Street and Albert Street.

More detail regarding the recommendations and the results of the traffic and transit analysis can be found in **Appendix B**.

Six alternative design concepts were developed for Princess Street, each of which prioritized combinations of transit amenities, widening pedestrian realm, cycling amenities, and landscaping. Compromises were made as necessary. Two lanes of vehicular traffic were maintained in every alternative to facilitate bi-directional transit movements and minimize the risk of traffic bypassing using local streets. **However, vehicular lanes were reduced to minimum widths of 3.3 m in all alternatives to prioritize space for alternative modes. Parking was recommended for removal in all alternatives to make space for improved active transportation facilities and discourage auto trips to the area.** The six alternative cross-sections developed as part of the *Princess Street Cross-Section Study* included the following list. Minimum cross-section dimensions are provided for each alternative for comparative purposes only. The Princess Street right-of-way ranges between 18 to 20 m wide.

- Alternative 1 (Wide Sidewalks): Prioritized the pedestrian realm by removing bike lanes and adding street trees and rest areas where possible. Widened sidewalks to 2.0 m minimum where possible. Minimum cross-section width: 13.2 m mid-block, 16.5 m at intersections.
- Alternative 2 (Cycle Tracks): Substituted existing street-level bike lanes with grade separated cycle tracks. Cycle tracks would be a minimum of 2.0 m wide on both sides of the roadway. Sidewalks would be designed to 2.0 m widths where possible. Design did not include desirable separation between cyclists and pedestrians. Minimum cross-section width: 17.2 m mid-block, 20.5 m at intersections.
- Alternative 3 (Bi-directional cycle track): Replaced the existing street-level bike lanes with a bi-directional cycle track on the north side of Princess Street. Bi-directional cycle track would be a minimum of 3.5 m wide. Design did not include desirable separation between cyclists and pedestrians. Sidewalks would be designed to 2.0 m widths where possible. Minimum cross-section width: 16.7 m mid-block, 20 m at intersections.
- Alternative 4 (One-way Cycle Track): Replaced existing street-level bike lanes with a one-way cycle track on the north side of Princess Street. Cycle track would be a minimum of 2.0 m wide, with additional space between cycle tracks and sidewalks. Sidewalks would be designed to 2.0 m widths where possible. Minimum cross-section width: 15.2 m mid-block, 18.5 m at intersections.

- Alternative 5 (On-road cycle lanes): Provide conventional street-level cycling lanes, similar to the current condition. Cycle lanes would be a minimum of 1.5 m wide, making use of the 0.3 m wide gutter to provide extra width for maneuvering. No buffer would be provided between cycling and vehicular lanes. Sidewalks would be designed to 2.0 m where possible. Minimum cross-section width: 16.2 m mid-block, 19.5 m at intersections.
- Alternative 6 (Continuous Transit Lane): Created a dedicated westbound transit lane throughout Princess Street to improve transit travel times. Required the removal of bike lanes and left turn lanes. Sidewalks would be designed to 1.5 m widths where possible. Minimum cross-section width: 16.5 m, continuous.

A high-level overview of the evaluation of the six long-listed design alternatives is provided in **Table 1**. Note that this evaluation considered application of the six alternative cross-sections along the length of Princess Street and therefore included the impact of the varying right-of-way width. Additional details are provided in **Appendix B**. Two of the design alternatives were identified as being 'feasible' and were carried forward to the current study. These short-listed design alternatives are explored in greater detail in **Section 3.2**.

Table 1 Rationale

Alternative 1 was carried forward because it provides many of the desired elements except for two-way cycling facilities. Alternative 2 does not provide desired elements except for cycle tracks, while Alternative 3 does not provide street trees or left turn lanes or queue jump lanes, which would result in delays to buses and cars as noted by traffic analysis. Alternative 4 does not provide the two-way cycling facilities that are preferred, such as in Alternative 5. **Alternative 5 was carried forward because it maintains Princess Street as spine cycling route, although cycle tracks would be prefer**red. Traffic analysis revealed that the removal of all left turn lanes in Alternative 6 would cause significant delay for general traffic and non-prioritized transit service direction.

Table 1: Long-List Cross-Section Alternatives - Ability to Provide Desired Elements

Features Generally Accommodated	Street Trees	Minimum 2 metre sidewalks	Left turn lanes or transit queue jumps	Two-way Cycle Facilities	Carried forward
Alternative 1: Wide Pedestrian Realm	Yes	Yes	Yes	No	**Yes**
Alternative 2: Cycle Tracks (Both Sides)	No	No	No	Yes	No
Alternative 3: Bi-Directional Cycle Track	No	Yes	No	Yes	No
Alternative 4: One-way (northwest) cycle track	Yes, in most blocks	Yes	Yes, in most blocks	No	No
Alternative 5: On-road cycle lanes	No	Yes	Yes, in most blocks	Yes	**Yes**
Alternative 6: Continuous transit lane	Yes, in most blocks	Yes	No	No	No

3.2 Alternative Designs

The Princess Street Cross-Section Study shortlisted two alternatives for further analysis. These were Alternative 1 (Wide Pedestrian Realm) and Alternative 5 (On-Road Cycle Lanes). The two short-listed alternatives are detailed in Section 3.2.1 and Section 3.2.2.

A set of design criteria were developed which indicate minimum facility widths to be applied when designing the shortlisted alternatives for further review. **Table 2** explains the design criteria established for Princess Street, as well as the rationale behind them.

Table 2 Rationale

The furnishing zone width ensures that the placement of furniture does not obstruct the walkway zone by providing space for access, use and maintenance of furniture elements. 1.5 m is the absolute minimum width for a walkway zone indicated by AODA, while 2.0 metres is the recommended width for areas with a peak pedestrian flow rate greater than 400 pedestrians per 15 minutes. Additionally, a minimum width of 3.5m is preferred for the bus lane.

Table 2: Design Criteria for Princess Street

Right of Way Component	Minimum Dimensions	Factors and Guidelines References
Frontage Zone	0.5 metres	Transportation Association of Canada Geometric Design Guidelines (TAC GDG) Chapter 6 Section 6.3.1.1.
Walkway Zone	1.5 metres to 2.0 metres	AODA standards for Accessible Exterior Paths of Travel (2019) TAC GDG Chapter 6 Table 6.3.1.
Furnishing Zone	1.85 metres	TAC GDG Chapter 6 Section 6.3.1.3.
Transit Shelter:	Landing Pad: 9 m x 2.5 m min Ramp Deployment: 1.5 m x 2.5 m min Clearway: 1.5 m min width	City of Hamilton HSR Stop Accessibility Guidelines.
Cycle Track	2.0 metres (One way) 3.5 metres (Two way)	OTM Book 18 Table 4.4.
Curb/Gutter	0.5 metres	City of Kingston Technical Standards and Specifications. References OPSD 600.100
Cycle Lane	1.5 metres + 0.3 m buffer	OTM Book 18 Table 4.7.
Bus Lane	3.3 metres	Minimum width indicated by City staff and supported by TAC GDG Table 4.2.3.
Through Lane/Turn Lane	3.3 metres	TAC GDG Table 4.2.3.

3.2.1 Alternative 1 - Widened Pedestrian Realm with Transit Priority

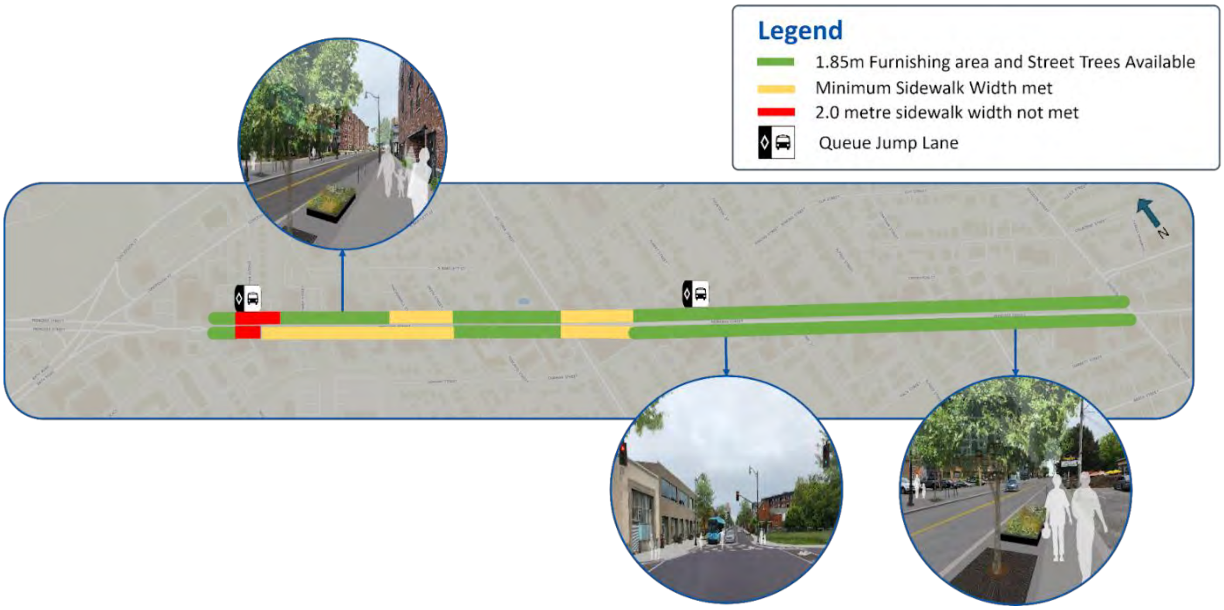
Alternative 1 prioritizes enhancing the pedestrian experience along Princess Street while providing additional transit amenities.

As discussed in **Section 3.1.2**, transit expansion and pedestrian experience are key priorities for Princess Street. First, Princess Street is identified as a priority transit corridor within the City. Second, for transit corridors to serve their purpose, users must also feel that the area is walkable. As a result, this alternative considers reducing vehicle travel lane widths and turning lanes, removing on-street parking, removing on-street cycling lanes, and widening the pedestrian walkways to a minimum of 2.0 metres where possible. The remaining space within the right-of-way would be allocated for street furniture, street trees, and amenities as a means of livening the corridor. A sample rendering of this alternative can be seen below in **Figure 1**.

Figure 1: Alternative 1 Rendering

Based on preliminary drawings, high level constraints were mapped out in **Figure 2.**

Figure 2: Alternative 1 Constraints



Referring to **Figure 2**, two metre desirable sidewalks widths are met throughout 98% of the corridor, with an additional 1.85 metres for furnishing and street trees available on both sides of Princess Street for 60% of the corridor. These improvements have been made possible by reducing the vehicle travel lanes to 3.3 metres, as explained in **Section 3.1.2**, removing on-street parking, and the removal of on-street bike lanes. It is expected that these improvements would encourage increased pedestrian traffic on Princess Street, which in turn has the potential to increase transit use. Additionally, this would improve Williamsville from an accessibility perspective as there are many existing locations where there are narrow sidewalks or physical barriers in the sidewalk as shown in **Figure 3**. Wider sidewalks would allow for two people with mobility devices to comfortably travel side-by-side or pass each other with no issues compared to existing conditions. Additionally, wider sidewalks allow for groups of pedestrians to walk side-by-side and encourages a social space. A wider pathway and fewer physical barriers also improve mobility in these areas as there are fewer obstacles to maneuver around. Cyclists would continue to be allowed to use Princess Street as a shared facility as explored in **Section 4.3.1**. The narrower travel lanes and the removal of on-street parking is expected to slow down vehicle traffic which results in safer shared spaces for cyclists and drivers.

Figure 3: Comparison of Existing (Left) and Proposed (Right) Sidewalk Conditions
(Source: Google Maps, 2020)

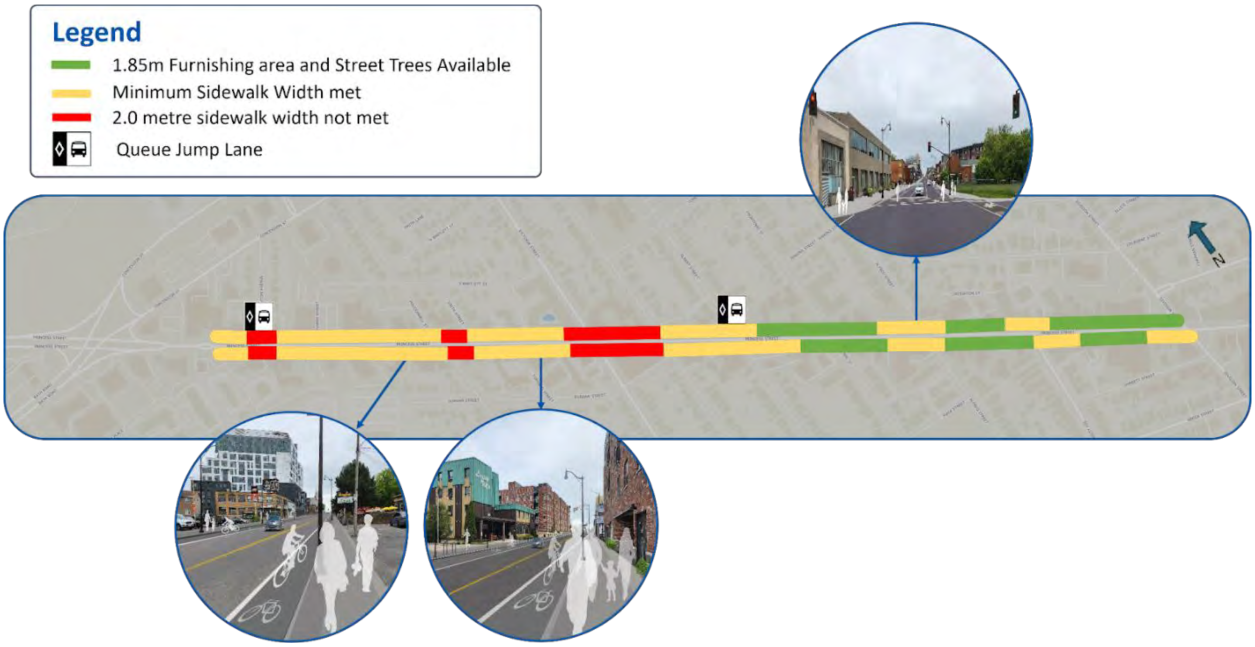
Conceptual drawings have been prepared for Alternative 1 which highlight the areas of concern along Princess Street. The drawings have been provided in **Appendix C.** The plans also identify the locations of proposed transit queue jump lanes.

3.2.2 Alternative 5 - Cycle Lanes with Transit Priority

Alternative 5 maintains cycling infrastructure as a priority and encourages cycling as a sustainable mode of transportation on Princess Street. This alternative would take advantage of the removal of on-street parking and narrowing of vehicle travel lanes to realign the bike lanes creating a continuous network along Princess Street as well as expanding the existing sidewalks, where possible. Transit queue jump lanes would be provided at key intersections to continue to promote and grow transit usage in Williamsville.

A sample rendering of the alternative is shown below in **Figure 5**. Based on preliminary drawings, rough constraints were mapped out in **Figure 4**.

Figure 4: Alternative 5 Constraints



Compared to **Alternative 1**, a 2.0 metre sidewalk is only feasible for 86% of the length of the corridor. In some cases, sidewalks may be narrowed to approximately 1.4 metres to accommodate the proposed elements in this alternative. However, wider sidewalks are possible in many locations with some areas, primarily in the section closest to Division Street, having sufficient space for some furnishings and street trees.

In addition, the preservation of the bike lanes in conjunction with the removal of on-street parking is expected to encourage cyclists to continue to use Princess Street and the opportunity of drawing cyclists back who were previously concerned about being “doored” by parked cars. **Figure 5** below is an image of existing conditions along Princess Street, where on-street parking conflicts with the bike lane. One of the concerns brought up at previous engagement sessions (**Section 3.3**) was that drivers tend to park illegally and block bike lanes. It is expected that this may still be a concern with on-street bike lanes although on-street parking is removed. It is recommended that parking enforcement is reviewed upon removal of on-street parking along Princess Street.

Figure 5: Comparison of Existing (Left) and Proposed (Right) Bike Lane Conditions
(Source: Google Maps, 2020)

Conceptual drawings have been prepared for Alternative 2 which highlight the areas of concern along Princess Street. The drawings have been provided in **Appendix C.** The plans also identify the locations of proposed transit queue jump lanes.

3.3 Engagement

The cross-sections for the two shortlisted alternatives were presented to residents at a Town Hall in April 2023 and an Open House in October 2023. During the April 2023 Town Hall, only Alternative 1 (Wide sidewalks) was presented. During the October 2023 Open House, the preliminary design drawings for both shortlisted alternatives (Alternative 1 and Alternative 5) were presented. An online survey was also posted on Kingston's Get Involved website to collect feedback about the presented cross-sections. The following section outlines each stage of engagement and what we heard. Additional information on the engagement sessions and the feedback received can be found in **Appendix D.**

3.3.1 April 2023 Town Hall

The purpose of the April 2023 Town Hall was to collect feedback on a potential re-design of Princess Street which included a focus on wider pedestrian realms and transit priority measures. Attendees also provided feedback on key local roads that could be used to provide connections for a potential neighbourhood bikeway network.

Three main topic areas of feedback were received at this session.

1. There was a strong preference towards keeping bike lanes on Princess Street as well as support for the neighbourhood bikeway network. On the topic of neighbourhood bikeway networks specifically, attendees requested that additional traffic calming measures be introduced alongside them to encourage vehicles to drive slowly and share the roadway with cyclists.
2. There was support for a widened pedestrian realm and "greening" of the corridor.
3. There were concerns about the removal of on-street parking along Princess Street, suggesting it may result in additional vehicles parking on local roads adjacent to Princess Street with already limited spaces.

Attendees expressed a lack of clarity in the design selection process, noting missed opportunities for additional engagement sessions, which could have provided more options and considerations. Although the City of Kingston staff noted multiple alternatives had been considered, attendees expressed transparency of design and limitations of the alternatives would have been beneficial to understand the decision-making process to date.

3.3.2 October 2023 Open House

An Open House was hosted on October 26, 2023, at St. Luke's Anglican Church. The purpose of the Open House was to present additional details for the long list of six alternative designs for Princess Street. Details on the trade-offs and restrictions present in each alternative were explained further. Additional information was also provided about the required widths of the facilities.

Preliminary roll plans for the two short-listed alternatives were brought to the Open House to show attendees the restrictions they would have on the pedestrian realm and what trade-offs would be required between the two short-listed alternatives:

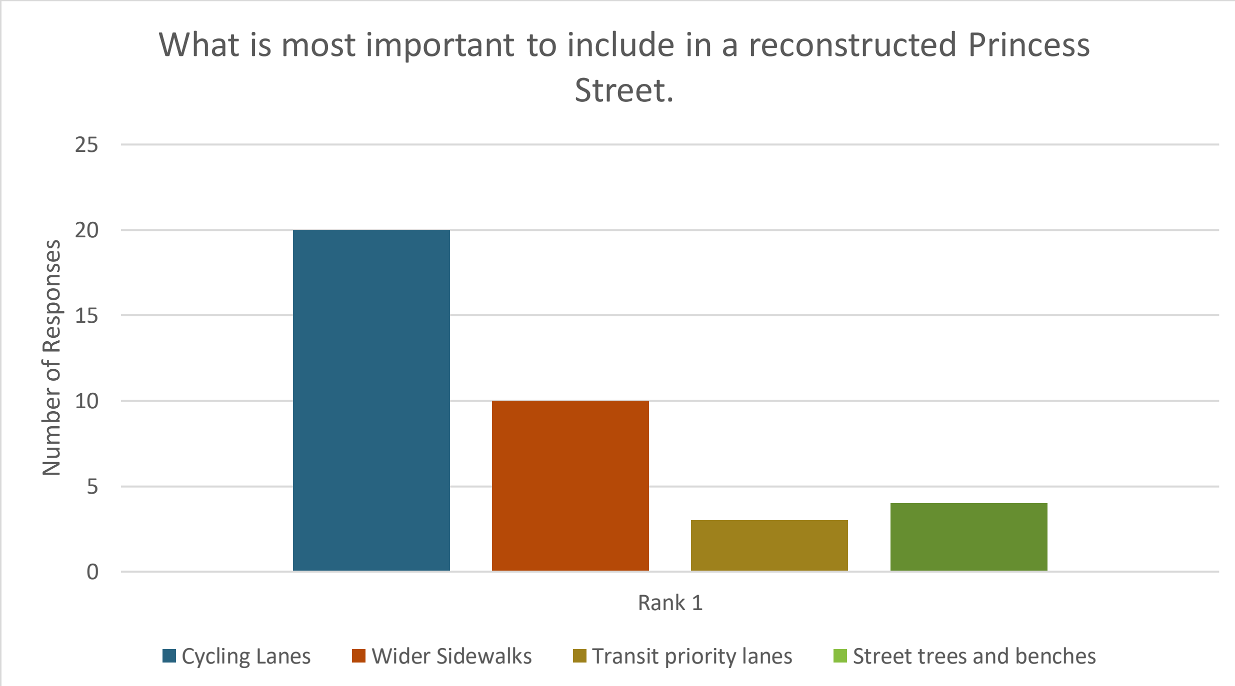
- Wider sidewalks and transit priority; and
- Bike lane and transit priority.

Attendees continued to support bike lanes on Princess Street. Potential advisory bike lanes and neighbourhood bikeways were also introduced as a potential alternative for the local bike network and are explored further in **Section 4.0**. Attendees were able to provide comments on both the panels and sheets that were presented.

3.3.3 What We Heard

Based on feedback received from both public engagement events, the cycling alternatives were most preferred by the attendees. Many attendees indicated they would strongly prefer to keep bike lanes on Princess Street even though it would impose restrictions on the pedestrian realm (See **Figure 6** below). Feedback from both the Open House and online feedback forms also emphasized the need for separated cycling infrastructure to improve safety for cyclists. In terms of the pedestrian realm itself, there were some concerns about cross-sections where the sidewalks were less than 1.5 m wide. Concerns about accessibility were also voiced for the alternative with bike lanes since narrow sidewalks would make it difficult for individuals with disabilities to travel. Additionally, it was noted that many of the existing intersections along Princess Street do not have accessible features (tactile walking surface indicators, accessible push buttons, etc.). Attendees also voiced safety concerns with existing right turn lanes along Princess Street, indicating that it's dangerous for both cyclists and pedestrians.

Figure 6: Ranked Features for Princess Street Based on Open House Surveys



3.4 Next Steps

It is recommended that Alternatives 1 and 5 be presented to City Council for further consideration along with supporting information from **Section 4.0** and **Section 5.0**.

Based on the technical design and policy analysis that was undertaken for the Princess Street Corridor, Alternative 1 provides a design that is most consistent with the direction adopted by Council as part of the Williamsville Main Street Study update in December 2020 as well the Official Plan strategic directions. It can prioritize pedestrians, greening opportunities, and transit priority within the available space. Moreover, Alternative 1 also best addresses accessibility concerns raised as part of this study by community members and the Municipal Accessibility Advisory Committee.

As mentioned in **Section 3.3.3**, many of the community members are supportive of maintaining bike lanes along Princess Street, represented by Alternative 5, even after understanding the potential trade-offs of narrower sidewalks reduced accessibility, greening opportunities, and street furniture.

It is recommended that the City investigate opportunities to maximize accessibility during the detailed design phase with whichever design is selected. A feasibility study should be conducted for the preferred design which should focus on the ability to widen sidewalks and the benefit and feasibility of the proposed transit queue jump lanes.

Additional studies will be required as part of the detailed design process including, but not limited to, a full topographic survey of Princess Street.

4.0 Part 2: Neighbourhood Bikeways

The concept of 'supportive infrastructure' was first formally introduced to the City of Kingston through the City's 2018 Active Transportation Master Plan. Supportive infrastructure is an approach that improves cycling network connectivity using quiet, low volume, low speed streets within the existing transportation network. Streets can either be selected based on their existing characteristics, or they can be modified through signage and physical changes to meet the low speed/volume requirements.

Implementation of supportive infrastructure within Williamsville will not only improve cycling connectivity throughout the area, but also reduce vehicle dependency. Reduced private vehicle dependency is required to accomplish the target modal splits noted in **Section 2.0** of this report as well as to address directives of the City's *Climate Leadership Plan*.

In Part 2 of this report, preferred cycling corridors and facility types are identified and analyzed for the purposes of establishing "Neighbourhood Bikeways" within the Williamsville neighbourhood, with opportunities for extending into the City's broader cycling network.

4.1 Policy Background

Section 2.0 of this report discussed the policy documents that were reviewed as part of the Williamsville Transportation Study. By extension of the Official Plan (OP), the Transportation Master Plan (TMP), and the Active Transportation Master Plan (ATMP), and the overall vision for shaping the Princess Street Corridor, this report explores infrastructure opportunities that can support cycling along commonly used routes in the Williamsville neighbourhood. The ATMP is a direct response to Council approved directions focusing on sustainable development and transportation network prioritization in favour of active transportation. Building off the mode share goals noted in **Section 2.0**, the ATMP identifies a city-wide transportation network that provides key north-south and east-west connections, split into focus areas that inform context-specific solutions for implementing the appropriate infrastructure. The Williamsville neighbourhood falls within Focus Area "K" – bordered by Concession Street to the north, Division Street to the east, Johnson Street to the south and Sir John A.

MacDonald Boulevard to the west. This neighbourhood-level information is an important component for ongoing land use, development planning, and policy initiatives tied to the OP and other growth and development-related planning initiatives.

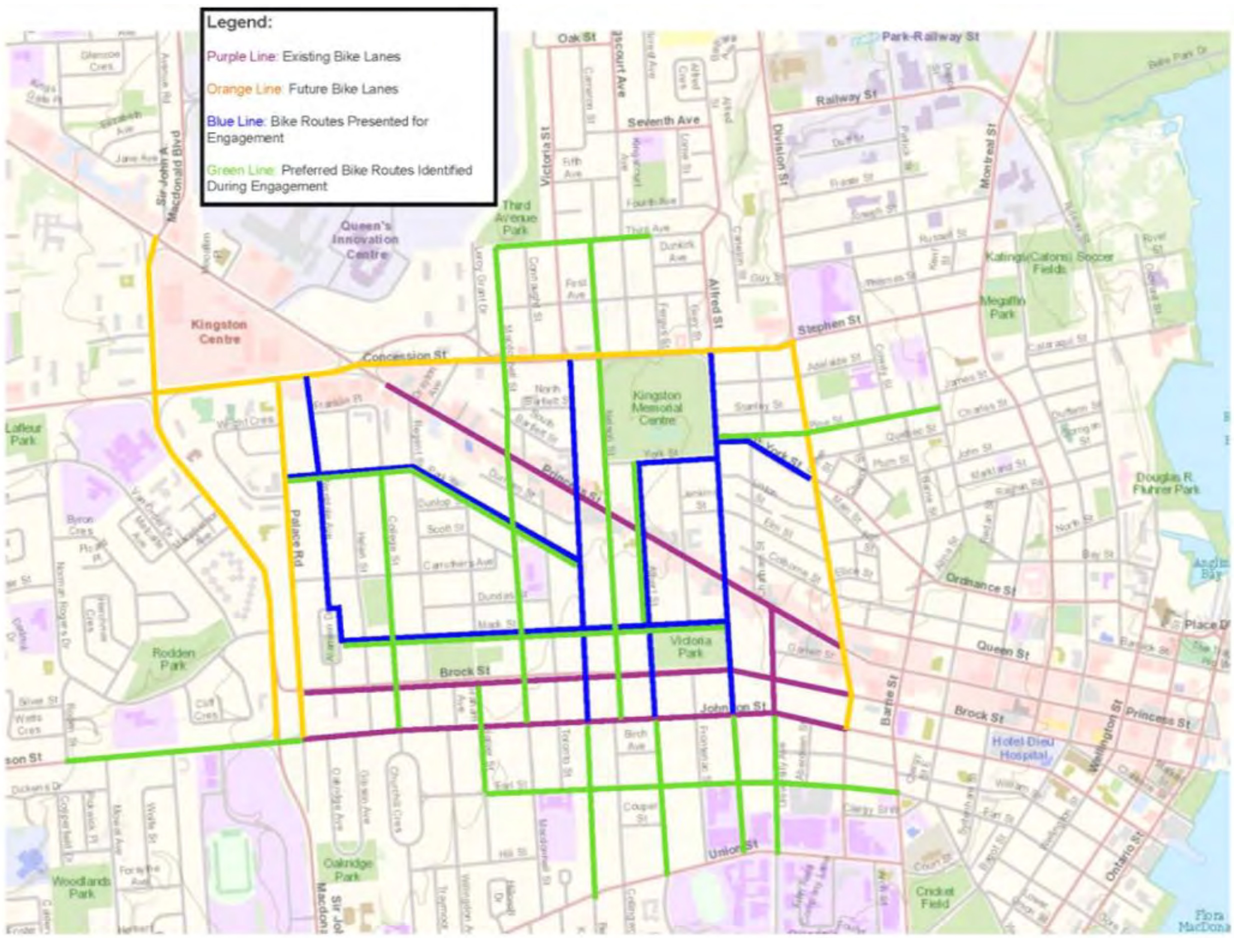
The following sections discuss candidate neighbourhood streets that would both benefit from and contribute to a multimodal shift in Williamsville, and the City more broadly, focusing on cycling as a viable mobility option for meeting growing travel demands.

4.2 Preferred Corridors

The addition of designated neighbourhood bikeways in the Williamsville area will improve cyclist wayfinding and access throughout the neighborhood. These new east-to-west and north-to-south signed and traffic calmed connections will link the bicycle routes identified in the ATMP and the existing cycling routes on Brock Street and Johnson Street. They will also improve access to key destination throughout, and adjacent to, the Williamsville area. This includes improved connections to the Leroy Grant Trail, the various parks in the area (Victoria Park, Compton Park, Third Avenue Park, etc.), and destinations along Princess Street.

The concept of a Williamsville local street bike network was presented to the public for comment during the April 2023 Town Hall meeting. The public was also encouraged to provide feedback through an online survey hosted on Get Involved Kingston between October 13, 2023 and November 17, 2023. Public input, together with technical analysis completed by the City, resulted in identification of the list of preferred local street cycling corridors listed below and illustrated in **Figure 7**.

Figure 7: Preferred Neighbourhood Corridors Identified

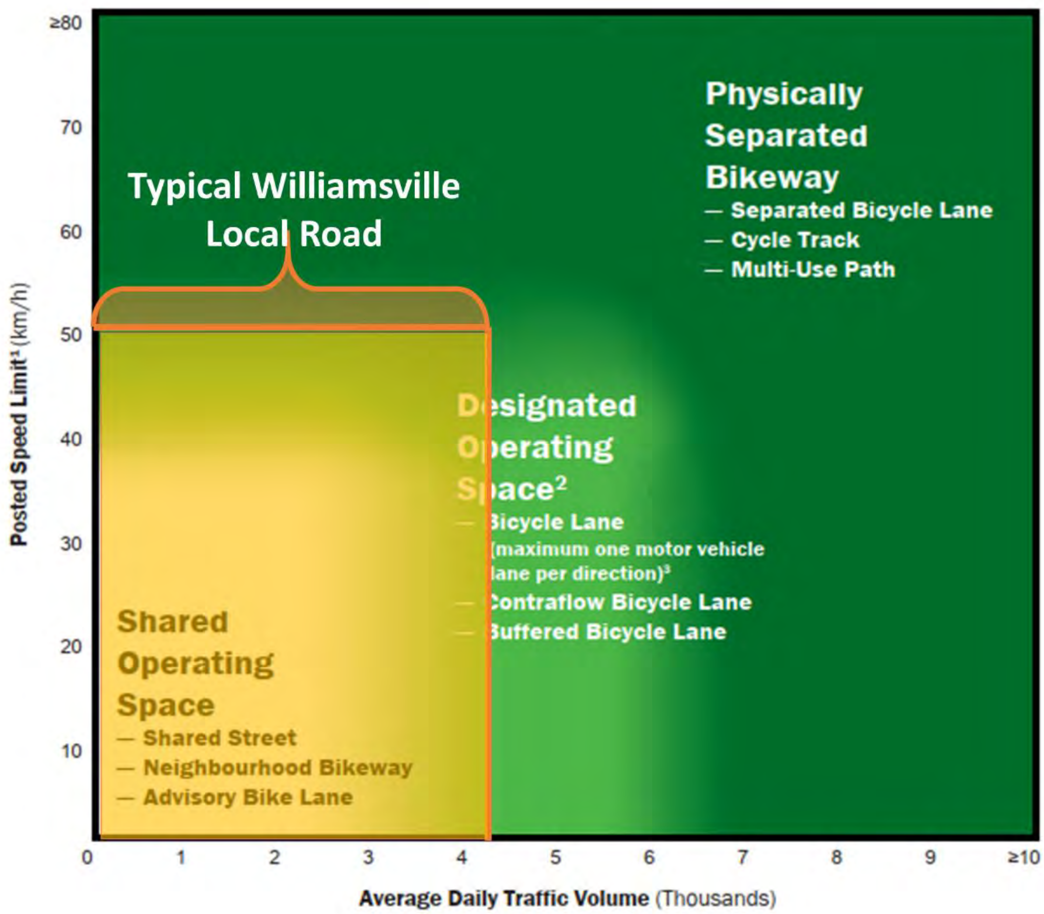


College Street	Park Street	MacDonnell Street
Park Street	Nelson Street	Mack Street
Albert Street	Napier Street	Earl Street
Pine Street	Victoria Street	

4.3 Alternative Facility Types

Appropriate facility types for the preferred neighborhood bikeway corridors identified in **Section 4.2** were determined using guidance from Ontario Traffic Manual (OTM) Book 18: Cycling Facilities. OTM Book 18 recommends three alternative cycle facility types for streets with the speed and volume profiles measured along local streets within the Williamsville area. Recommended facility types include, shared streets, neighborhood bikeways, and advisory bike lanes. Each of these facility types is explained in more detail below the nomograph shown in **Figure 8**.

Figure 8: Typical Williamsville Road Nomograph



4.3.1 Shared Street

Shared street operations represent the least protected option for cyclists. Cyclists are expected to ride on the right side of the travel lane where there is space for side-by-side operation; otherwise, they have the right to travel in the centre of the lane.

Shared streets are most appropriate on roads with the following features:

- Low volume <3000 Average Daily Traffic,
- Low posted speed <40 km/h,
- Lane widths of 4.5 m or less,
- Local streets, and
- Streets with low volume driveways or unsignalized intersections.

No provisions are required for shared streets other than signage to indicate to drivers that cyclists share the lane. Optional sharrow pavement markings can be used to further denote that the lane is shared by cyclists and drivers. A sample shared street facility is shown in **Figure 9**.

Figure 9: Shared Street Facility (Source: OTM Book 18, 2021)

4.3.2 Neighborhood Bikeway

Neighbourhood bikeways, also referred to as bicycle boulevards, build on the concepts introduced in shared street facilities by prioritizing through movements for people riding on bikes while discouraging through trips by motorized traffic[1]. This treatment is most appropriate on roads with the following features:

- Low volume <3000 Average Daily Traffic,
- Low posted speed <40 km/h,
- No heavy vehicle traffic,
- Local streets,
- One travel lane in each direction,
- Limited on-street parking,
- Lane widths of 4.0 m or less, and
- Streets with low volume driveways or unsignalized intersections.

[1] OTM Book 18 Section 4.5.2

Neighbourhood bikeways utilize the same signage and sharrow pavement markings as shared street facilities, but further encourage cyclist activity by introducing additional restrictions on motorized vehicle traffic. These restrictions are explored further in **Section 4.5** and include measures to reduce traffic volumes and traffic speeds to encourage cycling on local roads. A sample neighbourhood bikeway is shown below in **Figure 10**.

Figure 10: Sample Neighbourhood Bikeway
(Source: BC Active Transportation Guide, 2019)

4.3.3 Advisory Bike Lane

Advisory bike lanes are a relatively new facility in Canada but have begun to see application in a handful of cities across the country. It is originally a European approach to delineate space for cyclists on narrow roadways and clarify operating positions for cyclists and motorists and increase comfort for cyclists[2]. This treatment is most appropriate on roads with the following features:

- Low volume <4000 Average Daily Traffic,
- Low posted speed <50 km/h,
- Restricted heavy vehicle traffic,
- Local streets,
- Geometry is straight and level,
- 6.6 m to 8 m roadway width without parking lane,
- 10 m to 11.5 m roadway width with parking lane, and
- Streets with low volume driveways or unsignalized intersections.

Advisory bike lanes contain no centreline and motorists are expected to travel in both directions in a shared centre travel lane which is typically between 3.0 and 4.0 m wide, or 5.0 to 5.7 m wide. The bike lanes are distinct in that they are temporarily shared spaces with motor vehicles during turning, approaching, and passing manoeuvres. A sample advisory bike lane facility is shown in **Figure 11** below.

[2] OTM Book 18 Section 4.5.1

Figure 11: Sample Advisory Bike Lane Facility in Ottawa, Ontario.
(Source: CBC News)

4.4 Recommended Facility Types

The screening criteria touched on in **Section 4.3** was used to identify appropriate cycle facility types for each of the preferred local street cycling corridors. **Table 3** below outlines the existing facilities on they key corridors considered and the recommended facility type on each corridor.

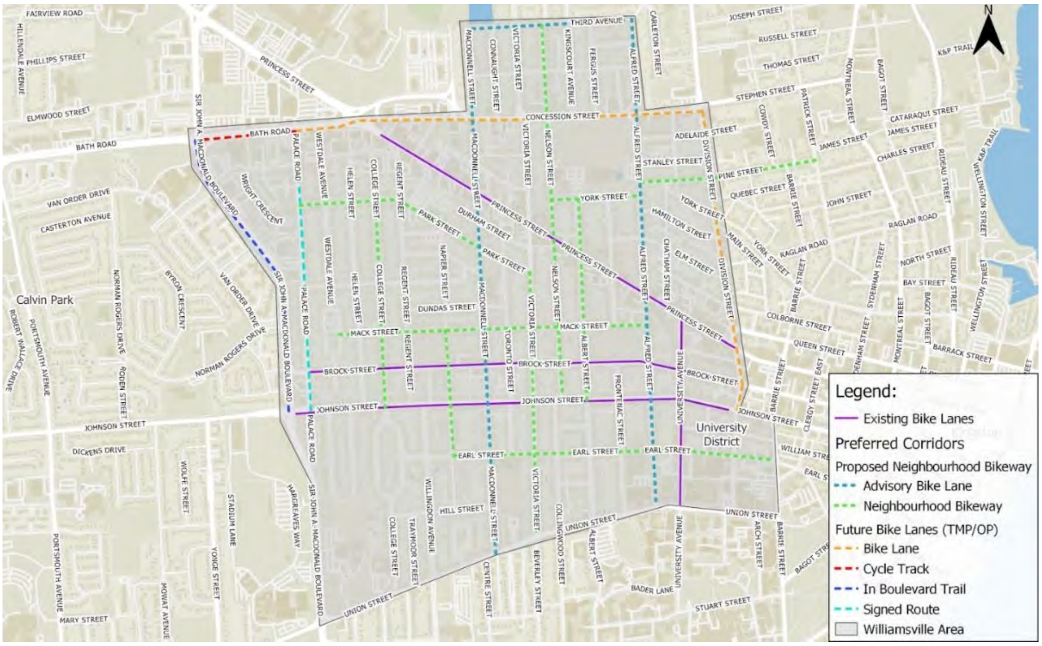
Table 3: Recommended Local Cycling Infrastructure

Corridor	Roadway Width (m)	Posted Speed Limit (km/h)	Max Annual Average Daily Traffic (AADT)	Existing On-Street Parking	Recommended Facility
College Street	9	50	238[3]	Both	Neighbourhood Bikeway
Alfred Street	11	50	4661[4]	Both	Advisory Bike Lane/Neighbourhood Bikeway
Park Street	9	50	1549[5]	One	Neighbourhood Bikeway
Mack Street	8/9	50	885[6]	Both	Neighbourhood Bikeway
MacDonnell Street	9	40	2141[7]	Both	Advisory Bike Lane/Neighbourhood Bikeway
Nelson Street	7/8	50	621[8]	One	Neighbourhood Bikeway
Albert Street	9/10	50	1771[9]	One	Neighbourhood Bikeway

The addition of these local street facilities will create a more comprehensive 'Neighbourhood Bikeway Network' within the Williamsville area. The location of all existing and proposed cycling facilities within the study area are illustrated on the map provided as **Figure 12**.

[3] College Street @ Carruthers Avenue Traffic Count (2023)
[4] Alfred Street @ Johnson Street (2017)
[5] Park Street @ MacDonnell Street (2017)
[6] Mack Street @ MacDonnell Street (2017)
[7] MacDonnell Street @ Princess Street (2017)
[8] Nelson Street @ Concession Street (2016)
[9] Albert Street @ Johnson Street (2018)

Figure 12: Proposed Neighbourhood Bikeway Network



4.5 Neighborhood Bikeway Facility Treatments

The following sections provide guidance on the types of treatments that could be considered to reduce vehicular volumes and speeds, as well as improve wayfinding, along the local street cycling corridors.

4.5.1 Applicable Guidelines

The following guidelines were referenced when identifying appropriate treatments for the streets within the proposed Williamsville neighborhood bikeway network:

- Ontario Traffic Manual (OTM) Book 18: Cycling Facilities (2021)
- Transportation Association of Canada (TAC) Chapter 5 - Bicycle Integrated Design (2017)
- City of Kingston's Active Transportation Master Plan (ATMP) (2018)
- British Columbia Active Transportation Design Guide (2019)[10]
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide (2014)

[10] Used as a reference for the design and application of advisory bike lanes through case studies.

4.5.2 Design Toolbox

The successful implementation of cycling supportive infrastructure requires that affected streets have low operating speeds (<40km/h) and low average daily traffic volumes (<3,000 ADT). Streets are often selected for inclusion in a cycling supportive network because they exhibit these characteristics in their existing condition. Streets that don't exhibit these characteristics will often be added to the network to provide improved north-south and east-west connectivity. These streets may require additional pavement markings and signage, as well as physical modification to reduce vehicular speeds and volumes to suitable levels. The City of Kingston's Traffic Calming Guidelines were referenced for approved traffic calming measures in the City.

Design techniques can be used to reduce vehicular speeds and volumes, as well as to help prioritize cycling over cars all into the following five categories[11] [12]:

- Traffic Reduction Design Measures
- Major Intersection Treatments
- Minor intersection treatments
- Speed Management
- Signs and Pavement Markings

The following sections provided additional detail regarding how each of the techniques can be applied within the City of Kingston context. Additional information about the expected cost for implementation of the each of the alternative techniques can be found in **Appendix E**.

4.5.3 Traffic Reduction Design Measures

Traffic reduction, commonly referred to as traffic calming, design measures are typically applied at intersections to restrict vehicle movements at intersections while permitting cyclists. The *City of Kingston Traffic Calming Guidelines* is developed in accordance with standards set out in the Transportation Association of Canada (TAC) Canadian Guide to Traffic Calming. It encompasses two main approaches. Type I approaches are classified as minor adjustments such as pavement markings, speed-display devices, vertical centreline treatments. Type II approaches are classified as engineered-based which are

[11] Ontario Traffic Manual Book 18 (2021)
[12] National Association of City Transportation Officials (2014)

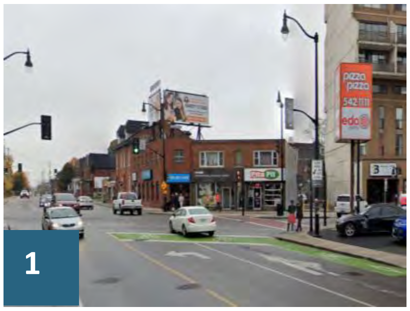
more permanent in nature and involve planning, designing, and constructing. Type II approaches can include horizontal deflections such as curb extensions, vertical deflections such as speed cushions, intersection treatments and/or cross-sectional treatments.

Traffic reduction measures may not be applicable in all cases; however, they do provide the greatest benefit for cyclists, pedestrians, and residents through reduced exposure to collision risks, traffic noise and emissions (OTM Book 18, 2021).

4.5.4 Major Intersection Treatments

Major intersection treatments improve cyclists' ability to cross a major roadway with higher vehicle volumes and speeds. These treatments improve driver awareness of cyclists, help with cyclist navigation, minimize crossing distances, and reduce vehicle/bicycle conflicts. Examples of intersection treatments are provided in the list below. The City of Kingston's ATMP recommends the use of bike boxes and cross-rides as potential intersection treatments at major intersections as they have lower implementation costs and are familiar to both drivers and cyclists. Local and International Examples of Major Intersection Treatment include:

1. **Bike Boxes** (Image source: Google Maps, Kingston, ON, Princess Street and Division Street)
2. **Advanced Stop Bars** (Image source: NACTO, Portland, OR)
3. **Bicycle actuated signals** (Image source: Google Maps, Kingston, ON, Highway 15 and Gore Road)
4. **Crossrides/Intersection Crossing Markings** (Image source: Google Maps, Kingston, ON, John Counter Boulevard and Portsmouth Avenue)
5. **Refuge Islands** (Image source: NACTO, Portland, OR)
6. **Curb Extension (Bump Outs)** (Image source: NACTO, Portland, OR)



The preferred corridors identified in **Section 4.4** intersect with major roads such as Princess Street, Concession Street and Johnson Street. The following major intersections should be analyzed in more detail and could benefit from one of the major intersection treatments listed above:

- MacDonnell Street & Princess Street,
- Albert Street & Princess Street,
- Nelson Street & Princess Street,
- MacDonnell Street & Concession Street, and
- Victoria Street & Johnson Street.

4.5.5 Minor Intersection Treatments

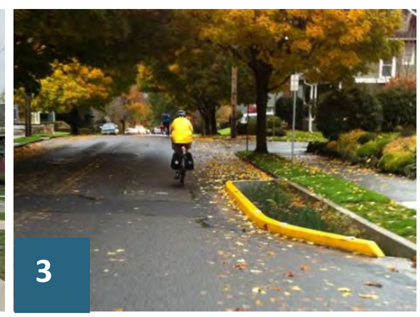
Fewer treatments are necessary where a neighbourhood bikeway intersects with a minor road due to lower speeds and vehicle volumes. It is desirable, however, to minimize stop controls on cycling corridors and slow vehicle speeds through intersections. For the preferred corridors, it is recommended that stop signs, where not warranted, be removed in the direction of cyclist travel at minor intersection.

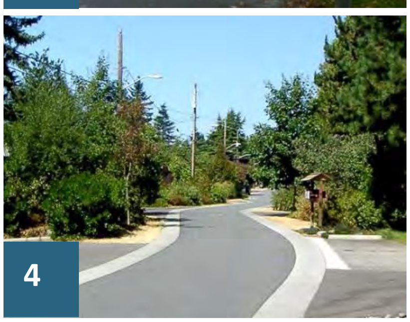
4.5.6 Speed Management

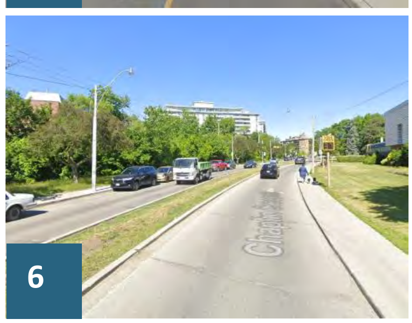
Speed management on neighbourhood bikeways is one of the best ways to improve safety for cyclists and thereby encourage the use of bicycles. Reducing posted speed limits is generally not effective at reducing operating speeds below 40km/h, and typically requires the use of physical speed management tools. Reduced vehicle operating speeds can improve the perception time of both motorists and cyclists and further improve safety for both users.

Some examples of speed management measures, including traffic calming devices and minor road design changes, are listed, and illustrated below:

1. **Speed humps** (Image source: NACTO, Portland, OR)
2. **Raised crosswalks** (Image source: Google Maps, Toronto, ON)
3. **Curb extensions/ Bump Outs** (Image source: NACTO, Portland, OR)
4. **Chicanes** (Image source: NACTO, Seattle, WA)
5. **Narrowing of motor vehicle lanes**
6. **Dynamic “watch your speed” signs** (Image source: Google Maps, Toronto, ON)







4.5.7 Signs and Pavement Markings

Providing appropriate signage and pavement markings along neighbourhood bikeways and advisory bicycle lanes has the following benefits:

- Brings attention to the existence of the facility, encouraging use;
- Heightens driver awareness that the space is to be shared with cyclists; and
- Improves
- cyclist navigation through intersections and towards key destinations and network connections.

The most common signs used to denote shared cycling facilities on Ontario streets are signs Wc-19 OTM (Share the Road) and Wc-24 OTM (Single File), which are illustrated in **Figure 13**. These signs indicate the intended relative position of vehicles and cyclists within the roadway. The green bike route sign, Rb-69, should also be used to identify designated cycling corridors. This sign is illustrated in **Figure 14.**

Figure 13: Shared Facility Signs

Figure 14: Rb-69.

Shared facility pavement markings such as "sharrows" can be used to improve the visibility of cyclists and to clarify that the roadway is a shared-use lane. Bicycle lane markings should be used for advisory bike lanes with a buffer between bicycle lanes and parking lanes. Examples of sharrows and advisory bike lane pavement markings are provided in **Figure 15**. At the time of writing, neither OTM Book 18, or TAC GDG have a standard advisory bicycle lane sign to inform drivers how to operate with these facilities. Both Gibbons, BC and Ottawa, ON have created custom signs to inform both cyclists and drivers.

Figure 15: Example pavement markings for shared cycling facilities

Sharrow pavement marking in London, ON

Advisory bike lane, Ottawa, ON

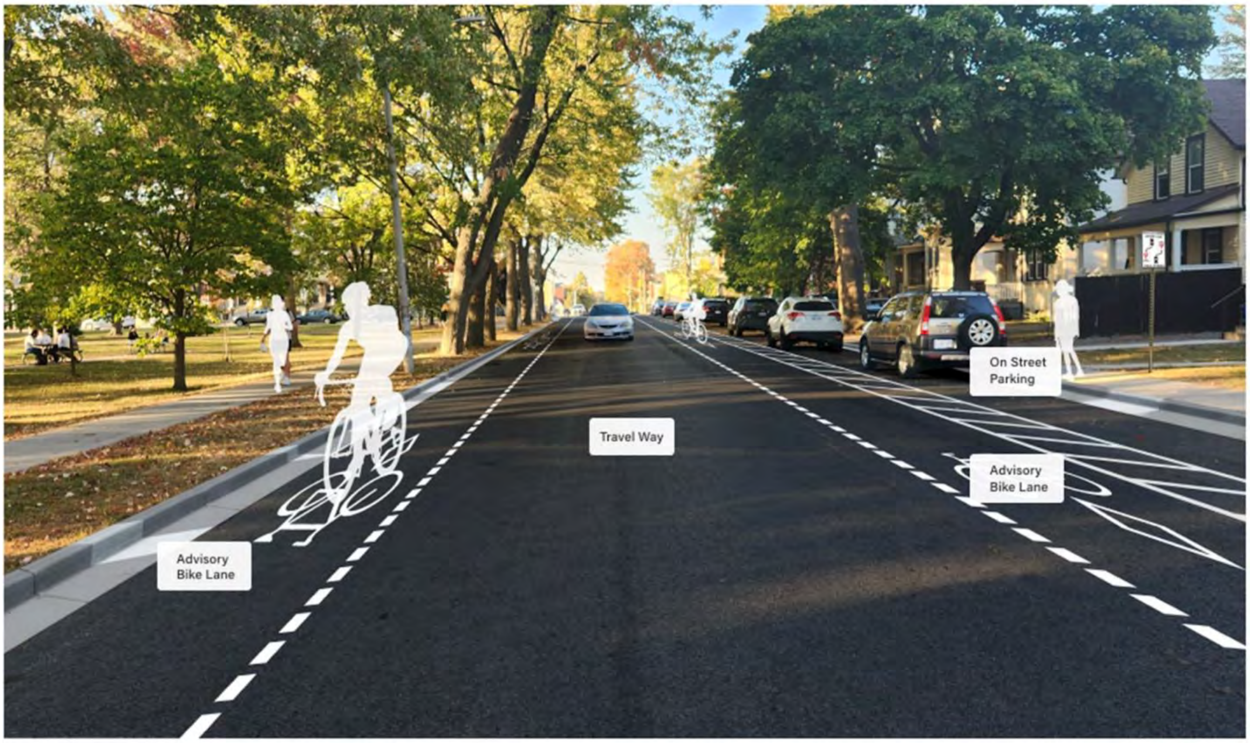
4.5.8 Sample Designs

A variety of sample drawings and renderings were created to illustrate what neighbourhood bikeways and advisory cycling lanes could look like in Williamsville. These are shown in **Figure 16** to **Figure 18**. Note that local roads in the Williamsville area have narrow road right-of-way widths that vary between 15 m and 20 m and provide limited space for additional landscaping.

Figure 16: Typical 15 Metre Right-of-way Neighbourhood Bikeway

Figure 17: Typical 20 Metre Right-of-way Neighbourhood Bikeway

Figure 18: Typical 20 Metre Right-of-way Advisory Bike Lane



Detailed cross section drawings can be found in **Appendix E.**

4.6 Engagement

Alternative design concepts for the local street cycling facilities were presented during the October 26, 2023 Open House. Information and imagery were also provided on the 'Williamsville Bikeway' page of Get Involved Kingston. During the Open House attendees were asked to provide comments on the routes, facilities and traffic calming measures that were proposed. The Get Involved page included a survey where the public could provide comments between October 13 and November 17th, 2023.

The attendees at the Open House were generally supportive of the proposed designs for the neighbourhood bikeways and the proposed locations for advisory bike lanes. Feedback from the online survey was similarly supportive of the potential changes – including the recommended streets.

Traffic calming and speed control measures were included as part of the recommended design for the neighbourhood bikeways. Speed control measures such as lowering the posted speed limit were appreciated by attendees, who felt that it would make the streets feel safer to bike on. There were mixed reactions to traffic calming measures, including the use of bump outs. Bump outs were positively viewed by some who noted a benefit to people with disabilities through reduced crossing distances. Some attendees, however, were concerned that snowplows would not be able to clear them properly during the winter.

Attendees also recommended additional bike routes to consider for neighbourhood bikeways. One of the routes that was recommended was to add bike infrastructure on York Street between Alfred Street and Barrie Street as an alternative to Princess Street. After further discussions with attendees and City staff, it was also noted that Concession Street, Division Street, and York Street may also serve as appropriate alternative routes for cyclists.

Feedback collected through Get Involved Kingston also suggested that dedicated bike lanes should be added on Pine Street, Albert Street, Mark Street, Bath Road as well as on Brock Street and Johnson Street. Respondents who recommended these routes expressed that they should be used for pass-by trips and that the bike lanes on Princess Street should not be removed.

4.7 Next Steps

It is recommended that a detailed implementation plan be developed to introduce and construct the local cycling facilities. This plan should include confirmation of preferred cycle facility type, recommended traffic management techniques, identification of project budgets, and specific timeframes for implementation. Key north-south corridors and east-west corridors that should be developed first to provide the most significant improvements for cyclists through Williamsville include the following:

North-South	East-West
MacDonnell Street	Mack Street
Alfred Street	Park Street

These corridors provide the longest continuous local routes within Williamsville and connections to the existing cycling routes. Immediate, low cost, changes to these corridors could include the addition of pavement markings, signage and temporary intersection narrowing that uses of flexible bollards. Construction of planted bump outs and the addition of street trees can progress as budget becomes available. Other immediate actions could include strategic removal of some on-street parking to begin encouraging mobility behaviour change amongst residents.

Facility transitions and connections should also be explored further once the preferred facilities have been confirmed for each cycling corridor. A feasibility study for the removal of stop signs, removal of on-street parking, introduction of traffic circles, and traffic calming measures including modal filters and diverters, should be conducted. The effectiveness of traffic calming, and speed management measures should be monitored following implementation to inform the design of additional corridors.

There was an overall positive response to the advisory bike lane concepts, and as such it is recommended that these relatively new cycling facilities be piloted in Williamsville and monitored to understand impacts. There were some requests from the attendees to introduce advisory bike lanes on additional corridors which may be explored after a pilot program has been completed. This pilot program should review conflicts, operating speeds of vehicles, and vehicle compliance with the lane markings and signage. By prioritizing the routes listed above, it would also be possible to pilot an advisory bike lane on either MacDonnell Street or Alfred Street, or both.

5.0 Part 3: Green Streets

The City of Kingston is exploring opportunities to implement 'Green Streets' within the broader Williamsville area. Discussed more fully in **Section 5.2**, the 'Green Streets' concept generally refers to streets that are intentionally designed to reduce impact on the social and natural environments. The desire to implement green streets within the Williamsville area was one of the key themes that was part of the Williamsville Main Street Study and showed up in consultation on the Princess Street and neighborhood bikeway concepts. Within the Williamsville area, 'greening' of streets can be used to discourage auto traffic, promote sustainable transportation options, improve treatment of stormwater, and beautify the area. It is necessary to have a more fulsome understanding of what this means to the City of Kingston, and particularly the residents of Williamsville, before moving forward with any roadway modifications within the neighborhood.

The following content is intended to provide the reader with a baseline understanding of the design elements and benefits associated with the proposed changes. This includes visualization of alternative green streets concepts that could be applied to corridors with sections of Frontenac Street used to represent the concepts.

5.1 Policy Background

The concept of Green Streets is embedded in the City's Official Plan Section 10E.1.43 as "Green Streets", as previously detailed in **Section 2.0** of this report. Green Streets for the City of Kingston are intended to be pedestrian-focused with added greenery, rest areas, and space to increase pedestrian comfort, supporting active travel along commonly used neighbourhood routes. Green streets also include traffic calming measures as a mechanism for slowing traffic down along local roadways.

Green Streets also support the City of Kingston with its Official Plan vision for sustainability. In December 2021, the City of Kingston adopted a *Climate Leadership Plan* which sets out a strategy to reach carbon neutrality by 2040. The Plan sets out short- and long-term objectives across the sectors of buildings and energy, waste, transportation, and food and forestry. Within the transportation sector, Council identified the objective of "[Developing] active transportation connections and foster[ing] transit-oriented development to encourage a shift to sustainable modes and a reduced reliance on personal vehicle use."[13] Specific actions recommended under the plan include:

- Continued implementation of the Active Transportation Master Plan, which is focussed on improving connectivity and safety for pedestrians and cyclists,
- Increasing transit ridership through such things as the addition of express routes (like what is planned on Princess Street), and
- Implementation of parking, car-share, and micro-mobility sharing solutions that reduce reliance on single occupancy automobile trips.

The priorities of the Climate Leadership Plan are also reflected in the City's OP, TMP and ATMP, as discussed in **Section 2.0**. All of these put sustainable transportation at the forefront of their policy directives and recommended approaches, with a goal of reducing dependency on the automobile and single-occupant use. Implementation of green streets concepts will help advance policy objectives by making active transportation more inviting and reducing the environmental impact of vehicle operations.

5.2 Kingston's Definition of 'Green Street'

It is important to define what 'Green Streets' mean to the City of Kingston before rolling out the concept in Williamsville and the rest of the city. As previously mentioned, the term is generally used to describe the transformation of streets to more resilient and sustainable designs. How this definition is realized in terms of actual implementation, however, differs significantly between municipalities.

Two distinct definitions are provided by the cities of Toronto and Seattle. The City of Toronto defines Green Streets as "roads that include green infrastructure – natural and human-made – that capture rainwater and direct it to plants and trees, acting as a natural filter that cleans the water before it makes its way into local waterways." On the other hand, the City of Seattle, Washington defines a Green Street as "a street right-of-way that, through a variety of design and operational treatments, gives priority to pedestrian circulation and open space over other transportation uses. The treatments

[13] City of Kingston (2021). Climate Leadership Plan. Pg. 86.

may include sidewalk widening, landscaping, traffic calming, and other pedestrian-oriented features." While the two definitions seem divergent, designing road right-of-way according to either definition would result in roads that accomplish the following objectives:

- Protection and restoration of natural resources,
- Promotion of a healthy and equitable human habitat,
- Climate change resiliency, and
- Performance optimization.

The City of Kingston has used the combination of the definitions above to develop its own green street design principles for the Williamsville area. These principles should be considered when working on transformational roads projects through the study area, including work on Princess Street:

- Intersections should be designed with a focus on vulnerable user safety. Techniques to consider should include intersection narrowing, reduced curb radii, raised crossings/intersections, conspicuous pavement marking, and improved lighting,
- Vehicular lane widths will be minimized to encourage reduced travel speeds and reduce impermeable surface area within the road right-of-way (ROW),
- Traffic calming techniques should be considered for local roadways where speed or volume is a demonstrated concern in order to improve multi-modal safety and discourage use of private vehicles within the Williamsville area,
- Planting of street trees and landscaped boulevards / islands should be considered to provide shade and visual interest. If required, existing on-street parking should be considered for removal to provide additional space. Where parking cannot be removed, parking lane widths will be minimized, and
- Where feasible, based on space and soil conditions, Low Impact Development (LID) features, including rain gardens and permeable pavements, should be used to improve the quality, and decrease the volume, of stormwater entering waterways.

5.3 Green Street Concept

Frontenac Street was used as a preliminary sample for developing concepts of how green streets could be implemented in Williamsville and other areas of the city. Before moving forward, the City wanted to be able to gauge public interest in green streets, as well as the degree of transformation. To assist with this, three alternative green streets designs were developed for Frontenac Street as a sample segment.

The three alternatives include the following, which are detailed in the following sub-sections:

1. Green 'Lite',
2. Green 'Mid-Level', and
3. Green 'Heavy'

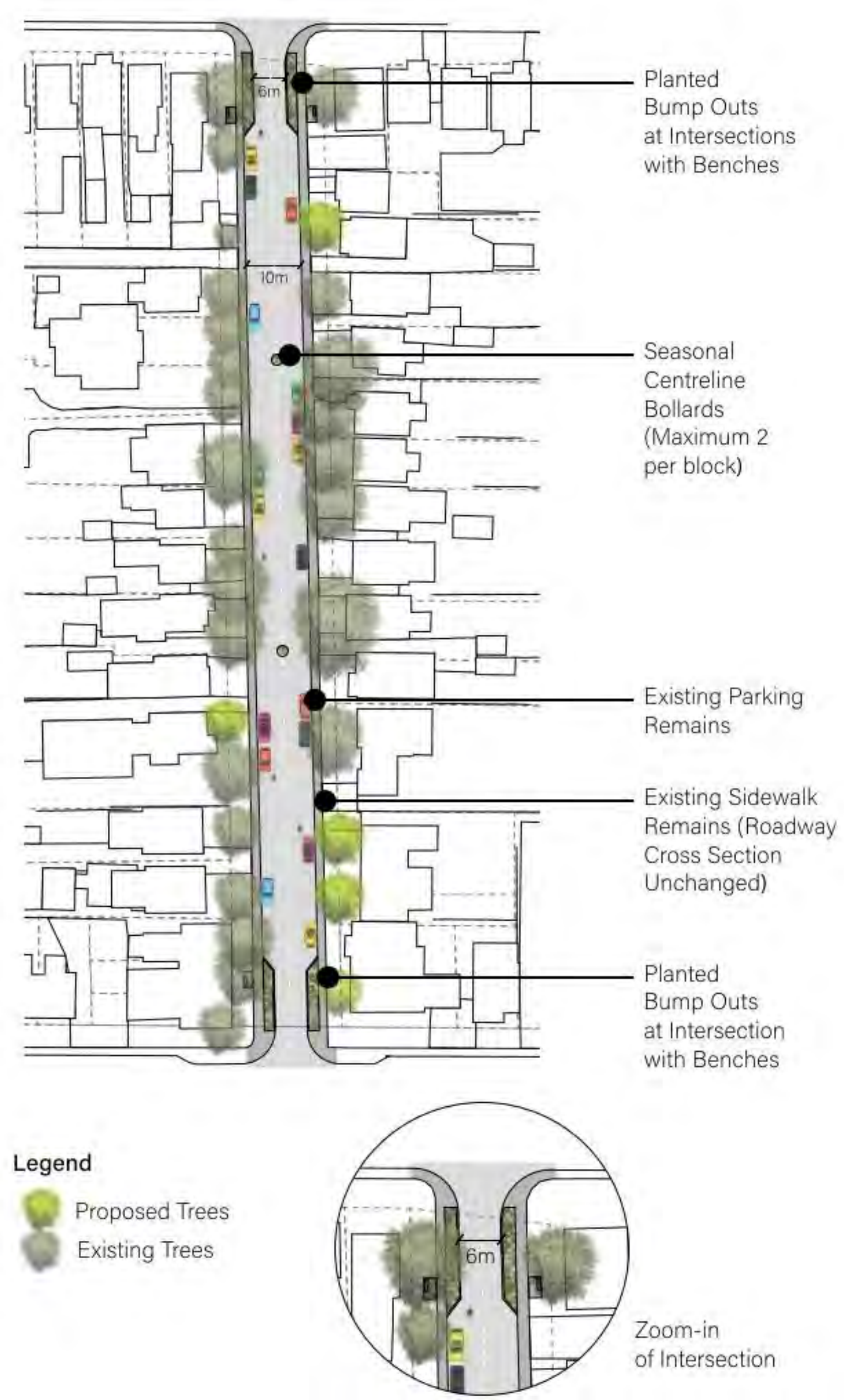
The three alternatives have increasing levels of changes to the local streets, with the Green 'Lite' alternative retaining the most amount of on-street parking and existing number of street trees, while the Green 'Heavy' option resulted in the greatest reduction of on-street parking and the largest increase in number of street trees.

5.3.1 Green Lite

The Green 'Lite' concept was designed as the lowest cost alternative for implementation, requiring the fewest infrastructure changes. In this alternative, bump-outs are only included at intersections, with no additional bump-outs or traffic calming mid-block. On the sample Frontenac Street corridor (**Figure 19** and **Figure 20**), the Green 'Lite' alternative would result in a total of five additional trees (20% increase), and a reduction of two on-street parking spaces (3% reduction).

Figure 19: Green 'Lite' Cross-Section Rendering

Figure 20: Green 'Lite' Alternative Concept Layout

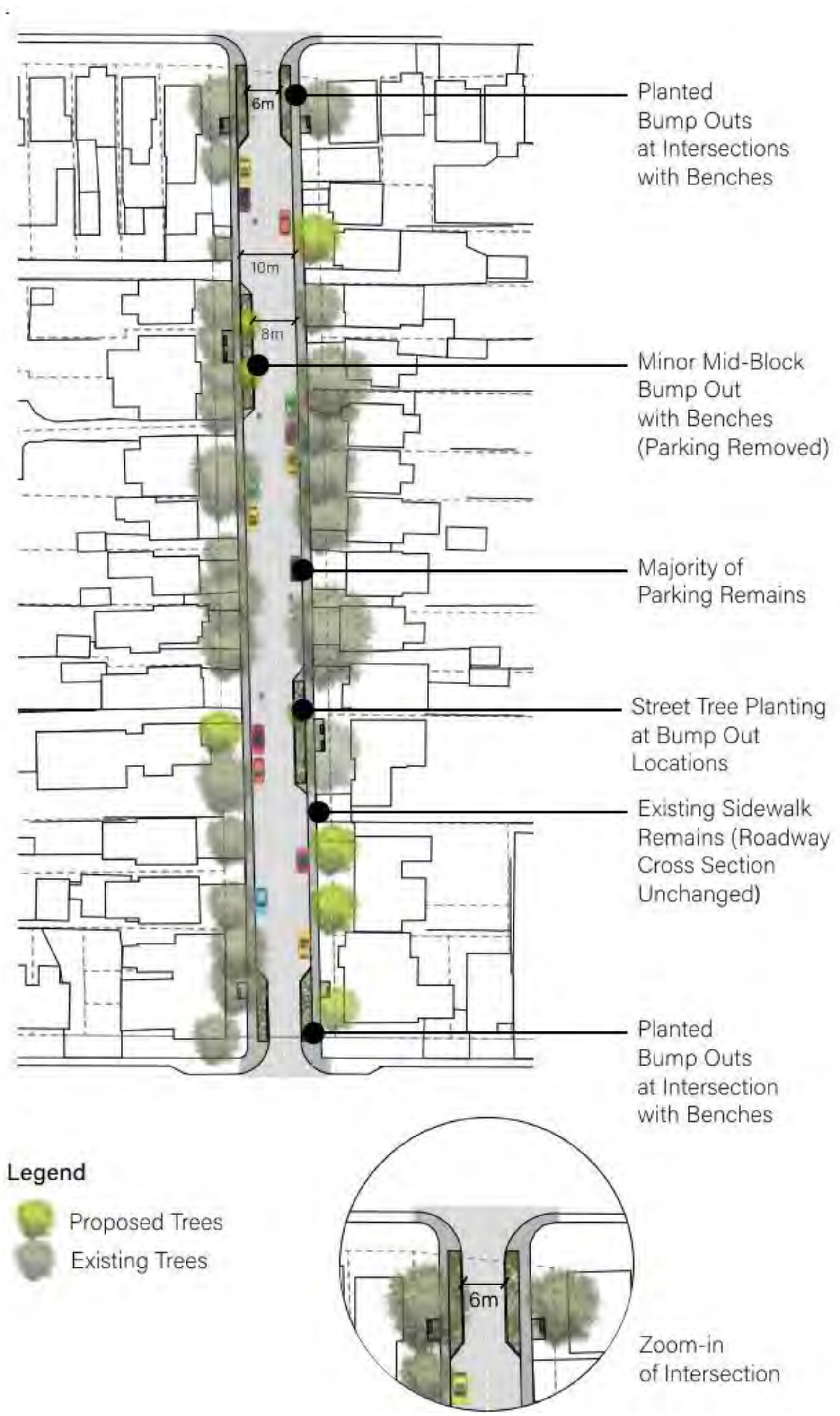


5.3.2 Green Mid-Level

The Green ‘Mid-Level’ concept was designed as the “additional improvement” alternative compared to the Green ‘Lite’ alternative. The mid-level alternative provides some additional bump-outs throughout the street as well as the bump-outs at the intersections. These bump-outs are intended to provide additional space for trees and benches throughout the street. On the sample Frontenac Street corridor (**Figure 21** and **Figure 22**), the Green ‘Mid-Level’ alternative would result in a total of eight additional trees (32% increase), and a reduction of thirty on-street parking spaces (53% reduction).

Figure 21: Green 'Mid-Level' Cross-Section Rendering

Figure 22: Green 'Mid-Level' Alternative Concept Layout

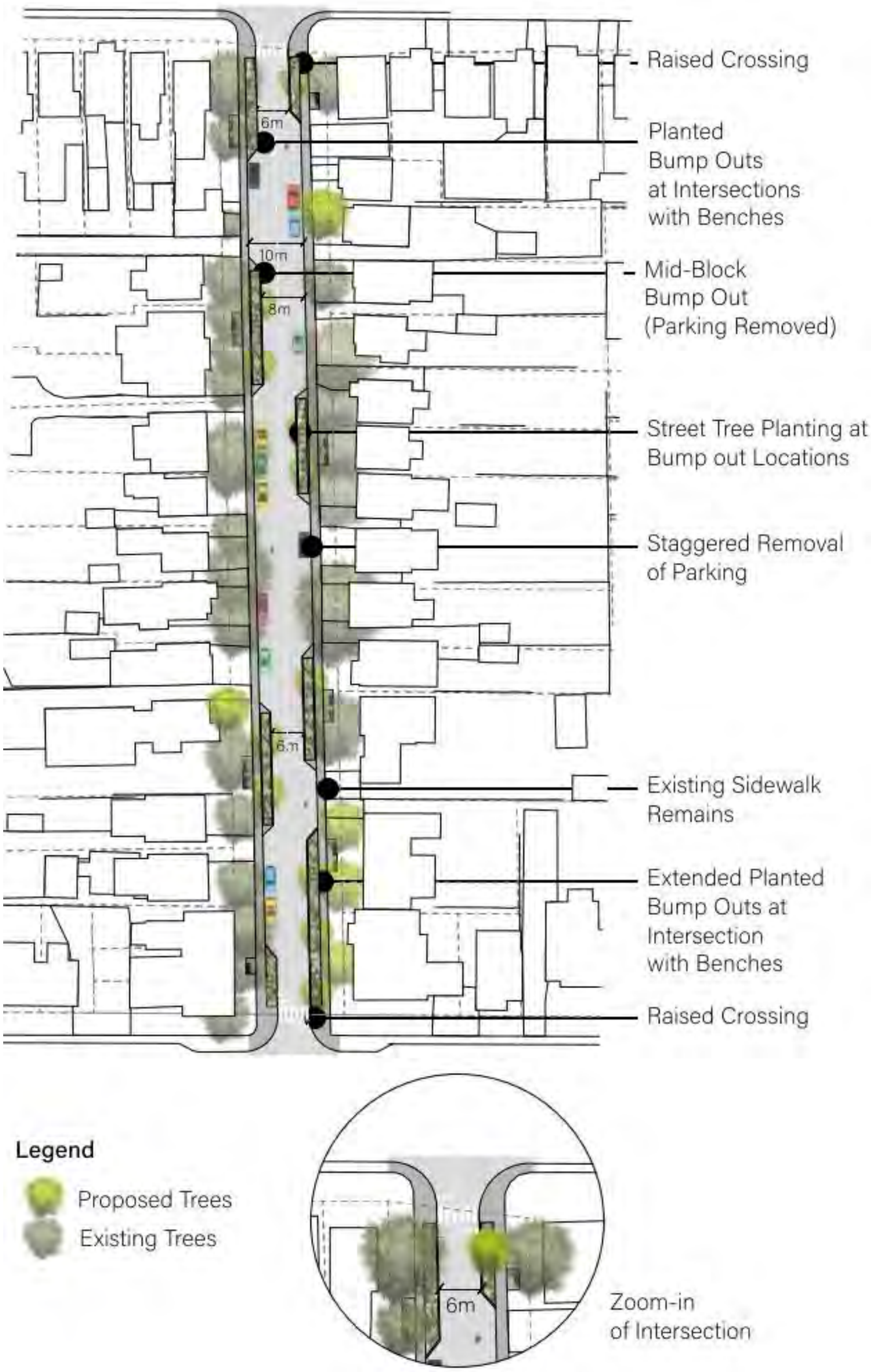


5.3.3 Green Heavy

The Green ‘Heavy’ was designed as the “greatest change” alternative, when compared to existing conditions. The heavy-level alternative provides mid-block bump-outs in addition to the bump-outs at the intersections and has limited space for on-street parking. These bump-outs are intended to provide additional space for trees and benches throughout the street, while slowing vehicles down as they navigate around them. On the sample Frontenac Street corridor (**Figure 23** and **Figure 24**), the Green ‘Heavy’ alternative would result in a total of 16 additional trees (64% increase), and a reduction of 36 on-street parking spaces (63% reduction).

Figure 23: Green 'Heavy' Cross-Section Rendering

Figure 24: Green 'Heavy' Alternative Concept Layout

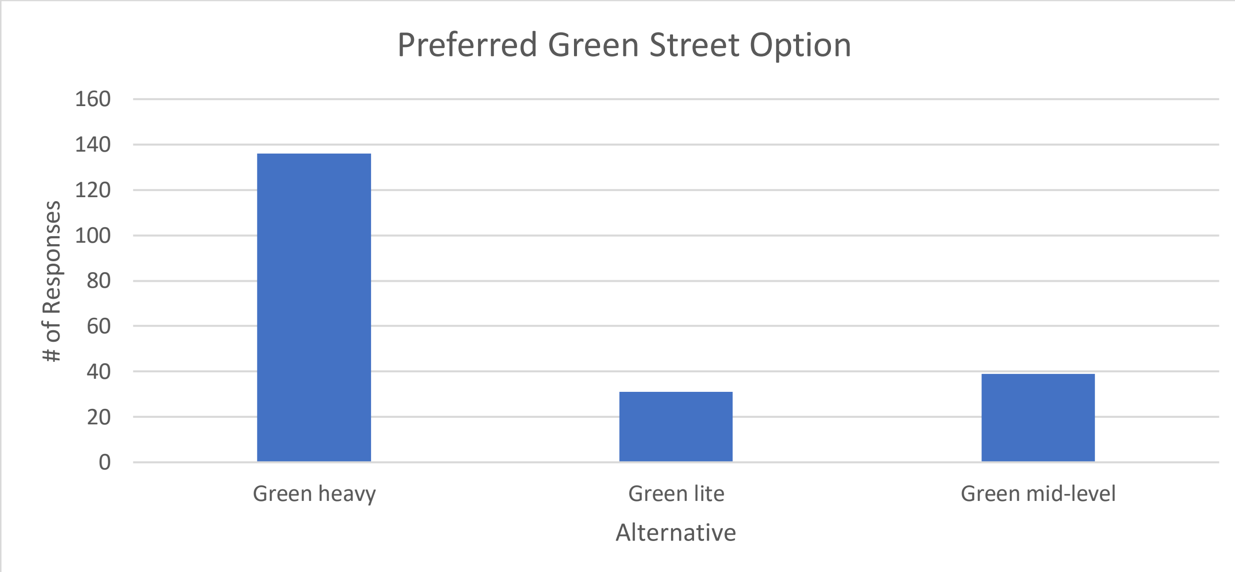


5.4 Engagement

The concept of green streets and the alternative designs for Frontenac Street were presented October 5th at the Councillor's Town Hall. The public was also invited to provide feedback through completion of an online survey on the 'Frontenac Green Streets Concepts' page of *Get Involved Kingston* between October 2 and November 17, 2023. Additionally, printed copies of the cross-sections and renderings were available for attendees of the October 26, 2023, Open House to collect additional feedback. A total of 213 survey responses were received either at the in-person events or through the online survey. The following sections provide an overview of the feedback collected through those two methods.

The results of the webpage survey found that walking and biking were the most used modes of active transportation in Williamsville. In terms of barriers to using active transportation, participants were most concerned with sharing the road with vehicle traffic and the speed of traffic. The survey found that most participants were familiar with green street concepts. When asked to rank the three green streets concepts for use within Williamsville, participants ranked the "green heavy" option as the most preferred with "green lite" rated as the least preferred. A breakdown of participant preferences is illustrated in **Figure 25**.

Figure 25: Green Street Ranking



Additionally, participants noted that the following features are most desired on green streets:

- Tree planting (ranked most important),
- Wide sidewalks (ranked second most important), and
- Curb bump-outs and reduced parking (tied for third most important).

5.5 Next Steps

There is strong support for implementation of green street concepts within the Williamsville area based on community feedback. Most survey responses indicated that the green 'heavy' option was the most preferred. However, there was some discrepancy between the most preferred option and the most desired features on green streets. Curb bump-outs and reduction of on-street parking were the least preferred design feature; however, those are the most prominent features in the Green 'Heavy' alternative. Based on the overall support for green streets, it is recommended that the City move forward with identification and screening of additional candidate sites within the Williamsville area and throughout the City.

6.0 Looking Forward

Building off the Williamsville Transportation Plan Operational Needs Assessment Study that was completed in 2020, the intent of this present study was to explore alternative options for how to best accommodate all modes of travel on Princess Street, and more widely within the Williamsville neighbourhood. The alternatives were explored through three distinct sections: Princess Street Study, Neighbourhood Bikeways, and Green Street Concepts. The intent of the three parts was to allow for the City to pursue one or more of the initiatives independent of one another.

Part 1: Princess Street

Looking forward to next steps, the City will investigate opportunities to maximize the accessibility of the short-listed alternative options presented in this report. Recognizing the right-of-way constraints, a feasibility study will need to be undertaken for the preferred design option, focusing on the need to widen sidewalks and the feasibility of the proposed transit queue jump lanes. Considering recent subsurface initiatives along the corridor, there is an opportunity to maximize City resources and combine this with the Princess Street alternative approach as a means to minimize community disruption and financial constraints.

It is important to note that additional studies will be required as part of the detailed design process in support of implementation, including but not limited to a full topographic survey of Princess Street.

Part 2: Neighbourhood Bikeways

The City of Kingston's Official Plan policy directives focus on sustainable community development, favouring mechanisms that advance active transportation and reduce vehicle dependency. Implementation of supportive infrastructure is an approach that can allow the city to improve cycling network connectivity through quiet, low volume, and low speed streets within the existing Williamsville neighbourhood. The recommendations that are proposed are intended to guide the City with the development of a detailed Implementation Plan. The Implementation Plan should confirm the preferred cycling facility type for constructability and continuity purposes, recommended traffic management techniques, as well as budgeting and scheduling.

Prioritization of corridors should provide the most significant improvements for cyclists through Williamsville, and into the City's broader cycling network.

Part 3: Green Streets

In the City's Official Plan, more specifically the Princess Street Corridor Specific Policy Area, there is a vision for Kingston to establish corridors that are vibrant and active, inclusive of improved pedestrian-oriented streetscapes. Green Streets will help achieve this goal. As a newer concept for the City, a series of recommendations are explored in this report with the intent of guiding implementation of a comprehensive Green Street Concept. Looking forward from this report, the City can identify and screen candidate corridors to further explore implementing Green Street concepts as part of planned capital projects. A Green Streets Guideline can be developed which would further define desirable design elements, decision-making processes, and steps for implementation.

The City of Kingston will be required to undertake additional detailed analysis, focusing on design and constructability to identify the preferred alternative for the Princess Street Corridor. The preferred alternative has the potential to both inform and compliment the efforts put into analyzing the benefits of Neighbourhood Bikeways and Green Streets as a mechanism for achieving reduced dependency on private automobiles and increase in multimodality throughout both the Williamsville neighbourhood and the broader city. It is critical for the City to develop a transportation network that supports the growth in Williamsville and the City of Kingston, while improving multi-modal facilities that promote sustainable community development.

Figures

Tables

Appendix A

Princess Street Operational Needs Analysis (2020)

Appendix B

Princess Street Cross-Section Study (2023)

Appendix C

Preliminary Design Drawings

Appendix D

Princess Street Study Engagement Results

Appendix E

Neighbourhood Bikeway Design Toolbox

References

DILLON
CONSULTING

City of Kingston

Williamsville Transportation Plan

Operational Needs Analysis

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1.0 Introduction

The purpose of this memorandum is to document the results of the operational transportation network assessment undertaken for the Williamsville area.

Dillon Consulting Limited (Dillon) was retained by the City of Kingston to undertake an operational assessment of the Williamsville area for the 2036 horizon. The goal of the assessment was to review the road network's existing performance and assess how the road network may perform under two future land use/development scenarios. This also included consideration of alternate mode share scenarios for trip generations of future new development within the neighbourhood. The future land use scenarios are discussed further in Section 4.0.

The following sections describe the study area, analysis parameters, results, conclusions, and next steps.

2.0 Study Area

The focus of the study was on the main transportation corridors in Williamsville:

- Princess Street between Bath Road / Concession Street and Division Street;
- Concession Street between Princess Street and Division Street; and,
- Division Street between Concession Street / Stephen Street and Princess Street.

Williamsville contains a mix of residential, commercial and office land uses. The majority of the commercial land uses and high density residential land uses are located on Princess Street.

3.0 Methodology

3.1 Transportation Demands

City staff provided 2036 population and employment forecasts for the C.M.A. and for Williamsville specifically, based on two potential development scenarios within the Princess Street corridor: approved and active development, and ultimate development.

These population and employment forecasts were added to the C.M.A.[1] transportation demand model (VISUM) and used to estimate the future traffic volumes through Williamsville at the transportation corridor level.

The C.M.A.[1] transportation model is intended for strategic corridor-level analysis. To provide for more detailed intersection-level analysis, traffic generated by the proposed Williamsville developments was distributed to the road network manually outside of the C.M.A. model[1].

3.2 Operational Assessment

The operational analysis applied PTV Group's VISSIM microsimulation software, which is the industry-leading software for transportation microsimulation. Microsimulation involves simulating the behaviour of individual cars, buses, and pedestrians on a simulated transportation network. The model is used to assess the impact to motor vehicles in terms of delays, queuing, and travel time.

Cars in the model are given an origin and destination and are allowed to find their own routes through the simulated road network. The route finding process is iterative and allows vehicles to react and adapt to congestion in the model. This iterative route finding process allows the model to accurately assess future conditions.

Before testing future conditions, it was necessary to construct a model that replicated existing conditions. This step allows the model to better assess future conditions. Calibration involves adjustments to the transportation demands in the model and other parameters to match the travel patterns, travel times, and vehicle behaviour.

[1] Formerly referred to as the 'City-Wide model'

4.0 Study Foundations

The following sections document the population, employment, road network, and public transit assumptions that were used for the analysis.

4.1 Williamsville Growth

City staff provided population and employment projections for various 'blocks' in the study area for the 2036 horizon.

Figure 1 illustrates the location of the development blocks and the assumed location of vehicle driveways for each block.

4.1.1 Williamsville Population and Employment

Table 1 summarizes the population and employment for each block in the study area. There are two development levels that are being evaluated:

1. Approved & active development level; and,
2. Ultimate development level.

The following abbreviations are used for the table below and the rest of the document:

- Ex. for existing
- Units for residential dwelling units
- Appr. for approved and active development scenario
- Ult. for ultimate development scenario.

Figure 1: Williamsville Blocks and Assumed Vehicle Driveway Locations

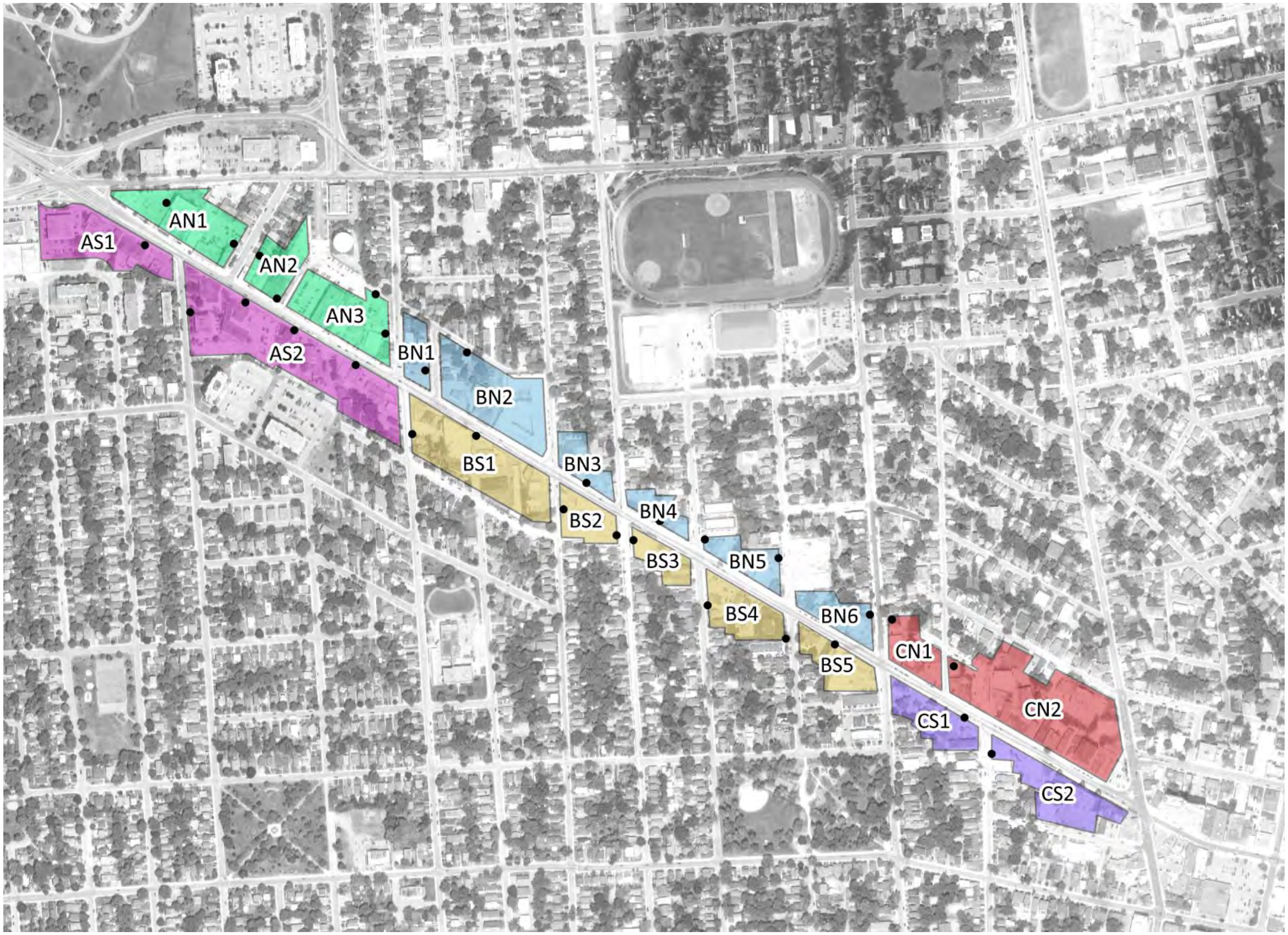


Table 1: Residential Dwellings, Population, and Employment by Block

Block	Ex. Units	Ex. People	Ex. Jobs	Appr. Units	Appr. People	Appr. Jobs	Ult. Units	Ult. People	Ult. Jobs
AN1	0	0	12	0	0	12	300	690	107
AN2	2	5	78	2	5	78	52	120	94
AN3	7	16	156	7	16	156	207	476	219
AS1	1	2	71	1	2	71	901	2,072	356
AS2	59	136	109	174	400	139	264	607	168
BN1	12	28	18	12	28	18	72	166	37
BN2	88	202	15	233	536	41	273	628	54
BN3	1	2	26	1	2	26	131	301	66
BN4	5	12	33	5	12	33	115	265	68
BN5	6	14	4	608	1,398	53	608	1,398	53
BN6	13	30	33	184	423	62	234	538	78
BS1	83	191	35	177	407	35	227	522	51
BS2	7	16	0	332	764	34	332	764	34
BS3	0	0	7	31	71	26	91	209	45
BS4	18	41	27	18	41	27	118	271	59
BS5	7	16	21	7	16	21	47	108	34
CN1	11	25	18	312	718	66	372	856	85
CN2	104	239	81	299	688	101	949	2,183	306
CS1	14	32	31	14	32	31	94	216	56
CS2	18	41	56	222	511	108	252	580	118
Growth				**+2,183**	**+5,021**	**+307**	**+5,183**	**+11,921**	**+1,257**
Total	**456**	**1,049**	**831**	**2,639**	**6,070**	**1,138**	**5,639**	**12,970**	**2,088**

Growth in the above table is compared to existing.

4.1.2 Trip Generation - Person

Table 2 lists the person trip generation rate, number of people and jobs, and the total person trip generation for the future development scenarios. The residential trip generation rate is consistent with the observed trip generation rates at 117 Park Street[2]. It is worth noting that the P.M. rate is 2.6x the A.M. rate and therefore the P.M. peak hour is very likely to govern the analysis.

Given the uncertainty with the type of employment, the employment trip generation rate was set was set to 0.6 trips per job, which assumes that 60% of employees will travel during the peak hour. This is reasonable and conservative for this analysis.

Table 2: Williamsville Trip Generation - Persons

	A.M. Peak Outbound	A.M. Peak Inbound	P.M. Peak Outbound	P.M. Peak Inbound
Trip generation rate per residential dwelling unit	0.24			0.63
Trip generation rate per job		0.6	0.6	
Person Trips - Approved +2,183 dwelling units +307 jobs	524	184	184	1,375
Person Trips - Ultimate +5,183 dwelling units +1,257 jobs	1,244	754	754	3,265

4.1.3 Trip Generation - Vehicles

The Williamsville area is very close to downtown Kingston and Queen's University and therefore the number of vehicle trips generated by the proposed residential developments is anticipated to be relatively low. It should be noted that a lower vehicle mode share means the new development within Williamsville will have less impact on the road network than may be expected.

[2] *City of Kingston Princess Street Corridor and Residential Area of Williamsville Neighbour Traffic Impact Study (September 12, 2018), Table 3.3.*

Two mode share scenarios were developed to assess the impact of the mode share assumption on the study area road network:

1. The first mode share scenario was based on previous studies of existing residential developments within the Princess Street corridor which showed an auto mode share of 22%; and,
2. The second mode share scenario was 35% auto mode share, which was based on the preliminary mode share results for Williamsville from the City's 2019 household travel survey.

It should be noted that these residential auto mode shares, including observations from existing residential land uses along the Princess Street corridor, are significantly lower than the City-wide 2034 target of 65% auto mode share. The employment auto mode share was held constant at 60%. The proximity to downtown is anticipated to influence the employment auto mode share slightly but not to the same extent to which it influences the residential auto mode share.

Table 3 summarizes the vehicle trip generation for the Approved and Ultimate land uses for the two auto mode share scenarios. The following abbreviations are used:

- M.S. for mode share
- Res. for residential and Emp. for Employment
- I.B. for inbound and O.B. for outbound

Table 3: Williamsville Trip Generation - Vehicles

Trip Type	Land Use	Res. M.S.	Emp. M.S.	A.M. Peak O.B.	A.M. Peak I.B.	P.M. Peak O.B.	P.M. Peak I.B.
Person	Appr.	N/A	N/A	524	184	184	1,375
Person	Ult.	N/A	N/A	1,244	754	754	3,265
Auto	Appr.	22%	60%	115	111	111	303
Auto	Appr.	35%	60%	183	111	111	481
Auto	Ult.	22%	60%	274	453	453	718
Auto	Ult.	35%	60%	435	453	453	1,143

Table 4 and **Table 5** summarize the trip generation by block for the two mode share scenarios. The 22%/35% values designate the applied auto mode share.

Table 4: Williamsville Trip Generation by Block - Vehicles – AM Peak Hour

Block	Appr. 22% O.B.	Appr. 22% I.B.	Appr. 35% O.B.	Appr. 35% I.B.	Ult. 22% O.B.	Ult. 22% I.B.	Ult. 35% O.B.	Ult. 35% I.B.
AN1	0	0	0	0	16	34	25	34
AN2	0	0	0	0	3	6	4	6
AN3	0	0	0	0	11	23	17	23
AS1	0	0	0	0	48	103	76	103
AS2	6	11	10	11	11	21	17	21
BN1	0	0	0	0	3	7	5	7
BN2	8	9	12	9	10	14	16	14
BN3	0	0	0	0	7	14	11	14
BN4	0	0	0	0	6	13	9	13
BN5	32	18	51	18	32	18	51	18
BN6	9	10	14	10	12	16	19	16
BS1	5	0	8	0	8	6	12	6
BS2	17	12	27	12	17	12	27	12
BS3	2	7	3	7	5	14	8	14
BS4	0	0	0	0	5	12	8	12
BS5	0	0	0	0	2	5	3	5
CN1	16	17	25	17	19	24	30	24
CN2	10	7	16	7	45	81	71	81
CS1	0	0	0	0	4	9	7	9
CS2	11	19	17	19	12	22	20	22
Total	**115**	**111**	**183**	**111**	**274**	**453**	**435**	**453**

Table 5: Williamsville Trip Generation by Block - Vehicles – PM Peak Hour

Block	Appr. 22% O.B.	Appr. 22% I.B.	Appr. 35% O.B.	Appr. 35% I.B.	Ult. 22% O.B.	Ult. 22% I.B.	Ult. 35% O.B.	Ult. 35% I.B.
AN1	0	0	0	0	34	42	34	66
AN2	0	0	0	0	6	7	6	11
AN3	0	0	0	0	23	28	23	44
AS1	0	0	0	0	103	125	103	198
AS2	11	16	11	25	21	28	21	45
BN1	0	0	0	0	7	8	7	13
BN2	9	20	9	32	14	26	14	41
BN3	0	0	0	0	14	18	14	29
BN4	0	0	0	0	13	15	13	24
BN5	18	83	18	133	18	83	18	133
BN6	10	24	10	38	16	31	16	49
BS1	0	13	0	21	6	20	6	32
BS2	12	45	12	72	12	45	12	72
BS3	7	4	7	7	14	13	14	20
BS4	0	0	0	0	12	14	12	22
BS5	0	0	0	0	5	6	5	9
CN1	17	42	17	66	24	50	24	80
CN2	7	27	7	43	81	117	81	186
CS1	0	0	0	0	9	11	9	18
CS2	19	28	19	45	22	32	22	52
Total	**111**	**303**	**111**	**481**	**453**	**718**	**453**	**1,143**

4.1.4 Trip Distribution - Vehicles

Traffic generated by the Williamsville development was manually distributed to the local road network using a cardinal distribution.

Table 6 summarizes the trip distribution used for the analysis. The distribution was based on the location of employment and residential land uses relative to the Williamsville area.

Table 6: Williamsville Trip Distribution - Vehicles

Cardinal Direction	Percent	Gateways in Study Area
North	30%	Division Street N, Princess Street N/W
East	20%	Stephen Street, Princess Street S/E
South	20%	Division Street S, Princess Street S/E
West	30%	Concession Street W, Princess Street N/W
Total	**100%**	

4.1.5 Trip Assignment - Vehicles

Traffic generated by the Williamsville development was added to the microsimulation model and the model was used to assign traffic to the transportation network. The microsimulation model uses an iterative process to determine the quickest path from the origin to the destination for each vehicle trip.

This assignment method was used because it allows vehicles to adapt to changing conditions and avoid congestion, as drivers do in real life. Williamsville has a grid-like road network and therefore it is anticipated that vehicles will use Collector and Local roads to avoid congestion on Arterial roads such as Princess Street, Division Street, and Concession Street. The amount to which this occurs will be quantified during the operational assessment.

4.2 Other Growth in Kingston

The growth occurring in Williamsville is anticipated to represent approximately 20% of the total population growth in Kingston between 2020 and 2036. The C.M.A. transportation demand model[3] was used to estimate the transportation impact of the other 80% of population growth outside Williamsville.

The transportation demand model uses population and employment data and mode share assumptions to estimate the number of vehicle trips generated in the future.

[3] Formerly called the 'City-Wide' model

4.2.1 C.M.A. Population and Employment

Table 7 summarizes the C.M.A. population and employment assumptions for four (4) land use scenarios. All scenarios include the student population.

The first land use scenario is the existing conditions scenario which was calibrated to existing traffic volumes. The second land use scenario is the forecasted population and employment based on the approved and active developments; this matches the C.M.A. population and employment projections[4].

The third land use scenario is the "Ultimate Williamsville Land Use scenario" which exceeds the City's population and employment projections. The additional growth is all located in Williamsville for this scenario.

The fourth land use scenario includes all approved C.M.A. growth except for growth in Williamsville. The growth in Williamsville was accounted for explicitly (as described in the previous section) and therefore the growth in Williamsville was removed from the C.M.A. model[5] to avoid double-counting for the operational assessment.

This fourth scenario shows that **without the Williamsville growth**, vehicle trips within and **through Williamsville itself** are only anticipated to increase by 2% total between 2020 and 2036. This shows that growth in other areas of Kingston do not significantly increase traffic volumes on Princess Street, Concession Street, or Division Street. This is likely due to a combination of factors such as:

- the three largest projected population growth areas are located northwest of Williamsville (along Princess Street) and east of Williamsville (North King's Town);
- these growth areas are anticipated to have good transit, walking, and cycling facilities and therefore the auto mode share will be lower and the vehicle trips generated by these developments will be lower;
- a large portion of the employment growth occurs north and west of Williamsville and therefore it does not travel through Williamsville; and,

[4] Figure 4-3 and Figure 6-1 from the *Population, Housing, and Employment Growth Forecast, 2016 to 2046, City of Kingston, Final Report (Watson & Associates Economists Ltd., March 5, 2019)*
[5] Formerly called the 'City-Wide' model

- the grid network in near the study area, which allows vehicles to use other routes if there is congestion on major roadways.

Table 7: C.M.A Population and Employment, and Williamsville Vehicle Trips

Land Use Scenario	C.M.A. Population	C.M.A. Employment	Williamsville Vehicle Trips
1.2016 Model Base	194,500	83,315	7,873
2.2036 Approved	220,208	92,201	8,410
3.2036 Approved + 'Ultimate' W.M.V. Growth	227,108	93,151	9,056
4.2036 Approved without any W.M.V. Growth	**215,187**	**91,816**	**7,993**

Table 8 summarizes the population change that was assumed for this analysis. **Figure 2** and **Figure 3**, respectively, illustrate the location of population and employment change areas and the amount of change for the Approved scenario.

Table 8: C.M.A. Population Change

Area	Approved Pop. Change	Approved Pop. Change	Ult. Pop Change
N.K.T.	15.0%	3,585	3,585
Williamsville	20.9%	5,020	**11,921 (+6,901)**
1	1.2%	286	286
2	0.6%	143	143
3	15.0%	3,579	3,579
4	3.3%	787	787
5	12.3%	2,935	2,935
6	14.8%	3,531	3,531
7	2.7%	644	644
8	5.2%	1,241	1,241
9	0.5%	119	119
10	1.5%	358	358
11	0.6%	143	143
12	5.0%	1,193	1,193
13	1.4%	334	334
Total	**100%**	**23,900**	**30,801**

Figure 2: C.M.A. Population Change (Approved Scenario)

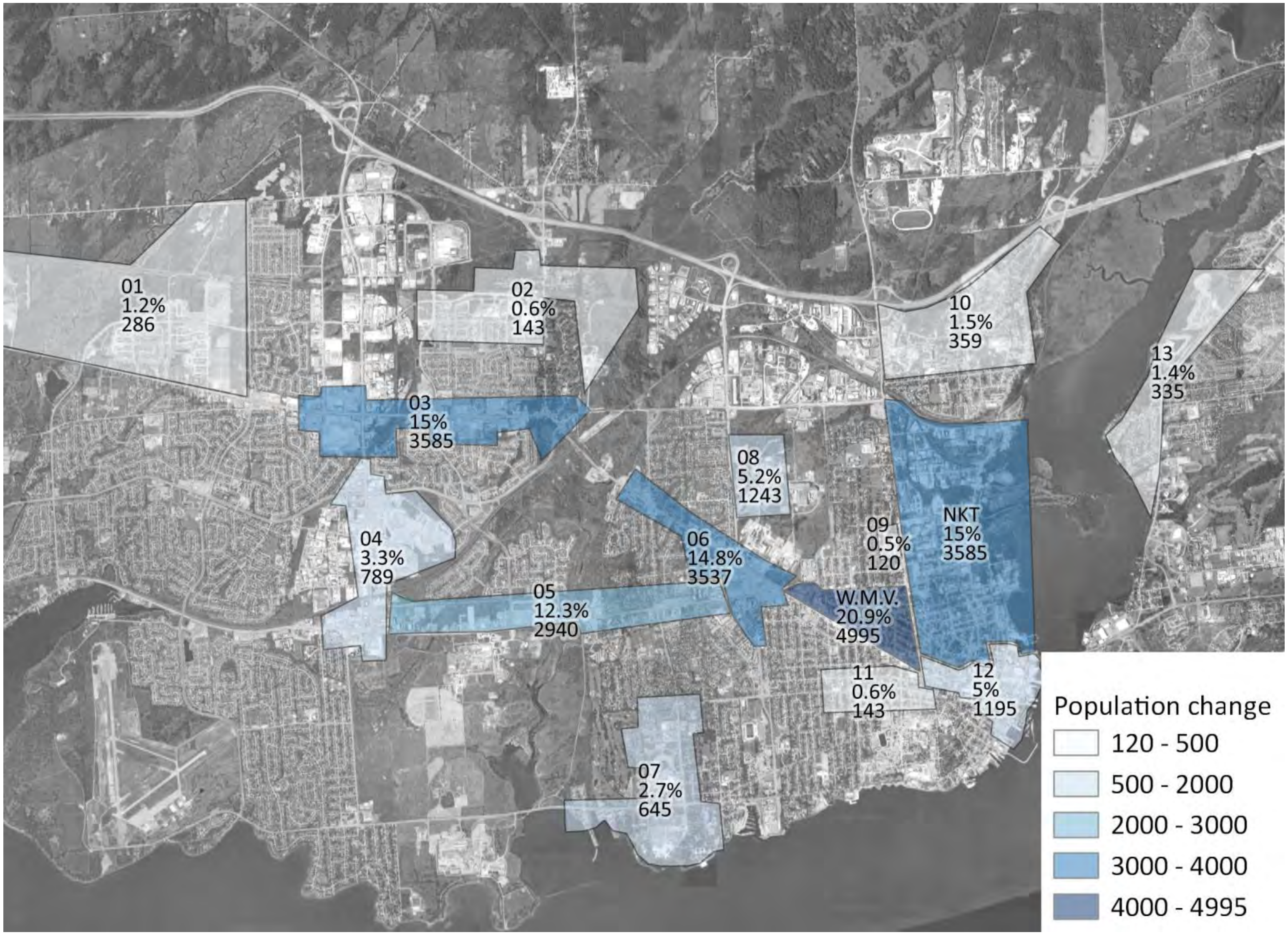
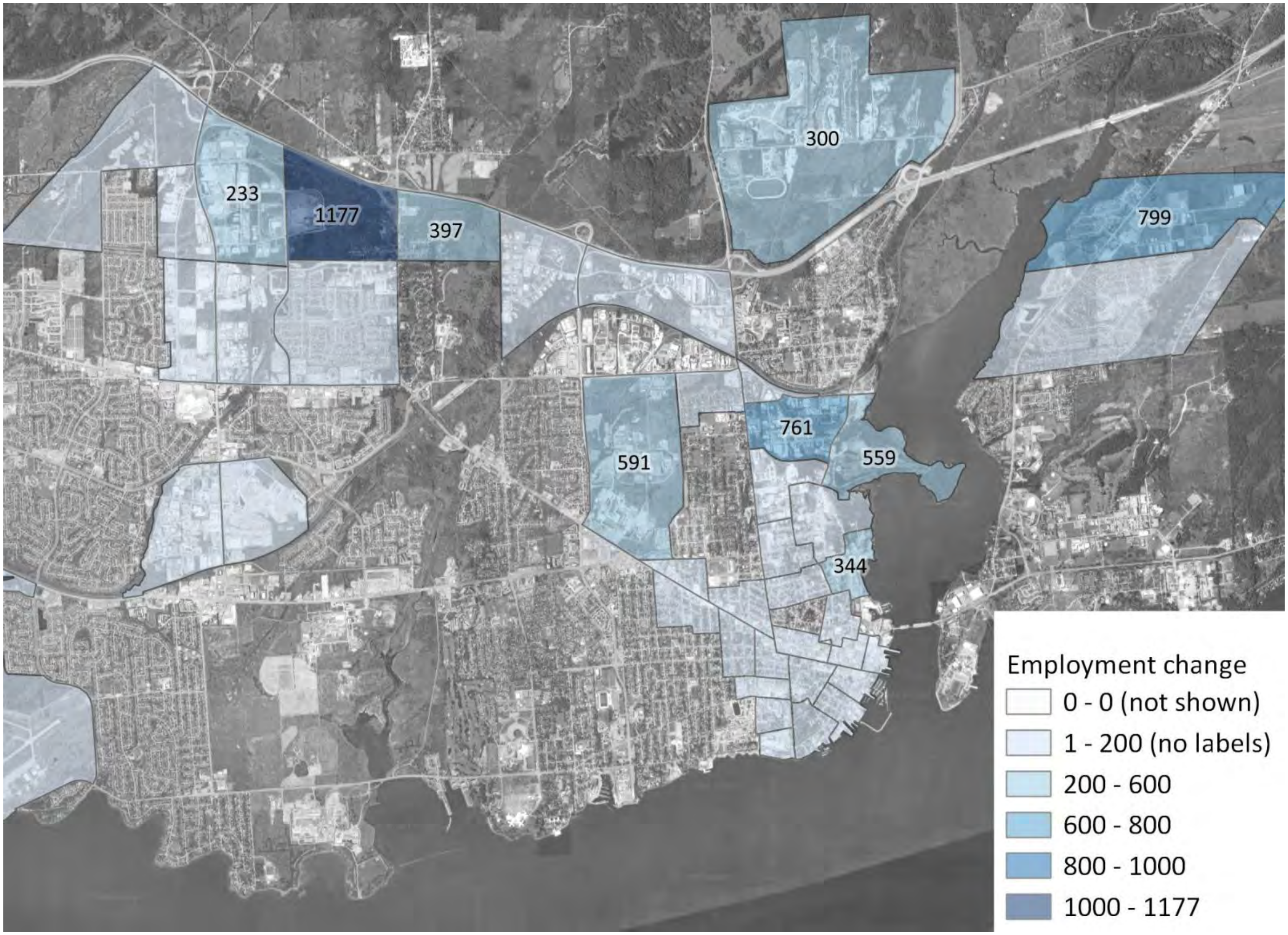


Figure 3: C.M.A. Employment Change (Approved Scenario)



4.2.2 Mode Share

The C.M.A. model[6] includes assumptions from the City of Kingston *Transportation Master Plan* (2015), which recommended a 2034 target of 9% transit trips, 17% active transportation, and 5% reduction from Transportation Demand Management (T.D.M.) for the 2034 horizon. These targets were referred to as the "Base" mode share.

For the analysis in this report, more aggressive targets were applied, as directed by City of Kingston council on December 1, 2015. These are referred to as the "Reduced" demand scenario and targeted 15% transit usage, 20% active transportation, and 5% T.D.M. "Reduced" refers to the reduction of auto trips on the network through increased use of sustainable travel modes.

Table 9 lists the C.M.A. model[6] mode share targets. The reduced mode share results in transit trips increasing from 9% to 15%, and an increase in active transportation trips from 17% to 20%, when compared to the base demand mode share.

Table 9: C.M.A. Model Mode Share Targets

Mode	2008 Household Travel Survey	2036 Base Mode Share	2036 Reduced Mode Share
Auto	81%	74%	65%
Transit	5%	9%	15%
Active Transportation	14%	17%	20%
Total	**100%**	**100%**	**100%**

4.2.3 Trip Distribution and Assignment

The vehicle trips resulting from population and employment growth were distributed to different areas within the model based on the location of new residential developments and employment locations. The model assigned these new vehicle trips to the road

[6] Formerly called the 'City-Wide' model

network through an iterative process of trial and error to reduce the overall delay to all road users. This is similar to how people select routes in reality.

4.3 Transportation Network Changes

4.3.1 Road Network

Within the study area itself, Division Street and Princess Street are identified for corridor optimization.

The assessment assumed that the following transportation projects would be implemented by the 2036 horizon, as per the K.T.M.P.:

1. Third Crossing bridge across the Cataraqui River;
2. J.C.B. widening between Division Street and Elliott Avenue;
3. J.C.B. widening between Portsmouth Avenue and Princess Street; and,
4. Leroy Grant Drive extension from Concession Street to Elliott Avenue / J.C.B.

The importance of these transportation projects as they relate to the Approved and Ultimate land uses will be considered in future modelling.

4.3.2 Public Transit

Princess Street is the main transit corridor in the City and there has been some consideration for transit priority lanes on Princess Street. This may prove a challenge in the future since Princess Street has a relatively narrow right-of-way of approximately 20 metres.

4.3.3 Active Transportation

Figure 4 illustrates the existing and planned active transportation network within the study area.

Princess Street is currently a designated spine cycling route. Concession Street and Division Street are identified as proposed spine cycling routes.

MacDonnell Street, Albert Street, Alfred Street, University Avenue, and York Street are identified as proposed neighbourhood cycling routes.

Figure 4: Planned Active Transportation Network

Source: City of Kingston Active Transportation Master Plan, “Walk ‘n’ Roll Kingston” – Technical Appendix G – Neighbourhood Focus - Area G (June 2018)

5.0 Operational Assessment

An operational assessment was completed using transportation microsimulation software to evaluate:

1. the capacity of the Williamsville transportation network;
2. the impact on travel times through the study area;
3. the potential for vehicles to infiltrate residential areas; and,
4. the impact on intersection operations.

Before conducting the operational assessment it was necessary to calibrate the microsimulation model.

5.1 Calibration

Model calibration was performed to ensure the transportation demands are correct and that the model accurately represents the travel patterns and traveller behaviours that occur in reality.

A set of calibration standards were employed to measure the accuracy of the model. The standards used in this analysis are based on FHWA's *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Models*, and include a set of statistical tests to verify the validity of the model results in comparison to observed field data.

Table 10 presents the FHWA Calibration standards.

The model was also calibrated for travel time through the major corridors. The Google Distance Matrix Application Programming Interface (API) was queried to determine real-world travel times; it is crowd-sourced from mobile phones running Google Maps and uses historical averages which represent hundreds of measurements. It was used as it allowed a much larger sample size than would otherwise be possible.

Table 11 compares the target observed travel time against the modelled travel times. All modelled travel times are within 15% or within 60 seconds otherwise. This demonstrates that the model is well calibrated in terms of travel times.

Table 10: FHWA Calibration Standards

Criteria and Measures	Calibration Acceptance Targets
Hourly Flows, Model Versus Observed	
Individual Link Flows	
Within 15%, for 700 veh/h < Flow < 2700 veh/h	> 85% of cases
Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases
Within 400 veh/h, for Flow > 2700 veh/h	> 85% of cases
Sum of All Link Flows	Within 5% of sum of all link counts
GEH Statistic < 5 for Individual Link Flows*	> 85% of cases
GEH Statistic for Sum of All Link Flows	GEH < 4 for sum of all link counts
Travel Times, Model Versus Observed	
Journey Times, Network	
Within 15% (or 1 min, if higher)	> 85% of cases
Visual Audits	
Individual Link Speeds	
Visually Acceptable Speed-Flow Relationship	To analyst's satisfaction
Bottlenecks	
Visually Acceptable Queuing	To analyst's satisfaction

*The GEH statistic is computed as follows:

$$GEH = \sqrt{\frac{(E-V)^2}{(E+V)/2}} \quad (4)$$

where:

E = model estimated volume
V = field count

Source: "Freeway System Operational Assessment," *Paramics Calibration and Validation Guidelines* (Draft), Technical Report I-33, Wisconsin DOT, District 2, June 2002.

Table 11: Model Calibration – Travel Times

Scenario	Princess St. E.B.	Princess St. W.B.	Concession St. E.B.	Concession St. W.B.	Division St.	Division St. S.B.
A.M. Obs.	5:30	4:30	3:15	3:15	2:30	2:45
A.M. Model	5:00	5:15	4:00	3:45	2:45	2:30
A.M. Diff.	30s	45s	45s	30s	15s	15s
A.M. Diff. %	9%	17%	23%	15%	10%	9%
P.M. Obs.	6:30	5:30	3:45	4:00	3:15	3:00
P.M. Model	5:45	5:00	4:45	5:00	2:45	3:00
P.M. Diff.	45s	30s	60s	60s	30s	0s
P.M. Diff. %	12%	9%	27%	25%	15%	0%

Table 12 and **Table 13** summarize the model calibration results for intersection volumes. The calibration was checked for turns (at intersections) and links (between intersections). The results show the model is within a reasonable calibration range.

In many cases there are only one or two turns or links for a particular criteria which are below the targets (e.g. 14/17 or 4/5). The overall volumes during the AM peak hour are higher than the counted volumes; however, this is conservative and therefore it is not considered an issue.

Overall, the model is suitably calibrated for assessing the impacts of the proposed Williamsville developments.

Table 12: Model Calibration – Turns and Link Volumes - Weekday AM Peak

Turns	Passed 4 of 6								
Criteria	**Flow Range**		**Criteria**		**Goal**	**Current**	**Count**	**Model**	**Pass**
Within 75 veh/h, for Flow < 400 veh/h >85% of cases	0	400	75	veh	85%	97%	144	139	✓
Within 0.2%, for 400 veh/h < Flow < 1200 > 85% of case	400	1,200	20%	%	85%	82%	17	14	✗
Within 300 veh/h, for Flow > 1200 veh/h > 85% of case	1,200		300	veh	85%	--	0	0	
Sum of all flows within 0.05% of sum of all counts	Overall		5%	%	5%	4%	19,200	20,021	✓
GEH < 5 for individual flows >85% of cases	Overall		5	GEH	85%	89%	161	144	✓
GEH < 10 for individual flows, 95% of cases	Overall		10	GEH	95%	100%	161	161	✓
GEH < 4 for sum of all counts	Overall		4	GEH	4.0	5.9	19,200	20,021	✗

Links	Passed 4 of 6								
Criteria	**Flow Range**		**Criteria**		**Goal**	**Current**	**Count**	**Model**	**Pass**
Within 100 veh/h, for Flow < 700 veh/h >85% of cases	0	700	100	veh	85%	95%	56	53	✓
Within 0.15%, for 700 veh/h < Flow < 2700 > 85% of ca	700	2,700	15%	%	85%	80%	5	4	✗
Within 400 veh/h, for Flow > 2700 veh/h > 85% of case	2,700		400	veh	85%	--	0	0	
Sum of all flows within 5% of sum of all counts	Overall		5	%	5%	4%	19,200	20,021	✓
GEH < 5 for individual flows >85% of cases	Overall		5	GEH	85%	85%	61	52	✓
GEH < 10 for individual flows, 95% of cases	Overall		10	GEH	95%	97%	61	59	✓
GEH < 4 for sum of all counts	Overall		4	GEH	4.0	5.9	19,200	20,021	✗

Table 13: Model Calibration – Turns and Link Volumes - Weekday PM Peak

Turns	Passed 5 of 6								
Criteria	**Flow Range**		**Criteria**		**Goal**	**Current**	**Count**	**Model**	**Pass**
Within 75 veh/h, for Flow < 400 veh/h >85% of cases	0	400	75	veh	85%	96%	135	129	✓
Within 0.2%, for 400 veh/h < Flow < 1200 > 85% of case	400	1,200	20%	%	85%	83%	29	24	✗
Within 300 veh/h, for Flow > 1200 veh/h > 85% of case	1,200		300	veh	85%	--	0	0	
Sum of all flows within 0.05% of sum of all counts	Overall		5%	%	5%	1%	25,959	25,804	✓
GEH < 5 for individual flows >85% of cases	Overall		5	GEH	85%	86%	164	141	✓
GEH < 10 for individual flows, 95% of cases	Overall		10	GEH	95%	98%	164	161	✓
GEH < 4 for sum of all counts	Overall		4	GEH	4.0	1.0	25,959	25,804	✓

Links	Passed 5 of 6								
Criteria	**Flow Range**		**Criteria**		**Goal**	**Current**	**Count**	**Model**	**Pass**
Within 100 veh/h, for Flow < 700 veh/h >85% of cases	0	700	100	veh	85%	90%	50	45	✓
Within 0.15%, for 700 veh/h < Flow < 2700 > 85% of ca	700	2,700	15%	%	85%	73%	11	8	✗
Within 400 veh/h, for Flow > 2700 veh/h > 85% of case	2,700		400	veh	85%	--	0	0	
Sum of all flows within 5% of sum of all counts	Overall		5	%	5%	1%	25,959	25,804	✓
GEH < 5 for individual flows >85% of cases	Overall		5	GEH	85%	85%	61	52	✓
GEH < 10 for individual flows, 95% of cases	Overall		10	GEH	95%	98%	61	60	✓
GEH < 4 for sum of all counts	Overall		4	GEH	4.0	1.0	25,959	25,804	✓

5.2 Results

The analysis was performed using a combination of performance metrics including: overall network capacity, travel time measurements, vehicle-kilometers travelled (VKT), and intersection-level delay, queues, and level-of-service (LOS). The use of multiple performance metrics allows for a better understanding of what is happening and why it is happening.

5.2.1 Network Capacity

Table 14 summarizes the overall network capacity results for the 'no mitigation' scenario. The operational model is for a relatively small area. Unmet demand refers to vehicles that could not "enter" the model due to congestion in the model.

These results show that the Williamsville transportation network is able to accommodate the future demands for all scenarios except the Ultimate development PM peak hour scenario. This scenario shows a reduction in the percentage of trips completed (93-95%), a reduction in the average speed (16-18 km/h), and an increase of the trips in progress (426-539).

Table 14: Network Capacity - No Mitigation

Scenario	Total Demand	Trips Completed	Trips in Progress	Unmet Demand	Average Speed	Trips Completed
AM 2019 Ex.	6,151	5,990	161	0	28	97%
AM 2036 No WMV Growth	6,274	6,084	162	0	28	97%
AM 2036 Appr. Auto 22%	6,387	6,220	167	0	28	97%
AM 2036 Appr. Auto 35%	6,489	6,318	171	0	27	97%
AM 2036 Ult. Auto 22%	7,071	6,881	190	0	27	97%
AM 2036 Ult. Auto 35%	7,484	7,285	199	0	26	97%
PM 2019 Ex.	9,015	8,775	240	0	25	97%
PM 2036 No WMV Growth	9,124	8,884	240	0	24	97%
PM 2036 Appr. Auto 22%	9,250	8,981	260	9	24	97%
PM 2036 Appr. Auto 35%	9,352	9,044	269	39	23	97%
PM 2036 Ult. Auto 22%	10,295	9,790	426	79	18	95%
PM 2036 Ult. Auto 35%	10,843	10,122	539	182	16	93%

5.2.2 Travel Times

Travel times provide an easy to understand measure which takes into account the combined impacts of several intersections and the impact on traffic progression through the corridor.

Table 15 summarizes the travel time results for the 'no mitigation' scenario.

For the Approved land use, travel times are anticipated to increase by 30 seconds or less during both the AM and PM peak hours which is not significant.

For the Ultimate land use, travel times are anticipated to increase significantly during the PM peak hour for Princess Street eastbound, Concession Street eastbound, Concession Street westbound, and Division Street southbound.

The increases are from 6:45 to 8:15, 4:45 to 9:45, 5:00 to 8:30, and 3:00 to 6:30. These are increases of 3-5 minutes over a relatively short distance (2 km for Princess Street, 1.5 km for Concession Street, and 1 km for Division Street).

Table 15: Travel Time Results – No Mitigation

Scenario	Princess St. E.B.	Princess St. W.B.	Concession St. E.B.	Concession St. W.B.	Division St. N.B.	Division St. S.B.
AM 2019 Ex.	5:00	5:15	4:00	3:45	2:45	2:30
AM 2036 No WMV Growth	5:00	5:15	4:15	4:00	2:45	2:45
AM 2036 Appr. Auto 22%	5:00	5:15	4:00	3:45	2:45	2:45
AM 2036 Appr. Auto 35%	5:15	5:15	4:00	3:45	2:45	2:45
AM 2036 Ult. Auto 22%	5:15	5:30	4:15	4:15	2:45	2:45
AM 2036 Ult. Auto 35%	5:30	5:30	4:30	4:15	2:45	2:45
PM 2019 Ex.	5:45	5:00	4:45	5:00	2:45	3:00
PM 2036 No WMV Growth	6:15	5:00	5:00	4:45	2:45	2:45
PM 2036 Appr. Auto 22%	6:15	5:00	5:45	5:30	3:00	3:00
PM 2036 Appr. Auto 35%	6:15	5:00	5:45	5:30	3:00	3:00
PM 2036 Ult. Auto 22%	7:30	5:15	8:30	7:00	3:15	6:00
PM 2036 Ult. Auto 35%	8:15	5:45	9:45	8:30	3:30	6:30

5.2.3 Vehicle-Kilometres Travelled by Road Class

Table 16 summarizes thousand-vehicle-kilometers-travelled (k.V.K.T.) by road class for the for the 'no mitigation' scenario.

The Arterials include Princess Street, Concession Street, Division Street, Leroy Grant Drive, Stephen Street; the Collectors include Alfred Street and Victoria Street, and the Local roads are all other roadways.

All scenarios and time periods show an increase in the amount of traffic on local roads. This is particularly true during the Ultimate PM peak hour scenario which shows Local traffic has increased 75% compared to Existing and 30% compared to the Approved scenario.

Some of this is due to the development being located on a local roadway, but some is due to traffic infiltration through residential areas to avoid congestion elsewhere. This is not surprising given that Williamsville has a grid network. Mitigating this will likely require a combination of turn prohibitions, traffic calming, and traffic signal optimization.

Table 16: Results - V.K.T. by Road Class – No Mitigation

Scenario	k.V.K.T. Arterial	k.V.K.T. Collector	k.V.K.T. Local	k.V.K.T. Total	% Art.	% Coll.	% Local
AM 2019 Ex.	3,800	400	400	4,600	83%	9%	9%
AM 2036 No WMV Growth	3,800	400	400	4,600	83%	9%	9%
AM 2036 Appr. Auto 22%	3,950	400	450	4,800	82%	8%	9%
AM 2036 Appr. Auto 35%	4,000	450	450	4,900	82%	9%	9%
AM 2036 Ult. Auto 22%	4,300	400	550	5,250	82%	8%	10%
AM 2036 Ult. Auto 35%	4,500	450	600	5,550	81%	8%	11%
PM 2019 Ex.	5,450	450	600	6,500	84%	7%	9%
PM 2036 No WMV Growth	5,500	450	600	6,550	84%	7%	9%
PM 2036 Appr. Auto 22%	5,500	450	800	6,750	81%	7%	12%
PM 2036 Appr. Auto 35%	5,550	450	800	6,800	82%	7%	12%
PM 2036 Ult. Auto 22%	5,850	550	1,050	7,450	79%	7%	14%
PM 2036 Ult. Auto 35%	6,000	600	1,100	7,700	78%	8%	14%

5.2.4 Intersection Performance

The scenarios were also compared in terms of intersection performance (delay, queues, and level of service) for study area intersections.

The Approved land use shows all intersections operating at LOS C or better. There are several turning movements operating at a LOS E or F, which shows there is room for improvement.

The Ultimate land use shows four intersections operating at LOS D or worse and the sum of the delays for all study area intersections is 100% higher than existing conditions and 50% higher than the approved land use during the PM peak hour.

This reinforces the findings from the previous sections which demonstrate that the Approved land use can be accommodated without significant issues, but without mitigation there is a lack of capacity for vehicle trips to accommodate the Ultimate land use during the PM peak hour.

Appendix A contains the detailed intersection performance worksheets, which list the number of vehicles, delay, level-of-service (LOS), 50th and 95th percentile queues for each turning movement and the overall intersection for study area intersections.

6.0 Conclusion

Overall the study area roads appear capable of accommodating the additional traffic fairly well except for the Ultimate land use during the weekday PM peak hour. This conclusion is based on analysis without any optimization or mitigation in the Williamsville study area.

The ability of Williamsville to accommodate this growth is due largely to the low auto mode share that was assumed for the residential growth; the low auto mode share means the growth will result in relatively “few” vehicle trips.

“Few” in this case is still 400-600 vehicles per hour for the Approved land use and 900-1,500 vehicles per hour for the Ultimate land use. This vehicle trip generation has an impact on the road network and results in increased travel times, delays, queuing, etc., as well as traffic infiltration through the residential areas.

The growth in Williamsville will have relatively high walking, cycling, and transit mode shares and therefore it is important to have adequate facilities to accommodate the additional demands for these modes.

Improvements to walking, cycling, and transit facilities are key to maintaining the low auto mode share, which is critical to maintaining the viability of the Williamsville growth. The issue, however, is the narrow right-of-way for the Princess Street corridor (20 metres) which is an important Arterial road through the study area.

Due to the limited right-of-way, it is likely not possible for Princess Street to simultaneously be a transit priority corridor, a cycling spine route, a pedestrian-friendly corridor, and an Arterial class roadway leading to the downtown core. Therefore, compromises will need to be made in a way that improves multi-modal mobility, but recognizes the limited space to accommodate all modes of travel in a narrow corridor.

It is critical to develop a vision for the study area transportation network. This operational assessment should be revisited once this vision has been developed to determine how the needs of transportation modes can be balanced to support the growth in Williamsville and the City of Kingston.

7.0 Next Steps

The next steps for the analysis are to identify the preferred role, function, and cross-section for the Princess Street, Concession Street, and Division Street transportation corridors.

We suggest additional analysis using optimized traffic control signal timings to improve throughput in the corridors based on their identified role and function. We also suggest investigating turn prohibitions and other traffic calming measures and the impact they may have on traffic infiltration and network operations.

Appendix A

Intersection Performance Worksheets

Williamsville Operational Analysis

2019 AM Peak Hour

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	2,606	43.3	65.8	26.9	21.4	C
20	Princess St / Regent St	TWSC	1,009	0.2	36.7	2.3	0.1	-
30	Princess St / Drayton Av	TWSC	957	0.0	50.8	1.9	0.1	-
40	Princess St / Macdonnell Av	Signalized	887	51.0	94.4	16.1	9.5	B
50	Princess St / Smith St	TWSC	733	28.8	33.0	1.6	0.0	-
60	Princess St / Victoria St	Signalized	879	8.4	52.7	7.0	3.5	A
70	Princess St / Nelson St	TWSC	786	0.3	3.8	1.6	0.1	-
80	Princess St / Albert St	Signalized	828	30.4	80.4	13.1	9.0	B
90	Princess St / Frontenac St	TWSC	775	0.0	0.1	1.0	0.1	-
100	Princess St / Alfred St	Signalized	1,109	44.4	74.2	23.7	16.7	C
110	Princess St / Chatham St	TWSC	747	0.0	25.8	1.5	0.0	-
120	Princess St / University Av	Signalized	723	15.0	56.2	5.4	2.4	A
130	Princess St / Division St	Signalized	950	18.2	45.8	16.9	12.3	B
140	Concession St / Drayton Av	TWSC	954	0.2	140.2	7.0	2.8	-
150	Concession St / Leroy Grant Dr (S)	TWSC	912	44.8	74.7	6.9	2.9	-
155	Concession St / Leroy Grant Drive (N)	TWSC	750	0.2	1.0	0.6	0.2	-
160	Concession St / Macdonnell St	Signalized	1,559	50.3	72.6	9.8	6.1	A
170	Concession St / Connaught St	TWSC	1,346	0.0	52.4	1.7	0.6	-
180	Concession St / Victoria St	Signalized	1,426	38.9	88.3	11.3	7.0	B
190	Concession St / Nelson St	TWSC	1,303	0.1	60.4	1.3	0.1	-
200	Concession St / Kingscourt Av	TWSC	1,283	0.2	40.4	1.3	0.4	-
210	Concession St / Fergus St	TWSC	1,315	0.2	40.3	2.7	1.4	-
220	Concession St / Grey St	TWSC	1,351	10.2	53.2	7.5	4.1	-
230	Concession St / Alfred St	Signalized	1,416	41.6	62.2	13.1	8.0	B
240	Concession St / Lansdowne St	TWSC	968	0.0	19.3	1.1	0.0	-
250	Concession St / Division St	Signalized	1,635	39.8	97.4	21.4	15.5	C
260	Adelaide St / Division St	TWSC	692	0.0	25.4	0.7	0.1	-
270	Stanley St / Division St	TWSC	777	0.5	20.8	2.6	0.9	-
280	Pine St / Division St	Signalized	837	18.4	48.2	8.7	5.1	A
290	Quebec St / Division St	TWSC	718	0.0	29.9	0.8	0.0	-
300	York St / Division St	Signalized	787	15.7	35.7	6.6	4.1	A
310	Main St / Division St	TWSC	644	21.3	30.1	0.9	0.4	-
320	Hamilton St / Division St	TWSC	622	0.0	0.0	0.0	0.0	-
330	Raglan St / Division St	TWSC	625	0.0	0.0	0.1	0.0	-
340	Elm St / Division St	TWSC	614	0.0	0.0	0.1	0.0	-
350	Ellice St / Division St	TWSC	617	0.0	0.1	0.2	0.0	-
360	Colborne St / Division St	TWSC	612	0.0	13.5	1.0	0.0	-
370	Queen St / Division St	Signalized	836	25.8	47.6	13.8	7.8	B
	Total		37,588	548	1,673	241	143	

2020-02-28

Williamsville Operational Analysis

2019 AM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
10	Princess St / Concession St	Signalized	NBL	141	25	40	42	50	D	50.0	D	26.9	C
10	Princess St / Concession St	Signalized	NBT	110	25	40	38	45	D				
10	Princess St / Concession St	Signalized	NBR	37	25	40	0	3	A				
10	Princess St / Concession St	Signalized	SBL	490	70	95	29	37	D				
10	Princess St / Concession St	Signalized	SBT	481	70	95	29	37	D				
10	Princess St / Concession St	Signalized	SBR	31	70	95	14	18	B				
10	Princess St / Concession St	Signalized	EBT	418	35	60	26	32	C				
10	Princess St / Concession St	Signalized	EBR	190	35	60	0	2	A				
10	Princess St / Concession St	Signalized	WBT	236	20	40	26	31	C				
10	Princess St / Concession St	Signalized	WBR	343	20	40	0	0	A				
10	Princess St / Concession St	Signalized	WBL	129	20	40	1	4	A				
20	Princess St / Regent St	TWSC	NBL	3	5	10	1	9	A	11.0	B	2.3	A
20	Princess St / Regent St	TWSC	NBR	29	5	10	3	11	B				
20	Princess St / Regent St	TWSC	EBT	618	0	55	0	3	A				
20	Princess St / Regent St	TWSC	EBR	49	0	55	0	2	A				
20	Princess St / Regent St	TWSC	WBL	7	0	0	6	9	A				
20	Princess St / Regent St	TWSC	WBT	303	0	0	0	0	A				
30	Princess St / Drayton Av	TWSC	SBL	0	0	5	0	0	A	8.0	A	1.9	A
30	Princess St / Drayton Av	TWSC	SBR	12	0	5	2	8	A				
30	Princess St / Drayton Av	TWSC	EBL	100	0	75	1	3	A				
30	Princess St / Drayton Av	TWSC	EBT	548	0	75	0	2	A				
30	Princess St / Drayton Av	TWSC	WBT	295	0	0	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	2	0	0	0	1	A				
40	Princess St / Macdonnell Av	Signalized	NBL	41	5	20	12	18	B	20.0	B	16.1	B
40	Princess St / Macdonnell Av	Signalized	NBT	18	5	20	15	20	B				
40	Princess St / Macdonnell Av	Signalized	NBR	27	5	20	3	9	A				
40	Princess St / Macdonnell Av	Signalized	SBL	11	40	40	13	19	B				
40	Princess St / Macdonnell Av	Signalized	SBT	19	40	40	14	19	B				
40	Princess St / Macdonnell Av	Signalized	SBR	42	40	40	3	12	B				
40	Princess St / Macdonnell Av	Signalized	EBL	7	70	135	12	18	B				
40	Princess St / Macdonnell Av	Signalized	EBT	467	70	135	10	17	B				
40	Princess St / Macdonnell Av	Signalized	EBR	28	70	135	9	16	B				
40	Princess St / Macdonnell Av	Signalized	WBL	0	30	50	0	0	A				
40	Princess St / Macdonnell Av	Signalized	WBT	219	30	50	9	15	B				
40	Princess St / Macdonnell Av	Signalized	WBR	8	30	50	5	12	B				
50	Princess St / Smith St	TWSC	SBL	1	40	40	0	0	A	12.0	B	1.6	A
50	Princess St / Smith St	TWSC	SBR	22	40	40	1	12	B				
50	Princess St / Smith St	TWSC	EBL	2	40	40	0	0	A				
50	Princess St / Smith St	TWSC	EBT	503	40	40	0	1	A				
50	Princess St / Smith St	TWSC	WBT	205	0	15	0	2	A				
50	Princess St / Smith St	TWSC	WBR	0	0	15	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	19	10	25	14	21	C	30.0	C	7.0	A
60	Princess St / Victoria St	Signalized	NBT	33	10	25	18	25	C				
60	Princess St / Victoria St	Signalized	NBR	45	10	25	6	13	B				
60	Princess St / Victoria St	Signalized	SBL	4	5	20	20	30	C				
60	Princess St / Victoria St	Signalized	SBT	57	5	20	16	21	C				
60	Princess St / Victoria St	Signalized	SBR	3	5	20	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	1	10	70	0	0	A				
60	Princess St / Victoria St	Signalized	EBT	491	10	70	1	4	A				
60	Princess St / Victoria St	Signalized	EBR	7	10	70	1	4	A				
60	Princess St / Victoria St	Signalized	WBL	24	5	35	5	10	A				
60	Princess St / Victoria St	Signalized	WBT	180	5	35	2	4	A				
60	Princess St / Victoria St	Signalized	WBR	15	5	35	0	4	A				
70	Princess St / Nelson St	TWSC	NBL	2	0	5	0	0	A	17.0	C	1.6	A
70	Princess St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	NBR	7	0	5	1	8	A				
70	Princess St / Nelson St	TWSC	SBL	8	5	5	3	17	C				
70	Princess St / Nelson St	TWSC	SBT	4	5	5	5	15	B				
70	Princess St / Nelson St	TWSC	SBR	29	5	5	1	8	A				
70	Princess St / Nelson St	TWSC	EBL	13	0	5	0	2	A				
70	Princess St / Nelson St	TWSC	EBT	532	0	5	0	1	A				
70	Princess St / Nelson St	TWSC	EBR	3	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	WBL	1	0	0	5	9	A				
70	Princess St / Nelson St	TWSC	WBT	187	0	0	0	1	A				
70	Princess St / Nelson St	TWSC	WBR	0	0	0	0	0	A				

Williamsville Operational Analysis

2019 AM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
80	Princess St / Albert St	Signalized	NBL	13	5	15	15	21	C	26.0	C	13.1	B
80	Princess St / Albert St	Signalized	NBT	16	5	15	13	18	B				
80	Princess St / Albert St	Signalized	NBR	25	5	15	1	6	A				
80	Princess St / Albert St	Signalized	SBL	2	0	10	5	9	A				
80	Princess St / Albert St	Signalized	SBT	30	0	10	10	13	B				
80	Princess St / Albert St	Signalized	SBR	3	0	10	0	5	A				
80	Princess St / Albert St	Signalized	EBL	0	40	100	0	0	A				
80	Princess St / Albert St	Signalized	EBT	535	40	100	10	14	B				
80	Princess St / Albert St	Signalized	EBR	16	40	100	8	12	B				
80	Princess St / Albert St	Signalized	WBL	8	15	55	22	26	C				
80	Princess St / Albert St	Signalized	WBT	180	15	55	6	10	A				
80	Princess St / Albert St	Signalized	WBR	0	15	55	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	1	0	5	0	0	A	11.0	B	1.0	A
90	Princess St / Frontenac St	TWSC	NBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	NBR	1	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	8	0	5	3	11	B				
90	Princess St / Frontenac St	TWSC	SBR	13	0	5	1	7	A				
90	Princess St / Frontenac St	TWSC	EBL	9	0	0	1	5	A				
90	Princess St / Frontenac St	TWSC	EBT	544	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	EBR	5	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBL	4	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBT	189	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	1	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	25	15	45	15	22	C	35.0	C	23.7	C
100	Princess St / Alfred St	Signalized	NBT	103	15	45	12	18	B				
100	Princess St / Alfred St	Signalized	NBR	68	15	45	6	12	B				
100	Princess St / Alfred St	Signalized	SBL	27	25	45	14	22	C				
100	Princess St / Alfred St	Signalized	SBT	129	25	45	14	21	C				
100	Princess St / Alfred St	Signalized	SBR	51	25	45	7	13	B				
100	Princess St / Alfred St	Signalized	EBL	48	70	105	18	25	C				
100	Princess St / Alfred St	Signalized	EBT	484	70	105	21	29	C				
100	Princess St / Alfred St	Signalized	EBR	7	70	105	18	25	C				
100	Princess St / Alfred St	Signalized	WBL	7	20	45	26	35	C				
100	Princess St / Alfred St	Signalized	WBT	137	20	45	19	25	C				
100	Princess St / Alfred St	Signalized	WBR	23	20	45	0	3	A				
110	Princess St / Chatham St	TWSC	SBL	0	0	0	0	0	A	2.0	A	1.5	A
110	Princess St / Chatham St	TWSC	SBR	0	0	0	0	0	A				
110	Princess St / Chatham St	TWSC	EBL	12	0	20	0	2	A				
110	Princess St / Chatham St	TWSC	EBT	563	0	20	0	2	A				
110	Princess St / Chatham St	TWSC	WBT	169	0	45	0	0	A				
110	Princess St / Chatham St	TWSC	WBR	3	0	45	0	0	A				
120	Princess St / University Av	Signalized	NBL	21	5	10	19	24	C	24.0	C	5.4	A
120	Princess St / University Av	Signalized	NBR	20	5	10	2	7	A				
120	Princess St / University Av	Signalized	EBT	482	20	70	2	5	A				
120	Princess St / University Av	Signalized	EBR	49	20	70	1	5	A				
120	Princess St / University Av	Signalized	WBL	2	0	20	0	3	A				
120	Princess St / University Av	Signalized	WBT	149	0	20	2	4	A				
120	Princess St / University Av	Signalized	NBT	0	5	10	0	0	A				
120	Princess St / University Av	Signalized	SBL	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBT	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBR	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	EBL	0	20	70	0	0	A				
120	Princess St / University Av	Signalized	WBR	0	0	20	0	0	A				
130	Princess St / Division St	Signalized	NBL	16	5	20	12	24	C	28.0	C	16.9	B
130	Princess St / Division St	Signalized	NBT	53	5	20	11	17	B				
130	Princess St / Division St	Signalized	NBR	1	5	20	0	0	A				
130	Princess St / Division St	Signalized	SBL	142	5	45	4	6	A				
130	Princess St / Division St	Signalized	SBT	96	5	45	3	4	A				
130	Princess St / Division St	Signalized	SBR	141	5	45	0	0	A				
130	Princess St / Division St	Signalized	EBL	134	30	50	21	28	C				
130	Princess St / Division St	Signalized	EBT	355	30	50	20	27	C				
130	Princess St / Division St	Signalized	EBR	12	30	50	8	16	B				

Williamsville Operational Analysis

2019 AM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	34	5	10	23	32	D	32.0	D	7.0	A
140	Concession St / Drayton Av	TWSC	EBT	908	0	145	2	6	A				
140	Concession St / Drayton Av	TWSC	EBR	12	0	145	8	15	B				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	4	0	5	8	20	C	20.0	C	6.9	A
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	33	45	75	1	4	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	875	45	75	3	7	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	22	5	10	2	10	A	15.0	B	0.6	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	11	5	10	6	15	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	4	0	5	2	14	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	79	0	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	608	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	26	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	0	0	5	0	0	A	34.0	C	9.8	A
160	Concession St / Macdonnell St	Signalized	NBT	0	0	5	0	0	A				
160	Concession St / Macdonnell St	Signalized	NBR	7	0	5	1	6	A				
160	Concession St / Macdonnell St	Signalized	SBR	46	0	5	1	3	A				
160	Concession St / Macdonnell St	Signalized	EBL	36	75	75	14	21	C				
160	Concession St / Macdonnell St	Signalized	EBT	702	75	75	7	11	B				
160	Concession St / Macdonnell St	Signalized	EBR	141	75	75	5	9	A				
160	Concession St / Macdonnell St	Signalized	WBL	37	20	75	26	34	C				
160	Concession St / Macdonnell St	Signalized	WBT	590	20	75	4	7	A				
160	Concession St / Macdonnell St	Signalized	WBR	0	20	75	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	9	0	5	6	16	C	16.0	C	1.7	A
170	Concession St / Connaught St	TWSC	SBR	7	0	5	4	11	B				
170	Concession St / Connaught St	TWSC	EBL	15	0	95	4	8	A				
170	Concession St / Connaught St	TWSC	EBT	694	0	95	1	2	A				
170	Concession St / Connaught St	TWSC	WBT	618	0	5	0	1	A				
170	Concession St / Connaught St	TWSC	WBR	3	0	5	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	12	5	15	23	29	C	33.0	C	11.3	B
180	Concession St / Victoria St	Signalized	NBT	17	5	15	15	19	B				
180	Concession St / Victoria St	Signalized	NBR	13	5	15	8	14	B				
180	Concession St / Victoria St	Signalized	SBL	7	5	15	26	33	C				
180	Concession St / Victoria St	Signalized	SBT	27	5	15	21	26	C				
180	Concession St / Victoria St	Signalized	SBR	47	5	15	1	9	A				
180	Concession St / Victoria St	Signalized	EBL	21	35	100	10	15	B				
180	Concession St / Victoria St	Signalized	EBT	658	35	100	6	9	A				
180	Concession St / Victoria St	Signalized	EBR	7	35	100	8	15	B				
180	Concession St / Victoria St	Signalized	WBL	47	50	90	19	27	C				
180	Concession St / Victoria St	Signalized	WBT	569	50	90	6	11	B				
180	Concession St / Victoria St	Signalized	WBR	1	50	90	0	0	A				
190	Concession St / Nelson St	TWSC	NBL	11	0	5	10	19	C	19.0	C	1.3	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBL	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	23	5	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	43	0	85	1	3	A				
190	Concession St / Nelson St	TWSC	EBT	640	0	85	0	1	A				
190	Concession St / Nelson St	TWSC	EBR	0	0	85	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	8	0	35	3	6	A				
190	Concession St / Nelson St	TWSC	WBT	578	0	35	0	1	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	35	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	39	5	15	10	20	C	20.0	C	1.3	A
200	Concession St / Kingscourt Av	TWSC	SBR	5	5	15	5	19	C				
200	Concession St / Kingscourt Av	TWSC	EBL	24	0	80	2	6	A				
200	Concession St / Kingscourt Av	TWSC	EBT	616	0	80	0	1	A				
200	Concession St / Kingscourt Av	TWSC	WBT	578	0	0	0	0	A				
200	Concession St / Kingscourt Av	TWSC	WBR	21	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	44	5	15	11	20	C	20.0	C	2.7	A
210	Concession St / Fergus St	TWSC	SBR	2	5	15	2	10	A				
210	Concession St / Fergus St	TWSC	EBL	23	0	80	3	6	A				
210	Concession St / Fergus St	TWSC	EBT	630	0	80	2	4	A				
210	Concession St / Fergus St	TWSC	WBT	595	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	WBR	21	0	0	0	0	A				
220	Concession St / Grey St	TWSC	SBL	41	5	15	32	43	E	43.0	E	7.5	A
220	Concession St / Grey St	TWSC	SBR	11	5	15	19	28	D				
220	Concession St / Grey St	TWSC	EBL	21	20	105	6	12	B				
220	Concession St / Grey St	TWSC	EBT	656	20	105	6	12	B				
220	Concession St / Grey St	TWSC	WBT	601	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	21	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	174	25	50	17	28	C	31.0	C	13.1	B
230	Concession St / Alfred St	Signalized	NBT	10	25	50	22	31	C				
230	Concession St / Alfred St	Signalized	NBR	29	25	50	11	19	B				
230	Concession St / Alfred St	Signalized	SBL	2	5	15	21	30	C				
230	Concession St / Alfred St	Signalized	SBT	37	5	15	14	19	B				
230	Concession St / Alfred St	Signalized	SBR	38	5	15	3	8	A				
230	Concession St / Alfred St	Signalized	EBL	33	55	60	12	18	B				
230	Concession St / Alfred St	Signalized	EBT	488	55	60	7	11	B				
230	Concession St / Alfred St	Signalized	EBR	170	55	60	2	3	A				
230	Concession St / Alfred St	Signalized	WBL	22	35	80	9	16	B				
230	Concession St / Alfred St	Signalized	WBT	411	35	80	7	12	B				
230	Concession St / Alfred St	Signalized	WBR	2	35	80	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	5.0	A	1.1	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	519	0	10	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	10	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	13	0	30	2	5	A				
240	Concession St / Lansdowne St	TWSC	WBT	436	0	30	0	1	A				
250	Concession St / Division St	Signalized	NBL	16	25	60	19	27	C	43.0	D	21.4	C
250	Concession St / Division St	Signalized	NBT	222	25	60	16	21	C				
250	Concession St / Division St	Signalized	NBR	13	25	60	11	17	B				
250	Concession St / Division St	Signalized	SBL	32	50	110	18	26	C				
250	Concession St / Division St	Signalized	SBT	362	50	110	16	22	C				
250	Concession St / Division St	Signalized	SBR	201	50	110	2	6	A				
250	Concession St / Division St	Signalized	EBL	160	35	110	16	22	C				
250	Concession St / Division St	Signalized	EBT	345	35	110	12	17	B				
250	Concession St / Division St	Signalized	EBR	13	35	110	4	8	A				
250	Concession St / Division St	Signalized	WBL	22	40	80	33	43	D				
250	Concession St / Division St	Signalized	WBT	234	40	80	29	38	D				
250	Concession St / Division St	Signalized	WBR	15	40	80	20	27	C				

Williamsville Operational Analysis

2019 AM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	39	0	20	1	3	A	12.0	B	0.7	A
260	Adelaide St / Division St	TWSC	NBT	239	0	20	0	1	A				
260	Adelaide St / Division St	TWSC	NBR	3	0	20	0	1	A				
260	Adelaide St / Division St	TWSC	SBL	11	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBT	374	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBR	11	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	4	0	10	2	9	A				
260	Adelaide St / Division St	TWSC	EBT	2	0	10	3	11	B				
260	Adelaide St / Division St	TWSC	EBR	0	0	10	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	2	0	5	2	12	B				
260	Adelaide St / Division St	TWSC	WBR	7	0	5	1	8	A				
270	Stanley St / Division St	TWSC	NBL	51	0	20	1	4	A	10.0	A	2.6	A
270	Stanley St / Division St	TWSC	NBT	268	0	20	0	1	A				
270	Stanley St / Division St	TWSC	SBT	373	0	25	1	2	A				
270	Stanley St / Division St	TWSC	SBR	0	0	25	0	0	A				
270	Stanley St / Division St	TWSC	EBL	15	5	5	2	9	A				
270	Stanley St / Division St	TWSC	EBR	70	5	5	3	10	A				
280	Pine St / Division St	Signalized	NBL	0	5	25	0	0	A	34.0	C	8.7	A
280	Pine St / Division St	Signalized	NBT	269	5	25	3	5	A				
280	Pine St / Division St	Signalized	NBR	6	5	25	0	0	A				
280	Pine St / Division St	Signalized	SBL	43	30	70	5	9	A				
280	Pine St / Division St	Signalized	SBT	406	30	70	4	8	A				
280	Pine St / Division St	Signalized	SBR	0	30	70	0	0	A				
280	Pine St / Division St	Signalized	EBL	0	5	10	0	0	A				
280	Pine St / Division St	Signalized	EBT	23	5	10	24	29	C				
280	Pine St / Division St	Signalized	EBR	3	5	10	0	7	A				
280	Pine St / Division St	Signalized	WBL	20	5	20	26	34	C				
280	Pine St / Division St	Signalized	WBT	16	5	20	18	25	C				
280	Pine St / Division St	Signalized	WBR	51	5	20	5	11	B				
290	Quebec St / Division St	TWSC	NBT	268	0	0	0	0	A	10.0	A	0.8	A
290	Quebec St / Division St	TWSC	NBR	3	0	0	0	0	A				
290	Quebec St / Division St	TWSC	SBL	3	0	50	0	2	A				
290	Quebec St / Division St	TWSC	SBT	425	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	13	0	5	2	10	A				
290	Quebec St / Division St	TWSC	WBR	6	0	5	1	7	A				
300	York St / Division St	Signalized	NBL	1	30	35	0	0	A	29.0	C	6.6	A
300	York St / Division St	Signalized	NBT	240	30	35	3	5	A				
300	York St / Division St	Signalized	NBR	9	30	35	1	4	A				
300	York St / Division St	Signalized	SBL	54	10	40	2	4	A				
300	York St / Division St	Signalized	SBT	385	10	40	2	4	A				
300	York St / Division St	Signalized	SBR	0	10	40	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	32	5	15	24	29	C				
300	York St / Division St	Signalized	EBR	3	5	15	18	22	C				
300	York St / Division St	Signalized	WBL	2	5	20	0	0	A				
300	York St / Division St	Signalized	WBT	31	5	20	22	28	C				
300	York St / Division St	Signalized	WBR	30	5	20	5	11	B				
310	Main St / Division St	TWSC	NBT	245	0	15	1	2	A	13.0	B	0.9	A
310	Main St / Division St	TWSC	NBR	0	0	15	0	0	A				
310	Main St / Division St	TWSC	SBL	15	35	40	0	2	A				
310	Main St / Division St	TWSC	SBT	377	35	40	0	0	A				
310	Main St / Division St	TWSC	WBL	0	0	5	0	0	A				
310	Main St / Division St	TWSC	WBR	7	0	5	4	13	B				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
320	Hamilton St / Division St	TWSC	NBL	0	0	0	0	0	A	9.0	A	0.0	A
320	Hamilton St / Division St	TWSC	NBT	242	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBT	377	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	0	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	3	0	5	2	9	A				
320	Hamilton St / Division St	TWSC	EBR	0	0	5	0	0	A				
330	Raglan St / Division St	TWSC	NBT	236	0	0	0	0	A	8.0	A	0.1	A
330	Raglan St / Division St	TWSC	NBR	6	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	8	0	0	0	1	A				
330	Raglan St / Division St	TWSC	SBT	369	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	2	0	5	0	8	A				
330	Raglan St / Division St	TWSC	WBR	4	0	5	1	8	A				
340	Elm St / Division St	TWSC	NBL	0	0	0	0	0	A	8.0	A	0.1	A
340	Elm St / Division St	TWSC	NBT	238	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBT	368	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	2	0	0	0	0	A				
340	Elm St / Division St	TWSC	EBL	6	0	5	1	8	A				
340	Elm St / Division St	TWSC	EBR	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	NBT	229	0	0	0	0	A	8.0	A	0.2	A
350	Ellice St / Division St	TWSC	NBR	8	0	0	0	0	A				
350	Ellice St / Division St	TWSC	SBL	9	0	0	0	2	A				
350	Ellice St / Division St	TWSC	SBT	359	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	3	0	5	0	8	A				
350	Ellice St / Division St	TWSC	WBR	9	0	5	0	7	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	11.0	B	1.0	A
360	Colborne St / Division St	TWSC	NBT	226	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	10	0	10	0	1	A				
360	Colborne St / Division St	TWSC	SBT	352	0	10	0	1	A				
360	Colborne St / Division St	TWSC	SBR	0	0	10	0	0	A				
360	Colborne St / Division St	TWSC	EBL	8	0	5	2	9	A				
360	Colborne St / Division St	TWSC	EBT	4	0	5	1	9	A				
360	Colborne St / Division St	TWSC	EBR	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBL	5	0	5	2	11	B				
360	Colborne St / Division St	TWSC	WBT	4	0	5	0	9	A				
360	Colborne St / Division St	TWSC	WBR	3	0	5	0	7	A				
370	Queen St / Division St	Signalized	NBT	64	15	30	7	10	A	21.0	C	13.8	B
370	Queen St / Division St	Signalized	NBR	121	15	30	1	10	A				
370	Queen St / Division St	Signalized	SBL	111	40	75	14	21	C				
370	Queen St / Division St	Signalized	SBT	249	40	75	13	19	B				
370	Queen St / Division St	Signalized	WBL	129	15	25	9	14	B				
370	Queen St / Division St	Signalized	WBR	162	15	25	0	5	A				

Williamsville Operational Analysis

2019 PM Peak Hour

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	3,218	46.8	80.8	28.8	23.5	C
20	Princess St / Regent St	TWSC	1,458	0.1	60.7	2.9	1.1	-
30	Princess St / Drayton Av	TWSC	1,374	15.3	50.1	2.4	0.4	-
40	Princess St / Macdonnell Av	Signalized	1,353	70.6	146.5	19.5	12.9	B
50	Princess St / Smith St	TWSC	1,116	36.2	65.2	5.1	2.6	-
60	Princess St / Victoria St	Signalized	1,323	23.4	72.9	10.6	6.4	B
70	Princess St / Nelson St	TWSC	1,127	5.6	61.4	3.3	0.9	-
80	Princess St / Albert St	Signalized	1,117	43.8	90.8	16.4	11.6	B
90	Princess St / Frontenac St	TWSC	1,108	2.7	72.4	3.8	1.4	-
100	Princess St / Alfred St	Signalized	1,443	68.8	97.4	26.5	18.8	C
110	Princess St / Chatham St	TWSC	1,210	20.5	92.7	6.9	3.6	-
120	Princess St / University Av	Signalized	1,166	30.1	47.3	7.2	4.3	A
130	Princess St / Division St	Signalized	1,457	18.7	57.5	14.3	9.4	B
140	Concession St / Drayton Av	TWSC	1,014	24.4	166.5	21.4	12.9	-
150	Concession St / Leroy Grant Dr (S)	TWSC	1,084	68.7	73.6	22.4	14.5	-
155	Concession St / Leroy Grant Drive (N)	TWSC	1,202	2.4	7.7	4.1	1.9	-
160	Concession St / Macdonnell St	Signalized	2,016	72.6	77.1	15.0	9.3	B
170	Concession St / Connaught St	TWSC	1,751	30.0	104.3	6.7	3.1	-
180	Concession St / Victoria St	Signalized	1,956	90.0	95.1	15.9	9.9	B
190	Concession St / Nelson St	TWSC	1,730	0.0	89.3	3.5	1.5	-
200	Concession St / Kingscourt Av	TWSC	1,667	0.0	94.2	3.6	1.6	-
210	Concession St / Fergus St	TWSC	1,659	0.0	69.4	4.2	2.2	-
220	Concession St / Grey St	TWSC	1,659	22.3	52.1	7.5	4.5	-
230	Concession St / Alfred St	Signalized	1,796	53.8	86.2	16.5	11.2	B
240	Concession St / Lansdowne St	TWSC	1,182	0.0	32.5	1.7	0.6	-
250	Concession St / Division St	Signalized	2,160	68.0	136.9	29.2	22.3	C
260	Adelaide St / Division St	TWSC	1,097	0.0	71.6	4.0	1.8	-
270	Stanley St / Division St	TWSC	1,064	0.0	24.0	1.5	0.4	-
280	Pine St / Division St	Signalized	1,134	18.3	65.7	9.3	5.4	A
290	Quebec St / Division St	TWSC	976	0.0	48.1	1.6	0.5	-
300	York St / Division St	Signalized	1,056	24.6	42.5	7.2	4.6	A
310	Main St / Division St	TWSC	938	25.9	49.2	3.7	1.8	-
320	Hamilton St / Division St	TWSC	936	0.0	20.4	0.6	0.0	-
330	Raglan St / Division St	TWSC	931	0.0	0.1	0.1	0.0	-
340	Elm St / Division St	TWSC	962	0.0	9.1	0.2	0.0	-
350	Ellice St / Division St	TWSC	927	0.0	27.6	0.2	0.0	-
360	Colborne St / Division St	TWSC	911	0.0	23.3	0.7	0.5	-
370	Queen St / Division St	Signalized	1,429	41.2	81.8	17.6	9.7	B
	Total		51,707	925	2,544	346	217	

Williamsville Operational Analysis

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Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
10	Princess St / Concession St	Signalized	NBL	307	45	115	33	40	D	44.0	D	28.8	C
10	Princess St / Concession St	Signalized	NBT	333	45	115	33	40	D				
10	Princess St / Concession St	Signalized	NBR	19	45	115	8	14	B				
10	Princess St / Concession St	Signalized	SBL	517	70	105	36	44	D				
10	Princess St / Concession St	Signalized	SBT	463	70	105	35	44	D				
10	Princess St / Concession St	Signalized	SBR	0	70	105	0	0	A				
10	Princess St / Concession St	Signalized	EBT	228	20	35	30	35	C				
10	Princess St / Concession St	Signalized	EBR	313	20	35	0	1	A				
10	Princess St / Concession St	Signalized	WBT	400	40	60	32	38	D				
10	Princess St / Concession St	Signalized	WBR	610	40	60	0	0	A				
10	Princess St / Concession St	Signalized	WBL	28	40	60	1	4	A				
20	Princess St / Regent St	TWSC	NBL	18	5	10	8	17	C	17.0	C	2.9	A
20	Princess St / Regent St	TWSC	NBR	17	5	10	2	10	A				
20	Princess St / Regent St	TWSC	EBT	689	0	55	1	3	A				
20	Princess St / Regent St	TWSC	EBR	71	0	55	0	2	A				
20	Princess St / Regent St	TWSC	WBL	33	0	70	5	8	A				
20	Princess St / Regent St	TWSC	WBT	630	0	70	1	2	A				
30	Princess St / Drayton Av	TWSC	SBL	4	5	45	9	22	C	22.0	C	2.4	A
30	Princess St / Drayton Av	TWSC	SBR	73	5	45	5	15	B				
30	Princess St / Drayton Av	TWSC	EBL	42	0	55	2	5	A				
30	Princess St / Drayton Av	TWSC	EBT	664	0	55	0	1	A				
30	Princess St / Drayton Av	TWSC	WBT	591	35	45	0	2	A				
30	Princess St / Drayton Av	TWSC	WBR	0	35	45	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	69	40	55	14	20	B	29.0	C	19.5	B
40	Princess St / Macdonnell Av	Signalized	NBT	28	40	55	12	21	C				
40	Princess St / Macdonnell Av	Signalized	NBR	67	40	55	6	15	B				
40	Princess St / Macdonnell Av	Signalized	SBL	2	10	40	15	23	C				
40	Princess St / Macdonnell Av	Signalized	SBT	39	10	40	13	18	B				
40	Princess St / Macdonnell Av	Signalized	SBR	43	10	40	4	13	B				
40	Princess St / Macdonnell Av	Signalized	EBL	41	100	245	21	29	C				
40	Princess St / Macdonnell Av	Signalized	EBT	590	100	245	16	24	C				
40	Princess St / Macdonnell Av	Signalized	EBR	27	100	245	9	16	B				
40	Princess St / Macdonnell Av	Signalized	WBL	6	50	55	19	28	C				
40	Princess St / Macdonnell Av	Signalized	WBT	437	50	55	10	14	B				
40	Princess St / Macdonnell Av	Signalized	WBR	4	50	55	5	9	A				
50	Princess St / Smith St	TWSC	SBL	0	40	40	0	0	A	23.0	C	5.1	A
50	Princess St / Smith St	TWSC	SBR	29	40	40	10	23	C				
50	Princess St / Smith St	TWSC	EBL	27	40	60	2	4	A				
50	Princess St / Smith St	TWSC	EBT	632	40	60	0	1	A				
50	Princess St / Smith St	TWSC	WBT	428	30	75	6	10	A				
50	Princess St / Smith St	TWSC	WBR	0	30	75	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	15	10	35	19	26	C	28.0	C	10.6	B
60	Princess St / Victoria St	Signalized	NBT	76	10	35	17	24	C				
60	Princess St / Victoria St	Signalized	NBR	57	10	35	6	12	B				
60	Princess St / Victoria St	Signalized	SBL	14	5	20	20	28	C				
60	Princess St / Victoria St	Signalized	SBT	38	5	20	15	21	C				
60	Princess St / Victoria St	Signalized	SBR	14	5	20	3	6	A				
60	Princess St / Victoria St	Signalized	EBL	94	20	100	9	16	B				
60	Princess St / Victoria St	Signalized	EBT	534	20	100	2	5	A				
60	Princess St / Victoria St	Signalized	EBR	14	20	100	2	6	A				
60	Princess St / Victoria St	Signalized	WBL	17	35	55	13	17	B				
60	Princess St / Victoria St	Signalized	WBT	388	35	55	8	12	B				
60	Princess St / Victoria St	Signalized	WBR	62	35	55	6	10	A				
70	Princess St / Nelson St	TWSC	NBL	14	0	5	11	20	C	20.0	C	3.3	A
70	Princess St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	NBR	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBL	2	0	5	0	6	A				
70	Princess St / Nelson St	TWSC	SBT	1	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	EBL	95	10	110	3	8	A				
70	Princess St / Nelson St	TWSC	EBT	527	10	110	1	5	A				
70	Princess St / Nelson St	TWSC	EBR	6	10	110	0	1	A				
70	Princess St / Nelson St	TWSC	WBL	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	WBT	468	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	WBR	14	0	0	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
80	Princess St / Albert St	Signalized	NBL	49	10	20	13	18	B	39.0	D	16.4	B
80	Princess St / Albert St	Signalized	NBT	18	10	20	11	16	B				
80	Princess St / Albert St	Signalized	NBR	39	10	20	3	8	A				
80	Princess St / Albert St	Signalized	SBL	0	0	0	0	0	A				
80	Princess St / Albert St	Signalized	SBT	0	0	0	0	0	A				
80	Princess St / Albert St	Signalized	SBR	7	0	0	0	3	A				
80	Princess St / Albert St	Signalized	EBL	21	50	115	23	33	C				
80	Princess St / Albert St	Signalized	EBT	500	50	115	13	18	B				
80	Princess St / Albert St	Signalized	EBR	21	50	115	13	18	B				
80	Princess St / Albert St	Signalized	WBL	28	45	80	31	39	D				
80	Princess St / Albert St	Signalized	WBT	434	45	80	9	13	B				
80	Princess St / Albert St	Signalized	WBR	0	45	80	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	4	0	5	14	23	C	23.0	C	3.8	A
90	Princess St / Frontenac St	TWSC	NBT	8	0	5	10	21	C				
90	Princess St / Frontenac St	TWSC	NBR	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	3	0	5	0	7	A				
90	Princess St / Frontenac St	TWSC	EBL	63	5	135	5	11	B				
90	Princess St / Frontenac St	TWSC	EBT	531	5	135	2	6	A				
90	Princess St / Frontenac St	TWSC	EBR	0	5	135	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBT	490	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	9	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	31	25	50	15	22	C	35.0	C	26.5	C
100	Princess St / Alfred St	Signalized	NBT	115	25	50	13	20	B				
100	Princess St / Alfred St	Signalized	NBR	104	25	50	6	12	B				
100	Princess St / Alfred St	Signalized	SBL	36	10	30	15	22	C				
100	Princess St / Alfred St	Signalized	SBT	49	10	30	12	18	B				
100	Princess St / Alfred St	Signalized	SBR	26	10	30	5	11	B				
100	Princess St / Alfred St	Signalized	EBL	5	80	140	26	34	C				
100	Princess St / Alfred St	Signalized	EBT	529	80	140	23	33	C				
100	Princess St / Alfred St	Signalized	EBR	14	80	140	24	35	C				
100	Princess St / Alfred St	Signalized	WBL	33	90	90	12	19	B				
100	Princess St / Alfred St	Signalized	WBT	445	90	90	21	27	C				
100	Princess St / Alfred St	Signalized	WBR	56	90	90	16	22	C				
110	Princess St / Chatham St	TWSC	SBL	0	0	0	0	0	A	22.0	C	6.9	A
110	Princess St / Chatham St	TWSC	SBR	0	0	0	0	0	A				
110	Princess St / Chatham St	TWSC	EBL	69	25	115	5	11	B				
110	Princess St / Chatham St	TWSC	EBT	601	25	115	3	8	A				
110	Princess St / Chatham St	TWSC	WBT	533	15	65	4	5	A				
110	Princess St / Chatham St	TWSC	WBR	7	15	65	14	22	C				
120	Princess St / University Av	Signalized	NBL	55	5	20	16	21	C	21.0	C	7.2	A
120	Princess St / University Av	Signalized	NBR	28	5	20	3	9	A				
120	Princess St / University Av	Signalized	EBT	528	55	70	5	9	A				
120	Princess St / University Av	Signalized	EBR	21	55	70	3	7	A				
120	Princess St / University Av	Signalized	WBL	15	5	25	7	12	B				
120	Princess St / University Av	Signalized	WBT	482	5	25	2	3	A				
120	Princess St / University Av	Signalized	NBT	0	5	20	0	0	A				
120	Princess St / University Av	Signalized	SBL	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBT	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBR	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	EBL	37	55	70	7	14	B				
120	Princess St / University Av	Signalized	WBR	0	5	25	0	0	A				
130	Princess St / Division St	Signalized	NBL	53	20	40	14	22	C	27.0	C	14.3	B
130	Princess St / Division St	Signalized	NBT	152	20	40	13	20	B				
130	Princess St / Division St	Signalized	NBR	11	20	40	9	15	B				
130	Princess St / Division St	Signalized	SBL	134	5	65	5	8	A				
130	Princess St / Division St	Signalized	SBT	109	5	65	3	4	A				
130	Princess St / Division St	Signalized	SBR	440	5	65	0	1	A				
130	Princess St / Division St	Signalized	EBL	153	35	55	16	25	C				
130	Princess St / Division St	Signalized	EBT	381	35	55	19	27	C				
130	Princess St / Division St	Signalized	EBR	24	35	55	9	16	B				

Williamsville Operational Analysis

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Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	28	5	45	213	231	F	231.0	F	21.4	C
140	Concession St / Drayton Av	TWSC	EBT	942	25	170	7	15	B				
140	Concession St / Drayton Av	TWSC	EBR	44	25	170	13	26	D				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	22	5	5	7	19	C	25.0	C	22.4	C
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	184	70	75	18	25	C				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	878	70	75	14	22	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	95	15	50	11	24	C	24.0	C	4.1	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	88	15	50	12	24	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	22	5	5	9	20	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	5	5	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	951	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	41	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	31	10	35	23	30	C	45.0	D	15.0	B
160	Concession St / Macdonnell St	Signalized	NBT	26	10	35	26	35	C				
160	Concession St / Macdonnell St	Signalized	NBR	83	10	35	7	14	B				
160	Concession St / Macdonnell St	Signalized	SBR	68	5	20	5	9	A				
160	Concession St / Macdonnell St	Signalized	EBL	58	75	80	36	45	D				
160	Concession St / Macdonnell St	Signalized	EBT	783	75	80	8	14	B				
160	Concession St / Macdonnell St	Signalized	EBR	64	75	80	7	12	B				
160	Concession St / Macdonnell St	Signalized	WBL	17	85	85	35	44	D				
160	Concession St / Macdonnell St	Signalized	WBT	886	85	85	8	13	B				
160	Concession St / Macdonnell St	Signalized	WBR	0	85	85	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	0	0	5	0	0	A	28.0	D	6.7	A
170	Concession St / Connaught St	TWSC	SBR	14	0	5	18	28	D				
170	Concession St / Connaught St	TWSC	EBL	0	10	95	0	0	A				
170	Concession St / Connaught St	TWSC	EBT	860	10	95	2	5	A				
170	Concession St / Connaught St	TWSC	WBT	877	50	115	4	8	A				
170	Concession St / Connaught St	TWSC	WBR	0	50	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	54	20	50	29	38	D	38.0	D	15.9	B
180	Concession St / Victoria St	Signalized	NBT	31	20	50	28	36	D				
180	Concession St / Victoria St	Signalized	NBR	81	20	50	20	29	C				
180	Concession St / Victoria St	Signalized	SBL	9	5	15	27	35	C				
180	Concession St / Victoria St	Signalized	SBT	24	5	15	27	33	C				
180	Concession St / Victoria St	Signalized	SBR	35	5	15	2	12	B				
180	Concession St / Victoria St	Signalized	EBL	56	115	115	24	32	C				
180	Concession St / Victoria St	Signalized	EBT	793	115	115	8	14	B				
180	Concession St / Victoria St	Signalized	EBR	20	115	115	11	20	B				
180	Concession St / Victoria St	Signalized	WBL	48	85	90	21	28	C				
180	Concession St / Victoria St	Signalized	WBT	790	85	90	7	12	B				
180	Concession St / Victoria St	Signalized	WBR	15	85	90	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	0	0	0	0	0	A	6.0	A	3.5	A
190	Concession St / Nelson St	TWSC	NBT	0	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	0	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	12	0	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	1	0	85	1	6	A				
190	Concession St / Nelson St	TWSC	EBT	824	0	85	1	2	A				
190	Concession St / Nelson St	TWSC	EBR	50	0	85	1	2	A				
190	Concession St / Nelson St	TWSC	WBL	4	0	95	0	5	A				
190	Concession St / Nelson St	TWSC	WBT	839	0	95	2	5	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	95	0	0	A				

Williamsville Operational Analysis

2019 PM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	0	0	15	0	0	A	15.0	B	3.6	A
200	Concession St / Kingscourt Av	TWSC	SBR	16	0	15	6	15	B				
200	Concession St / Kingscourt Av	TWSC	EBL	4	0	95	6	13	B				
200	Concession St / Kingscourt Av	TWSC	EBT	819	0	95	2	4	A				
200	Concession St / Kingscourt Av	TWSC	WBT	828	0	95	1	3	A				
200	Concession St / Kingscourt Av	TWSC	WBR	0	0	95	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	11	0	5	23	35	D	35.0	D	4.2	A
210	Concession St / Fergus St	TWSC	SBR	0	0	5	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	5	0	100	10	14	B				
210	Concession St / Fergus St	TWSC	EBT	813	0	100	3	6	A				
210	Concession St / Fergus St	TWSC	WBT	827	0	40	1	2	A				
210	Concession St / Fergus St	TWSC	WBR	3	0	40	0	0	A				
220	Concession St / Grey St	TWSC	SBL	0	0	5	0	0	A	15.0	B	7.5	A
220	Concession St / Grey St	TWSC	SBR	15	0	5	4	11	B				
220	Concession St / Grey St	TWSC	EBL	4	45	105	9	15	B				
220	Concession St / Grey St	TWSC	EBT	819	45	105	9	15	B				
220	Concession St / Grey St	TWSC	WBT	816	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	5	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	213	35	90	20	31	C	31.0	C	16.5	B
230	Concession St / Alfred St	Signalized	NBT	37	35	90	19	29	C				
230	Concession St / Alfred St	Signalized	NBR	38	35	90	11	19	B				
230	Concession St / Alfred St	Signalized	SBL	0	5	15	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	34	5	15	18	25	C				
230	Concession St / Alfred St	Signalized	SBR	21	5	15	5	10	A				
230	Concession St / Alfred St	Signalized	EBL	27	55	60	17	23	C				
230	Concession St / Alfred St	Signalized	EBT	545	55	60	10	13	B				
230	Concession St / Alfred St	Signalized	EBR	251	55	60	2	4	A				
230	Concession St / Alfred St	Signalized	WBL	39	65	125	12	19	B				
230	Concession St / Alfred St	Signalized	WBT	591	65	125	12	18	B				
230	Concession St / Alfred St	Signalized	WBR	0	65	125	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	7.0	A	1.7	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	532	0	5	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	5	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	40	0	55	3	7	A				
240	Concession St / Lansdowne St	TWSC	WBT	610	0	55	1	2	A				
250	Concession St / Division St	Signalized	NBL	64	90	110	28	37	D	57.0	E	29.2	C
250	Concession St / Division St	Signalized	NBT	552	90	110	19	25	C				
250	Concession St / Division St	Signalized	NBR	0	90	110	0	0	A				
250	Concession St / Division St	Signalized	SBL	26	50	140	33	44	D				
250	Concession St / Division St	Signalized	SBT	399	50	140	17	23	C				
250	Concession St / Division St	Signalized	SBR	187	50	140	4	9	A				
250	Concession St / Division St	Signalized	EBL	219	45	105	23	32	C				
250	Concession St / Division St	Signalized	EBT	228	45	105	12	17	B				
250	Concession St / Division St	Signalized	EBR	63	45	105	3	6	A				
250	Concession St / Division St	Signalized	WBL	11	90	210	42	52	D				
250	Concession St / Division St	Signalized	WBT	379	90	210	47	57	E				
250	Concession St / Division St	Signalized	WBR	32	90	210	38	48	D				

Williamsville Operational Analysis

2019 PM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	0	0	105	0	0	A	23.0	C	4.0	A
260	Adelaide St / Division St	TWSC	NBT	613	0	105	3	6	A				
260	Adelaide St / Division St	TWSC	NBR	0	0	105	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	6	0	30	2	5	A				
260	Adelaide St / Division St	TWSC	SBT	441	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBR	25	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	EBL	3	0	5	10	23	C				
260	Adelaide St / Division St	TWSC	EBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	3	0	5	8	18	C				
260	Adelaide St / Division St	TWSC	WBT	6	0	5	6	16	C				
260	Adelaide St / Division St	TWSC	WBR	0	0	5	0	0	A				
270	Stanley St / Division St	TWSC	NBL	3	0	20	0	1	A	19.0	C	1.5	A
270	Stanley St / Division St	TWSC	NBT	602	0	20	0	1	A				
270	Stanley St / Division St	TWSC	SBT	376	0	30	1	2	A				
270	Stanley St / Division St	TWSC	SBR	69	0	30	0	1	A				
270	Stanley St / Division St	TWSC	EBL	8	0	5	4	19	C				
270	Stanley St / Division St	TWSC	EBR	6	0	5	1	7	A				
280	Pine St / Division St	Signalized	NBL	30	20	75	8	14	B	32.0	C	9.3	A
280	Pine St / Division St	Signalized	NBT	539	20	75	3	6	A				
280	Pine St / Division St	Signalized	NBR	14	20	75	4	6	A				
280	Pine St / Division St	Signalized	SBL	32	20	70	7	14	B				
280	Pine St / Division St	Signalized	SBT	345	20	70	5	9	A				
280	Pine St / Division St	Signalized	SBR	6	20	70	2	6	A				
280	Pine St / Division St	Signalized	EBL	0	5	20	0	0	A				
280	Pine St / Division St	Signalized	EBT	28	5	20	25	30	C				
280	Pine St / Division St	Signalized	EBR	26	5	20	4	10	A				
280	Pine St / Division St	Signalized	WBL	5	10	25	24	32	C				
280	Pine St / Division St	Signalized	WBT	43	10	25	22	28	C				
280	Pine St / Division St	Signalized	WBR	66	10	25	6	12	B				
290	Quebec St / Division St	TWSC	NBT	586	0	35	0	1	A	12.0	B	1.6	A
290	Quebec St / Division St	TWSC	NBR	0	0	35	0	0	A				
290	Quebec St / Division St	TWSC	SBL	8	0	70	3	6	A				
290	Quebec St / Division St	TWSC	SBT	368	0	70	1	2	A				
290	Quebec St / Division St	TWSC	WBL	14	0	5	4	12	B				
290	Quebec St / Division St	TWSC	WBR	0	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	7	35	35	6	8	A	32.0	C	7.2	A
300	York St / Division St	Signalized	NBT	526	35	35	2	4	A				
300	York St / Division St	Signalized	NBR	12	35	35	2	3	A				
300	York St / Division St	Signalized	SBL	32	15	60	10	15	B				
300	York St / Division St	Signalized	SBT	349	15	60	4	6	A				
300	York St / Division St	Signalized	SBR	0	15	60	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	28	5	15	23	28	C				
300	York St / Division St	Signalized	EBR	1	5	15	0	0	A				
300	York St / Division St	Signalized	WBL	32	10	25	25	31	C				
300	York St / Division St	Signalized	WBT	11	10	25	25	32	C				
300	York St / Division St	Signalized	WBR	58	10	25	6	13	B				
310	Main St / Division St	TWSC	NBT	545	20	60	3	6	A	13.0	B	3.7	A
310	Main St / Division St	TWSC	NBR	0	20	60	0	0	A				
310	Main St / Division St	TWSC	SBL	7	35	35	4	6	A				
310	Main St / Division St	TWSC	SBT	377	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	9	0	5	4	13	B				
310	Main St / Division St	TWSC	WBR	0	0	5	0	0	A				

Williamsville Operational Analysis

2019 PM Peak Hour

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
320	Hamilton St / Division St	TWSC	NBL	1	0	35	0	0	A	6.0	A	0.6	A
320	Hamilton St / Division St	TWSC	NBT	544	0	35	0	1	A				
320	Hamilton St / Division St	TWSC	SBT	362	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	24	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	0	0	5	0	0	A				
320	Hamilton St / Division St	TWSC	EBR	5	0	5	0	6	A				
330	Raglan St / Division St	TWSC	NBT	542	0	0	0	0	A	13.0	B	0.1	A
330	Raglan St / Division St	TWSC	NBR	8	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	0	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBT	368	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	11	0	5	3	10	A				
330	Raglan St / Division St	TWSC	WBR	2	0	5	5	13	B				
340	Elm St / Division St	TWSC	NBL	32	0	15	1	3	A	10.0	A	0.2	A
340	Elm St / Division St	TWSC	NBT	547	0	15	0	0	A				
340	Elm St / Division St	TWSC	SBT	347	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	31	0	0	0	1	A				
340	Elm St / Division St	TWSC	EBL	5	0	5	3	10	A				
340	Elm St / Division St	TWSC	EBR	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	NBT	565	0	45	0	0	A	9.0	A	0.2	A
350	Ellice St / Division St	TWSC	NBR	2	0	45	0	0	A				
350	Ellice St / Division St	TWSC	SBL	6	0	0	3	6	A				
350	Ellice St / Division St	TWSC	SBT	341	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	WBR	13	0	5	1	9	A				
360	Colborne St / Division St	TWSC	NBL	1	0	20	0	1	A	11.0	B	0.7	A
360	Colborne St / Division St	TWSC	NBT	540	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	6	0	30	2	5	A				
360	Colborne St / Division St	TWSC	SBT	335	0	30	1	1	A				
360	Colborne St / Division St	TWSC	SBR	0	0	30	0	0	A				
360	Colborne St / Division St	TWSC	EBL	15	0	5	3	11	B				
360	Colborne St / Division St	TWSC	EBT	1	0	5	0	0	A				
360	Colborne St / Division St	TWSC	EBR	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	13	0	5	3	11	B				
370	Queen St / Division St	Signalized	NBT	199	20	50	8	11	B	29.0	C	17.6	B
370	Queen St / Division St	Signalized	NBR	108	20	50	1	10	A				
370	Queen St / Division St	Signalized	SBL	93	40	80	19	29	C				
370	Queen St / Division St	Signalized	SBT	245	40	80	14	20	B				
370	Queen St / Division St	Signalized	WBL	440	50	95	15	27	C				
370	Queen St / Division St	Signalized	WBR	344	50	95	1	7	A				

2020-02-28

Williamsville Operational Analysis

2036 No Mitigation - No Williamsville Growth - AM Peak

Measures of Effectiveness Details

DILLON CONSULTING

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	2,554	39.9	64.5	27.5	21.9	C
20	Princess St / Regent St	TWSC	986	0.1	41.0	2.3	0.1	-
30	Princess St / Drayton Av	TWSC	931	0.0	51.4	1.8	0.1	-
40	Princess St / Macdonnell Av	Signalized	861	50.4	101.8	15.3	9.1	B
50	Princess St / Smith St	TWSC	712	29.0	31.7	0.9	0.3	-
60	Princess St / Victoria St	Signalized	852	8.5	49.5	6.7	3.6	A
70	Princess St / Nelson St	TWSC	767	0.3	0.3	2.1	0.2	-
80	Princess St / Albert St	Signalized	806	36.4	73.1	13.6	9.6	B
90	Princess St / Frontenac St	TWSC	747	0.0	0.1	0.9	0.0	-
100	Princess St / Alfred St	Signalized	1,071	45.3	68.6	23.4	17.0	C
110	Princess St / Chatham St	TWSC	736	0.0	21.6	1.6	0.0	-
120	Princess St / University Av	Signalized	719	11.4	56.4	5.1	2.1	A
130	Princess St / Division St	Signalized	938	18.4	46.0	17.2	12.2	B
140	Concession St / Drayton Av	TWSC	940	0.1	166.6	10.9	5.8	-
150	Concession St / Leroy Grant Dr (S)	TWSC	908	44.9	74.8	8.0	4.0	-
155	Concession St / Leroy Grant Drive (N)	TWSC	706	0.2	1.0	0.5	0.1	-
160	Concession St / Macdonnell St	Signalized	1,528	50.9	71.6	10.5	6.7	B
170	Concession St / Connaught St	TWSC	1,320	0.0	51.2	1.7	0.6	-
180	Concession St / Victoria St	Signalized	1,389	36.8	83.6	11.7	7.5	B
190	Concession St / Nelson St	TWSC	1,274	0.1	55.1	1.9	0.7	-
200	Concession St / Kingscourt Av	TWSC	1,256	0.2	30.9	1.2	0.4	-
210	Concession St / Fergus St	TWSC	1,286	0.2	33.2	2.0	1.2	-
220	Concession St / Grey St	TWSC	1,327	12.8	53.8	6.4	3.5	-
230	Concession St / Alfred St	Signalized	1,386	39.8	67.3	13.0	8.1	B
240	Concession St / Lansdowne St	TWSC	966	0.0	10.4	0.6	0.0	-
250	Concession St / Division St	Signalized	1,638	41.4	102.4	21.2	15.4	C
260	Adelaide St / Division St	TWSC	698	0.0	29.6	0.8	0.2	-
270	Stanley St / Division St	TWSC	762	0.5	17.4	2.0	0.8	-
280	Pine St / Division St	Signalized	812	15.9	46.9	7.8	4.7	A
290	Quebec St / Division St	TWSC	711	0.0	29.9	0.8	0.0	-
300	York St / Division St	Signalized	781	14.2	38.5	7.5	5.0	A
310	Main St / Division St	TWSC	634	21.2	28.9	1.3	0.4	-
320	Hamilton St / Division St	TWSC	613	0.0	0.0	0.1	0.0	-
330	Raglan St / Division St	TWSC	617	0.0	0.0	0.1	0.0	-
340	Elm St / Division St	TWSC	607	0.0	0.1	0.1	0.0	-
350	Ellice St / Division St	TWSC	609	0.0	0.1	0.8	0.0	-
360	Colborne St / Division St	TWSC	605	0.0	22.5	1.5	0.6	-
370	Queen St / Division St	Signalized	833	25.7	48.4	13.8	8.0	B
	Total		**36,886**	**544**	**1,671**	**245**	**150**	

Williamsville Operational Analysis

2036 No Mitigation - No Williamsville Growth - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	LOS	Intersection Delay	LOS
10	Princess St / Concession St	Signalized	NBL	143	25	40	39	46	D	46.0	D	27.5	C
10	Princess St / Concession St	Signalized	NBT	103	25	40	36	43	D				
10	Princess St / Concession St	Signalized	NBR	31	25	40	0	2	A				
10	Princess St / Concession St	Signalized	SBL	494	60	90	30	38	D				
10	Princess St / Concession St	Signalized	SBT	485	60	90	29	37	D				
10	Princess St / Concession St	Signalized	SBR	29	60	90	17	22	C				
10	Princess St / Concession St	Signalized	EBT	422	35	60	26	32	C				
10	Princess St / Concession St	Signalized	EBR	184	35	60	1	2	A				
10	Princess St / Concession St	Signalized	WBT	232	20	40	26	32	C				
10	Princess St / Concession St	Signalized	WBR	334	20	40	0	0	A				
10	Princess St / Concession St	Signalized	WBL	97	20	40	2	5	A				
20	Princess St / Regent St	TWSC	NBL	2	5	10	3	10	A	13.0	B	2.3	A
20	Princess St / Regent St	TWSC	NBR	22	5	10	4	13	B				
20	Princess St / Regent St	TWSC	EBT	620	0	60	0	3	A				
20	Princess St / Regent St	TWSC	EBR	50	0	60	0	1	A				
20	Princess St / Regent St	TWSC	WBL	2	0	0	0	5	A				
20	Princess St / Regent St	TWSC	WBT	290	0	0	0	0	A				
30	Princess St / Drayton Av	TWSC	SBL	0	0	5	0	0	A	7.0	A	1.8	A
30	Princess St / Drayton Av	TWSC	SBR	8	0	5	1	7	A				
30	Princess St / Drayton Av	TWSC	EBL	90	0	75	1	3	A				
30	Princess St / Drayton Av	TWSC	EBT	547	0	75	0	2	A				
30	Princess St / Drayton Av	TWSC	WBT	286	0	0	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	0	0	0	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	44	5	20	12	18	B	18.0	B	15.3	B
40	Princess St / Macdonnell Av	Signalized	NBT	21	5	20	9	14	B				
40	Princess St / Macdonnell Av	Signalized	NBR	17	5	20	5	10	A				
40	Princess St / Macdonnell Av	Signalized	SBL	11	40	40	11	15	B				
40	Princess St / Macdonnell Av	Signalized	SBT	18	40	40	11	14	B				
40	Princess St / Macdonnell Av	Signalized	SBR	34	40	40	2	10	A				
40	Princess St / Macdonnell Av	Signalized	EBL	8	70	145	8	13	B				
40	Princess St / Macdonnell Av	Signalized	EBT	467	70	145	10	17	B				
40	Princess St / Macdonnell Av	Signalized	EBR	27	70	145	9	15	B				
40	Princess St / Macdonnell Av	Signalized	WBL	0	25	50	0	0	A				
40	Princess St / Macdonnell Av	Signalized	WBT	210	25	50	8	13	B				
40	Princess St / Macdonnell Av	Signalized	WBR	4	25	50	1	5	A				
50	Princess St / Smith St	TWSC	SBL	0	40	40	0	0	A	12.0	B	0.9	A
50	Princess St / Smith St	TWSC	SBR	20	40	40	1	12	B				
50	Princess St / Smith St	TWSC	EBL	0	40	40	0	0	A				
50	Princess St / Smith St	TWSC	EBT	496	40	40	0	0	A				
50	Princess St / Smith St	TWSC	WBT	196	0	10	1	2	A				
50	Princess St / Smith St	TWSC	WBR	0	0	10	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	20	10	20	13	20	B	26.0	C	6.7	A
60	Princess St / Victoria St	Signalized	NBT	33	10	20	19	26	C				
60	Princess St / Victoria St	Signalized	NBR	43	10	20	7	13	B				
60	Princess St / Victoria St	Signalized	SBL	2	5	20	18	22	C				
60	Princess St / Victoria St	Signalized	SBT	61	5	20	14	19	B				
60	Princess St / Victoria St	Signalized	SBR	0	5	20	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	0	10	65	0	0	A				
60	Princess St / Victoria St	Signalized	EBT	486	10	65	1	4	A				
60	Princess St / Victoria St	Signalized	EBR	6	10	65	0	5	A				
60	Princess St / Victoria St	Signalized	WBL	20	5	35	7	10	A				
60	Princess St / Victoria St	Signalized	WBT	169	5	35	2	3	A				
60	Princess St / Victoria St	Signalized	WBR	12	5	35	0	2	A				
70	Princess St / Nelson St	TWSC	NBL	0	0	5	0	0	A	16.0	C	2.1	A
70	Princess St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	NBR	8	0	5	2	9	A				
70	Princess St / Nelson St	TWSC	SBL	13	5	5	4	16	C				
70	Princess St / Nelson St	TWSC	SBT	4	5	5	8	16	C				
70	Princess St / Nelson St	TWSC	SBR	25	5	5	1	9	A				
70	Princess St / Nelson St	TWSC	EBL	11	0	0	0	2	A				
70	Princess St / Nelson St	TWSC	EBT	522	0	0	0	2	A				
70	Princess St / Nelson St	TWSC	EBR	2	0	0	0	1	A				
70	Princess St / Nelson St	TWSC	WBL	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	WBT	182	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	WBR	0	0	0	0	0	A				

Williamsville Operational Analysis

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Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
80	Princess St / Albert St	Signalized	NBL	12	5	10	12	16	B	23.0	C	13.6	B
80	Princess St / Albert St	Signalized	NBT	16	5	10	14	19	B				
80	Princess St / Albert St	Signalized	NBR	25	5	10	1	6	A				
80	Princess St / Albert St	Signalized	SBL	0	0	10	0	0	A				
80	Princess St / Albert St	Signalized	SBT	29	0	10	10	12	B				
80	Princess St / Albert St	Signalized	SBR	0	0	10	0	0	A				
80	Princess St / Albert St	Signalized	EBL	0	50	95	0	0	A				
80	Princess St / Albert St	Signalized	EBT	532	50	95	11	15	B				
80	Princess St / Albert St	Signalized	EBR	14	50	95	13	17	B				
80	Princess St / Albert St	Signalized	WBL	8	10	35	17	23	C				
80	Princess St / Albert St	Signalized	WBT	170	10	35	5	9	A				
80	Princess St / Albert St	Signalized	WBR	0	10	35	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	0	0	0	0	0	A	11.0	B	0.9	A
90	Princess St / Frontenac St	TWSC	NBT	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	NBR	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	5	0	5	1	11	B				
90	Princess St / Frontenac St	TWSC	SBR	12	0	5	0	6	A				
90	Princess St / Frontenac St	TWSC	EBL	8	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	EBT	539	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	EBR	4	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	3	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBT	176	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	0	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	20	20	40	12	18	B	33.0	C	23.4	C
100	Princess St / Alfred St	Signalized	NBT	106	20	40	12	17	B				
100	Princess St / Alfred St	Signalized	NBR	70	20	40	4	10	A				
100	Princess St / Alfred St	Signalized	SBL	27	20	45	17	26	C				
100	Princess St / Alfred St	Signalized	SBT	129	20	45	14	20	B				
100	Princess St / Alfred St	Signalized	SBR	34	20	45	6	11	B				
100	Princess St / Alfred St	Signalized	EBL	42	70	95	17	23	C				
100	Princess St / Alfred St	Signalized	EBT	477	70	95	22	29	C				
100	Princess St / Alfred St	Signalized	EBR	6	70	95	19	27	C				
100	Princess St / Alfred St	Signalized	WBL	6	25	45	26	33	C				
100	Princess St / Alfred St	Signalized	WBT	138	25	45	18	24	C				
100	Princess St / Alfred St	Signalized	WBR	16	25	45	1	3	A				
110	Princess St / Chatham St	TWSC	SBL	0	0	0	0	0	A	3.0	A	1.6	A
110	Princess St / Chatham St	TWSC	SBR	0	0	0	0	0	A				
110	Princess St / Chatham St	TWSC	EBL	8	0	15	0	3	A				
110	Princess St / Chatham St	TWSC	EBT	565	0	15	0	2	A				
110	Princess St / Chatham St	TWSC	WBT	159	0	45	0	0	A				
110	Princess St / Chatham St	TWSC	WBR	4	0	45	0	0	A				
120	Princess St / University Av	Signalized	NBL	22	5	10	15	20	B	20.0	B	5.1	A
120	Princess St / University Av	Signalized	NBR	23	5	10	2	7	A				
120	Princess St / University Av	Signalized	EBT	481	15	70	2	5	A				
120	Princess St / University Av	Signalized	EBR	52	15	70	1	4	A				
120	Princess St / University Av	Signalized	WBL	0	0	20	0	0	A				
120	Princess St / University Av	Signalized	WBT	141	0	20	1	3	A				
120	Princess St / University Av	Signalized	NBT	0	5	10	0	0	A				
120	Princess St / University Av	Signalized	SBL	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBT	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBR	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	EBL	0	15	70	0	0	A				
120	Princess St / University Av	Signalized	WBR	0	0	20	0	0	A				
130	Princess St / Division St	Signalized	NBL	12	5	20	14	27	C	27.0	C	17.2	B
130	Princess St / Division St	Signalized	NBT	50	5	20	11	17	B				
130	Princess St / Division St	Signalized	NBR	0	5	20	0	0	A				
130	Princess St / Division St	Signalized	SBL	143	5	45	4	6	A				
130	Princess St / Division St	Signalized	SBT	99	5	45	3	4	A				
130	Princess St / Division St	Signalized	SBR	131	5	45	0	1	A				
130	Princess St / Division St	Signalized	EBL	138	30	50	19	27	C				
130	Princess St / Division St	Signalized	EBT	357	30	50	20	27	C				
130	Princess St / Division St	Signalized	EBR	8	30	50	13	22	C				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	21	5	20	77	88	F	88.0	F	10.9	B
140	Concession St / Drayton Av	TWSC	EBT	911	0	170	4	9	A				
140	Concession St / Drayton Av	TWSC	EBR	8	0	170	19	28	D				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	2	0	5	18	30	D	30.0	D	8.0	A
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	32	45	75	2	6	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	874	45	75	4	8	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	20	5	10	2	10	A	11.0	B	0.5	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	12	5	10	3	11	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	2	0	5	0	8	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	71	0	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	576	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	25	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	0	0	5	0	0	A	38.0	D	10.5	B
160	Concession St / Macdonnell St	Signalized	NBT	0	0	5	0	0	A				
160	Concession St / Macdonnell St	Signalized	NBR	9	0	5	7	12	B				
160	Concession St / Macdonnell St	Signalized	SBR	41	0	5	1	4	A				
160	Concession St / Macdonnell St	Signalized	EBL	36	75	80	11	17	B				
160	Concession St / Macdonnell St	Signalized	EBT	701	75	80	7	12	B				
160	Concession St / Macdonnell St	Signalized	EBR	140	75	80	6	10	A				
160	Concession St / Macdonnell St	Signalized	WBL	39	20	65	30	38	D				
160	Concession St / Macdonnell St	Signalized	WBT	562	20	65	5	7	A				
160	Concession St / Macdonnell St	Signalized	WBR	0	20	65	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	8	0	5	6	14	B	14.0	B	1.7	A
170	Concession St / Connaught St	TWSC	SBR	7	0	5	3	9	A				
170	Concession St / Connaught St	TWSC	EBL	17	0	95	5	9	A				
170	Concession St / Connaught St	TWSC	EBT	694	0	95	1	2	A				
170	Concession St / Connaught St	TWSC	WBT	590	0	0	0	1	A				
170	Concession St / Connaught St	TWSC	WBR	4	0	0	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	12	5	15	26	32	C	32.0	C	11.7	B
180	Concession St / Victoria St	Signalized	NBT	15	5	15	24	31	C				
180	Concession St / Victoria St	Signalized	NBR	11	5	15	3	9	A				
180	Concession St / Victoria St	Signalized	SBL	8	5	10	24	30	C				
180	Concession St / Victoria St	Signalized	SBT	26	5	10	23	28	C				
180	Concession St / Victoria St	Signalized	SBR	42	5	10	2	10	A				
180	Concession St / Victoria St	Signalized	EBL	20	35	90	9	13	B				
180	Concession St / Victoria St	Signalized	EBT	660	35	90	7	10	A				
180	Concession St / Victoria St	Signalized	EBR	6	35	90	11	17	B				
180	Concession St / Victoria St	Signalized	WBL	40	45	90	17	24	C				
180	Concession St / Victoria St	Signalized	WBT	548	45	90	6	11	B				
180	Concession St / Victoria St	Signalized	WBR	1	45	90	0	0	A				
190	Concession St / Nelson St	TWSC	NBL	11	0	5	15	25	C	25.0	C	1.9	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBL	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	19	5	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	41	0	70	2	4	A				
190	Concession St / Nelson St	TWSC	EBT	636	0	70	0	1	A				
190	Concession St / Nelson St	TWSC	EBR	0	0	70	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	11	0	40	3	6	A				
190	Concession St / Nelson St	TWSC	WBT	556	0	40	1	2	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	40	0	0	A				

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Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	36	5	15	11	19	C	19.0	C	1.2	A
200	Concession St / Kingscourt Av	TWSC	SBR	7	5	15	2	13	B				
200	Concession St / Kingscourt Av	TWSC	EBL	24	0	60	2	6	A				
200	Concession St / Kingscourt Av	TWSC	EBT	612	0	60	0	1	A				
200	Concession St / Kingscourt Av	TWSC	WBT	557	0	0	0	0	A				
200	Concession St / Kingscourt Av	TWSC	WBR	20	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	44	5	15	18	28	D	28.0	D	2.0	A
210	Concession St / Fergus St	TWSC	SBR	0	5	15	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	20	0	65	3	6	A				
210	Concession St / Fergus St	TWSC	EBT	627	0	65	1	2	A				
210	Concession St / Fergus St	TWSC	WBT	575	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	WBR	20	0	0	0	0	A				
220	Concession St / Grey St	TWSC	SBL	42	5	20	43	54	F	54.0	F	6.4	A
220	Concession St / Grey St	TWSC	SBR	8	5	20	16	28	D				
220	Concession St / Grey St	TWSC	EBL	20	25	105	4	9	A				
220	Concession St / Grey St	TWSC	EBT	650	25	105	4	9	A				
220	Concession St / Grey St	TWSC	WBT	588	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	19	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	155	20	50	20	30	C	30.0	C	13.0	B
230	Concession St / Alfred St	Signalized	NBT	8	20	50	21	27	C				
230	Concession St / Alfred St	Signalized	NBR	29	20	50	13	19	B				
230	Concession St / Alfred St	Signalized	SBL	0	5	15	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	33	5	15	16	22	C				
230	Concession St / Alfred St	Signalized	SBR	37	5	15	3	10	A				
230	Concession St / Alfred St	Signalized	EBL	30	55	60	9	15	B				
230	Concession St / Alfred St	Signalized	EBT	492	55	60	6	10	A				
230	Concession St / Alfred St	Signalized	EBR	168	55	60	1	2	A				
230	Concession St / Alfred St	Signalized	WBL	22	30	95	12	18	B				
230	Concession St / Alfred St	Signalized	WBT	412	30	95	8	13	B				
230	Concession St / Alfred St	Signalized	WBR	0	30	95	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	4.0	A	0.6	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	523	0	15	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	15	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	8	0	5	1	4	A				
240	Concession St / Lansdowne St	TWSC	WBT	435	0	5	0	0	A				
250	Concession St / Division St	Signalized	NBL	14	25	60	20	28	C	35.0	C	21.2	C
250	Concession St / Division St	Signalized	NBT	221	25	60	17	23	C				
250	Concession St / Division St	Signalized	NBR	8	25	60	11	16	B				
250	Concession St / Division St	Signalized	SBL	30	50	130	18	26	C				
250	Concession St / Division St	Signalized	SBT	367	50	130	16	22	C				
250	Concession St / Division St	Signalized	SBR	199	50	130	2	6	A				
250	Concession St / Division St	Signalized	EBL	164	40	105	15	22	C				
250	Concession St / Division St	Signalized	EBT	350	40	105	13	18	B				
250	Concession St / Division St	Signalized	EBR	12	40	105	6	10	A				
250	Concession St / Division St	Signalized	WBL	21	40	75	27	35	C				
250	Concession St / Division St	Signalized	WBT	236	40	75	27	34	C				
250	Concession St / Division St	Signalized	WBR	16	40	75	15	22	C				

Williamsville Operational Analysis

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Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	50	0	30	2	4	A	15.0	B	0.8	A
260	Adelaide St / Division St	TWSC	NBT	235	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	NBR	4	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	13	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBT	379	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBR	7	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	4	0	5	1	9	A				
260	Adelaide St / Division St	TWSC	EBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	2	0	5	3	15	B				
260	Adelaide St / Division St	TWSC	WBR	4	0	5	0	6	A				
270	Stanley St / Division St	TWSC	NBL	31	0	5	1	2	A	10.0	A	2.0	A
270	Stanley St / Division St	TWSC	NBT	282	0	5	0	0	A				
270	Stanley St / Division St	TWSC	SBT	377	0	30	1	2	A				
270	Stanley St / Division St	TWSC	SBR	0	0	30	0	0	A				
270	Stanley St / Division St	TWSC	EBL	7	5	5	1	8	A				
270	Stanley St / Division St	TWSC	EBR	65	5	5	3	10	A				
280	Pine St / Division St	Signalized	NBL	0	5	20	0	0	A	31.0	C	7.8	A
280	Pine St / Division St	Signalized	NBT	266	5	20	3	4	A				
280	Pine St / Division St	Signalized	NBR	6	5	20	4	5	A				
280	Pine St / Division St	Signalized	SBL	38	25	70	4	7	A				
280	Pine St / Division St	Signalized	SBT	404	25	70	4	8	A				
280	Pine St / Division St	Signalized	SBR	0	25	70	0	0	A				
280	Pine St / Division St	Signalized	EBL	0	5	10	0	0	A				
280	Pine St / Division St	Signalized	EBT	20	5	10	20	26	C				
280	Pine St / Division St	Signalized	EBR	4	5	10	4	9	A				
280	Pine St / Division St	Signalized	WBL	17	5	20	25	31	C				
280	Pine St / Division St	Signalized	WBT	8	5	20	19	26	C				
280	Pine St / Division St	Signalized	WBR	49	5	20	5	10	A				
290	Quebec St / Division St	TWSC	NBT	267	0	0	0	0	A	10.0	A	0.8	A
290	Quebec St / Division St	TWSC	NBR	2	0	0	0	0	A				
290	Quebec St / Division St	TWSC	SBL	4	0	50	0	0	A				
290	Quebec St / Division St	TWSC	SBT	420	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	14	0	5	2	10	A				
290	Quebec St / Division St	TWSC	WBR	4	0	5	1	7	A				
300	York St / Division St	Signalized	NBL	0	25	35	0	0	A	35.0	C	7.5	A
300	York St / Division St	Signalized	NBT	241	25	35	3	5	A				
300	York St / Division St	Signalized	NBR	10	25	35	0	2	A				
300	York St / Division St	Signalized	SBL	57	10	45	3	5	A				
300	York St / Division St	Signalized	SBT	378	10	45	3	5	A				
300	York St / Division St	Signalized	SBR	0	10	45	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	30	5	15	23	27	C				
300	York St / Division St	Signalized	EBR	6	5	15	20	28	C				
300	York St / Division St	Signalized	WBL	0	5	20	0	0	A				
300	York St / Division St	Signalized	WBT	31	5	20	28	35	C				
300	York St / Division St	Signalized	WBR	28	5	20	7	14	B				
310	Main St / Division St	TWSC	NBT	244	0	20	1	3	A	8.0	A	1.3	A
310	Main St / Division St	TWSC	NBR	0	0	20	0	0	A				
310	Main St / Division St	TWSC	SBL	16	35	35	0	2	A				
310	Main St / Division St	TWSC	SBT	368	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	0	0	5	0	0	A				
310	Main St / Division St	TWSC	WBR	6	0	5	1	8	A				

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Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
320	Hamilton St / Division St	TWSC	NBL	0	0	0	0	0	A	8.0	A	0.1	A
320	Hamilton St / Division St	TWSC	NBT	241	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBT	368	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	0	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	4	0	5	1	8	A				
320	Hamilton St / Division St	TWSC	EBR	0	0	5	0	0	A				
330	Raglan St / Division St	TWSC	NBT	237	0	0	0	0	A	7.0	A	0.1	A
330	Raglan St / Division St	TWSC	NBR	8	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	6	0	0	0	1	A				
330	Raglan St / Division St	TWSC	SBT	362	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	0	0	5	0	0	A				
330	Raglan St / Division St	TWSC	WBR	4	0	5	0	7	A				
340	Elm St / Division St	TWSC	NBL	0	0	0	0	0	A	8.0	A	0.1	A
340	Elm St / Division St	TWSC	NBT	237	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBT	362	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	0	0	0	0	0	A				
340	Elm St / Division St	TWSC	EBL	8	0	5	1	8	A				
340	Elm St / Division St	TWSC	EBR	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	NBT	229	0	0	0	0	A	9.0	A	0.8	A
350	Ellice St / Division St	TWSC	NBR	6	0	0	0	0	A				
350	Ellice St / Division St	TWSC	SBL	6	0	0	0	2	A				
350	Ellice St / Division St	TWSC	SBT	356	0	0	0	1	A				
350	Ellice St / Division St	TWSC	WBL	4	0	5	1	9	A				
350	Ellice St / Division St	TWSC	WBR	8	0	5	0	7	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	14.0	B	1.5	A
360	Colborne St / Division St	TWSC	NBT	225	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	11	0	25	1	2	A				
360	Colborne St / Division St	TWSC	SBT	349	0	25	1	2	A				
360	Colborne St / Division St	TWSC	SBR	0	0	25	0	0	A				
360	Colborne St / Division St	TWSC	EBL	6	0	5	1	8	A				
360	Colborne St / Division St	TWSC	EBT	2	0	5	3	14	B				
360	Colborne St / Division St	TWSC	EBR	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	8	0	5	2	11	B				
360	Colborne St / Division St	TWSC	WBR	4	0	5	0	8	A				
370	Queen St / Division St	Signalized	NBT	64	15	25	8	10	A	20.0	B	13.8	B
370	Queen St / Division St	Signalized	NBR	125	15	25	1	10	A				
370	Queen St / Division St	Signalized	SBL	109	40	80	13	20	B				
370	Queen St / Division St	Signalized	SBT	246	40	80	14	20	B				
370	Queen St / Division St	Signalized	WBL	126	15	25	9	15	B				
370	Queen St / Division St	Signalized	WBR	163	15	25	0	4	A				

Williamsville Operational Analysis

2036 No Mitigation - No Williamsville Growth - PM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	3,254	46.7	85.9	29.2	23.9	C
20	Princess St / Regent St	TWSC	1,502	0.1	76.1	2.9	1.2	-
30	Princess St / Drayton Av	TWSC	1,417	15.3	69.0	2.4	0.8	-
40	Princess St / Macdonnell Av	Signalized	1,409	79.4	157.1	19.5	12.8	B
50	Princess St / Smith St	TWSC	1,168	36.3	70.0	5.3	3.1	-
60	Princess St / Victoria St	Signalized	1,383	28.7	107.9	13.6	7.9	B
70	Princess St / Nelson St	TWSC	1,178	14.3	66.1	5.1	2.6	-
80	Princess St / Albert St	Signalized	1,170	58.2	99.9	21.4	15.4	C
90	Princess St / Frontenac St	TWSC	1,153	18.9	97.4	7.4	3.5	-
100	Princess St / Alfred St	Signalized	1,473	90.8	100.4	32.0	22.8	C
110	Princess St / Chatham St	TWSC	1,235	36.7	99.5	9.1	4.8	-
120	Princess St / University Av	Signalized	1,190	37.6	53.8	8.2	4.4	A
130	Princess St / Division St	Signalized	1,480	23.4	61.7	14.3	9.5	B
140	Concession St / Drayton Av	TWSC	1,009	4.9	158.2	13.0	6.6	-
150	Concession St / Leroy Grant Dr (S)	TWSC	1,069	63.9	73.8	20.5	14.0	-
155	Concession St / Leroy Grant Drive (N)	TWSC	1,174	2.3	7.9	4.1	1.9	-
160	Concession St / Macdonnell St	Signalized	1,981	72.9	77.1	14.8	9.5	B
170	Concession St / Connaught St	TWSC	1,737	32.9	104.3	7.2	4.1	-
180	Concession St / Victoria St	Signalized	1,930	87.8	97.4	17.0	11.3	B
190	Concession St / Nelson St	TWSC	1,699	0.0	89.3	4.4	2.5	-
200	Concession St / Kingscourt Av	TWSC	1,643	0.0	96.7	5.2	2.6	-
210	Concession St / Fergus St	TWSC	1,636	0.0	59.5	6.0	2.9	-
220	Concession St / Grey St	TWSC	1,636	27.5	52.5	7.6	5.0	-
230	Concession St / Alfred St	Signalized	1,762	55.0	88.7	16.9	11.2	B
240	Concession St / Lansdowne St	TWSC	1,159	0.0	32.8	1.6	0.6	-
250	Concession St / Division St	Signalized	2,185	67.1	128.2	28.6	21.6	C
260	Adelaide St / Division St	TWSC	1,126	0.0	51.7	2.7	1.2	-
270	Stanley St / Division St	TWSC	1,089	0.0	13.3	1.1	0.1	-
280	Pine St / Division St	Signalized	1,162	22.5	67.7	9.2	5.6	A
290	Quebec St / Division St	TWSC	991	0.0	39.3	1.6	0.5	-
300	York St / Division St	Signalized	1,067	22.7	44.9	7.0	4.4	A
310	Main St / Division St	TWSC	941	23.1	46.5	3.0	1.2	-
320	Hamilton St / Division St	TWSC	942	0.0	8.8	0.6	0.0	-
330	Raglan St / Division St	TWSC	938	0.0	0.1	0.1	0.0	-
340	Elm St / Division St	TWSC	974	0.0	15.3	0.1	0.0	-
350	Ellice St / Division St	TWSC	947	0.0	27.8	0.2	0.0	-
360	Colborne St / Division St	TWSC	929	0.0	17.7	0.7	0.5	-
370	Queen St / Division St	Signalized	1,447	39.9	99.6	18.4	10.6	B
	Total		**52,185**	**1,009**	**2,644**	**362**	**230**	

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
10	Princess St / Concession St	Signalized	NBL	309	45	135	34	41	D	45.0	D	29.2	C
10	Princess St / Concession St	Signalized	NBT	354	45	135	33	40	D				
10	Princess St / Concession St	Signalized	NBR	18	45	135	7	11	B				
10	Princess St / Concession St	Signalized	SBL	501	75	105	36	44	D				
10	Princess St / Concession St	Signalized	SBT	488	75	105	36	45	D				
10	Princess St / Concession St	Signalized	SBR	0	75	105	0	0	A				
10	Princess St / Concession St	Signalized	EBT	245	20	40	30	36	D				
10	Princess St / Concession St	Signalized	EBR	314	20	40	0	1	A				
10	Princess St / Concession St	Signalized	WBT	399	35	60	31	37	D				
10	Princess St / Concession St	Signalized	WBR	596	35	60	0	0	A				
10	Princess St / Concession St	Signalized	WBL	30	35	60	1	3	A				
20	Princess St / Regent St	TWSC	NBL	18	5	10	7	17	C	17.0	C	2.9	A
20	Princess St / Regent St	TWSC	NBR	16	5	10	4	12	B				
20	Princess St / Regent St	TWSC	EBT	717	0	80	1	3	A				
20	Princess St / Regent St	TWSC	EBR	70	0	80	1	2	A				
20	Princess St / Regent St	TWSC	WBL	34	0	75	5	8	A				
20	Princess St / Regent St	TWSC	WBT	647	0	75	1	2	A				
30	Princess St / Drayton Av	TWSC	SBL	4	5	45	22	39	E	39.0	E	2.4	A
30	Princess St / Drayton Av	TWSC	SBR	76	5	45	4	15	B				
30	Princess St / Drayton Av	TWSC	EBL	29	0	75	3	6	A				
30	Princess St / Drayton Av	TWSC	EBT	702	0	75	0	1	A				
30	Princess St / Drayton Av	TWSC	WBT	606	35	65	1	2	A				
30	Princess St / Drayton Av	TWSC	WBR	0	35	65	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	69	45	55	13	21	C	48.0	D	19.5	B
40	Princess St / Macdonnell Av	Signalized	NBT	24	45	55	11	20	B				
40	Princess St / Macdonnell Av	Signalized	NBR	68	45	55	9	18	B				
40	Princess St / Macdonnell Av	Signalized	SBL	2	15	40	3	13	B				
40	Princess St / Macdonnell Av	Signalized	SBT	41	15	40	14	20	B				
40	Princess St / Macdonnell Av	Signalized	SBR	44	15	40	4	12	B				
40	Princess St / Macdonnell Av	Signalized	EBL	37	115	260	22	30	C				
40	Princess St / Macdonnell Av	Signalized	EBT	633	115	260	15	23	C				
40	Princess St / Macdonnell Av	Signalized	EBR	27	115	260	12	20	B				
40	Princess St / Macdonnell Av	Signalized	WBL	8	50	60	38	48	D				
40	Princess St / Macdonnell Av	Signalized	WBT	456	50	60	10	14	B				
40	Princess St / Macdonnell Av	Signalized	WBR	0	50	60	0	0	A				
50	Princess St / Smith St	TWSC	SBL	0	40	40	0	0	A	23.0	C	5.3	A
50	Princess St / Smith St	TWSC	SBR	29	40	40	11	23	C				
50	Princess St / Smith St	TWSC	EBL	27	40	65	2	4	A				
50	Princess St / Smith St	TWSC	EBT	677	40	65	1	1	A				
50	Princess St / Smith St	TWSC	WBT	435	30	80	6	11	B				
50	Princess St / Smith St	TWSC	WBR	0	30	80	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	14	15	35	19	27	C	27.0	C	13.6	B
60	Princess St / Victoria St	Signalized	NBT	80	15	35	18	25	C				
60	Princess St / Victoria St	Signalized	NBR	58	15	35	11	18	B				
60	Princess St / Victoria St	Signalized	SBL	22	5	15	18	24	C				
60	Princess St / Victoria St	Signalized	SBT	37	5	15	18	26	C				
60	Princess St / Victoria St	Signalized	SBR	14	5	15	2	5	A				
60	Princess St / Victoria St	Signalized	EBL	95	30	170	13	22	C				
60	Princess St / Victoria St	Signalized	EBT	579	30	170	5	11	B				
60	Princess St / Victoria St	Signalized	EBR	14	30	170	4	9	A				
60	Princess St / Victoria St	Signalized	WBL	14	35	55	18	23	C				
60	Princess St / Victoria St	Signalized	WBT	394	35	55	7	11	B				
60	Princess St / Victoria St	Signalized	WBR	62	35	55	5	9	A				
70	Princess St / Nelson St	TWSC	NBL	14	0	5	11	19	C	19.0	C	5.1	A
70	Princess St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	NBR	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBL	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	SBT	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	EBL	97	25	115	6	12	B				
70	Princess St / Nelson St	TWSC	EBT	569	25	115	4	8	A				
70	Princess St / Nelson St	TWSC	EBR	10	25	115	1	2	A				
70	Princess St / Nelson St	TWSC	WBL	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	WBT	475	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	WBR	13	0	0	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
80	Princess St / Albert St	Signalized	NBL	50	10	20	13	18	B	34.0	C	21.4	C
80	Princess St / Albert St	Signalized	NBT	19	10	20	13	18	B				
80	Princess St / Albert St	Signalized	NBR	38	10	20	2	7	A				
80	Princess St / Albert St	Signalized	SBL	0	0	0	0	0	A				
80	Princess St / Albert St	Signalized	SBT	0	0	0	0	0	A				
80	Princess St / Albert St	Signalized	SBR	3	0	0	0	5	A				
80	Princess St / Albert St	Signalized	EBL	25	70	115	21	31	C				
80	Princess St / Albert St	Signalized	EBT	538	70	115	18	24	C				
80	Princess St / Albert St	Signalized	EBR	21	70	115	11	16	B				
80	Princess St / Albert St	Signalized	WBL	27	55	100	27	34	C				
80	Princess St / Albert St	Signalized	WBT	449	55	100	13	19	B				
80	Princess St / Albert St	Signalized	WBR	0	55	100	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	4	0	5	4	11	B	24.0	C	7.4	A
90	Princess St / Frontenac St	TWSC	NBT	8	0	5	12	24	C				
90	Princess St / Frontenac St	TWSC	NBR	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	EBL	61	35	155	8	16	C				
90	Princess St / Frontenac St	TWSC	EBT	563	35	155	6	12	B				
90	Princess St / Frontenac St	TWSC	EBR	0	35	155	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	0	0	30	0	0	A				
90	Princess St / Frontenac St	TWSC	WBT	510	0	30	0	1	A				
90	Princess St / Frontenac St	TWSC	WBR	7	0	30	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	31	25	50	12	19	B	51.0	D	32.0	C
100	Princess St / Alfred St	Signalized	NBT	113	25	50	15	23	C				
100	Princess St / Alfred St	Signalized	NBR	99	25	50	10	18	B				
100	Princess St / Alfred St	Signalized	SBL	36	10	30	21	31	C				
100	Princess St / Alfred St	Signalized	SBT	50	10	30	14	21	C				
100	Princess St / Alfred St	Signalized	SBR	26	10	30	5	11	B				
100	Princess St / Alfred St	Signalized	EBL	2	135	145	34	51	D				
100	Princess St / Alfred St	Signalized	EBT	560	135	145	30	43	D				
100	Princess St / Alfred St	Signalized	EBR	15	135	145	28	40	D				
100	Princess St / Alfred St	Signalized	WBL	37	90	90	24	32	C				
100	Princess St / Alfred St	Signalized	WBT	461	90	90	22	28	C				
100	Princess St / Alfred St	Signalized	WBR	43	90	90	13	19	B				
110	Princess St / Chatham St	TWSC	SBL	0	0	0	0	0	A	33.0	D	9.1	A
110	Princess St / Chatham St	TWSC	SBR	0	0	0	0	0	A				
110	Princess St / Chatham St	TWSC	EBL	75	50	115	6	13	B				
110	Princess St / Chatham St	TWSC	EBT	614	50	115	5	11	B				
110	Princess St / Chatham St	TWSC	WBT	538	20	80	4	6	A				
110	Princess St / Chatham St	TWSC	WBR	8	20	80	25	33	D				
120	Princess St / University Av	Signalized	NBL	54	5	20	17	22	C	22.0	C	8.2	A
120	Princess St / University Av	Signalized	NBR	32	5	20	5	10	A				
120	Princess St / University Av	Signalized	EBT	544	65	70	5	10	A				
120	Princess St / University Av	Signalized	EBR	23	65	70	5	10	A				
120	Princess St / University Av	Signalized	WBL	16	10	40	2	6	A				
120	Princess St / University Av	Signalized	WBT	483	10	40	2	4	A				
120	Princess St / University Av	Signalized	NBT	0	5	20	0	0	A				
120	Princess St / University Av	Signalized	SBL	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBT	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	SBR	0	0	0	0	0	A				
120	Princess St / University Av	Signalized	EBL	38	65	70	8	16	B				
120	Princess St / University Av	Signalized	WBR	0	10	40	0	0	A				
130	Princess St / Division St	Signalized	NBL	55	20	40	12	22	C	27.0	C	14.3	B
130	Princess St / Division St	Signalized	NBT	155	20	40	12	18	B				
130	Princess St / Division St	Signalized	NBR	10	20	40	3	8	A				
130	Princess St / Division St	Signalized	SBL	138	15	70	6	10	A				
130	Princess St / Division St	Signalized	SBT	111	15	70	3	4	A				
130	Princess St / Division St	Signalized	SBR	441	15	70	0	1	A				
130	Princess St / Division St	Signalized	EBL	163	35	60	17	25	C				
130	Princess St / Division St	Signalized	EBT	384	35	60	19	27	C				
130	Princess St / Division St	Signalized	EBR	23	35	60	10	19	B				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	12	0	5	38	47	E	47.0	E	13.0	B
140	Concession St / Drayton Av	TWSC	EBT	952	5	160	6	12	B				
140	Concession St / Drayton Av	TWSC	EBR	45	5	160	12	24	C				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	18	0	5	13	25	C	27.0	D	20.5	C
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	183	65	75	19	27	D				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	868	65	75	13	19	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	92	15	50	9	21	C	27.0	D	4.1	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	90	15	50	13	27	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	18	0	5	10	20	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	8	0	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	926	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	40	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	31	10	35	19	26	C	50.0	D	14.8	B
160	Concession St / Macdonnell St	Signalized	NBT	26	10	35	19	27	C				
160	Concession St / Macdonnell St	Signalized	NBR	73	10	35	10	17	B				
160	Concession St / Macdonnell St	Signalized	SBR	67	5	15	4	7	A				
160	Concession St / Macdonnell St	Signalized	EBL	58	75	80	41	50	D				
160	Concession St / Macdonnell St	Signalized	EBT	762	75	80	8	13	B				
160	Concession St / Macdonnell St	Signalized	EBR	67	75	80	7	11	B				
160	Concession St / Macdonnell St	Signalized	WBL	26	85	85	35	46	D				
160	Concession St / Macdonnell St	Signalized	WBT	871	85	85	8	13	B				
160	Concession St / Macdonnell St	Signalized	WBR	0	85	85	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	0	0	5	0	0	A	27.0	D	7.2	A
170	Concession St / Connaught St	TWSC	SBR	16	0	5	17	27	D				
170	Concession St / Connaught St	TWSC	EBL	0	5	95	0	0	A				
170	Concession St / Connaught St	TWSC	EBT	838	5	95	3	6	A				
170	Concession St / Connaught St	TWSC	WBT	883	60	115	5	8	A				
170	Concession St / Connaught St	TWSC	WBR	0	60	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	55	25	80	40	52	D	52.0	D	17.0	B
180	Concession St / Victoria St	Signalized	NBT	33	25	80	30	38	D				
180	Concession St / Victoria St	Signalized	NBR	80	25	80	27	37	D				
180	Concession St / Victoria St	Signalized	SBL	12	5	15	27	36	D				
180	Concession St / Victoria St	Signalized	SBT	22	5	15	23	29	C				
180	Concession St / Victoria St	Signalized	SBR	36	5	15	3	13	B				
180	Concession St / Victoria St	Signalized	EBL	54	110	115	19	27	C				
180	Concession St / Victoria St	Signalized	EBT	770	110	115	9	14	B				
180	Concession St / Victoria St	Signalized	EBR	22	110	115	10	20	B				
180	Concession St / Victoria St	Signalized	WBL	44	85	90	23	30	C				
180	Concession St / Victoria St	Signalized	WBT	790	85	90	8	13	B				
180	Concession St / Victoria St	Signalized	WBR	12	85	90	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	0	0	0	0	0	A	6.0	A	4.4	A
190	Concession St / Nelson St	TWSC	NBT	0	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	0	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	12	0	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	0	0	85	0	0	A				
190	Concession St / Nelson St	TWSC	EBT	813	0	85	2	4	A				
190	Concession St / Nelson St	TWSC	EBR	46	0	85	2	2	A				
190	Concession St / Nelson St	TWSC	WBL	0	0	95	0	0	A				
190	Concession St / Nelson St	TWSC	WBT	828	0	95	3	5	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	95	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	0	0	15	0	0	A	20.0	C	5.2	A
200	Concession St / Kingscourt Av	TWSC	SBR	17	0	15	10	20	C				
200	Concession St / Kingscourt Av	TWSC	EBL	2	0	100	0	3	A				
200	Concession St / Kingscourt Av	TWSC	EBT	813	0	100	4	8	A				
200	Concession St / Kingscourt Av	TWSC	WBT	811	0	95	1	2	A				
200	Concession St / Kingscourt Av	TWSC	WBR	0	0	95	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	12	0	5	59	70	F	70.0	F	6.0	A
210	Concession St / Fergus St	TWSC	SBR	0	0	5	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	4	0	100	19	32	D				
210	Concession St / Fergus St	TWSC	EBT	806	0	100	5	10	A				
210	Concession St / Fergus St	TWSC	WBT	810	0	20	0	1	A				
210	Concession St / Fergus St	TWSC	WBR	4	0	20	0	0	A				
220	Concession St / Grey St	TWSC	SBL	0	0	5	0	0	A	19.0	C	7.6	A
220	Concession St / Grey St	TWSC	SBR	16	0	5	4	12	B				
220	Concession St / Grey St	TWSC	EBL	4	55	105	14	19	C				
220	Concession St / Grey St	TWSC	EBT	813	55	105	10	15	B				
220	Concession St / Grey St	TWSC	WBT	799	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	4	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	191	30	95	20	30	C	31.0	C	16.9	B
230	Concession St / Alfred St	Signalized	NBT	35	30	95	22	31	C				
230	Concession St / Alfred St	Signalized	NBR	34	30	95	16	23	C				
230	Concession St / Alfred St	Signalized	SBL	0	5	15	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	34	5	15	18	23	C				
230	Concession St / Alfred St	Signalized	SBR	24	5	15	4	8	A				
230	Concession St / Alfred St	Signalized	EBL	29	55	60	18	25	C				
230	Concession St / Alfred St	Signalized	EBT	541	55	60	10	14	B				
230	Concession St / Alfred St	Signalized	EBR	245	55	60	2	4	A				
230	Concession St / Alfred St	Signalized	WBL	41	70	130	12	20	B				
230	Concession St / Alfred St	Signalized	WBT	588	70	130	12	19	B				
230	Concession St / Alfred St	Signalized	WBR	0	70	130	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	6.0	A	1.6	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	526	0	0	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	26	0	60	3	6	A				
240	Concession St / Lansdowne St	TWSC	WBT	607	0	60	1	2	A				
250	Concession St / Division St	Signalized	NBL	57	80	110	27	39	D	65.0	E	28.6	C
250	Concession St / Division St	Signalized	NBT	562	80	110	19	25	C				
250	Concession St / Division St	Signalized	NBR	0	80	110	0	0	A				
250	Concession St / Division St	Signalized	SBL	28	65	140	31	42	D				
250	Concession St / Division St	Signalized	SBT	421	65	140	17	23	C				
250	Concession St / Division St	Signalized	SBR	177	65	140	4	9	A				
250	Concession St / Division St	Signalized	EBL	221	35	105	21	29	C				
250	Concession St / Division St	Signalized	EBT	228	35	105	13	18	B				
250	Concession St / Division St	Signalized	EBR	64	35	105	5	8	A				
250	Concession St / Division St	Signalized	WBL	12	90	165	54	65	E				
250	Concession St / Division St	Signalized	WBT	381	90	165	43	53	D				
250	Concession St / Division St	Signalized	WBR	34	90	165	39	50	D				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	0	0	70	0	0	A	16.0	C	2.7	A
260	Adelaide St / Division St	TWSC	NBT	617	0	70	2	4	A				
260	Adelaide St / Division St	TWSC	NBR	0	0	70	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	8	0	30	2	4	A				
260	Adelaide St / Division St	TWSC	SBT	450	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBR	40	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	1	0	0	0	0	A				
260	Adelaide St / Division St	TWSC	EBT	0	0	0	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	0	0	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	7	0	5	5	14	B				
260	Adelaide St / Division St	TWSC	WBT	3	0	5	6	16	C				
260	Adelaide St / Division St	TWSC	WBR	0	0	5	0	0	A				
270	Stanley St / Division St	TWSC	NBL	11	0	5	3	5	A	21.0	C	1.1	A
270	Stanley St / Division St	TWSC	NBT	606	0	5	0	0	A				
270	Stanley St / Division St	TWSC	SBT	383	0	25	0	2	A				
270	Stanley St / Division St	TWSC	SBR	71	0	25	0	1	A				
270	Stanley St / Division St	TWSC	EBL	12	0	5	6	21	C				
270	Stanley St / Division St	TWSC	EBR	6	0	5	2	10	A				
280	Pine St / Division St	Signalized	NBL	39	25	80	8	14	B	28.0	C	9.2	A
280	Pine St / Division St	Signalized	NBT	542	25	80	4	7	A				
280	Pine St / Division St	Signalized	NBR	14	25	80	3	5	A				
280	Pine St / Division St	Signalized	SBL	36	25	70	9	15	B				
280	Pine St / Division St	Signalized	SBT	353	25	70	5	8	A				
280	Pine St / Division St	Signalized	SBR	6	25	70	2	6	A				
280	Pine St / Division St	Signalized	EBL	0	5	20	0	0	A				
280	Pine St / Division St	Signalized	EBT	26	5	20	22	28	C				
280	Pine St / Division St	Signalized	EBR	34	5	20	4	9	A				
280	Pine St / Division St	Signalized	WBL	2	10	20	14	18	B				
280	Pine St / Division St	Signalized	WBT	33	10	20	21	27	C				
280	Pine St / Division St	Signalized	WBR	77	10	20	6	12	B				
290	Quebec St / Division St	TWSC	NBT	593	0	30	0	1	A	13.0	B	1.6	A
290	Quebec St / Division St	TWSC	NBR	0	0	30	0	0	A				
290	Quebec St / Division St	TWSC	SBL	9	0	55	3	7	A				
290	Quebec St / Division St	TWSC	SBT	375	0	55	1	2	A				
290	Quebec St / Division St	TWSC	WBL	14	0	5	5	13	B				
290	Quebec St / Division St	TWSC	WBR	0	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	6	35	35	5	7	A	32.0	C	7.0	A
300	York St / Division St	Signalized	NBT	532	35	35	2	4	A				
300	York St / Division St	Signalized	NBR	12	35	35	0	0	A				
300	York St / Division St	Signalized	SBL	38	10	65	11	17	B				
300	York St / Division St	Signalized	SBT	352	10	65	3	5	A				
300	York St / Division St	Signalized	SBR	0	10	65	0	0	A				
300	York St / Division St	Signalized	EBL	0	0	10	0	0	A				
300	York St / Division St	Signalized	EBT	23	0	10	24	28	C				
300	York St / Division St	Signalized	EBR	0	0	10	0	0	A				
300	York St / Division St	Signalized	WBL	33	10	30	25	32	C				
300	York St / Division St	Signalized	WBT	10	10	30	21	28	C				
300	York St / Division St	Signalized	WBR	61	10	30	8	15	B				
310	Main St / Division St	TWSC	NBT	550	15	55	2	5	A	12.0	B	3.0	A
310	Main St / Division St	TWSC	NBR	0	15	55	0	0	A				
310	Main St / Division St	TWSC	SBL	6	35	35	2	5	A				
310	Main St / Division St	TWSC	SBT	379	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	6	0	5	3	12	B				
310	Main St / Division St	TWSC	WBR	0	0	5	0	0	A				

Williamsville Operational Analysis

2036 No Mitigation - No Williamsville Growth - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
320	Hamilton St / Division St	TWSC	NBL	0	0	15	0	0	A	6.0	A	0.6	A
320	Hamilton St / Division St	TWSC	NBT	549	0	15	0	1	A				
320	Hamilton St / Division St	TWSC	SBT	362	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	24	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	0	0	5	0	0	A				
320	Hamilton St / Division St	TWSC	EBR	7	0	5	0	6	A				
330	Raglan St / Division St	TWSC	NBT	549	0	0	0	0	A	12.0	B	0.1	A
330	Raglan St / Division St	TWSC	NBR	10	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	0	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBT	369	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	10	0	5	3	12	B				
330	Raglan St / Division St	TWSC	WBR	0	0	5	0	0	A				
340	Elm St / Division St	TWSC	NBL	36	0	25	1	3	A	3.0	A	0.1	A
340	Elm St / Division St	TWSC	NBT	560	0	25	0	0	A				
340	Elm St / Division St	TWSC	SBT	348	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	30	0	0	0	1	A				
340	Elm St / Division St	TWSC	EBL	0	0	0	0	0	A				
340	Elm St / Division St	TWSC	EBR	0	0	0	0	0	A				
350	Ellice St / Division St	TWSC	NBT	582	0	45	0	0	A	9.0	A	0.2	A
350	Ellice St / Division St	TWSC	NBR	2	0	45	0	0	A				
350	Ellice St / Division St	TWSC	SBL	6	0	0	2	4	A				
350	Ellice St / Division St	TWSC	SBT	343	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	WBR	14	0	5	2	9	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	12.0	B	0.7	A
360	Colborne St / Division St	TWSC	NBT	556	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	6	0	15	0	1	A				
360	Colborne St / Division St	TWSC	SBT	337	0	15	1	1	A				
360	Colborne St / Division St	TWSC	SBR	0	0	15	0	0	A				
360	Colborne St / Division St	TWSC	EBL	14	0	5	4	12	B				
360	Colborne St / Division St	TWSC	EBT	2	0	5	0	9	A				
360	Colborne St / Division St	TWSC	EBR	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	14	0	5	2	9	A				
370	Queen St / Division St	Signalized	NBT	209	20	70	8	11	B	30.0	C	18.4	B
370	Queen St / Division St	Signalized	NBR	111	20	70	1	9	A				
370	Queen St / Division St	Signalized	SBL	92	35	80	20	30	C				
370	Queen St / Division St	Signalized	SBT	247	35	80	14	20	B				
370	Queen St / Division St	Signalized	WBL	442	50	120	18	30	C				
370	Queen St / Division St	Signalized	WBR	346	50	120	1	7	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 22% Auto M.S. - AM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	2,644	40.4	61.9	26.2	21.1	C
20	Princess St / Regent St	TWSC	1,035	0.2	52.6	2.4	0.2	-
30	Princess St / Drayton Av	TWSC	986	0.0	53.5	1.9	0.1	-
40	Princess St / Macdonnell Av	Signalized	926	51.1	113.6	16.1	10.3	B
50	Princess St / Smith St	TWSC	770	28.6	32.9	0.8	0.3	-
60	Princess St / Victoria St	Signalized	993	11.1	59.6	7.5	3.9	A
70	Princess St / Nelson St	TWSC	902	0.1	7.6	1.8	0.3	-
80	Princess St / Albert St	Signalized	930	22.6	57.6	12.3	8.7	B
90	Princess St / Frontenac St	TWSC	832	0.0	27.3	0.8	0.0	-
100	Princess St / Alfred St	Signalized	1,172	43.9	65.8	23.7	17.2	C
110	Princess St / Chatham St	TWSC	828	0.0	23.2	1.4	0.0	-
120	Princess St / University Av	Signalized	804	15.2	53.2	5.4	2.7	A
130	Princess St / Division St	Signalized	1,001	17.6	54.0	16.6	11.5	B
140	Concession St / Drayton Av	TWSC	941	0.2	131.0	11.3	7.0	-
150	Concession St / Leroy Grant Dr (S)	TWSC	913	49.9	74.9	7.8	3.9	-
155	Concession St / Leroy Grant Drive (N)	TWSC	768	0.3	0.8	0.6	0.1	-
160	Concession St / Macdonnell St	Signalized	1,555	49.7	61.5	9.9	6.5	A
170	Concession St / Connaught St	TWSC	1,298	0.0	46.9	0.8	0.1	-
180	Concession St / Victoria St	Signalized	1,384	31.1	79.4	10.8	7.4	B
190	Concession St / Nelson St	TWSC	1,235	0.1	52.2	1.8	0.6	-
200	Concession St / Kingscourt Av	TWSC	1,224	0.2	37.7	1.8	0.4	-
210	Concession St / Fergus St	TWSC	1,257	0.2	43.0	3.0	1.1	-
220	Concession St / Grey St	TWSC	1,288	16.4	57.3	6.9	3.9	-
230	Concession St / Alfred St	Signalized	1,362	41.4	61.5	12.0	7.7	B
240	Concession St / Lansdowne St	TWSC	997	0.0	0.0	0.6	0.0	-
250	Concession St / Division St	Signalized	1,661	39.8	91.6	20.9	15.0	C
260	Adelaide St / Division St	TWSC	658	0.0	25.8	0.2	0.1	-
270	Stanley St / Division St	TWSC	678	0.3	14.2	1.8	0.8	-
280	Pine St / Division St	Signalized	752	13.2	49.9	8.8	5.1	A
290	Quebec St / Division St	TWSC	650	0.0	31.8	0.9	0.1	-
300	York St / Division St	Signalized	741	12.0	32.7	7.5	5.4	A
310	Main St / Division St	TWSC	610	23.2	26.6	0.8	0.3	-
320	Hamilton St / Division St	TWSC	591	0.0	0.1	0.1	0.0	-
330	Raglan St / Division St	TWSC	585	0.0	0.1	0.1	0.0	-
340	Elm St / Division St	TWSC	568	0.0	0.0	0.1	0.0	-
350	Ellice St / Division St	TWSC	575	0.0	0.1	0.2	0.0	-
360	Colborne St / Division St	TWSC	576	0.0	16.1	1.8	0.7	-
370	Queen St / Division St	Signalized	837	27.7	48.6	14.7	8.7	B
	Total		**37,527**	**536**	**1,647**	**242**	**151**	

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
10	Princess St / Concession St	Signalized	NBL	142	25	35	39	46	D	46.0	D	26.2	C
10	Princess St / Concession St	Signalized	NBT	91	25	35	35	42	D				
10	Princess St / Concession St	Signalized	NBR	32	25	35	0	1	A				
10	Princess St / Concession St	Signalized	SBL	505	65	95	29	36	D				
10	Princess St / Concession St	Signalized	SBT	497	65	95	29	37	D				
10	Princess St / Concession St	Signalized	SBR	30	65	95	14	18	B				
10	Princess St / Concession St	Signalized	EBT	398	30	50	28	33	C				
10	Princess St / Concession St	Signalized	EBR	224	30	50	0	2	A				
10	Princess St / Concession St	Signalized	WBT	243	20	35	26	32	C				
10	Princess St / Concession St	Signalized	WBR	394	20	35	0	0	A				
10	Princess St / Concession St	Signalized	WBL	88	20	35	2	5	A				
20	Princess St / Regent St	TWSC	NBL	0	5	10	0	0	A	11.0	B	2.4	A
20	Princess St / Regent St	TWSC	NBR	33	5	10	4	11	B				
20	Princess St / Regent St	TWSC	EBT	669	0	75	0	3	A				
20	Princess St / Regent St	TWSC	EBR	52	0	75	0	1	A				
20	Princess St / Regent St	TWSC	WBL	7	0	0	7	9	A				
20	Princess St / Regent St	TWSC	WBT	274	0	0	0	0	A				
30	Princess St / Drayton Av	TWSC	SBL	0	0	0	0	0	A	3.0	A	1.9	A
30	Princess St / Drayton Av	TWSC	SBR	0	0	0	0	0	A				
30	Princess St / Drayton Av	TWSC	EBL	137	0	75	1	3	A				
30	Princess St / Drayton Av	TWSC	EBT	567	0	75	0	2	A				
30	Princess St / Drayton Av	TWSC	WBT	280	0	0	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	2	0	0	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	43	5	25	13	19	B	28.0	C	16.1	B
40	Princess St / Macdonnell Av	Signalized	NBT	17	5	25	12	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	26	5	25	6	12	B				
40	Princess St / Macdonnell Av	Signalized	SBL	9	40	40	14	18	B				
40	Princess St / Macdonnell Av	Signalized	SBT	14	40	40	12	16	B				
40	Princess St / Macdonnell Av	Signalized	SBR	26	40	40	2	10	A				
40	Princess St / Macdonnell Av	Signalized	EBL	33	70	160	14	20	B				
40	Princess St / Macdonnell Av	Signalized	EBT	499	70	160	11	17	B				
40	Princess St / Macdonnell Av	Signalized	EBR	27	70	160	8	13	B				
40	Princess St / Macdonnell Av	Signalized	WBL	7	25	50	19	28	C				
40	Princess St / Macdonnell Av	Signalized	WBT	215	25	50	9	14	B				
40	Princess St / Macdonnell Av	Signalized	WBR	10	25	50	6	11	B				
50	Princess St / Smith St	TWSC	SBL	2	40	40	0	10	A	12.0	B	0.8	A
50	Princess St / Smith St	TWSC	SBR	12	40	40	1	12	B				
50	Princess St / Smith St	TWSC	EBL	4	40	40	0	2	A				
50	Princess St / Smith St	TWSC	EBT	532	40	40	0	0	A				
50	Princess St / Smith St	TWSC	WBT	220	0	15	1	2	A				
50	Princess St / Smith St	TWSC	WBR	0	0	15	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	24	10	35	16	23	C	26.0	C	7.5	A
60	Princess St / Victoria St	Signalized	NBT	29	10	35	18	26	C				
60	Princess St / Victoria St	Signalized	NBR	44	10	35	6	11	B				
60	Princess St / Victoria St	Signalized	SBL	7	5	20	18	23	C				
60	Princess St / Victoria St	Signalized	SBT	61	5	20	15	21	C				
60	Princess St / Victoria St	Signalized	SBR	2	5	20	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	10	10	80	10	15	B				
60	Princess St / Victoria St	Signalized	EBT	516	10	80	1	4	A				
60	Princess St / Victoria St	Signalized	EBR	8	10	80	1	4	A				
60	Princess St / Victoria St	Signalized	WBL	22	15	40	13	17	B				
60	Princess St / Victoria St	Signalized	WBT	192	15	40	3	6	A				
60	Princess St / Victoria St	Signalized	WBR	78	15	40	2	6	A				
70	Princess St / Nelson St	TWSC	NBL	5	5	45	6	17	C	18.0	C	1.8	A
70	Princess St / Nelson St	TWSC	NBT	8	5	45	6	18	C				
70	Princess St / Nelson St	TWSC	NBR	7	5	45	5	14	B				
70	Princess St / Nelson St	TWSC	SBL	8	0	5	5	18	C				
70	Princess St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	8	0	5	1	13	B				
70	Princess St / Nelson St	TWSC	EBL	31	0	0	1	3	A				
70	Princess St / Nelson St	TWSC	EBT	533	0	0	0	1	A				
70	Princess St / Nelson St	TWSC	EBR	7	0	0	0	1	A				
70	Princess St / Nelson St	TWSC	WBL	14	0	20	4	7	A				
70	Princess St / Nelson St	TWSC	WBT	281	0	20	0	1	A				
70	Princess St / Nelson St	TWSC	WBR	0	0	20	0	0	A				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
80	Princess St / Albert St	Signalized	NBL	13	5	15	13	18	B	29.0	C	12.3	B
80	Princess St / Albert St	Signalized	NBT	17	5	15	12	16	B				
80	Princess St / Albert St	Signalized	NBR	27	5	15	3	8	A				
80	Princess St / Albert St	Signalized	SBL	3	5	15	17	29	C				
80	Princess St / Albert St	Signalized	SBT	31	5	15	12	15	B				
80	Princess St / Albert St	Signalized	SBR	29	5	15	3	9	A				
80	Princess St / Albert St	Signalized	EBL	2	30	80	18	21	C				
80	Princess St / Albert St	Signalized	EBT	533	30	80	11	14	B				
80	Princess St / Albert St	Signalized	EBR	15	30	80	8	11	B				
80	Princess St / Albert St	Signalized	WBL	8	15	30	18	25	C				
80	Princess St / Albert St	Signalized	WBT	251	15	30	4	8	A				
80	Princess St / Albert St	Signalized	WBR	1	15	30	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	2	0	5	2	11	B	11.0	B	0.8	A
90	Princess St / Frontenac St	TWSC	NBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	NBR	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	8	0	5	0	7	A				
90	Princess St / Frontenac St	TWSC	EBL	29	0	40	0	2	A				
90	Princess St / Frontenac St	TWSC	EBT	529	0	40	0	1	A				
90	Princess St / Frontenac St	TWSC	EBR	8	0	40	0	2	A				
90	Princess St / Frontenac St	TWSC	WBL	4	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBT	251	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	1	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	27	20	40	14	21	C	36.0	D	23.7	C
100	Princess St / Alfred St	Signalized	NBT	109	20	40	13	19	B				
100	Princess St / Alfred St	Signalized	NBR	75	20	40	6	11	B				
100	Princess St / Alfred St	Signalized	SBL	26	20	50	15	24	C				
100	Princess St / Alfred St	Signalized	SBT	133	20	50	13	20	B				
100	Princess St / Alfred St	Signalized	SBR	60	20	50	6	11	B				
100	Princess St / Alfred St	Signalized	EBL	12	70	90	29	36	D				
100	Princess St / Alfred St	Signalized	EBT	497	70	90	22	29	C				
100	Princess St / Alfred St	Signalized	EBR	7	70	90	18	25	C				
100	Princess St / Alfred St	Signalized	WBL	8	30	50	21	29	C				
100	Princess St / Alfred St	Signalized	WBT	192	30	50	20	26	C				
100	Princess St / Alfred St	Signalized	WBR	26	30	50	2	6	A				
110	Princess St / Chatham St	TWSC	SBL	0	0	0	0	0	A	2.0	A	1.4	A
110	Princess St / Chatham St	TWSC	SBR	1	0	0	0	0	A				
110	Princess St / Chatham St	TWSC	EBL	15	0	15	0	2	A				
110	Princess St / Chatham St	TWSC	EBT	584	0	15	0	2	A				
110	Princess St / Chatham St	TWSC	WBT	224	0	45	0	0	A				
110	Princess St / Chatham St	TWSC	WBR	4	0	45	0	0	A				
120	Princess St / University Av	Signalized	NBL	33	5	10	18	23	C	24.0	C	5.4	A
120	Princess St / University Av	Signalized	NBR	21	5	10	3	8	A				
120	Princess St / University Av	Signalized	EBT	484	20	70	2	5	A				
120	Princess St / University Av	Signalized	EBR	61	20	70	1	4	A				
120	Princess St / University Av	Signalized	WBL	8	5	20	16	24	C				
120	Princess St / University Av	Signalized	WBT	197	5	20	2	3	A				
130	Princess St / Division St	Signalized	NBL	23	5	20	15	26	C	28.0	C	16.6	B
130	Princess St / Division St	Signalized	NBT	52	5	20	11	17	B				
130	Princess St / Division St	Signalized	NBR	1	5	20	0	0	A				
130	Princess St / Division St	Signalized	SBL	142	5	65	3	6	A				
130	Princess St / Division St	Signalized	SBT	97	5	65	3	4	A				
130	Princess St / Division St	Signalized	SBR	182	5	65	0	0	A				
130	Princess St / Division St	Signalized	EBL	127	30	50	20	28	C				
130	Princess St / Division St	Signalized	EBT	359	30	50	20	28	C				
130	Princess St / Division St	Signalized	EBR	18	30	50	7	15	B				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	36	5	30	83	95	F	95.0	F	11.3	B
140	Concession St / Drayton Av	TWSC	EBT	905	0	135	4	8	A				
140	Concession St / Drayton Av	TWSC	EBR	0	0	135	0	0	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	1	0	0	25	36	E	36.0	E	7.8	A
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	42	50	75	1	4	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	870	50	75	4	8	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	31	5	15	2	10	A	11.0	B	0.6	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	12	5	15	2	11	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	1	0	0	0	8	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	76	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	622	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	26	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	60	5	20	21	27	C	27.0	C	9.9	A
160	Concession St / Macdonnell St	Signalized	NBT	0	5	20	0	0	A				
160	Concession St / Macdonnell St	Signalized	NBR	4	5	20	13	22	C				
160	Concession St / Macdonnell St	Signalized	SBR	45	0	5	1	3	A				
160	Concession St / Macdonnell St	Signalized	EBL	36	75	75	10	17	B				
160	Concession St / Macdonnell St	Signalized	EBT	714	75	75	7	11	B				
160	Concession St / Macdonnell St	Signalized	EBR	123	75	75	5	9	A				
160	Concession St / Macdonnell St	Signalized	WBL	28	20	50	19	26	C				
160	Concession St / Macdonnell St	Signalized	WBT	545	20	50	4	6	A				
160	Concession St / Macdonnell St	Signalized	WBR	0	20	50	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	8	0	5	8	16	C	16.0	C	0.8	A
170	Concession St / Connaught St	TWSC	SBR	8	0	5	3	10	A				
170	Concession St / Connaught St	TWSC	EBL	17	0	85	3	6	A				
170	Concession St / Connaught St	TWSC	EBT	698	0	85	0	1	A				
170	Concession St / Connaught St	TWSC	WBT	563	0	0	0	0	A				
170	Concession St / Connaught St	TWSC	WBR	4	0	0	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	40	5	20	20	26	C	35.0	C	10.8	B
180	Concession St / Victoria St	Signalized	NBT	14	5	20	22	27	C				
180	Concession St / Victoria St	Signalized	NBR	19	5	20	10	16	B				
180	Concession St / Victoria St	Signalized	SBL	7	5	15	30	35	C				
180	Concession St / Victoria St	Signalized	SBT	30	5	15	25	30	C				
180	Concession St / Victoria St	Signalized	SBR	45	5	15	2	9	A				
180	Concession St / Victoria St	Signalized	EBL	20	30	85	7	10	A				
180	Concession St / Victoria St	Signalized	EBT	663	30	85	6	8	A				
180	Concession St / Victoria St	Signalized	EBR	8	30	85	7	13	B				
180	Concession St / Victoria St	Signalized	WBL	48	40	90	18	25	C				
180	Concession St / Victoria St	Signalized	WBT	486	40	90	6	10	A				
180	Concession St / Victoria St	Signalized	WBR	4	40	90	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	7	0	5	8	17	C	17.0	C	1.8	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	3	0	5	1	7	A				
190	Concession St / Nelson St	TWSC	SBL	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	25	5	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	39	0	60	2	5	A				
190	Concession St / Nelson St	TWSC	EBT	647	0	60	0	1	A				
190	Concession St / Nelson St	TWSC	EBR	0	0	60	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	10	0	45	5	8	A				
190	Concession St / Nelson St	TWSC	WBT	504	0	45	1	2	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	45	0	0	A				

2036 No Mitigation - Approved Growth, 22% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
200	Concession St / Kingscourt Av	TWSC	SBL	43	5	15	9	18	C	21.0	C	1.8	A
200	Concession St / Kingscourt Av	TWSC	SBR	4	5	15	5	21	C				
200	Concession St / Kingscourt Av	TWSC	EBL	24	0	70	2	5	A				
200	Concession St / Kingscourt Av	TWSC	EBT	625	0	70	0	2	A				
200	Concession St / Kingscourt Av	TWSC	WBT	508	0	0	0	0	A				
200	Concession St / Kingscourt Av	TWSC	WBR	20	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	43	5	15	15	25	C	25.0	C	3.0	A
210	Concession St / Fergus St	TWSC	SBR	1	5	15	0	6	A				
210	Concession St / Fergus St	TWSC	EBL	21	0	80	2	5	A				
210	Concession St / Fergus St	TWSC	EBT	647	0	80	1	4	A				
210	Concession St / Fergus St	TWSC	WBT	525	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	WBR	20	0	0	0	0	A				
220	Concession St / Grey St	TWSC	SBL	29	5	20	44	54	F	54.0	F	6.9	A
220	Concession St / Grey St	TWSC	SBR	14	5	20	16	24	C				
220	Concession St / Grey St	TWSC	EBL	21	30	105	8	14	B				
220	Concession St / Grey St	TWSC	EBT	674	30	105	5	10	A				
220	Concession St / Grey St	TWSC	WBT	529	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	21	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	109	15	35	17	24	C	27.0	C	12.0	B
230	Concession St / Alfred St	Signalized	NBT	10	15	35	20	27	C				
230	Concession St / Alfred St	Signalized	NBR	41	15	35	9	15	B				
230	Concession St / Alfred St	Signalized	SBL	2	5	20	14	22	C				
230	Concession St / Alfred St	Signalized	SBT	32	5	20	13	17	B				
230	Concession St / Alfred St	Signalized	SBR	34	5	20	4	9	A				
230	Concession St / Alfred St	Signalized	EBL	34	55	60	9	14	B				
230	Concession St / Alfred St	Signalized	EBT	500	55	60	7	11	B				
230	Concession St / Alfred St	Signalized	EBR	163	55	60	1	3	A				
230	Concession St / Alfred St	Signalized	WBL	33	35	80	10	18	B				
230	Concession St / Alfred St	Signalized	WBT	404	35	80	8	12	B				
230	Concession St / Alfred St	Signalized	WBR	0	35	80	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	5.0	A	0.6	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	545	0	0	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	12	0	0	3	5	A				
240	Concession St / Lansdowne St	TWSC	WBT	440	0	0	0	0	A				
250	Concession St / Division St	Signalized	NBL	15	25	50	22	31	C	38.0	D	20.9	C
250	Concession St / Division St	Signalized	NBT	213	25	50	15	20	B				
250	Concession St / Division St	Signalized	NBR	7	25	50	15	22	C				
250	Concession St / Division St	Signalized	SBL	32	50	105	18	26	C				
250	Concession St / Division St	Signalized	SBT	368	50	105	16	22	C				
250	Concession St / Division St	Signalized	SBR	202	50	105	2	6	A				
250	Concession St / Division St	Signalized	EBL	184	35	105	14	21	C				
250	Concession St / Division St	Signalized	EBT	359	35	105	12	17	B				
250	Concession St / Division St	Signalized	EBR	13	35	105	6	8	A				
250	Concession St / Division St	Signalized	WBL	19	40	70	29	38	D				
250	Concession St / Division St	Signalized	WBT	232	40	70	28	36	D				
250	Concession St / Division St	Signalized	WBR	17	40	70	21	29	C				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 22% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	19	0	20	2	3	A	8.0	A	0.2	A
260	Adelaide St / Division St	TWSC	NBT	232	0	20	0	0	A				
260	Adelaide St / Division St	TWSC	NBR	0	0	20	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	14	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBT	375	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBR	9	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	2	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	2	0	5	0	8	A				
260	Adelaide St / Division St	TWSC	WBR	5	0	5	0	7	A				
270	Stanley St / Division St	TWSC	NBL	16	0	0	1	3	A	10.0	A	1.8	A
270	Stanley St / Division St	TWSC	NBT	245	0	0	0	0	A				
270	Stanley St / Division St	TWSC	SBT	375	0	25	1	2	A				
270	Stanley St / Division St	TWSC	SBR	1	0	25	0	0	A				
270	Stanley St / Division St	TWSC	EBL	5	5	5	2	9	A				
270	Stanley St / Division St	TWSC	EBR	36	5	5	3	10	A				
280	Pine St / Division St	Signalized	NBL	9	5	30	10	17	B	30.0	C	8.8	A
280	Pine St / Division St	Signalized	NBT	203	5	30	3	5	A				
280	Pine St / Division St	Signalized	NBR	4	5	30	3	4	A				
280	Pine St / Division St	Signalized	SBL	33	20	70	4	7	A				
280	Pine St / Division St	Signalized	SBT	378	20	70	4	8	A				
280	Pine St / Division St	Signalized	SBR	0	20	70	0	0	A				
280	Pine St / Division St	Signalized	EBL	0	5	15	0	0	A				
280	Pine St / Division St	Signalized	EBT	32	5	15	24	30	C				
280	Pine St / Division St	Signalized	EBR	13	5	15	4	9	A				
280	Pine St / Division St	Signalized	WBL	18	5	20	20	26	C				
280	Pine St / Division St	Signalized	WBT	5	5	20	17	23	C				
280	Pine St / Division St	Signalized	WBR	57	5	20	4	9	A				
290	Quebec St / Division St	TWSC	NBT	218	0	0	0	0	A	10.0	A	0.9	A
290	Quebec St / Division St	TWSC	NBR	3	0	0	0	0	A				
290	Quebec St / Division St	TWSC	SBL	4	0	50	1	3	A				
290	Quebec St / Division St	TWSC	SBT	407	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	17	0	5	2	10	A				
290	Quebec St / Division St	TWSC	WBR	1	0	5	0	6	A				
300	York St / Division St	Signalized	NBL	0	20	35	0	0	A	30.0	C	7.5	A
300	York St / Division St	Signalized	NBT	191	20	35	3	5	A				
300	York St / Division St	Signalized	NBR	12	20	35	2	4	A				
300	York St / Division St	Signalized	SBL	38	10	35	4	8	A				
300	York St / Division St	Signalized	SBT	388	10	35	3	4	A				
300	York St / Division St	Signalized	SBR	0	10	35	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	20	0	0	A				
300	York St / Division St	Signalized	EBT	46	5	20	24	28	C				
300	York St / Division St	Signalized	EBR	7	5	20	21	27	C				
300	York St / Division St	Signalized	WBL	9	5	20	22	26	C				
300	York St / Division St	Signalized	WBT	23	5	20	22	30	C				
300	York St / Division St	Signalized	WBR	27	5	20	4	11	B				
310	Main St / Division St	TWSC	NBT	200	0	10	1	2	A	9.0	A	0.8	A
310	Main St / Division St	TWSC	NBR	0	0	10	0	0	A				
310	Main St / Division St	TWSC	SBL	15	35	35	0	2	A				
310	Main St / Division St	TWSC	SBT	390	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	0	0	5	0	0	A				
310	Main St / Division St	TWSC	WBR	5	0	5	1	9	A				
320	Hamilton St / Division St	TWSC	NBL	0	0	0	0	0	A	9.0	A	0.1	A
320	Hamilton St / Division St	TWSC	NBT	192	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBT	383	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	6	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	8	0	5	1	9	A				
320	Hamilton St / Division St	TWSC	EBR	2	0	5	0	6	A				

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Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
330	Raglan St / Division St	TWSC	NBT	186	0	0	0	0	A	11.0	B	0.1	A
330	Raglan St / Division St	TWSC	NBR	6	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	15	0	0	0	1	A				
330	Raglan St / Division St	TWSC	SBT	371	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	2	0	5	3	11	B				
330	Raglan St / Division St	TWSC	WBR	5	0	5	0	7	A				
340	Elm St / Division St	TWSC	NBL	2	0	0	0	1	A	6.0	A	0.1	A
340	Elm St / Division St	TWSC	NBT	188	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBT	371	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	2	0	0	0	0	A				
340	Elm St / Division St	TWSC	EBL	4	0	5	1	6	A				
340	Elm St / Division St	TWSC	EBR	1	0	5	0	6	A				
350	Ellice St / Division St	TWSC	NBT	182	0	0	0	0	A	8.0	A	0.2	A
350	Ellice St / Division St	TWSC	NBR	8	0	0	0	0	A				
350	Ellice St / Division St	TWSC	SBL	8	0	0	0	1	A				
350	Ellice St / Division St	TWSC	SBT	366	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	4	0	5	1	8	A				
350	Ellice St / Division St	TWSC	WBR	7	0	5	0	7	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	12.0	B	1.8	A
360	Colborne St / Division St	TWSC	NBT	177	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	11	0	15	0	2	A				
360	Colborne St / Division St	TWSC	SBT	360	0	15	1	2	A				
360	Colborne St / Division St	TWSC	SBR	0	0	15	0	0	A				
360	Colborne St / Division St	TWSC	EBL	10	0	5	2	9	A				
360	Colborne St / Division St	TWSC	EBT	4	0	5	3	10	A				
360	Colborne St / Division St	TWSC	EBR	2	0	5	0	11	B				
360	Colborne St / Division St	TWSC	WBL	4	0	5	1	10	A				
360	Colborne St / Division St	TWSC	WBT	4	0	5	2	12	B				
360	Colborne St / Division St	TWSC	WBR	4	0	5	0	7	A				
370	Queen St / Division St	Signalized	NBT	56	15	25	7	9	A	20.0	B	14.7	B
370	Queen St / Division St	Signalized	NBR	123	15	25	1	10	A				
370	Queen St / Division St	Signalized	SBL	115	40	75	13	20	B				
370	Queen St / Division St	Signalized	SBT	250	40	75	14	20	B				
370	Queen St / Division St	Signalized	WBL	174	20	30	10	16	B				
370	Queen St / Division St	Signalized	WBR	119	20	30	0	4	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 22% Auto M.S. - PM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	3,314	51.1	84.9	31.2	25.5	C
20	Princess St / Regent St	TWSC	1,376	0.1	42.1	2.3	0.6	-
30	Princess St / Drayton Av	TWSC	1,305	3.6	32.6	2.4	0.4	-
40	Princess St / Macdonnell Av	Signalized	1,302	71.0	123.8	17.9	12.5	B
50	Princess St / Smith St	TWSC	1,063	35.6	66.3	5.2	3.2	-
60	Princess St / Victoria St	Signalized	1,362	27.3	71.9	11.2	6.3	B
70	Princess St / Nelson St	TWSC	1,298	10.6	85.7	4.9	2.0	-
80	Princess St / Albert St	Signalized	1,206	35.5	67.5	15.7	11.0	B
90	Princess St / Frontenac St	TWSC	1,063	0.0	32.7	2.2	0.7	-
100	Princess St / Alfred St	Signalized	1,422	58.6	77.3	25.1	17.9	C
110	Princess St / Chatham St	TWSC	1,168	12.4	78.2	5.8	2.2	-
120	Princess St / University Av	Signalized	1,095	25.2	49.7	7.3	4.0	A
130	Princess St / Division St	Signalized	1,454	20.7	57.0	13.7	9.1	B
140	Concession St / Drayton Av	TWSC	1,128	123.0	296.4	48.1	29.8	-
150	Concession St / Leroy Grant Dr (S)	TWSC	1,187	73.6	73.7	34.4	21.8	-
155	Concession St / Leroy Grant Drive (N)	TWSC	1,263	3.1	7.6	4.3	2.0	-
160	Concession St / Macdonnell St	Signalized	2,163	72.9	78.9	17.0	11.6	B
170	Concession St / Connaught St	TWSC	1,808	35.1	104.3	7.2	3.6	-
180	Concession St / Victoria St	Signalized	1,917	91.9	97.5	16.6	10.7	B
190	Concession St / Nelson St	TWSC	1,694	4.9	46.3	3.9	2.2	-
200	Concession St / Kingscourt Av	TWSC	1,637	0.0	79.4	2.2	1.1	-
210	Concession St / Fergus St	TWSC	1,636	0.0	66.9	2.2	0.6	-
220	Concession St / Grey St	TWSC	1,645	12.4	54.6	5.3	3.8	-
230	Concession St / Alfred St	Signalized	1,807	58.4	88.6	16.8	11.0	B
240	Concession St / Lansdowne St	TWSC	1,121	0.0	8.7	0.7	0.0	-
250	Concession St / Division St	Signalized	2,167	70.4	145.3	29.7	23.0	C
260	Adelaide St / Division St	TWSC	1,107	0.0	51.3	2.3	1.2	-
270	Stanley St / Division St	TWSC	1,092	0.3	12.2	1.6	0.5	-
280	Pine St / Division St	Signalized	1,157	22.2	66.5	9.2	5.7	A
290	Quebec St / Division St	TWSC	988	0.0	60.9	1.2	0.1	-
300	York St / Division St	Signalized	1,118	21.7	38.7	7.4	4.8	A
310	Main St / Division St	TWSC	971	26.4	47.9	3.4	1.7	-
320	Hamilton St / Division St	TWSC	981	0.0	11.0	1.2	0.6	-
330	Raglan St / Division St	TWSC	993	0.1	0.1	0.3	0.1	-
340	Elm St / Division St	TWSC	1,043	0.0	11.3	0.8	0.1	-
350	Ellice St / Division St	TWSC	1,005	0.0	14.3	0.5	0.0	-
360	Colborne St / Division St	TWSC	991	0.0	28.0	1.0	0.5	-
370	Queen St / Division St	Signalized	1,507	45.2	85.2	17.0	9.5	B
	Total		**52,554**	**1,013**	**2,445**	**379**	**241**	

2020-03-13

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
10	Princess St / Concession St	Signalized	NBL	317	40	80	33	40	D	51.0	D	31.2	C
10	Princess St / Concession St	Signalized	NBT	258	40	80	34	41	D				
10	Princess St / Concession St	Signalized	NBR	0	40	80	0	0	A				
10	Princess St / Concession St	Signalized	SBL	606	80	135	42	51	D				
10	Princess St / Concession St	Signalized	SBT	453	80	135	39	48	D				
10	Princess St / Concession St	Signalized	SBR	0	80	135	0	0	A				
10	Princess St / Concession St	Signalized	EBT	310	30	55	30	36	D				
10	Princess St / Concession St	Signalized	EBR	264	30	55	0	2	A				
10	Princess St / Concession St	Signalized	WBT	396	40	55	32	39	D				
10	Princess St / Concession St	Signalized	WBR	686	40	55	0	0	A				
10	Princess St / Concession St	Signalized	WBL	24	40	55	13	17	B				
20	Princess St / Regent St	TWSC	NBL	1	5	10	0	0	A	10.0	A	2.3	A
20	Princess St / Regent St	TWSC	NBR	33	5	10	3	10	A				
20	Princess St / Regent St	TWSC	EBT	646	0	15	0	2	A				
20	Princess St / Regent St	TWSC	EBR	72	0	15	0	1	A				
20	Princess St / Regent St	TWSC	WBL	34	0	75	5	8	A				
20	Princess St / Regent St	TWSC	WBT	590	0	75	1	2	A				
30	Princess St / Drayton Av	TWSC	SBL	4	45	55	17	35	D	35.0	D	2.4	A
30	Princess St / Drayton Av	TWSC	SBR	101	45	55	4	17	C				
30	Princess St / Drayton Av	TWSC	EBL	31	0	35	3	5	A				
30	Princess St / Drayton Av	TWSC	EBT	647	0	35	0	1	A				
30	Princess St / Drayton Av	TWSC	WBT	522	0	25	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	0	0	25	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	26	10	25	14	20	B	33.0	C	17.9	B
40	Princess St / Macdonnell Av	Signalized	NBT	84	10	25	12	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	14	10	25	5	10	A				
40	Princess St / Macdonnell Av	Signalized	SBL	0	15	40	0	0	A				
40	Princess St / Macdonnell Av	Signalized	SBT	39	15	40	12	17	B				
40	Princess St / Macdonnell Av	Signalized	SBR	35	15	40	4	11	B				
40	Princess St / Macdonnell Av	Signalized	EBL	29	105	200	25	33	C				
40	Princess St / Macdonnell Av	Signalized	EBT	573	105	200	14	21	C				
40	Princess St / Macdonnell Av	Signalized	EBR	33	105	200	9	15	B				
40	Princess St / Macdonnell Av	Signalized	WBL	8	50	60	20	29	C				
40	Princess St / Macdonnell Av	Signalized	WBT	461	50	60	11	14	B				
40	Princess St / Macdonnell Av	Signalized	WBR	0	50	60	0	0	A				
50	Princess St / Smith St	TWSC	SBL	4	40	40	8	16	C	25.0	C	5.2	A
50	Princess St / Smith St	TWSC	SBR	10	40	40	13	25	C				
50	Princess St / Smith St	TWSC	EBL	9	40	60	2	3	A				
50	Princess St / Smith St	TWSC	EBT	577	40	60	0	1	A				
50	Princess St / Smith St	TWSC	WBT	463	30	75	7	10	A				
50	Princess St / Smith St	TWSC	WBR	0	30	75	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	15	20	50	20	31	C	31.0	C	11.2	B
60	Princess St / Victoria St	Signalized	NBT	44	20	50	18	26	C				
60	Princess St / Victoria St	Signalized	NBR	100	20	50	9	16	B				
60	Princess St / Victoria St	Signalized	SBL	9	5	20	15	22	C				
60	Princess St / Victoria St	Signalized	SBT	43	5	20	17	23	C				
60	Princess St / Victoria St	Signalized	SBR	12	5	20	2	5	A				
60	Princess St / Victoria St	Signalized	EBL	14	15	90	13	18	B				
60	Princess St / Victoria St	Signalized	EBT	546	15	90	2	6	A				
60	Princess St / Victoria St	Signalized	EBR	25	15	90	3	7	A				
60	Princess St / Victoria St	Signalized	WBL	18	45	65	15	19	B				
60	Princess St / Victoria St	Signalized	WBT	447	45	65	8	13	B				
60	Princess St / Victoria St	Signalized	WBR	89	45	65	6	11	B				
70	Princess St / Nelson St	TWSC	NBL	16	5	45	15	25	C	25.0	C	4.9	A
70	Princess St / Nelson St	TWSC	NBT	5	5	45	6	20	C				
70	Princess St / Nelson St	TWSC	NBR	2	5	45	7	19	C				
70	Princess St / Nelson St	TWSC	SBL	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	SBT	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	EBL	198	20	105	3	8	A				
70	Princess St / Nelson St	TWSC	EBT	481	20	105	2	6	A				
70	Princess St / Nelson St	TWSC	EBR	3	20	105	0	5	A				
70	Princess St / Nelson St	TWSC	WBL	29	0	65	5	8	A				
70	Princess St / Nelson St	TWSC	WBT	550	0	65	1	2	A				
70	Princess St / Nelson St	TWSC	WBR	14	0	65	2	3	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 22% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
80	Princess St / Albert St	Signalized	NBL	50	10	25	17	23	C	35.0	C	15.7	B
80	Princess St / Albert St	Signalized	NBT	13	10	25	13	19	B				
80	Princess St / Albert St	Signalized	NBR	43	10	25	4	9	A				
80	Princess St / Albert St	Signalized	SBL	1	5	15	0	0	A				
80	Princess St / Albert St	Signalized	SBT	27	5	15	16	20	B				
80	Princess St / Albert St	Signalized	SBR	30	5	15	3	7	A				
80	Princess St / Albert St	Signalized	EBL	37	45	80	26	35	C				
80	Princess St / Albert St	Signalized	EBT	447	45	80	12	17	B				
80	Princess St / Albert St	Signalized	EBR	13	45	80	12	17	B				
80	Princess St / Albert St	Signalized	WBL	8	35	70	17	21	C				
80	Princess St / Albert St	Signalized	WBT	525	35	70	9	13	B				
80	Princess St / Albert St	Signalized	WBR	12	35	70	14	20	B				
90	Princess St / Frontenac St	TWSC	NBL	2	0	5	2	9	A	13.0	B	2.2	A
90	Princess St / Frontenac St	TWSC	NBT	10	0	5	4	13	B				
90	Princess St / Frontenac St	TWSC	NBR	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	EBL	58	0	70	4	7	A				
90	Princess St / Frontenac St	TWSC	EBT	437	0	70	1	4	A				
90	Princess St / Frontenac St	TWSC	EBR	0	0	70	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBT	544	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	12	0	0	0	1	A				
100	Princess St / Alfred St	Signalized	NBL	47	25	55	13	21	C	49.0	D	25.1	C
100	Princess St / Alfred St	Signalized	NBT	116	25	55	13	19	B				
100	Princess St / Alfred St	Signalized	NBR	116	25	55	7	14	B				
100	Princess St / Alfred St	Signalized	SBL	61	10	25	19	27	C				
100	Princess St / Alfred St	Signalized	SBT	51	10	25	16	22	C				
100	Princess St / Alfred St	Signalized	SBR	15	10	25	10	17	B				
100	Princess St / Alfred St	Signalized	EBL	12	60	90	41	49	D				
100	Princess St / Alfred St	Signalized	EBT	426	60	90	19	27	C				
100	Princess St / Alfred St	Signalized	EBR	15	60	90	18	26	C				
100	Princess St / Alfred St	Signalized	WBL	34	85	90	13	20	B				
100	Princess St / Alfred St	Signalized	WBT	492	85	90	22	29	C				
100	Princess St / Alfred St	Signalized	WBR	37	85	90	6	10	A				
110	Princess St / Chatham St	TWSC	SBL	0	0	5	0	0	A	31.0	D	5.8	A
110	Princess St / Chatham St	TWSC	SBR	3	0	5	14	31	D				
110	Princess St / Chatham St	TWSC	EBL	110	10	105	4	9	A				
110	Princess St / Chatham St	TWSC	EBT	491	10	105	2	7	A				
110	Princess St / Chatham St	TWSC	WBT	557	15	50	2	4	A				
110	Princess St / Chatham St	TWSC	WBR	7	15	50	1	3	A				
120	Princess St / University Av	Signalized	NBL	73	5	25	16	22	C	22.0	C	7.3	A
120	Princess St / University Av	Signalized	NBR	23	5	25	4	9	A				
120	Princess St / University Av	Signalized	EBT	448	45	70	4	8	A				
120	Princess St / University Av	Signalized	EBR	40	45	70	3	7	A				
120	Princess St / University Av	Signalized	WBL	25	10	35	8	13	B				
120	Princess St / University Av	Signalized	WBT	486	10	35	2	4	A				
130	Princess St / Division St	Signalized	NBL	72	20	40	13	23	C	27.0	C	13.7	B
130	Princess St / Division St	Signalized	NBT	156	20	40	14	20	B				
130	Princess St / Division St	Signalized	NBR	10	20	40	8	13	B				
130	Princess St / Division St	Signalized	SBL	195	15	70	6	10	A				
130	Princess St / Division St	Signalized	SBT	108	15	70	3	4	A				
130	Princess St / Division St	Signalized	SBR	443	15	70	0	1	A				
130	Princess St / Division St	Signalized	EBL	127	30	45	19	26	C				
130	Princess St / Division St	Signalized	EBT	309	30	45	19	27	C				
130	Princess St / Division St	Signalized	EBR	34	30	45	7	14	B				

2020-03-13

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
140	Concession St / Drayton Av	TWSC	NBR	22	20	115	665	695	F	695.0	F	48.1	E
140	Concession St / Drayton Av	TWSC	EBT	1,066	125	300	17	35	D				
140	Concession St / Drayton Av	TWSC	EBR	40	125	300	21	42	E				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	22	0	5	12	26	D	48.0	E	34.4	D
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	190	75	75	37	48	E				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	975	75	75	19	32	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	101	20	50	12	25	C	28.0	D	4.3	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	89	20	50	13	28	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	22	5	5	6	17	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	6	5	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	1,007	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	38	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	101	20	35	22	28	C	71.0	E	17.0	B
160	Concession St / Macdonnell St	Signalized	NBT	26	20	35	21	27	C				
160	Concession St / Macdonnell St	Signalized	NBR	36	20	35	20	27	C				
160	Concession St / Macdonnell St	Signalized	SBR	68	5	15	5	9	A				
160	Concession St / Macdonnell St	Signalized	EBL	60	75	80	49	60	E				
160	Concession St / Macdonnell St	Signalized	EBT	848	75	80	8	13	B				
160	Concession St / Macdonnell St	Signalized	EBR	97	75	80	7	12	B				
160	Concession St / Macdonnell St	Signalized	WBL	50	85	90	58	71	E				
160	Concession St / Macdonnell St	Signalized	WBT	877	85	90	9	14	B				
160	Concession St / Macdonnell St	Signalized	WBR	0	85	90	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	0	0	5	0	0	A	23.0	C	7.2	A
170	Concession St / Connaught St	TWSC	SBR	15	0	5	14	23	C				
170	Concession St / Connaught St	TWSC	EBL	0	10	95	0	0	A				
170	Concession St / Connaught St	TWSC	EBT	883	10	95	2	5	A				
170	Concession St / Connaught St	TWSC	WBT	910	60	115	5	9	A				
170	Concession St / Connaught St	TWSC	WBR	0	60	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	69	20	65	38	48	D	54.0	D	16.6	B
180	Concession St / Victoria St	Signalized	NBT	45	20	65	45	54	D				
180	Concession St / Victoria St	Signalized	NBR	23	20	65	39	50	D				
180	Concession St / Victoria St	Signalized	SBL	0	0	10	0	0	A				
180	Concession St / Victoria St	Signalized	SBT	20	0	10	21	26	C				
180	Concession St / Victoria St	Signalized	SBR	34	0	10	7	17	B				
180	Concession St / Victoria St	Signalized	EBL	31	115	115	15	22	C				
180	Concession St / Victoria St	Signalized	EBT	793	115	115	7	13	B				
180	Concession St / Victoria St	Signalized	EBR	64	115	115	8	15	B				
180	Concession St / Victoria St	Signalized	WBL	22	85	90	24	32	C				
180	Concession St / Victoria St	Signalized	WBT	802	85	90	9	14	B				
180	Concession St / Victoria St	Signalized	WBR	14	85	90	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	7	0	5	25	36	E	36.0	E	3.9	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	39	0	5	7	15	B				
190	Concession St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	11	0	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	0	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	EBT	765	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	EBR	50	0	0	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	7	10	95	5	10	A				
190	Concession St / Nelson St	TWSC	WBT	815	10	95	4	7	A				
190	Concession St / Nelson St	TWSC	WBR	0	10	95	0	0	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 22% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	0	0	15	0	0	A	23.0	C	2.2	A
200	Concession St / Kingscourt Av	TWSC	SBR	16	0	15	11	23	C				
200	Concession St / Kingscourt Av	TWSC	EBL	2	0	65	1	9	A				
200	Concession St / Kingscourt Av	TWSC	EBT	808	0	65	1	1	A				
200	Concession St / Kingscourt Av	TWSC	WBT	811	0	95	1	3	A				
200	Concession St / Kingscourt Av	TWSC	WBR	0	0	95	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	11	0	5	20	30	D	30.0	D	2.2	A
210	Concession St / Fergus St	TWSC	SBR	0	0	5	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	0	0	95	0	0	A				
210	Concession St / Fergus St	TWSC	EBT	807	0	95	1	3	A				
210	Concession St / Fergus St	TWSC	WBT	813	0	40	0	1	A				
210	Concession St / Fergus St	TWSC	WBR	5	0	40	0	0	A				
220	Concession St / Grey St	TWSC	SBL	6	0	5	57	68	F	68.0	F	5.3	A
220	Concession St / Grey St	TWSC	SBR	10	0	5	14	22	C				
220	Concession St / Grey St	TWSC	EBL	0	25	100	0	0	A				
220	Concession St / Grey St	TWSC	EBT	816	25	100	7	10	A				
220	Concession St / Grey St	TWSC	WBT	808	0	10	0	0	A				
220	Concession St / Grey St	TWSC	WBR	5	0	10	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	214	40	90	18	28	C	33.0	C	16.8	B
230	Concession St / Alfred St	Signalized	NBT	32	40	90	24	33	C				
230	Concession St / Alfred St	Signalized	NBR	34	40	90	13	22	C				
230	Concession St / Alfred St	Signalized	SBL	0	5	20	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	34	5	20	15	21	C				
230	Concession St / Alfred St	Signalized	SBR	20	5	20	4	9	A				
230	Concession St / Alfred St	Signalized	EBL	23	55	60	18	24	C				
230	Concession St / Alfred St	Signalized	EBT	480	55	60	11	15	B				
230	Concession St / Alfred St	Signalized	EBR	322	55	60	2	4	A				
230	Concession St / Alfred St	Signalized	WBL	68	75	130	13	23	C				
230	Concession St / Alfred St	Signalized	WBT	580	75	130	12	19	B				
230	Concession St / Alfred St	Signalized	WBR	0	75	130	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	5.0	A	0.7	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	468	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	27	0	15	2	5	A				
240	Concession St / Lansdowne St	TWSC	WBT	626	0	15	0	1	A				
250	Concession St / Division St	Signalized	NBL	37	85	115	25	34	C	58.0	E	29.7	C
250	Concession St / Division St	Signalized	NBT	547	85	115	19	25	C				
250	Concession St / Division St	Signalized	NBR	13	85	115	14	19	B				
250	Concession St / Division St	Signalized	SBL	29	65	180	28	38	D				
250	Concession St / Division St	Signalized	SBT	449	65	180	19	25	C				
250	Concession St / Division St	Signalized	SBR	195	65	180	5	10	A				
250	Concession St / Division St	Signalized	EBL	210	30	75	20	27	C				
250	Concession St / Division St	Signalized	EBT	209	30	75	12	17	B				
250	Concession St / Division St	Signalized	EBR	33	30	75	3	6	A				
250	Concession St / Division St	Signalized	WBL	11	100	205	44	53	D				
250	Concession St / Division St	Signalized	WBT	402	100	205	48	58	E				
250	Concession St / Division St	Signalized	WBR	32	100	205	42	51	D				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
260	Adelaide St / Division St	TWSC	NBL	0	0	70	0	0	A	26.0	D	2.3	A
260	Adelaide St / Division St	TWSC	NBT	599	0	70	2	3	A				
260	Adelaide St / Division St	TWSC	NBR	0	0	70	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	0	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBT	434	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBR	59	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	3	0	5	16	26	D				
260	Adelaide St / Division St	TWSC	EBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	12	0	5	6	16	C				
260	Adelaide St / Division St	TWSC	WBR	0	0	5	0	0	A				
270	Stanley St / Division St	TWSC	NBL	0	0	0	0	0	A	14.0	B	1.6	A
270	Stanley St / Division St	TWSC	NBT	592	0	0	0	0	A				
270	Stanley St / Division St	TWSC	SBT	367	0	30	1	3	A				
270	Stanley St / Division St	TWSC	SBR	68	0	30	1	1	A				
270	Stanley St / Division St	TWSC	EBL	8	5	5	5	14	B				
270	Stanley St / Division St	TWSC	EBR	57	5	5	2	9	A				
280	Pine St / Division St	Signalized	NBL	37	20	75	9	16	B	39.0	D	9.2	A
280	Pine St / Division St	Signalized	NBT	521	20	75	4	6	A				
280	Pine St / Division St	Signalized	NBR	14	20	75	4	5	A				
280	Pine St / Division St	Signalized	SBL	32	30	70	10	17	B				
280	Pine St / Division St	Signalized	SBT	389	30	70	4	8	A				
280	Pine St / Division St	Signalized	SBR	7	30	70	2	6	A				
280	Pine St / Division St	Signalized	EBL	7	5	15	29	37	D				
280	Pine St / Division St	Signalized	EBT	25	5	15	23	28	C				
280	Pine St / Division St	Signalized	EBR	12	5	15	4	9	A				
280	Pine St / Division St	Signalized	WBL	5	10	30	30	39	D				
280	Pine St / Division St	Signalized	WBT	44	10	30	20	26	C				
280	Pine St / Division St	Signalized	WBR	64	10	30	5	11	B				
290	Quebec St / Division St	TWSC	NBT	570	0	70	0	1	A	14.0	B	1.2	A
290	Quebec St / Division St	TWSC	NBR	0	0	70	0	0	A				
290	Quebec St / Division St	TWSC	SBL	0	0	50	0	0	A				
290	Quebec St / Division St	TWSC	SBT	405	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	13	0	5	6	14	B				
290	Quebec St / Division St	TWSC	WBR	0	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	0	35	35	0	0	A	34.0	C	7.4	A
300	York St / Division St	Signalized	NBT	521	35	35	2	4	A				
300	York St / Division St	Signalized	NBR	12	35	35	2	3	A				
300	York St / Division St	Signalized	SBL	15	10	50	12	16	B				
300	York St / Division St	Signalized	SBT	408	10	50	3	5	A				
300	York St / Division St	Signalized	SBR	0	10	50	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	51	5	15	24	29	C				
300	York St / Division St	Signalized	EBR	6	5	15	16	20	B				
300	York St / Division St	Signalized	WBL	14	10	25	27	34	C				
300	York St / Division St	Signalized	WBT	41	10	25	23	30	C				
300	York St / Division St	Signalized	WBR	50	10	25	6	12	B				
310	Main St / Division St	TWSC	NBT	533	20	55	3	6	A	11.0	B	3.4	A
310	Main St / Division St	TWSC	NBR	0	20	55	0	0	A				
310	Main St / Division St	TWSC	SBL	0	35	40	0	0	A				
310	Main St / Division St	TWSC	SBT	429	35	40	0	0	A				
310	Main St / Division St	TWSC	WBL	9	0	5	4	11	B				
310	Main St / Division St	TWSC	WBR	0	0	5	0	0	A				
320	Hamilton St / Division St	TWSC	NBL	12	0	20	2	4	A	10.0	A	1.2	A
320	Hamilton St / Division St	TWSC	NBT	527	0	20	1	2	A				
320	Hamilton St / Division St	TWSC	SBT	435	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	2	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	4	0	5	3	10	A				
320	Hamilton St / Division St	TWSC	EBR	1	0	5	0	6	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	528	0	0	0	0	A	12.0	B	0.3	A
330	Raglan St / Division St	TWSC	NBR	2	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	0	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBT	436	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	15	5	5	3	12	B				
330	Raglan St / Division St	TWSC	WBR	12	5	5	3	11	B				
340	Elm St / Division St	TWSC	NBL	58	0	20	1	3	A	8.0	A	0.8	A
340	Elm St / Division St	TWSC	NBT	527	0	20	0	1	A				
340	Elm St / Division St	TWSC	SBT	413	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	38	0	0	0	1	A				
340	Elm St / Division St	TWSC	EBL	3	0	5	1	8	A				
340	Elm St / Division St	TWSC	EBR	4	0	5	0	7	A				
350	Ellice St / Division St	TWSC	NBT	572	0	25	0	0	A	8.0	A	0.5	A
350	Ellice St / Division St	TWSC	NBR	2	0	25	0	0	A				
350	Ellice St / Division St	TWSC	SBL	6	0	0	2	4	A				
350	Ellice St / Division St	TWSC	SBT	412	0	0	0	1	A				
350	Ellice St / Division St	TWSC	WBL	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	WBR	13	0	5	1	8	A				
360	Colborne St / Division St	TWSC	NBL	2	0	20	0	3	A	14.0	B	1.0	A
360	Colborne St / Division St	TWSC	NBT	559	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	3	0	40	2	8	A				
360	Colborne St / Division St	TWSC	SBT	405	0	40	1	2	A				
360	Colborne St / Division St	TWSC	SBR	2	0	40	0	1	A				
360	Colborne St / Division St	TWSC	EBL	2	0	5	6	14	B				
360	Colborne St / Division St	TWSC	EBT	5	0	5	3	13	B				
360	Colborne St / Division St	TWSC	EBR	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	13	0	5	1	8	A				
370	Queen St / Division St	Signalized	NBT	182	10	50	6	8	A	28.0	C	17.0	B
370	Queen St / Division St	Signalized	NBR	100	10	50	1	9	A				
370	Queen St / Division St	Signalized	SBL	95	50	80	17	26	C				
370	Queen St / Division St	Signalized	SBT	313	50	80	13	19	B				
370	Queen St / Division St	Signalized	WBL	437	55	100	16	28	C				
370	Queen St / Division St	Signalized	WBR	380	55	100	1	7	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 35% Auto M.S. - AM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	2,667	40.2	62.2	26.6	21.3	C
20	Princess St / Regent St	TWSC	1,052	0.2	55.1	3.1	0.2	-
30	Princess St / Drayton Av	TWSC	1,005	0.0	58.5	1.8	0.1	-
40	Princess St / Macdonnell Av	Signalized	942	49.4	106.5	15.9	10.2	B
50	Princess St / Smith St	TWSC	782	28.2	35.6	0.9	0.3	-
60	Princess St / Victoria St	Signalized	1,012	12.7	59.2	7.9	4.1	A
70	Princess St / Nelson St	TWSC	930	1.4	16.3	2.0	0.4	-
80	Princess St / Albert St	Signalized	959	25.1	62.8	13.0	9.1	B
90	Princess St / Frontenac St	TWSC	856	0.0	27.1	0.9	0.0	-
100	Princess St / Alfred St	Signalized	1,205	44.8	69.9	23.6	16.6	C
110	Princess St / Chatham St	TWSC	845	0.0	30.5	1.5	0.0	-
120	Princess St / University Av	Signalized	824	15.2	53.1	5.6	2.8	A
130	Princess St / Division St	Signalized	1,015	17.7	54.0	16.7	11.7	B
140	Concession St / Drayton Av	TWSC	939	0.2	120.6	7.2	3.9	-
150	Concession St / Leroy Grant Dr (S)	TWSC	913	45.0	74.9	6.9	2.9	-
155	Concession St / Leroy Grant Drive (N)	TWSC	775	0.3	0.6	0.6	0.2	-
160	Concession St / Macdonnell St	Signalized	1,568	49.4	63.3	9.6	6.2	A
170	Concession St / Connaught St	TWSC	1,303	0.0	52.2	1.3	0.6	-
180	Concession St / Victoria St	Signalized	1,391	33.8	74.5	11.8	7.5	B
190	Concession St / Nelson St	TWSC	1,240	0.1	56.3	1.9	0.2	-
200	Concession St / Kingscourt Av	TWSC	1,231	0.2	43.1	2.7	1.2	-
210	Concession St / Fergus St	TWSC	1,261	0.2	53.8	4.4	2.3	-
220	Concession St / Grey St	TWSC	1,290	19.0	57.6	9.9	6.7	-
230	Concession St / Alfred St	Signalized	1,382	43.3	62.8	13.0	8.3	B
240	Concession St / Lansdowne St	TWSC	1,010	0.0	12.8	1.1	0.0	-
250	Concession St / Division St	Signalized	1,673	39.8	93.2	20.4	14.8	C
260	Adelaide St / Division St	TWSC	658	0.0	25.8	0.2	0.1	-
270	Stanley St / Division St	TWSC	679	0.3	11.3	1.8	0.7	-
280	Pine St / Division St	Signalized	751	17.4	49.9	8.3	5.1	A
290	Quebec St / Division St	TWSC	649	0.0	31.7	0.9	0.0	-
300	York St / Division St	Signalized	739	12.0	32.7	7.4	4.8	A
310	Main St / Division St	TWSC	605	23.3	26.6	0.8	0.3	-
320	Hamilton St / Division St	TWSC	592	0.0	0.1	0.1	0.0	-
330	Raglan St / Division St	TWSC	590	0.0	9.9	0.8	0.0	-
340	Elm St / Division St	TWSC	571	0.0	0.1	0.1	0.0	-
350	Ellice St / Division St	TWSC	576	0.0	0.1	0.2	0.0	-
360	Colborne St / Division St	TWSC	576	0.1	16.2	1.1	0.7	-
370	Queen St / Division St	Signalized	837	28.7	48.5	14.8	8.7	B
	Total		**37,893**	**548**	**1,710**	**247**	**152**	

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
10	Princess St / Concession St	Signalized	NBL	149	25	40	41	48	D	48.0	D	26.6	C
10	Princess St / Concession St	Signalized	NBT	100	25	40	35	42	D				
10	Princess St / Concession St	Signalized	NBR	32	25	40	0	2	A				
10	Princess St / Concession St	Signalized	SBL	505	65	95	29	37	D				
10	Princess St / Concession St	Signalized	SBT	495	65	95	29	38	D				
10	Princess St / Concession St	Signalized	SBR	30	65	95	14	18	B				
10	Princess St / Concession St	Signalized	EBT	398	30	50	28	33	C				
10	Princess St / Concession St	Signalized	EBR	224	30	50	0	2	A				
10	Princess St / Concession St	Signalized	WBT	244	20	35	26	31	C				
10	Princess St / Concession St	Signalized	WBR	402	20	35	0	0	A				
10	Princess St / Concession St	Signalized	WBL	88	20	35	2	4	A				
20	Princess St / Regent St	TWSC	NBL	0	5	10	0	0	A	12.0	B	3.1	A
20	Princess St / Regent St	TWSC	NBR	33	5	10	4	12	B				
20	Princess St / Regent St	TWSC	EBT	669	0	80	0	4	A				
20	Princess St / Regent St	TWSC	EBR	52	0	80	1	2	A				
20	Princess St / Regent St	TWSC	WBL	7	0	0	3	6	A				
20	Princess St / Regent St	TWSC	WBT	291	0	0	0	0	A				
30	Princess St / Drayton Av	TWSC	SBL	0	0	0	0	0	A	3.0	A	1.8	A
30	Princess St / Drayton Av	TWSC	SBR	0	0	0	0	0	A				
30	Princess St / Drayton Av	TWSC	EBL	137	0	75	1	3	A				
30	Princess St / Drayton Av	TWSC	EBT	567	0	75	0	2	A				
30	Princess St / Drayton Av	TWSC	WBT	299	0	20	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	2	0	20	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	43	5	25	12	18	B	27.0	C	15.9	B
40	Princess St / Macdonnell Av	Signalized	NBT	17	5	25	12	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	26	5	25	6	12	B				
40	Princess St / Macdonnell Av	Signalized	SBL	10	40	40	14	18	B				
40	Princess St / Macdonnell Av	Signalized	SBT	16	40	40	7	10	A				
40	Princess St / Macdonnell Av	Signalized	SBR	27	40	40	3	11	B				
40	Princess St / Macdonnell Av	Signalized	EBL	33	70	150	14	21	C				
40	Princess St / Macdonnell Av	Signalized	EBT	499	70	150	11	17	B				
40	Princess St / Macdonnell Av	Signalized	EBR	27	70	150	8	13	B				
40	Princess St / Macdonnell Av	Signalized	WBL	7	20	50	18	27	C				
40	Princess St / Macdonnell Av	Signalized	WBT	227	20	50	9	14	B				
40	Princess St / Macdonnell Av	Signalized	WBR	10	20	50	6	10	A				
50	Princess St / Smith St	TWSC	SBL	2	40	40	0	9	A	14.0	B	0.9	A
50	Princess St / Smith St	TWSC	SBR	15	40	40	2	14	B				
50	Princess St / Smith St	TWSC	EBL	4	40	40	0	1	A				
50	Princess St / Smith St	TWSC	EBT	531	40	40	0	0	A				
50	Princess St / Smith St	TWSC	WBT	230	0	25	1	2	A				
50	Princess St / Smith St	TWSC	WBR	0	0	25	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	27	10	35	16	25	C	26.0	C	7.9	A
60	Princess St / Victoria St	Signalized	NBT	29	10	35	19	26	C				
60	Princess St / Victoria St	Signalized	NBR	44	10	35	6	12	B				
60	Princess St / Victoria St	Signalized	SBL	7	5	20	18	25	C				
60	Princess St / Victoria St	Signalized	SBT	61	5	20	15	20	B				
60	Princess St / Victoria St	Signalized	SBR	2	5	20	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	10	10	80	10	16	B				
60	Princess St / Victoria St	Signalized	EBT	515	10	80	1	4	A				
60	Princess St / Victoria St	Signalized	EBR	8	10	80	1	3	A				
60	Princess St / Victoria St	Signalized	WBL	22	20	40	10	16	B				
60	Princess St / Victoria St	Signalized	WBT	202	20	40	4	7	A				
60	Princess St / Victoria St	Signalized	WBR	85	20	40	3	7	A				
70	Princess St / Nelson St	TWSC	NBL	9	40	45	4	17	C	21.0	C	2.0	A
70	Princess St / Nelson St	TWSC	NBT	12	40	45	8	20	C				
70	Princess St / Nelson St	TWSC	NBR	11	40	45	6	16	C				
70	Princess St / Nelson St	TWSC	SBL	8	0	5	7	21	C				
70	Princess St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	9	0	5	2	16	C				
70	Princess St / Nelson St	TWSC	EBL	31	0	5	0	2	A				
70	Princess St / Nelson St	TWSC	EBT	534	0	5	0	1	A				
70	Princess St / Nelson St	TWSC	EBR	7	0	5	0	1	A				
70	Princess St / Nelson St	TWSC	WBL	14	0	35	5	8	A				
70	Princess St / Nelson St	TWSC	WBT	295	0	35	0	1	A				
70	Princess St / Nelson St	TWSC	WBR	0	0	35	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
80	Princess St / Albert St	Signalized	NBL	13	5	15	13	18	B	31.0	C	13.0	B
80	Princess St / Albert St	Signalized	NBT	17	5	15	12	16	B				
80	Princess St / Albert St	Signalized	NBR	27	5	15	3	8	A				
80	Princess St / Albert St	Signalized	SBL	11	5	20	14	24	C				
80	Princess St / Albert St	Signalized	SBT	31	5	20	12	15	B				
80	Princess St / Albert St	Signalized	SBR	35	5	20	3	10	A				
80	Princess St / Albert St	Signalized	EBL	2	35	90	17	21	C				
80	Princess St / Albert St	Signalized	EBT	535	35	90	11	15	B				
80	Princess St / Albert St	Signalized	EBR	15	35	90	12	15	B				
80	Princess St / Albert St	Signalized	WBL	8	15	30	25	31	C				
80	Princess St / Albert St	Signalized	WBT	264	15	30	5	8	A				
80	Princess St / Albert St	Signalized	WBR	1	15	30	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	2	0	5	2	9	A	9.0	A	0.9	A
90	Princess St / Frontenac St	TWSC	NBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	NBR	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	12	0	5	0	7	A				
90	Princess St / Frontenac St	TWSC	EBL	29	0	40	0	3	A				
90	Princess St / Frontenac St	TWSC	EBT	541	0	40	0	1	A				
90	Princess St / Frontenac St	TWSC	EBR	8	0	40	0	1	A				
90	Princess St / Frontenac St	TWSC	WBL	4	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBT	259	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	1	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	27	20	40	16	22	C	40.0	D	23.6	C
100	Princess St / Alfred St	Signalized	NBT	109	20	40	12	18	B				
100	Princess St / Alfred St	Signalized	NBR	75	20	40	5	11	B				
100	Princess St / Alfred St	Signalized	SBL	32	25	60	16	25	C				
100	Princess St / Alfred St	Signalized	SBT	139	25	60	12	19	B				
100	Princess St / Alfred St	Signalized	SBR	63	25	60	6	12	B				
100	Princess St / Alfred St	Signalized	EBL	12	70	95	32	40	D				
100	Princess St / Alfred St	Signalized	EBT	506	70	95	21	29	C				
100	Princess St / Alfred St	Signalized	EBR	11	70	95	17	26	C				
100	Princess St / Alfred St	Signalized	WBL	9	30	50	22	29	C				
100	Princess St / Alfred St	Signalized	WBT	194	30	50	20	26	C				
100	Princess St / Alfred St	Signalized	WBR	28	30	50	2	6	A				
110	Princess St / Chatham St	TWSC	SBL	0	0	0	0	0	A	12.0	B	1.5	A
110	Princess St / Chatham St	TWSC	SBR	1	0	0	1	12	B				
110	Princess St / Chatham St	TWSC	EBL	15	0	25	0	2	A				
110	Princess St / Chatham St	TWSC	EBT	595	0	25	0	2	A				
110	Princess St / Chatham St	TWSC	WBT	230	0	45	0	0	A				
110	Princess St / Chatham St	TWSC	WBR	4	0	45	0	0	A				
120	Princess St / University Av	Signalized	NBL	38	5	10	17	23	C	25.0	C	5.6	A
120	Princess St / University Av	Signalized	NBR	23	5	10	4	9	A				
120	Princess St / University Av	Signalized	EBT	497	20	70	2	5	A				
120	Princess St / University Av	Signalized	EBR	61	20	70	1	4	A				
120	Princess St / University Av	Signalized	WBL	8	5	20	17	25	C				
120	Princess St / University Av	Signalized	WBT	197	5	20	2	3	A				
130	Princess St / Division St	Signalized	NBL	23	5	20	14	25	C	28.0	C	16.7	B
130	Princess St / Division St	Signalized	NBT	52	5	20	11	17	B				
130	Princess St / Division St	Signalized	NBR	1	5	20	0	0	A				
130	Princess St / Division St	Signalized	SBL	142	5	65	5	7	A				
130	Princess St / Division St	Signalized	SBT	98	5	65	3	4	A				
130	Princess St / Division St	Signalized	SBR	182	5	65	0	0	A				
130	Princess St / Division St	Signalized	EBL	128	30	50	20	28	C				
130	Princess St / Division St	Signalized	EBT	363	30	50	20	28	C				
130	Princess St / Division St	Signalized	EBR	26	30	50	7	14	B				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	36	5	10	27	38	E	38.0	E	7.2	A
140	Concession St / Drayton Av	TWSC	EBT	903	0	125	3	6	A				
140	Concession St / Drayton Av	TWSC	EBR	0	0	125	0	0	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	1	0	0	8	19	C	19.0	C	6.9	A
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	41	45	75	1	4	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	871	45	75	3	7	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	31	5	10	3	10	A	11.0	B	0.6	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	12	5	10	2	11	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	1	0	0	0	9	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	76	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	629	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	26	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	69	5	25	22	27	C	28.0	C	9.6	A
160	Concession St / Macdonnell St	Signalized	NBT	0	5	25	0	0	A				
160	Concession St / Macdonnell St	Signalized	NBR	4	5	25	15	25	C				
160	Concession St / Macdonnell St	Signalized	SBR	45	0	5	1	3	A				
160	Concession St / Macdonnell St	Signalized	EBL	36	75	75	14	22	C				
160	Concession St / Macdonnell St	Signalized	EBT	714	75	75	6	10	A				
160	Concession St / Macdonnell St	Signalized	EBR	124	75	75	4	8	A				
160	Concession St / Macdonnell St	Signalized	WBL	28	20	55	21	28	C				
160	Concession St / Macdonnell St	Signalized	WBT	548	20	55	4	6	A				
160	Concession St / Macdonnell St	Signalized	WBR	0	20	55	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	8	0	5	7	15	B	15.0	B	1.3	A
170	Concession St / Connaught St	TWSC	SBR	8	0	5	2	9	A				
170	Concession St / Connaught St	TWSC	EBL	17	0	95	4	7	A				
170	Concession St / Connaught St	TWSC	EBT	698	0	95	1	2	A				
170	Concession St / Connaught St	TWSC	WBT	568	0	0	0	0	A				
170	Concession St / Connaught St	TWSC	WBR	4	0	0	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	42	10	25	24	30	C	34.0	C	11.8	B
180	Concession St / Victoria St	Signalized	NBT	14	10	25	25	30	C				
180	Concession St / Victoria St	Signalized	NBR	21	10	25	9	15	B				
180	Concession St / Victoria St	Signalized	SBL	7	5	15	29	34	C				
180	Concession St / Victoria St	Signalized	SBT	30	5	15	24	29	C				
180	Concession St / Victoria St	Signalized	SBR	45	5	15	2	9	A				
180	Concession St / Victoria St	Signalized	EBL	20	35	75	9	14	B				
180	Concession St / Victoria St	Signalized	EBT	664	35	75	6	9	A				
180	Concession St / Victoria St	Signalized	EBR	8	35	75	7	11	B				
180	Concession St / Victoria St	Signalized	WBL	48	40	90	16	24	C				
180	Concession St / Victoria St	Signalized	WBT	488	40	90	6	11	B				
180	Concession St / Victoria St	Signalized	WBR	4	40	90	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	6	0	5	14	22	C	22.0	C	1.9	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	5	0	5	1	8	A				
190	Concession St / Nelson St	TWSC	SBL	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	25	5	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	39	0	75	2	4	A				
190	Concession St / Nelson St	TWSC	EBT	649	0	75	0	2	A				
190	Concession St / Nelson St	TWSC	EBR	0	0	75	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	10	0	35	2	5	A				
190	Concession St / Nelson St	TWSC	WBT	506	0	35	0	1	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	35	0	0	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 35% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
200	Concession St / Kingscourt Av	TWSC	SBL	43	5	15	19	29	D	29.0	D	2.7	A
200	Concession St / Kingscourt Av	TWSC	SBR	4	5	15	6	20	C				
200	Concession St / Kingscourt Av	TWSC	EBL	24	0	80	2	5	A				
200	Concession St / Kingscourt Av	TWSC	EBT	630	0	80	1	3	A				
200	Concession St / Kingscourt Av	TWSC	WBT	510	0	0	0	0	A				
200	Concession St / Kingscourt Av	TWSC	WBR	20	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	43	5	20	37	49	E	49.0	E	4.4	A
210	Concession St / Fergus St	TWSC	SBR	1	5	20	1	10	A				
210	Concession St / Fergus St	TWSC	EBL	21	0	100	3	7	A				
210	Concession St / Fergus St	TWSC	EBT	649	0	100	2	5	A				
210	Concession St / Fergus St	TWSC	WBT	527	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	WBR	20	0	0	0	0	A				
220	Concession St / Grey St	TWSC	SBL	29	5	30	100	115	F	115.0	F	9.9	A
220	Concession St / Grey St	TWSC	SBR	14	5	30	60	70	F				
220	Concession St / Grey St	TWSC	EBL	21	35	105	10	17	C				
220	Concession St / Grey St	TWSC	EBT	674	35	105	7	12	B				
220	Concession St / Grey St	TWSC	WBT	531	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	21	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	114	20	35	17	25	C	26.0	C	13.0	B
230	Concession St / Alfred St	Signalized	NBT	10	20	35	19	26	C				
230	Concession St / Alfred St	Signalized	NBR	52	20	35	11	18	B				
230	Concession St / Alfred St	Signalized	SBL	2	5	20	14	22	C				
230	Concession St / Alfred St	Signalized	SBT	32	5	20	13	17	B				
230	Concession St / Alfred St	Signalized	SBR	34	5	20	4	9	A				
230	Concession St / Alfred St	Signalized	EBL	34	55	60	14	20	B				
230	Concession St / Alfred St	Signalized	EBT	504	55	60	8	12	B				
230	Concession St / Alfred St	Signalized	EBR	163	55	60	1	3	A				
230	Concession St / Alfred St	Signalized	WBL	33	40	85	10	17	B				
230	Concession St / Alfred St	Signalized	WBT	404	40	85	8	13	B				
230	Concession St / Alfred St	Signalized	WBR	0	40	85	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	7.0	A	1.1	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	558	0	15	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	15	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	12	0	10	4	7	A				
240	Concession St / Lansdowne St	TWSC	WBT	440	0	10	0	1	A				
250	Concession St / Division St	Signalized	NBL	15	25	50	22	31	C	35.0	C	20.4	C
250	Concession St / Division St	Signalized	NBT	214	25	50	15	20	B				
250	Concession St / Division St	Signalized	NBR	10	25	50	10	16	B				
250	Concession St / Division St	Signalized	SBL	31	50	105	18	26	C				
250	Concession St / Division St	Signalized	SBT	367	50	105	16	22	C				
250	Concession St / Division St	Signalized	SBR	202	50	105	2	6	A				
250	Concession St / Division St	Signalized	EBL	193	35	110	13	19	B				
250	Concession St / Division St	Signalized	EBT	359	35	110	12	17	B				
250	Concession St / Division St	Signalized	EBR	13	35	110	6	8	A				
250	Concession St / Division St	Signalized	WBL	19	40	70	27	35	C				
250	Concession St / Division St	Signalized	WBT	233	40	70	28	35	C				
250	Concession St / Division St	Signalized	WBR	17	40	70	21	28	C				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
260	Adelaide St / Division St	TWSC	NBL	19	0	20	2	3	A	8.0	A	0.2	A
260	Adelaide St / Division St	TWSC	NBT	232	0	20	0	0	A				
260	Adelaide St / Division St	TWSC	NBR	0	0	20	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	14	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBT	375	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBR	9	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	2	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	2	0	5	0	8	A				
260	Adelaide St / Division St	TWSC	WBR	5	0	5	0	8	A				
270	Stanley St / Division St	TWSC	NBL	16	0	0	1	3	A	10.0	A	1.8	A
270	Stanley St / Division St	TWSC	NBT	245	0	0	0	0	A				
270	Stanley St / Division St	TWSC	SBT	373	0	20	1	2	A				
270	Stanley St / Division St	TWSC	SBR	1	0	20	0	0	A				
270	Stanley St / Division St	TWSC	EBL	8	5	5	3	10	A				
270	Stanley St / Division St	TWSC	EBR	36	5	5	2	10	A				
280	Pine St / Division St	Signalized	NBL	9	10	30	10	17	B	29.0	C	8.3	A
280	Pine St / Division St	Signalized	NBT	203	10	30	3	5	A				
280	Pine St / Division St	Signalized	NBR	4	10	30	3	4	A				
280	Pine St / Division St	Signalized	SBL	33	25	70	4	8	A				
280	Pine St / Division St	Signalized	SBT	378	25	70	4	7	A				
280	Pine St / Division St	Signalized	SBR	0	25	70	0	0	A				
280	Pine St / Division St	Signalized	EBL	0	5	15	0	0	A				
280	Pine St / Division St	Signalized	EBT	31	5	15	24	29	C				
280	Pine St / Division St	Signalized	EBR	13	5	15	5	11	B				
280	Pine St / Division St	Signalized	WBL	18	5	20	20	26	C				
280	Pine St / Division St	Signalized	WBT	5	5	20	17	23	C				
280	Pine St / Division St	Signalized	WBR	57	5	20	4	9	A				
290	Quebec St / Division St	TWSC	NBT	218	0	0	0	0	A	9.0	A	0.9	A
290	Quebec St / Division St	TWSC	NBR	3	0	0	0	0	A				
290	Quebec St / Division St	TWSC	SBL	4	0	50	0	3	A				
290	Quebec St / Division St	TWSC	SBT	406	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	17	0	5	1	9	A				
290	Quebec St / Division St	TWSC	WBR	1	0	5	0	6	A				
300	York St / Division St	Signalized	NBL	0	20	35	0	0	A	30.0	C	7.4	A
300	York St / Division St	Signalized	NBT	191	20	35	3	5	A				
300	York St / Division St	Signalized	NBR	10	20	35	2	4	A				
300	York St / Division St	Signalized	SBL	38	10	35	5	8	A				
300	York St / Division St	Signalized	SBT	387	10	35	2	4	A				
300	York St / Division St	Signalized	SBR	0	10	35	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	20	0	0	A				
300	York St / Division St	Signalized	EBT	47	5	20	23	27	C				
300	York St / Division St	Signalized	EBR	7	5	20	13	19	B				
300	York St / Division St	Signalized	WBL	9	5	20	22	27	C				
300	York St / Division St	Signalized	WBT	23	5	20	22	30	C				
300	York St / Division St	Signalized	WBR	27	5	20	4	11	B				
310	Main St / Division St	TWSC	NBT	197	0	10	1	2	A	8.0	A	0.8	A
310	Main St / Division St	TWSC	NBR	0	0	10	0	0	A				
310	Main St / Division St	TWSC	SBL	15	35	35	0	2	A				
310	Main St / Division St	TWSC	SBT	388	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	0	0	5	0	0	A				
310	Main St / Division St	TWSC	WBR	5	0	5	0	8	A				
320	Hamilton St / Division St	TWSC	NBL	0	0	0	0	0	A	8.0	A	0.1	A
320	Hamilton St / Division St	TWSC	NBT	192	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBT	383	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	6	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	6	0	5	1	8	A				
320	Hamilton St / Division St	TWSC	EBR	5	0	5	1	7	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	186	0	0	0	0	A	11.0	B	0.8	A
330	Raglan St / Division St	TWSC	NBR	9	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	17	0	15	0	2	A				
330	Raglan St / Division St	TWSC	SBT	371	0	15	0	1	A				
330	Raglan St / Division St	TWSC	WBL	2	0	5	3	11	B				
330	Raglan St / Division St	TWSC	WBR	5	0	5	0	7	A				
340	Elm St / Division St	TWSC	NBL	2	0	0	0	1	A	7.0	A	0.1	A
340	Elm St / Division St	TWSC	NBT	189	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBT	371	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	2	0	0	0	0	A				
340	Elm St / Division St	TWSC	EBL	6	0	5	1	7	A				
340	Elm St / Division St	TWSC	EBR	1	0	5	0	6	A				
350	Ellice St / Division St	TWSC	NBT	183	0	0	0	0	A	9.0	A	0.2	A
350	Ellice St / Division St	TWSC	NBR	8	0	0	0	0	A				
350	Ellice St / Division St	TWSC	SBL	8	0	0	0	1	A				
350	Ellice St / Division St	TWSC	SBT	366	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	4	0	5	1	9	A				
350	Ellice St / Division St	TWSC	WBR	7	0	5	0	7	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	10.0	A	1.1	A
360	Colborne St / Division St	TWSC	NBT	178	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	11	0	15	1	2	A				
360	Colborne St / Division St	TWSC	SBT	359	0	15	1	1	A				
360	Colborne St / Division St	TWSC	SBR	0	0	15	0	0	A				
360	Colborne St / Division St	TWSC	EBL	10	5	10	2	9	A				
360	Colborne St / Division St	TWSC	EBT	3	5	10	1	9	A				
360	Colborne St / Division St	TWSC	EBR	3	5	10	1	10	A				
360	Colborne St / Division St	TWSC	WBL	4	0	5	1	10	A				
360	Colborne St / Division St	TWSC	WBT	4	0	5	0	9	A				
360	Colborne St / Division St	TWSC	WBR	4	0	5	0	7	A				
370	Queen St / Division St	Signalized	NBT	57	10	25	7	9	A	21.0	C	14.8	B
370	Queen St / Division St	Signalized	NBR	123	10	25	1	10	A				
370	Queen St / Division St	Signalized	SBL	115	45	75	13	21	C				
370	Queen St / Division St	Signalized	SBT	249	45	75	14	20	B				
370	Queen St / Division St	Signalized	WBL	174	20	30	10	16	B				
370	Queen St / Division St	Signalized	WBR	119	20	30	0	4	A				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 35% Auto M.S. - PM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	3,351	53.9	94.3	32.0	26.2	C
20	Princess St / Regent St	TWSC	1,432	0.1	45.7	2.4	0.2	-
30	Princess St / Drayton Av	TWSC	1,359	3.4	42.6	2.6	0.6	-
40	Princess St / Macdonnell Av	Signalized	1,358	76.7	160.8	19.2	13.7	B
50	Princess St / Smith St	TWSC	1,105	35.6	70.7	5.2	2.8	-
60	Princess St / Victoria St	Signalized	1,373	28.8	74.8	10.7	5.8	B
70	Princess St / Nelson St	TWSC	1,308	10.6	115.5	5.5	2.5	-
80	Princess St / Albert St	Signalized	1,216	31.3	67.3	16.2	10.7	B
90	Princess St / Frontenac St	TWSC	1,068	2.3	39.4	2.6	0.7	-
100	Princess St / Alfred St	Signalized	1,431	56.9	87.1	25.9	18.6	C
110	Princess St / Chatham St	TWSC	1,174	12.5	87.9	5.4	2.6	-
120	Princess St / University Av	Signalized	1,111	25.2	51.3	7.5	4.3	A
130	Princess St / Division St	Signalized	1,469	29.3	57.0	13.5	9.1	B
140	Concession St / Drayton Av	TWSC	1,170	196.9	316.4	56.8	37.7	-
150	Concession St / Leroy Grant Dr (S)	TWSC	1,195	73.7	73.9	37.0	22.4	-
155	Concession St / Leroy Grant Drive (N)	TWSC	1,191	2.9	7.4	3.9	1.6	-
160	Concession St / Macdonnell St	Signalized	2,109	72.8	76.9	17.7	12.7	B
170	Concession St / Connaught St	TWSC	1,761	53.8	103.9	8.1	5.0	-
180	Concession St / Victoria St	Signalized	1,882	92.4	103.1	18.5	12.9	B
190	Concession St / Nelson St	TWSC	1,690	14.3	77.1	6.5	4.3	-
200	Concession St / Kingscourt Av	TWSC	1,621	0.0	94.2	6.7	3.6	-
210	Concession St / Fergus St	TWSC	1,616	0.0	99.3	6.4	3.8	-
220	Concession St / Grey St	TWSC	1,629	15.2	82.3	8.1	5.5	-
230	Concession St / Alfred St	Signalized	1,811	59.9	92.8	19.8	12.8	B
240	Concession St / Lansdowne St	TWSC	1,127	0.0	32.9	1.6	0.6	-
250	Concession St / Division St	Signalized	2,173	80.7	155.4	32.0	24.7	C
260	Adelaide St / Division St	TWSC	1,106	0.0	67.6	2.7	1.2	-
270	Stanley St / Division St	TWSC	1,091	0.3	12.2	2.3	0.6	-
280	Pine St / Division St	Signalized	1,163	22.2	66.0	9.8	6.2	A
290	Quebec St / Division St	TWSC	997	0.0	58.0	1.2	0.1	-
300	York St / Division St	Signalized	1,110	21.7	37.1	6.6	4.3	A
310	Main St / Division St	TWSC	964	26.6	48.5	3.3	1.7	-
320	Hamilton St / Division St	TWSC	976	0.0	13.8	1.2	0.0	-
330	Raglan St / Division St	TWSC	993	0.2	0.2	0.4	0.1	-
340	Elm St / Division St	TWSC	1,048	0.0	25.2	0.9	0.1	-
350	Ellice St / Division St	TWSC	1,007	0.0	25.7	0.6	0.0	-
360	Colborne St / Division St	TWSC	996	0.0	28.0	1.5	0.5	-
370	Queen St / Division St	Signalized	1,514	43.4	83.1	17.5	9.7	B
	Total		**52,695**	**1,144**	**2,775**	**420**	**270**	

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 35% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
10	Princess St / Concession St	Signalized	NBL	305	45	105	34	41	D	50.0	D	32.0	C
10	Princess St / Concession St	Signalized	NBT	294	45	105	33	40	D				
10	Princess St / Concession St	Signalized	NBR	0	45	105	0	0	A				
10	Princess St / Concession St	Signalized	SBL	621	85	145	41	50	D				
10	Princess St / Concession St	Signalized	SBT	486	85	145	39	48	D				
10	Princess St / Concession St	Signalized	SBR	0	85	145	0	0	A				
10	Princess St / Concession St	Signalized	EBT	329	30	50	33	40	D				
10	Princess St / Concession St	Signalized	EBR	279	30	50	0	2	A				
10	Princess St / Concession St	Signalized	WBT	388	40	60	32	38	D				
10	Princess St / Concession St	Signalized	WBR	627	40	60	0	0	A				
10	Princess St / Concession St	Signalized	WBL	22	40	60	6	10	A				
20	Princess St / Regent St	TWSC	NBL	0	5	10	0	0	A	12.0	B	2.4	A
20	Princess St / Regent St	TWSC	NBR	33	5	10	3	12	B				
20	Princess St / Regent St	TWSC	EBT	683	0	65	0	3	A				
20	Princess St / Regent St	TWSC	EBR	72	0	65	0	1	A				
20	Princess St / Regent St	TWSC	WBL	34	0	25	6	8	A				
20	Princess St / Regent St	TWSC	WBT	610	0	25	0	1	A				
30	Princess St / Drayton Av	TWSC	SBL	4	45	50	22	44	E	44.0	E	2.6	A
30	Princess St / Drayton Av	TWSC	SBR	100	45	50	6	19	C				
30	Princess St / Drayton Av	TWSC	EBL	31	0	55	4	6	A				
30	Princess St / Drayton Av	TWSC	EBT	681	0	55	0	1	A				
30	Princess St / Drayton Av	TWSC	WBT	543	0	25	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	0	0	25	0	0	A				
40	Princess St / Macdonnell Av	Signalized	NBL	25	10	25	13	19	B	32.0	C	19.2	B
40	Princess St / Macdonnell Av	Signalized	NBT	86	10	25	12	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	9	10	25	7	14	B				
40	Princess St / Macdonnell Av	Signalized	SBL	0	10	40	0	0	A				
40	Princess St / Macdonnell Av	Signalized	SBT	38	10	40	14	21	C				
40	Princess St / Macdonnell Av	Signalized	SBR	32	10	40	4	12	B				
40	Princess St / Macdonnell Av	Signalized	EBL	30	115	275	24	31	C				
40	Princess St / Macdonnell Av	Signalized	EBT	606	115	275	16	23	C				
40	Princess St / Macdonnell Av	Signalized	EBR	38	115	275	15	22	C				
40	Princess St / Macdonnell Av	Signalized	WBL	10	50	55	24	32	C				
40	Princess St / Macdonnell Av	Signalized	WBT	484	50	55	11	14	B				
40	Princess St / Macdonnell Av	Signalized	WBR	0	50	55	0	0	A				
50	Princess St / Smith St	TWSC	SBL	3	40	40	5	14	B	27.0	D	5.2	A
50	Princess St / Smith St	TWSC	SBR	10	40	40	15	27	D				
50	Princess St / Smith St	TWSC	EBL	14	40	60	2	4	A				
50	Princess St / Smith St	TWSC	EBT	595	40	60	0	1	A				
50	Princess St / Smith St	TWSC	WBT	483	30	85	6	10	A				
50	Princess St / Smith St	TWSC	WBR	0	30	85	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	16	20	45	19	28	C	30.0	C	10.7	B
60	Princess St / Victoria St	Signalized	NBT	41	20	45	17	23	C				
60	Princess St / Victoria St	Signalized	NBR	100	20	45	9	17	B				
60	Princess St / Victoria St	Signalized	SBL	12	5	20	22	30	C				
60	Princess St / Victoria St	Signalized	SBT	46	5	20	17	23	C				
60	Princess St / Victoria St	Signalized	SBR	15	5	20	0	3	A				
60	Princess St / Victoria St	Signalized	EBL	9	15	80	12	18	B				
60	Princess St / Victoria St	Signalized	EBT	562	15	80	1	5	A				
60	Princess St / Victoria St	Signalized	EBR	33	15	80	1	5	A				
60	Princess St / Victoria St	Signalized	WBL	14	50	85	19	25	C				
60	Princess St / Victoria St	Signalized	WBT	462	50	85	8	13	B				
60	Princess St / Victoria St	Signalized	WBR	63	50	85	6	11	B				
70	Princess St / Nelson St	TWSC	NBL	15	0	40	18	29	D	29.0	D	5.5	A
70	Princess St / Nelson St	TWSC	NBT	3	0	40	15	29	D				
70	Princess St / Nelson St	TWSC	NBR	0	0	40	0	0	A				
70	Princess St / Nelson St	TWSC	SBL	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	SBT	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	0	0	0	0	0	A				
70	Princess St / Nelson St	TWSC	EBL	188	20	105	4	9	A				
70	Princess St / Nelson St	TWSC	EBT	499	20	105	2	6	A				
70	Princess St / Nelson St	TWSC	EBR	6	20	105	1	4	A				
70	Princess St / Nelson St	TWSC	WBL	39	0	130	4	8	A				
70	Princess St / Nelson St	TWSC	WBT	544	0	130	2	3	A				
70	Princess St / Nelson St	TWSC	WBR	14	0	130	1	3	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
80	Princess St / Albert St	Signalized	NBL	47	10	20	13	19	B	32.0	C	16.2	B
80	Princess St / Albert St	Signalized	NBT	12	10	20	11	16	B				
80	Princess St / Albert St	Signalized	NBR	42	10	20	3	8	A				
80	Princess St / Albert St	Signalized	SBL	0	5	15	0	0	A				
80	Princess St / Albert St	Signalized	SBT	26	5	15	16	20	B				
80	Princess St / Albert St	Signalized	SBR	34	5	15	1	6	A				
80	Princess St / Albert St	Signalized	EBL	49	40	80	23	32	C				
80	Princess St / Albert St	Signalized	EBT	452	40	80	12	18	B				
80	Princess St / Albert St	Signalized	EBR	10	40	80	10	15	B				
80	Princess St / Albert St	Signalized	WBL	8	30	70	16	21	C				
80	Princess St / Albert St	Signalized	WBT	521	30	70	9	14	B				
80	Princess St / Albert St	Signalized	WBR	15	30	70	13	19	B				
90	Princess St / Frontenac St	TWSC	NBL	4	0	5	7	13	B	13.0	B	2.6	A
90	Princess St / Frontenac St	TWSC	NBT	8	0	5	4	13	B				
90	Princess St / Frontenac St	TWSC	NBR	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	EBL	56	5	85	4	8	A				
90	Princess St / Frontenac St	TWSC	EBT	438	5	85	1	5	A				
90	Princess St / Frontenac St	TWSC	EBR	0	5	85	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBT	544	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	18	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	48	25	55	14	23	C	51.0	D	25.9	C
100	Princess St / Alfred St	Signalized	NBT	120	25	55	16	23	C				
100	Princess St / Alfred St	Signalized	NBR	113	25	55	8	14	B				
100	Princess St / Alfred St	Signalized	SBL	70	15	30	17	25	C				
100	Princess St / Alfred St	Signalized	SBT	51	15	30	16	25	C				
100	Princess St / Alfred St	Signalized	SBR	11	15	30	8	15	B				
100	Princess St / Alfred St	Signalized	EBL	18	60	120	41	51	D				
100	Princess St / Alfred St	Signalized	EBT	419	60	120	20	29	C				
100	Princess St / Alfred St	Signalized	EBR	15	60	120	20	28	C				
100	Princess St / Alfred St	Signalized	WBL	37	80	90	12	18	B				
100	Princess St / Alfred St	Signalized	WBT	498	80	90	22	28	C				
100	Princess St / Alfred St	Signalized	WBR	31	80	90	7	11	B				
110	Princess St / Chatham St	TWSC	SBL	0	0	5	0	0	A	19.0	C	5.4	A
110	Princess St / Chatham St	TWSC	SBR	2	0	5	3	19	C				
110	Princess St / Chatham St	TWSC	EBL	111	15	110	4	10	A				
110	Princess St / Chatham St	TWSC	EBT	488	15	110	3	7	A				
110	Princess St / Chatham St	TWSC	WBT	564	10	65	2	3	A				
110	Princess St / Chatham St	TWSC	WBR	9	10	65	2	3	A				
120	Princess St / University Av	Signalized	NBL	71	10	20	14	20	B	20.0	B	7.5	A
120	Princess St / University Av	Signalized	NBR	25	10	20	2	8	A				
120	Princess St / University Av	Signalized	EBT	434	45	70	5	9	A				
120	Princess St / University Av	Signalized	EBR	49	45	70	5	9	A				
120	Princess St / University Av	Signalized	WBL	30	10	40	9	13	B				
120	Princess St / University Av	Signalized	WBT	502	10	40	2	4	A				
130	Princess St / Division St	Signalized	NBL	86	20	40	14	24	C	26.0	C	13.5	B
130	Princess St / Division St	Signalized	NBT	156	20	40	13	19	B				
130	Princess St / Division St	Signalized	NBR	10	20	40	7	11	B				
130	Princess St / Division St	Signalized	SBL	204	35	70	7	11	B				
130	Princess St / Division St	Signalized	SBT	105	35	70	4	5	A				
130	Princess St / Division St	Signalized	SBR	445	35	70	0	1	A				
130	Princess St / Division St	Signalized	EBL	130	25	45	17	25	C				
130	Princess St / Division St	Signalized	EBT	301	25	45	19	26	C				
130	Princess St / Division St	Signalized	EBR	32	25	45	7	14	B				

Williamsville Operational Analysis

2036 No Mitigation - Approved Growth, 35% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
140	Concession St / Drayton Av	TWSC	NBR	21	30	120	832	858	F	858.0	F	56.8	F
140	Concession St / Drayton Av	TWSC	EBT	1,110	200	320	23	42	E				
140	Concession St / Drayton Av	TWSC	EBR	39	200	320	28	48	E				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	20	0	10	19	32	D	49.0	E	37.0	E
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	177	75	75	36	49	E				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	998	75	75	20	35	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	85	20	50	10	24	C	25.0	C	3.9	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	89	20	50	10	25	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	20	0	5	9	18	C				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	8	0	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	950	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	39	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	97	20	40	23	29	C	84.0	F	17.7	B
160	Concession St / Macdonnell St	Signalized	NBT	25	20	40	21	30	C				
160	Concession St / Macdonnell St	Signalized	NBR	34	20	40	17	24	C				
160	Concession St / Macdonnell St	Signalized	SBR	67	5	10	6	10	A				
160	Concession St / Macdonnell St	Signalized	EBL	58	75	80	51	61	E				
160	Concession St / Macdonnell St	Signalized	EBT	865	75	80	9	14	B				
160	Concession St / Macdonnell St	Signalized	EBR	94	75	80	8	12	B				
160	Concession St / Macdonnell St	Signalized	WBL	48	85	85	71	84	F				
160	Concession St / Macdonnell St	Signalized	WBT	821	85	85	10	14	B				
160	Concession St / Macdonnell St	Signalized	WBR	0	85	85	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	0	0	5	0	0	A	27.0	D	8.1	A
170	Concession St / Connaught St	TWSC	SBR	16	0	5	16	27	D				
170	Concession St / Connaught St	TWSC	EBL	0	25	95	0	0	A				
170	Concession St / Connaught St	TWSC	EBT	893	25	95	2	5	A				
170	Concession St / Connaught St	TWSC	WBT	852	85	115	8	11	B				
170	Concession St / Connaught St	TWSC	WBR	0	85	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	41	10	115	68	82	F	82.0	F	18.5	B
180	Concession St / Victoria St	Signalized	NBT	48	10	115	50	61	E				
180	Concession St / Victoria St	Signalized	NBR	19	10	115	42	51	D				
180	Concession St / Victoria St	Signalized	SBL	0	0	10	0	0	A				
180	Concession St / Victoria St	Signalized	SBT	22	0	10	19	24	C				
180	Concession St / Victoria St	Signalized	SBR	35	0	10	12	21	C				
180	Concession St / Victoria St	Signalized	EBL	30	115	115	19	26	C				
180	Concession St / Victoria St	Signalized	EBT	801	115	115	8	13	B				
180	Concession St / Victoria St	Signalized	EBR	67	115	115	9	15	B				
180	Concession St / Victoria St	Signalized	WBL	25	85	95	22	30	C				
180	Concession St / Victoria St	Signalized	WBT	781	85	95	12	17	B				
180	Concession St / Victoria St	Signalized	WBR	13	85	95	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	7	0	5	64	77	F	77.0	F	6.5	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	43	0	5	9	16	C				
190	Concession St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	12	0	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	0	0	65	0	0	A				
190	Concession St / Nelson St	TWSC	EBT	775	0	65	1	1	A				
190	Concession St / Nelson St	TWSC	EBR	50	0	65	0	1	A				
190	Concession St / Nelson St	TWSC	WBL	7	30	95	8	12	B				
190	Concession St / Nelson St	TWSC	WBT	796	30	95	7	11	B				
190	Concession St / Nelson St	TWSC	WBR	0	30	95	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	0	0	15	0	0	A	27.0	D	6.7	A
200	Concession St / Kingscourt Av	TWSC	SBR	17	0	15	16	27	D				
200	Concession St / Kingscourt Av	TWSC	EBL	2	0	95	2	10	A				
200	Concession St / Kingscourt Av	TWSC	EBT	815	0	95	2	5	A				
200	Concession St / Kingscourt Av	TWSC	WBT	787	0	95	5	8	A				
200	Concession St / Kingscourt Av	TWSC	WBR	0	0	95	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	12	0	5	49	59	F	59.0	F	6.4	A
210	Concession St / Fergus St	TWSC	SBR	0	0	5	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	0	0	100	0	0	A				
210	Concession St / Fergus St	TWSC	EBT	814	0	100	4	7	A				
210	Concession St / Fergus St	TWSC	WBT	786	0	100	3	5	A				
210	Concession St / Fergus St	TWSC	WBR	4	0	100	0	0	A				
220	Concession St / Grey St	TWSC	SBL	6	0	5	91	101	F	101.0	F	8.1	A
220	Concession St / Grey St	TWSC	SBR	10	0	5	14	22	C				
220	Concession St / Grey St	TWSC	EBL	0	30	105	0	0	A				
220	Concession St / Grey St	TWSC	EBT	826	30	105	9	14	B				
220	Concession St / Grey St	TWSC	WBT	783	0	60	1	1	A				
220	Concession St / Grey St	TWSC	WBR	4	0	60	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	182	35	95	21	32	C	32.0	C	19.8	B
230	Concession St / Alfred St	Signalized	NBT	30	35	95	22	30	C				
230	Concession St / Alfred St	Signalized	NBR	32	35	95	16	26	C				
230	Concession St / Alfred St	Signalized	SBL	1	5	15	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	35	5	15	18	23	C				
230	Concession St / Alfred St	Signalized	SBR	24	5	15	6	12	B				
230	Concession St / Alfred St	Signalized	EBL	27	55	60	21	27	C				
230	Concession St / Alfred St	Signalized	EBT	468	55	60	12	16	B				
230	Concession St / Alfred St	Signalized	EBR	342	55	60	2	5	A				
230	Concession St / Alfred St	Signalized	WBL	88	80	140	14	24	C				
230	Concession St / Alfred St	Signalized	WBT	582	80	140	16	26	C				
230	Concession St / Alfred St	Signalized	WBR	0	80	140	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	4.0	A	1.6	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	453	0	0	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	29	0	55	1	4	A				
240	Concession St / Lansdowne St	TWSC	WBT	645	0	55	1	2	A				
250	Concession St / Division St	Signalized	NBL	40	85	110	21	30	C	69.0	E	32.0	C
250	Concession St / Division St	Signalized	NBT	550	85	110	19	26	C				
250	Concession St / Division St	Signalized	NBR	10	85	110	17	23	C				
250	Concession St / Division St	Signalized	SBL	27	70	210	31	41	D				
250	Concession St / Division St	Signalized	SBT	452	70	210	19	25	C				
250	Concession St / Division St	Signalized	SBR	207	70	210	5	10	A				
250	Concession St / Division St	Signalized	EBL	198	30	75	18	24	C				
250	Concession St / Division St	Signalized	EBT	199	30	75	13	17	B				
250	Concession St / Division St	Signalized	EBR	37	30	75	3	6	A				
250	Concession St / Division St	Signalized	WBL	11	140	210	55	67	E				
250	Concession St / Division St	Signalized	WBT	410	140	210	57	69	E				
250	Concession St / Division St	Signalized	WBR	32	140	210	49	60	E				

2036 No Mitigation - Approved Growth, 35% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	0	0	100	0	0	A	19.0	C	2.7	A
260	Adelaide St / Division St	TWSC	NBT	598	0	100	2	4	A				
260	Adelaide St / Division St	TWSC	NBR	0	0	100	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	0	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBT	432	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBR	66	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	0	0	0	0	0	A				
260	Adelaide St / Division St	TWSC	EBT	0	0	0	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	0	0	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	10	0	5	9	19	C				
260	Adelaide St / Division St	TWSC	WBR	0	0	5	0	0	A				
270	Stanley St / Division St	TWSC	NBL	0	0	0	0	0	A	16.0	C	2.3	A
270	Stanley St / Division St	TWSC	NBT	595	0	0	0	1	A				
270	Stanley St / Division St	TWSC	SBT	365	0	30	1	3	A				
270	Stanley St / Division St	TWSC	SBR	67	0	30	1	2	A				
270	Stanley St / Division St	TWSC	EBL	4	5	5	8	16	C				
270	Stanley St / Division St	TWSC	EBR	60	5	5	3	10	A				
280	Pine St / Division St	Signalized	NBL	38	20	75	9	15	B	35.0	C	9.8	A
280	Pine St / Division St	Signalized	NBT	522	20	75	4	7	A				
280	Pine St / Division St	Signalized	NBR	14	20	75	5	8	A				
280	Pine St / Division St	Signalized	SBL	30	30	70	12	19	B				
280	Pine St / Division St	Signalized	SBT	395	30	70	5	8	A				
280	Pine St / Division St	Signalized	SBR	6	30	70	4	6	A				
280	Pine St / Division St	Signalized	EBL	7	5	15	29	35	C				
280	Pine St / Division St	Signalized	EBT	28	5	15	24	29	C				
280	Pine St / Division St	Signalized	EBR	10	5	15	5	10	A				
280	Pine St / Division St	Signalized	WBL	4	10	25	24	32	C				
280	Pine St / Division St	Signalized	WBT	44	10	25	22	29	C				
280	Pine St / Division St	Signalized	WBR	65	10	25	6	12	B				
290	Quebec St / Division St	TWSC	NBT	574	0	65	0	1	A	12.0	B	1.2	A
290	Quebec St / Division St	TWSC	NBR	0	0	65	0	0	A				
290	Quebec St / Division St	TWSC	SBL	0	0	50	0	0	A				
290	Quebec St / Division St	TWSC	SBT	409	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	14	0	5	4	12	B				
290	Quebec St / Division St	TWSC	WBR	0	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	0	35	35	0	0	A	32.0	C	6.6	A
300	York St / Division St	Signalized	NBT	519	35	35	2	4	A				
300	York St / Division St	Signalized	NBR	12	35	35	0	2	A				
300	York St / Division St	Signalized	SBL	12	10	45	8	12	B				
300	York St / Division St	Signalized	SBT	409	10	45	2	3	A				
300	York St / Division St	Signalized	SBR	0	10	45	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	20	0	0	A				
300	York St / Division St	Signalized	EBT	50	5	20	27	32	C				
300	York St / Division St	Signalized	EBR	6	5	20	25	29	C				
300	York St / Division St	Signalized	WBL	14	10	25	19	25	C				
300	York St / Division St	Signalized	WBT	32	10	25	22	29	C				
300	York St / Division St	Signalized	WBR	56	10	25	6	14	B				
310	Main St / Division St	TWSC	NBT	529	20	60	3	6	A	8.0	A	3.3	A
310	Main St / Division St	TWSC	NBR	0	20	60	0	0	A				
310	Main St / Division St	TWSC	SBL	0	35	35	0	0	A				
310	Main St / Division St	TWSC	SBT	429	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	6	0	5	1	8	A				
310	Main St / Division St	TWSC	WBR	0	0	5	0	0	A				
320	Hamilton St / Division St	TWSC	NBL	12	0	25	1	4	A	14.0	B	1.2	A
320	Hamilton St / Division St	TWSC	NBT	524	0	25	0	2	A				
320	Hamilton St / Division St	TWSC	SBT	436	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	0	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	4	0	5	6	14	B				
320	Hamilton St / Division St	TWSC	EBR	0	0	5	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	525	0	0	0	0	A	12.0	B	0.4	A
330	Raglan St / Division St	TWSC	NBR	0	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	0	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBT	435	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	21	5	5	3	12	B				
330	Raglan St / Division St	TWSC	WBR	12	5	5	2	10	A				
340	Elm St / Division St	TWSC	NBL	62	0	45	2	4	A	10.0	A	0.9	A
340	Elm St / Division St	TWSC	NBT	524	0	45	0	1	A				
340	Elm St / Division St	TWSC	SBT	415	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	41	0	0	0	2	A				
340	Elm St / Division St	TWSC	EBL	2	0	5	3	10	A				
340	Elm St / Division St	TWSC	EBR	4	0	5	1	8	A				
350	Ellice St / Division St	TWSC	NBT	571	0	45	0	0	A	10.0	A	0.6	A
350	Ellice St / Division St	TWSC	NBR	2	0	45	0	0	A				
350	Ellice St / Division St	TWSC	SBL	6	0	0	1	4	A				
350	Ellice St / Division St	TWSC	SBT	414	0	0	0	1	A				
350	Ellice St / Division St	TWSC	WBL	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	WBR	14	0	5	2	10	A				
360	Colborne St / Division St	TWSC	NBL	4	0	20	0	1	A	11.0	B	1.5	A
360	Colborne St / Division St	TWSC	NBT	558	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	0	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	4	0	40	5	9	A				
360	Colborne St / Division St	TWSC	SBT	406	0	40	1	3	A				
360	Colborne St / Division St	TWSC	SBR	4	0	40	0	1	A				
360	Colborne St / Division St	TWSC	EBL	2	0	5	2	9	A				
360	Colborne St / Division St	TWSC	EBT	4	0	5	3	11	B				
360	Colborne St / Division St	TWSC	EBR	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	14	0	5	2	10	A				
370	Queen St / Division St	Signalized	NBT	184	15	25	6	8	A	28.0	C	17.5	B
370	Queen St / Division St	Signalized	NBR	102	15	25	1	9	A				
370	Queen St / Division St	Signalized	SBL	96	50	80	17	26	C				
370	Queen St / Division St	Signalized	SBT	315	50	80	14	20	B				
370	Queen St / Division St	Signalized	WBL	440	50	105	16	28	C				
370	Queen St / Division St	Signalized	WBR	377	50	105	1	8	A				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 22% Auto M.S. - AM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	2,869	46.1	72.9	27.8	22.2	C
20	Princess St / Regent St	TWSC	1,297	6.4	62.4	4.4	0.8	-
30	Princess St / Drayton Av	TWSC	1,260	12.6	47.4	2.5	0.7	-
40	Princess St / Macdonnell Av	Signalized	1,200	68.6	112.4	15.9	10.0	B
50	Princess St / Smith St	TWSC	1,012	25.5	45.4	2.6	1.1	-
60	Princess St / Victoria St	Signalized	1,247	23.8	70.2	8.7	4.7	A
70	Princess St / Nelson St	TWSC	1,170	5.7	74.1	3.8	1.2	-
80	Princess St / Albert St	Signalized	1,139	38.1	83.0	15.1	9.7	B
90	Princess St / Frontenac St	TWSC	1,034	0.0	35.8	1.7	0.0	-
100	Princess St / Alfred St	Signalized	1,356	43.7	74.1	23.5	16.4	C
110	Princess St / Chatham St	TWSC	953	0.1	44.0	2.1	0.1	-
120	Princess St / University Av	Signalized	882	15.7	54.4	6.0	2.8	A
130	Princess St / Division St	Signalized	1,096	19.4	49.2	15.7	10.7	B
140	Concession St / Drayton Av	TWSC	944	0.0	119.0	7.3	3.2	-
150	Concession St / Leroy Grant Dr (S)	TWSC	915	54.6	74.5	7.9	3.9	-
155	Concession St / Leroy Grant Drive (N)	TWSC	705	0.3	0.9	0.7	0.1	-
160	Concession St / Macdonnell St	Signalized	1,550	50.1	76.9	13.8	9.5	B
170	Concession St / Connaught St	TWSC	1,273	0.0	89.7	3.5	2.0	-
180	Concession St / Victoria St	Signalized	1,355	37.7	84.6	11.9	7.7	B
190	Concession St / Nelson St	TWSC	1,229	0.1	64.7	1.8	1.1	-
200	Concession St / Kingscourt Av	TWSC	1,204	0.2	47.9	2.7	1.1	-
210	Concession St / Fergus St	TWSC	1,213	0.2	55.3	4.9	2.9	-
220	Concession St / Grey St	TWSC	1,246	13.8	61.1	10.5	7.2	-
230	Concession St / Alfred St	Signalized	1,330	43.6	64.1	11.9	7.2	B
240	Concession St / Lansdowne St	TWSC	1,010	0.0	0.0	0.5	0.0	-
250	Concession St / Division St	Signalized	1,769	40.7	103.2	22.6	16.3	C
260	Adelaide St / Division St	TWSC	757	0.0	22.1	0.7	0.0	-
270	Stanley St / Division St	TWSC	702	0.4	19.4	2.0	0.8	-
280	Pine St / Division St	Signalized	785	12.9	47.0	8.6	4.8	A
290	Quebec St / Division St	TWSC	677	0.0	32.8	0.9	0.0	-
300	York St / Division St	Signalized	761	15.2	42.2	7.4	4.9	A
310	Main St / Division St	TWSC	646	23.6	28.6	0.8	0.0	-
320	Hamilton St / Division St	TWSC	629	0.0	0.1	0.1	0.0	-
330	Raglan St / Division St	TWSC	627	0.2	0.2	0.4	0.1	-
340	Elm St / Division St	TWSC	614	0.0	0.1	0.2	0.0	-
350	Ellice St / Division St	TWSC	595	0.0	0.1	0.2	0.1	-
360	Colborne St / Division St	TWSC	601	0.2	19.1	1.2	0.1	-
370	Queen St / Division St	Signalized	879	28.9	50.4	15.4	9.4	B
	Total		**40,531**	**629**	**1,929**	**268**	**163**	

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 22% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
10	Princess St / Concession St	Signalized	NBL	163	35	50	37	45	D	47.0	D	27.8	C
10	Princess St / Concession St	Signalized	NBT	198	35	50	40	47	D				
10	Princess St / Concession St	Signalized	NBR	42	35	50	2	4	A				
10	Princess St / Concession St	Signalized	SBL	526	75	105	30	38	D				
10	Princess St / Concession St	Signalized	SBT	570	75	105	30	38	D				
10	Princess St / Concession St	Signalized	SBR	32	75	105	19	24	C				
10	Princess St / Concession St	Signalized	EBT	402	30	65	25	31	C				
10	Princess St / Concession St	Signalized	EBR	277	30	65	0	2	A				
10	Princess St / Concession St	Signalized	WBT	241	20	40	25	30	C				
10	Princess St / Concession St	Signalized	WBR	334	20	40	0	0	A				
10	Princess St / Concession St	Signalized	WBL	84	20	40	1	4	A				
20	Princess St / Regent St	TWSC	NBL	0	5	10	0	0	A	16.0	C	4.4	A
20	Princess St / Regent St	TWSC	NBR	29	5	10	7	16	C				
20	Princess St / Regent St	TWSC	EBT	765	10	85	1	6	A				
20	Princess St / Regent St	TWSC	EBR	50	10	85	1	3	A				
20	Princess St / Regent St	TWSC	WBL	8	0	25	4	8	A				
20	Princess St / Regent St	TWSC	WBT	445	0	25	0	1	A				
30	Princess St / Drayton Av	TWSC	SBL	0	0	45	0	0	A	14.0	B	2.5	A
30	Princess St / Drayton Av	TWSC	SBR	5	0	45	1	14	B				
30	Princess St / Drayton Av	TWSC	EBL	117	20	75	2	5	A				
30	Princess St / Drayton Av	TWSC	EBT	677	20	75	1	3	A				
30	Princess St / Drayton Av	TWSC	WBT	450	0	0	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	11	0	0	0	1	A				
40	Princess St / Macdonnell Av	Signalized	NBL	44	10	40	12	19	B	23.0	C	15.9	B
40	Princess St / Macdonnell Av	Signalized	NBT	26	10	40	11	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	17	10	40	7	12	B				
40	Princess St / Macdonnell Av	Signalized	SBL	7	40	40	15	22	C				
40	Princess St / Macdonnell Av	Signalized	SBT	14	40	40	9	13	B				
40	Princess St / Macdonnell Av	Signalized	SBR	56	40	40	2	9	A				
40	Princess St / Macdonnell Av	Signalized	EBL	29	90	165	15	23	C				
40	Princess St / Macdonnell Av	Signalized	EBT	606	90	165	11	18	B				
40	Princess St / Macdonnell Av	Signalized	EBR	30	90	165	8	14	B				
40	Princess St / Macdonnell Av	Signalized	WBL	0	50	50	0	0	A				
40	Princess St / Macdonnell Av	Signalized	WBT	366	50	50	9	13	B				
40	Princess St / Macdonnell Av	Signalized	WBR	5	50	50	7	9	A				
50	Princess St / Smith St	TWSC	SBL	2	40	40	0	0	A	17.0	C	2.6	A
50	Princess St / Smith St	TWSC	SBR	14	40	40	5	17	C				
50	Princess St / Smith St	TWSC	EBL	7	40	40	1	4	A				
50	Princess St / Smith St	TWSC	EBT	623	40	40	0	1	A				
50	Princess St / Smith St	TWSC	WBT	353	0	55	3	5	A				
50	Princess St / Smith St	TWSC	WBR	13	0	55	1	2	A				
60	Princess St / Victoria St	Signalized	NBL	35	10	35	19	26	C	26.0	C	8.7	A
60	Princess St / Victoria St	Signalized	NBT	25	10	35	17	23	C				
60	Princess St / Victoria St	Signalized	NBR	45	10	35	8	15	B				
60	Princess St / Victoria St	Signalized	SBL	13	5	20	16	23	C				
60	Princess St / Victoria St	Signalized	SBT	52	5	20	15	20	B				
60	Princess St / Victoria St	Signalized	SBR	0	5	20	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	2	20	85	0	3	A				
60	Princess St / Victoria St	Signalized	EBT	612	20	85	2	6	A				
60	Princess St / Victoria St	Signalized	EBR	12	20	85	3	7	A				
60	Princess St / Victoria St	Signalized	WBL	34	35	65	10	14	B				
60	Princess St / Victoria St	Signalized	WBT	331	35	65	5	8	A				
60	Princess St / Victoria St	Signalized	WBR	86	35	65	2	5	A				
70	Princess St / Nelson St	TWSC	NBL	1	0	45	0	0	A	18.0	C	3.8	A
70	Princess St / Nelson St	TWSC	NBT	7	0	45	6	18	C				
70	Princess St / Nelson St	TWSC	NBR	7	0	45	3	14	B				
70	Princess St / Nelson St	TWSC	SBL	8	0	5	5	16	C				
70	Princess St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	12	0	5	2	16	C				
70	Princess St / Nelson St	TWSC	EBL	77	10	90	2	7	A				
70	Princess St / Nelson St	TWSC	EBT	586	10	90	1	4	A				
70	Princess St / Nelson St	TWSC	EBR	9	10	90	2	5	A				
70	Princess St / Nelson St	TWSC	WBL	15	0	55	5	9	A				
70	Princess St / Nelson St	TWSC	WBT	448	0	55	1	2	A				
70	Princess St / Nelson St	TWSC	WBR	0	0	55	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
80	Princess St / Albert St	Signalized	NBL	15	5	15	17	23	C	37.0	D	15.1	B
80	Princess St / Albert St	Signalized	NBT	4	5	15	13	19	B				
80	Princess St / Albert St	Signalized	NBR	36	5	15	2	5	A				
80	Princess St / Albert St	Signalized	SBL	4	5	15	4	14	B				
80	Princess St / Albert St	Signalized	SBT	30	5	15	8	11	B				
80	Princess St / Albert St	Signalized	SBR	53	5	15	2	6	A				
80	Princess St / Albert St	Signalized	EBL	1	55	115	29	37	D				
80	Princess St / Albert St	Signalized	EBT	572	55	115	13	19	B				
80	Princess St / Albert St	Signalized	EBR	20	55	115	13	18	B				
80	Princess St / Albert St	Signalized	WBL	7	25	60	23	32	C				
80	Princess St / Albert St	Signalized	WBT	396	25	60	6	11	B				
80	Princess St / Albert St	Signalized	WBR	1	25	60	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	1	0	5	0	6	A	9.0	A	1.7	A
90	Princess St / Frontenac St	TWSC	NBT	1	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	NBR	1	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	3	0	5	2	9	A				
90	Princess St / Frontenac St	TWSC	EBL	43	0	60	1	3	A				
90	Princess St / Frontenac St	TWSC	EBT	568	0	60	0	2	A				
90	Princess St / Frontenac St	TWSC	EBR	5	0	60	0	3	A				
90	Princess St / Frontenac St	TWSC	WBL	12	0	0	0	3	A				
90	Princess St / Frontenac St	TWSC	WBT	398	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBR	2	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	68	25	45	17	25	C	28.0	C	23.5	C
100	Princess St / Alfred St	Signalized	NBT	89	25	45	15	22	C				
100	Princess St / Alfred St	Signalized	NBR	84	25	45	9	16	B				
100	Princess St / Alfred St	Signalized	SBL	26	25	50	17	27	C				
100	Princess St / Alfred St	Signalized	SBT	133	25	50	13	19	B				
100	Princess St / Alfred St	Signalized	SBR	98	25	50	6	12	B				
100	Princess St / Alfred St	Signalized	EBL	11	65	105	18	25	C				
100	Princess St / Alfred St	Signalized	EBT	534	65	105	20	28	C				
100	Princess St / Alfred St	Signalized	EBR	16	65	105	15	21	C				
100	Princess St / Alfred St	Signalized	WBL	12	35	60	21	27	C				
100	Princess St / Alfred St	Signalized	WBT	266	35	60	18	24	C				
100	Princess St / Alfred St	Signalized	WBR	19	35	60	3	8	A				
110	Princess St / Chatham St	TWSC	SBL	0	5	5	0	0	A	14.0	B	2.1	A
110	Princess St / Chatham St	TWSC	SBR	24	5	5	1	14	B				
110	Princess St / Chatham St	TWSC	EBL	45	0	45	1	4	A				
110	Princess St / Chatham St	TWSC	EBT	595	0	45	0	2	A				
110	Princess St / Chatham St	TWSC	WBT	275	0	45	0	1	A				
110	Princess St / Chatham St	TWSC	WBR	14	0	45	0	0	A				
120	Princess St / University Av	Signalized	NBL	25	0	15	17	22	C	26.0	C	6.0	A
120	Princess St / University Av	Signalized	NBR	26	0	15	2	7	A				
120	Princess St / University Av	Signalized	EBT	500	20	70	2	5	A				
120	Princess St / University Av	Signalized	EBR	58	20	70	1	4	A				
120	Princess St / University Av	Signalized	WBL	8	10	30	18	26	C				
120	Princess St / University Av	Signalized	WBT	265	10	30	3	6	A				
130	Princess St / Division St	Signalized	NBL	55	5	20	13	22	C	27.0	C	15.7	B
130	Princess St / Division St	Signalized	NBT	51	5	20	11	16	B				
130	Princess St / Division St	Signalized	NBR	1	5	20	0	0	A				
130	Princess St / Division St	Signalized	SBL	143	5	55	3	5	A				
130	Princess St / Division St	Signalized	SBT	102	5	55	3	4	A				
130	Princess St / Division St	Signalized	SBR	219	5	55	0	1	A				
130	Princess St / Division St	Signalized	EBL	132	35	50	19	27	C				
130	Princess St / Division St	Signalized	EBT	367	35	50	19	27	C				
130	Princess St / Division St	Signalized	EBR	26	35	50	8	16	B				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
140	Concession St / Drayton Av	TWSC	NBR	8	0	5	31	42	E	42.0	E	7.3	A
140	Concession St / Drayton Av	TWSC	EBT	936	0	120	3	7	A				
140	Concession St / Drayton Av	TWSC	EBR	0	0	120	0	0	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	7	0	5	10	21	C	21.0	C	7.9	A
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	39	55	75	1	4	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	869	55	75	4	8	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	28	5	5	2	9	A	11.0	B	0.7	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	11	5	5	2	10	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	7	0	5	1	11	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	76	0	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	557	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	26	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	64	10	25	20	26	C	48.0	D	13.8	B
160	Concession St / Macdonnell St	Signalized	NBT	0	10	25	0	0	A				
160	Concession St / Macdonnell St	Signalized	NBR	17	10	25	13	18	B				
160	Concession St / Macdonnell St	Signalized	SBR	41	0	5	1	3	A				
160	Concession St / Macdonnell St	Signalized	EBL	37	75	80	13	19	B				
160	Concession St / Macdonnell St	Signalized	EBT	701	75	80	7	11	B				
160	Concession St / Macdonnell St	Signalized	EBR	141	75	80	5	9	A				
160	Concession St / Macdonnell St	Signalized	WBL	71	20	85	39	48	D				
160	Concession St / Macdonnell St	Signalized	WBT	477	20	85	9	13	B				
160	Concession St / Macdonnell St	Signalized	WBR	1	20	85	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	9	0	5	10	20	C	20.0	C	3.5	A
170	Concession St / Connaught St	TWSC	SBR	6	0	5	8	18	C				
170	Concession St / Connaught St	TWSC	EBL	20	0	95	3	6	A				
170	Concession St / Connaught St	TWSC	EBT	696	0	95	1	2	A				
170	Concession St / Connaught St	TWSC	WBT	542	0	85	3	5	A				
170	Concession St / Connaught St	TWSC	WBR	0	0	85	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	6	5	15	26	33	C	33.0	C	11.9	B
180	Concession St / Victoria St	Signalized	NBT	19	5	15	22	28	C				
180	Concession St / Victoria St	Signalized	NBR	38	5	15	5	11	B				
180	Concession St / Victoria St	Signalized	SBL	3	5	10	13	20	B				
180	Concession St / Victoria St	Signalized	SBT	33	5	10	22	27	C				
180	Concession St / Victoria St	Signalized	SBR	40	5	10	2	10	A				
180	Concession St / Victoria St	Signalized	EBL	19	35	95	10	15	B				
180	Concession St / Victoria St	Signalized	EBT	662	35	95	7	10	A				
180	Concession St / Victoria St	Signalized	EBR	9	35	95	6	11	B				
180	Concession St / Victoria St	Signalized	WBL	25	50	90	17	25	C				
180	Concession St / Victoria St	Signalized	WBT	501	50	90	7	12	B				
180	Concession St / Victoria St	Signalized	WBR	0	50	90	0	0	A				
190	Concession St / Nelson St	TWSC	NBL	7	0	5	18	26	D	26.0	D	1.8	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	3	0	5	2	10	A				
190	Concession St / Nelson St	TWSC	SBL	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	25	5	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	38	0	85	2	5	A				
190	Concession St / Nelson St	TWSC	EBT	664	0	85	1	1	A				
190	Concession St / Nelson St	TWSC	EBR	0	0	85	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	0	0	40	0	0	A				
190	Concession St / Nelson St	TWSC	WBT	492	0	40	1	2	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	40	0	0	A				

2036 No Mitigation - Ultimate Growth, 22% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	LOS	Intersection Delay	LOS
200	Concession St / Kingscourt Av	TWSC	SBL	44	5	20	14	24	C	24.0	C	2.7	A
200	Concession St / Kingscourt Av	TWSC	SBR	3	5	20	4	20	C				
200	Concession St / Kingscourt Av	TWSC	EBL	41	0	85	3	7	A				
200	Concession St / Kingscourt Av	TWSC	EBT	626	0	85	1	3	A				
200	Concession St / Kingscourt Av	TWSC	WBT	486	0	0	0	0	A				
200	Concession St / Kingscourt Av	TWSC	WBR	4	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	44	5	15	33	43	E	43.0	E	4.9	A
210	Concession St / Fergus St	TWSC	SBR	3	5	15	0	8	A				
210	Concession St / Fergus St	TWSC	EBL	30	0	100	5	8	A				
210	Concession St / Fergus St	TWSC	EBT	634	0	100	3	6	A				
210	Concession St / Fergus St	TWSC	WBT	489	0	0	0	0	A				
210	Concession St / Fergus St	TWSC	WBR	13	0	0	0	0	A				
220	Concession St / Grey St	TWSC	SBL	43	5	45	90	104	F	141.0	F	10.5	B
220	Concession St / Grey St	TWSC	SBR	3	5	45	118	141	F				
220	Concession St / Grey St	TWSC	EBL	20	25	105	7	13	B				
220	Concession St / Grey St	TWSC	EBT	661	25	105	7	12	B				
220	Concession St / Grey St	TWSC	WBT	497	0	5	0	0	A				
220	Concession St / Grey St	TWSC	WBR	22	0	5	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	44	5	25	16	22	C	22.0	C	11.9	B
230	Concession St / Alfred St	Signalized	NBT	10	5	25	16	20	B				
230	Concession St / Alfred St	Signalized	NBR	36	5	25	4	10	A				
230	Concession St / Alfred St	Signalized	SBL	2	5	20	1	7	A				
230	Concession St / Alfred St	Signalized	SBT	33	5	20	14	19	B				
230	Concession St / Alfred St	Signalized	SBR	39	5	20	5	10	A				
230	Concession St / Alfred St	Signalized	EBL	34	55	60	12	18	B				
230	Concession St / Alfred St	Signalized	EBT	495	55	60	7	12	B				
230	Concession St / Alfred St	Signalized	EBR	174	55	60	1	3	A				
230	Concession St / Alfred St	Signalized	WBL	28	40	85	13	20	B				
230	Concession St / Alfred St	Signalized	WBT	435	40	85	8	13	B				
230	Concession St / Alfred St	Signalized	WBR	0	40	85	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	1.0	A	0.5	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	538	0	0	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	3	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBT	469	0	0	0	0	A				
250	Concession St / Division St	Signalized	NBL	17	30	70	19	26	C	49.0	D	22.6	C
250	Concession St / Division St	Signalized	NBT	235	30	70	16	22	C				
250	Concession St / Division St	Signalized	NBR	40	30	70	11	17	B				
250	Concession St / Division St	Signalized	SBL	32	50	120	20	29	C				
250	Concession St / Division St	Signalized	SBT	394	50	120	17	23	C				
250	Concession St / Division St	Signalized	SBR	226	50	120	2	6	A				
250	Concession St / Division St	Signalized	EBL	179	30	100	14	20	B				
250	Concession St / Division St	Signalized	EBT	335	30	100	11	16	B				
250	Concession St / Division St	Signalized	EBR	19	30	100	3	5	A				
250	Concession St / Division St	Signalized	WBL	47	50	105	37	49	D				
250	Concession St / Division St	Signalized	WBT	230	50	105	35	45	D				
250	Concession St / Division St	Signalized	WBR	15	50	105	31	41	D				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	0	0	10	0	0	A	12.0	B	0.7	A
260	Adelaide St / Division St	TWSC	NBT	278	0	10	0	0	A				
260	Adelaide St / Division St	TWSC	NBR	3	0	10	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	11	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBT	393	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBR	58	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	5	0	5	5	12	B				
260	Adelaide St / Division St	TWSC	EBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBR	9	0	5	0	7	A				
270	Stanley St / Division St	TWSC	NBL	12	0	5	1	3	A	10.0	A	2.0	A
270	Stanley St / Division St	TWSC	NBT	236	0	5	0	0	A				
270	Stanley St / Division St	TWSC	SBT	393	0	30	1	2	A				
270	Stanley St / Division St	TWSC	SBR	0	0	30	0	0	A				
270	Stanley St / Division St	TWSC	EBL	45	5	10	2	10	A				
270	Stanley St / Division St	TWSC	EBR	16	5	10	2	9	A				
280	Pine St / Division St	Signalized	NBL	7	5	20	10	15	B	30.0	C	8.6	A
280	Pine St / Division St	Signalized	NBT	201	5	20	2	4	A				
280	Pine St / Division St	Signalized	NBR	7	5	20	0	1	A				
280	Pine St / Division St	Signalized	SBL	34	20	70	4	6	A				
280	Pine St / Division St	Signalized	SBT	382	20	70	4	8	A				
280	Pine St / Division St	Signalized	SBR	0	20	70	0	0	A				
280	Pine St / Division St	Signalized	EBL	2	5	20	0	0	A				
280	Pine St / Division St	Signalized	EBT	27	5	20	19	24	C				
280	Pine St / Division St	Signalized	EBR	45	5	20	6	11	B				
280	Pine St / Division St	Signalized	WBL	19	5	25	22	28	C				
280	Pine St / Division St	Signalized	WBT	15	5	25	22	30	C				
280	Pine St / Division St	Signalized	WBR	46	5	25	3	9	A				
290	Quebec St / Division St	TWSC	NBT	214	0	0	0	0	A	9.0	A	0.9	A
290	Quebec St / Division St	TWSC	NBR	3	0	0	0	0	A				
290	Quebec St / Division St	TWSC	SBL	3	0	50	0	0	A				
290	Quebec St / Division St	TWSC	SBT	439	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	16	0	5	2	9	A				
290	Quebec St / Division St	TWSC	WBR	2	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	0	20	35	0	0	A	34.0	C	7.4	A
300	York St / Division St	Signalized	NBT	195	20	35	3	5	A				
300	York St / Division St	Signalized	NBR	15	20	35	0	2	A				
300	York St / Division St	Signalized	SBL	53	15	50	5	8	A				
300	York St / Division St	Signalized	SBT	410	15	50	3	5	A				
300	York St / Division St	Signalized	SBR	0	15	50	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	28	5	15	25	30	C				
300	York St / Division St	Signalized	EBR	3	5	15	28	34	C				
300	York St / Division St	Signalized	WBL	23	5	20	21	27	C				
300	York St / Division St	Signalized	WBT	12	5	20	21	28	C				
300	York St / Division St	Signalized	WBR	22	5	20	6	13	B				
310	Main St / Division St	TWSC	NBT	203	0	5	0	2	A	8.0	A	0.8	A
310	Main St / Division St	TWSC	NBR	0	0	5	0	0	A				
310	Main St / Division St	TWSC	SBL	17	35	40	0	1	A				
310	Main St / Division St	TWSC	SBT	418	35	40	0	0	A				
310	Main St / Division St	TWSC	WBL	2	0	5	0	8	A				
310	Main St / Division St	TWSC	WBR	6	0	5	1	8	A				
320	Hamilton St / Division St	TWSC	NBL	2	0	0	0	0	A	7.0	A	0.1	A
320	Hamilton St / Division St	TWSC	NBT	192	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBT	397	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	25	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	11	0	5	1	7	A				
320	Hamilton St / Division St	TWSC	EBR	2	0	5	0	6	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	190	0	0	0	0	A	10.0	A	0.4	A
330	Raglan St / Division St	TWSC	NBR	15	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	9	0	0	0	1	A				
330	Raglan St / Division St	TWSC	SBT	387	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	22	5	5	2	10	A				
330	Raglan St / Division St	TWSC	WBR	4	5	5	0	7	A				
340	Elm St / Division St	TWSC	NBL	1	0	0	0	1	A	8.0	A	0.2	A
340	Elm St / Division St	TWSC	NBT	192	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBT	391	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	18	0	0	0	1	A				
340	Elm St / Division St	TWSC	EBL	12	0	5	1	8	A				
340	Elm St / Division St	TWSC	EBR	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	NBT	190	0	0	0	0	A	13.0	B	0.2	A
350	Ellice St / Division St	TWSC	NBR	2	0	0	0	0	A				
350	Ellice St / Division St	TWSC	SBL	12	0	0	0	1	A				
350	Ellice St / Division St	TWSC	SBT	379	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	8	0	5	4	13	B				
350	Ellice St / Division St	TWSC	WBR	4	0	5	0	7	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	12.0	B	1.2	A
360	Colborne St / Division St	TWSC	NBT	181	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	1	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	7	0	20	1	3	A				
360	Colborne St / Division St	TWSC	SBT	372	0	20	0	1	A				
360	Colborne St / Division St	TWSC	SBR	5	0	20	0	0	A				
360	Colborne St / Division St	TWSC	EBL	9	5	5	1	9	A				
360	Colborne St / Division St	TWSC	EBT	9	5	5	2	10	A				
360	Colborne St / Division St	TWSC	EBR	7	5	5	1	9	A				
360	Colborne St / Division St	TWSC	WBL	7	0	5	4	12	B				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	3	0	5	0	7	A				
370	Queen St / Division St	Signalized	NBT	66	10	25	7	10	A	23.0	C	15.4	B
370	Queen St / Division St	Signalized	NBR	116	10	25	1	9	A				
370	Queen St / Division St	Signalized	SBL	120	45	75	15	23	C				
370	Queen St / Division St	Signalized	SBT	265	45	75	14	20	B				
370	Queen St / Division St	Signalized	WBL	196	20	35	11	17	B				
370	Queen St / Division St	Signalized	WBR	116	20	35	0	4	A				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 22% Auto M.S. - PM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	3,641	157.4	218.3	55.8	45.5	E
20	Princess St / Regent St	TWSC	1,245	0.1	28.5	1.9	0.5	-
30	Princess St / Drayton Av	TWSC	1,188	4.4	26.6	2.4	0.3	-
40	Princess St / Macdonnell Av	Signalized	1,226	64.2	125.2	18.8	12.6	B
50	Princess St / Smith St	TWSC	977	27.9	54.7	3.2	1.4	-
60	Princess St / Victoria St	Signalized	1,398	27.1	81.9	11.7	6.7	B
70	Princess St / Nelson St	TWSC	1,272	10.7	69.2	3.9	1.4	-
80	Princess St / Albert St	Signalized	1,284	32.1	66.8	14.2	9.3	B
90	Princess St / Frontenac St	TWSC	1,062	3.0	50.9	2.1	0.7	-
100	Princess St / Alfred St	Signalized	1,426	52.1	80.5	24.4	17.3	C
110	Princess St / Chatham St	TWSC	1,141	12.9	70.3	3.2	0.7	-
120	Princess St / University Av	Signalized	1,007	23.7	56.7	8.4	4.5	A
130	Princess St / Division St	Signalized	1,324	22.8	57.2	15.9	10.8	B
140	Concession St / Drayton Av	TWSC	1,232	318.8	318.9	58.0	28.2	-
150	Concession St / Leroy Grant Dr (S)	TWSC	1,209	73.7	73.9	33.2	18.1	-
155	Concession St / Leroy Grant Drive (N)	TWSC	1,555	4.8	5.3	5.2	3.1	-
160	Concession St / Macdonnell St	Signalized	2,511	73.7	82.6	16.8	11.6	B
170	Concession St / Connaught St	TWSC	1,991	77.6	105.0	8.4	4.8	-
180	Concession St / Victoria St	Signalized	2,189	93.1	97.5	17.0	10.6	B
190	Concession St / Nelson St	TWSC	1,950	50.8	91.9	9.8	6.0	-
200	Concession St / Kingscourt Av	TWSC	1,852	52.7	94.3	9.4	5.6	-
210	Concession St / Fergus St	TWSC	1,848	56.0	99.5	10.8	6.1	-
220	Concession St / Grey St	TWSC	1,855	50.7	79.4	9.3	6.1	-
230	Concession St / Alfred St	Signalized	1,990	79.9	117.7	28.0	19.8	C
240	Concession St / Lansdowne St	TWSC	1,289	0.0	75.0	3.8	1.3	-
250	Concession St / Division St	Signalized	2,390	104.4	162.4	41.9	32.8	D
260	Adelaide St / Division St	TWSC	1,271	60.8	91.4	24.6	19.1	-
270	Stanley St / Division St	TWSC	1,139	45.6	55.1	13.1	8.0	-
280	Pine St / Division St	Signalized	1,242	49.7	70.3	21.4	15.1	C
290	Quebec St / Division St	TWSC	1,054	40.9	82.2	7.9	4.9	-
300	York St / Division St	Signalized	1,164	26.8	44.1	9.8	7.1	A
310	Main St / Division St	TWSC	1,032	46.8	51.8	11.1	7.4	-
320	Hamilton St / Division St	TWSC	1,066	66.1	66.2	18.0	11.9	-
330	Raglan St / Division St	TWSC	1,078	23.9	35.9	6.2	4.6	-
340	Elm St / Division St	TWSC	1,192	15.8	50.2	7.2	4.7	-
350	Ellice St / Division St	TWSC	1,134	9.8	36.0	3.9	2.1	-
360	Colborne St / Division St	TWSC	1,174	13.0	179.0	6.9	4.3	-
370	Queen St / Division St	Signalized	1,490	42.8	133.4	23.6	13.2	C
	Total		**56,088**	**1,917**	**3,286**	**571**	**368**	

2036 No Mitigation - Ultimate Growth, 22% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
10	Princess St / Concession St	Signalized	NBL	221	30	60	32	40	D	117.0	F	55.8	E
10	Princess St / Concession St	Signalized	NBT	200	30	60	34	41	D				
10	Princess St / Concession St	Signalized	NBR	12	30	60	29	38	D				
10	Princess St / Concession St	Signalized	SBL	706	390	430	88	106	F				
10	Princess St / Concession St	Signalized	SBT	470	390	430	76	92	F				
10	Princess St / Concession St	Signalized	SBR	0	390	430	0	0	A				
10	Princess St / Concession St	Signalized	EBT	351	50	250	93	117	F				
10	Princess St / Concession St	Signalized	EBR	283	50	250	10	16	B				
10	Princess St / Concession St	Signalized	WBT	521	50	75	31	38	D				
10	Princess St / Concession St	Signalized	WBR	843	50	75	0	0	A				
10	Princess St / Concession St	Signalized	WBL	34	50	75	60	70	E				
20	Princess St / Regent St	TWSC	NBL	0	5	5	0	0	A	10.0	A	1.9	A
20	Princess St / Regent St	TWSC	NBR	33	5	5	2	10	A				
20	Princess St / Regent St	TWSC	EBT	665	0	35	0	2	A				
20	Princess St / Regent St	TWSC	EBR	75	0	35	0	1	A				
20	Princess St / Regent St	TWSC	WBL	34	0	20	4	7	A				
20	Princess St / Regent St	TWSC	WBT	438	0	20	1	1	A				
30	Princess St / Drayton Av	TWSC	SBL	8	45	50	9	24	C	24.0	C	2.4	A
30	Princess St / Drayton Av	TWSC	SBR	108	45	50	2	14	B				
30	Princess St / Drayton Av	TWSC	EBL	20	0	10	1	2	A				
30	Princess St / Drayton Av	TWSC	EBT	676	0	10	0	1	A				
30	Princess St / Drayton Av	TWSC	WBT	365	0	50	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	11	0	50	0	1	A				
40	Princess St / Macdonnell Av	Signalized	NBL	12	10	35	13	21	C	26.0	C	18.8	B
40	Princess St / Macdonnell Av	Signalized	NBT	90	10	35	12	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	22	10	35	7	12	B				
40	Princess St / Macdonnell Av	Signalized	SBL	5	40	40	17	26	C				
40	Princess St / Macdonnell Av	Signalized	SBT	59	40	40	14	20	B				
40	Princess St / Macdonnell Av	Signalized	SBR	35	40	40	4	8	A				
40	Princess St / Macdonnell Av	Signalized	EBL	32	85	190	18	25	C				
40	Princess St / Macdonnell Av	Signalized	EBT	606	85	190	14	21	C				
40	Princess St / Macdonnell Av	Signalized	EBR	29	85	190	11	17	B				
40	Princess St / Macdonnell Av	Signalized	WBL	0	50	55	0	0	A				
40	Princess St / Macdonnell Av	Signalized	WBT	329	50	55	11	16	B				
40	Princess St / Macdonnell Av	Signalized	WBR	7	50	55	8	13	B				
50	Princess St / Smith St	TWSC	SBL	1	40	40	1	13	B	17.0	C	3.2	A
50	Princess St / Smith St	TWSC	SBR	5	40	40	6	17	C				
50	Princess St / Smith St	TWSC	EBL	40	40	60	1	2	A				
50	Princess St / Smith St	TWSC	EBT	594	40	60	0	1	A				
50	Princess St / Smith St	TWSC	WBT	334	5	45	4	7	A				
50	Princess St / Smith St	TWSC	WBR	3	5	45	0	0	A				
60	Princess St / Victoria St	Signalized	NBL	7	20	45	20	28	C	31.0	C	11.7	B
60	Princess St / Victoria St	Signalized	NBT	93	20	45	17	23	C				
60	Princess St / Victoria St	Signalized	NBR	56	20	45	10	17	B				
60	Princess St / Victoria St	Signalized	SBL	75	20	35	22	31	C				
60	Princess St / Victoria St	Signalized	SBT	49	20	35	20	29	C				
60	Princess St / Victoria St	Signalized	SBR	1	20	35	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	23	15	90	11	16	B				
60	Princess St / Victoria St	Signalized	EBT	554	15	90	1	5	A				
60	Princess St / Victoria St	Signalized	EBR	21	15	90	1	5	A				
60	Princess St / Victoria St	Signalized	WBL	16	45	95	15	20	B				
60	Princess St / Victoria St	Signalized	WBT	339	45	95	7	11	B				
60	Princess St / Victoria St	Signalized	WBR	164	45	95	6	12	B				
70	Princess St / Nelson St	TWSC	NBL	19	5	45	8	20	C	20.0	C	3.9	A
70	Princess St / Nelson St	TWSC	NBT	2	5	45	1	12	B				
70	Princess St / Nelson St	TWSC	NBR	6	5	45	1	13	B				
70	Princess St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBT	5	0	5	9	19	C				
70	Princess St / Nelson St	TWSC	SBR	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	EBL	82	0	70	4	9	A				
70	Princess St / Nelson St	TWSC	EBT	609	0	70	1	3	A				
70	Princess St / Nelson St	TWSC	EBR	9	0	70	1	3	A				
70	Princess St / Nelson St	TWSC	WBL	27	25	70	6	10	A				
70	Princess St / Nelson St	TWSC	WBT	511	25	70	1	3	A				
70	Princess St / Nelson St	TWSC	WBR	2	25	70	0	7	A				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
80	Princess St / Albert St	Signalized	NBL	57	10	35	14	20	B	33.0	C	14.2	B
80	Princess St / Albert St	Signalized	NBT	11	10	35	12	18	B				
80	Princess St / Albert St	Signalized	NBR	49	10	35	5	10	A				
80	Princess St / Albert St	Signalized	SBL	3	5	30	15	27	C				
80	Princess St / Albert St	Signalized	SBT	30	5	30	14	18	B				
80	Princess St / Albert St	Signalized	SBR	101	5	30	2	7	A				
80	Princess St / Albert St	Signalized	EBL	32	50	95	23	33	C				
80	Princess St / Albert St	Signalized	EBT	578	50	95	11	16	B				
80	Princess St / Albert St	Signalized	EBR	13	50	95	6	13	B				
80	Princess St / Albert St	Signalized	WBL	8	20	45	18	23	C				
80	Princess St / Albert St	Signalized	WBT	391	20	45	7	11	B				
80	Princess St / Albert St	Signalized	WBR	11	20	45	9	15	B				
90	Princess St / Frontenac St	TWSC	NBL	1	0	20	0	0	A	19.0	C	2.1	A
90	Princess St / Frontenac St	TWSC	NBT	12	0	20	9	19	C				
90	Princess St / Frontenac St	TWSC	NBR	2	0	20	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	1	0	0	0	8	A				
90	Princess St / Frontenac St	TWSC	EBL	84	5	85	1	4	A				
90	Princess St / Frontenac St	TWSC	EBT	547	5	85	1	3	A				
90	Princess St / Frontenac St	TWSC	EBR	1	5	85	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	5	0	0	1	3	A				
90	Princess St / Frontenac St	TWSC	WBT	407	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	WBR	2	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	58	30	55	13	20	B	36.0	D	24.4	C
100	Princess St / Alfred St	Signalized	NBT	132	30	55	12	19	B				
100	Princess St / Alfred St	Signalized	NBR	118	30	55	9	14	B				
100	Princess St / Alfred St	Signalized	SBL	73	15	30	17	25	C				
100	Princess St / Alfred St	Signalized	SBT	44	15	30	15	24	C				
100	Princess St / Alfred St	Signalized	SBR	23	15	30	8	14	B				
100	Princess St / Alfred St	Signalized	EBL	40	75	100	26	36	D				
100	Princess St / Alfred St	Signalized	EBT	495	75	100	20	28	C				
100	Princess St / Alfred St	Signalized	EBR	28	75	100	16	24	C				
100	Princess St / Alfred St	Signalized	WBL	59	50	90	13	20	B				
100	Princess St / Alfred St	Signalized	WBT	333	50	90	20	26	C				
100	Princess St / Alfred St	Signalized	WBR	23	50	90	15	22	C				
110	Princess St / Chatham St	TWSC	SBL	1	0	5	0	0	A	19.0	C	3.2	A
110	Princess St / Chatham St	TWSC	SBR	12	0	5	3	19	C				
110	Princess St / Chatham St	TWSC	EBL	119	15	75	1	5	A				
110	Princess St / Chatham St	TWSC	EBT	567	15	75	1	4	A				
110	Princess St / Chatham St	TWSC	WBT	399	10	65	0	1	A				
110	Princess St / Chatham St	TWSC	WBR	43	10	65	1	3	A				
120	Princess St / University Av	Signalized	NBL	95	10	25	18	24	C	24.0	C	8.4	A
120	Princess St / University Av	Signalized	NBR	5	10	25	5	10	A				
120	Princess St / University Av	Signalized	EBT	501	35	70	3	7	A				
120	Princess St / University Av	Signalized	EBR	49	35	70	2	5	A				
120	Princess St / University Av	Signalized	WBL	21	10	45	10	15	B				
120	Princess St / University Av	Signalized	WBT	336	10	45	3	6	A				
130	Princess St / Division St	Signalized	NBL	74	25	45	14	23	C	27.0	C	15.9	B
130	Princess St / Division St	Signalized	NBT	185	25	45	13	19	B				
130	Princess St / Division St	Signalized	NBR	11	25	45	6	11	B				
130	Princess St / Division St	Signalized	SBL	145	15	70	9	14	B				
130	Princess St / Division St	Signalized	SBT	117	15	70	4	6	A				
130	Princess St / Division St	Signalized	SBR	283	15	70	0	1	A				
130	Princess St / Division St	Signalized	EBL	85	30	50	19	27	C				
130	Princess St / Division St	Signalized	EBT	366	30	50	19	26	C				
130	Princess St / Division St	Signalized	EBR	58	30	50	7	15	B				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 22% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
140	Concession St / Drayton Av	TWSC	NBR	5	35	60	1040	1061	F	1061.0	F	58.0	F
140	Concession St / Drayton Av	TWSC	EBT	1,176	320	320	24	54	F				
140	Concession St / Drayton Av	TWSC	EBR	51	320	320	27	51	F				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	21	0	10	15	28	D	48.0	E	33.2	D
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	162	75	75	32	48	E				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	1,026	75	75	16	31	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	78	45	50	26	44	E	49.0	E	5.2	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	84	45	50	30	49	E				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	21	5	5	15	26	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	5	5	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	1,326	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	41	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	249	45	80	27	36	D	60.0	E	16.8	B
160	Concession St / Macdonnell St	Signalized	NBT	24	45	80	29	36	D				
160	Concession St / Macdonnell St	Signalized	NBR	29	45	80	24	32	C				
160	Concession St / Macdonnell St	Signalized	SBR	71	5	20	10	15	B				
160	Concession St / Macdonnell St	Signalized	EBL	55	75	80	49	60	E				
160	Concession St / Macdonnell St	Signalized	EBT	885	75	80	8	13	B				
160	Concession St / Macdonnell St	Signalized	EBR	116	75	80	7	12	B				
160	Concession St / Macdonnell St	Signalized	WBL	29	85	90	42	52	D				
160	Concession St / Macdonnell St	Signalized	WBT	1,053	85	90	8	12	B				
160	Concession St / Macdonnell St	Signalized	WBR	0	85	90	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	0	0	5	0	0	A	33.0	D	8.4	A
170	Concession St / Connaught St	TWSC	SBR	15	0	5	21	33	D				
170	Concession St / Connaught St	TWSC	EBL	0	35	95	0	0	A				
170	Concession St / Connaught St	TWSC	EBT	909	35	95	2	5	A				
170	Concession St / Connaught St	TWSC	WBT	1,067	115	115	7	11	B				
170	Concession St / Connaught St	TWSC	WBR	0	115	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	29	20	45	34	46	D	46.0	D	17.0	B
180	Concession St / Victoria St	Signalized	NBT	49	20	45	26	34	C				
180	Concession St / Victoria St	Signalized	NBR	75	20	45	18	27	C				
180	Concession St / Victoria St	Signalized	SBL	3	0	10	24	32	C				
180	Concession St / Victoria St	Signalized	SBT	22	0	10	24	29	C				
180	Concession St / Victoria St	Signalized	SBR	36	0	10	9	22	C				
180	Concession St / Victoria St	Signalized	EBL	21	115	115	30	39	D				
180	Concession St / Victoria St	Signalized	EBT	806	115	115	8	14	B				
180	Concession St / Victoria St	Signalized	EBR	92	115	115	7	13	B				
180	Concession St / Victoria St	Signalized	WBL	40	90	95	25	33	C				
180	Concession St / Victoria St	Signalized	WBT	1,000	90	95	10	16	B				
180	Concession St / Victoria St	Signalized	WBR	16	90	95	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	7	0	5	202	221	F	221.0	F	9.8	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	7	0	5	3	9	A				
190	Concession St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	12	0	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	0	0	85	0	0	A				
190	Concession St / Nelson St	TWSC	EBT	813	0	85	1	2	A				
190	Concession St / Nelson St	TWSC	EBR	69	0	85	1	3	A				
190	Concession St / Nelson St	TWSC	WBL	13	95	100	5	12	B				
190	Concession St / Nelson St	TWSC	WBT	1,029	95	100	9	15	B				
190	Concession St / Nelson St	TWSC	WBR	0	95	100	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	0	0	15	0	0	A	46.0	E	9.4	A
200	Concession St / Kingscourt Av	TWSC	SBR	16	0	15	31	46	E				
200	Concession St / Kingscourt Av	TWSC	EBL	2	0	95	33	41	E				
200	Concession St / Kingscourt Av	TWSC	EBT	807	0	95	2	4	A				
200	Concession St / Kingscourt Av	TWSC	WBT	1,027	95	95	8	13	B				
200	Concession St / Kingscourt Av	TWSC	WBR	0	95	95	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	11	0	10	76	89	F	89.0	F	10.8	B
210	Concession St / Fergus St	TWSC	SBR	0	0	10	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	0	0	100	0	0	A				
210	Concession St / Fergus St	TWSC	EBT	803	0	100	4	7	A				
210	Concession St / Fergus St	TWSC	WBT	1,030	100	100	7	13	B				
210	Concession St / Fergus St	TWSC	WBR	4	100	100	0	2	A				
220	Concession St / Grey St	TWSC	SBL	0	0	5	0	0	A	25.0	C	9.3	A
220	Concession St / Grey St	TWSC	SBR	15	0	5	14	25	C				
220	Concession St / Grey St	TWSC	EBL	0	65	105	0	0	A				
220	Concession St / Grey St	TWSC	EBT	816	65	105	11	17	C				
220	Concession St / Grey St	TWSC	WBT	1,019	40	60	2	3	A				
220	Concession St / Grey St	TWSC	WBR	5	40	60	1	4	A				
230	Concession St / Alfred St	Signalized	NBL	266	95	215	60	79	E	84.0	F	28.0	C
230	Concession St / Alfred St	Signalized	NBT	34	95	215	65	84	F				
230	Concession St / Alfred St	Signalized	NBR	26	95	215	52	72	E				
230	Concession St / Alfred St	Signalized	SBL	0	5	15	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	36	5	15	16	21	C				
230	Concession St / Alfred St	Signalized	SBR	21	5	15	8	13	B				
230	Concession St / Alfred St	Signalized	EBL	22	55	60	25	33	C				
230	Concession St / Alfred St	Signalized	EBT	482	55	60	12	16	B				
230	Concession St / Alfred St	Signalized	EBR	316	55	60	3	5	A				
230	Concession St / Alfred St	Signalized	WBL	47	105	145	16	26	C				
230	Concession St / Alfred St	Signalized	WBT	740	105	145	15	24	C				
230	Concession St / Alfred St	Signalized	WBR	0	105	145	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	3	0	5	13	21	C	21.0	C	3.8	A
240	Concession St / Lansdowne St	TWSC	NBR	17	0	5	2	15	B				
240	Concession St / Lansdowne St	TWSC	EBT	464	0	0	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	43	0	120	3	6	A				
240	Concession St / Lansdowne St	TWSC	WBT	762	0	120	2	5	A				
250	Concession St / Division St	Signalized	NBL	149	115	115	48	62	E	88.0	F	41.9	D
250	Concession St / Division St	Signalized	NBT	560	115	115	34	42	D				
250	Concession St / Division St	Signalized	NBR	13	115	115	31	39	D				
250	Concession St / Division St	Signalized	SBL	27	70	225	33	44	D				
250	Concession St / Division St	Signalized	SBT	465	70	225	18	25	C				
250	Concession St / Division St	Signalized	SBR	237	70	225	6	14	B				
250	Concession St / Division St	Signalized	EBL	225	40	90	22	30	C				
250	Concession St / Division St	Signalized	EBT	207	40	90	12	17	B				
250	Concession St / Division St	Signalized	EBR	35	40	90	4	6	A				
250	Concession St / Division St	Signalized	WBL	43	205	210	73	88	F				
250	Concession St / Division St	Signalized	WBT	396	205	210	71	85	F				
250	Concession St / Division St	Signalized	WBR	33	205	210	70	86	F				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
260	Adelaide St / Division St	TWSC	NBL	0	110	110	0	0	A	475.0	F	24.6	C
260	Adelaide St / Division St	TWSC	NBT	702	110	110	24	32	D				
260	Adelaide St / Division St	TWSC	NBR	0	110	110	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	0	0	70	0	0	A				
260	Adelaide St / Division St	TWSC	SBT	427	0	70	0	2	A				
260	Adelaide St / Division St	TWSC	SBR	115	0	70	0	1	A				
260	Adelaide St / Division St	TWSC	EBL	16	5	60	458	475	F				
260	Adelaide St / Division St	TWSC	EBT	0	5	60	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	5	60	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	8	0	5	19	29	D				
260	Adelaide St / Division St	TWSC	WBT	3	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBR	0	0	5	0	0	A				
270	Stanley St / Division St	TWSC	NBL	0	75	75	0	0	A	40.0	E	13.1	B
270	Stanley St / Division St	TWSC	NBT	692	75	75	12	19	C				
270	Stanley St / Division St	TWSC	SBT	377	0	25	1	3	A				
270	Stanley St / Division St	TWSC	SBR	56	0	25	1	2	A				
270	Stanley St / Division St	TWSC	EBL	14	0	5	30	40	E				
270	Stanley St / Division St	TWSC	EBR	0	0	5	0	0	A				
280	Pine St / Division St	Signalized	NBL	40	75	80	15	22	C	45.0	D	21.4	C
280	Pine St / Division St	Signalized	NBT	622	75	80	17	24	C				
280	Pine St / Division St	Signalized	NBR	0	75	80	0	0	A				
280	Pine St / Division St	Signalized	SBL	28	25	70	19	25	C				
280	Pine St / Division St	Signalized	SBT	339	25	70	6	10	A				
280	Pine St / Division St	Signalized	SBR	13	25	70	4	7	A				
280	Pine St / Division St	Signalized	EBL	5	10	30	16	24	C				
280	Pine St / Division St	Signalized	EBT	43	10	30	25	31	C				
280	Pine St / Division St	Signalized	EBR	35	10	30	7	13	B				
280	Pine St / Division St	Signalized	WBL	6	15	45	34	43	D				
280	Pine St / Division St	Signalized	WBT	46	15	45	35	45	D				
280	Pine St / Division St	Signalized	WBR	65	15	45	27	37	D				
290	Quebec St / Division St	TWSC	NBT	664	65	85	7	11	B	20.0	C	7.9	A
290	Quebec St / Division St	TWSC	NBR	0	65	85	0	0	A				
290	Quebec St / Division St	TWSC	SBL	0	0	80	0	0	A				
290	Quebec St / Division St	TWSC	SBT	376	0	80	1	2	A				
290	Quebec St / Division St	TWSC	WBL	14	0	5	13	20	C				
290	Quebec St / Division St	TWSC	WBR	0	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	1	35	35	0	2	A	31.0	C	9.8	A
300	York St / Division St	Signalized	NBT	625	35	35	5	7	A				
300	York St / Division St	Signalized	NBR	6	35	35	0	0	A				
300	York St / Division St	Signalized	SBL	36	20	65	16	22	C				
300	York St / Division St	Signalized	SBT	358	20	65	5	7	A				
300	York St / Division St	Signalized	SBR	0	20	65	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	33	5	15	25	29	C				
300	York St / Division St	Signalized	EBR	1	5	15	0	0	A				
300	York St / Division St	Signalized	WBL	38	10	30	21	27	C				
300	York St / Division St	Signalized	WBT	26	10	30	23	31	C				
300	York St / Division St	Signalized	WBR	40	10	30	13	23	C				
310	Main St / Division St	TWSC	NBT	628	55	60	12	18	C	31.0	D	11.1	B
310	Main St / Division St	TWSC	NBR	0	55	60	0	0	A				
310	Main St / Division St	TWSC	SBL	0	35	40	0	0	A				
310	Main St / Division St	TWSC	SBT	394	35	40	0	0	A				
310	Main St / Division St	TWSC	WBL	8	0	5	5	13	B				
310	Main St / Division St	TWSC	WBR	2	0	5	19	31	D				
320	Hamilton St / Division St	TWSC	NBL	14	110	110	12	20	C	30.0	D	18.0	C
320	Hamilton St / Division St	TWSC	NBT	627	110	110	20	30	D				
320	Hamilton St / Division St	TWSC	SBT	378	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	29	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	0	0	5	0	0	A				
320	Hamilton St / Division St	TWSC	EBR	18	0	5	1	8	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	624	40	60	7	9	A	26.0	D	6.2	A
330	Raglan St / Division St	TWSC	NBR	14	40	60	7	12	B				
330	Raglan St / Division St	TWSC	SBL	5	0	0	2	7	A				
330	Raglan St / Division St	TWSC	SBT	391	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	29	5	10	7	16	C				
330	Raglan St / Division St	TWSC	WBR	15	5	10	16	26	D				
340	Elm St / Division St	TWSC	NBL	124	25	60	6	10	A	37.0	E	7.2	A
340	Elm St / Division St	TWSC	NBT	625	25	60	7	10	A				
340	Elm St / Division St	TWSC	SBT	370	0	35	0	1	A				
340	Elm St / Division St	TWSC	SBR	49	0	35	1	2	A				
340	Elm St / Division St	TWSC	EBL	13	5	10	26	37	E				
340	Elm St / Division St	TWSC	EBR	11	5	10	8	16	C				
350	Ellice St / Division St	TWSC	NBT	737	15	55	3	5	A	22.0	C	3.9	A
350	Ellice St / Division St	TWSC	NBR	5	15	55	4	5	A				
350	Ellice St / Division St	TWSC	SBL	2	0	0	5	8	A				
350	Ellice St / Division St	TWSC	SBT	377	0	0	0	1	A				
350	Ellice St / Division St	TWSC	WBL	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	WBR	13	0	5	12	22	C				
360	Colborne St / Division St	TWSC	NBL	44	20	260	5	9	A	33.0	D	6.9	A
360	Colborne St / Division St	TWSC	NBT	712	20	260	5	8	A				
360	Colborne St / Division St	TWSC	NBR	0	20	260	0	0	A				
360	Colborne St / Division St	TWSC	SBL	5	0	35	5	7	A				
360	Colborne St / Division St	TWSC	SBT	372	0	35	2	3	A				
360	Colborne St / Division St	TWSC	SBR	0	0	35	0	0	A				
360	Colborne St / Division St	TWSC	EBL	11	5	10	23	33	D				
360	Colborne St / Division St	TWSC	EBT	2	5	10	12	22	C				
360	Colborne St / Division St	TWSC	EBR	14	5	10	5	14	B				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	14	0	5	7	16	C				
370	Queen St / Division St	Signalized	NBT	185	10	65	12	16	B	30.0	C	23.6	C
370	Queen St / Division St	Signalized	NBR	83	10	65	4	11	B				
370	Queen St / Division St	Signalized	SBL	107	50	80	17	25	C				
370	Queen St / Division St	Signalized	SBT	279	50	80	15	22	C				
370	Queen St / Division St	Signalized	WBL	265	50	180	12	20	B				
370	Queen St / Division St	Signalized	WBR	571	50	180	14	30	C				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 35% Auto M.S. - AM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	2,976	46.6	73.8	28.3	22.7	C
20	Princess St / Regent St	TWSC	1,395	12.2	74.2	5.3	1.8	-
30	Princess St / Drayton Av	TWSC	1,349	18.1	64.2	3.2	0.8	-
40	Princess St / Macdonnell Av	Signalized	1,294	72.9	136.0	16.5	11.0	B
50	Princess St / Smith St	TWSC	1,091	30.5	60.2	3.6	1.6	-
60	Princess St / Victoria St	Signalized	1,345	29.4	104.5	11.1	6.5	B
70	Princess St / Nelson St	TWSC	1,266	6.3	92.0	4.8	1.5	-
80	Princess St / Albert St	Signalized	1,232	39.5	84.7	15.7	10.5	B
90	Princess St / Frontenac St	TWSC	1,117	0.0	56.2	2.9	0.1	-
100	Princess St / Alfred St	Signalized	1,461	50.0	101.0	24.0	16.6	C
110	Princess St / Chatham St	TWSC	1,026	0.2	46.0	2.2	0.1	-
120	Princess St / University Av	Signalized	930	22.3	58.9	6.1	2.9	A
130	Princess St / Division St	Signalized	1,145	19.6	52.1	16.3	11.1	B
140	Concession St / Drayton Av	TWSC	961	0.0	158.1	9.0	4.9	-
150	Concession St / Leroy Grant Dr (S)	TWSC	937	69.4	74.4	8.9	4.8	-
155	Concession St / Leroy Grant Drive (N)	TWSC	715	0.3	0.9	0.8	0.2	-
160	Concession St / Macdonnell St	Signalized	1,582	53.6	76.5	15.6	10.9	B
170	Concession St / Connaught St	TWSC	1,298	0.0	102.3	4.9	3.3	-
180	Concession St / Victoria St	Signalized	1,390	35.6	81.8	12.9	8.4	B
190	Concession St / Nelson St	TWSC	1,272	0.1	86.2	3.9	2.3	-
200	Concession St / Kingscourt Av	TWSC	1,237	0.2	56.9	4.5	2.4	-
210	Concession St / Fergus St	TWSC	1,247	0.2	66.7	7.0	3.8	-
220	Concession St / Grey St	TWSC	1,280	27.8	59.5	12.1	7.7	-
230	Concession St / Alfred St	Signalized	1,378	43.4	69.0	12.1	7.6	B
240	Concession St / Lansdowne St	TWSC	1,048	0.0	8.2	0.6	0.0	-
250	Concession St / Division St	Signalized	1,830	46.5	107.1	23.4	16.9	C
260	Adelaide St / Division St	TWSC	772	0.0	21.9	0.2	0.0	-
270	Stanley St / Division St	TWSC	709	0.5	14.8	2.0	0.2	-
280	Pine St / Division St	Signalized	787	13.0	47.1	8.8	5.1	A
290	Quebec St / Division St	TWSC	682	0.0	32.6	0.9	0.0	-
300	York St / Division St	Signalized	770	15.2	41.8	7.4	4.7	A
310	Main St / Division St	TWSC	652	23.1	29.7	0.8	0.3	-
320	Hamilton St / Division St	TWSC	640	0.1	0.1	0.2	0.0	-
330	Raglan St / Division St	TWSC	645	0.2	0.2	0.4	0.0	-
340	Elm St / Division St	TWSC	628	0.0	0.1	0.2	0.1	-
350	Ellice St / Division St	TWSC	610	0.0	0.1	0.2	0.1	-
360	Colborne St / Division St	TWSC	628	0.3	22.2	1.4	0.7	-
370	Queen St / Division St	Signalized	906	31.0	52.5	15.8	9.6	B
	Total		**42,231**	**708**	**2,215**	**294**	**181**	

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
10	Princess St / Concession St	Signalized	NBL	191	40	60	37	44	D	45.0	D	28.3	C
10	Princess St / Concession St	Signalized	NBT	242	40	60	37	45	D				
10	Princess St / Concession St	Signalized	NBR	50	40	60	3	5	A				
10	Princess St / Concession St	Signalized	SBL	528	75	105	31	38	D				
10	Princess St / Concession St	Signalized	SBT	577	75	105	31	40	D				
10	Princess St / Concession St	Signalized	SBR	32	75	105	17	22	C				
10	Princess St / Concession St	Signalized	EBT	408	30	65	25	31	C				
10	Princess St / Concession St	Signalized	EBR	277	30	65	1	2	A				
10	Princess St / Concession St	Signalized	WBT	245	20	40	24	30	C				
10	Princess St / Concession St	Signalized	WBR	341	20	40	0	0	A				
10	Princess St / Concession St	Signalized	WBL	85	20	40	1	4	A				
20	Princess St / Regent St	TWSC	NBL	1	5	10	0	0	A	17.0	C	5.3	A
20	Princess St / Regent St	TWSC	NBR	34	5	10	8	17	C				
20	Princess St / Regent St	TWSC	EBT	788	20	95	2	7	A				
20	Princess St / Regent St	TWSC	EBR	51	20	95	1	3	A				
20	Princess St / Regent St	TWSC	WBL	9	0	45	8	11	B				
20	Princess St / Regent St	TWSC	WBT	512	0	45	1	2	A				
30	Princess St / Drayton Av	TWSC	SBL	2	0	45	11	28	D	28.0	D	3.2	A
30	Princess St / Drayton Av	TWSC	SBR	6	0	45	3	16	C				
30	Princess St / Drayton Av	TWSC	EBL	118	30	80	3	7	A				
30	Princess St / Drayton Av	TWSC	EBT	696	30	80	1	4	A				
30	Princess St / Drayton Av	TWSC	WBT	516	0	40	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	11	0	40	0	1	A				
40	Princess St / Macdonnell Av	Signalized	NBL	46	5	40	12	18	B	32.0	C	16.5	B
40	Princess St / Macdonnell Av	Signalized	NBT	25	5	40	13	18	B				
40	Princess St / Macdonnell Av	Signalized	NBR	22	5	40	7	13	B				
40	Princess St / Macdonnell Av	Signalized	SBL	8	40	40	9	15	B				
40	Princess St / Macdonnell Av	Signalized	SBT	18	40	40	12	16	B				
40	Princess St / Macdonnell Av	Signalized	SBR	63	40	40	3	8	A				
40	Princess St / Macdonnell Av	Signalized	EBL	29	100	210	25	32	C				
40	Princess St / Macdonnell Av	Signalized	EBT	633	100	210	12	19	B				
40	Princess St / Macdonnell Av	Signalized	EBR	32	100	210	9	15	B				
40	Princess St / Macdonnell Av	Signalized	WBL	0	50	55	0	0	A				
40	Princess St / Macdonnell Av	Signalized	WBT	413	50	55	10	13	B				
40	Princess St / Macdonnell Av	Signalized	WBR	5	50	55	10	14	B				
50	Princess St / Smith St	TWSC	SBL	2	40	40	3	17	C	19.0	C	3.6	A
50	Princess St / Smith St	TWSC	SBR	17	40	40	6	19	C				
50	Princess St / Smith St	TWSC	EBL	7	40	45	0	2	A				
50	Princess St / Smith St	TWSC	EBT	649	40	45	0	1	A				
50	Princess St / Smith St	TWSC	WBT	402	15	85	4	7	A				
50	Princess St / Smith St	TWSC	WBR	14	15	85	2	3	A				
60	Princess St / Victoria St	Signalized	NBL	38	15	40	22	31	C	31.0	C	11.1	B
60	Princess St / Victoria St	Signalized	NBT	29	15	40	16	23	C				
60	Princess St / Victoria St	Signalized	NBR	47	15	40	10	18	B				
60	Princess St / Victoria St	Signalized	SBL	16	5	20	19	26	C				
60	Princess St / Victoria St	Signalized	SBT	49	5	20	20	25	C				
60	Princess St / Victoria St	Signalized	SBR	0	5	20	0	0	A				
60	Princess St / Victoria St	Signalized	EBL	5	30	135	9	17	B				
60	Princess St / Victoria St	Signalized	EBT	643	30	135	4	9	A				
60	Princess St / Victoria St	Signalized	EBR	12	30	135	3	9	A				
60	Princess St / Victoria St	Signalized	WBL	38	35	90	12	17	B				
60	Princess St / Victoria St	Signalized	WBT	380	35	90	6	9	A				
60	Princess St / Victoria St	Signalized	WBR	88	35	90	3	7	A				
70	Princess St / Nelson St	TWSC	NBL	4	35	45	13	25	C	27.0	D	4.8	A
70	Princess St / Nelson St	TWSC	NBT	11	35	45	11	27	D				
70	Princess St / Nelson St	TWSC	NBR	11	35	45	5	16	C				
70	Princess St / Nelson St	TWSC	SBL	10	0	5	13	25	C				
70	Princess St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBR	11	0	5	3	17	C				
70	Princess St / Nelson St	TWSC	EBL	82	10	105	3	8	A				
70	Princess St / Nelson St	TWSC	EBT	617	10	105	1	5	A				
70	Princess St / Nelson St	TWSC	EBR	9	10	105	2	7	A				
70	Princess St / Nelson St	TWSC	WBL	16	0	80	8	13	B				
70	Princess St / Nelson St	TWSC	WBT	492	0	80	1	2	A				
70	Princess St / Nelson St	TWSC	WBR	3	0	80	0	3	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
80	Princess St / Albert St	Signalized	NBL	20	5	15	16	23	C	32.0	C	15.7	B
80	Princess St / Albert St	Signalized	NBT	7	5	15	14	20	B				
80	Princess St / Albert St	Signalized	NBR	36	5	15	2	7	A				
80	Princess St / Albert St	Signalized	SBL	10	5	35	9	19	B				
80	Princess St / Albert St	Signalized	SBT	31	5	35	7	9	A				
80	Princess St / Albert St	Signalized	SBR	58	5	35	1	8	A				
80	Princess St / Albert St	Signalized	EBL	2	55	120	23	32	C				
80	Princess St / Albert St	Signalized	EBT	609	55	120	14	20	B				
80	Princess St / Albert St	Signalized	EBR	21	55	120	16	22	C				
80	Princess St / Albert St	Signalized	WBL	5	30	55	18	26	C				
80	Princess St / Albert St	Signalized	WBT	432	30	55	7	11	B				
80	Princess St / Albert St	Signalized	WBR	1	30	55	0	0	A				
90	Princess St / Frontenac St	TWSC	NBL	1	0	20	1	7	A	25.0	C	2.9	A
90	Princess St / Frontenac St	TWSC	NBT	1	0	20	15	25	C				
90	Princess St / Frontenac St	TWSC	NBR	2	0	20	3	10	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	5	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	7	0	5	1	8	A				
90	Princess St / Frontenac St	TWSC	EBL	44	0	95	1	4	A				
90	Princess St / Frontenac St	TWSC	EBT	611	0	95	0	4	A				
90	Princess St / Frontenac St	TWSC	EBR	5	0	95	0	3	A				
90	Princess St / Frontenac St	TWSC	WBL	13	0	0	2	4	A				
90	Princess St / Frontenac St	TWSC	WBT	431	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBR	2	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	66	25	50	17	24	C	29.0	C	24.0	C
100	Princess St / Alfred St	Signalized	NBT	95	25	50	16	23	C				
100	Princess St / Alfred St	Signalized	NBR	86	25	50	8	16	B				
100	Princess St / Alfred St	Signalized	SBL	33	30	75	18	27	C				
100	Princess St / Alfred St	Signalized	SBT	143	30	75	14	21	C				
100	Princess St / Alfred St	Signalized	SBR	103	30	75	7	13	B				
100	Princess St / Alfred St	Signalized	EBL	14	75	140	22	29	C				
100	Princess St / Alfred St	Signalized	EBT	563	75	140	20	28	C				
100	Princess St / Alfred St	Signalized	EBR	27	75	140	13	20	B				
100	Princess St / Alfred St	Signalized	WBL	17	40	90	21	29	C				
100	Princess St / Alfred St	Signalized	WBT	295	40	90	18	25	C				
100	Princess St / Alfred St	Signalized	WBR	19	40	90	4	8	A				
110	Princess St / Chatham St	TWSC	SBL	0	5	5	0	0	A	15.0	B	2.2	A
110	Princess St / Chatham St	TWSC	SBR	40	5	5	1	15	B				
110	Princess St / Chatham St	TWSC	EBL	52	0	40	1	3	A				
110	Princess St / Chatham St	TWSC	EBT	630	0	40	0	2	A				
110	Princess St / Chatham St	TWSC	WBT	288	0	65	0	1	A				
110	Princess St / Chatham St	TWSC	WBR	16	0	65	0	0	A				
120	Princess St / University Av	Signalized	NBL	31	5	15	16	22	C	24.0	C	6.1	A
120	Princess St / University Av	Signalized	NBR	30	5	15	2	8	A				
120	Princess St / University Av	Signalized	EBT	528	30	75	2	5	A				
120	Princess St / University Av	Signalized	EBR	59	30	75	1	4	A				
120	Princess St / University Av	Signalized	WBL	10	10	35	17	24	C				
120	Princess St / University Av	Signalized	WBT	272	10	35	3	6	A				
130	Princess St / Division St	Signalized	NBL	58	5	25	11	21	C	28.0	C	16.3	B
130	Princess St / Division St	Signalized	NBT	52	5	25	11	17	B				
130	Princess St / Division St	Signalized	NBR	1	5	25	0	0	A				
130	Princess St / Division St	Signalized	SBL	149	5	55	4	6	A				
130	Princess St / Division St	Signalized	SBT	104	5	55	4	5	A				
130	Princess St / Division St	Signalized	SBR	224	5	55	0	1	A				
130	Princess St / Division St	Signalized	EBL	138	35	55	19	27	C				
130	Princess St / Division St	Signalized	EBT	377	35	55	20	28	C				
130	Princess St / Division St	Signalized	EBR	42	35	55	9	16	B				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 35% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
140	Concession St / Drayton Av	TWSC	NBR	12	0	10	74	87	F	87.0	F	9.0	A
140	Concession St / Drayton Av	TWSC	EBT	949	0	160	4	8	A				
140	Concession St / Drayton Av	TWSC	EBR	0	0	160	0	0	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	8	0	5	7	17	C	17.0	C	8.9	A
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	40	70	75	1	4	A				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	889	70	75	5	9	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	29	5	5	3	11	B	11.0	B	0.8	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	11	5	5	1	11	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	8	0	5	2	11	B				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	77	0	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	564	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	26	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	72	10	25	22	28	C	60.0	E	15.6	B
160	Concession St / Macdonnell St	Signalized	NBT	0	10	25	0	0	A				
160	Concession St / Macdonnell St	Signalized	NBR	19	10	25	10	15	B				
160	Concession St / Macdonnell St	Signalized	SBR	43	0	5	2	3	A				
160	Concession St / Macdonnell St	Signalized	EBL	37	75	80	11	17	B				
160	Concession St / Macdonnell St	Signalized	EBT	715	75	80	7	11	B				
160	Concession St / Macdonnell St	Signalized	EBR	148	75	80	5	9	A				
160	Concession St / Macdonnell St	Signalized	WBL	73	30	85	49	60	E				
160	Concession St / Macdonnell St	Signalized	WBT	474	30	85	12	17	B				
160	Concession St / Macdonnell St	Signalized	WBR	1	30	85	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	9	0	5	10	18	C	26.0	D	4.9	A
170	Concession St / Connaught St	TWSC	SBR	8	0	5	17	26	D				
170	Concession St / Connaught St	TWSC	EBL	20	0	95	4	7	A				
170	Concession St / Connaught St	TWSC	EBT	713	0	95	1	2	A				
170	Concession St / Connaught St	TWSC	WBT	548	0	115	6	8	A				
170	Concession St / Connaught St	TWSC	WBR	0	0	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	5	5	20	34	41	D	41.0	D	12.9	B
180	Concession St / Victoria St	Signalized	NBT	20	5	20	25	31	C				
180	Concession St / Victoria St	Signalized	NBR	46	5	20	4	9	A				
180	Concession St / Victoria St	Signalized	SBL	3	5	10	19	27	C				
180	Concession St / Victoria St	Signalized	SBT	35	5	10	21	25	C				
180	Concession St / Victoria St	Signalized	SBR	42	5	10	4	12	B				
180	Concession St / Victoria St	Signalized	EBL	20	35	90	9	14	B				
180	Concession St / Victoria St	Signalized	EBT	680	35	90	6	9	A				
180	Concession St / Victoria St	Signalized	EBR	9	35	90	6	12	B				
180	Concession St / Victoria St	Signalized	WBL	24	45	90	18	27	C				
180	Concession St / Victoria St	Signalized	WBT	506	45	90	10	16	B				
180	Concession St / Victoria St	Signalized	WBR	0	45	90	0	0	A				
190	Concession St / Nelson St	TWSC	NBL	8	0	5	12	22	C	22.0	C	3.9	A
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	9	0	5	7	13	B				
190	Concession St / Nelson St	TWSC	SBL	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	5	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	26	5	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	40	0	85	1	4	A				
190	Concession St / Nelson St	TWSC	EBT	689	0	85	1	2	A				
190	Concession St / Nelson St	TWSC	EBR	0	0	85	0	0	A				
190	Concession St / Nelson St	TWSC	WBL	0	0	95	0	0	A				
190	Concession St / Nelson St	TWSC	WBT	500	0	95	4	6	A				
190	Concession St / Nelson St	TWSC	WBR	0	0	95	0	0	A				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 35% Auto M.S. - AM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	44	5	25	26	39	E	39.0	E	4.5	A
200	Concession St / Kingscourt Av	TWSC	SBR	5	5	25	16	32	D				
200	Concession St / Kingscourt Av	TWSC	EBL	40	0	75	3	6	A				
200	Concession St / Kingscourt Av	TWSC	EBT	649	0	75	1	3	A				
200	Concession St / Kingscourt Av	TWSC	WBT	492	0	35	2	3	A				
200	Concession St / Kingscourt Av	TWSC	WBR	7	0	35	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	45	5	25	58	73	F	73.0	F	7.0	A
210	Concession St / Fergus St	TWSC	SBR	3	5	25	12	21	C				
210	Concession St / Fergus St	TWSC	EBL	30	0	100	2	7	A				
210	Concession St / Fergus St	TWSC	EBT	663	0	100	3	7	A				
210	Concession St / Fergus St	TWSC	WBT	490	0	25	0	1	A				
210	Concession St / Fergus St	TWSC	WBR	16	0	25	0	0	A				
220	Concession St / Grey St	TWSC	SBL	43	5	45	95	111	F	111.0	F	12.1	B
220	Concession St / Grey St	TWSC	SBR	3	5	45	46	78	F				
220	Concession St / Grey St	TWSC	EBL	21	50	105	5	11	B				
220	Concession St / Grey St	TWSC	EBT	685	50	105	8	15	B				
220	Concession St / Grey St	TWSC	WBT	504	0	0	0	0	A				
220	Concession St / Grey St	TWSC	WBR	24	0	0	0	0	A				
230	Concession St / Alfred St	Signalized	NBL	46	5	25	17	23	C	23.0	C	12.1	B
230	Concession St / Alfred St	Signalized	NBT	11	5	25	11	17	B				
230	Concession St / Alfred St	Signalized	NBR	46	5	25	6	13	B				
230	Concession St / Alfred St	Signalized	SBL	2	5	20	0	7	A				
230	Concession St / Alfred St	Signalized	SBT	35	5	20	13	19	B				
230	Concession St / Alfred St	Signalized	SBR	37	5	20	4	9	A				
230	Concession St / Alfred St	Signalized	EBL	34	55	60	12	18	B				
230	Concession St / Alfred St	Signalized	EBT	522	55	60	8	12	B				
230	Concession St / Alfred St	Signalized	EBR	172	55	60	1	3	A				
230	Concession St / Alfred St	Signalized	WBL	31	40	100	12	21	C				
230	Concession St / Alfred St	Signalized	WBT	441	40	100	8	13	B				
230	Concession St / Alfred St	Signalized	WBR	1	40	100	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	0	0	0	0	0	A	5.0	A	0.6	A
240	Concession St / Lansdowne St	TWSC	NBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	EBT	572	0	15	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	15	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	4	0	0	1	5	A				
240	Concession St / Lansdowne St	TWSC	WBT	472	0	0	0	0	A				
250	Concession St / Division St	Signalized	NBL	13	35	80	17	26	C	48.0	D	23.4	C
250	Concession St / Division St	Signalized	NBT	247	35	80	16	22	C				
250	Concession St / Division St	Signalized	NBR	45	35	80	13	18	B				
250	Concession St / Division St	Signalized	SBL	32	60	120	21	29	C				
250	Concession St / Division St	Signalized	SBT	396	60	120	17	23	C				
250	Concession St / Division St	Signalized	SBR	232	60	120	2	6	A				
250	Concession St / Division St	Signalized	EBL	202	35	105	16	23	C				
250	Concession St / Division St	Signalized	EBT	344	35	105	13	18	B				
250	Concession St / Division St	Signalized	EBR	20	35	105	7	10	A				
250	Concession St / Division St	Signalized	WBL	46	50	110	37	48	D				
250	Concession St / Division St	Signalized	WBT	237	50	110	35	46	D				
250	Concession St / Division St	Signalized	WBR	16	50	110	30	39	D				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
260	Adelaide St / Division St	TWSC	NBL	0	0	10	0	0	A	10.0	A	0.2	A
260	Adelaide St / Division St	TWSC	NBT	285	0	10	0	0	A				
260	Adelaide St / Division St	TWSC	NBR	2	0	10	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	13	0	30	0	1	A				
260	Adelaide St / Division St	TWSC	SBT	397	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	SBR	53	0	30	0	0	A				
260	Adelaide St / Division St	TWSC	EBL	11	0	5	2	10	A				
260	Adelaide St / Division St	TWSC	EBT	1	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	1	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	0	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBT	1	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBR	8	0	5	0	7	A				
270	Stanley St / Division St	TWSC	NBL	13	0	0	0	2	A	10.0	A	2.0	A
270	Stanley St / Division St	TWSC	NBT	236	0	0	0	0	A				
270	Stanley St / Division St	TWSC	SBT	395	0	25	0	2	A				
270	Stanley St / Division St	TWSC	SBR	0	0	25	0	0	A				
270	Stanley St / Division St	TWSC	EBL	49	5	10	2	10	A				
270	Stanley St / Division St	TWSC	EBR	16	5	10	2	8	A				
280	Pine St / Division St	Signalized	NBL	7	5	20	10	14	B	32.0	C	8.8	A
280	Pine St / Division St	Signalized	NBT	204	5	20	2	4	A				
280	Pine St / Division St	Signalized	NBR	7	5	20	0	2	A				
280	Pine St / Division St	Signalized	SBL	34	20	70	4	7	A				
280	Pine St / Division St	Signalized	SBT	385	20	70	4	8	A				
280	Pine St / Division St	Signalized	SBR	0	20	70	0	0	A				
280	Pine St / Division St	Signalized	EBL	2	5	20	0	0	A				
280	Pine St / Division St	Signalized	EBT	29	5	20	24	28	C				
280	Pine St / Division St	Signalized	EBR	39	5	20	6	11	B				
280	Pine St / Division St	Signalized	WBL	19	5	25	22	29	C				
280	Pine St / Division St	Signalized	WBT	16	5	25	24	32	C				
280	Pine St / Division St	Signalized	WBR	45	5	25	3	9	A				
290	Quebec St / Division St	TWSC	NBT	217	0	0	0	0	A	9.0	A	0.9	A
290	Quebec St / Division St	TWSC	NBR	4	0	0	0	0	A				
290	Quebec St / Division St	TWSC	SBL	3	0	50	0	0	A				
290	Quebec St / Division St	TWSC	SBT	440	0	50	0	1	A				
290	Quebec St / Division St	TWSC	WBL	16	0	5	1	9	A				
290	Quebec St / Division St	TWSC	WBR	2	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	0	20	35	0	0	A	30.0	C	7.4	A
300	York St / Division St	Signalized	NBT	199	20	35	3	5	A				
300	York St / Division St	Signalized	NBR	21	20	35	1	3	A				
300	York St / Division St	Signalized	SBL	46	15	50	4	8	A				
300	York St / Division St	Signalized	SBT	408	15	50	3	5	A				
300	York St / Division St	Signalized	SBR	0	15	50	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	32	5	15	19	24	C				
300	York St / Division St	Signalized	EBR	2	5	15	10	17	B				
300	York St / Division St	Signalized	WBL	29	5	20	21	28	C				
300	York St / Division St	Signalized	WBT	12	5	20	23	30	C				
300	York St / Division St	Signalized	WBR	21	5	20	4	11	B				
310	Main St / Division St	TWSC	NBT	213	0	10	1	2	A	10.0	A	0.8	A
310	Main St / Division St	TWSC	NBR	0	0	10	0	0	A				
310	Main St / Division St	TWSC	SBL	15	35	40	0	1	A				
310	Main St / Division St	TWSC	SBT	415	35	40	0	0	A				
310	Main St / Division St	TWSC	WBL	2	0	5	2	10	A				
310	Main St / Division St	TWSC	WBR	7	0	5	1	8	A				
320	Hamilton St / Division St	TWSC	NBL	3	0	0	0	0	A	8.0	A	0.2	A
320	Hamilton St / Division St	TWSC	NBT	198	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBT	394	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	27	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	15	5	5	1	8	A				
320	Hamilton St / Division St	TWSC	EBR	3	5	5	0	6	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	195	0	0	0	0	A	9.0	A	0.4	A
330	Raglan St / Division St	TWSC	NBR	25	0	0	0	0	A				
330	Raglan St / Division St	TWSC	SBL	12	0	0	0	2	A				
330	Raglan St / Division St	TWSC	SBT	384	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	24	5	5	1	8	A				
330	Raglan St / Division St	TWSC	WBR	5	5	5	1	9	A				
340	Elm St / Division St	TWSC	NBL	1	0	0	0	0	A	8.0	A	0.2	A
340	Elm St / Division St	TWSC	NBT	201	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBT	390	0	0	0	0	A				
340	Elm St / Division St	TWSC	SBR	19	0	0	0	1	A				
340	Elm St / Division St	TWSC	EBL	17	0	5	2	8	A				
340	Elm St / Division St	TWSC	EBR	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	NBT	201	0	0	0	0	A	13.0	B	0.2	A
350	Ellice St / Division St	TWSC	NBR	8	0	0	0	0	A				
350	Ellice St / Division St	TWSC	SBL	9	0	0	0	1	A				
350	Ellice St / Division St	TWSC	SBT	380	0	0	0	0	A				
350	Ellice St / Division St	TWSC	WBL	8	0	5	4	13	B				
350	Ellice St / Division St	TWSC	WBR	4	0	5	0	7	A				
360	Colborne St / Division St	TWSC	NBL	0	0	20	0	0	A	11.0	B	1.4	A
360	Colborne St / Division St	TWSC	NBT	185	0	20	0	0	A				
360	Colborne St / Division St	TWSC	NBR	2	0	20	0	0	A				
360	Colborne St / Division St	TWSC	SBL	7	0	25	0	3	A				
360	Colborne St / Division St	TWSC	SBT	375	0	25	1	1	A				
360	Colborne St / Division St	TWSC	SBR	7	0	25	0	0	A				
360	Colborne St / Division St	TWSC	EBL	22	5	10	1	9	A				
360	Colborne St / Division St	TWSC	EBT	8	5	10	2	11	B				
360	Colborne St / Division St	TWSC	EBR	12	5	10	2	10	A				
360	Colborne St / Division St	TWSC	WBL	7	0	5	2	11	B				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	3	0	5	0	7	A				
370	Queen St / Division St	Signalized	NBT	71	10	25	8	11	B	24.0	C	15.8	B
370	Queen St / Division St	Signalized	NBR	121	10	25	1	10	A				
370	Queen St / Division St	Signalized	SBL	119	50	80	16	24	C				
370	Queen St / Division St	Signalized	SBT	277	50	80	14	20	B				
370	Queen St / Division St	Signalized	WBL	201	20	35	11	17	B				
370	Queen St / Division St	Signalized	WBR	117	20	35	0	4	A				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 35% Auto M.S. - PM Peak

Measures of Effectiveness Details

ID	Intersection Name	Control Type	Number of Vehicles	50th %'ile Queue (m)	95th %'ile Queue (m)	Avg. Vehicle Delay (sec)	Avg. Stop Delay (sec)	LOS
10	Princess St / Concession St	Signalized	3,728	185.8	229.9	59.2	48.7	E
20	Princess St / Regent St	TWSC	1,346	0.1	50.9	2.6	1.0	-
30	Princess St / Drayton Av	TWSC	1,304	4.1	36.4	2.5	0.3	-
40	Princess St / Macdonnell Av	Signalized	1,319	90.2	174.8	20.9	14.4	C
50	Princess St / Smith St	TWSC	1,042	28.2	61.5	3.5	1.8	-
60	Princess St / Victoria St	Signalized	1,477	28.4	96.5	12.2	7.0	B
70	Princess St / Nelson St	TWSC	1,367	17.5	103.4	5.4	2.0	-
80	Princess St / Albert St	Signalized	1,394	40.4	88.0	16.6	10.8	B
90	Princess St / Frontenac St	TWSC	1,138	8.7	55.1	3.2	0.7	-
100	Princess St / Alfred St	Signalized	1,524	56.2	90.1	26.3	18.0	C
110	Princess St / Chatham St	TWSC	1,210	24.8	88.3	4.9	1.8	-
120	Princess St / University Av	Signalized	1,041	30.4	59.0	9.1	5.3	A
130	Princess St / Division St	Signalized	1,370	20.6	58.2	16.2	10.8	B
140	Concession St / Drayton Av	TWSC	1,245	314.0	319.2	57.8	30.0	-
150	Concession St / Leroy Grant Dr (S)	TWSC	1,223	73.7	73.7	31.1	16.2	-
155	Concession St / Leroy Grant Drive (N)	TWSC	1,526	4.8	5.3	5.2	3.1	-
160	Concession St / Macdonnell St	Signalized	2,490	73.6	80.3	17.3	12.1	B
170	Concession St / Connaught St	TWSC	1,975	74.4	104.9	8.9	4.8	-
180	Concession St / Victoria St	Signalized	2,186	92.8	99.2	17.8	11.5	B
190	Concession St / Nelson St	TWSC	1,940	50.4	91.9	11.7	7.9	-
200	Concession St / Kingscourt Av	TWSC	1,854	52.0	94.3	12.0	7.2	-
210	Concession St / Fergus St	TWSC	1,854	55.3	99.4	13.4	8.5	-
220	Concession St / Grey St	TWSC	1,871	57.3	79.5	10.1	6.6	-
230	Concession St / Alfred St	Signalized	1,998	121.4	135.5	41.6	30.1	D
240	Concession St / Lansdowne St	TWSC	1,308	63.0	258.2	10.6	5.6	-
250	Concession St / Division St	Signalized	2,417	131.3	195.9	48.7	38.2	D
260	Adelaide St / Division St	TWSC	1,276	59.7	102.1	24.3	18.7	-
270	Stanley St / Division St	TWSC	1,144	44.9	70.3	15.9	10.8	-
280	Pine St / Division St	Signalized	1,232	49.6	70.4	23.9	16.9	C
290	Quebec St / Division St	TWSC	1,051	43.4	78.4	9.0	6.1	-
300	York St / Division St	Signalized	1,162	26.8	47.1	10.8	7.8	B
310	Main St / Division St	TWSC	1,044	46.6	49.7	12.8	8.5	-
320	Hamilton St / Division St	TWSC	1,070	65.6	68.6	23.5	15.0	-
330	Raglan St / Division St	TWSC	1,091	35.0	35.3	9.3	5.9	-
340	Elm St / Division St	TWSC	1,219	37.5	43.0	9.2	5.8	-
350	Ellice St / Division St	TWSC	1,148	32.8	39.5	5.2	3.8	-
360	Colborne St / Division St	TWSC	1,207	90.7	233.0	9.9	5.7	-
370	Queen St / Division St	Signalized	1,528	56.3	179.0	35.3	20.1	D
	Total		**57,319**	**2,288**	**3,846**	**658**	**430**	

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
10	Princess St / Concession St	Signalized	NBL	212	35	45	31	39	D	137.0	F	59.2	E
10	Princess St / Concession St	Signalized	NBT	190	35	45	28	35	C				
10	Princess St / Concession St	Signalized	NBR	14	35	45	21	28	C				
10	Princess St / Concession St	Signalized	SBL	693	420	435	85	101	F				
10	Princess St / Concession St	Signalized	SBT	552	420	435	82	99	F				
10	Princess St / Concession St	Signalized	SBR	0	420	435	0	0	A				
10	Princess St / Concession St	Signalized	EBT	370	125	290	111	137	F				
10	Princess St / Concession St	Signalized	EBR	322	125	290	15	21	C				
10	Princess St / Concession St	Signalized	WBT	516	50	70	33	40	D				
10	Princess St / Concession St	Signalized	WBR	822	50	70	0	0	A				
10	Princess St / Concession St	Signalized	WBL	37	50	70	64	74	E				
20	Princess St / Regent St	TWSC	NBL	0	5	10	0	0	A	10.0	A	2.6	A
20	Princess St / Regent St	TWSC	NBR	33	5	10	3	10	A				
20	Princess St / Regent St	TWSC	EBT	747	0	50	1	2	A				
20	Princess St / Regent St	TWSC	EBR	71	0	50	0	2	A				
20	Princess St / Regent St	TWSC	WBL	34	0	55	3	5	A				
20	Princess St / Regent St	TWSC	WBT	461	0	55	1	3	A				
30	Princess St / Drayton Av	TWSC	SBL	9	45	50	10	25	C	25.0	C	2.5	A
30	Princess St / Drayton Av	TWSC	SBR	109	45	50	3	16	C				
30	Princess St / Drayton Av	TWSC	EBL	22	0	35	1	4	A				
30	Princess St / Drayton Av	TWSC	EBT	759	0	35	0	1	A				
30	Princess St / Drayton Av	TWSC	WBT	387	0	35	0	1	A				
30	Princess St / Drayton Av	TWSC	WBR	18	0	35	0	1	A				
40	Princess St / Macdonnell Av	Signalized	NBL	9	10	35	10	16	B	31.0	C	20.9	C
40	Princess St / Macdonnell Av	Signalized	NBT	96	10	35	12	17	B				
40	Princess St / Macdonnell Av	Signalized	NBR	18	10	35	9	13	B				
40	Princess St / Macdonnell Av	Signalized	SBL	3	40	40	2	11	B				
40	Princess St / Macdonnell Av	Signalized	SBT	54	40	40	13	20	B				
40	Princess St / Macdonnell Av	Signalized	SBR	51	40	40	5	10	A				
40	Princess St / Macdonnell Av	Signalized	EBL	44	130	275	24	31	C				
40	Princess St / Macdonnell Av	Signalized	EBT	658	130	275	17	25	C				
40	Princess St / Macdonnell Av	Signalized	EBR	35	130	275	16	24	C				
40	Princess St / Macdonnell Av	Signalized	WBL	0	50	55	0	0	A				
40	Princess St / Macdonnell Av	Signalized	WBT	345	50	55	11	15	B				
40	Princess St / Macdonnell Av	Signalized	WBR	6	50	55	9	12	B				
50	Princess St / Smith St	TWSC	SBL	1	40	40	1	11	B	19.0	C	3.5	A
50	Princess St / Smith St	TWSC	SBR	6	40	40	8	19	C				
50	Princess St / Smith St	TWSC	EBL	43	40	65	1	2	A				
50	Princess St / Smith St	TWSC	EBT	640	40	65	0	1	A				
50	Princess St / Smith St	TWSC	WBT	346	5	55	5	8	A				
50	Princess St / Smith St	TWSC	WBR	6	5	55	4	6	A				
60	Princess St / Victoria St	Signalized	NBL	8	20	45	16	21	C	30.0	C	12.2	B
60	Princess St / Victoria St	Signalized	NBT	93	20	45	18	25	C				
60	Princess St / Victoria St	Signalized	NBR	55	20	45	11	17	B				
60	Princess St / Victoria St	Signalized	SBL	81	15	30	22	30	C				
60	Princess St / Victoria St	Signalized	SBT	47	15	30	18	27	C				
60	Princess St / Victoria St	Signalized	SBR	1	15	30	3	8	A				
60	Princess St / Victoria St	Signalized	EBL	20	15	115	11	17	B				
60	Princess St / Victoria St	Signalized	EBT	597	15	115	2	6	A				
60	Princess St / Victoria St	Signalized	EBR	30	15	115	1	5	A				
60	Princess St / Victoria St	Signalized	WBL	15	50	105	14	20	B				
60	Princess St / Victoria St	Signalized	WBT	358	50	105	7	12	B				
60	Princess St / Victoria St	Signalized	WBR	172	50	105	7	13	B				
70	Princess St / Nelson St	TWSC	NBL	19	5	45	16	27	D	27.0	D	5.4	A
70	Princess St / Nelson St	TWSC	NBT	2	5	45	12	25	C				
70	Princess St / Nelson St	TWSC	NBR	6	5	45	3	16	C				
70	Princess St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	SBT	6	0	5	9	20	C				
70	Princess St / Nelson St	TWSC	SBR	0	0	5	0	0	A				
70	Princess St / Nelson St	TWSC	EBL	74	0	105	5	11	B				
70	Princess St / Nelson St	TWSC	EBT	656	0	105	1	4	A				
70	Princess St / Nelson St	TWSC	EBR	11	0	105	0	3	A				
70	Princess St / Nelson St	TWSC	WBL	45	40	105	5	9	A				
70	Princess St / Nelson St	TWSC	WBT	546	40	105	2	5	A				
70	Princess St / Nelson St	TWSC	WBR	2	40	105	0	10	A				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
80	Princess St / Albert St	Signalized	NBL	57	10	50	18	26	C	40.0	D	16.6	B
80	Princess St / Albert St	Signalized	NBT	11	10	50	17	24	C				
80	Princess St / Albert St	Signalized	NBR	51	10	50	6	11	B				
80	Princess St / Albert St	Signalized	SBL	4	10	25	12	23	C				
80	Princess St / Albert St	Signalized	SBT	32	10	25	13	18	B				
80	Princess St / Albert St	Signalized	SBR	118	10	25	2	8	A				
80	Princess St / Albert St	Signalized	EBL	42	60	115	23	32	C				
80	Princess St / Albert St	Signalized	EBT	607	60	115	12	18	B				
80	Princess St / Albert St	Signalized	EBR	14	60	115	8	15	B				
80	Princess St / Albert St	Signalized	WBL	8	30	80	32	40	D				
80	Princess St / Albert St	Signalized	WBT	430	30	80	9	14	B				
80	Princess St / Albert St	Signalized	WBR	20	30	80	14	21	C				
90	Princess St / Frontenac St	TWSC	NBL	1	0	20	0	0	A	15.0	B	3.2	A
90	Princess St / Frontenac St	TWSC	NBT	14	0	20	6	15	B				
90	Princess St / Frontenac St	TWSC	NBR	1	0	20	0	0	A				
90	Princess St / Frontenac St	TWSC	SBL	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBT	0	0	0	0	0	A				
90	Princess St / Frontenac St	TWSC	SBR	1	0	0	0	7	A				
90	Princess St / Frontenac St	TWSC	EBL	90	15	95	2	7	A				
90	Princess St / Frontenac St	TWSC	EBT	566	15	95	1	4	A				
90	Princess St / Frontenac St	TWSC	EBR	1	15	95	0	0	A				
90	Princess St / Frontenac St	TWSC	WBL	9	0	0	1	4	A				
90	Princess St / Frontenac St	TWSC	WBT	455	0	0	0	1	A				
90	Princess St / Frontenac St	TWSC	WBR	0	0	0	0	0	A				
100	Princess St / Alfred St	Signalized	NBL	75	35	70	18	27	C	35.0	C	26.3	C
100	Princess St / Alfred St	Signalized	NBT	138	35	70	16	24	C				
100	Princess St / Alfred St	Signalized	NBR	127	35	70	11	19	B				
100	Princess St / Alfred St	Signalized	SBL	83	20	40	24	35	C				
100	Princess St / Alfred St	Signalized	SBT	45	20	40	20	29	C				
100	Princess St / Alfred St	Signalized	SBR	25	20	40	10	17	B				
100	Princess St / Alfred St	Signalized	EBL	45	75	115	27	35	C				
100	Princess St / Alfred St	Signalized	EBT	512	75	115	19	28	C				
100	Princess St / Alfred St	Signalized	EBR	28	75	115	14	22	C				
100	Princess St / Alfred St	Signalized	WBL	55	60	90	16	24	C				
100	Princess St / Alfred St	Signalized	WBT	361	60	90	19	26	C				
100	Princess St / Alfred St	Signalized	WBR	30	60	90	9	15	B				
110	Princess St / Chatham St	TWSC	SBL	0	0	5	0	0	A	20.0	C	4.9	A
110	Princess St / Chatham St	TWSC	SBR	12	0	5	4	20	C				
110	Princess St / Chatham St	TWSC	EBL	152	25	105	3	8	A				
110	Princess St / Chatham St	TWSC	EBT	570	25	105	2	6	A				
110	Princess St / Chatham St	TWSC	WBT	434	25	65	1	2	A				
110	Princess St / Chatham St	TWSC	WBR	42	25	65	2	4	A				
120	Princess St / University Av	Signalized	NBL	96	10	25	17	22	C	22.0	C	9.1	A
120	Princess St / University Av	Signalized	NBR	5	10	25	10	14	B				
120	Princess St / University Av	Signalized	EBT	491	45	75	4	8	A				
120	Princess St / University Av	Signalized	EBR	61	45	75	3	6	A				
120	Princess St / University Av	Signalized	WBL	21	15	45	12	18	B				
120	Princess St / University Av	Signalized	WBT	367	15	45	4	7	A				
130	Princess St / Division St	Signalized	NBL	103	25	50	14	25	C	28.0	C	16.2	B
130	Princess St / Division St	Signalized	NBT	195	25	50	15	21	C				
130	Princess St / Division St	Signalized	NBR	11	25	50	10	16	B				
130	Princess St / Division St	Signalized	SBL	145	10	70	6	11	B				
130	Princess St / Division St	Signalized	SBT	131	10	70	5	6	A				
130	Princess St / Division St	Signalized	SBR	288	10	70	0	1	A				
130	Princess St / Division St	Signalized	EBL	83	30	50	21	28	C				
130	Princess St / Division St	Signalized	EBT	368	30	50	18	26	C				
130	Princess St / Division St	Signalized	EBR	46	30	50	9	17	B				

Williamsville Operational Analysis

2036 No Mitigation - Ultimate Growth, 35% Auto M.S. - PM Peak

Measures of Effectiveness Details

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
140	Concession St / Drayton Av	TWSC	NBR	5	65	125	1202	1217	F	1217.0	F	57.8	F
140	Concession St / Drayton Av	TWSC	EBT	1,187	315	320	25	53	F				
140	Concession St / Drayton Av	TWSC	EBR	53	315	320	31	55	F				
150	Concession St / Leroy Grant Dr (S)	TWSC	SBL	22	5	5	18	31	D	32.0	D	31.1	D
150	Concession St / Leroy Grant Dr (S)	TWSC	EBL	160	75	75	17	32	D				
150	Concession St / Leroy Grant Dr (S)	TWSC	EBT	1,041	75	75	16	31	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	NBL	76	45	50	28	46	E	46.0	E	5.2	A
155	Concession St / Leroy Grant Drive (N)	TWSC	NBT	84	45	50	27	45	E				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBT	21	5	5	18	28	D				
155	Concession St / Leroy Grant Drive (N)	TWSC	SBR	5	5	5	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBT	1,300	0	0	0	0	A				
155	Concession St / Leroy Grant Drive (N)	TWSC	WBR	40	0	0	0	1	A				
160	Concession St / Macdonnell St	Signalized	NBL	250	45	80	26	34	C	73.0	E	17.3	B
160	Concession St / Macdonnell St	Signalized	NBT	25	45	80	26	32	C				
160	Concession St / Macdonnell St	Signalized	NBR	27	45	80	27	35	C				
160	Concession St / Macdonnell St	Signalized	SBR	71	5	15	9	15	B				
160	Concession St / Macdonnell St	Signalized	EBL	58	75	80	47	58	E				
160	Concession St / Macdonnell St	Signalized	EBT	892	75	80	8	13	B				
160	Concession St / Macdonnell St	Signalized	EBR	111	75	80	7	11	B				
160	Concession St / Macdonnell St	Signalized	WBL	31	85	85	60	73	E				
160	Concession St / Macdonnell St	Signalized	WBT	1,025	85	85	9	13	B				
160	Concession St / Macdonnell St	Signalized	WBR	0	85	85	0	0	A				
170	Concession St / Connaught St	TWSC	SBL	0	0	5	0	0	A	28.0	D	8.9	A
170	Concession St / Connaught St	TWSC	SBR	16	0	5	18	28	D				
170	Concession St / Connaught St	TWSC	EBL	0	35	95	0	0	A				
170	Concession St / Connaught St	TWSC	EBT	913	35	95	2	5	A				
170	Concession St / Connaught St	TWSC	WBT	1,046	110	115	7	12	B				
170	Concession St / Connaught St	TWSC	WBR	0	110	115	0	0	A				
180	Concession St / Victoria St	Signalized	NBL	34	20	70	35	47	D	47.0	D	17.8	B
180	Concession St / Victoria St	Signalized	NBT	49	20	70	34	42	D				
180	Concession St / Victoria St	Signalized	NBR	78	20	70	23	32	C				
180	Concession St / Victoria St	Signalized	SBL	3	0	10	28	36	D				
180	Concession St / Victoria St	Signalized	SBT	23	0	10	19	23	C				
180	Concession St / Victoria St	Signalized	SBR	36	0	10	6	17	B				
180	Concession St / Victoria St	Signalized	EBL	16	115	115	24	33	C				
180	Concession St / Victoria St	Signalized	EBT	806	115	115	8	14	B				
180	Concession St / Victoria St	Signalized	EBR	98	115	115	8	14	B				
180	Concession St / Victoria St	Signalized	WBL	52	90	95	26	34	C				
180	Concession St / Victoria St	Signalized	WBT	975	90	95	11	17	B				
180	Concession St / Victoria St	Signalized	WBR	16	90	95	0	1	A				
190	Concession St / Nelson St	TWSC	NBL	8	0	5	358	376	F	376.0	F	11.7	B
190	Concession St / Nelson St	TWSC	NBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	NBR	7	0	5	17	23	C				
190	Concession St / Nelson St	TWSC	SBL	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBT	0	0	5	0	0	A				
190	Concession St / Nelson St	TWSC	SBR	12	0	5	0	6	A				
190	Concession St / Nelson St	TWSC	EBL	0	0	85	0	0	A				
190	Concession St / Nelson St	TWSC	EBT	813	0	85	1	2	A				
190	Concession St / Nelson St	TWSC	EBR	70	0	85	2	3	A				
190	Concession St / Nelson St	TWSC	WBL	13	95	100	10	19	C				
190	Concession St / Nelson St	TWSC	WBT	1,017	95	100	11	17	C				
190	Concession St / Nelson St	TWSC	WBR	0	95	100	0	0	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
200	Concession St / Kingscourt Av	TWSC	SBL	0	0	15	0	0	A	57.0	F	12.0	B
200	Concession St / Kingscourt Av	TWSC	SBR	16	0	15	41	57	F				
200	Concession St / Kingscourt Av	TWSC	EBL	2	0	95	20	33	D				
200	Concession St / Kingscourt Av	TWSC	EBT	821	0	95	3	5	A				
200	Concession St / Kingscourt Av	TWSC	WBT	1,015	95	95	10	17	C				
200	Concession St / Kingscourt Av	TWSC	WBR	0	95	95	0	0	A				
210	Concession St / Fergus St	TWSC	SBL	12	0	5	128	139	F	139.0	F	13.4	B
210	Concession St / Fergus St	TWSC	SBR	0	0	5	0	0	A				
210	Concession St / Fergus St	TWSC	EBL	0	0	100	0	0	A				
210	Concession St / Fergus St	TWSC	EBT	816	0	100	5	7	A				
210	Concession St / Fergus St	TWSC	WBT	1,022	100	100	10	17	C				
210	Concession St / Fergus St	TWSC	WBR	4	100	100	0	2	A				
220	Concession St / Grey St	TWSC	SBL	0	0	5	0	0	A	26.0	D	10.1	B
220	Concession St / Grey St	TWSC	SBR	15	0	5	15	26	D				
220	Concession St / Grey St	TWSC	EBL	0	55	105	0	0	A				
220	Concession St / Grey St	TWSC	EBT	830	55	105	11	16	C				
220	Concession St / Grey St	TWSC	WBT	1,021	60	60	3	5	A				
220	Concession St / Grey St	TWSC	WBR	5	60	60	2	6	A				
230	Concession St / Alfred St	Signalized	NBL	260	265	325	103	132	F	132.0	F	41.6	D
230	Concession St / Alfred St	Signalized	NBT	33	265	325	94	122	F				
230	Concession St / Alfred St	Signalized	NBR	27	265	325	80	104	F				
230	Concession St / Alfred St	Signalized	SBL	0	5	20	0	0	A				
230	Concession St / Alfred St	Signalized	SBT	35	5	20	16	21	C				
230	Concession St / Alfred St	Signalized	SBR	22	5	20	17	24	C				
230	Concession St / Alfred St	Signalized	EBL	22	55	60	25	31	C				
230	Concession St / Alfred St	Signalized	EBT	478	55	60	13	18	B				
230	Concession St / Alfred St	Signalized	EBR	317	55	60	3	5	A				
230	Concession St / Alfred St	Signalized	WBL	58	140	145	25	38	D				
230	Concession St / Alfred St	Signalized	WBT	746	140	145	24	37	D				
230	Concession St / Alfred St	Signalized	WBR	0	140	145	0	0	A				
240	Concession St / Lansdowne St	TWSC	NBL	5	5	10	79	91	F	91.0	F	10.6	B
240	Concession St / Lansdowne St	TWSC	NBR	20	5	10	19	32	D				
240	Concession St / Lansdowne St	TWSC	EBT	460	0	0	0	1	A				
240	Concession St / Lansdowne St	TWSC	EBR	0	0	0	0	0	A				
240	Concession St / Lansdowne St	TWSC	WBL	56	100	410	8	14	B				
240	Concession St / Lansdowne St	TWSC	WBT	767	100	410	8	15	B				
250	Concession St / Division St	Signalized	NBL	144	115	115	61	76	E	103.0	F	48.7	D
250	Concession St / Division St	Signalized	NBT	546	115	115	37	46	D				
250	Concession St / Division St	Signalized	NBR	12	115	115	28	34	C				
250	Concession St / Division St	Signalized	SBL	28	160	315	38	51	D				
250	Concession St / Division St	Signalized	SBT	486	160	315	25	33	C				
250	Concession St / Division St	Signalized	SBR	284	160	315	16	27	C				
250	Concession St / Division St	Signalized	EBL	227	35	100	18	26	C				
250	Concession St / Division St	Signalized	EBT	202	35	100	12	18	B				
250	Concession St / Division St	Signalized	EBR	36	35	100	2	5	A				
250	Concession St / Division St	Signalized	WBL	45	205	210	86	103	F				
250	Concession St / Division St	Signalized	WBT	375	205	210	86	103	F				
250	Concession St / Division St	Signalized	WBR	32	205	210	80	95	F				

Node	Location	Control	Mvmt.	Volume	Queue (m)		Stop	Delay	LOS	Critical Mvmt		Intersection	
				(All)	50th	95th	Delay (s)	(s)		Delay	LOS	Delay	LOS
260	Adelaide St / Division St	TWSC	NBL	0	110	110	0	0	A	486.0	F	24.3	C
260	Adelaide St / Division St	TWSC	NBT	692	110	110	27	36	E				
260	Adelaide St / Division St	TWSC	NBR	0	110	110	0	0	A				
260	Adelaide St / Division St	TWSC	SBL	0	0	95	0	0	A				
260	Adelaide St / Division St	TWSC	SBT	438	0	95	1	2	A				
260	Adelaide St / Division St	TWSC	SBR	125	0	95	0	1	A				
260	Adelaide St / Division St	TWSC	EBL	10	5	60	469	486	F				
260	Adelaide St / Division St	TWSC	EBT	0	5	60	0	0	A				
260	Adelaide St / Division St	TWSC	EBR	0	5	60	0	0	A				
260	Adelaide St / Division St	TWSC	WBL	10	0	5	11	20	C				
260	Adelaide St / Division St	TWSC	WBT	1	0	5	0	0	A				
260	Adelaide St / Division St	TWSC	WBR	0	0	5	0	0	A				
270	Stanley St / Division St	TWSC	NBL	0	75	75	0	0	A	80.0	F	15.9	C
270	Stanley St / Division St	TWSC	NBT	685	75	75	16	23	C				
270	Stanley St / Division St	TWSC	SBT	384	0	65	1	3	A				
270	Stanley St / Division St	TWSC	SBR	61	0	65	1	2	A				
270	Stanley St / Division St	TWSC	EBL	14	0	10	68	80	F				
270	Stanley St / Division St	TWSC	EBR	0	0	10	0	0	A				
280	Pine St / Division St	Signalized	NBL	33	75	80	15	25	C	63.0	E	23.9	C
280	Pine St / Division St	Signalized	NBT	618	75	80	20	28	C				
280	Pine St / Division St	Signalized	NBR	0	75	80	0	0	A				
280	Pine St / Division St	Signalized	SBL	25	25	70	14	20	B				
280	Pine St / Division St	Signalized	SBT	344	25	70	5	9	A				
280	Pine St / Division St	Signalized	SBR	16	25	70	5	10	A				
280	Pine St / Division St	Signalized	EBL	3	5	25	31	39	D				
280	Pine St / Division St	Signalized	EBT	42	5	25	20	24	C				
280	Pine St / Division St	Signalized	EBR	37	5	25	7	12	B				
280	Pine St / Division St	Signalized	WBL	5	20	50	52	63	E				
280	Pine St / Division St	Signalized	WBT	45	20	50	38	48	D				
280	Pine St / Division St	Signalized	WBR	64	20	50	42	55	D				
290	Quebec St / Division St	TWSC	NBT	651	70	85	9	13	B	17.0	C	9.0	A
290	Quebec St / Division St	TWSC	NBR	0	70	85	0	0	A				
290	Quebec St / Division St	TWSC	SBL	0	0	70	0	0	A				
290	Quebec St / Division St	TWSC	SBT	386	0	70	1	2	A				
290	Quebec St / Division St	TWSC	WBL	14	0	5	9	17	C				
290	Quebec St / Division St	TWSC	WBR	0	0	5	0	0	A				
300	York St / Division St	Signalized	NBL	1	35	40	0	0	A	31.0	C	10.8	B
300	York St / Division St	Signalized	NBT	619	35	40	6	8	A				
300	York St / Division St	Signalized	NBR	6	35	40	2	3	A				
300	York St / Division St	Signalized	SBL	38	20	65	19	26	C				
300	York St / Division St	Signalized	SBT	363	20	65	4	7	A				
300	York St / Division St	Signalized	SBR	0	20	65	0	0	A				
300	York St / Division St	Signalized	EBL	0	5	15	0	0	A				
300	York St / Division St	Signalized	EBT	31	5	15	26	30	C				
300	York St / Division St	Signalized	EBR	1	5	15	0	0	A				
300	York St / Division St	Signalized	WBL	45	10	30	24	31	C				
300	York St / Division St	Signalized	WBT	24	10	30	24	31	C				
300	York St / Division St	Signalized	WBR	34	10	30	19	29	C				
310	Main St / Division St	TWSC	NBT	624	55	60	14	21	C	47.0	E	12.8	B
310	Main St / Division St	TWSC	NBR	0	55	60	0	0	A				
310	Main St / Division St	TWSC	SBL	0	35	35	0	0	A				
310	Main St / Division St	TWSC	SBT	410	35	35	0	0	A				
310	Main St / Division St	TWSC	WBL	8	0	5	11	19	C				
310	Main St / Division St	TWSC	WBR	2	0	5	36	47	E				
320	Hamilton St / Division St	TWSC	NBL	17	110	115	32	49	E	49.0	E	23.5	C
320	Hamilton St / Division St	TWSC	NBT	621	110	115	25	39	E				
320	Hamilton St / Division St	TWSC	SBT	382	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	SBR	34	0	0	0	0	A				
320	Hamilton St / Division St	TWSC	EBL	0	0	5	0	0	A				
320	Hamilton St / Division St	TWSC	EBR	16	0	5	1	8	A				

Node	Location	Control	Mvmt.	Volume (All)	Queue (m) 50th	Queue (m) 95th	Stop Delay (s)	Delay (s)	LOS	Critical Mvmt Delay	Critical Mvmt LOS	Intersection Delay	Intersection LOS
330	Raglan St / Division St	TWSC	NBT	618	60	60	9	14	B	32.0	D	9.3	A
330	Raglan St / Division St	TWSC	NBR	13	60	60	10	11	B				
330	Raglan St / Division St	TWSC	SBL	6	0	0	2	4	A				
330	Raglan St / Division St	TWSC	SBT	393	0	0	0	0	A				
330	Raglan St / Division St	TWSC	WBL	43	5	10	8	18	C				
330	Raglan St / Division St	TWSC	WBR	18	5	10	20	32	D				
340	Elm St / Division St	TWSC	NBL	142	60	60	7	10	A	38.0	E	9.2	A
340	Elm St / Division St	TWSC	NBT	618	60	60	9	14	B				
340	Elm St / Division St	TWSC	SBT	372	0	15	0	1	A				
340	Elm St / Division St	TWSC	SBR	63	0	15	1	3	A				
340	Elm St / Division St	TWSC	EBL	13	5	10	26	38	E				
340	Elm St / Division St	TWSC	EBR	11	5	10	6	13	B				
350	Ellice St / Division St	TWSC	NBT	747	50	55	5	7	A	22.0	C	5.2	A
350	Ellice St / Division St	TWSC	NBR	6	50	55	7	8	A				
350	Ellice St / Division St	TWSC	SBL	2	0	10	4	10	A				
350	Ellice St / Division St	TWSC	SBT	380	0	10	1	1	A				
350	Ellice St / Division St	TWSC	WBL	0	0	5	0	0	A				
350	Ellice St / Division St	TWSC	WBR	13	0	5	11	22	C				
360	Colborne St / Division St	TWSC	NBL	54	140	335	7	11	B	64.0	F	9.9	A
360	Colborne St / Division St	TWSC	NBT	727	140	335	7	12	B				
360	Colborne St / Division St	TWSC	NBR	0	140	335	0	0	A				
360	Colborne St / Division St	TWSC	SBL	6	0	50	2	6	A				
360	Colborne St / Division St	TWSC	SBT	375	0	50	1	3	A				
360	Colborne St / Division St	TWSC	SBR	0	0	50	0	0	A				
360	Colborne St / Division St	TWSC	EBL	14	5	15	52	64	F				
360	Colborne St / Division St	TWSC	EBT	2	5	15	13	22	C				
360	Colborne St / Division St	TWSC	EBR	16	5	15	7	15	B				
360	Colborne St / Division St	TWSC	WBL	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBT	0	0	5	0	0	A				
360	Colborne St / Division St	TWSC	WBR	13	0	5	12	23	C				
370	Queen St / Division St	Signalized	NBT	195	15	70	17	21	C	48.0	D	35.3	D
370	Queen St / Division St	Signalized	NBR	83	15	70	7	16	B				
370	Queen St / Division St	Signalized	SBL	108	45	80	21	31	C				
370	Queen St / Division St	Signalized	SBT	286	45	80	17	24	C				
370	Queen St / Division St	Signalized	WBL	273	75	260	23	38	D				
370	Queen St / Division St	Signalized	WBR	583	75	260	23	48	D				

CITY OF KINGSTON

Williamsville Main Street Study

April 2023 – 22-3399

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1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by the City of Kingston (City) to investigate cross-section alternatives that could be accommodated with the Princess Street right-of-way (ROW) between Bath Road and Division Street. This report documents the review of existing corridor amenities and constraints, the development of alternative corridor cross-sections, the identification of impacts associated with operational changes, and the evaluation of alternative solutions.

Dillon has short-listed two alternative cross-sections in this report. The preferred cross-section will be identified with input from City staff, the public, and Council.

1.1 Background

Dillon previously completed the *Williamsville Transportation Plan – Operational Needs Analysis* in 2020. The study was a general assessment of future traffic operations in the Williamsville neighbourhood. The requirement for analysis was triggered by a need to identify the transportation mode shares required to enable intensification.

Two development/intensification levels were considered: “Approved” and “Ultimate”. The “Approved” scenario was the council-approved amount of development, whereas the “Ultimate” scenario included higher density for Williamsville.

The 2020 analysis also considered two mode share scenarios: “Base” and “Reduced” auto mode shares. The “Base” auto mode share was the same mode share used for the Transportation Master Plan (2015), whereas the “Reduced” auto mode share lower auto mode shares and higher active and transit mode shares, as per direction from council on December 1, 2015.

The Williamsville Transportation Plan – Operational Needs Analysis study concluded that Williamsville was able to accommodate the majority of growth largely by assuming the majority of trips to and from the new development in Williamsville would use walking, cycling, and/or transit (consistent with the “Reduced” auto mode share direction from council in 2015 and the existing auto mode share in Williamsville).

The 2020 study suggested improvements to walking, cycling, and transit facilities on Princess Street to support a low auto mode share and support the Williamsville growth. The previous study noted that Princess Street had a narrow right of way through Williamsville (generally 20 metres or less) which likely precluded Princess Street’s ability to simultaneously be a transit priority corridor, a cycling spine route, a pedestrian-friendly corridor, and an arterial class roadway leading to the downtown core. Additional study was recommended to review the Princess Street cross-section.

1.2 Approach

The 2020 *Operational Needs Analysis* identified the need to specifically investigate the feasibility for Princess Street to support the increased pedestrian, transit and cycling volumes associated with intensification. The previous study used traffic modelling to assess if the existing road network could potentially support the additional traffic demand from the proposed development. This study focussed on assessing whether adequate space exists in the Princess Street's right-of-way to provide facilities that encourage walking, cycling and transit while discouraging use of private vehicles. Alternative means of accommodating modes that cannot be adequately accommodated on Princess Street were also explored.

Traffic analysis was performed to assess intersection operations and identify the need and benefit of congestion mitigation measures such as queue jump lanes, left turn lanes, and transit priority signals. Removal of two-way vehicular access was not considered given Princess Street is a primary arterial roadway that supports a major transit route. The mitigation measures helped inform the development and analysis of vehicular and transit cross-section design elements. More information on the traffic analysis performed as a component of the current study is provide in Section 0.

Several alternatives were developed to understand how the space between the property lines and the edge of vehicular travel lanes could be used to provide a visually appealing and accessible place for pedestrians and cyclists. The limited available right-of-way on Princess Street made successful implementation of infeasible for several desirable options. Compromises of ideal facility widths are required in nearly every alternative. More information on the cross-section alternatives can be found in Section 4.0.

2.0 Traffic Analysis

Traffic operations were assessed using the PTV Vissim microsimulation software, which is the industry-leading microsimulation platform. Microsimulation was used to model vehicles, buses, pedestrians, and cyclists in a mixed environment. The analysis assumed a basic cross section; one lane in each direction along Princess Street throughout the study area. Consistent with existing conditions, transit was assumed to operate in mixed traffic.

The traffic analysis was completed using forecasted 2036 traffic volumes as per the previous work completed by Dillon in 2020. In 2020, the 2036 horizon was a +15-year horizon and was assumed to be a reasonable period for build out of the area. Note that actual timing for full build-out of the area is dependent on market conditions.

2.1 2036 Do-Nothing Scenario

2.1.1 Intersection Performance

Traffic operations for the 2036 Do-Nothing scenario were assessed to identify any capacity constraints or major delays resulting from future demand assuming no changes have been made to the existing lanes on Princess Street.

Table 1 summarizes the Level of Service (LOS) for intersections within the study area for the 2036 Do-Nothing scenario. Appendix A contains detailed traffic analysis results. For the Do-Nothing scenario, all intersections operate with an overall LOS D or better. Intersection LOS D represents a poor but acceptable average vehicular delay 36-55 seconds.

Table 1: Intersection Level of Service – 2036 Do Nothing

Intersection	Intersection Control	LOS – AM	LOS – PM
Princess St./Concession St.	Signalized	D	D
Princess St./Regent St.	TWSC	A	B
Princess St./Drayton Ave.	TWSC	A	B
Princess St./MacDonnell Ave.	Signalized	B	B
Princess St./Smith St.	TWSC	A	A
Princess St./Victoria St.	Signalized	B	C
Princess St./Nelson St.	TWSC	A	B
Princess St./Albert St.	Signalized	B	B
Princess St./Frontenac St.	TWSC	A	A
Princess St./Alfred St.	Signalized	B	B
Princess St./Chatham St.	TWSC	A	B
Princess St./University Ave.	Signalized	A	B
Princess St./Division St.	Signalized	B	B

Delays are anticipated for traffic exiting from two-way stop controlled minor side streets onto Princess Street. High traffic volumes on Princess Street can inhibit side street traffic from finding gaps to enter the corridor. During the PM peak hour, the southbound approach on Drayton Avenue, Nelson Street, Frontenac Street, and Chatham Street experience LOS F (i.e., delay in excess of 80 seconds). Traffic volumes observed for these movements are minor; generally, less than 30 vehicles per hour. No mitigation is recommended as Princess Street is the primary transportation corridor and would be negatively impacted by changes that would prioritize minor side streets.

2.1.2 Corridor Performance

Due to the close spacing of intersections and interaction between traffic signals, it was important to consider the overall corridor performance by reviewing travel time impacts.

Table 2 summarizes the transit travel times for 2019 existing conditions and the 2036 Do Nothing scenario. The existing transit travel time was provided by Kingston Transit.

The following observations were noted:

- During the weekday AM peak hour, there is a small increase in travel times between 2019 existing conditions and 2036 Do Nothing conditions; and
- During the PM peak hour, eastbound travel time along Princess Street is expected to increase by approximately 1 minute and westbound travel time is anticipated to increase by approximately 2.5 minutes.

Table 2: Travel Times – 2019 and 2036 Do Nothing – Transit

Direction	Time Period	2019 Existing Travel Time	2036 Do Nothing Travel Time
Eastbound	AM Peak	8 minutes	8.1 minutes
	PM Peak	8 minutes	9.0 minutes
Westbound	AM Peak	7 minutes	7.4 minutes
	PM Peak	9 minutes	11.4 minutes

Of note, a key objective of the future Princess Street corridor is to provide express transit service with headways of 5 minutes or less. Based on these travel time results, reducing delays for the westbound direction during the PM peak hour is critical. Mitigation measures should be implemented to reduce the westbound travel times.

One potential method to improve transit travel times is to implement transit queue jump lanes. This is discussed in Section 2.3.

2.2 2036 Mitigated Scenario

The 2036 Mitigated *Scenario* was modelled to identify and assess operational improvements that could result from potential mitigation measures. The proposed mitigation measures include the following:

Princess Street & Drayton Avenue:

- Implement traffic control signals;
- Implement curbside queue jump lane for westbound buses;
- Remove existing eastbound left turn lane to make space for the westbound curbside queue jump lane; and
- Implement transit signal priority.

Princess Street & Albert Street:

- Implement curbside queue jump lane for westbound buses;
- Remove existing eastbound left turn lane to make space for the westbound curbside queue jump lane; and
- Implement transit signal priority.

Princess Street & Nelson Street

- Implement left turn lanes in both directions to compensate for the removal of left turn lanes at Albert Street.

Westbound queue jump lanes have been proposed at two locations: Princess Street / Drayton Avenue and Princess Street / Albert Street. Queue jump lanes at these intersections will provide opportunities for express buses to “jump” ahead of queued vehicles in the adjacent lane. Given that express transit stops are present at both locations, mitigation at these locations will improve transit operations. For the queue jump lane, it should be noted that vehicles making a right turn at an intersection would be permitted to enter the curbside queue jump lane a short distance in advance of the intersection.

2.2.1 Intersection Performance

Traffic operations for the *2036 Mitigated Scenario* were assessed to demonstrate projected operations under the proposed design. Table 3 summarizes the intersection operations level of service for each intersection within the study area.

Under the *Mitigated Scenario*, all intersections operate with LOS D or better. Compared to *Do Nothing* conditions, level of service is relatively unchanged during the AM peak hour. However, intersection performance has improved slightly during the PM peak hour at most intersections. Only one movement operates with LOS F (delays of more than 80 seconds/vehicle) during the PM peak hour: the southbound left turn at the intersection of Princess Street and Nelson Street. The introduction of dedicated left turn lanes on Nelson Street to help mitigate the delay were not investigated due to right-of-way constraints.

Table 3: Intersection Level of Service - 2036 Recommended

Intersection	Intersection Control	LOS – AM	LOS – PM
Princess St./Concession St.	Signalized	D	D
Princess St./Regent St.	Two Way Stop Controlled	A	A
Princess St./Drayton Ave.	Signalized	A	A
Princess St./MacDonnell Ave.	Signalized	B	B
Princess St./Smith St.	Two Way Stop Controlled	A	A
Princess St./Victoria St.	Signalized	B	B
Princess St./Nelson St.	Two Way Stop Controlled	A	B
Princess St./Albert St.	Signalized	B	B
Princess St./Frontenac St.	Two Way Stop Controlled	A	A
Princess St./Alfred St.	Signalized	B	B
Princess St./Chatham St.	Two Way Stop Controlled	A	A
Princess St./University Ave.	Signalized	A	B
Princess St./Division St.	Signalized	B	B

2.2.2 Corridor Performance

Table 4 summarizes the transit travel times for the Do-Nothing scenario and the 2036 Mitigated Scenario, which shows that:

- During the AM peak hour, transit travel times increased slightly (~0.5 minutes) in the mitigated scenario due to the introduction of the traffic signal at Drayton Avenue; and
- During the PM peak hour, travel time remained identical in the eastbound direction and improved by approximately 2.5 minutes in the westbound direction. This improvement can be attributed to the introduction of the westbound transit queue jump lanes at the Drayton Avenue and Albert Street intersections.

Kingston Transit has indicated the intent for future express transit routes to operate with 5-minute headways. Proposed mitigation measures are focused on improving transit travel time. The implementation of westbound queue jump lanes prioritizes transit and provides the opportunity for express buses to “jump” ahead of queued vehicles in the adjacent lane. The desired 5-minute headways can be achieved through consistent travel times along the Princess Street corridor throughout the peak hours.

Table 4: Travel Times - 2036 Do Nothing and 2036 Recommended - Transit

Direction	Time Period	2036 Do-Nothing Travel Time	2036 Recommended Design Travel Time
Eastbound	AM Peak	8.1 minutes	8.4 minutes
	PM Peak	9.0 minutes	9.2 minutes
Westbound	AM Peak	7.4 minutes	8.0 minutes
	PM Peak	11.4 minutes	9.1 minutes

Figure 1 illustrates a conceptual transit queue jump lane at the Princess Street/Drayton Avenue intersection.

Figure 1: Conceptual Transit Queue Jump Lane

Table 5 summarizes the auto travel time impacts. Minimal changes to auto travel time are seen in the eastbound direction (~0.5 minutes). However, improvements are evident in the westbound direction during both peaks.

Of note, the auto travel time decreases by approximately 2.5 minutes during the PM peak hour. Again, this improvement can be attributed to the queue jump lanes which prevent buses from backing up traffic while picking up passengers at high volume express stops.

Auto travel times are shorter than transit travel times since buses service multiple stops along the corridor.

Table 5: Travel Times - 2036 Do Nothing and 2036 Recommended - Auto

Direction	Time Period	2036 Do Nothing Travel Time	2036 Recommended Design Travel Time
Eastbound	AM Peak	5.3 minutes	5.6 minutes
	PM Peak	6.2 minutes	6.6 minutes
Westbound	AM Peak	4.6 minutes	4.5 minutes
	PM Peak	8.8 minutes	6.0 minutes

2.3 Corridor Design Recommendations

The following geometric changes are recommended based on results of the traffic analysis:

Princess Street/Drayton Avenue:

- Implement curbside queue jump lane for westbound direction to provide opportunity for express buses to "jump" ahead of queued vehicles in the adjacent lane;
- Remove eastbound left turn lane to provide adequate space to accommodate introduction of westbound curbside queue jump lane;
- The implementation of a traffic control signal at Princess Street/Drayton Avenue will:
  - Enable the implementation of a westbound queue jump lane;
  - Improve pedestrian connectivity across Princess Street;
  - Provide a gap for eastbound left turning traffic at the end of each cycle to offset the impact of the removal of the eastbound left turn lane; and
- Implement transit signal priority (TSP) to reduce delays for buses.

Princess Street/Albert Street:

- Implement curbside queue jump lane for westbound direction to provide opportunity for express buses to "jump" ahead of queued vehicles in the adjacent lane;
- Remove eastbound left turn lane to accommodate introduction of westbound curbside queue jump lane; and
- Implement transit signal priority (TSP) to reduce delays for buses.

Princess Street & Nelson Street

- Implement left turn lanes in both directions to compensate for the removal of left turn lanes at Albert Street.

In addition to the above, right-in/right-out treatments were also considered to reduce the number of mid-block left turns, which should reduce the delays in the corridor for auto and transit vehicles. Select locations along the corridor were identified as potential future candidates for right-in/right-out treatment. These movement restrictions could be introduced in the future as necessary. The impact of implementing right-in/right-out treatments were not assessed in the modelling exercise.

Princess Street/Smith Street: Recommended conversion of north leg to right-in/right-out. Under existing conditions, the eastbound left and southbound left traffic will encroach on the MacDonnell Street westbound left turn storage when waiting for a gap in traffic. With right-in/right-out treatment, vehicles can use the traffic control signal at the Princess Street/MacDonnell Street intersection. Of note, the right-in/right-out option does not impact pedestrian connectivity since it is a three-leg intersection and free flow along Princess Street.

Princess Street/Chatham Street: Recommended conversion of north leg (Chatham Street) to right-in/right-out. Chatham Street is located 70 metres east of the Alfred Street intersection. With RIRO treatment in place, vehicles can alternatively use the signalized intersection at Alfred Street. Of note, the RIRO option does not impact pedestrian connectivity since it is a 3-leg intersection and free flow along Princess Street.

3.0 Cross-Section Design

The following sections provide an overview of the existing, and potential future, spatial allocations of the Princess Street road right-of-way. This right-of-way is particularly constrained through much its length between Bath Road and Division Street. This makes accommodation of all required and desired design elements challenging.

3.1 Existing Cross Section Allocation

The existing cross-section was reviewed to understand how the space is currently allocated and to identify areas for improvement. Within the tight urban environment of Princess Street, the right-of-way (distance between property lines) must not only include roadway elements to accommodate cyclists and vehicles, but also the various uses beyond the curb. This includes elements such as the swing of shop doors, streetlights, signs, bus stops, and garbage cans. The location and minimum required widths of key ROW elements are illustrated in Figure 2.

Figure 2: Elements of an Urban Road Right-of-Way.

Vehicular Lanes (Required)	Cycle Lanes (Optional – Not Shown)	Pedestrian Clearway (Required)
• Located between the curbs. • Minimum lane width of 3.3 m where lanes are used by trucks or buses due to width of these vehicles. • Required to provide access for vehicles on arterial transportation corridors.	• Dedicated space for travel by bicycle. • Located beside vehicular lanes or behind the curb. • Minimum clear width of 1.5 m for accessibility. • Width to be adjusted based on anticipated user volumes and street context.	• Most critical zone within the pedestrian realm. • Minimum clear width of 1.8 m for accessibility. • Width to be adjusted based on anticipated user volumes and street context. • Should be clearly delineated, direct and continuous.

Edge Zone (Required)	Furnishing/Planting (Optional)	Frontage Zone (Required)
• Space directly behind the curb that acts as a buffer between vehicles and other sidewalk/boulevard functions. • May include signs, parking meters, and snow storage. • Recommended minimum snow storage width for the City of Kington is 2.0 m. This width may be provided across the edge and furnishing zones.	• Located between the pedestrian clearway and edge, this zone provides space for streetscaping, streetlights, and storage for bikes and scooters. • Recommended minimum snow storage width for the City of Kingston is 2.0 m. This width may be provided across the edge and furnishing zones.	• Space adjacent to elements of the private realm, including building entrances and stoops. • Width of this zone must consider requirements of doors or gates that open towards the sidewalk, leg room required for users of benches and café seating, and ventilation grates.

Table 6 provides an overview of the median right-of-way (ROW) width within key blocks along Princess Street. Note that due to the historic nature of this roadway, there are several locations in each block where existing buildings encroach on the ROW. Table 6 also identifies the types and widths of transportation facilities that are currently provided there. The following list provides an overview of key takeaways from review of the existing Princess Steet design:

a) The current sidewalk width is less than required to meet Accessibility for Ontarians with Disabilities Act (AODA) requirements for two-way travel within two blocks. Only in one block does the sidewalk width exceed the minimum significantly (3 metres);
b) The cycling lanes are consistently 1.5 metres were provided but are discontinuous in some locations. Due to the lack of a buffer between the cycle lanes parked cars, cyclists are at risk of being 'doored' by vehicle doors opening unexpectedly into the bike lane;
c) The parking lanes consume a significant portion of the available section width, at 4 metres on each of two sides;
d) The through lanes are generally 3.5 metres, which is preferred by transit operators but can encourage increased vehicular travel speeds;
e) There are relatively few street trees, and there is minimal setback from buildings in some cases; and
f) Left turn lanes are provided at all signalized intersections.

Table 6: Existing Right-of-Way and Transportation Facility Widths[a]

Princess Street Segments	Average Mid-Block Right-of-Way Width	Average Widths of Existing Facilities			
		Sidewalk (m)	Cycle Lane (m)	Parking Lanes (m)	Through Lanes (m)
Concession St. to Regent St.	22	2.0	1.5	N/A	3.5
Regent St. to MacDonnell St.	18	3.0	1.5	N/A	3.5
MacDonnell St. to Frontenac St.	18	1.5	1.5	4.0	3.5
Frontenac St. to University Ave.	19.6	2.0	1.5	4.0	4.0
University Ave. to Division St.	19.5	1.5	1.5	4.0	3.5

[a] Note that the widths provided to not account for curb and gutter (0.5 m each side), the edge zone (0.3 m minimum) and frontage zones (0.5 m minimum). Widths are average and may be wider or narrower in certain sections.

3.1.1 Transit Stops

Table 7 summarizes the existing transit stops in the study area which service Route 4, Route 501 Express (eastbound), and Route 502 Express (westbound). The existing express bus routes operate every 15 minutes or less during weekday daytime hours, although the intent is to increase frequency to every 5 minutes by 2034.

For the purpose of considering the future design of Princess Street, Kinston Transit provided specific direction on the placement of two stops along the corridor:

- Princess Street / Albert Street: Stop placement has been finalized. The stop will be integrated into the façade of the buildings to be constructed on the southwest and northeast corners of the intersection; and
- Princess Street / Alfred Street: Westbound stop will be integrated into the north-east corner in similar fashion.

Table 7: Existing Transit Stops

Direction	Eastbound Stops	Stop Type	Route(s)
Eastbound	800 Princess Street	Midblock	4, 501 Express
	MacDonnell Street	Far Side	4
	Victoria Street	Near Side	4
	Albert Street	Near Side	4, 501 Express
	Alfred Street	Near Side	4
	University Avenue	Far Side	4
Westbound	University Street	Far Side	4
	Alfred Street	Far Side	4
	Albert Street	Near Side	4, 502 Express
	Legion Villa	Midblock	4
	Tower Street	Midblock	4, 502 Express

3.2 Alternative Princess Street Cross-Sections

3.2.1 Long List of Alternatives

Cross-section alternatives were developed by identifying alternative priorities for Princess Street and combining various desirable elements to determine what could potentially fit within the limited ROW. All alternatives included AODA-compliant sidewalks, minimum frontage and edge zones, and one minimum width vehicular lane in each direction to accommodate transit and limit vehicular infiltration into the adjacent neighborhoods. Removal of on-street parking was also considered in all alternatives.

Table 8 summarizes the recommended widths for various elements of the cross-section such as: frontage, walkways, furnishing zone, cycle tracks, cycle lanes, curb and gutter, and bus lanes. and the factors and guidelines used to identify these minimums. The factors and guidelines used to identify the minimum component dimensions include:

- City of Kingston Technical Standards and Specifications;
- Transportation Association of Canada (TAC)'s Geometric Design Guide (2019);
- Ontario Traffic Manual Book 18: Cycling Facilities, and
- City of Hamilton's *Street Furniture Guidelines*.

Discussion with City staff identified the following desired elements based on the direction adopted by Council in December 2020 that are above and beyond the minimum requirements summarized in Table 8:

a) Minimum 2.0-metre sidewalks, to enhance the pedestrian realm and exceed the requirements with Accessibility for Ontarians with Disabilities Act (AODA);
b) Inclusion of street trees, to enhance the pedestrian realm. Note that providing street trees on Princess Street will require the use of soil cells, which necessitate a minimum 1.5 m wide furnishing zone;
c) Provision of left turn lanes/transit queue jump lanes at key intersections to reduce travel delays for buses and general traffic. Reduced delay is important to support the use of Princess Street as a transit priority corridor; and
d) Accommodations for cyclists, since the Princess Street corridor is identified as a part of the spine cycling network.

Table 8: Minimum Right-of-Way Component Dimensions

Right of Way Component	Minimum Dimensions	Factors/Guidelines
Frontage Zone	0.5 metres	Based on the Transportation Association of Canada Geometric Design Guidelines (TAC GDG) Chapter 6 Section 6.3.1.1.
Walkway Zone	1.8 metres – 2.0 metres	Based on AODA standards for Accessible Exterior Paths of Travel (2019) and TAC GDG Chapter 6 Table 6.3.1, a 1.8 m minimum width is recommended to provide space for two wheelchairs or pedestrians to pass each other, and for wheelchairs to be able to turn around. 2.0 metres is the recommended width for areas with a peak pedestrian flow rate greater than 400 pedestrians per 15 minutes.
Furnishing Zone	1.85 metres	The width ensures that the placement of furniture does not obstruct the walkway zone by providing space for access, use and maintenance of furniture elements. Values were based on TAC GDG Chapter 6 Section 6.3.1.3.
Transit Shelter	Landing Pad: 9m x 2.5m min Ramp Deployment: 1.5m x 2.5m min Clearway: 1.5m min width	Transit shelter width based on the City of Hamilton HSR Stop Accessibility Guidelines.
Cycle Track	2.0 metres (One way) 3.5 metres (Two way)	Based on OTM Book 18 Table 4.4.
Curb/Gutter	0.5 metres	Based on City of Kingston Technical Standards and Specifications. Reference to City of Kingston Technical Standards and Specifications. References OPSD 600.100

Right of Way Component	Minimum Dimensions	Factors/Guidelines
Cycle Lane	1.5 metres + 0.3m buffer	Based on OTM Book 18 Table 4.7. Note that an additional 0.3 m can be provided by having cyclists use the gutter.
Bus Lane	3.3 metres	3.5 m preferred. Minimum width indicated by City staff and supported by TAC GDG Table 4.2.3.
Through Lane/Turn Lane	3.3 metres	3.3m preferred. Minimum width indicated by City staff and supported by TAC GDG Table 4.2.3.

It is a significant challenge for Princess Street to simultaneously be a transit priority corridor, a cycling spine route, a pedestrian-friendly corridor, and an arterial class roadway due to the limited right-of-way. Therefore, compromises need to be made in a way that improves multi-modal mobility while recognizing the limited space to accommodate all modes of travel in a narrow corridor. To this end, provisions for transit priority and improved pedestrian realm were prioritized over maintaining on-street parking on Princess Street. There is parking available on side streets and within off-street parking areas to accommodate business needs.

The following sub-sections provide more detail on each of the six alternatives that were developed for use on Princess Street between Bath Road and Division Street. Table 9 summarizes the alternatives which were developed and their ability to provide desired elements, as identified through discussion with City staff.

3.2.2 Alternative **1**: Prioritize Pedestrian Realm

Alternative 1 prioritized widening of the pedestrian realm through removal of on-street parking, existing cycling lanes, and most left turn lanes. This alternative included implementation of transit priority lanes at Albert Street and Drayton Avenue as recommended in Section 2.3. Cyclists could be accommodated on shared lanes on Princess Street or could use alternative routes on adjacent streets. This alternative was the only one that provides the city with the space required for continuous >2.0m sidewalks and street trees on both sides of the roadway.

3.2.3 Alternative **2**: Implement Cycle Tracks (Both Sides)

Alternative 2 contemplated implementation of unidirectional cycle tracks (each 2.0 m wide) on both sides of Princess Street. Cycle tracks are typically located beyond the curb and constructed at sidewalk height. They are considered the most appropriate facility type for the broadest range of cyclist experience levels.

Spatial requirements for the cycle tracks would negate to potential to provide left turn lanes or transit priority features within the corridor. This would lead to significant delays and compromise the City's ability to provide express transit service on the corridor. Reduction of the ideal sidewalk width would be required between Regent Street and Frontenac Street. Provision of AODA-compliant sidewalks would not be feasible at intersections between MacDonnell Street Frontenac Street. The feasibility of implementing street trees would be severely limited with this alternative.

3.2.4 Alternative **3**: Implement Bi-Directional Cycle Track (One Side)

Alternative 3 contemplated implementation of bidirectional cycle tracks on one side of Princess Street. Bidirectional cycle tracks require less width to accommodate travel in two directions than separate unidirectional facilities. The primary challenge associated with bi-directional cycling facilities results from an increase in the number of vehicle – cyclist conflict points at intersections and the challenge of driver expectations.

This alternative would provide adequate additional width in the ROW to accommodate sidewalks with widths of at least 2.0 m throughout the corridor. This would, however, require removal of all on- street parking and left turn lanes. The limited space would also negate the potential to provide left turn lanes or transit priority features through much of the corridor without compromising sidewalk width.

3.2.5 Alternative **4**: Implement Westbound Cycle Track Only

Alternative 4 contemplated implementation of a unidirectional cycle track on one side of Princess Street to further reduce spatial requirements. Cyclist traveling in the opposite direction could share lanes with vehicles on Princess Street or use alternative routes. Alternative 4 would provide adequate additional space in the ROW to accommodate sidewalks with widths of at least 2.0 m throughout the corridor, as well as accommodate left turn lanes at key intersections. The limited space would, however, negate the potential to provide the transit priority features recommended in Section 2.3.

3.2.6 Alternative **5**: Implement On-Street Cycle Lanes

Alternative 5 is similar to the existing condition on Princess Street with the exception of removal of all on-street parking and the reallocation of space for wider pedestrian facilities and limited landscaping. Cycling lanes are assumed to be 1.5 m wide with no buffer between vehicular traffic and the cycling lane. This alternative included implementation of transit priority lanes at Albert Street and Drayton Avenue as recommended in Section 2.3. With Alternative 5, 2.0 m sidewalks can generally be provided on Princess Street with exception of the blocks between Regent Street and MacDonnell Street. Landscaping could feasibly be implemented west of Regent Street and east of Frontenac Street. Transit priority features and left turn lanes could be implemented for this alternative but would require further compromises to sidewalk width.

3.2.7 Alternative **6**: Prioritize Transit Operations

Alternative 6 contemplated inclusion of a continuous westbound transit lane to improve transit reliability in the most congested direction. Alternative 6 prioritized widening of the pedestrian realm and the addition of the transit lane through removal of on-street parking, existing cycling lanes, and all left turn lanes. Cyclists could be accommodated on shared lanes on Princess Street or could use alternative routes on adjacent streets. Landscaping could feasibly be implemented west of Regent Street and east of Frontenac Street. While transit travel times would be greatly enhanced in the westbound direction, the removal of all left turn lanes would result in significant backups in the general use lanes in both directions. This would have significant negative impacts on eastbound transit vehicles travelling these lanes.

Table 9: Overview of High-Level Analysis of Cross-Section Alternatives

- Xs are used to identify segments where elements are expected to fit based with some minor compromises.
- Compromise solutions consider reducing the furnishing zone to 0.5 m before reducing sidewalk widths below 2 m.

	Alternative	Alternative 1: Wide Pedestrian Realm							Alternative 2: Cycle Tracks							Alternative 3: Bidirectional Cycle Track							Alternative 4: One-Way Cycle Track							Alternative 5: On-Road Cycling Lanes							Alternative 6: Continuous Bus Lane						
	Design elements / Segments	Trees	Sidewalk < 1.5 m	Sidewalk 1.5 m-2.0 m	Sidewalk > 2.0m	Uni-directional cycle lanes	Bidirectional cycle facilities	Continuous 3rd Lane/Left turn lane	Trees	Sidewalk < 1.5 m	Sidewalk 1.5 m-2.0 m	Sidewalk > 2.0m	Uni-directional cycle lanes	Bidirectional cycle facilities	Continuous 3rd Lane/Left turn lane	Trees	Sidewalk < 1.5 m	Sidewalk 1.5 m-2.0 m	Sidewalk > 2.0m	Uni-directional cycle lanes	Bidirectional cycle facilities	Continuous 3rd Lane/Left turn lane	Trees	Sidewalk < 1.5 m	Sidewalk 1.5 m-2.0 m	Sidewalk > 2.0m	Uni-directional cycle lanes	Bidirectional cycle facilities	Continuous 3rd Lane/Left turn lane	Trees	Sidewalk < 1.5 m	Sidewalk 1.5 m-2.0 m	Sidewalk > 2.0m	Uni-directional cycle lanes	Bidirectional cycle facilities	Continuous 3rd Lane/Left turn lane	Trees	Sidewalk < 1.5 m	Sidewalk 1.5 m-2.0 m	Sidewalk > 2.0m	Uni-directional cycle lanes	Bidirectional cycle facilities	Continuous 3rd Lane/Left turn lane
Mid-block	Concession St. to Regent St.	X			X				X			X		X		X			X		X		X			X	X			X			X		X		X			X			X
Mid-block	Regent St. to MacDonnell St.	X			X						X			X					X		X					X	X					X			X					X			X
Mid-block	MacDonnell St. to Frontenac St.	X			X						X			X					X		X		X			X	X						X		X					X			X
Mid-block	Frontenac St. to University Ave.	X			X				X			X		X		X			X		X		X			X	X			X			X		X		X			X			X
Mid-block	University Ave. to Division St.	X			X				X			X		X		X			X		X		X			X	X			X			X		X		X			X			X
Intersection	Concession St. to Regent St.	X			X			X	X			X		X		X			X		X					X	X		X	X			X		X		X			X			
Intersection	Regent St. to MacDonnell St.	X			X			X				X		X		X			X		X		X			X	X			X			X		X		X			X			
Intersection	MacDonnell St. to Frontenac St.				X			X		X				X					X		X		X			X	X						X		X					X			
Intersection	Frontenac St. to University Ave.	X			X			X	X			X		X		X			X		X					X	X		X	X			X		X		X			X			
Intersection	University Ave. to Division St.	X			X			X	X			X		X		X			X		X					X	X		X	X			X		X		X			X			
	Notes	Wider sidewalks and left turn /queue jump lanes can be provided throughout the entire study corridor. With exception of intersections between MacDonnell and Frontenac, street trees can also be accommodated on both sides of the corridor.							Alternative cannot be used in combination with left turn lanes or queue jump lanes. Only three sections can accommodate the proposed design. Implementation in other sections would result in sub-standard sidewalk widths.							Alternative cannot be used in combination with left turn lanes or queue jump lanes. 2 m minimum sidewalk widths can be maintained throughout. the ability to accommodate street trees/furniture between Regent and Frontenac may be compromised.							Wider sidewalks can be accommodated throughout, with left turn or queue jump lanes feasible in three sections if the furnishing zone is reduced.							Alternative cannot be used in combination with left turn lanes or queue jump lanes without compromising the sidewalk.							Wider sidewalks and a continuous transit lane can be provided throughout. Street trees can also generally be accommodated. Left turn lanes will need to be removed.						
		CARRY FORWARD							SCREEN OUT							SCREEN OUT							SCREEN OUT							CARRY FORWARD							SCREEN OUT						

3.2.8 Short List of Alternatives

Alternatives 1 and 5 were recommended to be carried forward for further analysis based on their ability to provide for the majority of the desired elements.

- Figure 3 illustrates the short list of cross section alternatives, which include:
- Alternative 1: “Two Through Lanes & Wide Pedestrian Realm”; and,
- Alternative 5: “Two Through Lanes & On-Road Cycle Lanes”.

Plan view conceptual design drawings for both alternatives have been included in Appendix A.

Both of these alternatives support the priorities of the corridor with dedicated facilities for transit, improved pedestrian realm, and promoting cycling. While Alternative 1 does not provide dedicated cycling facilities, traffic is anticipated to move quite slowly through the corridor making it suitable for more confident riders. Unfortunately, due to the ROW constraints of Princess Street, it was not possible to provide improvements to all modes simultaneously. The key trade off between Alternative 1 and Alternative 5 is the support for either the wide pedestrian realm or on-road cycling lanes.

Both alternatives are expected to have transit queue jump lanes at critical intersections. As noted earlier, transit queue jump lanes are important to reduce delays and maintain transit priority in the Princess Street corridor, particularly with buses running as frequently as every 5 minutes in the future. Both alternatives will be carried forward for further analysis and consultation with the public.

Figure 3: Renderings for Short List of Alternatives

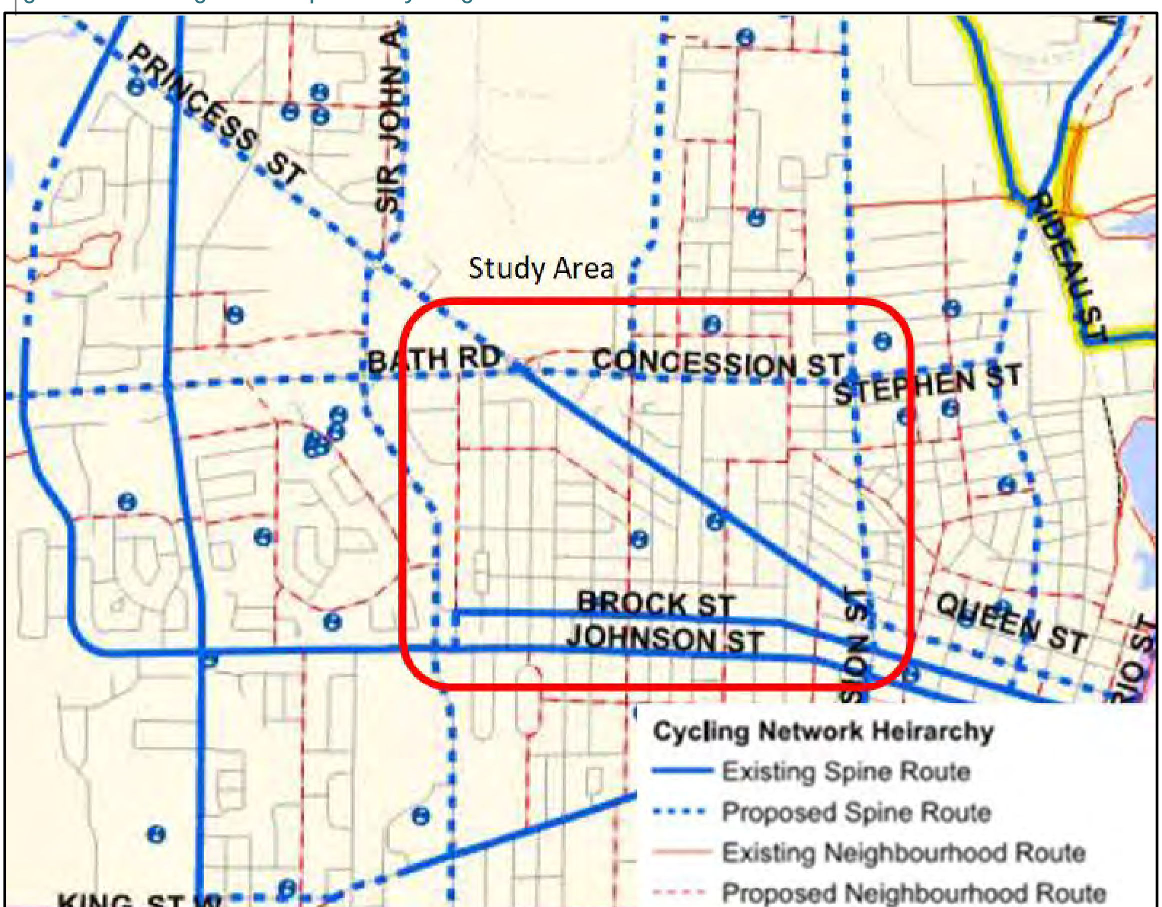
Alternative 1: Wide Pedestrian Realm	Alternative 5: On-Road Cycle Lanes

3.3 Cycle Network Impacts

As part of the 2012 Main Street Study, it was recommended that the surrounding local streets in the Williamsville area be improved with neighbourhood bikeway options to promote cycling. The existing and proposed cycling routes in the Active Transportation Master Plan (ATMP) were reviewed to understand cycling connectivity.

Figure 4 illustrates the Existing and Proposed Cycling Routes from the *Walk 'n' Roll Kingston Final Report* (ATMP). This shows that Princess Street, Brock Street and Johnson Street are existing Spine Routes with on-road cycling lanes, and Division Street, Concession Street, and Sir John A. Macdonald Boulevard are proposed Spine Routes. There are also proposed Neighbourhood Routes running north-south through the Williamsville area.

Figure 4: Existing and Proposed Cycling Routes



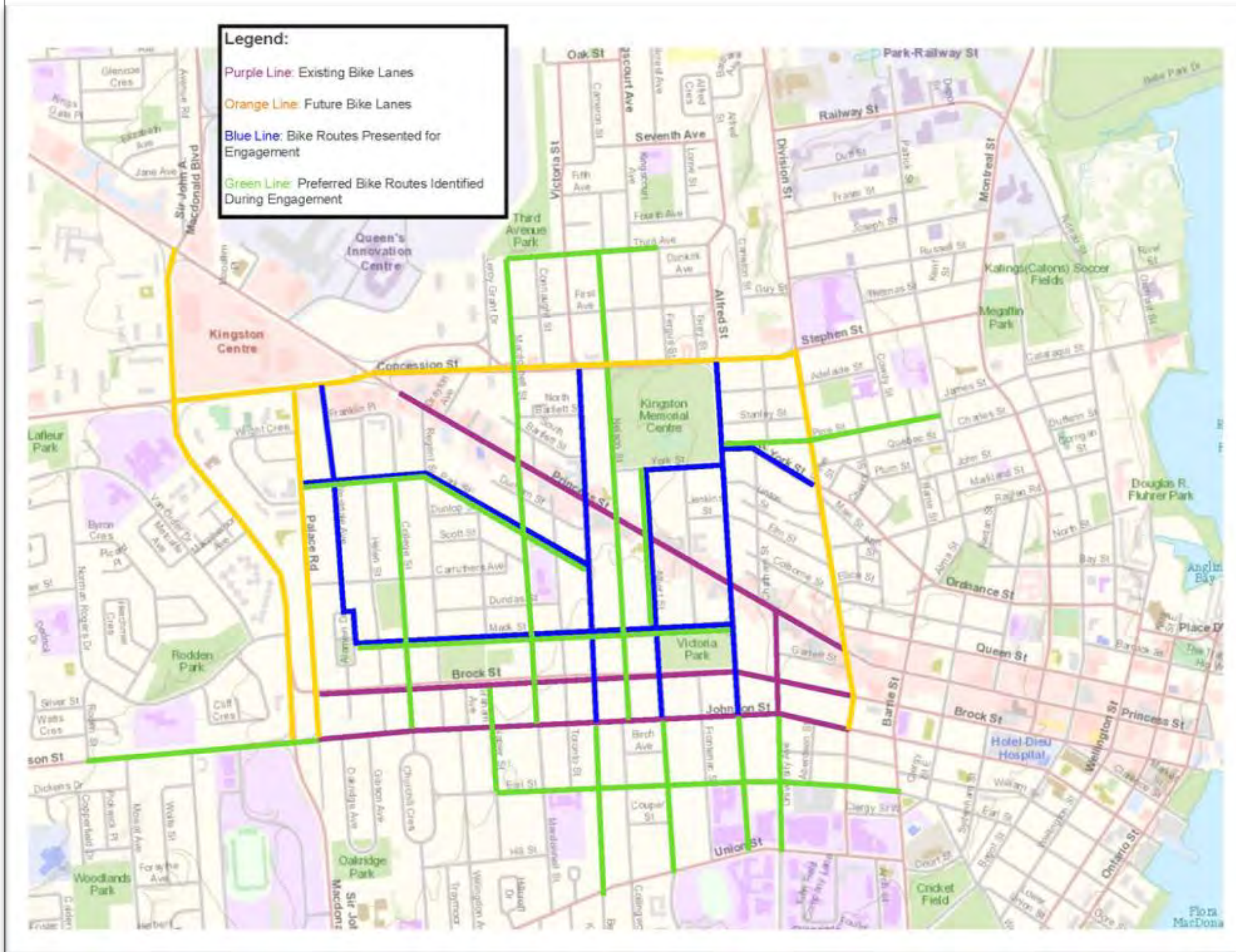
Source: Walk 'n' Roll Final Report, Map 2B, Cycling Network Hierarchy

In general, there are cycling facilities in the surrounding areas of Williamsville. The removal of cycling facilities from Princess Street eliminates a direct connection for through trips on Princess Street; however, alternative routes and options exist. If dedicated cycling facilities are removed from Princess Street, then the following should be considered:

- Promoting the use of Brock and Johnson Streets as part of the spine cycling network. Connections could be provided along Palace Road or Sir John A. Macdonald Boulevard up to Bath Road;
- Developing Concession Street as part of the spine cycling network alternative to connect into future bike facilities along Princess Street, west of Bath Road, and connect into existing and proposed bike facilities along Division Street;
- Developing neighbourhood bike routes – these routes would be formalized with wayfinding and could potentially include traffic calming and other measures to promote cycling along these areas.
- Confident cyclists can also continue to bike along Princess Street.

Figure 5 illustrates the neighbourhood bike routes which were considered to provide access to and from Princess Street if dedicated facilities are removed from the Main Street. For locations crossing Princess Street without a traffic control signal, a pedestrian/cycling crossover could be considered if the crossover is required for system connectivity. In general, it is recommended that additional neighbourhood bike routes are considered to provide connections throughout Williamsville and to existing and proposed bike routes to the south. These neighbourhood bike routes will be carried forward and brought to the public for consultation.

Figure 5: Proposed Neighborhood Cycling Network



4.0 Recommendations

Detailed traffic microsimulation and cross-section investigations have resulted in recommendations for the design of Princess Street and the need for a neighborhood bikeway network. The following geometric changes are recommended to support vehicular movement, prioritize transit, and reduce the proportion of the right-of-way allocated to vehicular traffic regardless of what alternative is carried forward:

- Removal of all existing on-street parking between Bath Road and Division Street,
- Add traffic signals and a westbound right turn / transit priority lane at Drayton Avenue,
- Widen the eastbound lane to 5 m on approach to the eastbound express stop at Tower Street to allow vehicles to slip past buses which are servicing the stop,
- Add traffic signals and east/westbound left turn lanes at Nelson Street,
- Remove existing left turn lanes at Albert Street and add a westbound right turn / transit priority lane, and
- Narrow vehicular lanes to 3.3 m.

Additional analysis is recommended prior to identifying a preferred cross-section for Princess Street. The following additional tasks are recommended:

- Undertake consultation with agencies, advocacy groups and the public to understand priorities and concerns;
- Conduct parking occupancy and requirement studies to identify locations where on -street parking can be removed and where accessible parking needs to be maintained;
- Explore the feasibility and potential design alternative for implementation of an expanded neighborhood bikeway network within Williamsville;
- Implement traffic calming throughout Williamsville, and particularly on local roadways adjacent to Princess Street, to minimize vehicular detouring and speeding and encourage cycling;
- Consider the use of 'green streets' concepts to improve walkability, improve cycling desirability, provide additional tree canopy, and reduce vehicular traffic; and
- Complete topographical surveys and advance the conceptual designs proposed through this study to confirm feasibility of implementation.

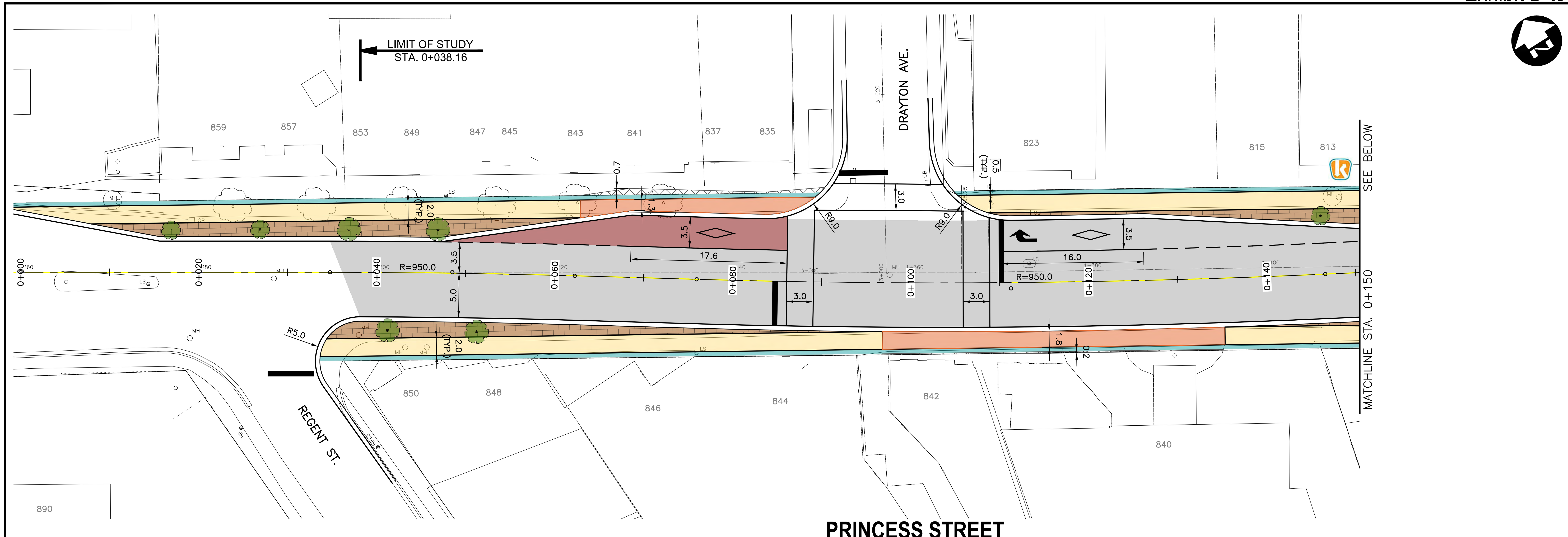
Completion of this study is an early step towards improving multi-modal mobility within the Williamsville Area.

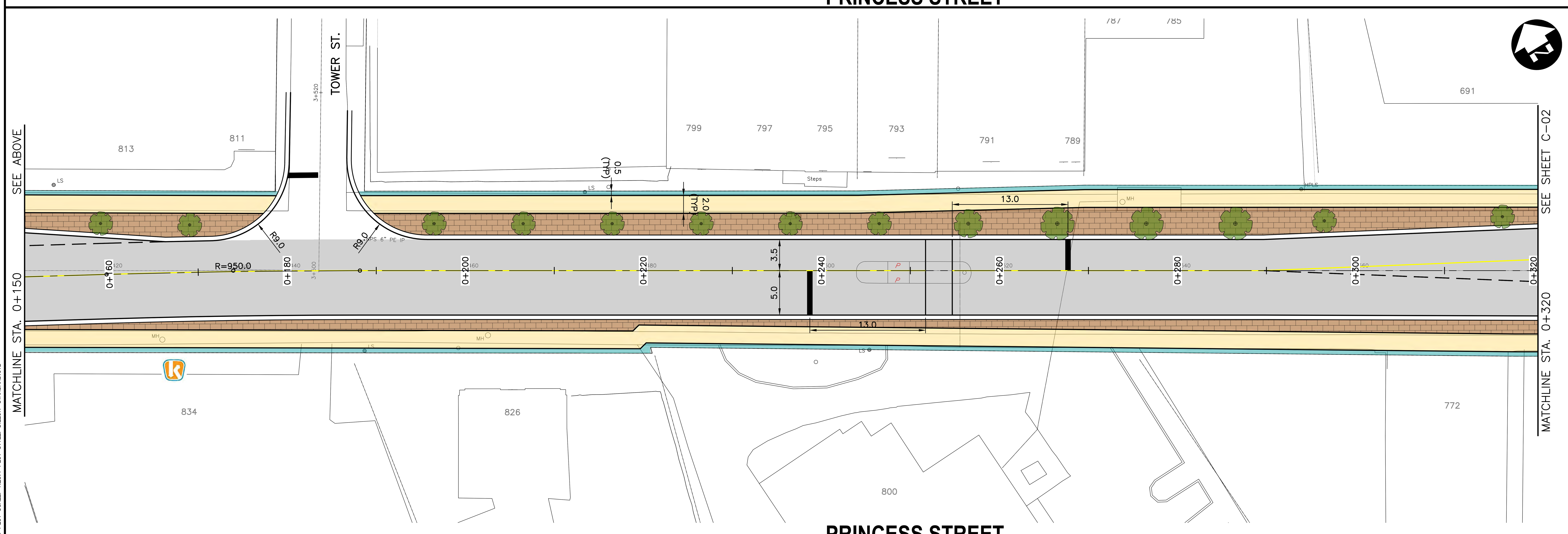
Appendix A

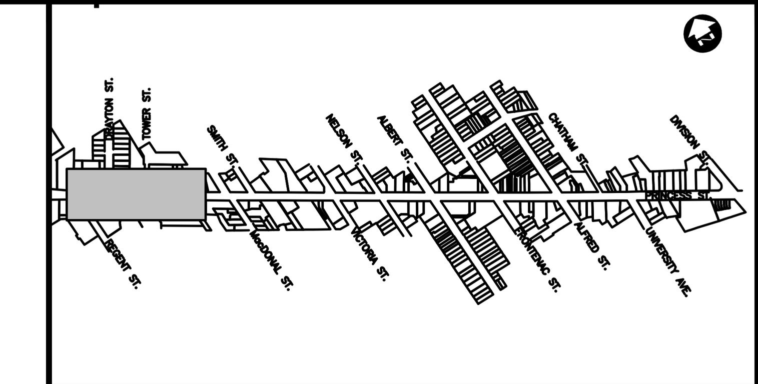
Traffic Analysis Results

Appendix B

Plan View Conceptual Design Drawing







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- PEDESTRIAN THROUGHWAY
- ADDITIONAL SPACE FOR PEDESTRIAN REALM, AMENITIES AND STREET TREES
- FRONTAGE ZONE
- KINGSTON TRANSIT STOP
- POTENTIAL FOR STREET TREES (EXACT LOCATIONS TO BE DETERMINED THROUGH DETAILED DESIGN)
- REQUIRED SPACE FOR 2M SIDEWALK AND 0.5M FRONTAGE

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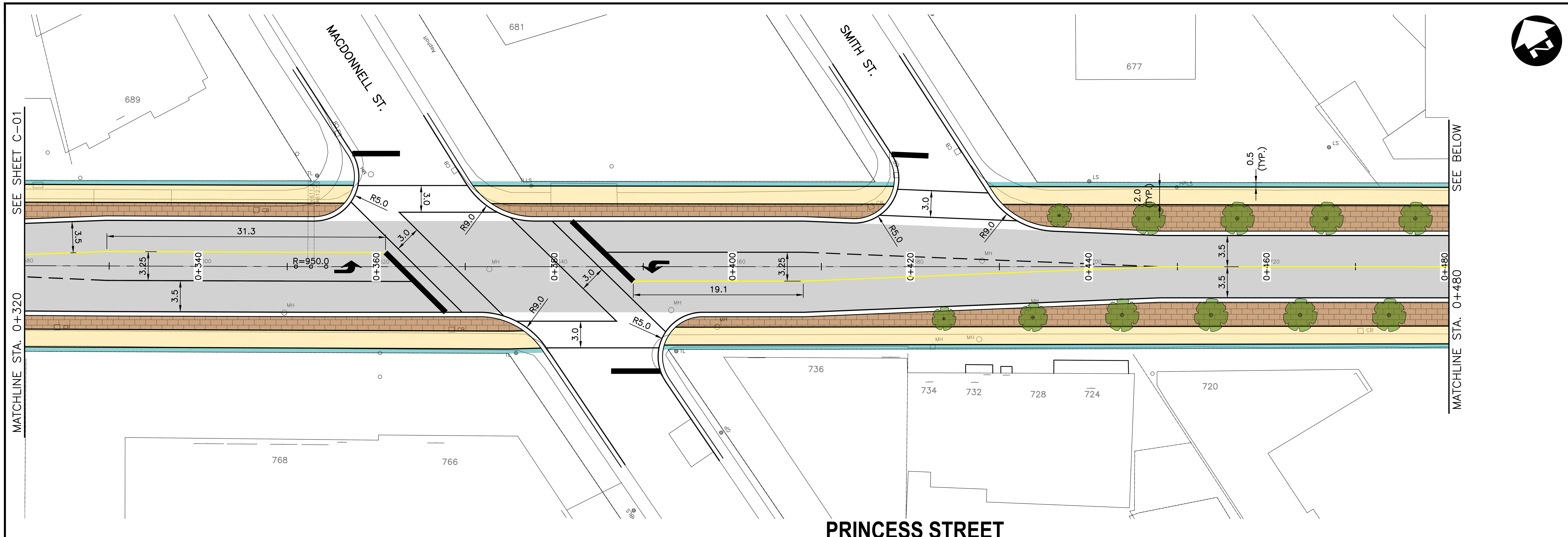

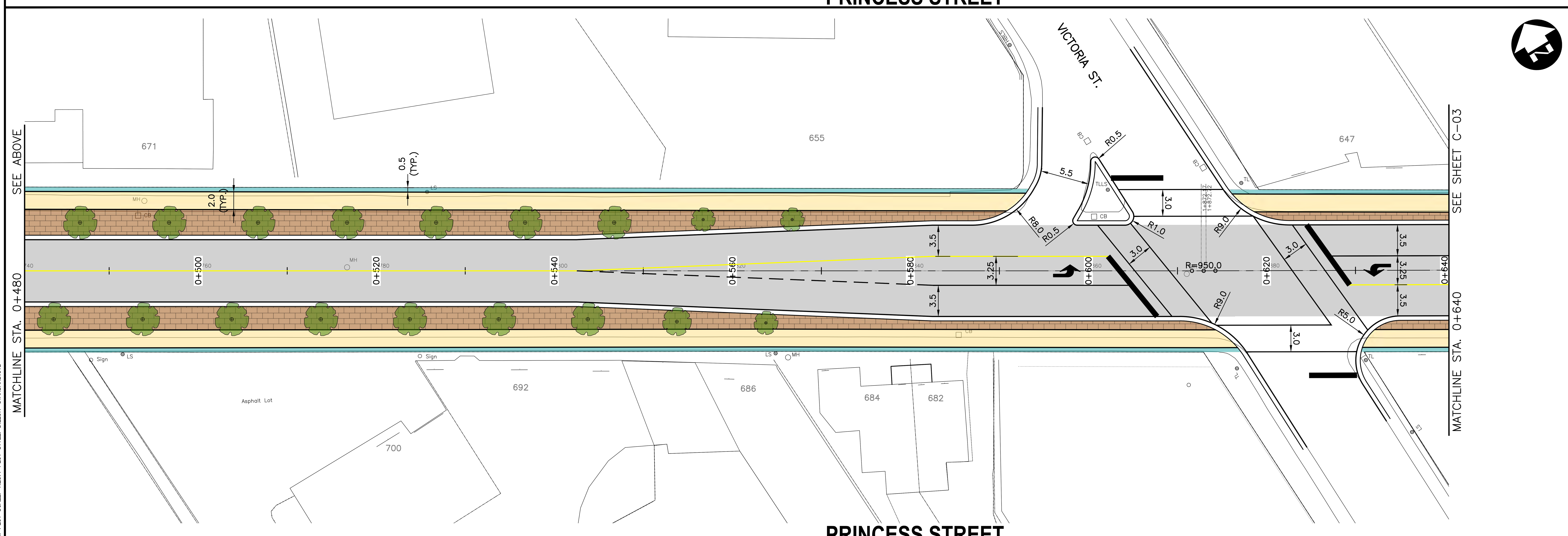

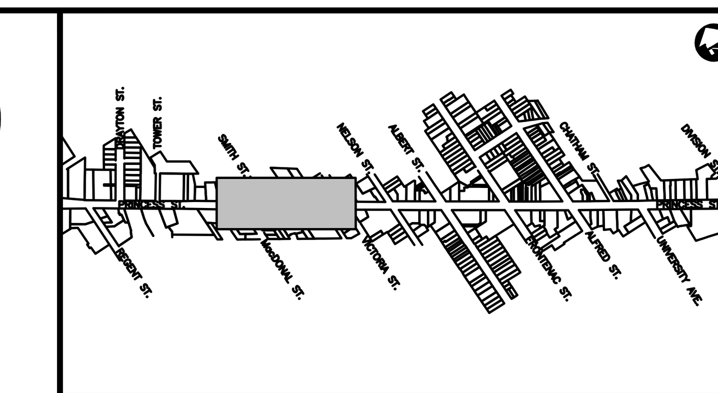

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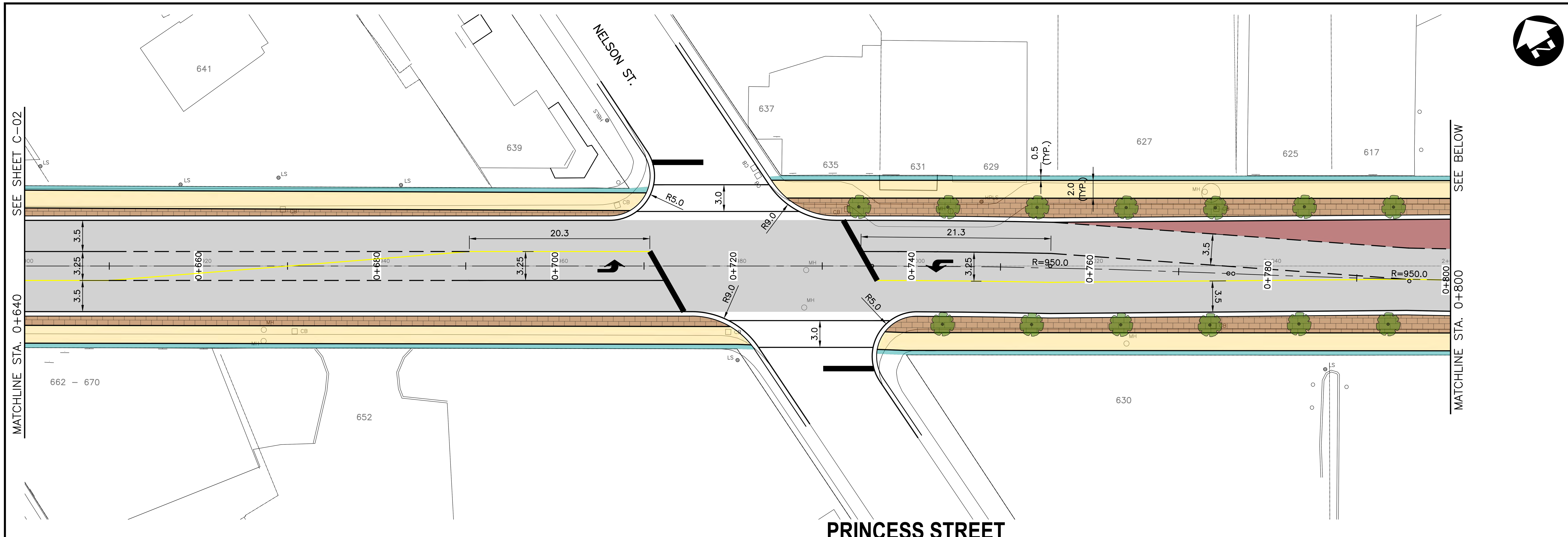

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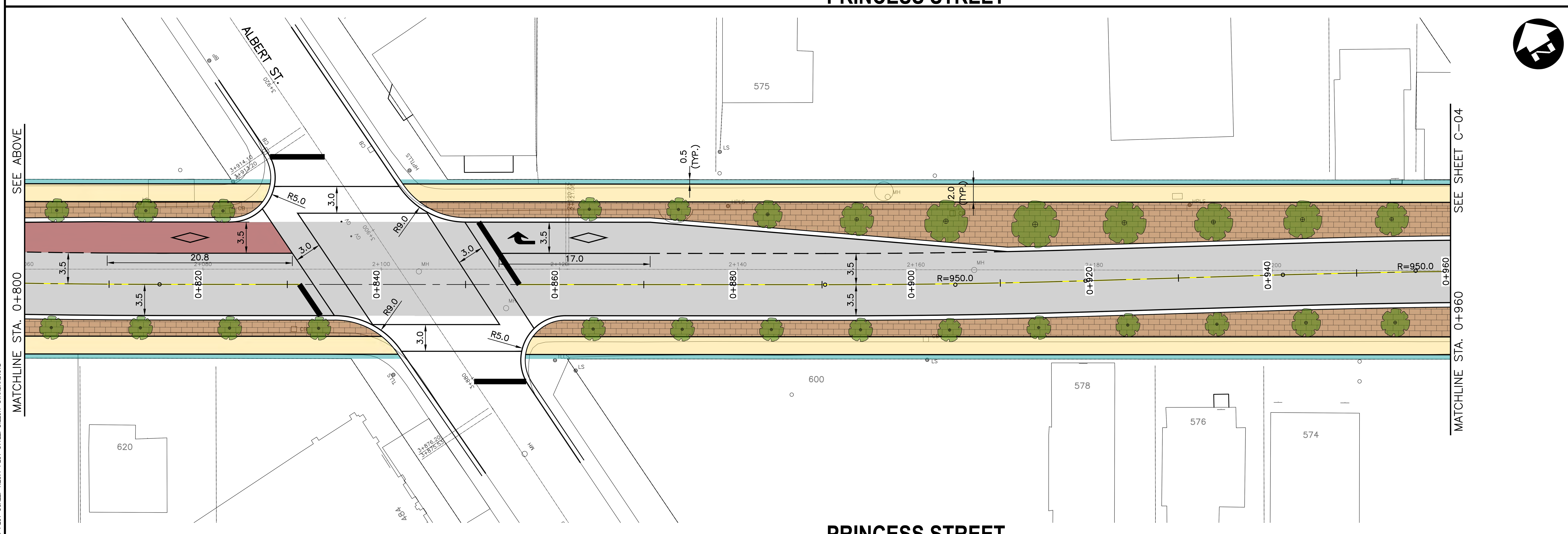

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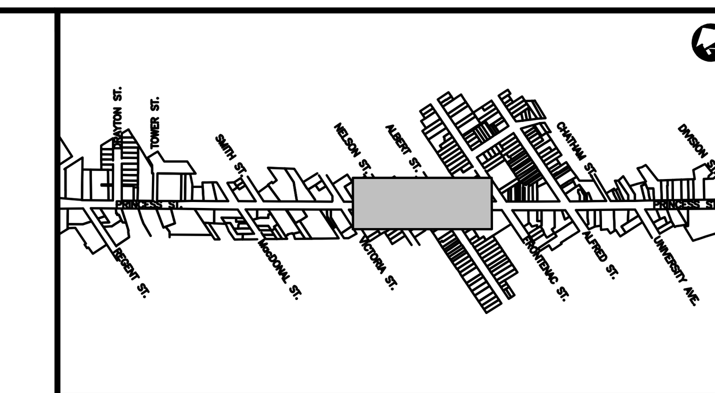

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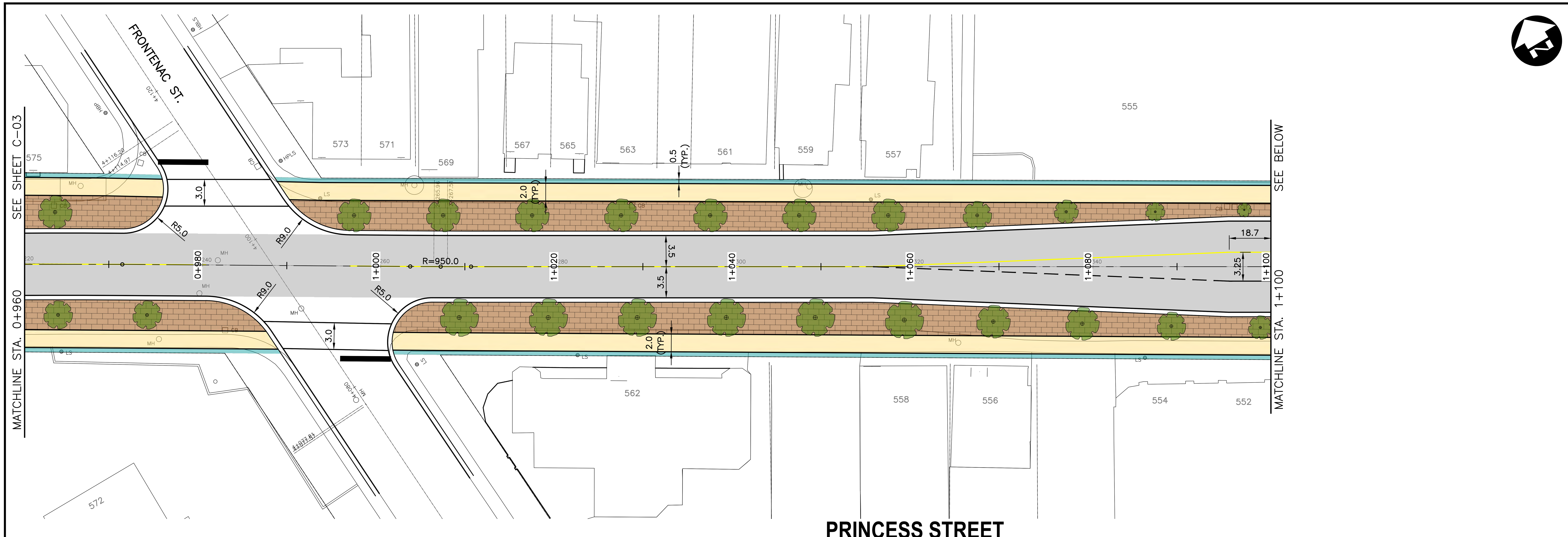

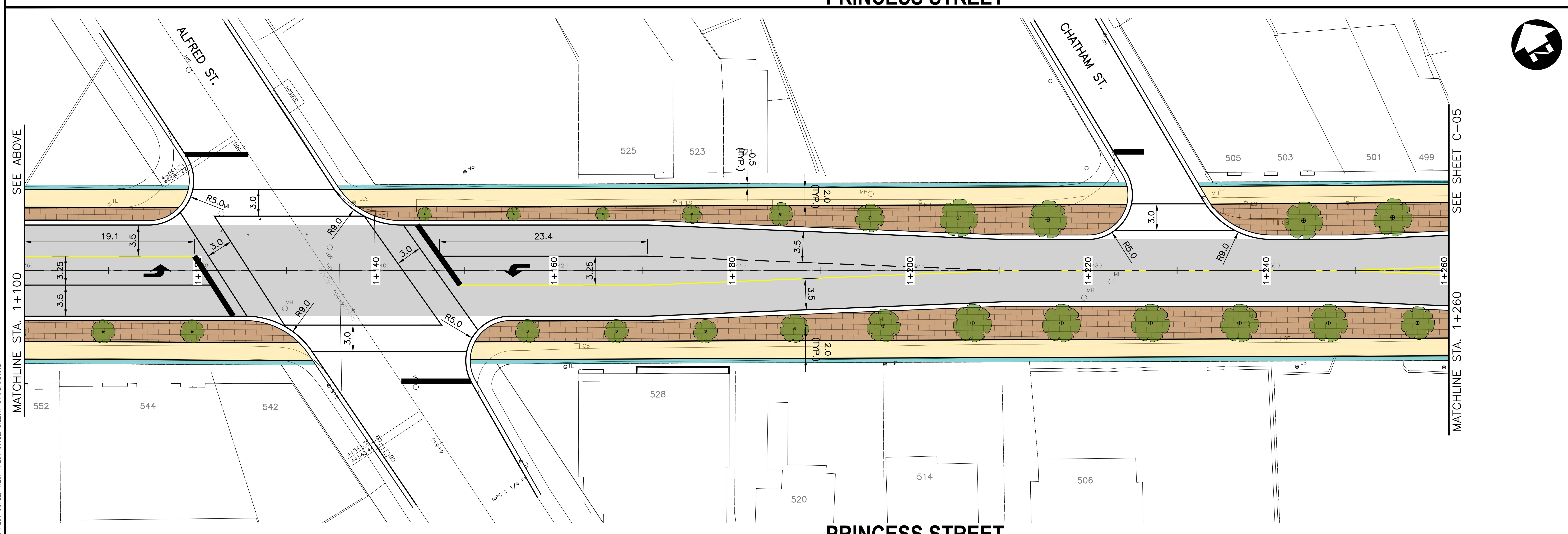

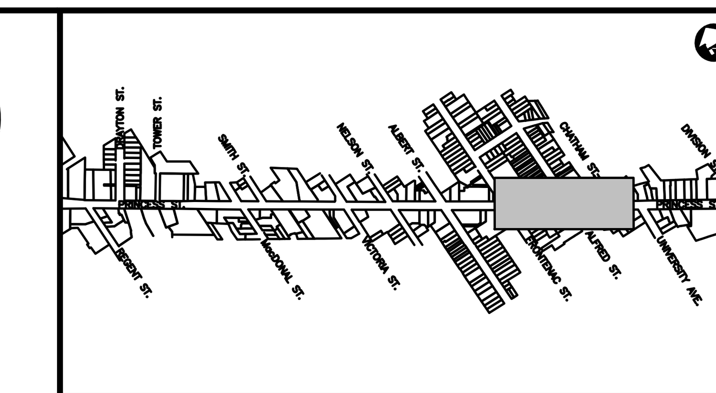

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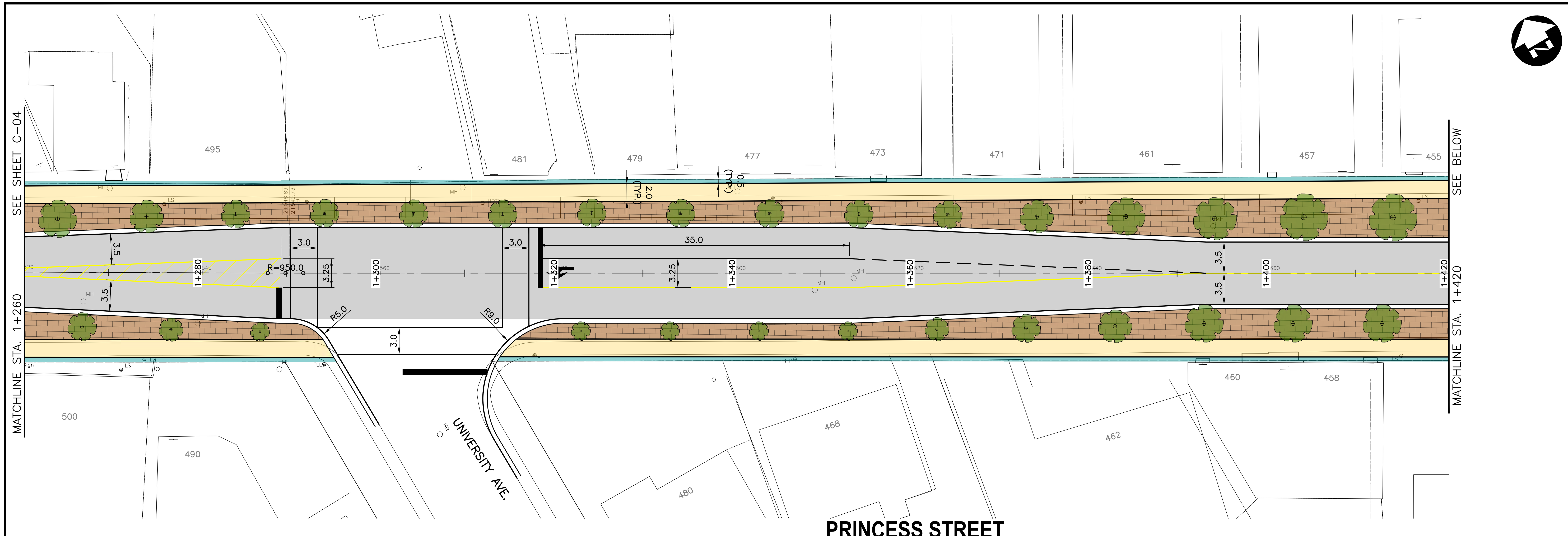

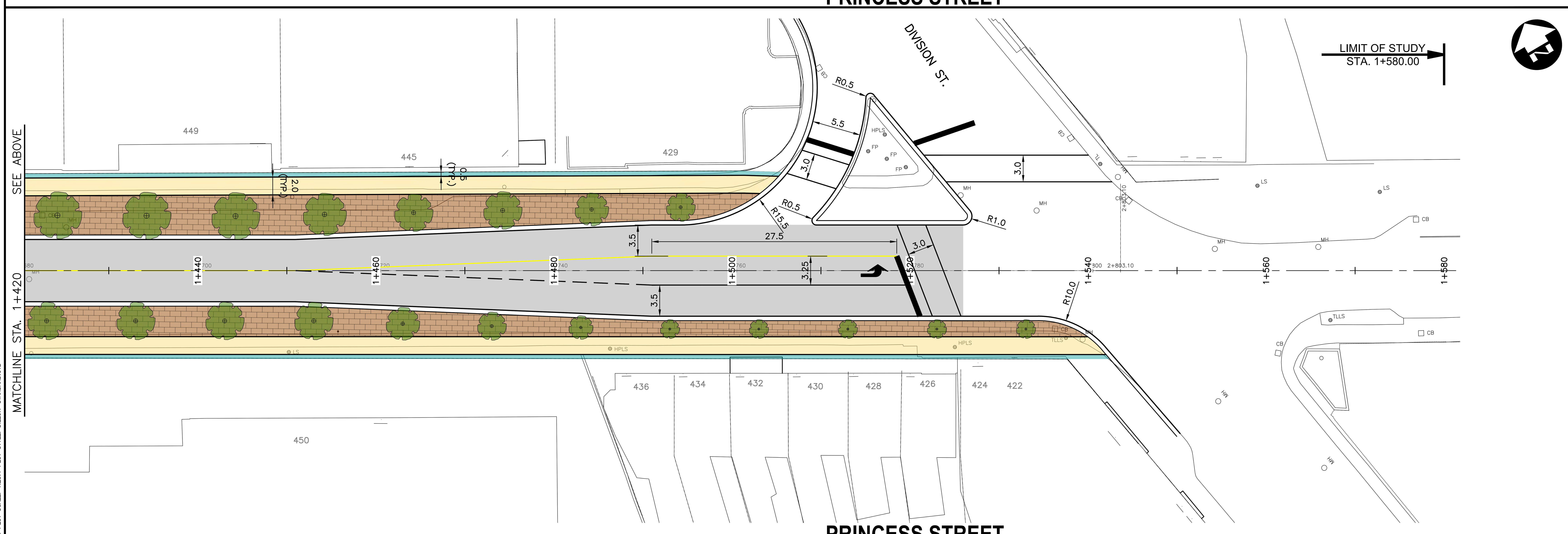

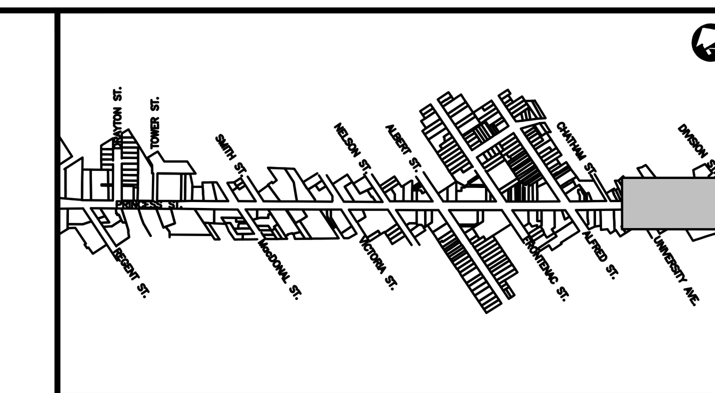

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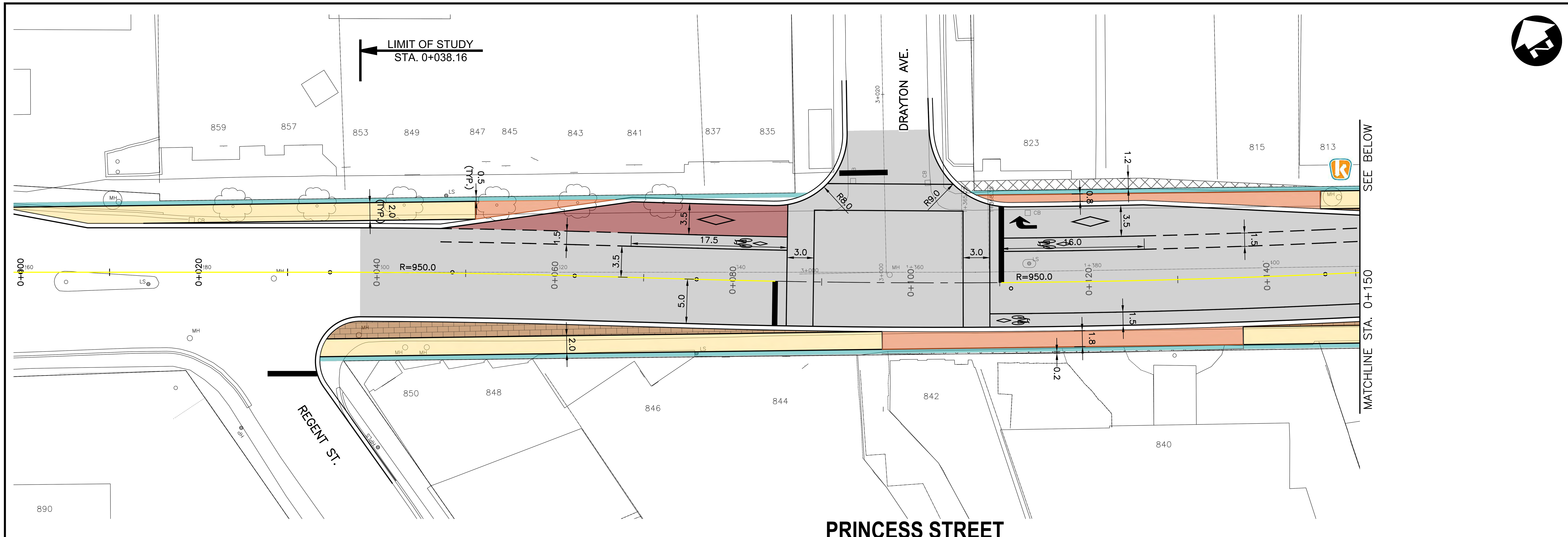

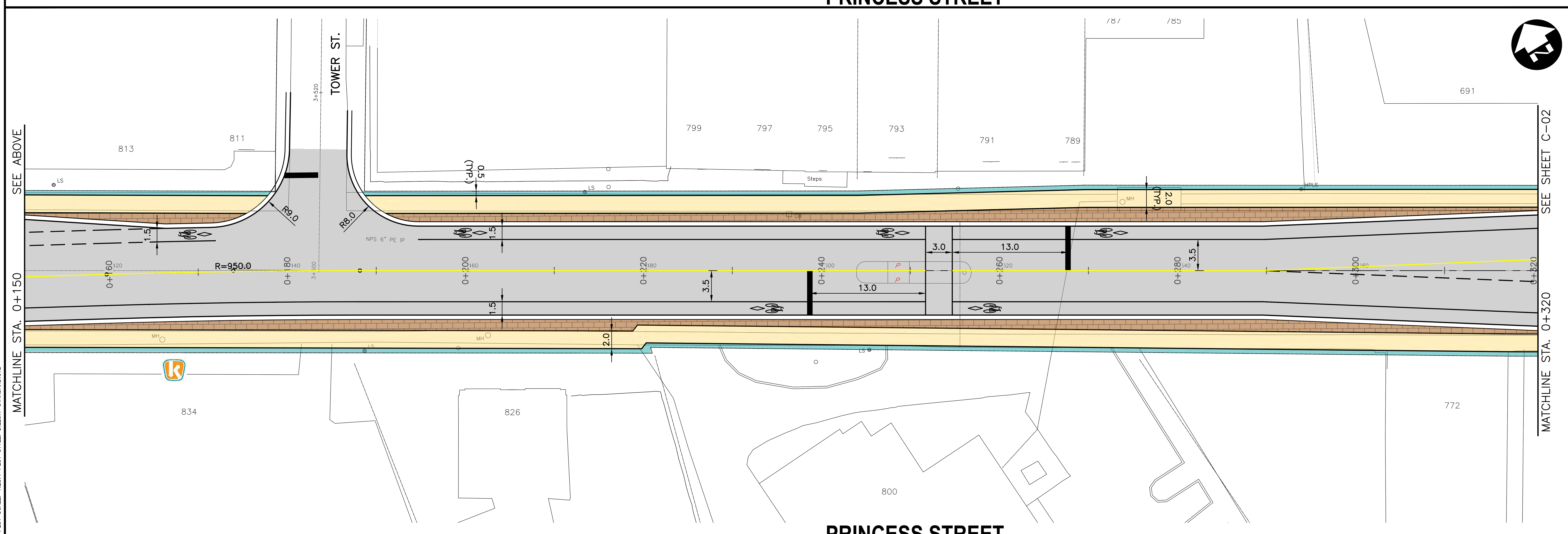

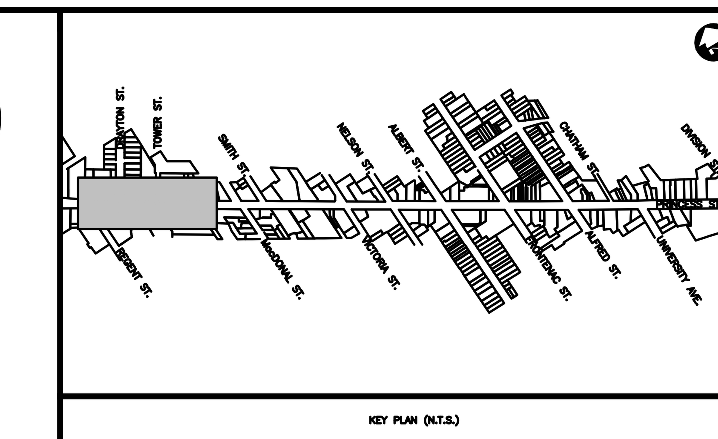

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ALTERNATIVE 5
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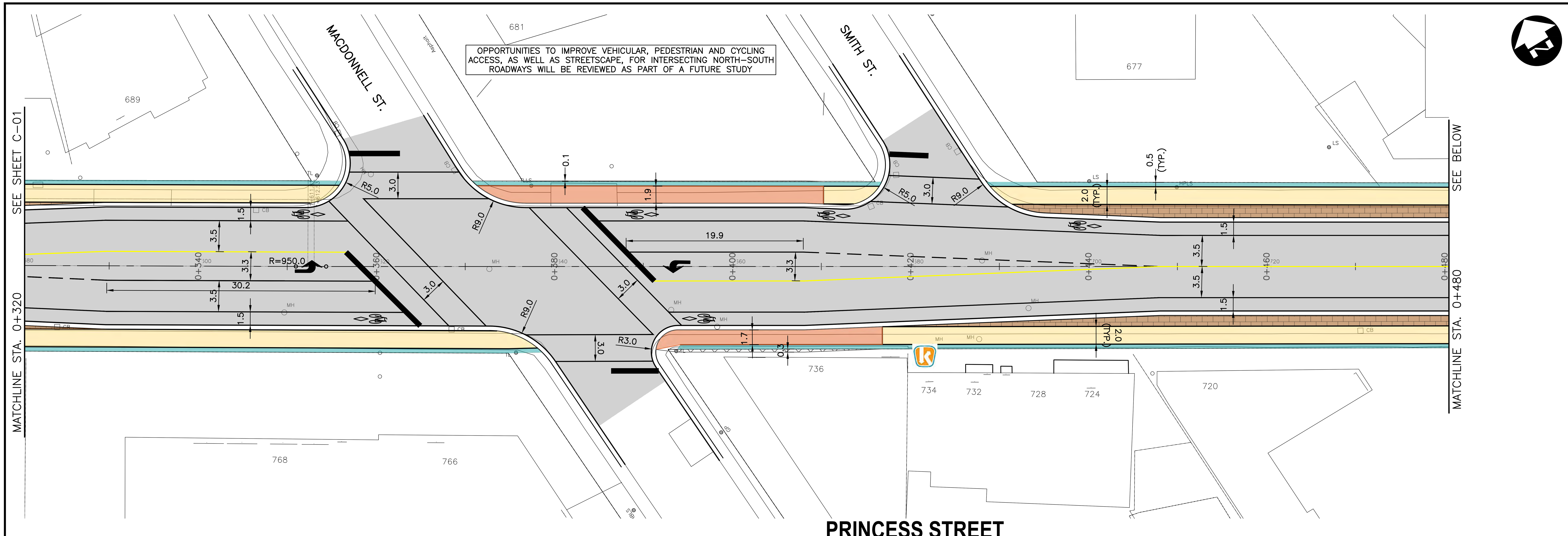

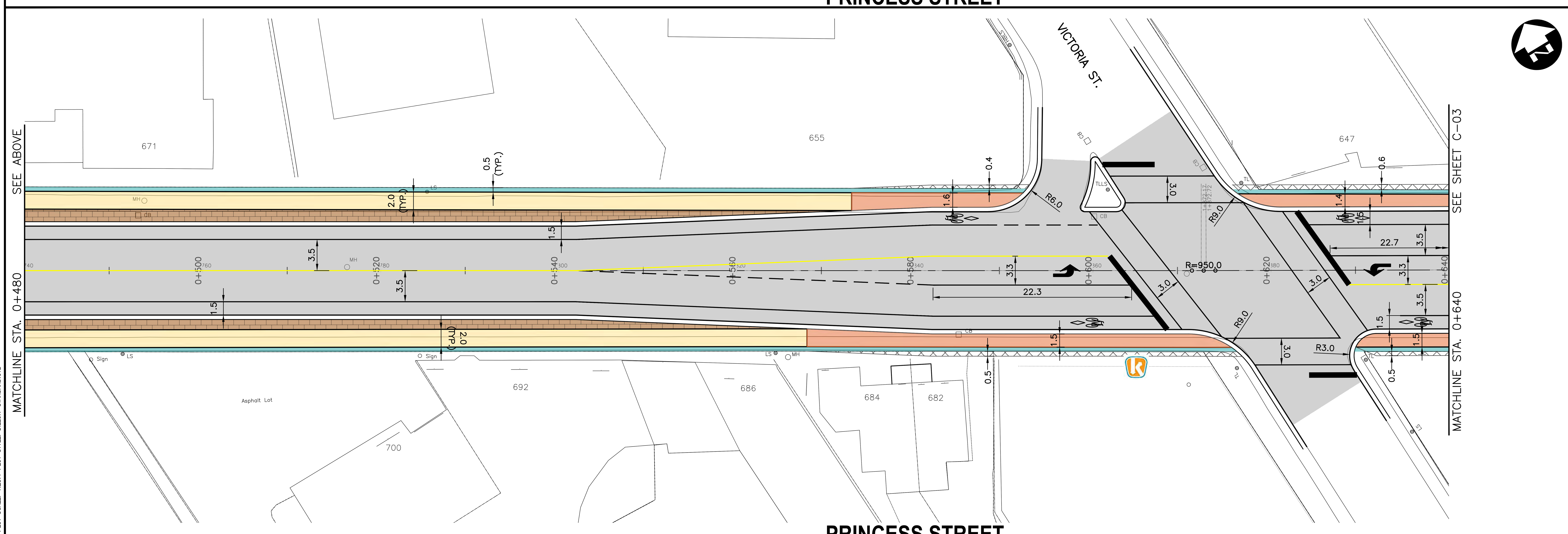

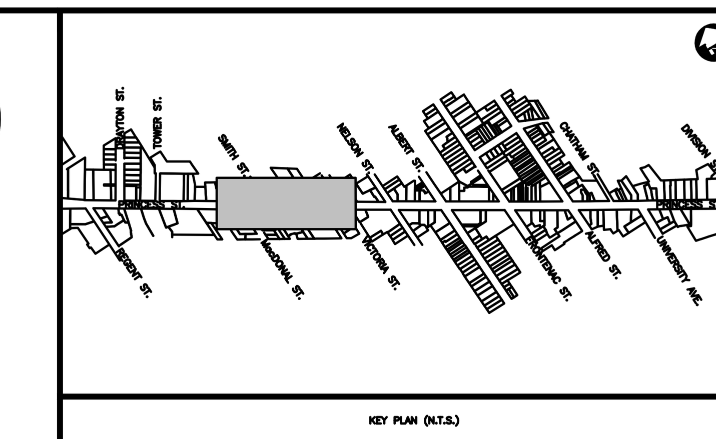

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- FRONTAGE ZONE
- KINGSTON TRANSIT STOP
- POTENTIAL FOR STREET TREES (EXACT LOCATIONS TO BE DETERMINED THROUGH DETAILED DESIGN)
- <2M WIDE PEDESTRIAN THROUGHWAY
- REQUIRED SPACE FOR 2M SIDEWALK AND 0.5M FRONTAGE

Conditions of Use

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No.	ISSUED FOR	DATE	BY

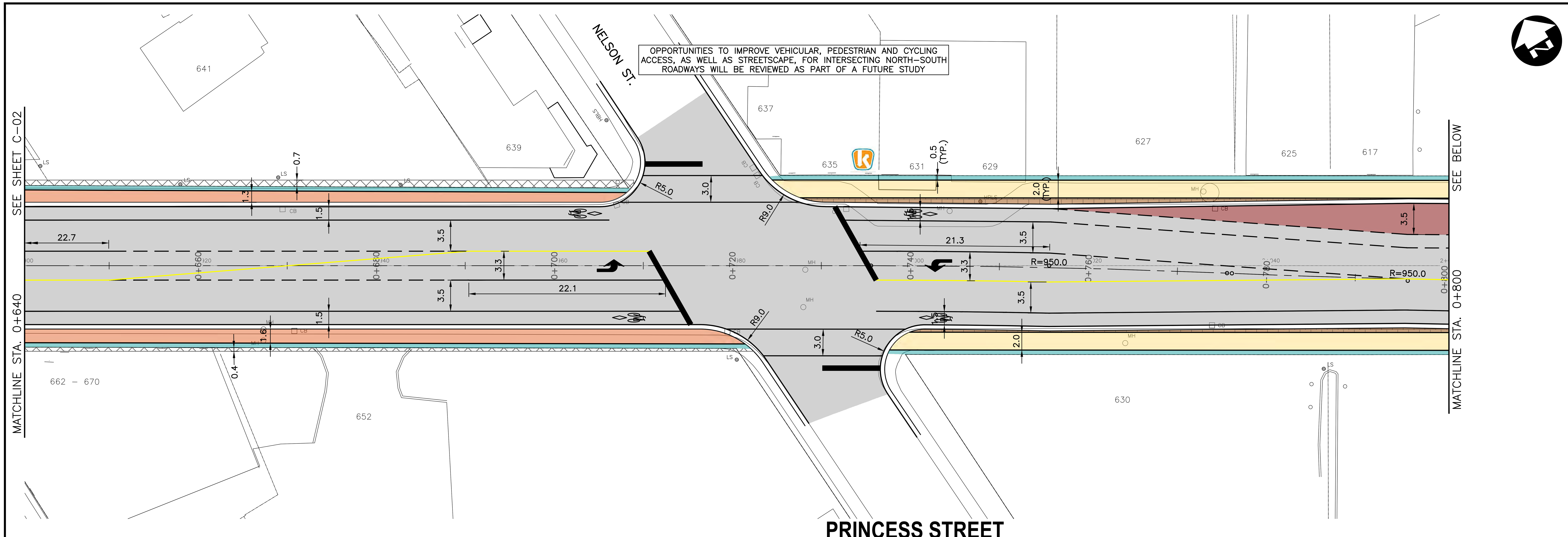
DESIGN | REVIEWED BY | DRAWN | CHECKED BY | DATE | SCALE 1:250

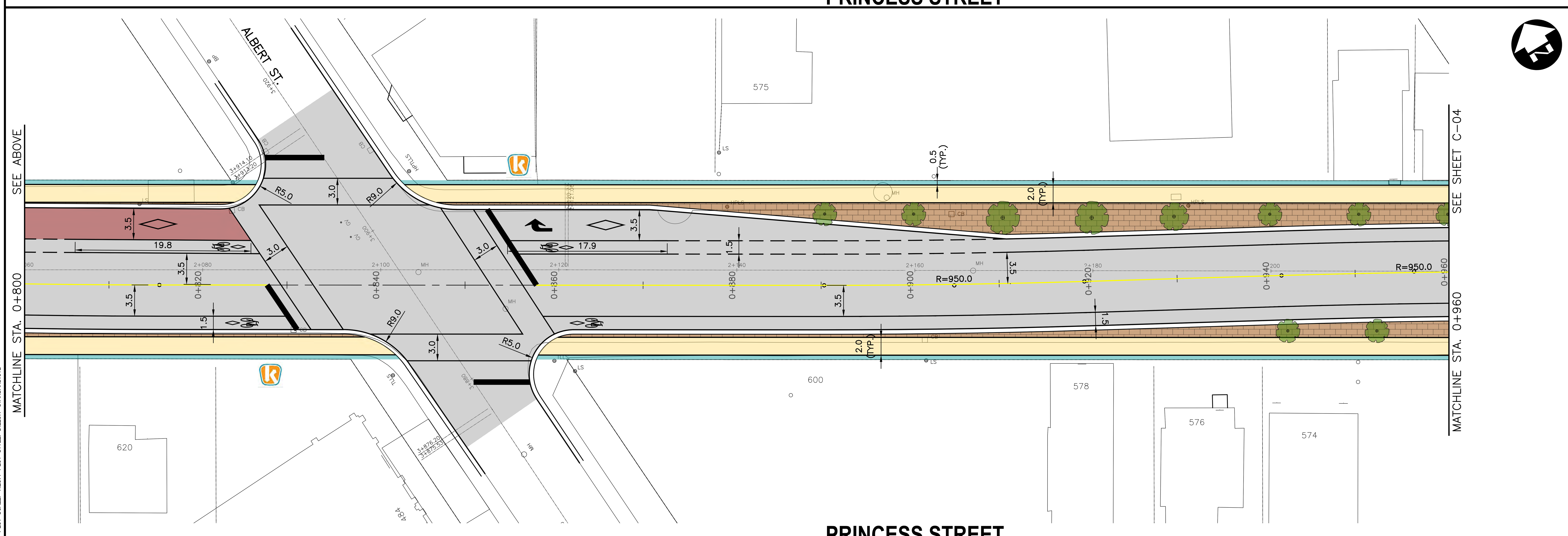
Williamsville Cross-Section Study
City of Kingston

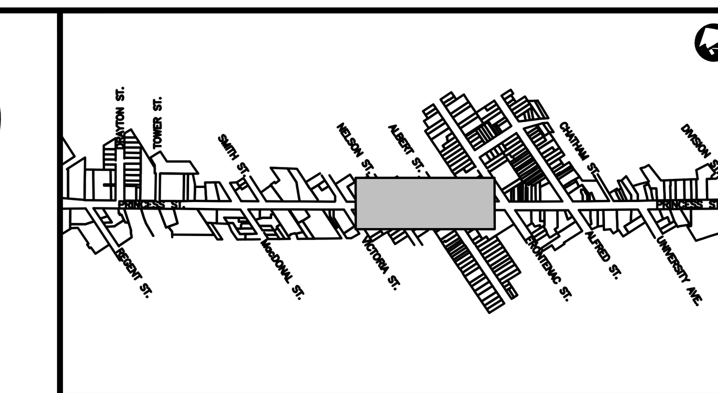
ALTERNATIVE 5
ON-STREET CYCLE LANES WITH TRANSIT PRIORITY FEATURES

PROJECT NO. 22-3399

SHEET NO. C-02







LEGEND:

- TRANSIT ONLY OPERATING SPACE
- PEDESTRIAN THROUGHWAY
- ADDITIONAL SPACE FOR PEDESTRIAN REALM, AMENITIES AND STREET TREES
- FRONTAGE ZONE
- KINGSTON TRANSIT STOP
- POTENTIAL FOR STREET TREES (EXACT LOCATIONS TO BE DETERMINED THROUGH DETAILED DESIGN)
- <2M WIDE PEDESTRIAN THROUGHWAY
- REQUIRED SPACE FOR 2M SIDEWALK AND 0.5M FRONTAGE

FILENAME: C:\PW WORKING DIRECTORY\PROJECTS 2022\DILLON_20RAP\D0100669\223399-02-PLN-CL0J-PLN.DWG PLOTTED BY: RENDEL, RUDI
PLOT DATE: 2023-10-20 @ 1:11:29 PM PLOT SCALE: 1:25.4 PLOT STYLE: DILLON-STANDARD.CTB

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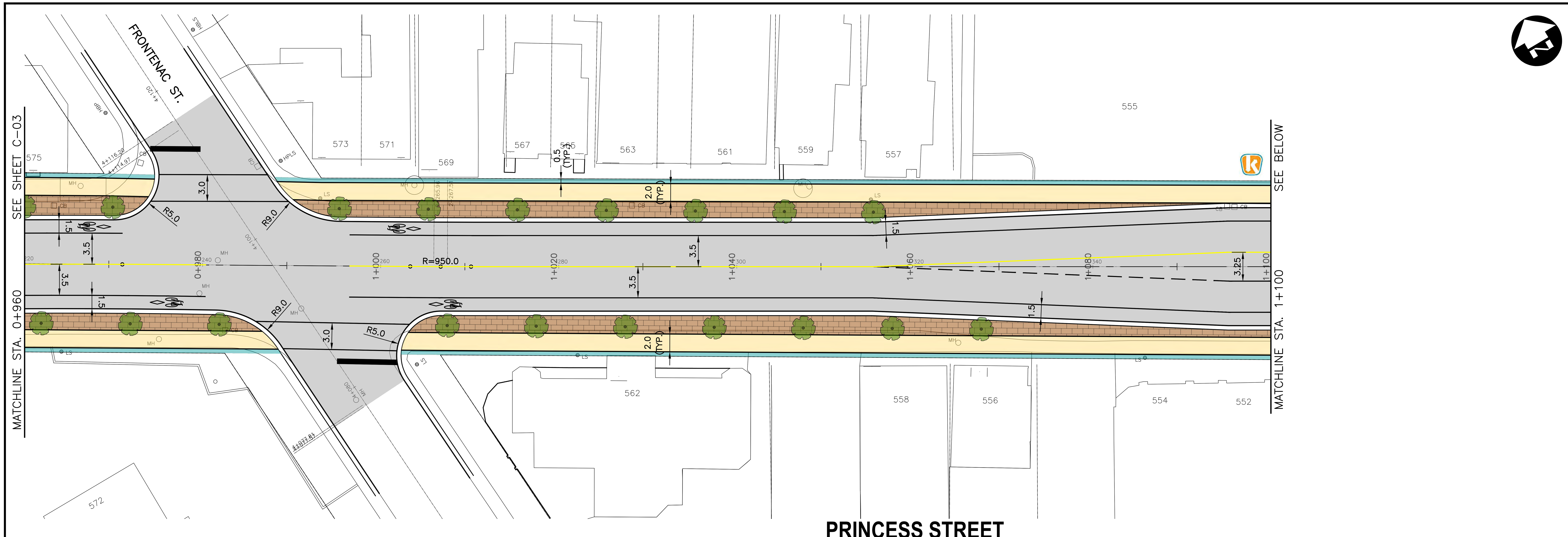
SCALE 1:250

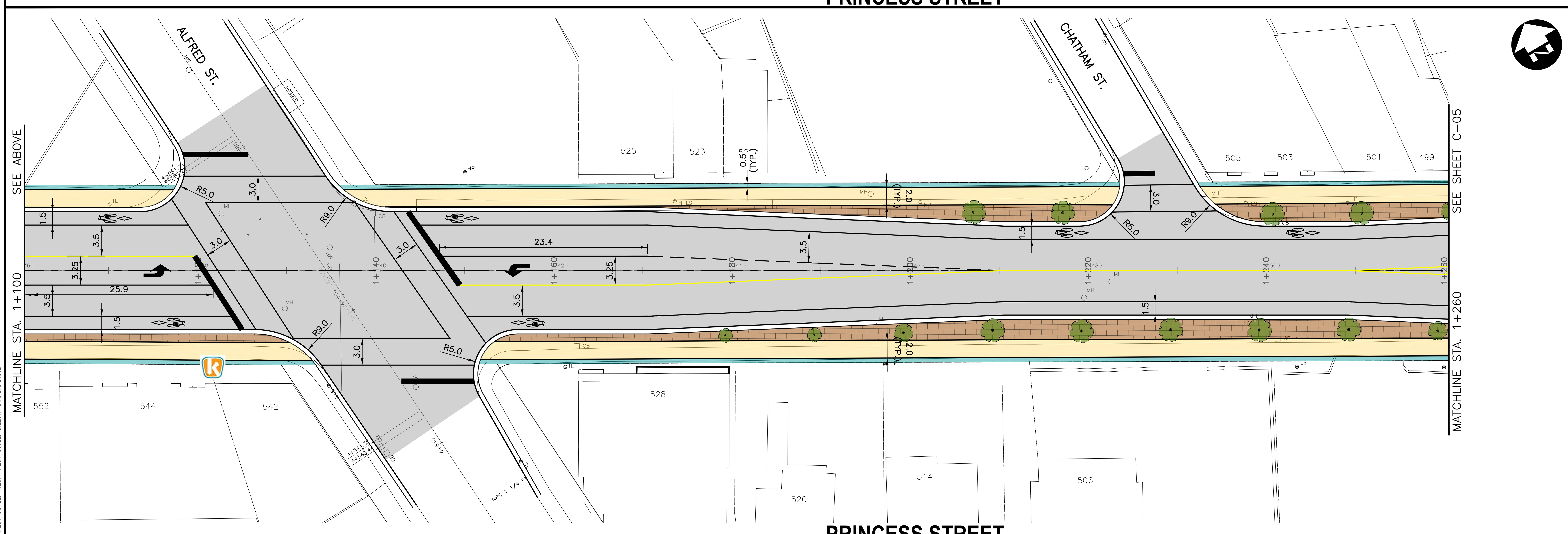
Williamsville Cross-Section Study
City of Kingston

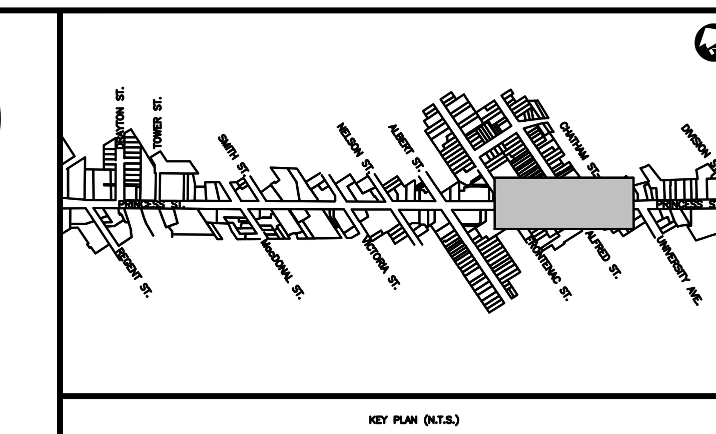
ALTERNATIVE 5
ON-STREET CYCLE LANES WITH TRANSIT PRIORITY FEATURES

PROJECT NO. 22-3399

SHEET NO. C-03







LEGEND:

- TRANSIT ONLY OPERATING SPACE
- PEDESTRIAN THROUGHWAY
- ADDITIONAL SPACE FOR PEDESTRIAN REALM, AMENITIES AND STREET TREES
- FRONTAGE ZONE
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FILENAME: C:\PW WORKING DIRECTORY\PROJECTS 2022\DILLON_20PAR\D0100669\223399-02-PLN-CLOJ-PLN.DWG PLOTTED BY: RENDEL, RUDI
PLOT DATE: 2023-10-20 @ 1:11:49 PM PLOT SCALE: 1:25.4 PLOT STYLE: DILLON-STANDARD.CTB

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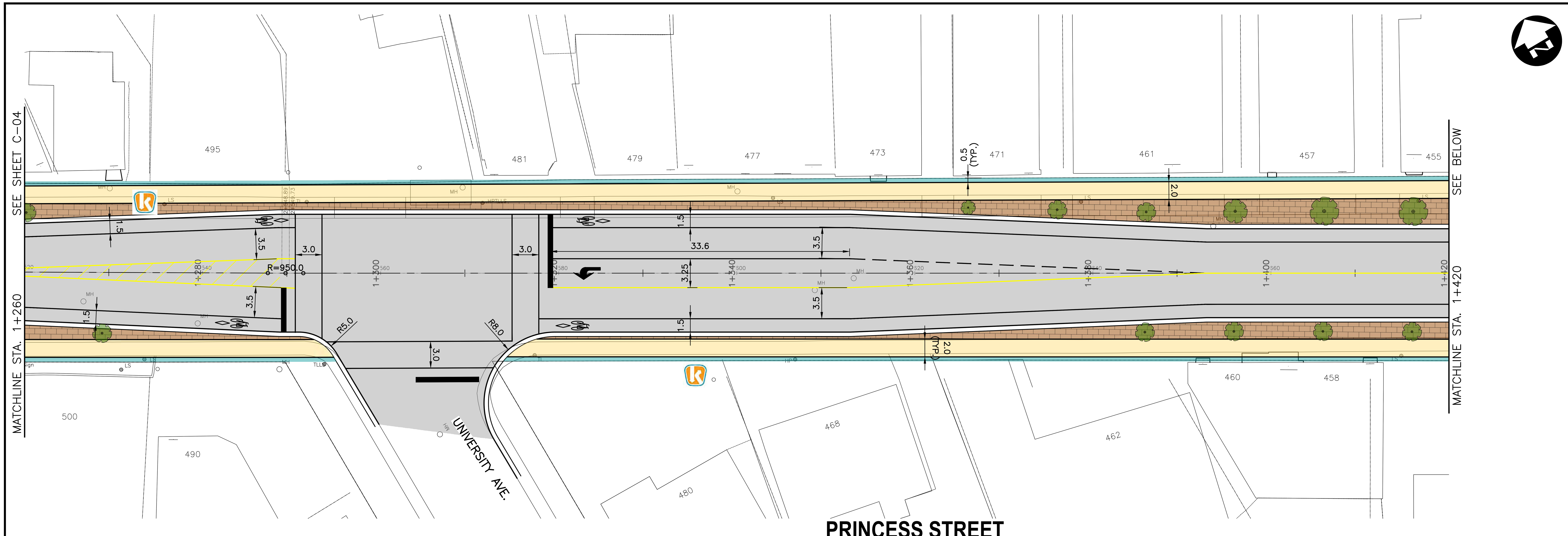
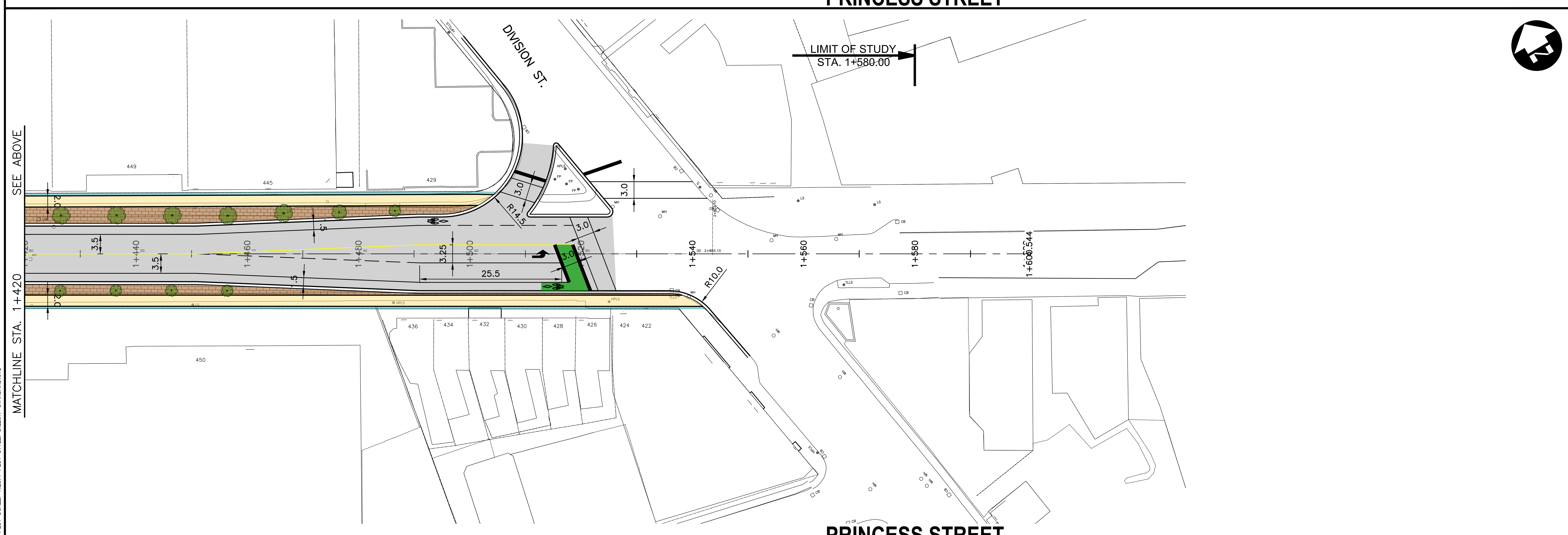
Williamsville Cross-Section Study
City of Kingston

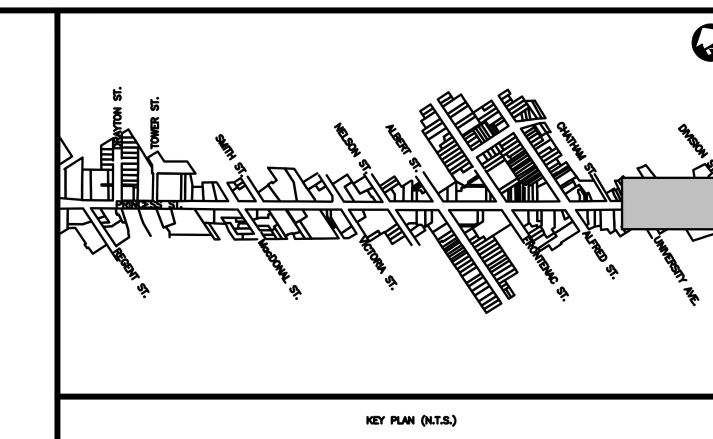
ALTERNATIVE 5
ON-STREET CYCLE LANES WITH TRANSIT PRIORITY FEATURES

PROJECT NO. 22-3399

SHEET NO. C-04







LEGEND:

- TRANSIT ONLY OPERATING SPACE
- PEDESTRIAN THROUGHWAY
- ADDITIONAL SPACE FOR PEDESTRIAN REALM, AMENITIES AND STREET TREES
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DATE	
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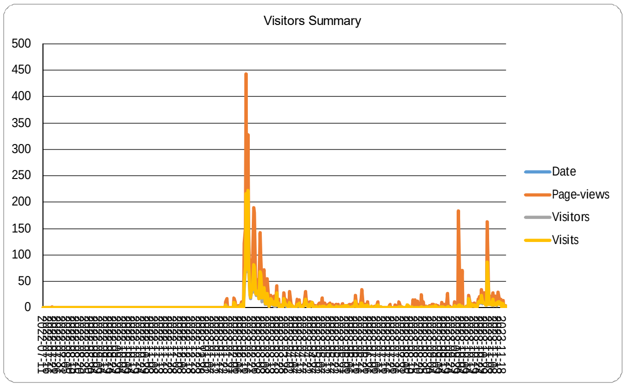
Williamsville Cross-Section Study
City of Kingston

ALTERNATIVE 5
ON-STREET CYCLE LANES WITH TRANSIT PRIORITY FEATURES

PROJECT NO. 22-3399

SHEET NO. C-05

Project Report:	Williamsville Transportation Study	18 August 2017	to	22 November 2023



Project Highlights	
Total Visits	2.4 k
New Registrations	3
Video views	0
Photo Views	0
Document Downloads	128

Admin Notes

ENGAGED PARTICIPANTS	89		
Engaged Actions Performed	Registered	Unverified	Anonymous
Contributed on Forums	0	0	0
Participated in Surveys	38	0	0
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	0	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	21	0	0
Placed Pins on Places	49	0	0
Contributed to Ideas	0	0	0

INFORMED PARTICIPANTS	463
Informed Actions Performed	Participants
Viewed a video	0
Viewed a photo	0
Downloaded a document	66
Visited the Key Dates page	18
Visited an FAQ list Page	223
Visited Instagram Page	0
Visited Multiple Project Pages	361
Contributed to a tool (engaged	89

AWARE PARTICIPANTS	1,556
Aware Actions Performed	Participants
Visited at least one Page	1,556

ENGAGEMENT TOOLS SUMMARY

Forum Topics	0	Guestbooks	0	Places	1	News Feeds	3	Ideas	0
Qandas	1	Quick Polls	0	Stories	0	Survey Tools	1		

Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors: Registered	Contributors: Unverified	Contributors: Anonymous
News Feeds	Background & project goals	Published	242	0	0	0
Maps	Archived - Map Feedback	Archived	355	49	0	0
Qanda	Archived - Ask a question	Archived	74	21	0	0
SurveyTools	Williamsville open house survey	Archived	74	38	0	0
News Feeds	Notice of public open house	Published	9	0	0	0
News Feeds	Oct. 26 open house display boards	Published	99	0	0	0

INFORMATION WIDGET SUMMARY

DOCUMENTS	3	PHOTOS	0	VIDEOS	0	FAQS	1	KEY DATES	1

Widget Type	Engagement Tool Name	Visitors	Downloads/Views
Document	Renders, plans and cross-sections	51	89
Document	Williamsville Main Street Study	15	26
Document	Household Travel Survey Report	13	13
FAQ	faqs	223	288
Key Dates	Key Date	18	19

SurveyTool:	Williamsvil	18 August 2017	to	22 November 2023

Tool Status	Archived
Visitors	74
Contributors	38
Registered	38
Unverified	0
Anonymous	0
Admin	0
SUBMISSIONS	38

Demographics Graphs Below

	Survey Response												Sign Up form Details				
Date of contribution	Do you find Princess Street inviting from a pedestrian experience?	Are you comfortable biking on Princess Street?	Do you find transit reliable and accessible on Princess Street?	Rank the features in terms of what is most important to include in a reconstructed Princess Street.	Will the removal of on-street parking and narrowing of the	Provide any other feedback you may have about Princess Street.	Do you understand how Advisory Bike Lanes work?	Do you like the concept of Advisory Bike Lanes?	Is this facility appropriate for the roads where it has been	Do you understand how Neighbourhood Bikeways work?	Do you like the concept of Neighbourhood Bikeways?	Is this facility appropriate for the roads where it has been	Usertype	Age	I would like to be entered in the draw to win one of the following:	Do you want to be added to the City of Kingston mailing list and receive	Response ID
Oct 31 23 07:14:01 pm	No	Yes	Yes	Cycling lanes, Street trees and benches, Transit priority lanes, Wider sidewalks	Yes	Please don't remove bike lanes. We need safe room for cyclists to share the streets. They're better for cars and bikes - speaking as someone who drives and cycles. The city is building more buildings downtown with fewer parking spaces available, so we need to make cycling a safe and attractive option for people. And it's in keeping with the climate change emergency the city declared.	Yes	Yes	Yes	No	Yes	Yes	User			Yes	5489372
Oct 31 23 07:15:34 pm	No	Yes	No	Cycling lanes, Transit priority lanes, Street trees and benches, Wider sidewalks	Yes		Yes	Yes	Yes	Yes	Yes	Yes	User			Yes	5489351
Nov 01 23 03:20:03 pm	No	No	Yes	Cycling lanes, Street trees and benches, Transit priority lanes, Wider sidewalks	Yes		Yes	No	No	Yes	Yes	Yes	User	23		No	5491986
Nov 02 23 12:35:14 am	Yes	No	Yes		No	I have no interest in biking on Princess Street, or any street. My primary mode of transportation along any street is, and will remain, driving my car. Any design change which would limit traffic in any way is utterly ridiculous, especially in a city with such terrible weather throughout the winter months. I have made similar comments to a number of your other surveys, because you seem to not understand this simple fact. Bicycles and cars sharing roads in any capacity is a ludicrous concept. Roads are for cars.	Yes	No	No	Yes	No	No	User	69		No	5494517
Nov 02 23 03:47:23 pm	No	No		Cycling lanes, Wider sidewalks, Street trees and benches, Transit priority lanes	Yes		Yes	No	No	Yes	Yes	No	User	40		No	5498464
Nov 02 23 03:47:39 pm	No	No	Yes	Wider sidewalks, Street trees and benches, Transit priority lanes, Cycling lanes	No	Bicycles and buses weaving in and out along the shoulder don't mix. Due to the vulnerability and slower speeds of cyclists, their infrastructure should be SEPARATE (good, but separate). I cycle to work whenever I can (I am a cyclist) but I hate being crammed into gutter lanes with fast traffic beside me.	Yes	No	No	Yes	Yes	Yes	User	45	No	Yes	5498473
Nov 02 23 03:52:14 pm	No	No	No	Transit priority lanes, Street trees and benches, Wider sidewalks, Cycling lanes	No		No	No	No	No	No	No	User	39		Yes	5498495
Nov 02 23 04:04:56 pm	No	No	Yes	Wider sidewalks, Street trees and benches, Transit priority lanes, Cycling lanes	Yes		Yes	Yes	No	Yes	Yes	Yes	User	35		No	5498566
Nov 02 23 04:11:34 pm	No	Yes	No	Cycling lanes, Street trees and benches, Transit priority lanes, Wider sidewalks	Yes	I commented earlier, but had not seen the options. I think that diverting cyclists to Johnson/Brock is a bit unrealistic, due to the distance (and also the state of the bike lanes on those streets. They need to be improved either way - including problems the bollards create in combination with the narrow lanes in places, uneven ground, and frequent broken glass). I agree that separated bike lanes are not needed on Princess street if the bike lanes are sufficiently wide, and this allows for safer left hand turns (which is natural in a commercial zone with lots of residential on both sides). I don't	Yes	Yes	Yes	Yes	Yes	Yes	User	62		Yes	5498587
Nov 02 23 04:13:14 pm	Yes	No	Yes	Cycling lanes, Transit priority lanes, Wider sidewalks, Street trees and benches	Yes		Yes	Yes	Yes	Yes	Yes	Yes	User			No	5498573
Nov 02 23 04:16:31 pm	No	No	No	Wider sidewalks, Street trees and benches, Transit priority lanes, Cycling lanes	No		No	No	No	Yes	Yes	Yes	User			No	5498623
Nov 02 23 04:19:21 pm	No	No	No	Cycling lanes, Transit priority lanes, Street trees and benches, Wider sidewalks	Yes	This reconstruction project is very important for the future of Princess St. As a resident who frequents this area, the design of the space is hostile towards anyone not in a car. While attempts to address this are helpful, such as pedestrian crossings, and weakly protected bike lanes are a step in the right direction, a reconstruction is an excellent opportunity to prioritize the people who live around Princess St, rather than people who pass through. I'd like to thank the city for the effort to improve this part of our city, as it could massively improve the lives of residents and visitors alike in this beautiful	Yes	Yes	Yes	Yes	Yes	Yes	User	22		Yes	5498616
Nov 02 23 04:27:40 pm	No	No	No	Street trees and benches, Wider sidewalks, Cycling lanes, Transit priority lanes	No		No	No	No	No	No	No	User			No	5498659
Nov 02 23 04:28:43 pm	No	No	Yes	Cycling lanes, Transit priority lanes, Street trees and benches, Wider sidewalks	Yes	Not feedback but a question - if sidewalks need to be >2m, what will happen to bike lanes all over the city? Question: will sidewalk clearing (of snow) be prioritized in this area?	Yes	No	Yes	Yes	Yes	Yes	User	48	Yes	Yes	5498651
Nov 02 23 04:50:06 pm	No	No	Yes	Cycling lanes, Transit priority lanes, Street trees and benches, Wider sidewalks	Yes		No	Yes	Yes	No	Yes	Yes	User	72		Yes	5498748
Nov 02 23 05:04:30 pm	No	No	Yes	Cycling lanes, Wider sidewalks, Street trees and benches, Transit priority lanes	Yes	Removing bike lanes would be a generational mistake. What is exciting about this proposal is that it recognizes that streets should be a "place" but but then it contradicts itself by suggesting there be no way to get to that place by bicycle. It's also ridiculous to expect cyclists to detour to a different street network even if their destination is not within Williamsville. With the advent of e-bikes the city is set to reap the rewards of all the positive externalities and reduced costs that are associated with increased cycle mode share but the City must do its part by having bike facilities on every	Yes	No	Yes	Yes	No	Yes	User	36		Yes	5498822
Nov 02 23 05:47:49 pm	No	No	No	Street trees and benches, Wider sidewalks, Cycling lanes, Transit priority lanes	No	The original plan for Princess Street in the Williamsville district included wider sidewalks, green space, benches and trees. I was dismayed when unimaginative, high-rises sprouted up right beside the narrow sidewalks. Just another concrete jungle, all for the sake of generating more municipal tax revenue - among the highest per capita in Ontario. There was a chance to rejuvenate this stretch and make it special and inviting but the city thought otherwise. Cyclists should feel safe on this stretch, as should pedestrians. You seldom see families walking along the street. It's continues	Yes	Yes	Yes	No			User			No	5499037
Nov 02 23 06:12:42 pm	Yes	Yes		Cycling lanes, Wider sidewalks, Transit priority lanes, Street trees and benches	No	I am a cyclist who rides with a Garmin radar unit that warns me of approaching cars. Even with this modern technology, putting cyclists closer to moving cars is not making cycling safer or more inviting in my opinion.	Yes	No	No	Yes	Yes	Yes	User	34		Yes	5499121
Nov 02 23 06:18:01 pm	No	No	No	Wider sidewalks, Street trees and benches, Cycling lanes, Transit priority lanes	No		Yes	No	No	Yes	No	No	User	28		No	5499162
Nov 02 23 06:46:22 pm	Yes	No	Yes	Street trees and benches, Cycling lanes, Wider sidewalks, Transit priority lanes	Yes	Lower princess st is much more inviting that upper princess, especially the section above Frontenac. More trees and green space will definitely improve that section a great deal. More trees along lower princess would also be a big improvement. It is blazing hot in the summer, and more shade and less concrete will help cool things off. Keeping bike lanes in Williamsville corridor is a must for me.				No			User	61	Yes	Yes	5499290
Nov 02 23 07:08:58 pm	No	No	No	Wider sidewalks, Street trees and benches, Transit priority lanes, Cycling lanes	Yes	There is a whole host of reasons to eliminate the bicycle lanes on Princess Street - given the volume of traffic on Princess Street, available active transportation evidence would suggest that it will not increase cycling, except for very experienced/adventurous cyclists. Furthermore, the road infrastructure in this area would require cyclists to use poor quality pavement, cycle over storm drains, etc., making it even less safe. It is also possible that vehicles will continue to park (temporarily with hazards) in bicycle lanes. Wider sidewalks and street features like trees and benches/priority	Yes	No	No	Yes	Yes	Yes	User	33		Yes	5499359
Nov 02 23 07:19:12 pm	No	No	Yes	Cycling lanes, Street trees and benches, Wider sidewalks, Transit priority lanes	No	Need dedicated bike lanes for safety.	No			Yes	Yes	Yes	User			Yes	5499406
Nov 02 23 10:56:21 pm	No	Yes		Cycling lanes, Wider sidewalks, Street trees and benches, Transit priority lanes	Yes	Needs protected bike lanes	No	No	No	Yes	Yes	Yes	User	26		Yes	5500167
Nov 03 23 09:18:17 am	No	No	Yes	Cycling lanes, Wider sidewalks, Transit priority lanes, Street trees and benches	No	I am not comfortable biking on Princess St. -- it feels unsafe. But I do bike on Princess St. all the time, because it is the only reasonably efficient and affordable way for me to get downtown. I find the framing that "confident cyclists" may continue to use Princess St. in the absence of a bike lane very problematic -- I am not a confident cyclist, and I feel my safety is put at risk by a lack of infrastructure.	Yes	Yes	Yes	Yes	No	Yes	User	33		No	5500997
Nov 03 23 01:58:46 pm	No	No	Yes	Street trees and benches, Wider sidewalks, Transit priority lanes, Cycling lanes	Yes		No			Yes	Yes	Yes	User	64		Yes	5502113
Nov 03 23 04:15:23 pm	No	Yes	Yes	Cycling lanes, Wider sidewalks, Street trees and benches, Transit priority lanes	Yes	You should simply make princess one way for cars. This is an example of why city staff and council not listening to their own official plan when developers come in to build something is destroying the city. Someone at city hall should take the blame for such a lack of forward thinking.	Yes	Yes	Yes	Yes	Yes	Yes	User	33		Yes	5502754
Nov 04 23 02:10:31 pm	Yes	No		Transit priority lanes, Cycling lanes, Wider sidewalks, Street trees and benches	No	I have no problem walking along Princess St in the Williamsville area but the city made a mistake in permitting the multiunit buildings to be built so close to the sidewalk. Now that has been done, the sidewalks should be made as wide as possible but the addition of benches and gardens on the sidewalk defeats the purpose of the wider sidewalk and impedes pedestrian traffic. Permitting business A-frames on the sidewalks and installing street lights in the sidewalks also impede pedestrian traffic. Wha is the point of building a wider sidewalk if it will contain so many obstacles and	Yes	No	No	Yes	No	No	User	69		Yes	5505187
Nov 05 23 09:35:02 pm	No	No	No	Wider sidewalks, Cycling lanes, Street trees and benches, Transit priority lanes	Yes	'I fully support prioritizing active transportation along the princess street corridor in the Williamsville district over the current auto-priority design. I understand the road ROW width constraints we are dealing with along the corridor are difficult however I strongly urge you to find a solution that maintains (and even improves upon the existing cycle lanes). In order for people to choose alternative modes of transportation to driving we need to make routes safe, convenient, and direct! The problem with removing the cycle lanes from princess is that there are no viable alternatives which run	Yes	No	Yes	Yes	Yes	Yes	User	25		Yes	5507690
Nov 06 23 09:53:40 am	No	No	No	Cycling lanes, Wider sidewalks, Street trees and benches, Transit priority lanes	Yes	Biking lanes need to be improved across the City. We say we are committed to active transportation but not having a dedicated, closed off bike lane on Princess Street is a huge miss for Kingston. The way buildings are approved to be so close to the road with no set back is really not creating a community atmosphere. Buildings should have leased space with doors opening right out on the sidewalk and then have enough room for people to browse and walk safely on sidewalks.	No	No	No	Yes	Yes	No	User			No	5508365
Nov 07 23 10:40:25 pm	Yes	No	No	Cycling lanes, Transit priority lanes, Wider sidewalks, Street trees and benches	Yes		Yes	Yes	No	Yes	Yes	Yes	User	29		No	5518078
Nov 08 23 12:00:34 pm	No	No		Wider sidewalks, Street trees and benches, Cycling lanes, Transit priority lanes	Yes	Needs more mixed residential/business to attract people. Make new builds have retail space at street level. People will congregate where there are shops, patios etc, and safer if there are more people around. this isn't new, look at European cities, just do it, stop making kingston ugly and dangerous.	No	No		No			User			No	5519692
Nov 10 23 11:15:12 am	Yes	No	Yes	Wider sidewalks, Street trees and benches, Cycling lanes, Transit priority lanes	Yes			Yes	Yes	Yes	Yes	Yes	User	22		No	5528620
Nov 10 23 01:30:55 pm	No	No	Yes	Wider sidewalks, Street trees and benches, Transit priority lanes, Cycling lanes	Yes	I know this is beyond the scope of the proposed project, but if we want to be innovative and follow Brent Toderian's philosophy around city building: What about eliminating a lane on the roadway to make Princess Street one way through Williamsville and having a BRT that runs from Bath/Concession/Princess intersection to the Princess/Ontario intersection? Alternatively, add signage on Bath Road/Princess Street approaching the Bath/Concession/Princess intersection (where the Canadian Tire gas station is) directing vehicular traffic to take Concession and then a right on	Yes	Yes	Yes	Yes	Yes	Yes	User	33		Yes	5529175
Nov 11 23 10:15:28 am	No	No		Cycling lanes	Yes	I think that Kingston has not really embraced what is happening in more sustainable progressive cities around the world, particularly in the sense of active and public transportation. Build it and they will come. Make it less convenient to drive, and people will look for alternatives. But the alternatives need to be there and viable for people. If we keep building and designing in a way that expects car traffic, or even more car traffic, then we, indeed, will get (more) car traffic.	Yes	No	No	Yes	Yes		User	51		Yes	5531738
Nov 13 23 06:06:52 pm	No	No	Yes	Wider sidewalks, Street trees and benches, Transit priority lanes, Cycling lanes	Yes	If water bottle filling stations could somehow be worked into future plans that would be great.	Yes	No	No	Yes	Yes	Yes	User	32		Yes	5537708
Nov 14 23 02:03:46 am	No	Yes	Yes	Cycling lanes, Wider sidewalks, Street trees and benches, Transit priority lanes	Yes	Transit priority lanes not needed and not appropriate for narrow ROW. There could be one at Princess and Concession where there is room. There is plenty of room for option 5 with the added notion of alternating each block with street furniture and greenery. I will follow up with a detailed letter on these points.	Yes	Yes	Yes	Yes	Yes	Yes	User	64		Yes	5539534
Nov 14 23 03:50:47 pm	No	Yes	Yes	Cycling lanes, Transit priority lanes, Wider sidewalks, Street trees and benches	Yes	The whole corridor should be made to prioritize us and bike traffic over car traffic.	Yes	No	Yes	Yes	Yes	Yes	User	39	Yes	Yes	5542059

Nov 16 23 11:56:50 pm	No	No	No	Transit priority lanes, Wider sidewalks, Street trees and benches, Cycling lanes	No	The residents of the area need to be assured that they are safe in the event of fire. Buildings are too big, too close, and too crowded. The people of the area should have assurances in writing and policy that fire engines or ambulances can move quickly to any area requiring their service and be able to navigate the turns in the roadways without doing harm to anyone or anything. The fire of Dec. 2013 at the corner of Princess and Victoria Streets should NOT be a forgotten lesson regarding ease of access. Pushing too much parking onto side streets is unfair to the householders in the area	Yes	Yes		Yes	Yes		User			Yes	5555462

Responded at	Usertype	Signup Form Q6 (I would like to be entered in the draw to win one of the following: A six-month adult wellness pass to the INVISTA Centre and Artillery Park Aquatic Centre. A JBL FLIP 2 waterproof wireless Bluetooth speaker A JBL T290 earphones - deleted)	Signup Form Q7 (Do you want to be added to the City of Kingston mailing list and receive updates on projects you have provided input on?)	Q1 (Do you find Princess Street inviting from a pedestrian experience?)	Q2 (Are you comfortable biking on Princess Street?)	Q3 (Do you find transit reliable and accessible on Princess Street?)	Q4 (Rank the features in terms of what is most important to include in a reconstructed Princess Street.) Wider sidewalks	Q4 (Rank the features in terms of what is most important to include in a reconstructed Princess Street.) Street trees and benches	Q4 (Rank the features in terms of what is most important to include in a reconstructed Princess Street.) Cycling lanes	Q4 (Rank the features in terms of what is most important to include in a reconstructed Princess Street.) Transit priority lanes	Q5 (Will the removal of on-street parking and narrowing of the roadway to 7m make you more comfortable biking on Princess Street?)	Q6 (Provide any other feedback you may have about Princess Street.)	Q7 (Do you understand how Advisory Bike Lanes work?)	Q8 (Do you like the concept of Advisory Bike Lanes?)	Q9 (Is this facility appropriate for the roads where it has been proposed?)	Q10 (Do you understand how Neighbourhood Bikeways work?)	Q11 (Do you like the concept of Neighbourhood Bikeways?)	Q12 (Is this facility appropriate for the roads where it has been proposed?)	Response ID
2023-10-31 19:15	Participant	0	1	2	1	2	4	3	1	2	1		1	1	1	1	1	1	5489351
2023-10-31 19:14	Participant	0	1	2	1	1	4	2	1	3	1	Please don't remove bike lanes. We need safe room for cyclists to share the streets. They're better for cars and bikes - speaking as someone who drives and cycles. The city is building more buildings downtown with fewer parking spaces available, so we need to make cycling a safe and attractive option for people. And it's in keeping with the climate change emergency the city declared.	1	1	1	2	1	1	5489372
2023-11-01 15:20	Participant	0	2	2	2	1	4	2	1	3	1		1	2	2	1	1	1	5491986
2023-11-02 00:35	Participant	0	2	1	2	1	0	0	0	0	2	I have no interest in biking on Princess Street, or any street. My primary mode of transportation along any street is, and will remain, driving my car. Any design change which would limit traffic in any way is utterly ridiculous, especially in a city with such terrible weather throughout the winter months. I have made similar comments to a number of your other surveys, because you seem to not understand this simple fact. Bicycles and cars sharing roads in any capacity is a ludicrous concept.	1	2	2	1	2	2	5494517
2023-11-02 15:47	Participant	0	2	2	2	0	2	3	1	4	1		1	2	2	1	1	2	5498464
2023-11-02 15:47	Participant	2	1	2	2	1	1	2	4	3	2	Bicycles and buses weaving in and out along the shoulder don't mix. Due to the vulnerability and slower speeds of cyclists, their infrastructure should be SEPARATE (good, but separate). I cycle to work whenever I can (I am a cyclist) but I hate being crammed into gutter lanes with fast traffic beside me.	1	2	2	1	1	1	5498473
2023-11-02 15:52	Participant	0	1	2	2	2	3	2	4	1	2		2	2	2	2	2	2	5498495
2023-11-02 16:04	Participant	0	2	2	2	1	1	2	4	3	1		1	1	2	1	1	1	5498566
2023-11-02 16:13	Participant	0	2	1	2	1	3	4	1	2	1		1	1	1	1	1	1	5498573
2023-11-02 16:11	Participant	0	1	2	1	2	4	2	1	3	1	I commented earlier, but had not seen the options. I think that diverting cyclists to Johnson/Brock is a bit unrealistic, due to the distance (and also the state of the bike lanes on those streets. They need to be improved either way - including problems the bollards create in combination with the narrow lanes in places, uneven ground, and frequent broken glass). I agree that separated bike lanes are not needed on Princess street if the bike lanes are sufficiently wide, and this allows for safer left hand turns (which is natural in a commercial zone with lots of residential on both sides). I don't understand how the transit queue jump lanes would work relative to cyclists, but that is a worry. Overall, I think the plan looks promising.	1	1	1	1	1	1	5498587
2023-11-02 16:15	Participant	0	1	2	2	2	4	3	1	2	1	This reconstruction project is very important for the future of Princess St. As a resident who frequents this area, the design of the space is hostile towards anyone not in a car. While attempts to address this are helpful, such as pedestrian crossings, and weakly protected bike lanes are a step in the right direction, a reconstruction is an excellent opportunity to prioritize the people who live around Princess St, rather than people who pass through. I'd like to thank the city for the effort to improve this part of our city, as it could massively improve the lives of residents and visitors alike in this beautiful historic and rapidly developing section of our city	1	1	1	1	1	1	5498616
2023-11-02 16:16	Participant	0	2	2	2	2	1	2	4	3	2		2	2	2	1	1	1	5498623
2023-11-02 16:26	Participant	1	1	2	2	1	4	3	1	2	1	Not feedback but a question - if sidewalks need to be >2m, what will happen to bike lanes all over the city? Question: will sidewalk clearing (of snow) be prioritized in this area?	1	2	1	1	1	1	5498651
2023-11-02 16:27	Participant	0	2	2	2	2	2	1	3	4	2		2	2	2	2	2	2	5498659
2023-11-02 16:50	Participant	0	1	2	2	1	4	3	1	2	1		2	1	1	2	1	1	5498748
2023-11-02 17:04	Participant	0	1	2	2	1	2	3	1	4	1	Removing bike lanes would be a generational mistake. What is exciting about this proposal is that it recognizes that streets should be a "place" but but then it contradicts itself by suggesting there be no way to get to that place by bicycle. It's also ridiculous to expect cyclists to detour to a different street network even if their destination is not within Williamsville. With the advent of e-bikes the city is set to reap the rewards of all the positive externalities and reduced costs that are associated with increased cycle mode share but the City must do its part by having bike facilities on every single major street without	1	2	1	1	2	1	5498822
2023-11-02 17:47	Participant	0	2	2	2	2	2	1	3	4	2	The original plan for Princess Street in the Williamsville district included wider sidewalks, green space, benches and trees. I was dismayed when unimaginative, high-rises sprouted up right beside the narrow sidewalks. Just another concrete jungle, all for the sake of generating more municipal tax revenue - among the highest per capita in Ontario. There was a chance to rejuvenate this stretch and make it special and inviting but the city thought otherwise. Cyclists should feel safe on this stretch, as should pedestrians. You seldom see families walking along the street. It's continues to be a wasteland - now with high rises where converted houses with character used to be.	1	1	1	2	0	0	5499037
2023-11-02 18:12	Participant	0	1	1	1	0	2	4	1	3	2	I am a cyclist who rides with a Garmin radar unit that warns me of approaching cars. Even with this modern technology, putting cyclists closer to moving cars is not making cycling safer or more inviting in my opinion.	1	2	2	1	1	1	5499121
2023-11-02 18:18	Participant	0	2	2	2	2	1	2	3	4	2		1	2	2	1	2	2	5499162
2023-11-02 18:46	Participant	1	1	1	2	1	3	1	2	4	1	Lower princess st is much more inviting that upper princess, especially the section above Frontenac. More trees and green space will definitely improve that section a great deal. More trees along lower princess would also be a big improvement. It is blazing hot in the summer, and more shade and less concrete will help cool things off. Keeping bike lanes in Williamsville corridor is a must for me.	0	0	0	2	0	0	5499290
2023-11-02 19:08	Participant	0	1	2	2	2	1	2	4	3	1	There is a whole host of reasons to eliminate the bicycle lanes on Princess Street - given the volume of traffic on Princess Street, available active transportation evidence would suggest that it will not increase cycling, except for very experienced/adventurous cyclists. Furthermore, the road infrastructure in this area would require cyclists to use poor quality pavement, cycle over storm drains, etc., making it even less safe. It is also possible that vehicles will continue to park (temporarily with hazards) in bicycle lanes. Wider sidewalks and street features like trees and benches/priority transit allow the person count to be highest in this corridor.	1	2	2	1	1	1	5499359
2023-11-02 19:15	Participant	0	1	2	2	1	3	2	1	4	2	Need dedicated bike lanes for safety.	2	0	0	1	1	1	5499406
2023-11-02 22:56	Participant	0	1	2	1	0	2	3	1	4	1	Needs protected bike lanes	2	2	2	1	1	1	5500167
2023-11-03 09:18	Participant	0	2	2	2	1	2	4	1	3	2	I am not comfortable biking on Princess St. -- it feels unsafe. But I do bike on Princess St. all the time, because it is the only reasonably efficient and affordable way for me to get downtown. I find the framing that "confident cyclists" may continue to use Princess St. in the absence of a bike lane very problematic -- I am not a confident cyclist, and I feel my safety is put at risk by a lack of infrastructure. The notion that narrowing the roadway will make cyclists more safe (or feel more safe) is absurd -- biking in traffic, and taking up a lane might kind of work if there were two lanes so a car could go around you, but with one lane in each direction, a bike taking a lane is likely to spark rage from drivers that can result in extremely dangerous situations. Currently the biggest problems with the bike lanes are 1) the danger of getting "car-doored" by parked cars and 2) delivery and other vehicles parked in the lane. I wonder if raising the bike lane to the level of the sidewalk would solve this problem, without requiring additional space?	1	1	1	1	2	1	5500997
2023-11-03 13:58	Participant	0	1	2	2	1	2	1	4	3	1		2	0	0	1	1	1	5502113
2023-11-03 16:15	Participant	0	1	2	1	1	2	3	1	4	1	You should simply make princess one way for cars. This is an example of why city staff and council not listening to their own official plan when developers come in to build something is destroying the city. Someone at city hall should take the blame for such a lack of forward thinking.	1	1	1	1	1	1	5502754
2023-11-04 14:10	Participant	0	1	1	2	0	3	4	2	1	2	I have no problem walking along Princess St in the Williamsville area but the city made a mistake in permitting the multiunit buildings to be built so close to the sidewalk. Now that has been done, the sidewalks should be made as wide as possible but the addition of benches and gardens on the sidewalk defeats the purpose of the wider sidewalk and impedes pedestrian traffic. Permitting business A-frames on the sidewalks and installing street lights in the sidewalks also impede pedestrian traffic. Wha is the point of building a wider sidewalk if it will contain so many obstacles and obstructions? Transit priority lanes are a good idea in this area to speed traffic, encourage more bus riders with faster service. If the city is going to promote a liveable city with a low carbon foot print, cycling lanes are a necessity. These would also encourage more active transportation through this area.	1	2	2	1	2	2	5505187
2023-11-05 21:36	Participant	0	1	2	2	2	1	3	2	4	1	street corridor in the Williamsville district over the current auto-priority design. I understand the road ROW width constraints we are dealing with along the corridor are difficult however I strongly urge you to find a solution that maintains (and even improves upon the existing cycle lanes). In order for people to choose alternative modes of transportation to driving we need to make routes safe, convenient, and direct! The problem with removing the cycle lanes from princess is that there are no viable alternatives which run parallel princess that would allow the cycle lanes to be moved off Princess but still provide convenient access to the road. I would support the following design features: - Narrow automobile lanes along princess to 3 m. Adding an additional 1 m in the ROW to be use for cycle lanes. - Change the street from two to one car lanes. Use the space from the removed car lane to create a raised, bi-directional cycle track. - Creating a hybrid side-walk/cycle lane similar to a shared multi use path commonly used in park trails.	1	2	1	1	1	1	5507690
2023-11-06 09:53	Participant	0	2	2	2	2	2	3	1	4	1	Biking lanes need to be improved across the City. We say we are committed to active transportation but not having a dedicated, closed off bike lane on Princess Street is a huge miss for Kingston. The way buildings are approved to be so close to the road with no set back is really not creating a community atmosphere. Buildings should have leased space with doors opening right out on the sidewalk and then have enough room for people to browse and walk safely on sidewalks.	2	2	2	1	1	2	5508365
2023-11-07 22:40	Participant	0	2	1	2	2	3	4	1	2	1		1	1	2	1	1	1	5518078
2023-11-08 12:00	Participant	0	2	2	2	0	1	2	3	4	1	Needs more mixed residential/business to attract people. Make new builds have retail space at street level. People will congregate where there are shops, patios etc, and safer if there are more people around. this isn't new, look at European cities, just do it, stop making kingston ugly and dangerous.	2	2	0	2	0	0	5519692
2023-11-10 11:15	Participant	0	2	1	2	1	1	2	3	4	1		0	1	1	1	1	1	5528620
2023-11-10 13:30	Participant	0	1	2	2	1	1	2	4	3	1	I know this is beyond the scope of the proposed project, but if we want to be innovative and follow Brent Toderian's philosophy around city building: What about eliminating a lane on the roadway to make Princess Street one way through Williamsville and having a BRT that runs from Bath/Concession/Princess intersection to the Princess/Ontario intersection? Alternatively, add signage on Bath Road/Princess Street approaching the Bath/Concession/Princess intersection (where the Canadian Tire gas station is) directing vehicular traffic to take Concession and then a right on Division Street (with signage) as an alternative route to downtown (make it the "personal vehicle" route) and make Princess Street the public transportation/active transportation corridor.	1	1	1	1	1	1	5529175

2023-11-11 10:15	Participant	0	1	2	2	0	0	0	1	0	1	I think that Kingston has not really embraced what is happening in more sustainable progressive cities around the world, particularly in the sense of active and public transportation. Build it and they will come. Make it less convenient to drive, and people will look for alternatives. But the alternatives need to be there and viable for people. If we keep building and designing in a way that expects car traffic, or even more car traffic, then we, indeed, will get (more) car traffic. It will simply not be sustainable to continue to have the number of cars that we have today, let alone an increase--and that includes both cars that rely on gasoline and cars that rely on electric batteries. Although electric vehicles run with no emissions, the creation of all the electricity to charge the vehicles relies on various ways to generate electricity, including fossil fuels. And then there are the batteries, which, until they are a part of a complete and global recycling system, mean a great extension in mining, and that often means ecological destruction to the Earth, including the toxins from mining that reach fresh water sources. We do not have to look far to see the reports also of child labour and other unethical working conditions and standards in lithium mining, so essential to EV batteries. The priority for Princess Street, in my opinion, should be active transportation and public transportation. That means buses and separate lanes (curb elevated lanes, so that snow can be cleared [versus the bollards that make removal difficult]) for active transportation, and ample sidewalk space. Perhaps car	1	2	2	1	1	0	5531738
2023-11-13 18:06	Participant	0	1	2	2	1	1	2	4	3	1	If water bottle filling stations could somehow be worked into future plans that would be great.	1	2	2	1	1	1	5537708
2023-11-14 02:03	Participant	0	1	2	1	1	2	3	1	4	1	Transit priority lanes not needed and not appropriate for narrow ROW. There could be one at Princess and Concession where there is room. There is plenty of room for option 5 with the added notion of alternating each block with street furniture and greenery. I will follow up with a detailed letter on these points.	1	1	1	1	1	1	5539534
2023-11-14 15:50	Participant	1	1	2	1	1	3	4	1	2	1	The whole corridor should be made to prioritize us and bike traffic over car traffic.	1	2	1	1	1	1	5542059
2023-11-16 23:56	Participant	0	1	2	2	2	2	3	4	1	2	The residents of the area need to be assured that they are safe in the event of fire. Buildings are too big, too close, and too crowded. The people of the area should have assurances in writing and policy that fire engines or ambulances can move quickly to any area requiring their service and be able to navigate the turns in the roadways without doing harm to anyone or anything. The fire of Dec. 2013 at the corner of Princess and Victoria Streets should NOT be a forgotten lesson regarding ease of access. Pushing too much parking onto side streets is unfair to the householders in the area in terms of noise and air quality, and even safety, perhaps. Families escorting young, exuberant children attending Rideau Public School will have to be very careful that a child does not dash out between two parked cars only to be injured by an oncoming vehicle, whether it be	1	1	0	1	1	0	5555462

Mapper Topic:	Archived -	18 August 2017	to	22 November 2023

Tool Status	Archived
Visitors	346
Contributors	49
Registered	49
Unverified	0
Anonymous	0
Admin	0
SUBMISSIONS	205

Demographics Graphs Below

Date of contribution	Marker Details				Your Comment	Add Image	test(deleted)	Sign Up form Details		
	Latitude	Longitude	Address	Category				Usertype	I would like to be entered in the draw to win one of the following:	Do you want to be added to the City of Kingston mailing list and receive updates on projects you have provided input on?
Feb 14 23 04:05:03 pm	44.234831611661264	-76.49649381637573	505 Princess Street, Kingston, Ontario K7L 1C5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	There needs to continue to be a bike route on princess street. Removing it is a poor idea and does not support active transportation. Removal of parking and widening sidewalks is a great idea	/files/original/missing.png		User		Yes
Feb 14 23 04:07:00 pm	44.241163904599055	-76.50213742424677	350 Nelson Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	concession street is horrible to bike on, it is to narrow in spots to safely walk on the sidewalk with kids. If you add a bike lane here it needs to have a physical barrier in order to be safe enough and I don't think there is the space to do that.	/files/original/missing.png		User		Yes
Feb 14 23 04:08:40 pm	44.23744579376479	-76.50733004539553	321 Napier Street, Kingston, Ontario K7L 1J8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	amazing alternate bike route for people who don't need to go on princess st as part of their destination. The issue with removing the bike lane on princess st is it becomes much harder for people to use active transportation to run errands in the newly renovated commercial space on princess st.	/files/original/missing.png		User		Yes
Feb 14 23 04:10:12 pm	44.23251042535954	-76.50649256858512	650 Brock Street, Kingston, Ontario K7L 1V6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	These one way bike lanes are acceptable and fine for an adult commuter who is comfortable with traffic, they could be improved and made safer for children by adding year round physical barriers	/files/original/missing.png		User		Yes
Feb 14 23 04:11:42 pm	44.23885949733546	-76.50649309158327	772 Princess Street, Kingston, Ontario K7L 1G3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	There is an existing bike lane on princess st here, why is that not indicated in the base map. This lane has made it possible for me to use this street to actively move with my young children. I can't do that past division st with them downtown and removing this lane will limit our access up there too.	/files/original/missing.png		User		Yes
Feb 14 23 07:00:38 pm	44.237875027428736	-76.5040365964054	692 Princess Street, Kingston, Ontario K7L 1E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	It is interesting that the rendering shows bike racks at this location and yet there would be no safe way to get to them. The choice would be between riding amongst car traffic or riding on the sidewalk. Obviously the rendering is just an example but it does raise the most important question: The project description talks about cyclists as if they are only passing through Williamsville on their way downtown. In that mindset, it might seem fine to re-route them several blocks out of their way. But what about all the activity along this corridor? We are developing this area into fairly high density residential and	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/a6109e196adc0943efd2193c6a5559b2abac9c19/original/1676419239/472437febd148174f8e2344b773f154b_Bike_Rack.jpg?1676419239		User		Yes
Feb 14 23 07:03:42 pm	44.23611608833658	-76.50370948096777	15 Park Street, Kingston, Ontario K7L 1J6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	These neighbourhood bike routes are a great idea and should be implemented but they are not a substitute for protected bike lanes along Princess. There are many high-density buildings along Princess and many more to come. People need to be able to bike safely to any address along Princess.	/files/original/missing.png		User		Yes
Feb 15 23 09:47:54 am	44.235237487348016	-76.50078535079957	446 Albert Street, Kingston, Ontario K7L 3W3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Please create bike lanes that are fully separated from roadways with a barrier. I love to bike with my children in the bike trailer or on our cargo bike. However, the cars in these areas drive very fast and do no respect symbols on the pavement. It prevents me from biking with my kids. Please invest in barriers to keep cyclists, including children, safe. It will also encourage much more active transportation in Kingston.	/files/original/missing.png		User		No
Feb 15 23 09:49:04 am	44.23136310435926	-76.50387525558473	52 Toronto Street, Kingston, Ontario K7L 2A6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Please see my previous comment about barriers for bike lanes. Please put barriers for bike lanes on all new and existing lanes where possible.	/files/original/missing.png		User		No
Feb 15 23 10:09:06 am	44.23151685457602	-76.50110721588136	561 Johnson Street, Kingston, Ontario K7L 2A1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Johnson will now see 6 story buildings. They need to be setback so it is pleasant for pedestrians and street. As well, city needs to regularly sweep up broken glass on bike lanes.	/files/original/missing.png		User		Yes
Feb 15 23 11:58:08 am	44.23858124377652	-76.50568306446077	442 Macdonnell Street, Kingston, Ontario K7L 1G2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	There's no need for dedicated turn lanes at Princess and MacDonnell, despite what modelling says. This is a local road and shouldn't be relied on for through vehicle traffic N-S. Focus vehicle traffic onto the collectors, VIctoria and Alfred, which provides access to all the local roads in the neighbourhoods N + S of Princess. There are also no bus routes that use MacDonnell, so the rationale for dedicated turn	/files/original/missing.png		User		No
Feb 15 23 12:07:03 pm	44.23271609248188	-76.49664402008058	432 Brock Street, Kingston, Ontario K7L 1T4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	With the loss of (unsafe to begin with) bike lanes on Princess, the need for fully protected, not bollards half the year - bike lanes on brock / johnson (and Union) is more important than ever. Whether than means one way protected lanes on both Brock + Johnson, or converting a lane on one of them and making a bi-directional cycle track, or making them both two-way streets again .... I dont care - just figure it out and DO SOMETHING. Cycling on these streets is very unsafe with bollards providing minimal "protection" from traffic only a portion of the year. if you lived and cycled in the area, you'd know it.	/files/original/missing.png		User		No
Feb 15 23 12:12:37 pm	44.239676570944056	-76.50325298309328	639 Victoria Street, Kingston, Ontario K7K 4S3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Victoria is a collector with high traffic volumes. What could possibly justify this route to be considered a "neighbourhood route" ? Cyclists avoid this route for that reason. Either this needs to have fully protected infrastructure for cyclists (making it a spine route by your definition), or you move this "neighbourhood route" to MacDonnell, Albert, College, with appropriate addition of traffic calming.	/files/original/missing.png		User		No
Feb 15 23 12:14:28 pm	44.23626369487436	-76.4975291490555	369 Alfred Street, Kingston, Ontario K7K 4H6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Alfred is a collector with high traffic volumes. This doesn't make sense as a "neighbourhood route" - aside from potentially between York and Pine - both of which do make sense as neighbourhood routes. Cyclists avoid Alfred because vehicles speed along it, and its always going to have higher traffic volumes.	/files/original/missing.png		User		No
Feb 15 23 12:17:51 pm	44.237063125040464	-76.49392962455751	294 Division Street, Kingston, Ontario K7K 3Z7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Unless this is fully separated from traffic - which seems unfeasible given narrow road and lots of driveways, this is never going to be a comfortable route. focus on adjacent routes like Patrick St, Clergy, Albert, MacDonnell, and lower the traffic volumes on them. It will be way cheaper (than a segregated lane and less disruptive as you dont need to get rid of on street parking.	/files/original/missing.png		User		No
Feb 15 23 12:19:10 pm	44.23923075603129	-76.49465918540956	120 Pine Street, Kingston, Ontario K7K 1W8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Add a neighbourhood route on Pine too, connecting over to Patrick St which lots of people already use as an unofficial neighbourhood route.	/files/original/missing.png		User		No
Feb 15 23 12:22:10 pm	44.23711308906523	-76.51282310485841	221 Westdale Avenue, Kingston, Ontario K7L 4S4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Rather than on Westdale - move this neighbourhood route to College Street and extend it all the way to Union - way better from a broader network perspective.	/files/original/missing.png		User		No
Feb 15 23 12:24:31 pm	44.23176285408739	-76.50990486145021	263 College Street, Kingston, Ontario K7L 4M1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	COllege St - which connects to both Brock + JOhnson - makes a lot more sense than a neighbourhood route on Westdale. your plan also shows a future route on Palace (and SJA)... why would you put three routes right beside each other? This college route would be better and should also extend all the way to Union St (which - speaking of Union - it should become a protected bike lane rather than the terrifying experience it is now with vehicles constantly speeding past within	/files/original/missing.png		User		No
Feb 15 23 12:30:59 pm	44.229667981594446	-76.50054931640626	412 Earl Street, Kingston, Ontario K7L 2J8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Like Mack, Earl St should also be a neighbourhood bike route. This one actually goes all the way downtown. Extend all of the N-S neighbourhood routes to (at least union, ideally with one or two going all the way to King / Breakwater park) and have Earl go all the way to downtown/Battery park and the planned confed basin breakwall park/new swim dock which will surely be a huge draw.	/files/original/missing.png		User		No
Feb 15 23 12:32:44 pm	44.23511449498287	-76.5052914619446	328 Macdonnell Street, Kingston, Ontario K7L 4C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	eliminate the Victoria "neighbourhood route" (it's not) and add one on MacDonnell all the way from Union to Leroy Grant Drive. Do it right with traffic calming and put in push button to stop traffic at the major crossings on Johnson, Brock, and at Princess. This connects both schools to all of the key E-W routes.	/files/original/missing.png		User		No
Feb 15 23 12:39:35 pm	44.23673797348099	-76.50151491165163	630 Princess Street, Kingston, Ontario K7L 1E3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I am cyclist. I think it is appropriate to direct cyclists off of Princess street for safety reasons. We need a protected bike route. Johnson and Brock street cycling paths are a good start, however inadequate when you get close to downtown. Barriers between cyclists and cars are absolutely necessary for safety. Education is required for the bike corridors to be accepted in the general population. If Kingston is promoting a friendlier corridor for cyclist, then I recommend signage and alternate routes for cyclist. I believe we need to keep cyclist off Princess street.	/files/original/missing.png		User		Yes
Feb 15 23 12:43:14 pm	44.24103321106185	-76.51453971862794	59 Bath Road, Kingston, Ontario K7L 4V1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This is not directly related to the project - but your engineering team needs to hear this: It's great if the city adds cycling routes to get to this major retail area - but cycling within the development also needs to be considered. I heard the Canadian tire is moving to the west part of the site - use this redevelopment opportunity to force the developer to add cycling routes through the development as part of community benefits. if it's not safe within the	/files/original/missing.png		User		No
Feb 15 23 12:54:50 pm	44.23989947713371	-76.5022122859955	306 Nelson Street, Kingston, Ontario K7K 4M8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Nelson, from Third Ave to York should also be a neighbourhood route (another link to Leroy Grant MUP)	/files/original/missing.png		User		No
Feb 15 23 12:55:18 pm	44.23842751201598	-76.50126814842226	356 York Street, Kingston, Ontario K7K 1R9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	extend york st neighbourhood route to Nelson (and connect nelson to Third Ave / Leroy Grant MUP	/files/original/missing.png		User		No
Feb 15 23 12:56:22 pm	44.244488082435176	-76.50339782238008	103 Third Avenue, Kingston, Ontario K7K 4S9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Make Third Ave a neighbourhood route connecting N-S routes on MacDonnell, Nelson, and Leroy Grant MUP.	/files/original/missing.png		User		No
Feb 15 23 01:02:40 pm	44.236598073236344	-76.49144053459169	221 Raglan Road, Kingston, Ontario K7K 1P6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	There also needs to be at lease one neighbourhood route connecting all the way east to the inner harbour/waterfront trail. This could be via York-Ordinance, Raglan (through a new path at Rideaucrest?), and/or Pine-James-Cataraqui. There is an arbitrary "project boundary" - we need to think beyond that because some of there neighbourhood routes dont make sense when you think beyond the boundary. It needs to be a full downtown network - not just some disconnected	/files/original/missing.png		User		No
Feb 15 23 01:09:21 pm	44.244441967579334	-76.50825798511507	58 Leroy Grant Drive, Kingston, Ontario K7L 1H3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	not this project - but hey - city of Kingston! - figure out some kind of land agreement through the very very southern edge of Novellis lands to connect leroy grant MUP / Third Avenue to the Kingston Centre through the Queens Innovation park over to Mooalim Drive. There's no safe way to access any of these developments as a cyclist / riding on sidewalks is illegal - and it hardly feels much safer as a pedestrian along Concession which is essentially a highway. A trail just north of the apartment buildings connecting to the parking lots/lanes would be a huge improvement	/files/original/missing.png		User		No
Feb 15 23 01:19:55 pm	44.2375321737831	-76.5030759572983	577 Victoria Street, Kingston, Ontario K7L 1E5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	In addition to the other transit priority measures I would hope to see full transit priority in all the Traffic lights on the corridor (and everywhere else for that matter).	/files/original/missing.png		User	Yes	Yes
Feb 15 23 01:22:09 pm	44.23643664943675	-76.5005385875702	611 Princess Street, Kingston, Ontario K7L 1C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	I would hope to see more then just the two queue jumps in this section (and it would be nice to see these introduced elsewhere in the city as well).	/files/original/missing.png		User	Yes	Yes

Feb 15 23 01:24:08 pm	44.2372944965 4062	-76.5025341510 7728	662 Princess Street, Kingston, Ontario K7L 1E5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	One possibility to maintain the bike lanes would be to move them off the street and onto the sidewalk on one side as a multipurpose path for use by cyclists, pedestrians, and other non-car users. Additional space for pedestrian use could be achieved by amending the zoning for this area so that all new construction with a front yard setback of less than 3m must have a colonnade at grade level. And even though existing new buildings	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/ab2ab7deeac3eec29a5f8f1fd19d565be08494c2/original/1676485449/002c8483bd427f7652df8e36626299d6_Princess.jpg?1676485449		User		No
Feb 15 23 01:25:53 pm	44.2396496904 8604	-76.5000343322 754	303 York Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	The addition of a bike path from Nelson/Concession and Albert/York would help the overall alternate route be less, and give a section off the street. Obviously this would need to be done in a way to minimize impact on other uses in the park.	/files/original/missing.png		User	Yes	Yes
Feb 15 23 01:26:53 pm	44.2411328950 77214	-76.5043580532 0741	206 Concession Street, Kingston, Ontario K7K 2B5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	What ever bike lane is installed should be of high quality rather then just painted lines.	/files/original/missing.png		User	Yes	Yes
Feb 15 23 01:28:21 pm	44.2323201016 40894	-76.5065574645 9962	167 Napier Street, Kingston, Ontario K7L 4G4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	The Bike lanes on Broke and Johnson would be much better with proper separation from car traffic, winter maintenance, and more frequent sweeping to remove the broken glass.	/files/original/missing.png		User	Yes	Yes
Feb 15 23 01:31:33 pm	44.2383849598 272	-76.5096205472 9462	200 Park Street, Kingston, Ontario K7L 4K3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Where ever they end up being I would hope to see robust traffic calming/diversions, and other measures to make these high quality cycling routes.	/files/original/missing.png		User	Yes	Yes
Feb 15 23 01:32:37 pm	44.2397569777 4826	-76.5084511041 6414	842 Princess Street, Kingston, Ontario K7L 1G3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	With the redevelopment of the street there should be high quality bike racks at frequent intervals.	/files/original/missing.png		User	Yes	Yes
Feb 15 23 01:49:15 pm	44.2335655378 8001	-76.5133434534 073	319 Palace Road, Kingston, Ontario K7L 4T4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	The Mack St neighbourhood route needs to connect to Norman Rogers / Van Order better through the pathways. This is a barrier for those who live west of Sir John A MacDonald Blvd, and an opportunity to better connect them to the downtown. Specifically, there should be a crossing on Palace Rd between the two pathways.	/files/original/missing.png		User		No
Feb 15 23 01:51:14 pm	44.2327468418 5042	-76.5002650022 5069	366 Albert Street, Kingston, Ontario K7L 1T7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	A signal and push buttons for cyclists and pedestrians is needed here (and anywhere a neighbourhood route crosses a major road). I find this a difficult roadway to cross as an adult currently, and I definitely would not let my children make this crossing without an adult given the volume and speed of motorists on Brock and Johnson.	/files/original/missing.png		User		No
Feb 15 23 01:51:22 pm	44.2314976358 2091	-76.5001308917 9994	318 Albert Street, Kingston, Ontario K7L 1Z8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	A signal and push buttons for cyclists and pedestrians is needed here (and anywhere a neighbourhood route crosses a major road). I find this a difficult roadway to cross as an adult currently, and I definitely would not let my children make this crossing without an adult given the volume and speed of motorists on Brock and Johnson.	/files/original/missing.png		User		No
Feb 15 23 01:57:16 pm	44.2324393474 4178	-76.5099477767 9445	273 College Street, Kingston, Ontario K7L 4M1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	A signal and push buttons for cyclists and pedestrians is needed here (and anywhere a neighbourhood route crosses a major road). I find this a difficult roadway to cross as an adult currently, and I definitely would not let my children make this crossing without an adult given the volume and speed of motorists on Brock and Johnson.	/files/original/missing.png		User		No
Feb 15 23 01:57:41 pm	44.2311401658 315	-76.5098458528 5188	253 College Street, Kingston, Ontario K7L 2B4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	A signal and push buttons for cyclists and pedestrians is needed here (and anywhere a neighbourhood route crosses a major road). I find this a difficult roadway to cross as an adult currently, and I definitely would not let my children make this crossing without an adult given the volume and speed of motorists on Brock and Johnson.	/files/original/missing.png		User		No
Feb 15 23 05:23:43 pm	44.2389780259 0246	-76.5064589913 1634	772 Princess Street, Kingston, Ontario K7L 1G3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	It is unacceptable that the City would even consider removing bike lanes from this stretch of Princess St. Given the densification of Williamsville, along with the City's move to parking maximums, it is far more likely that residents in this corridor will ride bicycles than drive vehicles. Why must we continue to accommodate motorists over cyclists in this city? Why is it reasonable to push cyclists out to Concession and Brock/Johnson when they have dwellings or employment to reach, or business to conduct on Princess Street? Rather than remove cycling lanes, why not remove the parking lane	/files/original/missing.png		User	Yes	No
Feb 15 23 09:14:38 pm	44.2344057524 7543	-76.4957528770 9013	346 University Avenue, Kingston, Ontario K7L 1C5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Plant more trees along the corridor to make walking and public transit use more bearable in summer months and to help with air and noise pollution from vehicles.	/files/original/missing.png		User		Yes
Feb 16 23 08:46:33 am	44.2444648633 4659	-76.5050707383 8214	141 Third Avenue, Kingston, Ontario K7K 4W3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This crossing is key to bike and pedestrian infrastructure. We need proper crosswalk and stop signs here to allow pedestrians to cross safely and bikes to merge safely onto the streets. Third Avenue can be a neighbourhood bike connection linking Kingscourt from Alfred to Leroy Grant	/files/original/missing.png		User		No
Feb 16 23 08:48:26 am	44.2444966555 518	-76.5063216747 8791	141 Third Avenue, Kingston, Ontario K7K 4X3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This path should be expanded and provide better access for pedestrians and cyclists to the apartment buildings on Leroy Grant, linking them to Kingscourt and downtown through other bike infrastructure.	/files/original/missing.png		User		No
Feb 16 23 08:50:51 am	44.2391927815 42776	-76.5057086499 6389	475 Macdonnell Street, Kingston, Ontario K7K 4W5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This area has no sidewalk and adding a sidewalk should be considered if possible to help connect pedestrian traffic from Kingscourt with Williamsville. This is a major walking route for children going to Rideau Public School from north of Princess Street.	/files/original/missing.png		User		No
Feb 16 23 08:58:38 am	44.2385218446 5253	-76.5069147725 9024	87 Durham Street, Kingston, Ontario K7L 1J3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	.	/files/original/missing.png		User		No
Feb 16 23 09:03:15 am	44.2405333049 9508	-76.5071335366 0504	27 Tower Street, Kingston, Ontario K7L 1G6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This needs to be a formalized path from Concession to Princess along Tower. Currently people need to hop curbs and snow banks to get to the express bus stop from Kingscourt.	/files/original/missing.png		User		No
Feb 16 23 10:27:20 am	44.2361070853 13414	-76.4936327932 0825	267 Division Street, Kingston, Ontario K7K 3Z5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	For the length of Division, double the width of the sidewalk on just one side, top it with asphalt, and make it a multi-use path for cyclists and other users travelling in both directions.	/files/original/missing.png		User		No
Feb 16 23 10:32:06 am	44.2314194390 5108	-76.5030062192 0907	607 Johnson Street, Kingston, Ontario K7L 3Z1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	While it's probably too late to do it now, if any future upgrades are planned for the Johnson and Brock St bike lanes, the lanes should be raised 6" to sidewalk level, given a curb between it and the road, and incorporated into the existing sidewalk. On-road bike lanes don't feel as safe to casual riders as off-road separated lanes, so let's make use of existing sidewalk infrastructure to make curb-separated bike lanes.	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/f85e3f68bae0d682aa85bd9e89f004a5bf8d7f71/original/1676561527/bb227dd26cf97944d4c3bec43382e58e_Johnson.jpg?1676561527		User		No
Feb 16 23 10:34:55 am	44.2361279235 313	-76.5156555188 8781	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 6W4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	John A. Macdonald Blvd has a nice, generous and wide right-of-way. Any future bike paths should be created in the middle of this right-of-way, far away from the cars on the street.	/files/original/missing.png		User		No
Feb 16 23 10:36:33 am	44.2413487617 2754	-76.4999413501 2095	103 Concession Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Instead of putting bike lanes that feel unsafe right on the street with traffic, double the width of the sidewalk on one side and make it a two-way asphalt multi-use path.	/files/original/missing.png		User		No
Feb 16 23 11:26:56 am	44.2376665338 8646	-76.5008497238 1593	534 Albert Street, Kingston, Ontario K7K 4M4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	I live in the neighborhood and commute by car to the west end for work 5x a week and walk everywhere else within 20 minutes of my house. I haven't taken Kingston transit since I was in high school with a free pass because it is frankly time consuming and inconvenient if you need to go anywhere not directly on an express route. I do not bike anywhere because it feels unsafe and is near impossible in the winter.	/files/original/missing.png		User		No
Feb 16 23 01:25:08 pm	44.2352413819 55795	-76.4974594116 2111	542 Princess Street, Kingston, Ontario K7K 4H6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	All bike lanes should remain on Princess Street, but need to be greatly improved if the City wants anyone to use them. Start by making them protected with permanent curbs and the occasional planter to make the street greener. Not only will this make the lanes more comfortable for cyclists of all ages and abilities, but this will prevent the perpetual issue of cars blocking the Princess St bike lanes. Since they've been introduced, the bike lanes here have been treated as parking spots	/files/original/missing.png		User	Yes	No
Feb 16 23 07:18:17 pm	44.2375589200 2334	-76.5039396286 0109	Howard Johnson Kingston, 686 Princess St, Kingston, Ontario K7L 1E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	The thought that cycling is not a prominent way that residents of Williamsville and surrounding area use frequently is false. Yes, there are many pedestrians and many who use transit, however, Princess St. is often used by cyclists. More cyclists would use it MORE if the bike lanes were not in such rough shape, if there wasn't so much construction that leaves cyclists in the same lane as cars, and if there was more traffic calming on Princess St to slow down vehicular traffic. That on-street parking is being removed to increase sidewalk size to accommodate pedestrian traffic and that transit is	/files/original/missing.png		User		Yes
Feb 17 23 03:53:13 pm	44.2402157585 27235	-76.5190887451 172	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 1B9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Both streets are very busy and should have a protected bike lane with a physical barrier or separation (see image) Sir John A MacDonald has wide separation so the route could be next to the sidewalks or through the median. Bath could have the sidewalk widened to a multi use path or curbs as a divider between road and cycle path.	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/46c6fc3b506192c791cdb7e768d9e40a12621846/original/1676667197/a3804f53e87b12d7389aff3de78633c6_Slide1.JPG?1676667197		User		Yes
Feb 17 23 03:54:06 pm	44.2392999344 2879	-76.5073299407 959	793 Princess Street, Kingston, Ontario K7L 1G3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	It is sad to see the city considering removing bike gutters on Princess St. As the corridor continues to develop and businesses fill in the gaps, the need for cycling will become more important. These new businesses will greatly benefit from the compactness of bike parking. The removal of street parking is an awesome sacrifice to improve active and public transportation. Johnson and Brock have god-awful, pathetic, 2005-level bike 'infrastructure' for perhaps 3 months of the year with plenty of parked cars occupying it. The Princess update is the perfect opportunity to show good faith to the	/files/original/missing.png		User		Yes
Feb 17 23 03:55:55 pm	44.2413711461 08854	-76.5169215202 3317	CIBC Kingston Centre, Kingston, Ontario K7L 1H2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Have a connection to the transit hub at the Kingston Centre that is easy to access, has a rest area/bike rack, and makes for safer travel within the Kingston Centre.	/files/original/missing.png		User		Yes
Feb 17 23 03:56:19 pm	44.2410216816 74226	-76.5145611763 0006	59 Bath Road, Kingston, Ontario K7L 4V1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	I want to echo what Freddy said. The re-development of the Kingston centre is of utmost importance to this city. An easy step would be to allow pedestrians to cross bath road without waiting multiple minutes and then worrying about turning vehicles and running them over. Cars turning right on red leaving the Canadian tire are consistently putting pedestrians in danger. No more right on red please!	/files/original/missing.png		User		Yes
Feb 17 23 03:57:00 pm	44.2386158333 6728	-76.5182143449 7835	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 1B9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This is a highly used pedestrian crossing and would benefit from a crosswalk or some other sort of traffic calming	/files/original/missing.png		User		No

Feb 17 23 03:59:26 pm	44.23817046080585	-76.50884004542606	164 Park Street, Kingston, Ontario K7L 4K7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Park Street would be an incredible alternate route if the city deems cyclists are not wanted on princess street. It would be awesome to see the city establish priority at intersections for cyclists, allowing them to yield rather than stop. This term is coined as the Idaho stop in many states.	/files/original/missing.png		User		Yes
Feb 17 23 04:01:15 pm	44.244445810485374	-76.50487303733826	141 Third Avenue, Kingston, Ontario K7K 1R7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	It would be lovely to see the city improve the flow and protection of cyclists from the bike path into the residential area.	/files/original/missing.png		User		Yes
Feb 17 23 04:05:39 pm	44.236051104195	-76.49950451217593	575 Princess Street, Kingston, Ontario K7L 1C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	If the city demonstrates it can install proper cycling infrastructure and maintain it throughout the winter Kingston will be taking a giant leap forward as a city. The active transportation master plan seems worlds away when the city cannot install the awful bollards until mid summer, does not ticket cars that block the bike lane and makes no effort to keep cycling as a viable option for winter commuting.	/files/original/missing.png		User		Yes
Feb 17 23 04:10:28 pm	44.23216398243296	-76.49302270263435	346 Brock Street, Kingston, Ontario K7L 1T1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Lower Brock is arguably one of the least friendly routes for a cyclist in Kingston. The separated bike lane at division is a welcome gesture but I have a hard time considering brock a cycling route while it remains a drag strip for vehicles. This is incredibly obvious when trying to enjoy Atomica's patio. I believe the businesses on lower Brock would be astonished by the tranquility and also new customers that bike traffic would create.	/files/original/missing.png		User		Yes
Feb 17 23 04:15:14 pm	44.23625345570813	-76.49372619576754	269 Division Street, Kingston, Ontario K7K 3Z5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Raglan through Ordinance currently offer a low speed somewhat cyclist friendly way to commute to the east end of Kingston via the causeway. They should be considered when implementing new cycling infrastructure. As an experienced cyclist, I chose to cut through ordinance and past the memorial centre over to Westdale Ave every day rather than dealing with Princess, Brock and Johnson in their current state.	/files/original/missing.png		User		Yes
Feb 17 23 04:22:20 pm	44.23432733475578	-76.49527313886212	477 Princess Street, Kingston, Ontario K7L 3R4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	If I had $1 for every car I have had to ride around parked in this bike lane I could afford to repaint all of Kingston's sharrows. Seriously, if the city is looking for income, allow cyclists to submit photos of cars parked in the bike lane for a cash reward. New York City has considered implementing this and it would be great to see it in Kingston. It would reduce the need to spend money on physical barriers, demonstrate to cyclists the city cares about active transportation and provide income for the city	/files/original/missing.png		User		Yes
Feb 17 23 04:24:43 pm	44.23377210188126	-76.50702280690895	174 Napier Street, Kingston, Ontario K7L 1P7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	The napier to brock cycle path is an awesome option, but only in the daylight. There are no street lights to help cyclists at night, as well as allow basketball players to continue using the hoop adjacent to the path but sharing the same paved surface. Some lighting here would go a long way!	/files/original/missing.png		User		Yes
Feb 17 23 04:51:44 pm	44.23917310730452	-76.49786710739137	453 Alfred Street, Kingston, Ontario K7K 1X1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	It would be nice to have a crosswalk here. There seem to be a lot of pedestrians crossing Alfred St to and from the M Centre park, and it can be difficult to get across.	/files/original/missing.png		User		No
Feb 17 23 04:56:00 pm	44.23639052826982	-76.50436878204347	251 Toronto Street, Kingston, Ontario K7L 1J7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	There should definitely be at least a crosswalk at this intersection, and really, a crossing guard or "school street" closure at school start and end times. This is a busy corner and the irregular angle of the streets makes it very difficult to cross safely.	/files/original/missing.png		User		No
Feb 17 23 05:05:12 pm	44.23521442629914	-76.50302767753602	476 Victoria Street, Kingston, Ontario K7L 3Z7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Victoria St is very narrow, the pavement is extremely rough, and there are usually cars parked along it (further narrowing the road). This is far from ideal for a "neighbourhood bike route".	/files/original/missing.png		User		No
Feb 17 23 05:10:47 pm	44.24120230848736	-76.50898218154909	303 Concession Street, Kingston, Ontario K7K 2C1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	While it will be fantastic to have a safe bicycle lane along Concession St as well, this should not be a substitute for a safe bicycle lane along Princess St	/files/original/missing.png		User		No
Feb 17 23 06:22:23 pm	44.23616991484878	-76.50428831577302	227 Toronto Street, Kingston, Ontario K7L 1J5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	There definitely needs to be traffic calming measures around this school. Other downtown schools have crossing guards, street closures, etc. This one has nothing.	/files/original/missing.png		User		No
Feb 17 23 06:24:49 pm	44.240198648489084	-76.50952291514842	321 Regent Street, Kingston, Ontario K7L 1G5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I would suggest giving cyclists the more direct routes so that fewer km's need to be traveled by bike. Give the obscure routes to the vehicle traffic. Transit and bikes may suit princess street well.	/files/original/missing.png		User		No
Feb 17 23 06:32:22 pm	44.23842575569382	-76.50203740577128	245 Nelson Street, Kingston, Ontario K7K 4M6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Nelson street could benefit from some speed control. People use this street as a speedway from Concession to Princess in order to avoid Alfred street's speed bumps.	/files/original/missing.png		User		No
Feb 17 23 07:53:15 pm	44.23710540229495	-76.50187969207765	635 Princess Street, Kingston, Ontario K7L 1E2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Need a traffic light and a cross walk at Nelson/Princess St. Very poor visibility, coupled with cars sitting in the middle Nelson St and edging forward due to the angle of the road, plus people jay walking. When there is a traffic going up Princess St it is very dangerous on a bike or a car to turn left onto Nelson.	/files/original/missing.png		User		Yes
Feb 18 23 01:47:27 am	44.23357706872868	-76.5129840373993	16 Alamein Drive, Kingston, Ontario K7L 4R6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I think I agree with what Freddy said.	/files/original/missing.png		User		No
Feb 18 23 01:50:36 am	44.23368468987387	-76.50795221328737	275 Mack Street, Kingston, Ontario K7L 1V9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Rest Areas	I've never used a rest area myself, not sure what that entails, perhaps a bench? But this is a beautiful park, with well-maintained flower beds, and so it would serve as an excellent break spot for those who may need it, it seems to me?	/files/original/missing.png		User		No
Feb 18 23 02:00:47 am	44.23355400702908	-76.51110649108888	81 Helen Street, Kingston, Ontario K7L 4P2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	So very excited for these bike paths! The more the better! Specifically, let's build more incentives for it (and that will require less incentives for driving), and more study on how the best places in the world do it (e.g., Amsterdam, Berlin), and integrating it nicely with our public transport :). Thank you for considering public input, and moving on this path towards a more attractive, healthy, enviable city! Kingston	/files/original/missing.png		User		No
Feb 18 23 02:03:33 am	44.23358859957508	-76.51155710220338	82 Helen Street, Kingston, Ontario K7L 4P1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	People often park on the road here, (at least I think?). If we were to have bike lanes, this would have to be addressed. That said, please put bike lanes on Mack, that would be awesome! It's also a generally quieter street, which makes it ideal as well it would seem(?)	/files/original/missing.png		User		No
Feb 18 23 02:12:46 am	44.23108635295691	-76.50861740112306	758 Johnson Street, Kingston, Ontario K7L 2B4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Although this is a bit separate, what are the policies for snow-clearing in winter? I know biking in the winter is not everyone's thing, but it is possible (and perhaps even desirable) see: https://www.youtube.com/watch?v=Uhx-26GfCBU . Now I share much of this channel's frustrations, and would encourage Kingston city planners (and everyone) to look at it (if they don't already know of it), but the creator can seem a bit flippant when dealing with counter evidence or arguments, which might effect/over-bias his conclusions. Regardless, I don't know of a better resource on the matter at this time	/files/original/missing.png		User		No
Feb 18 23 02:13:53 am	44.23953821495331	-76.5084993839264	Econo Lodge City Centre Kingston, 840 Princess St, Kingston, Ontario K7L 1G3, Canada	Additional Comments	can we knock this place down? (joking)	/files/original/missing.png		User		No
Feb 18 23 02:14:29 am	44.24013006885502	-76.50950253009798	321 Regent Street, Kingston, Ontario K7L 1G5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I very much agree with JDaigneau here.	/files/original/missing.png		User		No
Feb 18 23 02:19:42 am	44.239234599277715	-76.50722265243532	795 Princess Street, Kingston, Ontario K7L 5E4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I don't know a lot about what Anon7 is referring to as I don't bike much on this road, but their sentiment and conclusions are shared by me. Bike protection barriers would be a great idea, seems more permanent, and can better build a bike culture for younger (or older) bikers who may not feel as safe without them	/files/original/missing.png		User		No
Feb 18 23 02:24:00 am	44.23782795431208	-76.50395572185518	Don Cherry's Sports Grill, 686 Princess Street, Kingston, Ontario K7L 1E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I think gurr8 makes a good point. I know its just a rendering, but the bike racks (parking) could be more like I've seen in Europe where it is much more efficient for space. This is also partly fixed by the design of bikes themselves, which resources like Not Just Bikes (Youtube) have spoken about. See my other comment about that channel re: winter biking for more context on its relevance.	/files/original/missing.png		User		No
Feb 18 23 02:26:53 am	44.237251450758556	-76.50245904922485	662 Princess Street, Kingston, Ontario K7L 1E5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Re: vincepape's comment - I would caution combing active transport paths (like bikes, skateboards, rollarblading) with walking paths. The speed differences are significant. I can't remember how they do it in Amsterdam, but I'm gonna go out on a limb and say they probably have a good solution for this. Second, looking at that rendering vincepape shared, that path seems a little close to the road, where cars do go at a	/files/original/missing.png		User		No
Feb 18 23 02:35:06 am	44.237593510215085	-76.50080144405366	530 Albert Street, Kingston, Ontario K7K 4M4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	I'm not sure I would jump on board with diverting cars onto side streets as SarahK's comment mentions, but I agree with the sentiment of less cars more active transport. I wanted to add that SarahK's point about building a bike/walk only mainstreet highlights the need to think long-term. Perhaps some things are off the table now, but let's not close off those options in the near or far future by certain decisions now	/files/original/missing.png		User		No
Feb 18 23 02:41:46 am	44.23439190964605	-76.49563550949098	333 University Avenue, Kingston, Ontario K7L 3R4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Re spatel's comment - it also just makes the city look better! Old buildings, trees/greenery, local businesses, and active transport networks ? Sounds like heaven on earth, certainly would make me envious if I lived in another Canadian city (or North American for that matter). The long-term economic benefit of having people look at your city and think: 'wow, this place feels like Europe', cannot be	/files/original/missing.png		User		No
Feb 18 23 02:48:18 am	44.23147457330646	-76.50104820728303	562 Johnson Street, Kingston, Ontario K7L 2A1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Greg Samuel has a point on broken glass - better yet would be a sort of campaign (importantly: led by students themselves), that (sort of/passively) shames/questions, and makes fun of those who break glass (seriously though, your certainly not a cool guy for throwing your beer bottle at the ground - your just a meathead [granted, this is what the glass comes from right?]). This is coming from a student themselves. That way we don't have to pay for it to be swept up (prevention>reaction)	/files/original/missing.png		User		No
Feb 18 23 08:24:09 am	44.23665956790065	-76.50093555450441	620 Princess Street, Kingston, Ontario K7L 1E3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	As someone who lives further downtown, I would like the be able to bike up Princess Street to participate in the future shops, restaurant, cafes, etc. that this sort of upgrade could produce. Bike lane seems essential, even if on a singular side.	/files/original/missing.png		User	Yes	Yes
Feb 18 23 08:28:43 am	44.229548821468285	-76.50591373443604	571 Earl Street, Kingston, Ontario K7L 2K5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I agree with the other comment about turning Earl into a traffic calmed route that can prioritize bikes and pedestrians. As someone who runs down Earl Street regularly, I see a lot of street level activity from bikers, walkers, runners and few cars. This runs all the way downtown and is a major waking route for university students too.	/files/original/missing.png		User	Yes	Yes

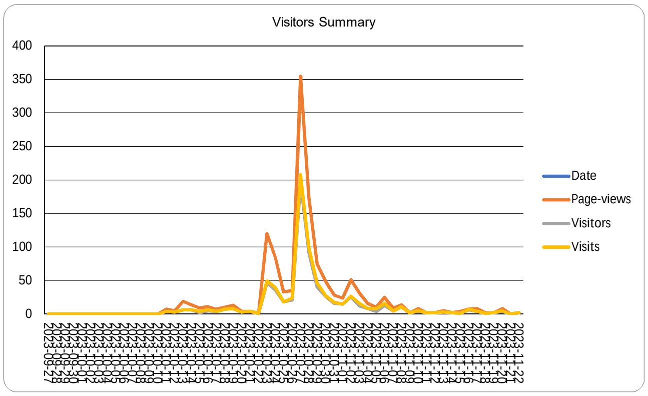
Feb 18 23 08:30:21 am	44.2313016041601	-76.50621414184572	698 Johnson Street, Kingston, Ontario K7L 2A8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	If you must remove bike lanes on Princess, then Johnson and Brock need an upgrade to the bike lanes to make them accessible full year with protection from cars and measures to preventing parking in the lanes.	/files/original/missing.png		User	Yes	Yes
Feb 18 23 09:06:49 am	44.23669800203321	-76.51589155197145	Sir John a. Macdonald Boulevard, Kingston, Ontario K7L 4T3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I really think that the bike lanes on the Blvd need to be off road, for safety. There seems to be enough land for this.	/files/original/missing.png		User		Yes
Feb 18 23 09:09:57 am	44.23694397988714	-76.51655673980714	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 6W4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	I would really like to see the entire median of the Blvd given over to wildflowers (and land on the sides of the road, too). Biodiversity corridors are so important to maintaining wildlife. Montreal has identified medians as the sites for some significant corridors in their west end (Cote-Vertu area).	/files/original/missing.png		User		Yes
Feb 18 23 09:16:55 am	44.233634722938056	-76.50952935218812	320 Mack Street, Kingston, Ontario K7L 1R2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I agree that Mack is an ideal street for bike lanes. I use Mack on bike to get to and from the Memorial Market.	/files/original/missing.png		User		Yes
Feb 18 23 09:20:13 am	44.23376924920701	-76.50577425956727	218 Mack Street, Kingston, Ontario K7L 1P7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Please focus on bicycle routes on residential thoroughfares, like Mack Street, instead of creating conflict by promoting unmaintained cycle lanes on very busy arteries like Brock, Johnson, and Princess. I'm an active cyclist, and I detest cycling on busy roads: it's noisy, stinky, and dangerous. Ask yourself: would YOU feel safe cycling along Princess, or Brock, or Johnson with your young children? If the answer is 'no', it's not a good choice, for anybody. Visit Mack Street during the warm season - it's already full of walkers and cyclists. Why? Because it's quiet and pleasant, and it feels much safer than	/files/original/missing.png		User	No	Yes
Feb 18 23 09:27:03 am	44.23368468987387	-76.51275873184206	16 Alamein Drive, Kingston, Ontario K7L 1R5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Keep drawing the cycling route west across Palace to the pedestrian traffic lights across Sir John A. Connecting with Norman Rogers is a nice way to keep going west.	/files/original/missing.png		User	No	Yes
Feb 19 23 02:23:34 am	44.24088639134757	-76.51124772615731	914 Princess Street, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Could the city please explain why princess needs to be an arterial route rather than directing traffic to concession and Johnson?	/files/original/missing.png		User		Yes
Feb 19 23 09:00:20 am	44.233946054692794	-76.51425004005434	324 Palace Road, Kingston, Ontario K7L 4T3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Include bike routes here to connect neighbourhoods with a dedicated crossing on SJM BLVD further it connect neighbourhoods to main arterial bike route	/files/original/missing.png		User		Yes
Feb 19 23 09:02:56 am	44.24051438638222	-76.51927649974824	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 2X6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Bike route need to continue through to John Counter to connect to other main arterial bike route. There are no other viable routes to get to this area of town from williamsville on bike.	/files/original/missing.png		User		Yes
Feb 19 23 09:13:07 am	44.23698241383393	-76.501402258873	629 Princess Street, Kingston, Ontario K7L 1E2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This whole section is very narrow and I do have concern with persistent issues of delivery drivers blocking traffic to make drops. This is already a concern on brock, johnson, and lower princess. Reducing to two narrow lanes may create considerable flow issues. Perhaps the suggestion from another commenter about civilians ability to take pictures and submit to city for fine it will reduce offenders.	/files/original/missing.png		User		Yes
Feb 19 23 09:15:42 am	44.23530667044048	-76.50530219078065	336 Macdonnell Street, Kingston, Ontario K7L 4C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	A very good suggestion from Freddy in other comment. I just wanted to second it. Again creating neighbourhood routes connecting neighbourhoods.	/files/original/missing.png		User		Yes
Feb 19 23 09:29:22 am	44.23252006487959	-76.51031255722047	753 Brock Street, Kingston, Ontario K7L 4M4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I would like to see directional arrows on the bike lanes clearly identifying one way traffic that are on one way traffic streets. All too often some active transportation users are travelling in the bike lanes against the flow of traffic opposed to travelling on the correct route creating issues for both motor vehicle users and other active transportation users.	/files/original/missing.png		User		Yes
Feb 19 23 09:32:27 am	44.231101728068964	-76.5139389038086	873 Johnson Street, Kingston, Ontario K7L 4T2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	If the SJAM bike lane went south to king but jumped in to palace at this section (where the old section of palace road extends) with a crossing at palace and Norman rogers there would be no need for a bike lane in the section of SJM where there are no off street stops to speak of in that section.	/files/original/missing.png		User		Yes
Feb 19 23 09:41:20 am	44.24127532767995	-76.5055274963379	227 Concession Street, Kingston, Ontario K7K 2B6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Prior to bike lanes being simply painted in this area.we need to invest in fixing the roads. I will use Portsmouth avenue as an example Of a road not suitable to cycle even with lanes as the conditions in the bike lanes are treacherous to ride in the king to princess st section	/files/original/missing.png		User		Yes
Feb 19 23 09:42:41 am	44.24134834678192	-76.4999431371689	103 Concession Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I second what vincepape has noted	/files/original/missing.png		User		Yes
Feb 19 23 01:28:01 pm	44.23700547418995	-76.50200843811037	182 Nelson Street, Kingston, Ontario K7L 1E5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Keeping the bike lane on Princess St. is absolutely vital -- there are no destinations on Concession or Johnson/Brock, but many along the Princess St. Corridor. I bike this route with my toddler in tow daily, and removing the bike lane would be an enormous safety hazard for us. The other routes are way out of the way of any of our destinations, and are not feasible when you are physically powering your transportation.	/files/original/missing.png		User		No
Feb 19 23 01:29:29 pm	44.241110073588246	-76.49926185607912	99 Concession Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This stretch of Concession in no way would be a replacement for the Princess St. bike lanes. It is way out of the way of downtown, and would add significant distance and time to a cyclist's trip. This stretch also has a much more significant hill than the equivalent stretch of Princess, which would be discouraging to many cyclists.	/files/original/missing.png		User		No
Feb 21 23 08:54:04 am	44.24030301205293	-76.5192496776581	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 1B9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I am opposed to the idea that this is a viable alternative to Princess St. BUT if it is being considered, there needs to be a safe way (ie. protected bike path) for cyclists to turn onto and off of Sir John A. at Bath Rd. This is a busy intersection that is currently extremely dangerous for cyclists, especially those making left hand turns.	/files/original/missing.png		User		No
Feb 21 23 08:55:59 am	44.244295107979994	-76.51916027025437	710 Sir John a. Macdonald Boulevard, Kingston, Ontario K7L 1H2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Why does this bike path not extend to Princess St? There must be some recognition that cyclists biking beyond downtown might be going to one of the many locations on Princess St. further west. And making cyclists come up Sir John A. -- where it is extremely difficult/dangerous for a cyclist to make a lefthand turn onto Princess St. -- is much more dangerous than giving them space to go straight up Princess.	/files/original/missing.png		User		No
Feb 21 23 03:45:57 pm	44.23841213881786	-76.50736212730409	89 Durham Street, Kingston, Ontario K7L 1J3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Adding a bike path from Durham to Regent would create a parallel route with less diversion for those going to destinations on Princess. All the area is parking lots that could easily fit a path between them.	/files/original/missing.png		User	Yes	Yes
Feb 22 23 02:10:37 pm	44.23283389239497	-76.49755954736975	456 Brock Street, Kingston, Ontario K7L 1T6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This bus stop is notoriously dangerous for cyclists. Cyclists lose their bike lane and then have to deal with broken pavement, jay-walking pedestrians, and buses that are driving very fast to catch the green light. These bike lanes should be fully protected and go behind the bus stop to avoid collisions with pedestrians. They should also put in more street lights as the park can be very dark at night and its hard to see cyclists.	/files/original/missing.png		User		No
Feb 22 23 02:14:52 pm	44.23408841935756	-76.50026142619026	71 Mack Street, Kingston, Ontario K7L 1T7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I think Albert and Mack streets are good candidates for bike routes, but they can't be implemented on their own. Parking has to be managed (as cyclists have to deal with cars parked in the bike lanes all the time) and many cars just roll through these intersections. I think these streets would be perfect fits for "traffic circles" or mini roundabouts that force cars to yield to bikes and pedestrians while allowing the flow of traffic. Better lighting and lines would also greatly benefit these streets.	/files/original/missing.png		User		No
Feb 22 23 02:16:43 pm	44.24094481903236	-76.50218009948732	344 Nelson Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Cars fly through this right turn lane all the time and I think it should be removed completely if the city wants to build bike lanes on concession.	/files/original/missing.png		User		No
Feb 22 23 02:21:00 pm	44.24106618511534	-76.50191545464624	153 Concession Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Rest Areas	After the city removes this unneeded right turn lane, they could repurpose this space for a beautified rest stop. The memorial centre deperatley lacks trees and is an unattractive field for most of the year, despite its great size and potential. Any of its corners would be great rest stops or bike repair stations with some beautification and security in place.	/files/original/missing.png		User		No
Feb 22 23 02:26:46 pm	44.23338466517804	-76.49305164868566	172 Division Street, Kingston, Ontario K7L 1B8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Despite being recently reworked, this intersection still does not feel safe for cyclists. Cars that are going north of division and turning left at princess street rarely look for pedestrians and cyclists crossing on the left side of the intersection and often have to commit quickly because of how the intersection is designed. I think it's worth of completely removing the left turn lane of the northbound direct on division street.	/files/original/missing.png		User		No
Feb 22 23 02:28:52 pm	44.23277393478959	-76.49269759676828	163 Division Street, Kingston, Ontario K7L 3M7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This area is horrible for (what I assume) delivery drivers parking in bike lanes while they pick up food orders in the restaurants. The city needs to start ticketing these cars if they want any of their bike lanes to be respected.	/files/original/missing.png		User		No
Feb 23 23 10:51:53 am	44.2360830528998	-76.50001287460327	578 Princess Street, Kingston, Ontario K7L 1C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Can Kingston start building dedicated bike lanes? It's so unsafe right now, especially as car drivers seem more distracted/angry since covid.	/files/original/missing.png		User	Yes	No
Feb 23 23 10:55:10 am	44.239269188484386	-76.49412274360658	106 Pine Street, Kingston, Ontario K7K 4A4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Please eliminate all “begging buttons” on traffic lights. It's especially a pain in the winter when snow removal isn't great, but why should I have to push a button to get the walk signal?	/files/original/missing.png		User	Yes	No
Feb 23 23 12:10:38 pm	44.24033500634022	-76.50990486145021	916 Princess Street, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Princess Street, south and east of the Kingston Centre, is evidently a STREET (not a ROAD), primarily functioning for people to access stores, residences, restaurants and other points of interest by FOOT, CYCLE, PUBLIC TRANSIT and other means of active transportation, where the use of personal automobiles should be discouraged through traffic calming measures, and other options for park and walk provided. Removing the already inadequate cycle infrastructure on this section of Princess is an assault on progressive city design, climate change, and building a liveable city. The proposed bicycle routes	/files/original/missing.png		User		No
Feb 24 23 09:59:41 am	44.232540369891346	-76.50882074591807	38 Regent Street, Kingston, Ontario K7L 1V9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	If Princess Street does not allow for a biking route than Brock and Johnson need to have better bike lanes. They are in terrible condition and do not enough barriers to create a safe route for bikers and children. My children feel very unsafe on these lanes and with the bumps it's difficult to ride and keep up. They need to have better barriers.	/files/original/missing.png		User		No

Feb 24 23 10:01:39 am	44.23391242325544	-76.50168657302858	86 Nelson Street, Kingston, Ontario K7L 3W8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Mack Street is a great neighbouhood bike lane and was used a lot when it was identified as a pilot. But after you get to Albert Street where is the connection to downtown on a bike route? People want to bike downtown so stopping at Albert doesn't make much sense.	/files/original/missing.png		User		No
Feb 24 23 10:04:56 am	44.23858893035401	-76.50546312332155	726 Princess Street, Kingston, Ontario K7K 4V9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Widening the sidewalks along Princess Street is an absolute most. With the expansion of growth in this corridor we want to make this a walkable area - with the City's sustainability plans as well there should be encouragement for a safe pedestrian pathway along Princess Street. There is so much opportunity for a vibrant walkable, livable area along Princess Street.	/files/original/missing.png		User		No
Feb 24 23 10:28:22 am	44.23774340081101	-76.5037250518799	690 Princess Street, Kingston, Ontario K7L 1E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This must remain a priority bike route. It's on the active transportation policy master plan.	/files/original/missing.png		User	Yes	Yes
Feb 24 23 03:03:20 pm	44.24127148456683	-76.49818360805513	517 Alfred Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Great to see the addition of more bikelanes in Kingston's centre however Concession with it's slip lanes or "whip-arounds" create potentially deadly interractions between cars and cyclists, not to mention pedestrians at the corners, they also increase the velocity of traffic around corners as at Alfred and concession. Slip lanes are widely recognized as being particularly deadly for vulnerable road users and if they not going to be removed the location of the bicycle lane should be reconsidered.	/files/original/missing.png		User		Yes
Feb 24 23 03:10:55 pm	44.24156740354408	-76.49495959281923	448 Division Street, Kingston, Ontario K7K 4A9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Great to see the addition of more bikelanes in Kingston's centre however extending the Division Street bikelanes south of concession with slip lanes at the intersection create potentially deadly interractions between cars and cyclists, not to mention pedestrians at a busy corner. The city should consider adopting updated best practices and removing slip lanes. Slip lanes are widely recognized as being particularly deadly for vulnerable road users and if they not going to be removed the location of the bicycle lane should be reconsidered.	/files/original/missing.png		User		Yes
Feb 24 23 03:11:27 pm	44.24117156353706	-76.50214791297914	350 Nelson Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Great to see the addition of more bikelanes in Kingston's centre however Concession with it's slip lanes or "whip-arounds" create potentially deadly interractions between cars and cyclists, not to mention pedestrians at the corners, they also increase the velocity of traffic around corners as at Alfred and concession. Slip lanes are widely recognized as being particularly deadly for vulnerable road users and if they not going to be removed the location of the bicycle lane should be reconsidered.	/files/original/missing.png		User		Yes
Feb 24 23 03:12:04 pm	44.24098709349783	-76.51075243949892	905 Princess Street, Kingston, Ontario K7L 1G7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Great to see the addition of more bikelanes in Kingston's centre however Concession with it's slip lanes or "whip-arounds" create potentially deadly interractions between cars and cyclists, not to mention pedestrians at the corners, they also increase the velocity of traffic around corners as at Alfred and concession. Slip lanes are widely recognized as being particularly deadly for vulnerable road users and if they not going to be removed the location of the bicycle lane should be reconsidered.	/files/original/missing.png		User		Yes
Feb 24 23 03:13:09 pm	44.240917917084	-76.51180386543275	16 Bath Road, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Slip lanes create dangerous interractions between cars and vulnerable road users and should be removed the city is committed to safe bike lanes.	/files/original/missing.png		User		Yes
Feb 24 23 03:15:08 pm	44.239941752350255	-76.51868104934694	Sir John a. Macdonald Boulevard, Kingston, Ontario K7L 4T9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Slip lanes are deadly for vulnerable road users and if the city is committed to making these safe and well-used cycling corridors they should remove slip lanes to prevent foreseeable accidents	/files/original/missing.png		User		Yes
Feb 24 23 03:16:48 pm	44.23354631979391	-76.49316787719728	427 Princess Street, Kingston, Ontario K7L 1C3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Slip lanes increase the number of interactions between cars and vulnerable road users. Whether this is a bike lane or simply a boulevard, a slip lane is incompatable.	/files/original/missing.png		User		Yes
Feb 24 23 03:19:58 pm	44.24059893590131	-76.49796903133394	497 Alfred Street, Kingston, Ontario K7K 4J4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Alfred needs a crossing at the memorial centre - people expect that because there's a gate it will lead them to a safe crossing. It does not. The slip lane at concession means that traffic is dangerously fast at exactly the spot where kids pool. The slip lane means that Concession and Alfred is not safer and option to cross - nowhere does a pedestrian have right of way.	/files/original/missing.png		User		Yes
Feb 24 23 03:21:14 pm	44.23924612901553	-76.49421393871309	365 Division Street, Kingston, Ontario K7K 4A4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	These crosswalk buttons are unresponsive as to discourage compliance. Please replace with timed lights.	/files/original/missing.png		User		Yes
Feb 24 23 03:22:03 pm	44.24174418559951	-76.49466991424562	Circle K, 451 Division Street, Kingston, Ontario K7K 4A8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This is not a route - this is the Circle K parking lot.	/files/original/missing.png		User		Yes
Feb 24 23 03:28:09 pm	44.23114785338102	-76.5144968032837	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 1A8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Sir John A Macdonald Boulevard is functionally a divided highway. Placing a bikelane -- unless there is an overhaul of the entire--corridor appears to be destined, no, planned for failure.	/files/original/missing.png		User		Yes
Feb 24 23 03:29:03 pm	44.233815372428445	-76.5146040916443	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 1A8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	needs a crosswalk to connect paths.	/files/original/missing.png		User		Yes
Feb 24 23 03:30:17 pm	44.23384612122263	-76.51473820209505	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 1A8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Slip lanes increase the likely hood of interaction between cars and vulnerable road users. The city should consider removing slip lanes if they proceed with bike lanes to avoid foreseeable accidents.	/files/original/missing.png		User		Yes
Feb 24 23 04:02:20 pm	44.23685468044779	-76.50226957368433	652 Princess Street, Kingston, Ontario K7L 1E5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	There are many new apartments along this corridor. The city of Kingston is promoting bicycle travel and many of the residents of these apartments will have bikes and will be driving them to and from their homes therefore, accommodation for bicycles must be made along this route. I suggest making the sidewalks a little less wide in order to provide for a bicycle lane.	/files/original/missing.png		User		Yes
Feb 24 23 08:28:39 pm	44.24125226899736	-76.50233030319215	350 Nelson Street, Kingston, Ontario K7K 4M8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	A light is desperately needed at this intersection. Cars have to sit on the right of way for pedestrians to cross the road in order to see while turning left. The amount of traffic is non stop making it extremely difficult to drive or bike to continue on northbound on Nelson or to turn left. Very dangerous.	/files/original/missing.png		User		Yes
Feb 25 23 08:49:14 pm	44.235960062301956	-76.49941205978395	575a Princess Street, Kingston, Ontario K7L 1C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Don't remove the bike lanes on Princess street! I use these bike lanes every day to commute to school, to do grocery shopping, to access the downtown resources. I live in the Williamsville neighbourhood and these bike lanes are vital to my transportation! Cyclists need to be considered in any transportation development plan. Cycling should be prioritized as a healthy, car-free alternative method of transportation. Kingston lags far behind other Ontario municipalities in this regard (like Ottawa, Toronto, London, Guelph).	/files/original/missing.png		User		Yes
Feb 26 23 12:30:12 pm	44.23486850948133	-76.49692296981813	514 Princess Street, Kingston, Ontario K7L 1C5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	You're right that Princess cannot do everything it aims to do. Given the number of destinations and the volume of pedestrian traffic, Princess does not make for a good arterial to downtown. The street design should focus on pedestrians and transit, and through traffic to downtown should be discouraged away from Princess and onto streets with less foot traffic, like Concession/Division/Queen, or John A/Johnson.	/files/original/missing.png		User		No
Feb 26 23 09:32:47 pm	44.23988093635146	-76.4978349208832	485 Alfred Street, Kingston, Ontario K7K 4J4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	I live nearby and agree with the other comments that this stretch of Alfred has issues for pedestrians. In addition to traffic on Alfred (frequently moving too fast even with speed bumps), there are lots of left turns onto Pine from SB Alfred and left turns onto Alfred from EB York. Drivers are frequently doing so quite quickly, provided that they don't see oncoming traffic, even if there are pedestrians trying to cross.	/files/original/missing.png		User		No
Feb 26 23 09:39:10 pm	44.23960347343593	-76.50268971920015	296 Nelson Street, Kingston, Ontario K7K 4M8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	One of the challenges in trying to consider an East-West bike route that is not Concession or Princess is the lack of a passage between Nelson and Victoria. It is probably not something that is fixable now but would seem key to an alternative.	/files/original/missing.png		User		No
Feb 26 23 09:44:34 pm	44.23336295332214	-76.49314641952516	424 Princess Street, Kingston, Ontario K7L 1C2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I agree with the other comments about the quality of Division as a bike route. North of Princess, it's too narrow and there's too much car traffic to be comfortable and it's not clear much can be done to fix this. South of Princess is better, but painted lines seem to be paired with no enforcement. I walk this stretch virtually everyday and I see cars parked there all the time, forcing cyclists into traffic.	/files/original/missing.png		User		No
Feb 26 23 09:50:41 pm	44.24047018999435	-76.51008993387224	912 Princess Street, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	In line with the city's active transportation plan and the ongoing climate emergency, it is vital that active transportation be prioritized over automobiles. The bike lanes along Princess St, which is already hugely dangerous for cyclists, should be prioritized, along with the addition of extra, parallel routes. In place of the recommended road narrowing project, I suggest that the road in question - if cars and cyclists cannot both be accommodated - is closed to motor traffic and/or the road is turned into a narrow, one-way street. Motor traffic can use alternative routes; why should cyclists have to?	/files/original/missing.png		User		No
Feb 26 23 09:53:51 pm	44.24102175213221	-76.51103138923646	905 Princess Street, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I think any discussion of linking bike routes in Williamsville (esp. Concession) to a broader network needs to consider carefully what to do about this intersection. I'm a pretty experienced cyclist who is more comfortable than most riding with traffic and I find this intersection terrifying. Heading NW, the current bike lane on Princess just ends at pretty much the worst possible time.	/files/original/missing.png		User		No
Mar 03 23 09:46:27 am	44.235544967136306	-76.49859666824341	562 Princess Street, Kingston, Ontario K7L 1C7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	We need more connections for bike routes. If Kingston is TRULY invested in increasing active transportation take-up, the city needs to build the infrastructure. When the infrastructure is convenient, more citizens will access it. The same goes for public transportation!	/files/original/missing.png		User		Yes
Mar 03 23 09:47:22 am	44.23641743228827	-76.50016307830812	601 Princess Street, Kingston, Ontario K7L 1E1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Bike infrastructure should be protected bike infrastructure. The current "bike gutter" we have are a start but incredibly dangerous with drivers not respecting the painted lanes.	/files/original/missing.png		User		Yes
Mar 03 23 11:23:59 am	44.23733600496655	-76.51683568954469	Sir John a. Macdonald Boulevard, Kingston, Ontario K7M 6W4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Love the comments regarding the biodiversity corridors like in MTL and the separate bike lanes away from traffic, especially if there's room to allow for it. The traffic on this road is too busy to be biking next to it or to even have the little plastic cones would not do much for safety. Personally this stretch of Sir John A has enough alternative bike routes that I think other sections of Sir John A and Bath Rd. would benefit from development first.	/files/original/missing.png		User		Yes
Mar 03 23 11:28:18 am	44.24300483779651	-76.5187454223633	Loblaws, 1100 Princess St, Kingston, Ontario K7L 1H2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This area and further north to Dalton really lacks any bike infrastructure along Sir John A. I feel like these areas should be focused on first, and could potentially help citizens connect to the KP trail better.	/files/original/missing.png		User		Yes
Mar 03 23 11:30:57 am	44.23929237686674	-76.53137683912064	385 Bath Road, Kingston, Ontario K7M 2W9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Out of all the possible bike lane projects, an east-west development would really help potential commuters (cyclists and drivers alike) feel safer on the road. There seems to be enough north south options, especially if choosing to commute through quieter streets, but east-west is really lacking, especially on Bath Road.	/files/original/missing.png		User		Yes

Mar 03 23 11:32:53 am	44.24030033539144	-76.5237879753113	257 Bath Road, Kingston, Ontario K7M 2X6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Would love to see Bath road be a top priority for people who want to commute to work going east-west. As mentioned, there are enough north-south options, but Bath Road is a real barrier to having more active transportation.	/files/original/missing.png		User		Yes
Mar 03 23 03:12:20 pm	44.233642410161735	-76.49323225021364	The UPS Store, 427 Princess St, Kingston, Ontario K7L 1C3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Get rid of the slip lane here while we are in the thick of road reconstruction. They are known to be unsafe and are not needed. If the justificiation is for truck turning, there's no reason the city can't change the permitted truck routes. We do no need nor do we want to encourage heavy trucks from accessing westbound princess st here. There are plenty of wide arterials	/files/original/missing.png		User		No
Mar 03 23 03:13:32 pm	44.23772034074421	-76.50321543216707	577 Victoria Street, Kingston, Ontario K7L 0E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	eliminate the slip lane here. They are known to be unsafe.	/files/original/missing.png		User		No
Mar 03 23 03:14:39 pm	44.241229210305725	-76.51153028011323	920 Princess Street, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This whole area is a safety nightmare for pedestrians and cyclists. It may be beyond saving - removing the slip lanes would be a good start.	/files/original/missing.png		User		No
Mar 03 23 03:25:23 pm	44.24388090060461	-76.51630461215974	Mooallim Place, Kingston, Ontario K7L 1H3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	My wife works at the offices here, and she would like to be able to bike to work but the last 1000m (everything north of Bath Road) is a death trap. What route would be suggested to get here, or to the drug store or other businesses? There needs to be safe cycling through and TO the kingston centre development. The City should be negotiating safe road infrastructure as the site redevelopments - we could easily spare a few parking spots to accomodate a protected lane that	/files/original/missing.png		User		No
Mar 03 23 03:26:28 pm	44.241375248533494	-76.49815678596498	517 Alfred Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	remove slip lane in line with city's stated vision zero objectives.	/files/original/missing.png		User		No
Mar 03 23 03:28:02 pm	44.24120230848738	-76.50227129459381	350 Nelson Street, Kingston, Ontario K7K 1R8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	remove slip lane	/files/original/missing.png		User		No
Mar 03 23 03:28:23 pm	44.241329131237556	-76.50351047515869	185 Concession Street, Kingston, Ontario K7K 2B4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	remove slip lanes.	/files/original/missing.png		User		No
Mar 03 23 03:34:08 pm	44.23930762091239	-76.49444729089738	139 Pine Street, Kingston, Ontario K7K 4A3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I agree with the traffic light comments. As a cyclist it is very hard to push the cross walk button, and it takes a prohibitively long time for the light to change.	/files/original/missing.png		User		Yes
Mar 04 23 09:40:06 am	44.23632288380282	-76.50065660476686	484 Albert Street, Kingston, Ontario K7L 3W3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	add active transportation signs along the area ie Memorial center 1k, lake 5k, bath 20k	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:42:13 am	44.2376493137656	-76.50317144420114	647 Princess Street, Kingston, Ontario K7L 0E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	add bike racks at major bus stops like the one by Princess St United church	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:45:35 am	44.23996974668341	-76.5090433360456	846 Princess Street, Kingston, Ontario K7L 1G3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	add active transportation signs to different locations from bath concession and princess intersection.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:47:44 am	44.23818000303178	-76.5045350790024	671 Princess Street, Kingston, Ontario K7L 1E6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	the bike routes need to be snowplowed as well as the streets along this whole area.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:50:05 am	44.238483624149254	-76.5053826570511	726 Princess Street, Kingston, Ontario K7L 1G2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	downtown princess st has many more bike racks then Williamsville. There needs to be more bike racks as more people move into the high rises and there is more commercial development.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:54:09 am	44.2403432300925	-76.50950145747629	859 Princess Street, Kingston, Ontario K7L 1G7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Rest Areas	there should be a rest area at both ends of this corridor. with signs and distance to other destinations ie kingston center, cat center, mem center, lake, parks etc.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:56:23 am	44.238881843259676	-76.50614225884057	689 Princess Street, Kingston, Ontario K7L 1E9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	the sidewalks need better winter maintenance. It is very dangerous walking this area most winters.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 09:58:47 am	44.23929071064132	-76.5070402622223	KMA Dental, 306-800 Princess St, Kingston, Ontario K7L 1E9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	the area needs more garbage/recycle bins especially at bus stops like across from Giant Tiger. If the area looks nice them more people may walk the area.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:03:41 am	44.23371392178138	-76.49367213183724	438 Princess Street, Kingston, Ontario K7L 1C2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Rest Areas	I know it outside the area of study but a sign here indication what is in Williamsville area would be beneficial for people to decide to visit Williamsville. ie restaurants, Farmers Market, Giant Tiger, etc.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:06:15 am	44.2389564917054	-76.5065424439672	772 Princess Street, Kingston, Ontario K7L 1G3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This area had old gas light fixtures that no longer work. Why not fix them up. The more pleasant the area the more people will walk in and to it.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:09:08 am	44.24025709739675	-76.50956261164539	859 Princess Street, Kingston, Ontario K7L 1G5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Out side the area but there is not sidewalk on the left hand side of princess st by Canadian tire parking lot. This discourages people from walking in the area from Williamsville.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:13:39 am	44.23595093242226	-76.49903869691119	491 Frontenac Street, Kingston, Ontario K7L 1C8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Rest Areas	More benches are needed. At these locations. Alfred, Frontenac, The bakery, Legion villa, Tim Hortons area, Giant Tiger, Westgate Sq. etc.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:16:10 am	44.236139167268824	-76.49973392486574	578 Princess Street, Kingston, Ontario K7L 1C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	why not add art to the area so it is attractive for people to visit by active transportation? The planters in front of the new high rises could be painted, Add some color to the area.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:18:45 am	44.236301320113164	-76.50001716607223	578 Princess Street, Kingston, Ontario K7L 1E1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	This area, with the new high rises, is becoming a real wind tunnel especially during the winter and thus discourages people from using active transportation. Not sure what can be done about this??	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:22:52 am	44.24020577002617	-76.50931370251783	844 Princess Street, Kingston, Ontario K7L 1G7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	add rest stops and bike route maps at each end and along the corridor.	/files/original/missing.png		User	Yes	Yes
Mar 04 23 10:28:21 am	44.241246251159104	-76.5059094428034	231 Concession Street, Kingston, Ontario K7K 2B6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	From MacDonnel this light does not change for bikes. You have to get off your bike and push the button or you wait a long long time. This is not Active transportation friendly and those not occur on Princess St intersections.	/files/original/missing.png		User	Yes	Yes
Mar 05 23 06:44:57 am	44.23732216880826	-76.50241613388063	643 Princess Street, Kingston, Ontario K7L 1E4, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	terrible to add a bicycle route along this busy corridor-- too much weaving for all kinds of vehicles-- poor road construction. cyclists are not safe	/files/original/missing.png		User		No
Mar 05 23 09:01:46 am	44.24129454324189	-76.50362849235536	192 Concession Street, Kingston, Ontario K7K 4S5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This light only changes for north south traffic if there is enough weight of a car stopped. As a cyclist using Victoria to go South, if there are no cars waiting to cross with you, you are forced to run the red as the light will NEVER turn for a bike. Going North, you can at least jump on the sidewalk and press the pedestrian crossing button for the light to change.	/files/original/missing.png		User		Yes
Mar 05 23 09:05:06 am	44.2403337574571	-76.51895999908449	175 Bath Road, Kingston, Ontario K7L 4T9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Bike Route needs to continue NORTH to JCB and Princess St. Now the only viable safe way to get to princess St. is weaving around the Kingston Centre parking lot on a bike	/files/original/missing.png		User		Yes
Mar 05 23 09:07:35 am	44.231013321119825	-76.51345610618593	873 Johnson Street, Kingston, Ontario K7L 2B7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Very dangerous for a cyclist heading East on Johnson to merge two lanes to the left, to make LEFT turn onto Palace Road - especially with kids in tow. This has to be resolved for Palace Road to be a main artery.	/files/original/missing.png		User		Yes
Mar 05 23 09:10:54 am	44.23564105424066	-76.50301694869997	490 Victoria Street, Kingston, Ontario K7L 3Z8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Very congested with parked cars and rough pavement - needs no parking along whole road to be safe for cycling.	/files/original/missing.png		User		Yes

Mar 05 23 10:32:58 am	44.22965644997988	-76.50194406509401	419 Earl Street, Kingston, Ontario K7L 3X8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Bike route here, please!	/files/original/missing.png		User			Yes
Mar 05 23 10:33:34 am	44.22535115600276	-76.50681495666505	345 Union Street, Kingston, Ontario K7L 4E6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Better bike routes here!	/files/original/missing.png		User			Yes
Mar 05 23 08:10:16 pm	44.23280678653262	-76.49874150753023	361 Frontenac Street, Kingston, Ontario K7L 3T1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	As others have mentioned, crossing Brock and Johnson street are particularly difficult to cross for all people on foot or bike. In my opinion, a cross walk with a push button for lights must be installed at all roads crossing Brock and Johnson street to increase pedestrian safety. Cars travelling down both of these roads are moving fast, and generally do not slow as people cross. As well, other traffic calming measures along these roads would be appreciated. I am assuming that speed bumps, or	/files/original/missing.png		User			Yes
Mar 05 23 11:03:11 pm	44.233888400788416	-76.51403546333314	322 Palace Road, Kingston, Ontario K7L 4T3, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I agree with the other comments that reccomend connecting Mack St Bike path West safely accross Palace and to the crossing of Sir John A at Norman Rogers. These paths need to connect seamlessly to reduce barriers to active transportation.	/files/original/missing.png		User			Yes
Mar 05 23 11:24:11 pm	44.23155913581521	-76.49784028530122	476 Johnson Street, Kingston, Ontario K7L 1Z6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Bike routes on Johnson and Brock need to be elevated or separated from traffic with cement barriers and properly maintained year-round for us to feel it is safe and dependable enough to use	/files/original/missing.png		User			Yes
Mar 05 23 11:28:21 pm	44.236027322817	-76.49929940700532	575a Princess Street, Kingston, Ontario K7L 1E1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	We need bike lanes on Princess. Active transportation infrastructure only works if it gets us to our destinations	/files/original/missing.png		User			Yes
Mar 05 23 11:33:17 pm	44.235045311664486	-76.50530219078065	324 Macdonnell Street, Kingston, Ontario K7L 4C9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	I agree that MacDonnell is a better alternative to Victoria. Having it run from Leroy Grant to Union would help connect 2 schools as well as effectively connect the Tennis Club to a neighbourhood route	/files/original/missing.png		User			Yes
Mar 06 23 12:10:57 pm	44.23984951547497	-76.50887489318849	844a Princess Street, Kingston, Ontario K7L 1G5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Can we make Princess St. one-way up here?	/files/original/missing.png		User			Yes
Mar 06 23 12:14:42 pm	44.23947333369693	-76.50734603405	793 Princess Street, Kingston, Ontario K7L 1E9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	We have a huge opportunity here to be bold and make a big change in our community. Let's prioritize public transit, cycling, and walking. Please make it inconvenient for cars. How about transit/ride share only? Special spots on the side for deliveries if that's necessary? How about protected bike lanes? How about a one-way street? This part of Princess St. is slow going for drivers anyway. Let's make it even worse for cars to keep them off of it. I want to live in a city where biking/transit/walking is the easier choice.	/files/original/missing.png		User			Yes
Mar 06 23 06:40:17 pm	44.23745514932611	-76.50304913520814	551 Victoria Street, Kingston, Ontario K7L 1E5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	The sidewalk here is extremely narrow and close to the road around the corner of Victoria and Princess. Please increase width and install protective barriers for people walking / using active transportation (e.g. bollards)	/files/original/missing.png		User			Yes
Mar 06 23 06:46:33 pm	44.231482260812285	-76.49448215961458	386 Johnson Street, Kingston, Ontario K7L 1Z2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	1. Permanent, elevated bike lanes with year-round barriers along the entirety of the Johnson and Brock street bike lanes are essential. I cannot tell you how many cars I have seen drift to the right into bike lanes when the summer bike lane barriers have been taken down for the summer. The only way to make these bike lanes safe is to make them permanent. 2. Clearing snow from the bike lanes and sidewalks is a must, and should be completed within the same time-frame and to the same standard as snow removal for car lanes.	/files/original/missing.png		User			Yes
Mar 06 23 06:48:07 pm	44.231240103896674	-76.49302303791048	118 Division Street, Kingston, Ontario K7L 1Y8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Please extend the bike lane East along Johnson.	/files/original/missing.png		User			Yes
Mar 06 23 07:03:33 pm	44.235037624624084	-76.4971160888672	528 Princess Street, Kingston, Ontario K7L 1C5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Bike lanes along Princess street are essential. Could something similar to the image I have attached be considered? Here you can still have one lane car traffic in each direction, have expanded sidewalks and include a bike lane. If walking and public transport are the most common ways people travel along this section of princess I see no reason why biking would not be popular if we designed safe infrastructure for people choosing to bike. I strongly disagree that people choosing to bike must be forced to take alternate routes (Johnson, Brock, Concession) or be	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/977744849f41cc0f85c573651fa7b4142efb45d5/original/1678147414/ecb4b749eeaaf26b745290a570042dcd_kingston_transport.JPG?1678147414		User			Yes
Mar 06 23 07:08:51 pm	44.23272377982552	-76.49872004985811	361 Frontenac Street, Kingston, Ontario K7L 3T1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Can something like this design sohwn below with "center line hardening" be considered at all intersections similar to Brock and Frontenac? Many car people driving cars like to make fast, wide turns. Adding in centre-line infrastructure would help slow cars down and make road crossings safer for people walking.	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/daeebaec850dbc5342e611e144615476d6031149/original/1678147732/f33e6b703234c1826475d86d8188dc27_road.png?1678147732		User			Yes
Mar 06 23 07:09:54 pm	44.24095250530108	-76.51105284690858	HSBC, Princess St, Kingston, Ontario K7L 1H1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Please extend sidewalks and bikes lanes, along both sides of princess north west of here!	/files/original/missing.png		User			Yes
Mar 07 23 09:45:35 am	44.23273135033782	-76.50416572127142	606 Brock Street, Kingston, Ontario K7L 4A6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Brock and Johnson Bike Routes do not signal a safe and inviting space for bicyclists or pedestriancs except for those most able-bodied and most confident. These streets could support protected bike lanes with maximum grid safety with addition of trees or parking spaces to separate the cycling path from the road - additionally turning brock or johnson into a bidirectional car route will increase its use by cyclists. The most likely situation to increase cycling along these routes would be to remove vehicles altogether from one route (brock) while allowing them along johnson. At the bare minimum, a	/files/original/missing.png		User			Yes
Mar 07 23 10:00:41 am	44.23882752269285	-76.50572061211278	471 Macdonnell Street, Kingston, Ontario K7K 4W5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Although not listed, Macdonnell St seems to be the most appropriate 'green street' or bi-directional bike route with one way for cars (Shaw St. in Toronto is good example), it passes two schools (rideau, winston), with connecting route using Leroy grant to KSS - essentially creating a direct route from john counter to king street/ breakwater. Macdonnell St already has a stop light at Brock St which could be made to prioritize cyclists and pedestrians (no more beg buttons) and a one-way no-through fare route at Princess St.	/files/original/missing.png		User			Yes
Mar 07 23 10:06:28 am	44.23996310516535	-76.50868427888783	9 Drayton Avenue, Kingston, Ontario K7L 1G6, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Skip lanes at Drayton Ave and Albert don't seem the most effective use of this strategy. More importantly, a skip lane should be used 1) where there is appropriate space and options to limit private vehicle use 2) where there is congestion of vehicle use which limits transportation use 3) in ways that do not conflict with bicyclists. I would suggest transit priority skip options be focused at key intersections where the "skip" is likely to save the most time (Division St and Princess; Bath and Princess), John Counter and Princess, Gardiners and Princess) - otherwise they do not add much value in a such as	/files/original/missing.png		User			Yes
Mar 07 23 10:10:12 am	44.23763279215314	-76.50316933955766	647 Princess Street, Kingston, Ontario K7L 0E7, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Protected intersections are critical here(pictured here in ottawa, but not included in AAA intersection along John Counter) and along all bike routes. Most collisions with cyclists and pedestrians in Kingston are at intersections.	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/420e264880713e6cc5686170fcfa5c1f8eec07e9/original/1678201814/fd09521ef8661fab8aff17f1482d20a6_Screenshot_2023-03-07_at_10.08.46_AM.png?1678201814		User			Yes
Mar 07 23 10:14:14 am	44.236632210073815	-76.50061374213692	505 Albert Street, Kingston, Ontario K7L 1E1, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	The recent Hamilton Complete Streets guidelines indicate that two protected and buffered bike lanes are possible within 20m road width (pictured here). Transit skips may not not appropriate for this area as they are more effective for saving time at major intersections (Princess and Bath rd, Princess and John Counter)- and express bus routes may be better considered for transforming johnson or brock into dedicated express lanes (removing one lane of private vehicle traffic)	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/b36442452c4bcdf96a6e2303f9ac149ca1f4fc3f/original/1678202056/615d6be638d9bf4973d893161b5d7760_Screenshot_2023-03-07_at_10.07.37_AM.png?1678202056		User			Yes
Mar 07 23 10:23:05 am	44.233689706927976	-76.4930103471852	179 Division Street, Kingston, Ontario K7K 3Y9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This part of the Division, as well as at Brock and Johnsons are the most dangerous intersections for pedestrians and cyclists based on data provided by the City of Kingston from 2005-2017. (screenshot attached of cyclists and pedestrians injured or killed) Maximum protection and prioritization for pedestrians and cyclists at this intersection will save lives.	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/f4e432f6931d58a0ed7589468fda72d43259313b/original/1678202586/2365a37519022352e7df89073cedf234_Screenshot_2023-03-07_at_10.20.10_AM.png?1678202586		User			Yes
Mar 07 23 03:52:20 pm	44.24140946262203	-76.49800295181751	517 Alfred Street, Kingston, Ontario K7K 4J5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	This stretch of Concession/Bath is something I'd call "Slip-Lane Hell", and these dangerous slip-lanes can be retrofitted with protected intersection crossings for cyclists and pedestrians, like in the Ottawa Protected Intersection design guidance	/files/original/missing.png		User			Yes
Mar 07 23 03:56:19 pm	44.24119406380817	-76.50589167484358	546 Macdonnell Street, Kingston, Ontario K7K 4W8, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Macdonnell is an important school destination of two elementaries, and a much more apporpiate alternative to Victoria as a neighbourhood route.	/files/original/missing.png		User			Yes
Mar 07 23 03:57:36 pm	44.23380920757302	-76.49415958298562	450 Princess Street, Kingston, Ontario K7L 1C2, Canada http://getinvolved.cityofkingston.ca/williamsvil	Additional Comments	Constrained ROW means need for spatially efficient modes ie more bike, ped, bus, and NOT more private automobiles	/files/original/missing.png		User			Yes
Mar 07 23 03:58:35 pm	44.23407226303822	-76.49314105510713	337 Queen Street, Kingston, Ontario K7K 3Y9, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Queen at Division needs either refuges for pedestrians, or significant shortening of the crossing distance via bulb outs.	/files/original/missing.png		User			Yes
Mar 07 23 03:59:45 pm	44.238271417288345	-76.50072105281116	559 Albert Street, Kingston, Ontario K7K 4M5, Canada http://getinvolved.cityofkingston.ca/williamsvil	Comment on bike routes	Routes by the Memorial Centre should continue into and through the site for cyclists and pedestrians	/files/original/missing.png		User			Yes

Project Report:	Williamsville Bikeways	18 August 2017	to	22 November 2023



Project Highlights

Total Visits	727
New Registrations	11
Video views	0
Photo Views	0
Document Downloads	0

Admin Notes

ENGAGED PARTICIPANTS	169		
Engaged Actions Performed	Registered	Unverified	Anonymous
Contributed on Forums	0	0	0
Participated in Surveys	169	0	0
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	0	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	0	0	0
Placed Pins on Places	0	0	0
Contributed to Ideas	0	0	0

INFORMED PARTICIPANTS	240
Informed Actions Performed	Participants
Viewed a video	0
Viewed a photo	0
Downloaded a document	0
Visited the Key Dates page	2
Visited an FAQ list Page	0
Visited Instagram Page	0
Visited Multiple Project Pages	77
Contributed to a tool (engaged	169

AWARE PARTICIPANTS	568
Aware Actions Performed	Participants
Visited at least one Page	568

ENGAGEMENT TOOLS SUMMARY									
Forum Topics	0	Guestbooks	0	Places	0	News Feeds	2	Ideas	0
Qandas	0	Quick Polls	0	Stories	0	Survey Tools	1		

Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors: Registered	Contributors: Unverified	Contributors: Anonymous
News Feeds	Bike route maps and cross-sections	Published	12	0	0	0
News Feeds	Notice of public open house	Published	2	0	0	0
SurveyTools	Williamsville bikeway survey	Archived	385	169	0	0

INFORMATION WIDGET SUMMARY									
DOCUMENTS	0	PHOTOS	0	VIDEOS	0	FAQS	0	KEY DATES	1

Widget Type	Engagement Tool Name	Visitors	Downloads/Views
Key Dates	Key Date	2	4

SurveyTool:	
Tool Status	Archived
Visitors	385
Contributors	169
Registered	169
Unverified	0
Anonymous	0
Admin	0
SUBMISSIONS	169

Demographics Graphs Below

Willia msvill	18 August 2017	to	22 November 2023

Survey Response								Sign Up form Details					
Date of contribution	Please select the active modes of travel you use in Williamsville. Please check all that apply.	Please select the active modes of travel you use in Williamsville. Please check all that apply. (Other (please specify))	What is your primary purpose when using neighbourhood routes in Williamsville? Select	The green streets Get Involved webpage showed three different green street concepts. Please rank them in order of your preference.(deleted)	What barriers currently reduce your use of active travel options in Williamsville? Check all that apply.	What measures would assist in reducing the barriers you identified? Please check all that apply.	Provide any additional comments.	Usertype	ZIP Code(deleted)	Age	I would like to be entered in the draw to win one of the following:	Do you want to be added to the City of Kingston mailing list and receive updates on	Response ID
Oct 14 23 12:14:49 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Speed of traffic, Traffic volume, Parked cars impeding access	Speed limit reduction, Traffic calming measures, On-road cycling lane, Traffic diversion measures (discouraging vehicle through traffic)		User		45	Yes		5430963
Oct 14 23 03:26:39 am	Walk, Bike, Inline or roller skates	Very rarely I run, but just for exercise not for transport.	Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Parked cars impeding access	Bikeway way finding signage, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User				No	5431102
Oct 14 23 07:45:04 am	Walk, Bike, Skateboard		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Speed of traffic and distracted driving is my main concern. Walking or biking has become more and more dangerous in the city of Kingston. I would not be comfortable biking with young children anymore. It seems only possible to bike safely on Sundays.	User		44		Yes	5431193
Oct 14 23 11:36:01 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Bicycles are not cars and should not be treated as such. Most of the existing bicycle "lanes" feel like bicycle gutters, that are heavily worn down (i.e., Union St) and are unprotected, resulting in impatient or inconsiderate drivers blocking said lanes, or driving through them, reducing the accessibility of cycling to only the most experienced riders. Separated mixed-use paths are a great step forward, or grade separated, bicycle lanes with curbs are excellent. When putting cycle paths on roads, it is important to have both directions and more than temporary barriers (such as on Johnson St and Brock St). Cyclists deserve	User		22		Yes	5431517
Oct 16 23 11:01:22 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Concession and Division are particularly rough for cycling, as they are high traffic roads. As a driver I understand that - they allow access to important areas of the City. As a cyclist though, it's difficult to cross those roads into Williamsville because they are so busy. I would be happy with any improvements and I know that's not an easy task. One thing I'm interested in is the sensors at traffic lights. For example, the lights at Alfred and Concession do not detect bicycles. So, especially later in the evening, the light just stays red when a cyclist stops there - which is an accessibility and safety issue for cyclists. Some City's	User		42	Yes	Yes	5434798
Oct 17 23 05:55:41 pm	Walk, Inline or roller skates		Leisure		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume	Speed limit reduction, Traffic calming measures, On-road cycling lane	I think this should extend further up Princess Street especially the bridge near the ambassador. This area is really bad for bikers becoming aggressive toward other bikers and drivers of vehicles.	User		28		Yes	5438782
Oct 20 23 08:01:00 am	Walk, Bike	bus	Trips to adjacent neighbourhoods or areas				Need bike lanes on Princess Street in Williamsville	User					5448957
Oct 23 23 11:29:44 am	Walk		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Parked cars impeding access	On-road cycling lane, shared multiuse pathway, Traffic diversion measures (discouraging vehicle through traffic)	The intersection of Albert and York is difficult to cross when there is an event happening at the Memorial Center. Very heavy car traffic and no crosswalk make it hazardous and time-consuming.	User		22		No	5457162
Oct 23 23 01:14:16 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Parked cars impeding access	Speed limit reduction, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	The road is also in terrible shape - many many large potholes, bumps, grooves, cars in bike lanes......	User		48	Yes	Yes	5457497
Oct 23 23 01:23:06 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities		User		33		No	5457530
Oct 23 23 02:12:19 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic	Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities		User		47	Yes	Yes	5457669
Oct 23 23 02:30:23 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Traffic volume, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities		User				No	5457734
Oct 23 23 03:33:20 pm	Walk	Scooter on the sidewalks	Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Speed limit reduction, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	I see traffic calming measures as an option for reducing barriers in question #5 but I am sceptical of this option. Current traffic calming in Kingston doesn't alleviate any of the active transportation barriers. They seem to be watered down. I think Kingston must make a commitment to investing in active transportation instead of just painting the road (cars will park or use painted bike lanes as a lane for themselves) or adding some signage.	User		36		Yes	5458547
Oct 23 23 05:09:56 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, Separated cycling lane or bike facilities		User		35		No	5459145
Oct 23 23 06:02:34 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic	On-road cycling lane, Separated cycling lane or bike facilities	Dedicated bike paths are the answer. Having cycled in Montreal, Toronto and Europe dedicated bike lanes/paths provide the most safety for cyclists. Simply painting lines on the side of the road does not provide enough protection.	User		64	Yes	Yes	5459380
Oct 23 23 08:19:02 pm			Trips within Williamsville		Route is not scenic enough	Separated cycling lane or bike facilities		User		55		Yes	5460274
Oct 23 23 08:23:08 pm	Walk		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway pavement markings, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	We need sidewalks on every street, traffic lights at Victoria and Union, and traffic calming around Winston Churchill PS and Rideau PS.	User		37		Yes	5460297
Oct 23 23 08:46:39 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, Traffic diversion measures (discouraging vehicle through traffic)		User		56		Yes	5460448
Oct 23 23 09:05:13 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	I biked to work every day and have had several terrible interactions with drivers screaming, swerving at me for just biking in the bike lane or on the road. The bike lane on princess at concession just stops with no signage or indication how to merge safely into traffic. Is it possible to remove signs in Kingston that say "share the lane", they are unsafe, if the lane was wide enough to be shared a bike lane should be added, if it isn't then single file is the only safe option.	User		28		No	5460556
Oct 23 23 09:30:18 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		49		Yes	5460690
Oct 23 23 09:31:03 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		45		Yes	5460697
Oct 23 23 11:08:13 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Traffic volume, Parked cars impeding access	On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	If the Princess St bike lanes are removed, at least replace them with proper bike lanes on side streets. Research shows that sharrows are not helpful, but actually make cycling more dangerous: https://www.bloomberg.com/news/articles/2016-02-05/study-sharrows-might-be-more-dangerous-to-cyclists-than-having-no-bike-infrastructure Consider making narrow streets one way so that separated bike lanes can be accommodated.	User		28	Yes	No	5461216
Oct 24 23 06:55:16 am	Mobility device		Trips within Williamsville		Uncomfortable navigating intersections, Speed of traffic, Parked cars impeding access	Bikeway pavement markings	Better sidewalks curb cuts.	User		55		Yes	5461990
Oct 24 23 10:26:25 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	Bike lanes (ideally separated) should be non-negotiable on major roads. You can't expect people to choose active transportation methods if they have to take long, circuitous routes to get where they need to go in a way that feels reasonably safe.	User		33		No	5462605
Oct 24 23 11:33:36 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Traffic volume, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	The proposed ideas of eliminating bike lanes in Williamsville in favour of suggesting cyclists use Concession Street instead is stupid and bad. A further setback for the new residential buildings that have been going up in Williamsville over the past several years could have left more room for active transportation. Concession Street was just refinished last year and there is no evidence that	User		33		No	5462933
Oct 24 23 12:10:47 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Too much traffic, traffic driven too fast, too many tractor trailers/construction vehicles and driving too fast. We need less street parking and bike lanes on side streets. It's very difficult to cycle or use an electric mobility device anywhere in Williamsville.	User		55		No	5463138
Oct 24 23 12:37:01 pm	Walk, Bike, Skateboard		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	The Princess Street corridor (Princess street from Bath Road and Concession Road to Division Street) is an essential bike route, both for me and so many others I see on the road. Bike lanes, bike paths, bike traffic lights, or any other infrastructure to ensure and support the safety of cyclists while riding, is essential. We must have clear spaces for cyclists to occupy along this corridor. That could be a separated bike lane, a bike lane separated from motor vehicles by barriers or something else. It could be removing parking spots along this roadway. There are many options. Limiting motor vehicle traffic to one direction	User		39		Yes	5463305
Oct 24 23 01:49:21 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Lack of direct connection to destination, Route is not scenic enough, Parked cars impeding access	Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		48		No	5463714
Oct 24 23 02:30:59 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Lack of direct connection to destination	Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	There is no efficient way to travel safely by bike from, for example, the Kingston Centre to Regiopolis Notre Dame high school. I want to promote active cycling for the young people in my life but don't trust they will be safe on the roads (they don't feel safe, either).	User				No	5463948
Oct 24 23 07:17:04 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	'-Properly separated cycle tracks should be installed on the major streets (Princess, Brock, and all the ones that form the edges of the neighborhood). -The residential streets need much better traffic calming.	User		39	Yes	Yes	5465164
Oct 24 23 10:24:19 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic	Separated cycling lane or bike facilities	I've never been one for busy streets. Even when I was young I would walk and bike the back streets i.e. Mack Street, Park Street. If people are hurrying, or commuting and want the shortest route, it would be ideal to have a separate bike path up Princess Street, but I don't think there are plans for a bike path on Princess??	User		60		No	5465913
Oct 25 23 12:50:12 pm	Walk, Bike, Inline or roller skates		Leisure		Traffic volume	Bikeway way finding signage, shared multiuse pathway, Separated cycling lane or bike facilities	I really enjoy walking my dog, rollerblading and cycling through Williamsville as I would consider it scenic but perhaps the factor to encourage more cycling, the bike lanes could have better barriers.	User		27	Yes	Yes	5467635
Oct 25 23 07:07:56 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume	Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User				Yes	5468826
Oct 25 23 08:50:50 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		37		No	5469147
Oct 26 23 06:59:35 am	Walk, Bike	Car	Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, shared multiuse pathway, Traffic diversion measures (discouraging vehicle through traffic)	The reality of increased urban population densit its, causes increased traffic density volumes of all types, on all streets, for all types of modes od transportation in Williamsville and on all other community streets. There are only so many places delivery trucks, and future autonomus vehicles, and even drones can do their future deliveries without, causing possible harm and inconvenience given how narrow some streets are, and the old street grids that can't be changed. All buildings along Princess St., and side streets are creating new dangers for pedestrians and cyclists due to lack of safe pedestrian	User		73		Yes	5469970

Oct 26 23 11:53:11 pm					Uncomfortable sharing the road with vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Separated cycling lane or bike facilities	Many of us would like to be able to safely bike around town. It is a generational mistake to remove bike lanes right at this pivotal moment when e-bikes are transforming the world of local mobility and right as hundreds of new homes are being added to Princess Street.	User		36		Yes	5472857
Oct 27 23 11:46:27 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Please continue to enhance opportunities for active transportation in Williamsville. There are so many examples of excellent cycling/walking infrastructure in other parts of the world, yet cars/delivery vehicles are consistently parked in bike lanes in Williamsville and throughout Kingston.	User		43		No	5473777
Oct 27 23 03:43:49 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Speed limit reduction, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User				No	5474927
Oct 27 23 03:44:39 pm	Walk		Trips within Williamsville				Aren't the above selections biase! Boy, have you ever made up your mind.	User		67	Yes	No	5474939
Oct 27 23 03:45:53 pm	Bike		Leisure		Route is not scenic enough, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, Separated cycling lane or bike facilities	This neighborhood has tremendous potential to be a model bike friendly area for the rest of the City.	User		60		Yes	5474952
Oct 27 23 03:46:46 pm	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Speed of traffic, Traffic volume	Bikeway pavement markings, Separated cycling lane or bike facilities		User		73		Yes	5474970
Oct 27 23 03:47:05 pm	Bike		Leisure		Parked cars impeding access	Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User			No	No	5474973
Oct 27 23 03:48:46 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		60		Yes	5475006
Oct 27 23 03:50:37 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Speed limit reduction, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User				No	5475024
Oct 27 23 03:51:09 pm	Walk, Bike		Commute to work or school		Traffic volume	Bikeway pavement markings, shared multiuse pathway, Separated cycling lane or bike facilities	The never-ending construction in the area makes walking, biking and even driving a chore	User		61		No	5475029
Oct 27 23 03:51:58 pm	Walk, Bike		Commute to work or school		Traffic volume, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Traffic diversion measures (discouraging vehicle through traffic)		User				No	5475037
Oct 27 23 03:52:52 pm	Walk, Bike	walking with strollers (young children)	Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Speed of traffic, Parked cars impeding access	Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Please consider the most recent active transportation evidence when working on this project. Bike lanes shared with vehicle traffic (sharrows/unprotected bike lanes) generally DECREASE safety for bicyclists. This would be spending money on a project that is not supported by recent active transportation research. The bike lanes need to be separated from traffic completely to be effective. There should also be an emphasis on bike lanes connecting residents to the Memorial Centre and Victoria Park since these are major active transportation destinations.	User		33		Yes	5475050
Oct 27 23 03:53:41 pm	Walk, Bike		Commute to work or school		Lack of direct connection to destination, Speed of traffic, Traffic volume	Bikeway pavement markings, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User				Yes	5475057
Oct 27 23 03:54:06 pm	Walk, Bike		Leisure		Uncomfortable navigating intersections, Route is not scenic enough, Parked cars impeding access	On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Princess street and concession street road surface are extremely neglected and hazardous to none automotive road users.	User		27		No	5475063
Oct 27 23 03:55:31 pm		car	Trips to adjacent neighbourhoods or areas				cyclists obeying traffic laws would be a nice change	User		69		No	5475080
Oct 27 23 03:56:59 pm	Walk, Bike	Stroller	Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Parked cars impeding access	Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		30		Yes	5475099
Oct 27 23 03:57:21 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	We should be making it more difficult to drive and easier to bike or walk. Drivers can be dangerous, and so many cars discourages folks that want to commute by bicycle.	User		53		No	5475103
Oct 27 23 03:59:01 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic	Speed limit reduction, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	The outline proposals you have presented lack an awareness of what other communities are doing, lack ambition and are disappointing. Further, the use of bump outs for traffic calming force cyclists into car traffic - this increases danger for cyclists.	User				No	5475127
Oct 27 23 03:59:19 pm	Walk, Bike		Trips within Williamsville			On-road cycling lane, Separated cycling lane or bike facilities	I cannot answer question 4. I ride my bicycle through Williamsville side-streets and on Princess Street all the time so I cannot say that any barrier reduces my use. Certainly, cycle-supportive measures would make it a better experience.	User		50		No	5475130
Oct 27 23 04:05:31 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Separated bike lanes are needed. No more painted bike lanes. Turning radii need to be shortened at diagonal intersections. Pedestrian and bicycle traffic should be given priority signals. Truck traffic should be diverted to other roads. Parking shouldn't be allowed on Princess St.	User		22		No	5475201
Oct 27 23 04:06:07 pm		Drive	Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic	Bikeway pavement markings	Ticket the bike riders who disobey every traffic law we have. Interestingly enough, a stop sign means you stop, look both ways then proceed - it does not mean cycle like crazy & curse any driver who has the right of way and impedes your illegal activity	User				No	5475210
Oct 27 23 04:08:53 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		27		No	5475236
Oct 27 23 04:10:06 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities	Separate lanes from traffic is the only way for safe travel, whether it be for bike, walking, etc...	User		40		No	5475251
Oct 27 23 04:10:25 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Parked cars impeding access	Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	The current painted bike lanes follow the most direct and accessible route in spite of their horrible surface and crazy wrong side of the cars routing in places, now and in the future. Keep the route, there is plenty of room for one lane of traffic for certain, which is an option to be considered, and perhaps two way traffic if the turn lanes are removed, and the Transit advance lanes idea is removed from consideration. The ROW is wide enough for all modes of transport with flexibility and compromise on the part of all users. Also your survey does not address climate emergency nor that ATMP which are both	User				No	5475259
Oct 27 23 04:12:58 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access	Traffic calming measures, Separated cycling lane or bike facilities	Please consider adding separated bike facilities on this street. I need to bike through Williamsville all the time and it is extremely sketchy. Bike lanes sometimes are blocked forcing me to take the lane which is terrifying. One time, I was cycling with a friend in Williamsville and she had just learned how to bike. She took the lane biking slowly and one motorist pulled over and started harassing her saying if she's not a confident cyclist she should not be biking on the road at all. She lives in Williamsville and no longer bikes anywhere because she lost all of her confidence.	User		33		Yes	5475284
Oct 27 23 04:14:37 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		34		Yes	5475297
Oct 27 23 04:16:32 pm	Walk, Bike		Leisure		Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway pavement markings, Traffic calming measures		User		62		Yes	5475310
Oct 27 23 04:16:41 pm	Walk		Trips within Williamsville		Route is not scenic enough	shared multiuse pathway	PLEASE PLEASE PLEASE, formulate the policy after your decision are informed with actual usage data. I find that biking lanes to nowhere sprout around with few bikes on them. Policy is decided without any proper user study to see whether they are needed or not. Incredulously, no follow up studies are done to see if the actual bike path that have been put using taxpayer dollars are actually being used or not. I'm not making this up. In talking to City engineer, I was told that no follow-up studies are done to see if the bike paths are actually being used and if they were worth the cost incurred. So please use a	User				Yes	5475312
Oct 27 23 04:20:57 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic	shared multiuse pathway		User		60		Yes	5475342
Oct 27 23 04:27:12 pm	Walk, Bike		Commute to work or school		Traffic volume	On-road cycling lane		User		37		No	5475397
Oct 27 23 04:31:07 pm	Walk, Bike		Leisure		Route is not scenic enough	On-road cycling lane		User		75	Yes	No	5475435
Oct 27 23 04:33:43 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Traffic volume, Parked cars impeding access	Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		27		Yes	5475464
Oct 27 23 04:41:03 pm	Walk, Bike		Leisure		Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		35		No	5475505
Oct 27 23 04:41:18 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Traffic speed is the biggest problem for me. Feels unsafe to bike around, or have children biking.	User		34		Yes	5475507
Oct 27 23 04:44:07 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic	On-road cycling lane, shared multiuse pathway	Brock St is scary to bike on. A Bike path on Earl street between college and Ontario would be nice if improved care of pavement. It is very rough on Earl Street at points between Victoria St and Collingwood St	User		39		No	5475533
Oct 27 23 04:44:24 pm	Walk		Trips to adjacent neighbourhoods or areas		Not enough rest areas, Route is not scenic enough	Speed limit reduction		User				No	5475535
Oct 27 23 04:46:17 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Volume of large vehicle traffic	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		24		No	5475546

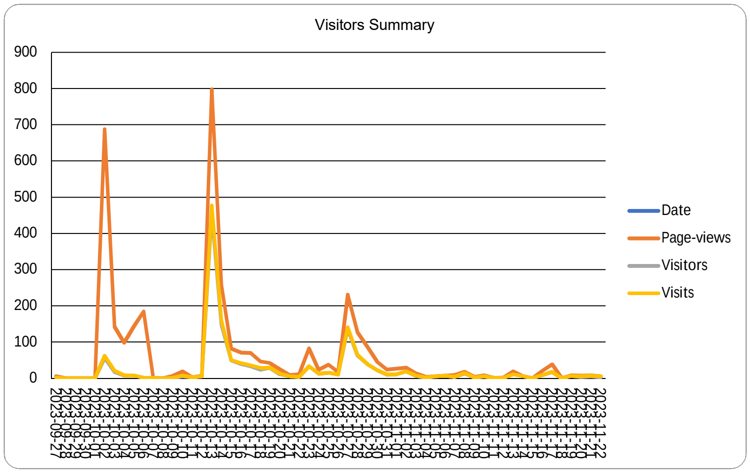
Oct 27 23 04:47:14 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections	Separated cycling lane or bike facilities		User		38		Yes	5475551
Oct 27 23 04:55:39 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities		User		39		No	5475614
Oct 27 23 04:59:15 pm		Car	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination	Separated cycling lane or bike facilities	Kingston needs separated bike lanes!!!!! Please look to Montreal and collingwood as inspiration!	User		40		No	5475642
Oct 27 23 05:21:56 pm	Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		72		Yes	5475783
Oct 27 23 05:43:31 pm	Walk, Bike		Commute to work or school		Parked cars impeding access	Separated cycling lane or bike facilities	I appreciate the lanes on Brock/Johnson— think that there could be similar opportunities along other corridors	User		41		Yes	5475895
Oct 27 23 05:51:35 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Traffic diversion measures (discouraging vehicle through traffic)		User		45		Yes	5475946
Oct 27 23 05:53:59 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities	Painted bicycle gutters are not enough but throwing the baby out with the bath water isn't the answer. Ask yourself...would you send a child on this road in the cycle lane? If not, it's not safe enough. But really, it should be safe for anyone who wants to actively get around the city. Kingston prides itself on being a Silver-level Bicycling Friendly City but that bar is so low. We need separated bike lanes with proper connections between the arteries of the city instead of bike lanes that drop off part way through a ride (sharrows) or send you into dangerous fast traffic with no protection (Princess at Bath/Concession). If you	User		38		No	5475959
Oct 27 23 06:05:35 pm	Bike		Commute to work or school		Uncomfortable navigating intersections, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Separated cycling lane or bike facilities		User		61	Yes	Yes	5476022
Oct 27 23 06:11:34 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Traffic volume	Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		28		Yes	5476054
Oct 27 23 07:45:02 pm	Walk		Trips to adjacent neighbourhoods or areas		Uncomfortable navigating intersections		Questions 4 and 5 are only assigned answers that promote "active transportation" solutions. This survey is a complete FRAUD! Putting a bike land on Princess eliminated parking on the other side of the street, and bikes still barrel down the sidewalks. Building and road construction are the main barriers to safe travel, and are NOT MENTIONED! One bike lane is enough, if their riders obeyed traffic rules! No question 2?	User		66	No	No	5476456
Oct 27 23 07:50:00 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic	Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		35		No	5476471
Oct 27 23 07:55:16 pm	Walk, Mobility device		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Traffic volume	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, shared multiuse pathway	None	User		75		No	5476494
Oct 27 23 08:12:08 pm	Walk, Bike, Skateboard		Commute to work or school		Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		29		No	5476544
Oct 27 23 08:26:13 pm		Car	Trips within Williamsville		Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, Separated cycling lane or bike facilities		User		65		Yes	5476597
Oct 27 23 08:34:58 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Prioritize active transportation. The easier and safer you make it for people to cycle, the more inclined they will be to do so.	User		57		Yes	5476627
Oct 27 23 08:48:44 pm	Walk, Bike		Trips within Williamsville		Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	question 4 is not open enough. The issue in williamsville is that the princess st bike lane gave priority to cars and parking and made the lane zig zag all around the place. The bike lane needs to stay and be properly separated from traffic. The city is too obsessed with moving and parking cars and really needs to focus on moving people. you should do anything such as remove all parking, make the lanes narrower for cars, make that section of princess st one way with a dedicated transit lane. Don't remove the bike lanes. I honestly bike that chunk of princess st. all the time and never drive it in my car even though I	User		33		Yes	5476663
Oct 27 23 08:53:57 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas			Bikeway pavement markings		User		73		No	5476679
Oct 27 23 09:15:45 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Parked cars impeding access	Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	Sharrows are dangerous and provide a false sense of security, and therefore people let their guards down despite being in mixed traffic. Please do not use sharrows! Either invest in better bike infrastructure or don't put anything down. The current bike-lane-parking-lane configuration on Princess Street is very dangerous due to the risk of dooring. This is not to mention the fact that vehicles often park far enough from the curb that cyclists have to merge into vehicular traffic to get	User				Yes	5476753
Oct 27 23 09:16:31 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, Separated cycling lane or bike facilities		User		30		No	5476756
Oct 27 23 09:17:37 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Speed of traffic, Traffic volume, Volume of large vehicle traffic	Speed limit reduction, Traffic calming measures, shared multiuse pathway, Traffic diversion measures (discouraging vehicle through traffic)		User		35		Yes	5476762
Oct 27 23 09:26:32 pm	Walk, Bike	car	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Traffic diversion measures (discouraging vehicle through traffic)	bike lanes should not be major arterial roads e,g, instead if Princess st use Earl or other paralel roads	User		72		No	5476784
Oct 27 23 09:31:20 pm	Walk, Bike		Trips within Williamsville		Parked cars impeding access	On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		53		No	5476795
Oct 27 23 09:32:29 pm	Walk		Trips to adjacent neighbourhoods or areas		Volume of large vehicle traffic, Parked cars impeding access	Traffic diversion measures (discouraging vehicle through traffic)		User		27		No	5476797
Oct 27 23 09:40:40 pm	Walk		Leisure		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic	Speed limit reduction, Traffic calming measures, shared multiuse pathway, Traffic diversion measures (discouraging vehicle through traffic)		User		32		Yes	5476821
Oct 27 23 09:49:39 pm	Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections	shared multiuse pathway, Separated cycling lane or bike facilities	Shared multi use pathways feel like they are the safest options. I also think it's important for intersections with lights to be accessible to bikes (ie the intersection of macdonell and concession is terrible for bikes!). The wait to cross there is very long and the buttons do not work!	User		39		Yes	5476840
Oct 27 23 09:55:06 pm	Walk, Mobility device		Trips within Williamsville		Uncomfortable navigating intersections, Not enough rest areas	shared multiuse pathway, Separated cycling lane or bike facilities	Need to ensure that accessibility features (for rollators) are sufficient and in good condition.	User		76		Yes	5476857
Oct 27 23 09:56:48 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Lack of direct connection to destination, Not enough rest areas, Parked cars impeding access	Traffic calming measures, On-road cycling lane, shared multiuse pathway		User		33		Yes	5476858
Oct 27 23 10:37:10 pm	Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User				Yes	5476944
Oct 27 23 10:57:02 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic	Separated cycling lane or bike facilities	The bike paths on Brock and Johnson are useless. I cannot stand riding on those streets, even with the separate bike lane. Cars are traveling way above the speed limit and it's unpleasant. Most bikers use Mack or Earl street which have less traffic. The Brock and Johnson paths should be moved to quieter streets. The lane on Johnson just ends in a terrible spot downtown which is very dangerous. Hardly anybody seems to be using these bike lanes. What a waste of money building them.	User		39		Yes	5476995
Oct 27 23 11:50:28 pm	Walk	Bus	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Volume of large vehicle traffic	On-road cycling lane, shared multiuse pathway	With focus on turning the residential area into one big Queens student rental, lots of construction being done that even have taken away easy access to bus stops, and make biking through the area riskier by the amount of heavier trucks and parked vehicles. A designated safe bike path would help	User		67		Yes	5477113
Oct 28 23 06:14:09 am	Walk		Leisure		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Volume of large vehicle traffic	Speed limit reduction, Traffic diversion measures (discouraging vehicle through traffic)	Bike lanes are good. Bump outs are not. We have them on palace road and they have made things worse frome what I've seen. Vehicles now drive mostly on the wrong side of the road because they don't know how to navigate. They are also not maintained by the city very well and snow removal is terrible for anyone living by one.	User		52		No	5477450
Oct 28 23 07:14:19 am	Walk		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Lack of direct connection to destination	Separated cycling lane or bike facilities	Bikeways often just end. And suddenly you're spit into a single lane of traffic ex Division St North of Queen. The city's disjointedness and orphaned bikeways and lack of separated bike lanes make it easier just not to ride.	User					5477499
Oct 28 23 07:44:42 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Turn every street aside from Princess St. into one-way streets, and block them with concrete barriers in the middle so that Williamsville can no longer be used as a thoroughfare. Toronto has done this to great success in the Annex. In the Annex these streets have designated separate bike lanes that are thoroughfares. In addition, create a bike land on Princess street the way Ottawa and Montreal have that is clearly demarcated and set aside from traffic. This "shared lane" stuff is useless. But create them in a way that you can remove them in the winter: most people don't bike then; so make them seasonal, and	User		50		Yes	5477527
Oct 28 23 08:09:39 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Any plans involving bike lanes or other cycling related infrastructure will be pointless unless enforcement is addressed. City bike lanes are constantly used as parking by some vehicle owners, and subsequently end up often being more dangerous than using the full lane - which will usually draw the ire of drivers. If effective enforcement of a parking ban in bike lanes (in anything less than emergency circumstances) isn't a part of plans, you might as well save the money. I can't get anyone at parking enforcement to even admit if there is a policy on parking in bike lanes at all, I'm not confident any changes made to	User		40		Yes	5477568
Oct 28 23 08:19:02 am	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Traffic calming measures, shared multiuse pathway		User				No	5477587
Oct 28 23 08:20:56 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		22		Yes	5477591
Oct 28 23 08:36:33 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Speed of traffic, Traffic volume	Bikeway pavement markings, Speed limit reduction, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		57		Yes	5477620

Oct 28 23 09:03:11 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	I travel to many big and small cities for business. I give Kingston a C- for their current active transportation. Your bike routes don't really connect to one another in terms of the various neighbourhoods in Kingston. A dedicated bike lane, separated by bollards is a must in Kingston. When I travel I take my bike with me (even when I fly I ship it to the destination), so I've had the pleasure of biking many cities in North America and overseas. The Kingston drivers I can categorically state are the most disrespectful to cyclists I've ever encountered. Montreal drivers are more considerate of the cyclists. In Europe Kingston	User		57		Yes	5477674
Oct 28 23 09:06:06 am	Walk		Leisure		Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Traffic diversion measures (discouraging vehicle through traffic)	Volume of traffic drastically increasing;; increased speeding through residential areas; increased 24 hr parking on restricted parking areas with no enforcement of posted by-law hours unless called in by the residents; public transportation (bus #12) still on reduced hours which has forced many former transit users like myself back to driving.....	User		52		No	5477682
Oct 28 23 09:43:29 am	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough	Speed limit reduction, Separated cycling lane or bike facilities	I hear the city prefers Concession as a bikeway. No way is that safe! It's a terrible road for active transportation. Too narrow, too high speed, and no sidewalks on one side below Alfred. Really unsafe. Way too much catering to cars in this town. We need separated bike lanes. And free buses, or $1/trip would make a big difference to reducing car traffic.	User			Yes		5477771
Oct 28 23 10:33:14 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Parked cars impeding access	Separated cycling lane or bike facilities		User		26		Yes	5477923
Oct 28 23 10:49:08 am	Walk		Trips to adjacent neighbourhoods or areas		Unsure of which routes to take, Lack of direct connection to destination, Not enough rest areas, Route is not scenic enough	On-road cycling lane		User		46		No	5477965
Oct 28 23 10:57:52 am	Walk, Bike	BUS	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Volume of large vehicle traffic, Parked cars impeding access	On-road cycling lane	The current idea of sharing bicycle lanes with buses is ludicrous. The main streets in Williamsville, the adjacent neighborhoods, and onwards toward downtown are in the poorest, roughest condition I've ever seen in a city of this size. The current practice of so-called "patchwork" is inadequate, inefficient, and far costlier than fixing the pavement correctly.	User		63		Yes	5477990
Oct 28 23 12:22:53 pm	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Parked cars impeding access	Speed limit reduction, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Pedestrian, cycle and transit should always have priority over regular vehicle traffic. It's surprising that our traffic planners haven't adhered to that.	User		63		Yes	5478233
Oct 28 23 12:38:54 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities	Hi, I live on Collingwood Street between Union and King but work at Kingston Secondary School on Kirkpatrick Street. I commute to work by car principally for the reason that biking is not safe and to walk from my house takes over an hour in each direction (and while carrying art supplies this is also impractical). I know that many of the students who live near to me	User				Yes	5478279
Oct 28 23 02:32:05 pm	Walk, Bike		Commute to work or school		Uncomfortable navigating intersections, Lack of direct connection to destination, Parked cars impeding access	On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		35		No	5478553
Oct 28 23 03:03:08 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable navigating intersections, Volume of large vehicle traffic	Separated cycling lane or bike facilities		User		65		Yes	5478630
Oct 28 23 03:33:51 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Separated cycling lane or bike facilities	Should encourage use of bike or walk instead of traffic	User		50		No	5478692
Oct 28 23 04:48:04 pm	Bike		Trips to adjacent neighbourhoods or areas		Unsure of which routes to take, Lack of direct connection to destination	On-road cycling lane	I have cycled throughout Kingston for years as a commuter and fo leisure/fitness. Until recently, Princess St. has been a nightmare for cyclists. South of Concession has improved, as have other routes. There are still problems to overcome, particularly Concession St. Worst frustration , other than competing with automobile traffic are stoplights that don't recognize a cyclist is waiting. In all, williamsville is not a real problem if Brock and Johnson street cycling lanes remain in place for commuting.	User		57		Yes	5478819
Oct 28 23 04:53:42 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Parked cars impeding access	Separated cycling lane or bike facilities	If Kingston is to come anywhere near being a leader in the fight against climate breakdown, the city needs to be discouraging car use. Make biking and walking and access to public transport the primary goals. Check out Culdesac in Phoenix Arizona… https://www.theguardian.com/cities/2023/oct/11/culdesac-car-free-neighborhood-tempe-arizona	User		67		No	5478829
Oct 28 23 04:55:46 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Parked cars impeding access	On-road cycling lane, Separated cycling lane or bike facilities		User		64		No	5478836
Oct 28 23 05:37:16 pm	Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access	Separated cycling lane or bike facilities	Painted lanes are just dangerous. In a fascinating new analysis published in the Journal of Transport and Health, https://www.sciencedirect.com/science/article/abs/pii/S2214140523001056?dgcid=author researchers at Emory University found that painted bike lanes and sharrows demonstrated "estimated harmful effects" —	User		41		Yes	5478893
Oct 28 23 06:13:59 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Parked cars impeding access	On-road cycling lane, shared multiuse pathway		User		22		Yes	5478957
Oct 28 23 07:47:55 pm	Walk		Leisure		Route is not scenic enough	Traffic diversion measures (discouraging vehicle through traffic)		User		43		Yes	5479153
Oct 28 23 08:03:10 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	While I support the planned neighbourhood bike routes and I think the proposed cross sections are generally good, I continue to feel that it is important to provide cycling directly on Princess in the Williamsville area. I feel that there should be deeper consideration (and consultation!) on the priorities for Princess Street, instead of simply taking it as a given that cycling is the one mode that doesn't "fit". There is a missed opportunity here to reconsider the purpose of Princess as a major arterial for motor vehicle traffic, and to consider diverting motor vehicle traffic to other routes while prioritizing Princess as a route for	User				Yes	5479177
Oct 28 23 08:23:56 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	one way traffic on internal residential streets discouraging through traffic, separate bike lanes on main arteries and create a safer school zone around Rideau Public School to promote active transportation to school. Use half of Mack street to create a multi-use path connecting elder park to Victoria park	User		37		Yes	5479221
Oct 29 23 07:58:27 am	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities		User		36		Yes	5479801
Oct 29 23 09:27:54 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Parked cars impeding access	Bikeway way finding signage, Speed limit reduction, Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	I would like to see Princess Street permanently closed to traffic. This measure in other cities (Montreal) has seen an increase in commercial activity rather than a decline. Also, it seems to me (maybe I've missed it) that Brock and Johnson streets do not have posted speed limits. I would like to see greater use of red light cameras and photo radar to reduce speeds; any fines collected could go towards improving segregated bicycle lanes on more streets.	User				Yes	5479913
Oct 29 23 09:32:02 am	Walk		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		43		No	5479926
Oct 29 23 09:48:39 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Lack of direct connection to destination	Bikeway way finding signage, On-road cycling lane	I didn't know there were any bikeways in Williamsville!	User		60		Yes	5479955
Oct 29 23 02:00:49 pm	Walk, Bike		Leisure		Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, Traffic diversion measures (discouraging vehicle through traffic)		User		60		Yes	5480423
Oct 29 23 04:47:50 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic	Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	Keep the bike lane on Princess, it is one of the main routes in the area	User		71		No	5480780
Oct 29 23 05:49:36 pm	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable navigating intersections, Lack of direct connection to destination	Bikeway pavement markings	The area isn't bad for cycling - it's just problematic when you want to make a left turn - whether travelling east or west. There is such heavy traffic, and there isn't always a turning lane. If I can get across one lane of traffic to be positioned to turn, it may be clear one way, but I need to sit in the left lane waiting for a break to make the turn; cars are coming up from behind, then try to squeeze by to the right - it's an accident waiting to happen. It's also a bit of a nightmare getting through the old traffic circle by Canadian Tire. I sometimes just go with the flow, even if it's not really the direction I'm going, just because it's less	User		62		Yes	5480875
Oct 29 23 06:33:34 pm	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, On-road cycling lane, Separated cycling lane or bike facilities		User		64		No	5480958
Oct 29 23 06:44:22 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane	The bicycle lanes on Princess St between Division and the old traffic circle are the most important in the city and are essential to my cycling trips. The most dangerous cycling on a busy road like Princess Street with one lane of traffic each direction is when the lane is not wide enough for both a bicycle and a vehicle. As a cyclist you do not want to be holding up a whole lane of traffic that will	User				Yes	5480980
Oct 29 23 07:05:53 pm	Walk, Bike		Leisure		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Great work! Separate cycling lane or shared multiuse pathway would be the ideal options for the primary route for walkers and cyclists.	User		27		No	5481015
Oct 29 23 09:01:04 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Traffic volume, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities		User		42		No	5481241
Oct 30 23 08:10:46 am	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	I would love to see more multi-use pathways (like the K&P trail path connecting Railway St to Harvey St) in the Williamsville neighbourhood. As well, having separated cycling lanes throughout Williamsville will encourage more people to be on bikes. This is one of the most walkable and bikeable areas in Kingston, but I'm afraid to use my bike on Princess St because of the volume and speed of traffic. If there were a safe, separated bike lane I would definitely use it. Same with Concession and Divison streets -- I use my car along those all the time but would never choose to bike on them.	User		21		No	5481795
Oct 30 23 09:29:21 am	Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Traffic volume, Volume of large vehicle traffic	Bikeway way finding signage, Bikeway pavement markings, shared multiuse pathway, Separated cycling lane or bike facilities	Most challenging travelling east to west up concession street. There is no good alternative besides biking on the street itself, which isn't designed to accommodate cyclists. Biking through the Memorial Centre track is sometimes used, but crossing back onto Concession is difficult especially if entering on Nelson/Concession or anywhere up Concession.	User		37		Yes	5481973
Oct 30 23 09:43:02 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	The road conditions are dangerous with sinking road cover around drains in the bike lanes. Brock and Johnson are particularly dangerous for biking due to the speed of traffic, heavy trucks brushing close by and many vehicles regularly block the bike lanes.	User				No	5482027
Oct 30 23 11:33:17 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Parked cars impeding access	Bikeway pavement markings, shared multiuse pathway		User		39		No	5482617
Oct 30 23 12:48:42 pm	Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Commuting - The existing bike lanes always have cars parked in them or delivery vehicles stopped in them. The bike lanes are there but there is a lack of enforcement, but that isn't just in Williamsville. Princess St should not be the through route. Supporting Williamsville Businesses - There is no place to lock a bike while going into one of the local businesses. Transiting car traffic doesn't stop in Williamsville, it is pedestrians, people on bikes & scooters that stop and go in local businesses.	User		53		Yes	5483127
Oct 30 23 03:24:34 pm	Walk, Bike, Skateboard		Leisure		Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Parked cars impeding access	Bikeway way finding signage, Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities		User				No	5484102
Oct 30 23 06:36:59 pm	Walk, Bike, Skateboard		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Kingston has an amazing opportunity to transform the downtown if the walk-ability and bike-ability are improved. I hope to see the city of Kingston construct the first protected bike lane in its downtown, with a physical separating pedestrians and cyclists from cars. Without some form of concrete barrier, the bike lanes of Kingston will continue to be filled with parked cars. I cycle from Westdale Ave to CFB Kingston every day and have seen the same cars parked in the bike lane	User		24		Yes	5485283

Oct 31 23 08:50:11 am	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Cycling lanes are not be sacrificed when building developments are provided exemptions to set backs from the sidewalks. Planning Department of Kingston and Council sacrificed the human scale of the Williamsville streetscape when these uninteresting and imposing building facades were approved along Princess Street in Williamsville despite receiving a lot of feedback from the community of what kind of development was desired. This community input was totally bypassed and now we have a bowling alley wall of imposing condos/apartment buildings which did not respect the balance by using	User		64		Yes	5487026
Oct 31 23 10:33:53 am	Walk, Bike	car	Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic	Speed limit reduction, Traffic calming measures, Traffic diversion measures (discouraging vehicle through traffic)	The traffic along Brock is terrible especially near Churchill park. it is even worse along Johnson now that it has become a speedway with improved pavement. PLEASE consider addition stop lights for safe pedestian crossing near Churchill Park on Brock, and arond Regent on Johnson	User		68		No	5487352
Oct 31 23 04:22:17 pm	Walk	drive car	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access		no amount of signs or road painting will help make biking (or walking for that matter) safer in Kingston e-bikes are so fast and quiet they are hazardous; likewise e-skateboards bikers I observe have neither regard nor understanding of rules and no amount of signs or paint will help traffic "calming" is a farce. when Helen was "calmed" the road racers just diverted to College; no thanks I quit biking because car drivers and other bikers are not only unpredictable they are not looking. doesn't matter whatsoever	User		74		Yes	5488802
Oct 31 23 06:49:38 pm	Walk, Bike		Commute to work or school		Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities	When exploring develop less focus on parking access and more on active transportation should be prioritized. North-south connectors would be beneficial.	User		42		No	5489309
Oct 31 23 07:15:23 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic	On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User				Yes	5489397
Nov 01 23 11:47:31 am	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	More bike lanes on busy roads, and bike lanes that don't just randomly end would be great. Sometimes even if there is a bike lane, it just stops (like the one on Johnson and Brock, when it gets to Division street it just stops and then you're forced out into traffic). But I don't like biking on Brock or Johnson even though there are bike lanes because the traffic is so fast. I understand that obviously cars need somewhere to drive, I just think bikes and cars don't necessarily need to use the same routes. I usually use Earl or Mack st to go east-west because they're less busy. and alfred to go north south. Biking in	User		27		No	5491201
Nov 01 23 01:18:04 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Auto speed and volume have increased over the last decade, particularly on feeder routes like Brock and Johnson Street, making it significantly more dangerous to bike. Crossing busy roads can also be difficult involving long waits or walks to junctions with lights. My belief is that although changes to the road system will help, educating auto drivers is vital. In the Netherlands and Denmark, most auto drivers also bike, so no education is required. Auto drivers are, consequently, sensitive to the needs of bikers and walkers.	User		58		Yes	5491581
Nov 01 23 03:25:58 pm	Walk, Bike		Trips within Williamsville		Uncomfortable navigating intersections, Speed of traffic, Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities		User		23		No	5492062
Nov 01 23 04:54:18 pm	Walk, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Lack of direct connection to destination	Bikeway way finding signage, Bikeway pavement markings, On-road cycling lane, Separated cycling lane or bike facilities		User				Yes	5492619
Nov 01 23 06:26:05 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Parked cars impeding access	shared multiuse pathway, Separated cycling lane or bike facilities		User		33		Yes	5493080
Nov 01 23 10:14:44 pm		Crip Walking	Trips to adjacent neighbourhoods or areas		Uncomfortable navigating intersections	shared multiuse pathway	I normally travel on foot at a reasonable pace but also in a way that reflects my rich African American heritage - the moves of my people and brotherhood, dawg	User		19		Yes	5493961
Nov 02 23 12:18:06 am		Driving my car	Commute to work or school				Reducing or impeding the flow of vehicle traffic in favour of bikes is a ridiculous concept, especially in a place like Ontario where bikes are unusable for a significant portion of the year due to snow and ice. Bikes need separated routes that do not impede or intersect the flow of automobile traffic in any way, which requires the infrastructure to be designed from the get go to be bicycle-centric. Cycling works in some European cities due to the fact that they were never designed for cars, as they were built before the invention of the combustion engine. Retrofitting bicycle infrastructure into a car-centric society just does	User		69		No	5494476
Nov 02 23 06:03:14 pm	Walk, Bike	Jog	Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Parked cars impeding access	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, Traffic diversion measures (discouraging vehicle through traffic)	Mack Street is a vital corridor for walking and cycling including for young children. This street provides access to Rideau public school and multiple daycares. Active transportation needs to be prioritized and vehicle movement should be restricted. Traffic calming is needed. Street and sidewalks are currently in very poor condition. Cars drive far too fast and roll through stop signs.	User		45		Yes	5499108
Nov 02 23 06:54:54 pm	Walk, Bike		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Speed of traffic	Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, Traffic diversion measures (discouraging vehicle through traffic)	I regularly use Earl st to bike and the damage on the road surface between Victoria and Collin helps is dangerous for bikes. Please repair	User		35		Yes	5499314
Nov 02 23 07:57:17 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Parked cars impeding access	Bikeway pavement markings, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Please consider these things when planning active transportation in Williamsville and across the city: 1. I get that there is not room for everything on Princess Street. However, it is the most direct route to downtown or Kingston Centre from many parts of the city. Cyclists and pedestrians are already choosing a mode of transportation that is inherently slower than vehicles. They should not be further discouraged by being made to take even longer by being forced onto indirect streets with more turns, etc. They should always be prioritized.	User			Yes	Yes	5499581
Nov 03 23 10:16:56 am	Walk, Bike, Skateboard		Commute to work or school		Uncomfortable sharing the road with vehicle traffic, Traffic volume, Parked cars impeding access	Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)		User		15		Yes	5501180
Nov 03 23 12:52:07 pm	Walk, Bike, Inline or roller skates		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Protected bike lanes are the only way many folks can feel safe, especially those not already getting around by bike. Paint doesn't work.	User		38		No	5501837
Nov 04 23 02:50:17 pm	Walk, Bike	Walking with stroller	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Speed of traffic, Traffic volume	Bikeway way finding signage, shared multiuse pathway, Separated cycling lane or bike facilities	Mack Street is a great path route for active transport that connects both Willamsville and Calvin Park towards downtown, however it's less ideal if the destination is earlier in the corridor where Princess Street is further away. The biking lanes on Johnson and brock are convenient from a connection perspective but the lack of separation from traffic makes them feel unsafe especially given the speed of traffic along Johnson. Destinations on Princess Street feel particularly awkward for biking given that princess street being so busy and not have a proper separated lane is best avoided however it runs at an	User		34		Yes	5505258
Nov 04 23 11:25:49 pm	Walk, Bike		Trips within Williamsville		Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Speed limit reduction, Traffic calming measures, On-road cycling lane	Build better walkable neighborhoods don't build giant building that take 5 years to build and don't make areas walkable	User		31		No	5506035
Nov 10 23 05:27:13 pm	Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take	Bikeway pavement markings, Separated cycling lane or bike facilities	I'm nervous cycling on streets without good separating cycling because Kingston drivers are not very comfortable with bike traffic. They are not aware even for bikes following all of the road laws plus common sense safety (assume nothing, and have lights during the day). Bike lanes are also tough because some residents let their dogs walk in them, or step out without warning into the bike lane. Please include some public education. It will help if the separated bike lanes have flex-posts during the summer months so that drivers / pedestrians have a visible reminder that it's a bike lane! Also helps buses	User		41		No	5530149
Nov 13 23 05:59:37 pm	Walk, Bike		Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Volume of large vehicle traffic, Parked cars impeding access	Traffic calming measures, On-road cycling lane, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	There is no easy access to the existing bike lanes from Sir John A/Bath rd. or Palace rd. It creates a barrier in safely biking through or to Williamsville area without having to mix into the busy roadways.	User		32		Yes	5537686
Nov 15 23 10:04:05 pm	Walk, Bike	e-bike	Trips to adjacent neighbourhoods or areas		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Blockage of bike lanes in front of large residential buildings (especially at University) is absurd. Even though I am a very experienced cyclist it is simply not very pleasant riding on Princess. I would ride there more if there were more businesses and cycling infrastructure was there.	User		64		Yes	5549702
Nov 17 23 03:56:28 pm	Walk, Mobility device, Bike		Trips within Williamsville		Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access	Bikeway way finding signage, Bikeway pavement markings, Speed limit reduction, Traffic calming measures, On-road cycling lane, shared multiuse pathway, Separated cycling lane or bike facilities , Traffic diversion measures (discouraging vehicle through traffic)	Speed limits and corresponding traffic slowing and reduction devices are critical to making neighbourhood routes safe enough for use by people of all ages and abilities. If speed limits are at 30km/h or less, collisions are usually survivable for people outside of cars. If speeds are higher, then separation is needed. I particularly support the advisory bike lanes on Macdonnell and Alfred and Third, and I'd add them to Earl as well. The neighbourhood routes must actually reflect the standards of neighbourhood bikeways, or else they are just mixed-traffic operation with signs, which is a different facility type.	User		27		Yes	5558767

Survey Responses Graph

Project Report:	Frontenac Green Street Concepts	18 August 2017	to	22 November 2023



Project Highlights

Total Visits	1.45 k
New Registrations	14
Video views	0
Photo Views	0
Document Downloads	0

Admin Notes

ENGAGED PARTICIPANTS	213		
Engaged Actions Performed	Registered	Unverified	Anonymous
Contributed on Forums	0	0	0
Participated in Surveys	213	0	0
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	0	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	0	0	0
Placed Pins on Places	0	0	0
Contributed to Ideas	0	0	0

INFORMED PARTICIPANTS	418
Informed Actions Performed	Participants
Viewed a video	0
Viewed a photo	0
Downloaded a document	0
Visited the Key Dates page	10
Visited an FAQ list Page	0
Visited Instagram Page	0
Visited Multiple Project Pages	218
Contributed to a tool (engaged)	213

AWARE PARTICIPANTS	1,209
Aware Actions Performed	Participants
Visited at least one Page	1,209

ENGAGEMENT TOOLS SUMMARY									
Forum Topics	0	Guestbooks	0	Places	0	News Feeds	2	Ideas	0
Qandas	0	Quick Polls	0	Stories	0	Survey Tools	1		

Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors: Registered	Contributors: Unverified	Contributors: Anonymous
News Feeds	Notice of public open house	Published	2	0	0	0
SurveyTools	Frontenac green street survey	Archived	514	213	0	0
News Feeds	Green street concepts	Published	820	0	0	0

INFORMATION WIDGET SUMMARY									
DOCUMENTS	0	PHOTOS	0	VIDEOS	0	FAQS	0	KEY DATES	1

Widget Type	Engagement Tool Name	Visitors	Downloads/Views
Key Dates	Key Date	10	10

SurveyTool:	Front enac	18 August 2017	to	22 November 2023

Tool Status	Archived
Visitors	514
Contributors	213
Registered	213
Unverified	0
Anonymous	0
Admin	0
SUBMISSIONS	213

Demographics Graphs Below

	Survey Response									Sign Up form Details			
Date of contribution	Please select the active modes of travel you use in Williamsville. Please check all that apply.	Please select the active modes of travel you use in Williamsville. Please check all that apply. (Other (please specify))	Are you familiar with the general concept of green streets?	The green streets Get Involved webpage showed three different green street concepts. Please rank them in order of your preference.	What barriers currently reduce your use of active travel options in Williamsville? Please check all that apply.	What barriers currently reduce your use of active travel options in Williamsville? Please check all that apply. (Other (please specify))	What conditions or compromises would be acceptable for the development of a green street? Please rank the options by what you	What conditions or compromises would be acceptable for the development of a green street? Please rank the options by what you prefer.	Provide any additional comments.	Usertype	I would like to be entered in the draw to win one of the following:	Do you want to be added to the City of Kingston mailing list and receive updates on	Response ID
Oct 02 23 05:09:54 pm	Mobility device		Yes	Green lite, Green mid-level, Green heavy	Lack of direct connection to destination, Speed of traffic	Job requires use of car		Wide sidewalks, Speed humps, Tree planting, Curb bump out, Reduced parking, Narrowed lanes, Conversion to one way street		User		No	5397249
Oct 02 23 06:07:48 pm	Walk, Bike		Yes	Green lite, Green mid-level, Green heavy	Speed of traffic, Traffic volume, Parked cars impeding access	not a deterrent, but nowhere else to add a comment - I don't think bench seating would be used much on a residential street - people use benches in places like parks more often		Curb bump out, Tree planting, Wide sidewalks, Reduced parking, Speed humps, Narrowed lanes, Conversion to one way street		User		No	5397400
Oct 02 23 08:03:38 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access			Curb bump out, Tree planting, Wide sidewalks, Speed humps, Reduced parking, Narrowed lanes, Conversion to one way street		User		Yes	5397663
Oct 02 23 08:27:37 pm	Walk, Bike	Jogging	Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Wide sidewalks, Speed humps, Narrowed lanes, Curb bump out, Conversion to one way street, Tree planting, Reduced parking		User		Yes	5397731
Oct 03 23 01:29:48 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Bumpy, cracked and and poorly maintained sidewalks and roads make pushing a stroller uncomfortable for parent and kids. Steep slopes towards road on sidewalks at driveways cause		Wide sidewalks, Tree planting, Speed humps, Curb bump out, Conversion to one way street, Reduced parking, Narrowed lanes		User		Yes	5399452
Oct 04 23 08:20:25 am	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume			Tree planting, Curb bump out, Wide sidewalks, Narrowed lanes, Speed humps, Conversion to one way street, Reduced parking	Regent street from princess down has for too much traffic that is often moving at a fast pace. We are very interested in growing concepts to return this street to a quieter neighborhood place where residents can enjoy all this street and Williamsville has to offer. Thank you	User		Yes	5401573
Oct 04 23 12:55:06 pm	Walk, Bike, Inline or roller skates	scoot	Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Parked cars impeding access			Reduced parking, Tree planting, Curb bump out, Narrowed lanes, Conversion to one way street, Speed humps, Wide sidewalks	Question #6 is not clear. Do you mean what do I prefer least to favourite. You haven't indicated is #1 least favourite and #6 most or is that the opposite? Please clarify the survey questions as right now I am not sure how you can incorporate feedback that is biased as the question is not clear. Also the survey link is broken on the home page where it states to complete the survey.	User		No	5402529
Oct 05 23 12:08:37 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Curb bump out, Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Conversion to one way street, Speed humps		User		Yes	5407636
Oct 05 23 09:43:46 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Wide sidewalks, Narrowed lanes, Curb bump out, Conversion to one way street, Speed humps, Tree planting	Any and all proposed compromises mentioned in question 6 are desired, I just couldn't rank them all #1. I use Frontenac street as my cycling route daily and would appreciate anything that will prioritize pedestrians and cyclists and limit car traffic to local residents only.	User		No	5410475
Oct 05 23 10:10:12 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Speed humps, Narrowed lanes, Curb bump out, Wide sidewalks, Tree planting, Conversion to one way street	Raised crossings would be excellent. Even better would be to include raised intersections. Close Frontenac to through traffic entirely by using barriers that force vehicles to turn off the street at each intersection which would encourage local vehicles only.	User		No	5410567
Oct 06 23 12:29:25 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Curb bump out, Conversion to one way street, Speed humps		User		No	5412137
Oct 10 23 09:56:59 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	During Queen's terms, there are hundreds of students making their way north and south across Princess St. The sidewalks do not allow a mother with a stroller to pass two large people walking. Someone ends up on the road. Scooters and some bikes (children) use the sidewalks .		Wide sidewalks, Tree planting, Curb bump out, Speed humps, Reduced parking, Narrowed lanes, Conversion to one way street	Wide sidewalks and a clear lane for bikes and scooters etc. to allow the large number of students to move safely. Very limited drop off parking spots for service vehicles so they will not block the roadway. Speed limit of 30 km. Raised or different surface at corners to alert vehicles that this street is different. Cross walk signal. I do not see the need for several benches. Frontenac St has parks close by at either end in Williamsville plus a new parkette at the corner of Princess and Frontenac. More trees are needed for environmental reasons.	User		Yes	5418003
Oct 10 23 10:12:49 am	Walk		Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks, Tree planting, Narrowed lanes, Reduced parking, Curb bump out, Speed humps, Conversion to one way street		User		No	5418040
Oct 13 23 03:40:13 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume			Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Curb bump out, Conversion to one way street, Speed humps	This is a great idea! Making Kingston a walkable city is so deeply important	User		No	5429869
Oct 13 23 03:45:41 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access			Conversion to one way street, Reduced parking, Wide sidewalks, Curb bump out, Tree planting, Speed humps, Narrowed lanes	One way streets with heavy bump outs seems the most reasonable. Perhaps the bump outs could have inlets/curb cuts to divert storm runoff from getting into the pipes. I love the bump outs at intersections...having lived in Montreal these make a huge difference vis-a-vis visibility while crossing the street walking.	User		Yes	5429895
Oct 13 23 03:46:14 pm	Walk, Bike		No	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Parked cars impeding access			Reduced parking, Narrowed lanes, Speed humps, Wide sidewalks, Tree planting, Curb bump out, Conversion to one way street	Having a canopy along the road would improve the feel. Plus reducing car space and promoting walking space would improve commerce. Let people have patios	User		No	5429898
Oct 13 23 03:48:35 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level, Green heavy, Green lite	Uncomfortable navigating intersections, Traffic volume			Wide sidewalks, Tree planting, Narrowed lanes, Reduced parking, Curb bump out, Speed humps, Conversion to one way street	Any curb bump outs should not compromise safe bike lanes and safe use of roads for both cars and bikes. A separated, raised bike lane would be preferable to a raised pedestrian crossing.	User		Yes	5429908
Oct 13 23 03:48:55 pm	Walk, Skateboard		Yes	Green lite, Green mid-level, Green heavy	Volume of large vehicle traffic			Narrowed lanes, Curb bump out, Conversion to one way street, Reduced parking, Wide sidewalks, Tree planting, Speed humps		User		No	5429912
Oct 13 23 03:48:58 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume			Wide sidewalks, Tree planting, Reduced parking, Narrowed lanes, Curb bump out	Waiting a long time for lights to change when walking. Having to get to button to change lights when on bike.	User		Yes	5429913
Oct 13 23 03:51:44 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Not enough rest areas, Speed of traffic, Parked cars impeding access			Tree planting, Wide sidewalks, Reduced parking, Curb bump out, Speed humps, Narrowed lanes, Conversion to one way street		User		Yes	5429922
Oct 13 23 03:52:08 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite				Curb bump out, Reduced parking, Narrowed lanes, Speed humps, Wide sidewalks, Tree planting	'I've been advocating for RAISED CROSSINGS for years. They have the dual benefit of a) making it easier for pedestrians to cross without having to step down, and b) slowing motor vehicles exactly where it's needed: where pedestrians are crossing and at intersections! Please install lots of RAISED CROSSINGS! The green features in these proposals have the added benefit of serving as traffic-calming measures:	User	No	Yes	5429923
Oct 13 23 03:53:40 pm	Walk, Bike		Yes	Green mid-level, Green lite, Green heavy	Parked cars impeding access			Tree planting, Curb bump out, Reduced parking, Narrowed lanes, Wide sidewalks, Conversion to one way street, Speed humps		User		No	5429927
Oct 13 23 03:56:10 pm	Walk, Bike		Yes	Green lite, Green mid-level, Green heavy	Lack of direct connection to destination, Route is not scenic enough			Wide sidewalks, Narrowed lanes, Tree planting, Reduced parking, Curb bump out, Speed humps, Conversion to one way street		User		No	5429933
Oct 13 23 03:57:26 pm	Walk		Yes	Green heavy, Green mid-level, Green lite		Treeplanting is awesome!		Tree planting, Speed humps, Conversion to one way street, Narrowed lanes, Curb bump out, Reduced parking, Wide sidewalks		User		No	5429937
Oct 13 23 04:02:21 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Not enough rest areas, Route is not scenic enough, Traffic volume			Tree planting, Speed humps, Curb bump out, Wide sidewalks, Conversion to one way street, Narrowed lanes, Reduced parking		User		Yes	5429959
Oct 13 23 04:09:25 pm	Walk, Mobility device, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Not enough rest areas, Route is not scenic enough, Parked cars impeding access			Wide sidewalks, Tree planting, Curb bump out, Conversion to one way street, Reduced parking, Narrowed lanes, Speed humps		User		Yes	5429984
Oct 13 23 04:09:29 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite				Wide sidewalks, Narrowed lanes, Tree planting, Conversion to one way street, Speed humps, Curb bump out, Reduced parking	There is no context with these surveys and where is Williamsville? My survey is all about a place I have never heard of. There is no mention of electric charging stations for cars, or stand-alone bike lanes.	User		Yes	5429985
Oct 13 23 04:10:03 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level, Green lite, Green heavy	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume			Reduced parking, Narrowed lanes, Wide sidewalks, Speed humps, Tree planting, Curb bump out, Conversion to one way street		User		Yes	5429988
Oct 13 23 04:12:08 pm	Walk, Bike, Inline or roller skates		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Curb bump out, Wide sidewalks, Conversion to one way street, Speed humps, Narrowed lanes, Tree planting	Why not make it pedestrian and local traffic only?	User		No	5429995
Oct 13 23 04:12:24 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Parked cars impeding access			Reduced parking, Curb bump out, Wide sidewalks, Tree planting, Narrowed lanes, Conversion to one way street, Speed humps	Fantastic initiative with really great options. Whether it happens or not, thank you for the work to date.	User		Yes	5429997
Oct 13 23 04:16:41 pm	Walk, Bike		Yes	Green heavy	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Narrowed lanes, Curb bump out, Conversion to one way street, Tree planting, Wide sidewalks	Well maintained road free of gravel	User		Yes	5430011
Oct 13 23 04:23:49 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume	Hot-- needs more shade trees, especially for the future of climate change.		Tree planting, Speed humps, Conversion to one way street, Curb bump out, Narrowed lanes, Wide sidewalks, Reduced parking	This is a wonderful project. Please do it at Green Heavy or Green Middle! Planting more trees, which is not part of Green Lite, is the most important mitigation of present and future climate change we will cope with. Kingston needs to work towards more canopy urgently. Thank you!	User		No	5430020
Oct 13 23 04:31:52 pm			Yes	Green heavy, Green mid-level, Green lite	Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic	The route lacks the treed density now recognized to have psychological and environmental benefits.Green heavy remedies this well.		Tree planting, Curb bump out, Speed humps	Good ideas here for adapting this street. Thank you.	User			5430035
Oct 13 23 04:32:30 pm	Walk, Bike, Skateboard		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Not enough rest areas, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Speed humps, Conversion to one way street, Reduced parking, Narrowed lanes, Curb bump out, Wide sidewalks, Tree planting		User		No	5430039
Oct 13 23 04:38:20 pm	Walk		Yes	Green mid-level, Green heavy, Green lite	Route is not scenic enough, Traffic volume			Curb bump out, Wide sidewalks, Tree planting, Reduced parking, Narrowed lanes, Speed humps, Conversion to one way street		User		Yes	5430054
Oct 13 23 04:40:07 pm	Walk, Bike		No	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	No bike lanes		Tree planting, Curb bump out, Wide sidewalks, Speed humps, Narrowed lanes, Reduced parking, Conversion to one way street		User		No	5430058
Oct 13 23 04:47:05 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination, Speed of traffic, Traffic volume			Narrowed lanes, Curb bump out, Reduced parking, Speed humps, Conversion to one way street, Tree planting, Wide sidewalks	Please do this on Albert Street between Princess and Brock as well. Our street has turned into a race track with many vehicles running the four way stop. I have almost been hit several times while walking across to park. People seem to be in a rush e.g. delivery vehicles, people moving between more dense buildings and Queen's? Or cutting down to Brock from Princess? I expect the street will continue to get busier as the density continues to fill in. Given the large park nearby there is a lot of bike and pedestrian traffic and worry about our kids getting hit by someone going to fast and not being able to	User		Yes	5430074
Oct 13 23 04:47:44 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Volume of large vehicle traffic, Parked cars impeding access			Speed humps, Tree planting, Curb bump out, Narrowed lanes, Conversion to one way street, Wide sidewalks, Reduced parking		User		Yes	5430076
Oct 13 23 04:50:35 pm	Walk		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Speed of traffic			Tree planting, Narrowed lanes, Curb bump out, Reduced parking, Wide sidewalks, Conversion to one way street, Speed humps	I believe it's is a wonderful format for additional streets.	User		Yes	5430085
Oct 13 23 04:56:35 pm	Walk		Yes	Green mid-level, Green lite, Green heavy	Uncomfortable navigating intersections, Speed of traffic, Traffic volume			Tree planting, Narrowed lanes, Curb bump out, Wide sidewalks, Reduced parking, Speed humps, Conversion to one way street		User		Yes	5430093
Oct 13 23 04:57:32 pm	Walk		No	Green lite, Green mid-level, Green heavy	Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Speed humps		User		Yes	5430098
Oct 13 23 05:03:50 pm	Walk, Bike	CAR	Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Speed of traffic, Traffic volume, Parked cars impeding access			Reduced parking	Consideration of redesigning streets need to plan for the reality of more delivery trucks in all neighbourhood streets dropping off and picking up at all times of the day Ongoing rasied pavements to slow vehicles also don't feel great for cyclsts to ride over.	User		Yes	5430108
Oct 13 23 05:06:23 pm	Mobility device		Yes	Green lite, Green mid-level, Green heavy		Lack of traffic policing		Tree planting	Police traffic including bicycles riding wrong way on street and also using sidewalks.	User	Yes	No	5430113
Oct 13 23 05:11:05 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic			Tree planting, Wide sidewalks, Conversion to one way street, Narrowed lanes, Curb bump out, Reduced parking, Speed humps	It is unclear in this survey if one or many streets are being considered.	User		Yes	5430125
Oct 13 23 05:11:21 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination			Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Curb bump out, Speed humps, Conversion to one way street		User		No	5430126
Oct 13 23 05:21:04 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic			Conversion to one way street, Curb bump out, Wide sidewalks, Reduced parking, Tree planting, Narrowed lanes, Speed humps	More pedestrian/cycling only streets please. Also more Buses and more Bus routes	User		Yes	5430145

Oct 13 23 05:21:28 pm	Walk		Yes	Green mid-level, Green lite, Green heavy	Not enough rest areas, Route is not scenic enough	I hate speed bumps. I had a low rider truck and when going over a speed bump slowly it scraped my oil pan and knocked the drain plug out causing an oil loss and then a blown motor NO SPEED BUMPS!!!!!		Reduced parking, Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Conversion to one way street, Speed humps	Please cease using speed bumps	User		Yes	5430146
Oct 13 23 05:23:43 pm	Walk		Yes	Green lite, Green mid-level, Green heavy	Speed of traffic, Volume of large vehicle traffic			Conversion to one way street, Speed humps, Wide sidewalks, Curb bump out, Narrowed lanes, Tree planting, Reduced parking	If the city looked after their trees by shaping them when trimming them instead of just hacking them, more trees would be nice / never a good idea to remove parking	User		Yes	5430151
Oct 13 23 05:55:19 pm	Bike		Yes	Green lite, Green mid-level, Green heavy	Traffic volume	Condition of roads		Conversion to one way street, Reduced parking, Wide sidewalks, Tree planting, Narrowed lanes, Curb bump out, Speed humps	The bump outs seem like a method of traffic calming, but it won't help cyclists without dedicated bike lanes.	User		Yes	5430236
Oct 13 23 06:34:57 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination			Curb bump out, Conversion to one way street, Tree planting, Wide sidewalks, Speed humps		User	Yes	No	5430344
Oct 13 23 06:48:39 pm	Walk	Car	Yes, but I am unsure what the City of Kingston means by green streets			None		Tree planting	This survey is ridiculous. These "bump outs" only look nice for a short time of the year. The rest of the time they are a Hazard for drivers. I can't believe anyone would be so absurd as to want Reduced Parking when finding parking is such a problem in this city. Does the City of Kingston have so much money to spare they are looking for crazy ways to spend it? Homeless people are sleeping on the streets and you come up with this nonsense.	User		No	5430374
Oct 13 23 06:54:35 pm	Walk	CAR	Yes	Green lite, Green mid-level, Green heavy	Traffic volume, Volume of large vehicle traffic			Tree planting, Speed humps, Wide sidewalks	With the increased growth of high rises in area it is already taking away parking spaces and to take away anymore with this green space initiative is detrimental to the area. There are already streets where parking in unavailable for 2 hrs at a time twice a day so visitors need to visit around those times. Adding bump out green spaces is not needed and just adds MORE work for the Parks or Roads dept and are not needed . ADDING more trees allows for shade and benefits the area and does not take away much needed parking spaces . IN SHORT DO NOT REMOVE ANY PARKING --IT IS ALREADY	User		Yes	5430393
Oct 13 23 06:57:53 pm	Walk	Car	Yes		Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	I strongly oppose "bump outs" because they are just as hazardous to moving traffic as bus stops being used for traffic calming. Both are accidents waiting to happen or be a cause of an accident. You should be using BUMP INs on City right of way property not using valuable street footage for		Reduced parking	The city definitely needs to control the on street parking in an effort to keep the neighbourhoods looking uncluttered and turning the street into parking lots. Far too many vehicles end up parked in the street because there is not enough dedicated car parking for the household. This is what we get when we do add ons to existing single family homes or allow rooming without having adequate parking for cars at the rooming house. It just makes a mess and creates dangerous situations for moving vehicles and people	User		No	5430405
Oct 13 23 07:13:10 pm	Walk	Car	Yes	Green heavy, Green mid-level, Green lite	Unsure of which routes to take, Traffic volume			Conversion to one way street, Speed humps, Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Reduced parking		User		No	5430444
Oct 13 23 07:23:47 pm	Walk, Bike		No	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Not enough rest areas, Route is not scenic enough, Parked cars impeding access			Tree planting, Narrowed lanes, Curb bump out, Speed humps, Wide sidewalks, Reduced parking, Conversion to one way street		User		Yes	5430460
Oct 13 23 07:29:45 pm	Bike		Yes	Green heavy, Green mid-level, Green lite	Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic	Construction		Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Reduced parking, Speed humps, Conversion to one way street		User		Yes	5430471
Oct 13 23 07:35:42 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Conversion to one way street, Wide sidewalks, Tree planting, Speed humps, Narrowed lanes, Reduced parking	Although the curb bump outs add more pedestrian space, they can make intersections tricky and even dangerous for bikes, which have to share the lane with cars. This can be very uncomfortable for cyclists, as well as being dangerous, as cars usually try to go around bikes, rather than following in single file. If you are going to have curb bump outs, I would not have them at intersections. (But in general I find the bump outs to be a bad idea for bike safety.)	User		Yes	5430481
Oct 13 23 07:40:57 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Speed of traffic, Traffic volume			Tree planting, Reduced parking, Conversion to one way street, Narrowed lanes, Wide sidewalks, Curb bump out, Speed humps	TREES! That's what we need. As many as possible.	User		Yes	5430490
Oct 13 23 07:57:19 pm			Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Curb bump out, Conversion to one way street, Tree planting, Wide sidewalks, Narrowed lanes, Speed humps, Reduced parking		User		No	5430522
Oct 13 23 07:57:56 pm	Walk		Yes	Green heavy, Green mid-level, Green lite				Curb bump out, Conversion to one way street, Speed humps, Narrowed lanes, Reduced parking, Wide sidewalks, Tree planting	I like the concept of green streets but the thing I like the most is the combo speed bump and pedestrian crossing. Combine these well marked crossing bumps and we end up having a calmer and active-friendly neighborhood.	User		Yes	5430525
Oct 13 23 08:10:28 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic			Reduced parking, Curb bump out, Narrowed lanes, Tree planting, Speed humps, Wide sidewalks, Conversion to one way street	This would be lovely to see. Great to see Kingston pushing green initiatives forwards. I'd love to see less speeding on Brock and Johnson to make these safer, or move the book Lane to Mack or earl	User		Yes	5430552
Oct 13 23 08:13:11 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Volume of large vehicle traffic	fear of death and serious injury as pedestrian and cyclist, no protected intersections for cyclists or mobility-assisted devices, no winter maintenance policy on par with vehicle use (ie - sidewalks may not be plowed until 48 hours a snow event)		Narrowed lanes, Conversion to one way street, Tree planting, Reduced parking, Curb bump out, Speed humps, Wide sidewalks	curb bump-outs create unsafe conditions for cyclists and those with mobility-assisted devices and should be limited at intersections. Instead, protected intersections as is done in the city of Ottawa design guidelines, or curb bump-outs with cyclist cut -hroughs should be used frequently instead. in the best case, this should demonstrate what could become one option to be considered as a complete street design	User		Yes	5430557
Oct 13 23 08:31:25 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Parked cars impeding access			Narrowed lanes, Curb bump out, Wide sidewalks, Conversion to one way street, Tree planting, Speed humps, Reduced parking		User		Yes	5430595
Oct 13 23 08:44:57 pm		car	No	Green heavy, Green mid-level, Green lite		I don't frequent the area, so the above list doesn't really apply to me		Tree planting, Curb bump out, Narrowed lanes, Speed humps, Wide sidewalks, Conversion to one way street, Reduced parking	I think the idea of green streets is brilliant. more trees , slower traffic, pedestrian and bicycle friendly ... all very resident-focussed ideas/changes.	User		Yes	5430612
Oct 13 23 08:56:16 pm	Walk, Bike		No	Green mid-level, Green lite, Green heavy	Lack of direct connection to destination, Speed of traffic			Wide sidewalks, Speed humps, Narrowed lanes, Tree planting, Curb bump out, Reduced parking, Conversion to one way street	My concern with the curb bump outs is that it will also push cyclists into increasingly narrow automobile traffic lanes (since, as far as I know, cyclist cannot magically levitate through such bump out and will have to go around them). This is a serious problem in places where you have a lot of students driving very quickly and not always paying great attention to the world around them. My nervousness at having my kids bike or walk through Williamsville increases considerably once the Queen's students return every fall -- simply by virtue of a lack of much experience and often being distracted by	User		No	5430635
Oct 13 23 09:12:11 pm	Walk	Stroller for kids	Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume			Wide sidewalks, Narrowed lanes, Conversion to one way street, Tree planting, Curb bump out, Speed humps, Reduced parking	I don't prioritize reduced parking because I really want to see the other things happen, not that I want to maintain lots of parking. I live on Fergus and the traffic on Concession scares me. Everyone goes so fast and there is no safe way to cross to get to the Memorial Centre.	User		Yes	5430667
Oct 13 23 09:42:14 pm	Walk	Bus, car	Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination, Not enough rest areas, Route is not scenic enough			Tree planting, Wide sidewalks, Conversion to one way street, Curb bump out, Speed humps, Reduced parking, Narrowed lanes		User		Yes	5430717
Oct 13 23 10:14:22 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Route is not scenic enough, Parked cars impeding access			Tree planting, Wide sidewalks, Reduced parking, Conversion to one way street		User		Yes	5430775
Oct 13 23 10:46:03 pm	Walk	Run	Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable navigating intersections			Tree planting, Wide sidewalks, Curb bump out, Speed humps, Conversion to one way street, Narrowed lanes, Reduced parking		User		Yes	5430830
Oct 13 23 10:55:40 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite		not well cleared of snow/ice/slush in wintertime		Tree planting, Reduced parking, Wide sidewalks	the options were not terribly different. It likely increases pedestrian safety but what is green about a raised pedestrian crossing?	User		Yes	5430839
Oct 14 23 12:11:09 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Traffic volume, Parked cars impeding access			Reduced parking, Wide sidewalks, Narrowed lanes, Tree planting, Curb bump out, Speed humps, Conversion to one way street		User	Yes		5430960
Oct 14 23 03:17:37 am	Walk, Bike, Inline or roller skates	The odd time I might run.	No	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Parked cars impeding access	Because I'm young and don't own a car, these don't really impede me (when not using the bus I have to transport somehow), they just make things more dangerous, and less enjoyable.		Narrowed lanes, Curb bump out, Speed humps, Tree planting, Wide sidewalks	In my opinion, even the 'Green Heavy' option could be better; we could be more creative in ways to make the street more green, more enjoyable, more scenic, and ultimately more attractive for active transport. Because we have long built infrastructure and communities that rely on cars for their essential day-to-day, reduced parking has to be considered carefully - essentially I would assume we should be removing parking lots in favour of parking	User		No	5431096
Oct 14 23 06:19:58 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Volume of large vehicle traffic			Wide sidewalks, Narrowed lanes, Curb bump out, Speed humps, Reduced parking, Tree planting, Conversion to one way street	I fail to understand why this requires discussion. There are sufficient studies and examples to show what direction should be taken.	User		Yes	5431156
Oct 14 23 07:17:55 am	Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic, Parked cars impeding access			Curb bump out, Tree planting, Reduced parking, Conversion to one way street, Wide sidewalks, Narrowed lanes, Speed humps		User		Yes	5431181
Oct 14 23 07:40:47 am	Walk, Bike, Skateboard		Yes	Green mid-level, Green lite, Green heavy	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access				The 6th question is confusing.	User		Yes	5431192
Oct 14 23 08:02:30 am	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Speed of traffic, Traffic volume, Volume of large vehicle traffic			Tree planting, Curb bump out, Speed humps, Wide sidewalks, Narrowed lanes, Reduced parking, Conversion to one way street		User		Yes	5431206
Oct 14 23 08:04:47 am	Walk, Mobility device, Bike, Inline or roller skates		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Not enough rest areas, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Lack of active travel network integration. Active transport routes in Kingston need to have "end-to-end" connectivity, to make active transport safe, reliable, and easy. There are many examples across Kingston where an excellent bike lane along a busy road suddenly changes to a dangerous		Reduced parking, Narrowed lanes, Conversion to one way street, Wide sidewalks, Tree planting, Curb bump out, Speed humps	I am encourage to see the city propose these three design options for Williamsville district. I would like to state my support for further design features including "modal filters" along certain routes to further calm car traffic, and increase the live ability of the streets in our neighbourhoods. After all, streets are for people, not just cars! My second comment is this: The Johnson street bike lane (with flexible bollards and painted lines) between Sir John A	User		Yes	5431209
Oct 14 23 08:35:02 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Unsure of which routes to take			Tree planting, Wide sidewalks, Narrowed lanes, Curb bump out, Reduced parking, Conversion to one way street, Speed humps	It is great to see the City considering these types of options and thank you for the opportunity to comment. I think that any vegetative enhancement within our City is an excellent thing. I just wanted to request that any trees or plantings that may occur for this project be native species (I.e. please no Norway maples!!!).	User		Yes	5431235
Oct 14 23 09:02:49 am	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite				Tree planting, Curb bump out, Wide sidewalks, Narrowed lanes, Reduced parking, Speed humps, Conversion to one way street		User		Yes	5431261
Oct 14 23 09:15:49 am	Walk, Bike	Car	Yes, but I am unsure what the City of Kingston means by green streets	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections				I stopped filling out the survey because its format forces me to select options that are not acceptable the streets in this area are already crowded , having bumped out curbs at intersections and in the middle of the street will create a nightmare for plows and firetrucks and cars trying to navigate it will reduce already limited parking I dont want my tax dollars going to this fix the roads instead	User		Yes	5431273
Oct 14 23 09:54:31 am			Yes	Green mid-level, Green heavy, Green lite				Tree planting, Curb bump out, Reduced parking, Wide sidewalks, Narrowed lanes, Conversion to one way street, Speed humps		User		Yes	5431326
Oct 14 23 10:07:59 am		Car. I am disabled and as the minority voice, no one in the city seems to understand that our voices should also Be considered in any and all design concepts. Otheriwse the city will inadvertently alienate me from living in my own community.	Yes	Green lite, Green mid-level, Green heavy		Heavy tree canopy block the sun - perpetual mold and mildew. Sun is needed. Provides people with much needed vitamin D through the skin - reduces anxiety and depression.		Curb bump out, Wide sidewalks, Speed humps, Conversion to one way street, Reduced parking, Narrowed lanes, Tree planting	Green streets could Be resolved By mandating one medium sized tree per front yard. Keep large invasive root trees away From the sidewalks and save the city money having to continuously trim and clean up the trees after a storm. Climate change folks - bigger, more frequent storms ahead.	User		Yes	5431346
Oct 14 23 10:11:59 am	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Parked cars impeding access			Conversion to one way street, Tree planting, Wide sidewalks, Reduced parking, Speed humps, Narrowed lanes, Curb bump out	I find the curb bump outs problematic when I'm on my bicycle. They force me to get closer to the cars instead of close to the normal curb. I also wonder who will maintain the planted curb boxes - they could quickly become weed patches. One-way streets with enough space for a bicycle to go straight would be ideal.	User		No	5431353
Oct 14 23 10:17:43 am	Walk, Mobility device		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks, Tree planting, Conversion to one way street, Reduced parking, Speed humps, Narrowed lanes, Curb bump out	Once you add the curb bump outs you may as well do the whole thing. In my experience, doing a half approach just leads to increased traffic accidents and terrible plowing conditions.	User		Yes	5431369
Oct 14 23 11:25:20 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks, Narrowed lanes, Reduced parking, Curb bump out, Speed humps, Tree planting, Conversion to one way street	while these green streets are excellent (especially the green "heavy" design), the fact that an area widely used by pedestrians, and other active transportation methods has to "compromise" with car traffic, mainly from people who don't even live in the area. As someone who lives on Frontenac, I would love to see this come to life, not just on this street, but more broadly across the city. The areas people live should be designed for people, not cars, and the areas in Williamsville are already quite pedestrian dominated from the proximity to Queen's University. We must design our public road spaces	User		Yes	5431501
Oct 14 23 11:26:27 am	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Parked cars impeding access			Tree planting, Wide sidewalks, Curb bump out, Reduced parking, Narrowed lanes, Speed humps, Conversion to one way street		User		No	5431502
Oct 14 23 01:08:25 pm	Walk	Bus.	Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Not enough rest areas, Route is not scenic enough, Traffic volume, Parked cars impeding access			Tree planting, Reduced parking, Conversion to one way street, Narrowed lanes, Curb bump out, Speed humps, Wide sidewalks	A planter and a bench do not a green space make.	User		Yes	5431711
Oct 14 23 03:22:42 pm	Walk		Yes, but I am unsure what the City of Kingston means by green streets		Speed of traffic, Traffic volume, Parked cars impeding access			Reduced parking, Wide sidewalks, Speed humps, Conversion to one way street	Reducing speed limits and permitted parking is not effective if there is no enforcement of those rules. Kingston needs to up its game dramatically in that regard. Who will maintain garden spaces and trees once planted?	User			5431901
Oct 14 23 04:53:39 pm	Walk, Bike	Daymak ebike moped	No	Green heavy		Terrible road conditions for bikes. Eg mack st.		Curb bump out, Wide sidewalks, Tree planting	Certain streets are excluded. Eg the city does not allow me to plant a new tree in front due to overhead wires. Unless this is only for Frontenac st it is unclear. Thanks for your time!	User		Yes	5432039
Oct 14 23 05:23:27 pm			Yes	Green lite, Green mid-level, Green heavy				Tree planting, Curb bump out		User		Yes	5432081
Oct 14 23 07:15:05 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite				Tree planting, Curb bump out, Speed humps, Wide sidewalks, Narrowed lanes, Reduced parking, Conversion to one way street		User		No	5432236
Oct 14 23 07:15:45 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Traffic volume, Parked cars impeding access			Wide sidewalks, Tree planting, Reduced parking		User		Yes	5432239
Oct 14 23 08:53:08 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable navigating intersections, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks, Curb bump out, Speed humps, Tree planting, Conversion to one way street, Narrowed lanes, Reduced parking		User		Yes	5432483

Oct 14 23 09:15:14 pm	Walk		Yes	Green heavy, Green mid-level, Green lite		nothing, just prefer slower traffic, more trees and biodiversity		Speed humps, Conversion to one way street, Tree planting		User		Yes	5432538
Oct 15 23 06:48:13 am	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite				Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Curb bump out, Speed humps, Conversion to one way street	Current street speed reduction markers along the side of the streets are dangerous for cyclists and drivers. No parking close to the markers causes vehicles to travel into oncoming traffic. Dedicated cycling lanes have significantly improved safety along Brock and Johnson streets.	User		No	5432910
Oct 15 23 07:57:38 am	Walk		No	Green lite, Green mid-level, Green heavy	Route is not scenic enough, Speed of traffic			Tree planting, Wide sidewalks, Conversion to one way street, Curb bump out, Narrowed lanes, Reduced parking, Speed humps		User		Yes	5432930
Oct 15 23 08:56:24 am	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Speed of traffic			Reduced parking, Narrowed lanes, Wide sidewalks, Curb bump out, Tree planting, Speed humps, Conversion to one way street	All these improvements would be great. I think the single best feature in the concepts is the raised pedestrian crossings which we should start implementing as widely as possible.	User	Yes	Yes	5432977
Oct 15 23 09:34:46 am	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Traffic volume, Parked cars impeding access			Tree planting, Conversion to one way street, Wide sidewalks, Narrowed lanes, Curb bump out, Reduced parking, Speed humps		User		No	5432999
Oct 15 23 09:59:14 am	Walk		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Tree planting, Wide sidewalks, Speed humps, Conversion to one way street, Reduced parking, Narrowed lanes, Curb bump out		User		Yes	5433021
Oct 15 23 05:37:25 pm	Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Narrowed lanes, Speed humps, Wide sidewalks, Tree planting, Curb bump out, Conversion to one way street	Please account for the potential additions of bike lanes/raised bike paths	User		Yes	5433607
Oct 15 23 07:24:37 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Not enough rest areas, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Narrowed lanes, Conversion to one way street, Speed humps, Tree planting, Wide sidewalks, Curb bump out		User		No	5433759
Oct 16 23 06:22:07 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination			Narrowed lanes, Curb bump out, Speed humps, Wide sidewalks, Reduced parking, Tree planting, Conversion to one way street		User		No	5434441
Oct 16 23 07:16:19 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Parked cars impeding access			Wide sidewalks, Tree planting, Curb bump out, Speed humps, Narrowed lanes, Reduced parking, Conversion to one way street	Consider winter conditions in regards to snow removal when thinking about street narrowing. Snow accumulation already makes it hard to navigate in Williamsville.	User		Yes	5434473
Oct 16 23 08:31:58 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Parked cars impeding access			Reduced parking	I would cycle more in Williamsville if I felt safer doing so with my child. Cars on Princess St. are not very aware of cyclists. There are often cars stopped in the bike lanes. Connecting from the top of Princess St. to the shopping centre, the YMCA, or the climbing gym is difficult to do without riding on sidewalks.	User		No	5434539
Oct 16 23 10:08:06 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic	I have a small child, so biking with her on the streets is nerve-wracking.		Tree planting, Speed humps, Wide sidewalks, Curb bump out, Conversion to one way street, Narrowed lanes, Reduced parking		User		Yes	5434676
Oct 16 23 11:23:33 am	Walk		Yes	Green mid-level, Green lite, Green heavy	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Tree planting, Speed humps, Wide sidewalks, Curb bump out, Conversion to one way street, Reduced parking, Narrowed lanes		User		Yes	5434884
Oct 16 23 12:10:58 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Tree planting, Speed humps, Wide sidewalks, Conversion to one way street, Curb bump out, Narrowed lanes	I fully support the conversion of Frontenac St to a green street and would like to see this more often in the Williamsville neighbourhood to favour more active transportation. I live on Alfred Street, which I know will always be busier because of the connection to Concession St, so having options for less traffic on neighbouring streets would be most welcome.	User		Yes	5435097
Oct 17 23 09:12:59 am	Walk		Yes	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic			Tree planting, Wide sidewalks, Speed humps, Conversion to one way street, Curb bump out, Narrowed lanes, Reduced parking	More green space is great, but please don't reduce parking spots.	User		Yes	5437409
Oct 17 23 05:16:06 pm		private vehicle (electric)	Yes	Green heavy, Green mid-level, Green lite		my own mobility issues; until I developed walking difficulties, I walked through the District frequently, avoiding areas with high traffic volume		Speed humps, Reduced parking, Curb bump out, Wide sidewalks, Tree planting, Narrowed lanes, Conversion to one way street		User		Yes	5438682
Oct 17 23 05:26:59 pm	Walk, Bike, Inline or roller skates		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic			Narrowed lanes, Curb bump out, Speed humps, Tree planting, Wide sidewalks, Reduced parking, Conversion to one way street		User		Yes	5438711
Oct 17 23 08:23:34 pm	Walk		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Traffic volume			Narrowed lanes, Conversion to one way street, Wide sidewalks, Tree planting, Curb bump out, Reduced parking, Speed humps	Love that you're using evidence based methods to increase use of public spaces! We love Strong Towns and Not Just Bikes! Including more mid-rise buildings with 3 bdrm units and store fronts or changing zoning to allow coffee shops/deps would create a wonderful, liveable community.	User		Yes	5439243
Oct 17 23 09:10:02 pm	Walk		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Traffic volume			Curb bump out, Wide sidewalks, Tree planting, Narrowed lanes, Reduced parking, Conversion to one way street, Speed humps	There are many mode of transportation other than the personal vehicle. Study after study shows that building large public transit, cycling and walking networks actually transport more people, more safely than a car or truck ever could. Green streets are a good start. Following more evidenced approaches for urban density, public transit, cycling/walking paths is the way forward for Kingston. The urban planning organization, Strong Towns, is a great resource in these proven concepts of increased walkability leading to higher levels of citizen happiness.	User		Yes	5439400
Oct 18 23 08:31:15 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Wide sidewalks, Narrowed lanes, Tree planting, Curb bump out, Speed humps, Conversion to one way street		User		No	5440401
Oct 18 23 10:41:27 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Parked cars impeding access			Wide sidewalks, Curb bump out, Tree planting, Reduced parking, Narrowed lanes, Conversion to one way street, Speed humps	I hope that this is done for more streets in the neighbourhood! There are so many pedestrians walking through the area to get to and from the University, so it is absurd that so much space is being given to cars.	User		Yes	5440839
Oct 18 23 12:46:36 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level	Uncomfortable sharing the road with vehicle traffic			Tree planting, Curb bump out	While I think the mid-level plan is very attractive, I question whether the bump outs wouldn't make cycling a bit of a nightmare with reduced roadway and the constant changes in where the street edge is. Unless there is something I'm missing here??	User		Yes	5441387
Oct 19 23 03:04:01 pm	Walk, Bike	Children in stroller	Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Parked cars impeding access			Wide sidewalks, Narrowed lanes, Reduced parking, Tree planting, Curb bump out, Conversion to one way street, Speed humps	Changing the surface of the street from asphalt to a brick facade like on Sydenham Street (downtown) would help demonstrate to cars that this the green street prioritizes active transportation. The intersection with Princess Street would benefit from a AAA upgrade or raised pedestrian crossing to help people cross between the Memorial Centre and Victoria Park. I think if local residents were given the option to donate for/contribute to these added costs that there would be significant interest (myself included).	User		Yes	5446190
Oct 20 23 02:40:56 pm	Walk		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Traffic volume			Tree planting, Conversion to one way street, Wide sidewalks, Reduced parking, Speed humps, Narrowed lanes, Curb bump out		User		Yes	5450270
Oct 20 23 04:47:50 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Traffic volume, Parked cars impeding access			Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Reduced parking, Conversion to one way street, Speed humps		User		Yes	5450813
Oct 22 23 10:21:40 pm	Walk		Yes	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Not enough rest areas, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Living on Bath Road at the Bowling Green apartment complex the Speed of Vehicles just on Elmwood Street is atrocious and Traffic Measures should have been put in place like a Digital Speed Sign telling Driver that they are going too Fast and congestion at the intersection of		Speed humps, Tree planting, Curb bump out, Wide sidewalks, Reduced parking, Narrowed lanes, Conversion to one way street	Trash Receptacles and Butt out Stations to help reduce litter along the streets was not part of the planning that I could see and we need more of them. ♻	User		Yes	5456192
Oct 22 23 10:51:56 pm	Walk, Bike		Yes	Green mid-level, Green lite, Green heavy	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume			Tree planting, Speed humps, Wide sidewalks	Proposal for bicycle lane on Nelson street is encouraging, but traffic speeds are too fast currently and there are no traffic light north of Princess. by adding speed bumps and more greenery From York to Concession along the Memorial park western boundary could add interest, wind break and shade for both pedestrians and cyclists. With no sidewalk on the east side walking to the park gates requires dodging traffic to cross. Dog walking would also benefit from a east sidewalk to complete a continuous route around the park grounds.	User		Yes	5456262
Oct 23 23 08:39:57 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Conversion to one way street, Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Speed humps	Using Princess Street Southeast of Princess & Division would be a great starting point. 1 way street, reduced parking, with widened sidewalks, greenspace plantings, and benches. This should be the format used for Princess all the way from Ontario St to the Princess & Concession/Bath intersection. Thanks for your hard work!	User		No	5456735
Oct 23 23 01:22:02 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Parked cars impeding access			Conversion to one way street, Reduced parking, Speed humps, Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes	Narrowing the lanes seems highly problematic for those not in a vehicle.	User	Yes	Yes	5457528
Oct 23 23 01:26:10 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Conversion to one way street, Narrowed lanes		User		No	5457535
Oct 23 23 03:20:03 pm	Walk		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access	Walking and cycling areas are too close to vehicle traffic. Impossible to cycle with children. Also, very hot to walk in areas which are absent of mature trees during the summer.		Wide sidewalks, Narrowed lanes, Reduced parking, Tree planting, Speed humps, Curb bump out, Conversion to one way street	I'm not sure that speed humps or curb bump outs help or encourage cyclists as now they are treated as cars. If there was a separate cycling lane than I think speed humps are okay. Wouldn't it be better/easier to lower the posted speed to 30km/hr as this is the in a dense area? One way street seem to lead to much faster speeds, for example, Johnson and Brock Streets, so I don't think this helps either.	User		Yes	5458416
Oct 23 23 06:10:42 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Traffic volume			Narrowed lanes, Curb bump out, Conversion to one way street		User	Yes	Yes	5459425
Oct 23 23 08:44:55 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume			Speed humps, Curb bump out, Narrowed lanes		User		Yes	5460436
Oct 23 23 09:26:17 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Not enough rest areas, Route is not scenic enough, Speed of traffic, Parked cars impeding access			Tree planting, Curb bump out, Narrowed lanes, Conversion to one way street, Reduced parking, Wide sidewalks, Speed humps		User		Yes	5460663
Oct 23 23 09:53:31 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access			Reduced parking, Curb bump out, Speed humps, Tree planting, Wide sidewalks, Narrowed lanes, Conversion to one way street		User		Yes	5460823
Oct 23 23 10:58:23 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Parked cars impeding access	Lack of secure bike parking		Narrowed lanes, Reduced parking, Conversion to one way street, Wide sidewalks, Tree planting, Curb bump out, Speed humps		User	Yes	No	5461178
Oct 24 23 01:58:10 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Lack of direct connection to destination, Route is not scenic enough, Volume of large vehicle traffic, Parked cars impeding access			Tree planting, Speed humps, Wide sidewalks, Reduced parking, Curb bump out, Conversion to one way street, Narrowed lanes	Please don't do seasonal bollards. As a cyclist i find them unsafe and confusing and hard to adapt every year. When doing bumpouts please ensure that you put bike icons on the road so that cars understand that bikes will be "taking the lane" and not zig-zagging between the bumpouts and the curbs. it's so dangerous to go back and forth but cars expect it of cyclists.	User		No	5463756
Oct 25 23 09:25:17 am	Walk, Bike	Run			Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Speed humps, Conversion to one way street, Reduced parking, Wide sidewalks, Tree planting, Curb bump out, Narrowed lanes	All of suggestions in question 6 should be applied to make the road safer and more inviting for active transportation.	User		No	5466914
Oct 25 23 09:43:59 am	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Volume of large vehicle traffic			Tree planting, Curb bump out	I am a parishioner of the St Francois Catholic Church on Frontenac Street. The new high-rise apartment building is almost on top of the church. It has been built a few inches away from the parameters of the church building. Why would the City permit a building to be built in close proximity? How was this permitted??	User		Yes	5466997
Oct 25 23 10:27:49 am	Walk, Bike, Skateboard		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access			Conversion to one way street, Reduced parking, Curb bump out, Tree planting, Wide sidewalks, Narrowed lanes, Speed humps		User		Yes	5467123
Oct 25 23 07:22:33 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Volume of large vehicle traffic, Parked cars impeding access			Narrowed lanes, Conversion to one way street, Reduced parking, Curb bump out, Speed humps, Tree planting, Wide sidewalks	Green streets not only focus on adding trees/greenery, but also focus on improving situations for pedestrians. I think there needs to be more included in these designs to benefit pedestrians (wider sidewalks, putting green streets on streets with parks/buildings where people would want to walk to, not just streets with homes)	User		Yes	5468889
Oct 26 23 07:25:26 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic			Tree planting, Wide sidewalks, Conversion to one way street, Narrowed lanes, Speed humps, Reduced parking, Curb bump out	I don't like curb bump outs as they are a potential hazard in the winter. They cannot be seen after a heavy snowfall, and I have damaged the undercarriage of my car on them in Ottawa	User		Yes	5472187
Oct 26 23 08:41:31 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Narrowed lanes, Tree planting, Curb bump out, Wide sidewalks, Conversion to one way street, Speed humps	We need to make our streets less attractive to cars.	User		No	5472405
Oct 26 23 09:50:20 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Parked cars impeding access			Conversion to one way street, Curb bump out, Tree planting, Speed humps, Narrowed lanes, Wide sidewalks, Reduced parking	Have bicycle / walking / active transportation paths raised to level of sidewalks as they cross intersections to reinforce with drivers the fact that they are sharing space with other forms of transportation. It also acts as a speed bump.	User		Yes	5472588
Oct 27 23 11:49:44 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks, Curb bump out, Tree planting, Reduced parking, Narrowed lanes, Conversion to one way street, Speed humps		User		No	5473788
Oct 27 23 03:51:05 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Tree planting, Conversion to one way street, Wide sidewalks, Narrowed lanes, Curb bump out, Reduced parking, Speed humps		User		Yes	5475028
Oct 27 23 03:52:10 pm	Walk		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough			Narrowed lanes, Conversion to one way street, Speed humps, Curb bump out, Tree planting, Wide sidewalks, Reduced parking	Ranking in no. 6 is hard to do, it's more of a yes/no. I am in favour of all of them but it depends on how they are combined and in context.	User		No	5475041

Oct 27 23 03:54:44 pm	Mobility device		Yes	Green heavy, Green mid-level, Green lite		Sidewalk uneven and painful to traverse in mobility device		Wide sidewalks, Tree planting, Curb bump out, Reduced parking, Narrowed lanes, Speed humps, Conversion to one way street	The safest streets have a diverse and abundant population using them	User		Yes	5475070
Oct 27 23 03:58:10 pm		I am rarely in Williamsville, but will answer for possible expansion to other parts of the city.	Yes	Green mid-level, Green lite, Green heavy	Parked cars impeding access	Can't speak for Williamsville. Generally a clear sidewalk and pleasant walking atmosphere are what is important.		Wide sidewalks, Tree planting, Curb bump out, Conversion to one way street, Narrowed lanes, Reduced parking, Speed humps	I would like to see some of these ideas in all of the city, as time/finances permit.	User		Yes	5475116
Oct 27 23 03:59:42 pm		Car	Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green lite, Green mid-level	Parked cars impeding access			Reduced parking, Speed humps, Tree planting	Provide better transit options if you want to limit vehicle traffic	User		Yes	5475133
Oct 27 23 04:21:28 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level, Green lite, Green heavy	Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Curb bump out, Speed humps, Tree planting, Conversion to one way street, Wide sidewalks, Reduced parking, Narrowed lanes		User		Yes	5475349
Oct 27 23 04:23:43 pm		Car. There is nothing in the neighbourhood that involves me. I simply pass through	Yes	Green mid-level, Green heavy, Green lite				Conversion to one way street, Curb bump out, Narrowed lanes, Tree planting, Speed humps, Wide sidewalks		User		No	5475368
Oct 27 23 04:25:14 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic			Wide sidewalks, Tree planting, Reduced parking, Curb bump out, Narrowed lanes, Conversion to one way street, Speed humps		User		Yes	5475380
Oct 27 23 04:26:16 pm	Bike		Yes	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic, Speed of traffic			Wide sidewalks, Tree planting, Conversion to one way street, Curb bump out, Narrowed lanes, Reduced parking, Speed humps		User		No	5475386
Oct 27 23 04:36:05 pm	Walk		Yes		Route is not scenic enough				'Whoever came up with the idea of Bump Outs, did a great disservice to transportation planning. Bump Outs narrow the road, their odd angles make snow plowing very difficult, gets populated with poles, signage, garbage bins which become prime area for snow accumulation, make turning radius for large truck difficult & reduces parking. -A few years back a flat bed carrying wind turbine blade to get on WI ferry had to reverse drive all the way out of princess, because ill advised bump out on princess & ontario street made turning radius impossible	User		Yes	5475478
Oct 27 23 04:43:47 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Wide sidewalks, Tree planting, Narrowed lanes, Reduced parking, Curb bump out, Speed humps, Conversion to one way street		User		No	5475529
Oct 27 23 04:45:19 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Volume of large vehicle traffic			Reduced parking, Wide sidewalks, Tree planting, Speed humps, Conversion to one way street, Narrowed lanes, Curb bump out		User		No	5475542
Oct 27 23 04:47:01 pm	Walk		Yes	Green lite, Green mid-level, Green heavy	Not enough rest areas, Route is not scenic enough			Wide sidewalks		User		No	5475550
Oct 27 23 05:17:57 pm		CAR	Yes, but I am unsure what the City of Kingston means by green streets	Green heavy	Lack of direct connection to destination			Tree planting		User		No	5475755
Oct 27 23 05:38:26 pm	Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Parked cars impeding access			Narrowed lanes, Speed humps, Reduced parking, Wide sidewalks, Tree planting, Curb bump out, Conversion to one way street		User		Yes	5475874
Oct 27 23 05:49:24 pm	Bike		Yes	Green heavy	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Wide sidewalks, Curb bump out, Tree planting, Narrowed lanes, Conversion to one way street, Speed humps		User		No	5475937
Oct 27 23 06:07:48 pm	Walk, Bike		Yes	Green heavy, Green lite, Green mid-level	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Volume of large vehicle traffic			Tree planting, Speed humps, Conversion to one way street, Curb bump out, Narrowed lanes, Reduced parking, Wide sidewalks		User	Yes	Yes	5476036
Oct 27 23 06:27:53 pm	Walk		Yes	Green lite, Green mid-level, Green heavy	Uncomfortable navigating intersections			Tree planting, Wide sidewalks, Speed humps, Conversion to one way street, Curb bump out, Narrowed lanes, Reduced parking	There are a number of multi-unit homes in the area. Daytime parking for residents as well as for contractor use is imperative. Snow removal would be impeded with bump outs along the street or with narrow lanes. Snow removal companies and landlords doing removal as well as tenants often need street parking while clearing of snow is underway.	User		Yes	5476148
Oct 27 23 06:35:44 pm	Walk, Bike		No	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Curb bump out, Tree planting, Wide sidewalks, Narrowed lanes, Reduced parking, Speed humps, Conversion to one way street		User		Yes	5476193
Oct 27 23 07:54:34 pm	Walk		Yes	Green lite, Green mid-level, Green heavy		Failure of police to enforce traffic rules, (excessive speeding, failure to stop at stop signs, running red lights and stop signs, etc.), which includes people on bicycles! Frontenac Street has too much traffic to be made into a "green street" without creating traffic choas. The answers on		Tree planting, Narrowed lanes, Curb bump out, Reduced parking, Conversion to one way street, Speed humps, Wide sidewalks	City Staff obviously only want answers for a "green street" conversion. There is not enough parking on this street, now; and, if anyone at City Hall had any common sense, the largest problem in this area is the failure of the City and landlords to clear the sidewalks of snow in the winter season. Another problem is that there are no trash bins for litter, so the streets are strewn with trash. Again, THIS SURVEY IS A FRAUD!	User	No	No	5476489
Oct 27 23 08:05:20 pm	Walk, Mobility device		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Wide sidewalks, Tree planting, Narrowed lanes, Conversion to one way street, Speed humps, Curb bump out, Reduced parking		User		No	5476522
Oct 27 23 08:50:57 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic			Narrowed lanes, Conversion to one way street, Wide sidewalks, Reduced parking, Tree planting, Speed humps	Continuous sidewalks (raised sidewalks) work well in other communities. Suggest you eliminate one lane and make the other one-way. The eliminated lane could then accommodate separated bike lanes, wider sidewalks and green space.	User		No	5476669
Oct 27 23 09:00:18 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Not enough rest areas, Route is not scenic enough, Speed of traffic, Parked cars impeding access			Tree planting, Wide sidewalks, Narrowed lanes, Reduced parking, Curb bump out, Speed humps, Conversion to one way street	you need to do more of this all over town, including the suburbs. I think this website might help you with ideas https://dutchcyclinglifestyle.com/	User		Yes	5476698
Oct 27 23 09:36:40 pm	Walk, Mobility device		Yes	Green heavy, Green mid-level, Green lite	Unsure of which routes to take			Conversion to one way street, Tree planting, Wide sidewalks, Narrowed lanes, Curb bump out, Speed humps, Reduced parking		User		No	5476804
Oct 27 23 10:08:04 pm	Walk, Mobility device		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable navigating intersections, Not enough rest areas			Wide sidewalks, Tree planting, Speed humps	When planting additional trees, please don't use oak trees because they shed acorns in the fall. These acorns are round and can cause falls when they are stepped on along a sidewalk.	User		Yes	5476882
Oct 28 23 08:21:17 am	Walk		Yes, but I am unsure what the City of Kingston means by green streets	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic	Incorporate biking with sidewalk. In Europe that make it safer for bikers.		Wide sidewalks		User		No	5477593
Oct 28 23 08:42:13 am	Walk	car	Yes, but I am unsure what the City of Kingston means by green streets	Green lite, Green mid-level, Green heavy	Lack of direct connection to destination			Tree planting, Speed humps, Reduced parking, Wide sidewalks, Conversion to one way street, Curb bump out, Narrowed lanes	The bump outs at intersections are a terrible idea from the point of view of cycling on the street, because they narrow the lane exactly when a cyclist needs space to negotiate access to the lane, and right turning vehicles are a major threat to cyclists either turning themselves or proceeding straight through the intersection. Crowding every road user together at this point is a poor choice.	User		Yes	5477631
Oct 28 23 09:42:19 am	Walk		Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access	poor snow removal on roads and sidewalks in winter months; intersections virtually impassable for pedestrians		Tree planting, Wide sidewalks, Reduced parking, Speed humps, Curb bump out, Narrowed lanes, Conversion to one way street	Resident in the area for 25 years but grew up visiting grandparents for 25 years prior to this. The drastic increase in vehicular traffic has been astounding: speeding, increased parking on streets in violation of posted by-law restrictions, and increased density have made the area very unfriendly for pedestrians and cyclists. Furthermore, the chronic lack of proper street/sidewalk clearing in winter months further impedes pedestrian use. The difference between the treatment of the Williamsville area (north of Brock St) vs Sydenham area (south of Brock St) in regards to snow removal, traffic calming	User		No	5477762
Oct 28 23 09:46:29 am	Walk, Bike		No	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Traffic volume			Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Speed humps, Reduced parking, Conversion to one way street		User		Yes	5477777
Oct 28 23 10:53:43 am	Walk		No	Green lite, Green mid-level, Green heavy	Unsure of which routes to take, Lack of direct connection to destination, Not enough rest areas, Route is not scenic enough			Tree planting, Wide sidewalks, Curb bump out, Speed humps, Narrowed lanes, Reduced parking, Conversion to one way street		User		No	5477977
Oct 28 23 12:21:21 pm	Walk		Yes	Green lite, Green mid-level, Green heavy				Wide sidewalks, Tree planting, Curb bump out, Narrowed lanes, Reduced parking, Speed humps, Conversion to one way street	do not see the value in many of these proposals. start with, say 'curb bump outs' -- i see no value in these. what's the point? planting is nice but only if it's maintained -- if it's not (and other things around town suggests it won't be) then what's the point? raised crosswalks? i have (relatively mild) mobility issues and this sounds like it will make walking harder -- so what's the point? narrowed lanes just sounds like it will promote aggressive driving and/or reduce traffic flow. so what's the point? i see no point in those bollard thingies so why? and so on. wide sidewalks? i get those. trees and on-street planting	User	Yes	No	5478228
Oct 28 23 12:40:47 pm	Walk		Yes	Green lite, Green mid-level, Green heavy				Conversion to one way street	I appreciate the City's desire to create more active travel options, however, I do not see how most of the costly measures you have suggested will bring that about. It seems that they will simply benefit those living on the designated streets, who really should be planting their own trees and looking after their front yards. Curb bump outs, speed humps, narrowed lanes, reduced parking and wider sidewalks simply complicate an already congested mid/downtown core. The only way to make more room on streets is to convert them to one way.	User		Yes	5478287
Oct 28 23 01:05:55 pm	Walk		Yes	Green heavy, Green mid-level, Green lite		Kingston has a designed traffic system that is disjointed and relies heavily on vehicles idling		Wide sidewalks, Tree planting, Reduced parking, Narrowed lanes, Curb bump out, Speed humps, Conversion to one way street	Kingston should look to European models for efficient green streets and traffic control.	User		No	5478346
Oct 28 23 02:32:52 pm	Walk		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume			Reduced parking, Curb bump out, Tree planting, Wide sidewalks, Narrowed lanes, Speed humps, Conversion to one way street	Please make new planting areas as bioswales to help with runoff.	User		Yes	5478557
Oct 28 23 07:49:46 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Route is not scenic enough			Curb bump out, Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Speed humps, Conversion to one way street		User		Yes	5479156
Oct 28 23 08:10:20 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Wide sidewalks, Curb bump out, Narrowed lanes, Speed humps, Tree planting, Reduced parking, Conversion to one way street	I'm supportive of all of the above options. In my view, parking should be somewhat context-sensitive. If there's a lot of usage of on-street parking on a particular block, the "friction" caused by the parking does serve as a form of traffic calming. If the parking isn't being used much (as is the case on my street), by all means narrow the road up and reduce the parking availability.	User		Yes	5479190
Oct 28 23 08:34:04 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access			Conversion to one way street, Reduced parking, Curb bump out, Tree planting, Narrowed lanes, Wide sidewalks, Speed humps		User		Yes	5479241
Oct 29 23 07:56:22 am	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks, Tree planting, Speed humps, Curb bump out, Reduced parking, Narrowed lanes, Conversion to one way street		User		Yes	5479799
Oct 29 23 09:16:25 am		I drive to Williamsville because taking a bike there is unsafe.	Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Route is not scenic enough	Places to lock my bike.		Tree planting	I would like to see additional paths around the city as opposed to directly within the busy city where traffic naturally slows down. There is a loop that goes from the K&P, behind Canadians Tire and Landmark, along to Montreal St area and arrive into downtown area then skirts around the water. I'd love to see a nice wide bike lane that travels north/south on Sir John A. This path would complete the loop, allowing west enders to travel downtown, to Queens and other popular commute spots. Sir John A would also become a lot more attractive if trees are incorporated along this path. This street also has the	User		Yes	5479897
Oct 29 23 09:33:09 am		Car	Yes	Green mid-level				Conversion to one way street	The map shows residential housing.if that is in fact correct.We need places to park	User		Yes	5479929
Oct 29 23 09:38:02 am	Walk		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Parked cars impeding access			Wide sidewalks, Tree planting, Narrowed lanes, Speed humps, Curb bump out, Reduced parking, Conversion to one way street		User		No	5479937
Oct 29 23 09:54:55 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Lack of direct connection to destination, Speed of traffic, Parked cars impeding access			Reduced parking, Narrowed lanes, Speed humps, Tree planting, Wide sidewalks, Curb bump out, Conversion to one way street	Parked cars present challenges for cycling (collisions, door openings, etc.) as well as forcing pedestrians out on to the street to have room to walk, especially when Queen's students are here. Parking restrictions and traffic tolls should be implemented.	User		Yes	5479968
Oct 29 23 10:00:42 am	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green lite, Green mid-level, Green heavy	Lack of direct connection to destination			Conversion to one way street, Tree planting, Curb bump out, Wide sidewalks	I'm not sure why benches would be required when Frontenac Park is right there, unless it's a different block you are considering.	User		Yes	5479979
Oct 29 23 10:33:04 am	Walk		Yes	Green heavy, Green mid-level, Green lite	Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access			Tree planting, Wide sidewalks, Curb bump out, Reduced parking, Narrowed lanes, Conversion to one way street, Speed humps		User	Yes	No	5480041
Oct 29 23 12:51:04 pm		I don't as I must drive to get there	Yes	Green heavy, Green mid-level, Green lite	Lack of direct connection to destination, Parked cars impeding access			Conversion to one way street, Wide sidewalks, Tree planting, Curb bump out, Speed humps, Narrowed lanes, Reduced parking		User		Yes	5480285
Oct 29 23 01:35:12 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Not enough rest areas, Route is not scenic enough, Speed of traffic, Traffic volume, Parked cars impeding access			Reduced parking, Tree planting, Wide sidewalks, Speed humps, Curb bump out, Conversion to one way street, Narrowed lanes		User		Yes	5480379
Oct 29 23 02:41:04 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Traffic volume, Parked cars impeding access			Tree planting, Reduced parking, Curb bump out, Wide sidewalks, Speed humps, Conversion to one way street, Narrowed lanes		User		No	5480518
Oct 29 23 05:37:19 pm	Walk		Yes	Green heavy, Green mid-level, Green lite				Wide sidewalks, Tree planting, Narrowed lanes, Speed humps, Curb bump out, Conversion to one way street, Reduced parking		User		Yes	5480849
Oct 29 23 05:38:31 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Parked cars impeding access			Narrowed lanes, Curb bump out, Speed humps, Wide sidewalks, Conversion to one way street, Reduced parking, Tree planting		User		No	5480850

Oct 29 23 08:25:50 pm	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Volume of large vehicle traffic, Parked cars impeding access			Conversion to one way street, Narrowed lanes, Tree planting, Wide sidewalks, Speed humps, Reduced parking, Curb bump out		User		No	5481183
Oct 30 23 09:39:23 am	Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Unsure of which routes to take, Lack of direct connection to destination, Traffic volume, Volume of large vehicle traffic			Tree planting, Conversion to one way street, Narrowed lanes, Curb bump out, Reduced parking, Wide sidewalks, Speed humps	Any opportunity to increase the biodiversity of streets is a win, especially if planting local native species. Would like to see less concrete in general to help capture rain runoff and reduce pressure on city infrastructure during heavy rainfalls/snowmelts.	User		Yes	5482012
Oct 30 23 11:31:57 am	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Parked cars impeding access	Construction		Tree planting, Narrowed lanes, Curb bump out, Reduced parking, Wide sidewalks, Speed humps, Conversion to one way street		User		No	5482609
Oct 30 23 03:49:13 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Speed humps, Narrowed lanes, Wide sidewalks, Curb bump out, Reduced parking, Tree planting, Conversion to one way street	Raised pedestrian crossings should be at every intersection	User		No	5484246
Oct 30 23 07:56:20 pm	Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Volume of large vehicle traffic			Tree planting, Speed humps, Wide sidewalks, Reduced parking, Curb bump out, Narrowed lanes, Conversion to one way street		User		No	5485605
Oct 31 23 08:49:15 am	Walk		Yes	Green heavy, Green mid-level, Green lite	Route is not scenic enough, Volume of large vehicle traffic			Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Conversion to one way street, Reduced parking, Speed humps		User		No	5487024
Oct 31 23 03:06:32 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Route is not scenic enough, Traffic volume, Parked cars impeding access	Very hot in the summer months due to lack of trees and plantngs		Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Curb bump out, Speed humps, Conversion to one way street	I am very concerned about the possibility of bike lane removal on Princess St in Williamsville, as well as bike lane removal anywhere in Kingston. The bike lanes should be enhanced to increase safety for bikers.	User	Yes	Yes	5488501
Oct 31 23 04:43:36 pm	Walk	drive auto	No		Uncomfortable navigating intersections, Speed of traffic, Traffic volume, Volume of large vehicle traffic, Parked cars impeding access			Wide sidewalks	"green" streets my sweet ass! what exactly is "green" about paving and concrete? sounds like "green" coal. have you actually looked at the streets in Kingston? Using Clergy St. Between Division and Barrie St as an example, a high percentage of our streets and sidewalks are un-bikable, un-drivable and un-walkable. How can you justify spending money on bumpouts (snowplow wreckers) and planters (weed and butt boxes where trees are put to die of dehydration) when the street surfaces are such a disgrace.	User		Yes	5488879
Oct 31 23 07:21:43 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Route is not scenic enough, Traffic volume			Tree planting, Curb bump out, Wide sidewalks, Narrowed lanes, Conversion to one way street, Reduced parking, Speed humps		User		Yes	5489414
Oct 31 23 07:22:36 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic	More shade needed in summer to help with heat.		Tree planting, Wide sidewalks, Speed humps, Narrowed lanes, Curb bump out, Reduced parking, Conversion to one way street	I'm really glad you are looking at this. I especially support more tree planting, as a lot our mature trees seem to be nearing the end of their lives and we are losing a lot of tree cover near roads and sidewalks where it's especially needed during hot summers for walkers and cyclists.	User		Yes	5489415
Nov 01 23 11:54:29 am	Walk, Bike		Yes, but I am unsure what the City of Kingston means by green streets	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Lack of direct connection to destination, Speed of traffic			Curb bump out, Tree planting, Wide sidewalks, Reduced parking, Narrowed lanes, Speed humps, Conversion to one way street	These green streets provide an opportunity to respond and adapt to climate emergency challenges, with the aim of benefiting present and future generations. Important considerations include: tree canopy coverage to reduce heat island effects for local residents and active travellers; biodiversity corridors of a variety of native trees and shrubs connecting neighbourhoods and other similar corridors; use of understory plants compatible with the shade and lighting conditions that contribute to the sustainability of the green space and quality of the active travel experience.	User		Yes	5491235
Nov 01 23 03:23:53 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable navigating intersections, Parked cars impeding access			Reduced parking, Narrowed lanes, Speed humps, Tree planting, Wide sidewalks, Conversion to one way street, Curb bump out		User		No	5492047
Nov 01 23 04:41:19 pm		I don't even know where it is.	Yes, but I am unsure what the City of Kingston means by green streets			As I said earlier I don't know where it is. I always lean towards green solutions but where would these homeowners and their guests, deliveries, etc park?				User		Yes	5492533
Nov 01 23 05:14:47 pm	Walk, Bike		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Lack of direct connection to destination					User		Yes	5492755
Nov 02 23 12:30:26 am		Driving my car	Yes	Green lite, Green mid-level, Green heavy		Distance too far not to drive		Tree planting	None of the compromises listed in the previous question which impede vehicle traffic or parking in any way are acceptable. I'm all for incorporating greenery into public spaces, but the anti-car movement that's coming about these days is ridiculous, poorly thought out, and not feasible in the slightest, especially in a place like Kingston where it SNOWS HALF THE YEAR!! All that "green" space you are trying to create is going to be dead in the winter, and all that will be left is an unnecessary impedance to vehicle traffic, when it's below freezing and the streets and sidewalks are full of snow, ice and	User		No	5494505
Nov 02 23 03:32:02 pm	Walk		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Route is not scenic enough, Traffic volume			Tree planting, Wide sidewalks, Narrowed lanes, Curb bump out, Reduced parking, Speed humps, Conversion to one way street	Most of my travel in Williamsville specifically is walking (most usually along Johnson or Union or Brock) to get downtown from my current residence on Hatter Street. I find the proximity of the sidewalk to the roadway to be intimidating, especially when traffic is sparser and thus sometimes faster. During the summer, I try to walk on the South side of the east/west streets to get more shade, but there are patches where there is little shade. I appreciate tree canopy cover. I also appreciate places where there is a slight separation between the street and the sidewalk. Overall, I find the streets in this	User		Yes	5498402
Nov 02 23 08:05:33 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Parked cars impeding access			Tree planting, Curb bump out, Speed humps, Wide sidewalks, Narrowed lanes, Reduced parking, Conversion to one way street	Please consider plants other than trees as well, such as shrubs and wildflowers. Please use only native species.	User	Yes	Yes	5499623
Nov 03 23 10:19:58 am	Walk, Bike, Skateboard		Yes	Green mid-level, Green heavy, Green lite	Uncomfortable sharing the road with vehicle traffic, Traffic volume, Parked cars impeding access			Tree planting, Wide sidewalks, Conversion to one way street, Curb bump out, Speed humps, Narrowed lanes, Reduced parking		User		Yes	5501191
Nov 03 23 11:21:31 pm	Walk		Yes	Green lite, Green heavy, Green mid-level	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Volume of large vehicle traffic, Parked cars impeding access			Reduced parking, Wide sidewalks, Tree planting, Narrowed lanes, Curb bump out, Conversion to one way street, Speed humps		User		No	5504086
Nov 09 23 12:05:34 am	Walk, Bike	Walk with stroller or wagon, bike with trailer	Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Parked cars impeding access			Reduced parking, Narrowed lanes, Wide sidewalks, Tree planting, Curb bump out, Conversion to one way street, Speed humps	I support any initiative that slows vehicular traffic and makes streets safer for active transport and children at play.	User		Yes	5522979
Nov 10 23 05:33:45 pm	Bike		Yes	Green lite, Green mid-level, Green heavy	Uncomfortable sharing the road with vehicle traffic, Unsure of which routes to take, Parked cars impeding access	unsafe drivers on one side, and unpredictable pedestrians on the other.		Speed humps, Tree planting, Wide sidewalks, Curb bump out, Narrowed lanes, Reduced parking, Conversion to one way street	passive calming reduces speed, but reducing parking / lanes causes frustration and can be unpredictable / difficult to navigate. rather than narrow a lane, paint a line that is approx parking width to be a passive calming method to make the road feel more narrow than it is. For very narrow streets, this may make it look like there is only 1-lane available between parked cars. I'm not sure the city is ready for this, but it could help reduce speed.	User		No	5530172
Nov 13 23 05:20:03 pm	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Not enough rest areas, Route is not scenic enough, Volume of large vehicle traffic, Parked cars impeding access			Curb bump out, Wide sidewalks, Tree planting, Speed humps, Reduced parking, Narrowed lanes, Conversion to one way street		User		Yes	5537453
Nov 17 23 12:18:18 am	Walk	Car	Yes	Green lite, Green mid-level, Green heavy	Speed of traffic	The disasterous state of the old sidewalks and roads in the Park, Napier, Regent, Mack Street areas.		Tree planting, Wide sidewalks	Reduce speed limits.	User		Yes	5555516
Nov 17 23 11:23:31 am	Walk, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Speed of traffic, Volume of large vehicle traffic, Parked cars impeding access	conditions of roads and sidewalks - both are downright dangerous in many areas.		Wide sidewalks, Reduced parking, Speed humps, Conversion to one way street, Tree planting, Narrowed lanes, Curb bump out	Please take green streets seriously as a significant step towards addressing the climate crisis as well as improving safe transport in a dense district. Thank you.	User		No	5557164
Nov 17 23 12:13:08 pm	Walk, Bike		Yes	Green heavy, Green mid-level	Lack of direct connection to destination	Walking - Streets without shade are too hot on quite a few days in July and August. In the winter walking on sidewalks that are sloped to accommodate access to driveways is dangerous.		Tree planting, Reduced parking, Narrowed lanes, Curb bump out, Conversion to one way street, Wide sidewalks, Speed humps	Question #6 is confusing and difficult to answer. Additional comments will be submitted by email to Project Manager - hbrilliams@cityofkingston.ca	User		Yes	5557470
Nov 17 23 03:43:05 pm	Walk, Mobility device, Bike		Yes	Green heavy, Green mid-level, Green lite	Uncomfortable sharing the road with vehicle traffic, Uncomfortable navigating intersections, Lack of direct connection to destination, Speed of traffic, Traffic volume, Parked cars impeding access	Lack of sidewalk/bikelane maintenance especially during inclement weather; water pools in the curb depressions and some puddles hide very deep holes		Wide sidewalks, Narrowed lanes, Reduced parking, Tree planting, Curb bump out, Speed humps, Conversion to one way street	It is important to provide level crossings (ie raised pedestrian crossings). I am worried that the sidewalks are not going to be re-constructed and prevent all the slope changes from curb driveway-cuts. If the sidewalks are not made smooth and continuous, then these roads must become shared neighbourhood yield streets with a maximum of 30km/h speed, so people can use the smoothest surface available, with less risk of death in the event of a collision. Human bodies can only withstand so much force, so speed-reducing measures must be incorporated into the physical design of green streets.	User		Yes	5558670

From: [redacted]
Sent: November 1, 2023 7:48 AM
To: Semple,Ian; Brilliams,Henk
Cc: [redacted]
Subject: Bike Lanes in Williamsville

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ian Semple and Hank Brilliams,

I will keep this short: There are no circumstances under which it makes sense to tear out the Princess St bike lanes through Williamsville.

Please do the right thing for the physical and mental wellbeing of the people of Kingston, for the climate, for safety and ease of movement, and for the taxpayer.

Sincerely,

[redacted]

From:	[redacted]
Sent:	November 17, 2023 12:47 PM
To:	Brilliams,Henk
Cc:	Semple,Ian
Subject:	KCAT submission comments: Williamsville Transportation Study, Williamsville Bikeways and Frontenac Green Streets Concept
Attachments:	KCAT Williamsville submission.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

Dear Ian and Henk,

Thank you for the opportunity to participate in the public review of these important streetscape projects. Please find attached a submission from the Kingston Coalition for Active Transportation (KCAT) with comments on the three streetscape proposals for Williamsville.

It is exciting to see the changes happening along the Williamsville Main Street. Increased housing and density along this important transportation spine, connecting downtown with the Kingston Centre and beyond, will bring a renewed sense of vibrancy to Williamsville.

KCAT is very supportive of the transit improvements, increased walkability measures, removal of on-street parking, reduced travel lane widths and green elements. However, we are concerned that bike lanes are not included in the proposed plans for Williamsville Main Street. We recommend that the existing bike lanes be retained and improved. Local connecting routes throughout Williamsville (Williamsville Bikeways) would be beneficial as well, but not to the exclusion of dedicated bike lanes on Williamsville Main Street.

“Alternative 5 - On-Street Cycle Lanes” is our preferred option with changes to lane widths and other adjustments that would allow a protected, buffered bike lane.

We envision a vibrant Williamsville Main Street corridor that includes bike lanes. Bike lanes are good for business, the environment, sense of community, and healthy, active living. Bike lanes are proven economic drivers that bring more customers to businesses along streets with bike lanes.

The Household Travel Survey shows Williamsville has the highest bicycle mode share in all of Kingston at 10%. And with more than 60,000 people living within a 15 minute bike ride of Williamsville Main Street it would be a major missed opportunity to not find ways to leverage the benefits cycling offers in this part of the central Kingston to meet and exceed the City of Kingston mode share and Climate Change goals.

KCAT is very much in favour of “green streets” redesigned to mitigate the effects of climate change while providing environmental benefits, beautification and fostering safe connected spaces for healthy, active living.

We look forward to ongoing participation in these important projects.

Sincerely,

[redacted]

KINGSTON COALITION FOR ACTIVE TRANSPORTATION

KCAT's response to the Williamsville Transportation Study, Williamsville Bikeways and Frontenac Green Streets Concept
November 2023

Proposals for the Williamsville Transportation Study, Williamsville Bikeways, and Frontenac Green Streets Concepts are being reviewed now by the City of Kingston and decisions about them will be made soon. This submission states our position on these projects.

KCAT is very supportive of the transit improvements, increased walkability measures, removal of parking, reduced travel lane widths, and green elements.

We are concerned that bike lanes are not included in plans for Williamsville Main Street, and ***we recommend that the existing bike lanes be retained here*****, on Princess Street between Bath/ Concession and Division.** Local connecting routes throughout Williamsville ('Williamsville Bikeways') would be beneficial **as well** but **not to the exclusion of dedicated bike lanes on Williamsville's Main Street.** ***The only acceptable plan for Princess Street is "Alternative 5 – On-Street Cycle Lanes" as presented at the Oct 26 Open House*****.**

After reviewing all the poster boards presented at the October 26, 2023 Open House, the word "safety" was noticeable by its absence. One can assume that designs presented by the City will adhere to the required safety guidelines. However, phrases like "minimize impacts on traffic operations" and continued plans to install left turn lanes perpetuate planning and implementation of travel lane and intersection designs that prioritize convenience and space for cars over dedicated space and other safety measures for vulnerable road users putting them at increased risk of injury or death. The lack of regard for intersection improvements (e.g. advanced green for pedestrians and cyclists, bike boxes, islands at wide intersections e.g. Macdonnell, Alfred) and speed limit restrictions further confirms the car-centric bias to these designs. We encourage the use of designs as detailed in the Ontario Safety Council's *Protected Intersection Guide*.

City information (in plain text) is discussed below with KCAT's responses or rebuttals ***in bold italics*****.**

The City's project goals are to:

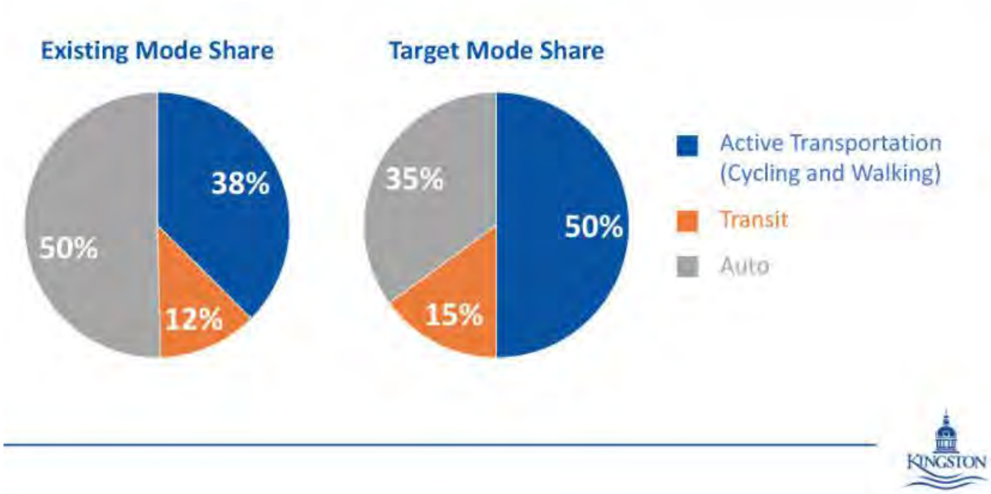
- Reconfigure the right-of-way to improve the pedestrian experience with wider sidewalks and amenities. ***Walkability is important. However, wide pedestrian spaces without adjacent dedicated cycling infrastructure are known to be associated with sidewalk cycling - a danger to pedestrians and others. Furthermore, other micro mobility devices (e.g. skateboards, scooters, one-wheels, etc.) can use the cycling lanes and avoid the pedestrian areas.***

- Prioritize transit travel times throughout the corridor. ***This can be done without "Queue Jump Lanes." Buses already have the capability of changing traffic signal lights in their favour. REDUCING car traffic will improve congestion at peak times. Traffic signals can be phased to allow longer greens on E-W route (Transit routes) and short greens on N-S at peak times.***

- Minimize impacts on traffic operations associated with the proposed changes. ***This is double-speak for "Keep car traffic as high as possible." This makes no sense.***

- Identify viable alternatives to support cyclists within the broader study area. ***This is more double-speak for "Keep cycle lanes off Princess to make room for more cars."***

- Mode share targets:



The above pie charts were presented without much explanation. How can the Auto Mode Share decrease from 50% to 35% if:

- ***a project goal is to 'Minimize impacts of traffic operations' (see above),***
- ***'there will be at least one travel through-lane in each direction to maintain vehicular […] movements through the area' with the current roadway being 'sufficient to carry future vehicular traffic',***
- ***cycling along the Main Street will not be encouraged/supported, and***
- ***there is no mention of intentionally and strategically reducing automobile use, particularly single occupied vehicles (SOV).***

How can the Active Transportation (Cycling and Walking) Mode Share increase from 38% to 50% when cycling lanes are being removed and replaced with indirect, inefficient routes that do not allow convenient safe access to amenities and services on Princess?

- How this arterial roadway will look for drivers is very much uncertain. ***On the contrary. You plan for cars, you get cars.***

The transportation sector has the highest greenhouse gas emissions in Kingston at 35.9%. It is becoming increasingly important to address the climate emergency seriously with every decision that is made. Viable active and sustainable transportation options including cycling need to be prioritized now with effective strategies to surpass Target Mode Shares above.

- Removal of on-street parking was approved to enhance active transportation on Princess Street including greening the corridor. ***Walking and cycling are the two main modes of active transportation. Cycling (or wheeling) includes all other forms of micro mobility. Wheeling will be a MAJOR way of moving on Princess Street once 8,000 people live directly on Princess with very limited options to store cars at their residence. Cycling infrastructure will enhance safety for all users of the streetscape.***

- Active Transportation for Williamsville is being prioritized to minimize dependency on private vehicle travel. ***Under Option 1, AUTOMOBILES and transit are being prioritized for Williamsville Main Street. Walking is also being prioritized, however "walkable" distances are less than a 1.6 km walk (according to Kingston's Household Travel Survey). We assert that cycling is a priority mode of travel along Princess St. Cyclists prefer direct routes that feel safe. "Alternative" bike routes increase distances from the most direct route along Princess. Walking and "alternative" bike routes are not going to "minimize dependency on private vehicle travel". Transit may help to reduce private vehicle travel in combination with disincentives to use private vehicles.***

- Implement enhanced streetscape and pedestrian features on Princess Street to encourage a vibrant corridor. ***A vibrant corridor would include bike lanes. Bike lanes are good for business, the environment, sense of community, and healthy, active living. Streetscapes with safe cycling lanes have consistently proven, in cities across Canada, to be economic drivers bringing more customers to businesses along the streets with bike lanes. More than 60,000 residents live within a 15-minute bike ride of this section of Princess St. Bike lanes offer ways for more people to connect with the growing businesses and services fostering a diverse sustainable vibrant corridor.***

- Transit and Active Transportation modes are prioritized to meet the City of Kingston's Mode Share and Climate Change goals. ***As stated earlier, without including cycling as an Active Transportation priority, Transit mode is the de facto sole priority to meet modal and Climate Change goals. Why are we not also leveraging the opportunities cycling offers especially since the Household Travel Survey shows Williamsville (Area K) has the highest bicycle mode share in all of Kingston at 10% [Table 33. p.97]. How does removing cycling infrastructure from Princess St make any sense?***

- Transit improvements aim to meet the City's climate goals set out in the Climate Leadership Plan (2021) by reducing private vehicle trips. ***The goal to reduce private vehicle trips and GHGs will not happen by transit improvements alone. Safe, convenient, efficient, connected cycling infrastructure is essential. Disincentives for automobiles (e.g., expensive parking rates, high fines for not paying) will also help.***

- This section of Princess Street currently forms part of the City's spine cycling network. And with space constraints along the right-of-way, it is not possible to improve or maintain the bike facilities along this corridor after incorporating pedestrian and transit improvements.

KCAT and other groups worked with City staff and consultants on the Active Transportation Master Plan that included Princess Street as part of the City's spine cycling network. Strategic, informed decisions were made with input by all kinds of experts including experienced cycling commuters.

The right of way (ROW) along Princess Street in Williamsville is like that of many municipalities in Ontario. Roads with similar constraints in other cities have been transformed into 'Complete Streets' that welcome all road users including cyclists. See examples on KCAT's Williamsville page KCAT's featured Williamsville news.

We are aware of the width of each block of Princess between Bath/Concession and Division and appreciate the increased space with no parking and reduced lane widths. Compromises may need to be made to accommodate the needs of all road users for a Complete Street, including current and future residents and businesses, shoppers, and commuters. If needed, conventional bike lanes may also be narrowed to 1.2 metres in constrained areas (OTM Book 18: page 77).

Cycling, with all its benefits, should not be sacrificed for development outcomes that compromised public space by permitting new buildings to be built at the sidewalk without setbacks. See https://kcat.ca/williamsville/ March 2020. It's too late to change what's been done but there are solutions, as presented in this submission.

- Existing bike lanes without a buffer along this corridor do not provide the level of comfort that most riders would expect when riding along a high-volume roadway.

Please see above point. Also, bike lane safety features include not only lane width but signage, well-maintained lines, stencils, pavement free of debris, and predictability. Dedicated space parallel to travel lanes are more easily seen and expected by motorists and cyclists than those that weave in and out (as is the case now). In limited space, planters can effectively separate motorists from cyclists and beautify the corridor at the same time with environmental benefits.

The City proposes these alternatives to Williamsville Main Street:

1. Promoting the use of Brock and Johnson Streets as part of the spine cycling network, and provide connections along Palace Road or Sir John A, up to Bath Road.
2. Developing Concession Street as part of the spine cycling network alternative to connect into future bike facilities along Princess Street, west of Bath Road, and connect into existing and proposed bike facilities along Division Street. ***Concession's road surface and traffic conditions are currently poor and unsafe for cyclists.***
3. Developing neighbourhood bikeways – these routes would be formalized with wayfinding and could potentially include traffic calming and other measures to promote

cycling along these areas. ***People already cycle on quieter streets in neighbourhoods. The proposed measures would be beneficial, in addition to dedicated cycling facilities on Williamsville Main Street. Neighbourhood bike routes tend to have several stop signs which deter use by slowing commute times.***

4. Confident cyclists can also continue to bike along Princess Street as part of traffic. ***Confident cyclists are a minority as illustrated in the Active Transportation Master Plan.***

'Alternatives' tend to be indirect, time-consuming, and less likely to be 'bikeable distances' (less than 4.6 km) according to the Household Travel Survey. They all deny cyclists and vendors the opportunity for cyclists to stop and shop along the way. It is unlikely that Kingston's cycling mode share would increase if the existing cycle lanes on Princess St. were to be replaced with neighbourhood bikeways.

A few notes on greenery, in addition to that mentioned above. Greenery is important.

- ***Trees do not need to be planted the length of the corridor; in fact, other plants may thrive better given lack of light from the 'canyon' effect of the tall buildings.***
- ***There will be opportunities with new developments along this stretch to include a variety of species/sizes of greenery.***
- ***Climate benefits from auto to bicycle mode switch are vastly greater than those from added greenery in the corridor.***

FRONTENAC GREEN STREET CONCEPTS

KCAT is very much in favour of 'green streets' and we hope that Frontenac Street will be the first of many streets redesigned to mitigate effects of climate change challenges while providing environmental benefits, beautification and fostering safe, connected spaces for healthy, active living. Our recommendations are to:

1. Connect the length of Frontenac Street from the Memorial Centre to Union Street.
2. Use bollards to prevent cars from turning onto Princess from Frontenac and create a pedestrian crosswalk there.
3. Provide way-finding signs including distances to the Memorial Centre, Downtown, Victoria Park, and Breakwater Park.
4. Plan, design and implement intersections to facilitate walking and cycling and discourage automobile use except for local, within-block traffic.
5. Implement measures and concepts to facilitate walkability and cyclability.
6. Foster tree canopy coverage for shade and beauty.
7. Include a variety of native trees, shrubs, and ground covers with relevant soil and lighting conditions for sustainability, water preservation, and low maintenance.
8. Involve local residents in all aspects of planning.

From: Semple,Ian <isemple@cityofkingston.ca>
Sent: November 19, 2023 4:41 PM
To: [redacted]
Cc: Brilliams,Henk
Subject: RE: Hosek input on Williamville bicycle lanes

Good afternoon [redacted]

Thank you for sending in these comments. I have included them as part of the engagement being completed for this study.

Regards,
Ian Semple

Ian Semple, MCIP, RPP, P.Eng. (he/him/his)
Director – Transportation & Transit

City of Kingston
Located at 1181 John Counter Boulevard
216 Ontario Street Kingston, ON K7L 2Z3
O: 613-546-4291 x2306
M: 613-453-1585
E: isemple@cityofkingston.ca

From: [redacted]
Sent: Sunday, October 29, 2023 12:39 PM
To: Semple,Ian <isemple@cityofkingston.ca>; Brilliams,Henk <hbrilliams@cityofkingston.ca>
Cc: [redacted]
Subject: [redacted] input on Williamville bicycle lanes

Dear Ian Semple, Director. isemple@cityofkingston.ca and Hank Brilliams, Manager. hbrilliams@cityofkingston.ca,

Good day.

I am quite dismayed that Kingston is considering removing bicycle lanes in Williamsville. No viable cities that I know of anywhere in the world are removing bicycle lanes at this time.
There is a(n expensive!) climate emergency and bicycle lanes help.
There are (expensive!) mental and physical health problems due to lack of active transportation and bicycle lanes help.
There is not enough urban tax base and bicycle lanes help!
We are building for 100 years and bicycle lanes help!

From the plan: "Identify viable alternatives to support cyclists within the broader study area"

Such innocuous (insipid?) wording around the plan notwithstanding, this change in Princess Street would further prioritize cars (as would adding bus-prioritization turnouts).
This change in Princess Street would also maintain the danger level of this portion of the street.
To my mind, this change in Princess Street also primarily and wrong-headedly seeks to benefit the investors in the new apartment complexes on those blocks.

History: The developers asked for and got easements in order to build close to the street in order to have more footage to sell and rent. Now they want to have our tax dollars be used to add street furniture and trees to the street to beautify it at the expense of active transport. They think, perhaps rightly, that beautiful streets can benefit their bottom line. They are shortsighted in not seeing that bicycle lanes would be at least as advantageous (See: e.g., Richard Florida, *Creative Cities*). Consider that many people living in those buildings are young, formally educated, and living close to their work/study/recreational places; this is a primary bicycling (and other micromobility and ped) demographic that appreciates and uses efficient, direct bicycle lanes. The developers are disingenuous in seeking to pass off the cost of street alterations to the tax payers, when their building practices squeezed the sidewalks in the first place.

Now, I like trees, but that area of Princess Street will never be as compelling a place to hang out as the quiet streets and pleasant parks quite nearby.
In contrast, lack of bicycle lanes will lead to accidents and also to the **deaths** of bicyclists. Even if we don't care about human lives and safety, accidents are EXPENSIVE and a WASTE OF MONEY.
Lack of bicycle lanes will lead to some people driving rather than bicycling. **IT WILL EXCACERBATE THE CLIMATE EMERGENCY.**

Further, there is a plan to extend bicycle lanes all the way past the ViaRail station and perhaps to the Mall. Ripping out the bicycle lanes on upper Princess will impede this plan.
This Princess Street extension plan is an equity issue because there are many lower-income high density buildings further up Princess, with more being built. People who live there, many families with teenage, bicycle-age kids, must buy expensive cars or use the expensive and time-expensive bus systems. They should have safe bicycle lanes available so that they can get to most Kingston places within 15 minutes.

Kingston must be building for now and for 100 years. Ripping out bicycle lanes on upper Princess is wrong-headed and short-sighted.

I also point you to the KCAT letter; I am in agreement with their points.

Williamsville Main Street Transportation Study – Kingston Coalition for Active Transportation
kcat.ca

Thank you for your kind attention,
[redacted]

From: Semple,Ian <isemple@cityofkingston.ca>
Sent: November 19, 2023 3:12 PM
To: [redacted]
Cc: Brilliams,Henk
Subject: RE: Williamsville bike lanes

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [redacted]

Thank you for submitting your comments. I will add this to the engagement we have received on the Williamsville project.

Regards,
Ian Semple

Ian Semple, MCIP, RPP, P.Eng. (he/him/his)
Director – Transportation & Transit

City of Kingston
Located at 1181 John Counter Boulevard
216 Ontario Street Kingston, ON K7L 2Z3
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E: isemple@cityofkingston.ca

From: [redacted]
Sent: Thursday, November 2, 2023 1:57 PM
To: Semple,Ian <isemple@cityofkingston.ca>
Subject: Williamsville bike lanes

As a life long and year round commuter cyclist and parent of three, I would like to encourage you to rethink your decision around bike lanes downtown.

Cycling is essential for many of us who are low income commuters, and bike lanes provide a safe and encouraging means of promoting cycling for all ages. To remove them would make it far more dangerous and deters the activity specifically for younger families. They help transit drivers navigate the varied traffic better. Bike lanes also make automobile drivers more aware of their less protected neighbour's. In short bike lanes are essential for safer city transportation.

Thank you.

[redacted]

[redacted] Yellow Bike Action

From:	[redacted]
Sent:	November 20, 2023 4:18 PM
To:	Semple,Ian
Cc:	Brilliams,Henk
Subject:	RE: Williamsville letter from KFL&A Public Health
Attachments:	2023-11-20 Williamsville to IS and HW.pdf; 2023-03-07 To COK TD and MM re Williamsville.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

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Thank you Ian and Henk, [redacted]

From: Semple,Ian <isemple@cityofkingston.ca>
Sent: Monday, November 20, 2023 8:20 AM
To: [redacted]
Cc: Brilliams,Henk <hbrilliams@cityofkingston.ca>
Subject: RE: Williamsville letter from KFL&A Public Health

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Hi [redacted]

That would be great. You can send to us and we will include in the engagement.

Ian

Ian Semple, MCIP, RPP, P.Eng. (he/him/his)
Director – Transportation & Transit

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The City of Kingston acknowledges that we are on the traditional homeland of the Anishinaabe, Haudenosaunee and the Huron-Wendat, and thanks these nations for their care and stewardship over this shared land.

From: [redacted]
Sent: Monday, November 20, 2023 7:51 AM
To: Semple,Ian <isemple@cityofkingston.ca>; Brilliams,Henk <hbrilliams@cityofkingston.ca>
Subject: Williamsville letter from KFL&A Public Health

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good morning Ian and Henk

I'm sorry I didn't get a letter in on Friday; I hope to send it today.

Thanks for all your work.

[redacted]

My regular hours of work are Monday through Friday, 7 a.m. to 3 p.m.

[redacted]

KFL&A Public Health
221 Portsmouth Avenue
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www.kflaph.ca

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KFL&A Public Health

KFL&A Public Health is situated on the traditional territories of the Anishinaabe and Haudenosaunee.

March 7, 2023

To:
Tarita Diczki
Project Manager
tdiczki@cityofkingston.ca

Marissa Mascaro
Manager, Transportation Infrastructure
mmascaro@cityofkingston.ca

Re: Williamsville Transportation Study

Dear Tarita and Marissa:

I am writing on behalf of KFL&A Public Health to express support for cycling as well as walking and public transit as priority modes of travel along Princess Street in Williamsville. In efforts to facilitate active and sustainable transportation (AST), we also support measures that disincentivize automobile travel. Modest shifts in travel mode from vehicle use to cycling, walking, or public transit use contribute to higher physical activity levels, yield large reductions in chronic disease, cut greenhouse gas emissions, and improve health equity (1). These improvements would contribute to overall health and well-being, while enabling the City to attain climate, sustainability, and transportation goals and targets.

We support reduced travel lane widths, measures to enhance efficiency of public transit, and no parking except in rare circumstances such as at the Heart Clinic where there are no parking options nearby.

Consider implementing a speed limit of 40 km/hr for Princess Street in Williamsville (and possibly downtown). Reduced speeds give people more time to react in preventing collisions and lowering the severity of collisions that do occur. Edmonton has implemented 40 km/hr on most residential and downtown streets including high pedestrian areas, and it demonstrates how the change results in little impact on driving times (2). Consider whether any left turn lanes are necessary, or if in relieving car congestion the lanes would pose increased safety risks for pedestrians, cyclists, or other drivers (3).

Dedicated, well-maintained cycling infrastructure along this 1.7 km 'vibrant main street' would enable people who live, work, or commute in this area or come from neighbourhoods that feed into Princess to the northwest or Bath to the west, to cycle safely, efficiently, and comfortably to or through Williamsville. To designate a neighbourhood street such as Mack Street for cycling instead of providing safe infrastructure on the direct route along Princess Street would mean that all but the smallest fraction of cyclists who are 'strong & dedicated' would need to

Kingston, Frontenac and Lennox & Addington Public Health www.kflaph.ca

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'detour' south then east then north to access Princess Street further down. Brock and Johnson (with north south connections) and Concession streets, considered for inclusion in the spine cycling network, bypass multiple destinations in Williamsville and the 'gateway' to downtown. Brock and Johnson are even further away than Mack Street from Princess Street.

In 'Get Involved Kingston' information about this study, it was noted that walking and transit are prioritized because they are 'the two most popular modes of transportation through this corridor'. Cyclists may not make up a popular mode of transportation if they don't feel safe on Princess Street in Williamsville. Although there are currently bike lanes along this main street, there are significant barriers to cycling, including but not limited to extensive, ongoing construction with unpredictable bike routes, motorized vehicles including delivery and construction trucks blocking bike lanes, construction and other debris in bike lanes, bike lane road surface in a state of poor repair with faded line and stencil markings, and competition with motorized vehicles for space.

KFL&A Public Health has worked with the City of Kingston for many years to support expansion of safe, connected, efficient, and pleasant cycling routes and networks to increase cycling in Kingston. We supported bike lanes on Princess Street in Williamsville since the Williamsville Main Street Study Draft Report, September 2011 and we participated on the Williamsville Cycling Lanes Advisory Group in 2013. In March 2013, we participated on a City-led planning committee with the Share the Road Cycling Coalition to host the Kingston Bike Summit and Forum which featured international speakers about successes and strategies in attaining high level Bicycle Friendly Community status. In addition to acknowledging the work of the City in promoting cycling and achieving a Bronze Bicycle Friendly Community award in 2012, the KFL&A Public Health Medical Officer of Health spoke at the Summit about the need to make the healthy choice (cycling) the easy choice to increase the number of people cycling and cycling more often. The message then was the same as it is now: to increase cycling, it must be safe, easy, convenient, connected and enjoyable; this includes physical separation of transportation modes on high traffic streets and a lower emphasis on automobiles when planning and constructing transportation infrastructure.

The Williamsville Main Street Study Review of Cycling Lanes (July 22, 2013), passed by Council, included: "With the inclusion of dedicated and buffered cycling lanes on Princess Street, this new identity will be fundamentally linked with healthy, active and progressive lifestyle choices." The controversy over the loss of parking for bike lanes re-surfaced in the fall of 2013, and the KFL&A Public Health Medical Officer of Health at that time wrote a letter of support to the Mayor and Councillors for cycling lanes on Princess Street in Williamsville for health and safety reasons.

In 2016 Kingston received a second bronze Bicycle Friendly Community award. In 2021 it received a silver award with one of the highlights being: "Priority for cycling infrastructure when roads are rebuilt."

Kingston, Frontenac and Lennox & Addington Public Health www.kflaph.ca

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Sharbot Lake 613-279-2151 Fax: 613-279-3997

We encourage you to include cycling as a priority mode of transportation along with walking and using transit, on Princess Street in Williamsville.

References

1. The Lancet. The 2021 report of the Lancet Countdown of health and climate change: code red for a healthy future [Internet]. 2021. Available from: https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2901787-6
2. https://www.edmonton.ca/transportation/traffic_safety/residential-speed-limits
3. Speck J. Walkable City Rules. 1st ed. Washington, D.C.: Island Press; 2018.

We would be pleased to discuss this with you anytime.

Sincerely,

[redacted]

[redacted]

KFL&A Public Health
221 Portsmouth Avenue
Kingston, Ontario K7M 1V5
www.kflaph.ca

From: Semple,Ian <isemple@cityofkingston.ca>
Sent: November 19, 2023 4:40 PM
To: Brilliams,Henk
Subject: FW: Williamsville Transportation and Bikeways Open House

Follow Up Flag: Follow up
Flag Status: Flagged

For Williamsville file

Ian Semple, MCIP, RPP, P.Eng. (he/him/his)
Director – Transportation & Transit

City of Kingston
Located at 1181 John Counter Boulevard
216 Ontario Street Kingston, ON K7L 2Z3
O: 613-546-4291 x2306
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E: isemple@cityofkingston.ca

From: Diczki,Tarita <tdiczki@cityofkingston.ca>
Sent: Friday, October 27, 2023 10:25 AM
To: Semple,Ian <isemple@cityofkingston.ca>
Subject: RE: Williamsville Transportation and Bikeways Open House

Hi Ian,

- The main theme I heard over and over again is that delivery vehicles, uber, taxi's, door dash etc… park in the bike lanes or curb lane and block the use of bike lanes (creating unsafe manoeuvres). These also impede pedestrian sight lines, particularly at the intersections. Consider signage (like no stopping – like Toronto has), and/or implementing loading/delivery zones.

- I had a call with someone before the PIC in response to a CRM I received about the condition of the bike lanes on Princess being unsafe and in very poor condition. I invited her to the PIC but she couldn't make it so I offered to record her comments on the phone to put forth for consideration/record for the event. This is below:

Good afternoon, [redacted],

Thank you for taking the time to speak with me today. If I may, I would like to summarize what we spoke about today so that I can communicate your feedback back to our team - for consideration/record, as part of the City's on-going Williamsville Mainstreet Study:

1. Transportation - The existing bike lanes on Princess Street are in very poor condition and unsafe (dangerous). The condition of the bike lanes causes damage to bikes and there is a lack of physical barrier between the rider and moving vehicles.

2. Transportation/Enforcement - Vehicles consistently use the bike lanes to park in, which makes the bike lanes even more challenging to use.

3. Transportation -The City should consider closing Princess Street during the summer months and only open to pedestrians and cyclists (all the way downtown) - studies have shown this is successful in other jurisdictions.

4. Planning - Disappointed that with all the construction, there is a severe lack of green space. Some developments have tried to implement raised flower beds and have planted trees; however; the majority of the tress have died and flower beds need to be maintained. Green spaces, and especially trees, provide shade, improve air quality and add an aesthetic quality to the neighbourhood. - which is desirable for residents.

5. Planning - Consider implementing parklettes (small parks) on certain blocks to provide more green space.

6. Planning - Generally provide more green spaces/parks for the Williamsville area. There is really only one park, the Memorial Centre Park, and the dog park, which at times is not appealing and needs better maintenance.

7. Planning - The developers may be trying to push the envelope with proposed variances; for example, the Foundary building (and one other), which is 'sunken in', is not an ideal or attractive store front to be considered for higher density neighbourhood development.

8. Planning - Future variance applications should always consider providing for trees in their development to increase City's overall tree canopy, and that of the Williamsville neighbourhood specifically.

9. By-Law/Enforcement - Some residents appreciate living in quiet neighbourhoods, and at times, persistent noise coming from sources not currently covered under the existing by-law is experienced by residents and can be bothersome. Can something be implemented that could seek to curtail these individual and persistent noise sources?

Hope I captured it all. If I have incorrectly described or missed something, please email me directly and I will be happy to correct before submitting.

Lastly, I invite you visit the City's Get Involved Page to provide your feedback on the Williamsville Bikeway Study: Williamsville Bikeways | Get Involved Kingston by Communications & Public Engagement (cityofkingston.ca)

Thank you again for your feedback, it is appreciated.

Kind Regards,
Tarita Diczki
Project Manager
Transportation Services

- Out of scope but passing on from one of the first people who arrived to the event last night, because I said I would: 1. The signals at the Fresh Co intersection do not, in her opinion, prioritize pedestrians. She says that she waits for quite some time at the intersection to cross. She asked if we can look into this. 2. She said that on the buses there are regular announcements about (oh jeez, can't remember at this time – but they are regular so you might know) but she would like to hear regular announcements about priority seating. She often sees young people taking up seats and older or disabled people are forced to stand or move to the back of the bus.

I thought the event went well and smoothly. I thought there was just the right amount of staff to public ratio. However, the biggest challenge I see is somehow we need to get across to the regulars that we are not "prioritizing" vehicles just because we are trying to optimize the efficiency of transit.

Thanks,
Tarita

From: Semple,Ian <isemple@cityofkingston.ca>
Sent: Friday, October 27, 2023 9:15 AM
To: Diczki,Tarita <tdiczki@cityofkingston.ca>; Dickson,Mark <mdickson@cityofkingston.ca>; Kussin,Matt <mkussin@cityofkingston.ca>; Pinarski,Jen <jpinarski@cityofkingston.ca>; Knight,Nancie <nknight@cityofkingston.ca>; Bar,James <jbar@cityofkingston.ca>
Subject: RE: Williamsville Transportation and Bikeways Open House

Good morning everyone,

Thank you for all the effort yesterday supporting the Open House for Williamsville. If you have any comments/questions that you heard that you think we need to capture or respond to please send along to me.

I would also appreciate your feedback on how the event went and if there are other steps that we could take to help the community understand the alternatives being considered.

Ian

Ian Semple, MCIP, RPP, P.Eng. (he/him/his)
Director – Transportation & Transit

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The City of Kingston acknowledges that we are on the traditional homeland of the Anishinaabe, Haudenosaunee and the Huron-Wendat, and thanks these nations for their care and stewardship over this shared land.

-----Original Appointment-----
From: Semple,Ian
Sent: Friday, October 13, 2023 3:03 PM
To: Semple,Ian; Pegah Tootoonchian; King, Maria; Rudi Rendel; Diczki,Tarita; Dickson,Mark; Kussin,Matt; Park,Tim; Pinarski,Jen
Cc: Joyce,Brad; Shawn Doyle; Kristin Lillyman
Subject: Williamsville Transportation and Bikeways Open House
When: October 26, 2023 5:30 PM-9:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: St. Luke's refer (236 Nelson Street, Kingston ON K7K 4M7)

Williamsville Transportation Study Open House – Final information to follow

News & Notices - City of Kingston

Microsoft Teams meeting

Join on your computer, mobile app or room device
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Princess Main Street Study (PIC #2)

Your input is valuable to the outcome of this study. Please provide any additional feedback below!

1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very

2. Do you have any additional feedback related to the design of Princess Street?

Critical to maintain bicycle lanes on Princess St.
(this is the area with the destinations for active transportation.
→ Bicycle marking in roadway need to be maintained to a very high standard - i.e. painted as soon as possible in spring, not autumn as happened this year.

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

Anything will be helpful but they are of little use if ~~[illegible]~~ bicycle lanes are not maintained on Princess St.
Imperative to ensure markings are clear at all times.

Princess Main Street Study (PIC #2)

Your input is valuable to the outcome of this study. Please provide any additional feedback below!

1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	✓	Very

2. Do you have any additional feedback related to the design of Princess Street?

I have seen bumpouts used in Thunder Bay. They created traffic congestion + accidents. Frustrating for city snowplow activities too.
Cycle lanes improved on Princess St will not encourage me to use it anymore than I do. I prefer + feel safer using alternate routes

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

restricting parking to better improve cycling lanes is a great idea.

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Princess Main Street Study (PIC #2)

Your input is valuable to the outcome of this study. Please provide any additional feedback below!

1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	○	○	○	✓	○	Very

2. Do you have any additional feedback related to the design of Princess Street?

How will you stop parking & stopping in the bike lane??

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

- Slower speed limit -
- Parking for Day Cares - Lots provided for School.
- "Bikeways" to include scooters, children on bikes ??
- Walking more ~~[illegible]~~ common than biking. Wide safe sidewalks.

This content is neither created nor endorsed by Google.

Princess Main Street Study (PIC #2)

Your input is valuable to the outcome of this study. Please provide any additional feedback below!

1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	●	◯	◯	Very

2. Do you have any additional feedback related to the design of Princess Street?

Thank you for considering alternatives that promote cycling as well as pedestrians.
Could you consider removing motor vehicle traffic from Princess Street?
Please do.
Please keep bike lanes + reduce motor vehicle traffic.

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

the important cycling corridor is Princess Street. Neighbourhood bikeways are no substitute.
Keep Princess Street bike lanes.

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Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	●	◯	Very

2. Do you have any additional feedback related to the design of Princess Street?

Removing its status as an arterial street should be considered. Trying to accommodate over cars seems to be the main constraint on implementing other desirable measures

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

Modal filter should be included in plans. removing through traffic would be a effective way of reducing car traffic on these routes

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1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	X	Very

2. Do you have any additional feedback related to the design of Princess Street?

I am unclear if the reason for sidewalk widening is patios?

Strong support for keeping bike lanes - also a strong advocate for protecting these as much as possible.

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

Would love to see more advisory bike lanes - especially on Victoria St.!

ESKA

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1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	●	Very

2. Do you have any additional feedback related to the design of Princess Street?

Keep the bike lanes.

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

~~I don't know.~~
Don't take away the bike lanes.

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Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◉	Very

2. Do you have any additional feedback related to the design of Princess Street?

Intersection are where ~~most~~ cyclist and pedestrian die. ~~The~~ Safe built environment should be prioritized

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

Modal filter and low traffic neighbours (UK) should be prioritized

Paint is not infrastructure and is listed as Low Comfort and low quality according to CAN-BICS (google it).

Princess Main Street Study (PIC #2)

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1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	X	◯	◯	◯	◯	Very

2. Do you have any additional feedback related to the design of Princess Street?

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

THE INFORMATION IS UNCLEAR AS IT IS LAYED OUT: WHAT IS THE DIFFERENCE BETWEEN BIKEWAY FEATURES, BIKEWAY TYPICAL CROSS SECTION, (IBT) WITH TRAFFIC CALMING, ADVISORY BIKE LANE POTENTIAL CROSS SECTION? WHICH ARE YOU RECOMMENDING - AS IS IMPOSSIBLE TO COMMENT

This content is neither created nor endorsed by Google.

Princess Main Street Study (PIC #2)

Your input is valuable to the outcome of this study. Please provide any additional feedback below!

1. Overall, how satisfied were you with this event?

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very

2. Do you have any additional feedback related to the design of Princess Street?

I TRY TO AVOID IT. MAKE IT FOR CARS AND TRANSIT TO DIVISION. I LIKE PRINCESS AS A CYCLIST FROM DIVISION TO ONTARIO AS IT IS ONE-WAY + TWO-LANES

3. Do you have any additional feedback related to Neighbourhood Bikeways in Williamsville?

IF BIKE LANES ELIMINATED ON PRINCESS, IMPROVE CYCLING LANES/MARKING/SIGNAGE ON ALTERNATE ROUTES.

Memo

To: Henk Brilliams

From: Rudi Rendel

cc: Ian Semple, Maria King, Pegah Tootoonchian

Date: January 15, 2023

Subject: Neighbourhood Bikeway Toolbox

Our File: 23-6663

1.0 Background

To enhance the cycling experience throughout Williamsville it is recommended that the local road network implements cycling supportive infrastructure. This includes converting local roads to either neighbourhood bikeways or other appropriate shared cycling facilities such as advisory bicycle lanes. When designing shared cycling facilities, a balance must be struck between permitting vehicle travel and improving cyclist safety throughout the corridor. While these corridors are shared between motor vehicles and cyclists, they are meant to prioritize through movements for cyclists while discouraging fast-moving vehicles on these corridors. Neighbourhood bikeways should only be implemented on roadways with low operating speeds (<40km/h) and low average daily traffic (<3,000 ADT). Bicycle use is typically prioritized through the use of traffic calming treatments that discourage or slow motorized traffic. Advisory bicycle lanes are typically implemented on streets with low motor vehicle traffic volumes (<4,000 ADT) and where it is relatively rare for two motor vehicles will meet each other at the same time. Advisory bicycle lanes are also appropriate to use in situations with on-street parking as designated on-street parking zones can be provided alongside bicycle lanes.

The following technical guides were used as primary resources:

1. Transportation Association of Canada Chapter 5 – *Bicycle Integrated Design (2017)*
2. Development, Construction, and Operations of a New Traffic Calming Tool, City of Calgary – *Transportation Association of Canada* (2017)
3. City of Kingston's Active Transportation Master Plan (ATMP) – *Walk n' Roll Kingston (2018)*
4. British Columbia Active Transportation Design Guideline (2019)
5. Bicycle Boulevards Feasibility Study – City of Hamilton (2021)
6. Ontario Traffic Manual (OTM) Book 18 – *Cycling Facilities (2021)*

A list of typical and recommended design criteria for the Williamsville area were created using these technical guides.

2.0 Typical Design Toolbox

Neighbourhood bikeways are designed to operate in mixed traffic conditions on roadways that encourage and prioritize bicycle travel.

These design elements can be summarized into four main categories[1,2]:

1. Traffic Reduction;
2. Intersection Treatments;
3. Speed Management/ Priority; and
4. Signs and Pavement Markings.

2.1 Traffic Reduction

Traffic reduction design measures are typically applied at intersections to restrict vehicle movements at intersections while allowing them for cyclists. These can include the following:

- Median islands/diverters: Restrict the through movement of motor vehicles at major crossings, while providing a refuge for cyclists to complete a two-stage crossing;
- Choker entrances: Allow only one direction of motor vehicle traffic either entering or exiting a side street, while allowing cyclists to pass through;
- Full diverters: Convert a four-way intersection into a "T" intersection by closing one of the legs to motor vehicles, while allowing cyclists to pass through.

Although traffic reduction measures may not be applicable in all cases, they do provide the greatest benefit for cyclists, pedestrians and residents as it reduces exposure to traffic noise and emissions (OTM Book 18, 2021). In the context of Williamsville, the preferred corridors provide necessary connections for two-way vehicle traffic and limiting a road to one-way circulation or preventing vehicles from entering a roadway in one direction are not recommended. If the local road network is changed substantially in the future to accommodate one-way roads, these measures may be applicable.

2.2 Major Intersection Treatments

Intersection treatments improve cyclists' ability to cross a major roadway with higher vehicle volumes and speeds. These intersection treatments should provide clear and safe navigation for people riding bikes. Examples of intersection treatments include:

- Bike Boxes;

[1] Ontario Traffic Manual Book 18 (2021)
[2] National Association of City Transportation Officials

- Advanced Stop Bars;
- Bicycle actuated signals;
- Crossrides/Intersection Crossing Markings;
- Refuge Islands; and
- Curb Extensions.

Based on the corridors identified, the following major intersections should be analyzed in more detail and could benefit from one of the major intersection treatments listed above:

- MacDonnell Street & Princess Street;
- Albert Street & Princess Street;
- Nelson Street & Princess Street;
- MacDonnell Street & Concession Street; and,
- Victoria Street & Johnson Street;

The City of Kingston's Active Transportation Master Plan outlines the use of bike boxes and crossrides as potential intersection treatments at major intersections to improve a user's ability to cross a roadway or intersection.

For the relatively low volume and speed roads selected as preferred corridors in the Williamsville area, it is recommended that bike boxes and crossrides or intersection crossing markings are explored further as potential major intersection treatments. Sample images of the above intersection treatments are provided below in Figure 1 to Figure 2.

Figure 1: Bike Boxes (Portland, OR)

Figure 2: Crossride (Chicago, IL)

2.3 Minor Street Intersection Treatments

In general, where a neighbourhood bikeway intersects with a minor road, fewer treatments are necessary due to lower speeds and vehicle volumes. It is desirable to provide a continuous bikeway without stop control for cyclists while also providing vehicle speed and volume control measures for motor vehicles.

These types of treatments range from simple stop signs on cross-streets to traffic circles to slow vehicle traffic while maintaining a continuous path for cyclists. For the preferred corridors, it is recommended that stop signs are removed in the direction of travel for the corridors when a preferred corridor intersects with another minor road. Where two preferred corridors intersect, it is worth considering a solution such as a traffic circle to prevent cyclists in both directions from coming to a complete stop. Implementation of a traffic circle would be appropriate at intersections with low volumes to ensure that large vehicle queues or frequent vehicle conflicts would not be present.

Sample minor street treatments are presented below in Figure 3 to Figure 4.

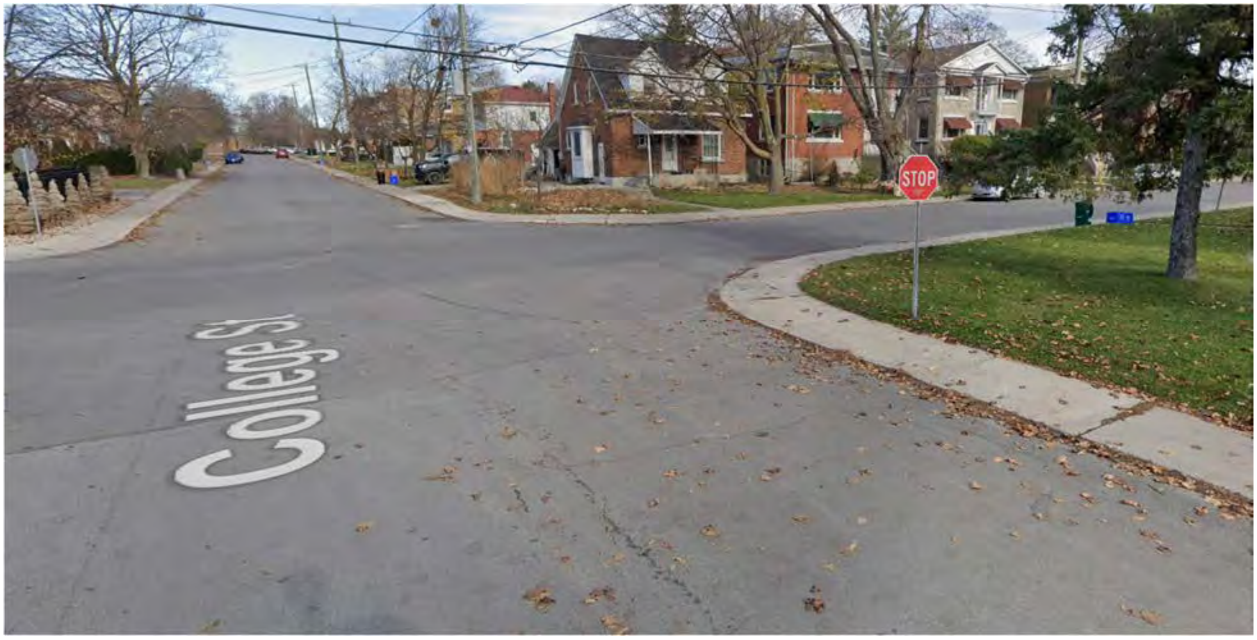


Figure 3: Minor Street Stop Sign (Google Maps (2020)

Figure 4: Neighbourhood traffic circle (Baltimore, MD)

2.4 Speed Management

Speed management on neighbourhood bikeways presents the greatest way to improve safety for cyclists and thereby encourage the use of bicycles. Reducing posted speed limits is generally not effective at reducing operating speeds below 40km/h, requiring the use of physical speed management tools. Reduced vehicle operating speeds can improve the perception time of both motorists and cyclists and further improve safety for both users.

Some examples of speed management designs include:

- Speed tables;
- Speed humps;
- Raised crosswalks;
- Curb extensions;
- Chicanes;
- Narrowing of motor vehicle lanes; and
- Dynamic "watch your speed" signs;

Potential speed management solutions for the Williamsville area have been summarized below in Table 1.

Table 1: Speed Management Solutions

 Enhanced Pavement Markings	 On-Street Messaging
 Speed Hump	 Signage

 Curb Bump Out	 Curb Radius Reduction
 Traffic Circle	 Raised Intersection

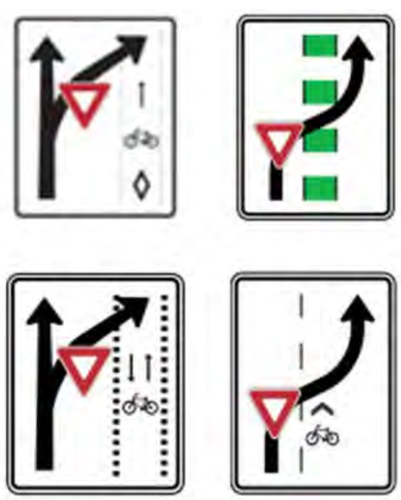
2.5 Signs and Pavement Markings

Providing appropriate signage and pavement markings encourages the use of neighbourhood bikeways and advisory bicycle lanes by communicating the intended travel path, and connections to the local cycling network, and promoting the visibility of cyclists to motorists.

In Ontario, the most common signs used to denote shared cycling facilities are signs Wc-19 OTM or Wc-24 OTM. The City of Kingston's ATMP outlines the use of the Green Bike Route Sign and the Share the Road sign. . In addition to signage, shared facility pavement markings are also encouraged to promote the visibility of cyclists and to clarify that the roadway is a shared-use lane. These pavement markings include "sharrow" (shared lane). In addition to these pavement markings and signage, bicycle lane markings should be used for advisory bike lanes with a buffer between bicycle lanes and parking lanes.

At the time of writing, neither OTM Book 18, or TAC GDG have a standard advisory bicycle lane sign to inform drivers how to operate with these facilities. Both Gibbons, BC and Ottawa, ON have created custom signs to inform both cyclists and drivers. Relevant signage and pavement markings are shown below in Table 2.

Table 2: Signage and Pavement Markings

	
Share the Road Wc-19 Sign	"Green Bike Route Sign" Bicycle Route Marker M511 Sign
	
Shared Use Lane Wc-24 Sign	Sharrow Lane Pavement Marking
	
Turning Vehicles Yield to Bicycles Ra-18 Sign	Advisory Bicycle Lane Custom Signage

3.0

Implementation Considerations

Based on the selected corridors, a list of potential design measures have been identified for implementation. Table 3 defines the design element, any relevant measures of efficacy, and a high-level estimated cost per unit.

Table 3: Recommended Design Measures

Design Element	Description	Purpose	Efficacy[3]	Implementation Considerations	Estimated Cost[4]	Design Category
Painted Cycle Symbols	On-street pavement markings designating a portion of the road way as an exclusive or shared space for cyclists.	Improve route finding for cyclists, and raise awareness for vehicular traffic that the facility is designated for cyclists	• Efficacy information unavailable/non-applicable.	• Pavement markings have a relatively low installation cost but require repainting. • Messaging intended for drivers is directly within the driver's/cyclist's field of vision. • Not visible when snow cover is present	$2,000/km – single side of the roadway	Signs and Pavement Markings
Cycle Facility Signs	Roadside signage designating a corridor as a roadway as an exclusive or shared space for cyclists.	Improve route finding for cyclists, and raise awareness for vehicular traffic that the facility is designated for cyclists	• Efficacy information unavailable/non-applicable.	• Minimal ongoing maintenance requirements • Messaging intended for drivers is located outside the roadway edge. • Requires space outside of the roadway for sign installation • Visible in all weather conditions	$2,000/km – single side of the roadway	Signs and Pavement Markings
Painted Bike Lane	On-street painted space for cyclists to travel. Typically located along the curb. May include a buffer. Cyclist travel way and optional buffer delineated by pavement markings.	Provide on-street horizontal separation between cyclists and vehicle travel lanes.	• Driver-cyclist collision rate decreased by 39%. (CMF = 0.61) (painted bike lanes through signalized intersection)[5]	• Improved safety is due to visual cues, not physical protection or separation • Not visible during snowy conditions • Ongoing maintenance required for repainting	$49/m	Signs and Pavement Markings

[3] Note that a Crash Modification Factor (CMF) indicates that this design element has been proven to reduce the number of crashes to X% of the original values. Where available, the change in condition used to arrive at the stated efficacy level has been identified.
[4] Costs estimates obtained from historical studies, may not reflect current prices.
[5] "Crash Modification Clearinghouse", Federal Highway Administration (2021)

On-Road Messaging	Provide information that is typically messaged to drivers as signage but are instead painted on the roadway to provide a larger image directly in the driver's line of sight (e.g. "SLOW")	Improve compliance with reduced speed limit, notify drivers of a change of context in the transportation network (e.g. neighbourhood bikeway vs. collector street)	• Vehicle speed reduction in 85th percentile speed up to 14 km/h[6] • Driver-cyclist collision rate decreased by 30% (CMF = 0.7)[5]	• Ongoing maintenance required for repainting	$49/m2	Signs and Pavement Markings
Speed Humps	Raised area of a roadway that causes vertical deflections to travelling vehicles. Localized vertical deflection requires that drivers slow down to mitigate damage to their vehicles.	Reduce vehicle operating speeds on local and collector streets with posted speed limits <50 km/h	• Vehicle speed reduction in 85th percentile speed up to 13 km/h[6] • Driver-cyclist collision rate decreased by 45%. (CMF = 0.55)[5] • Traffic volume reduction up to 27%[6]	• Potential increase in delay to EMS, transit travel time • Negative effects on snow plowing operations	$5,000 each	Speed Management
Curb Bump Outs	A horizontal intrusion of the curb into the roadway resulting in the narrowing of a localized section of the road. Typically implemented at intersections, but can be used mid-block.	Reduce vehicle speeds and volume, reduce pedestrian and cyclist crossing distances, increase the visibility of pedestrians, prevent parking close to intersections	• Vehicle speed reduction in 85th percentile speed up to 8 km/h[6] • Effectiveness improved when used in conjunction with other measures (e.g. speed humps)	• Forces cyclists closer to vehicle traffic at the intersection • Loss of on-street parking • Impact on EMS, truck, and transit turning movements • May require drainage adjustments • Range in construction costs driven by surface type (interlocking brick, asphalt, concrete), landscaping, and if utility improvements are required (relocating/installing and connecting catch basins, signals)	$5,000 – 15,000 per corner	Speed Management
Curb Radius Reduction	Modification of an intersection corner to a smaller Can be	Slow down right-turning vehicle traffic, reduce crossing distances for	• Particularly effective where vehicles are turning	• Range in construction costs for physical reductions driven	$10-000 - 20,000 per each corner (physical)	Major Intersection Treatment

[6] Canadian Guide to Traffic Calming (Second Edition) *Transportation Association of Canada (2017)*

	implemented with pavement markings and bollards, or by reconstructing the curb, sidewalk, and boulevard.	vulnerable road users, and improve the visibility of pedestrians.	to/from a bike boulevard to higher volume/speed streets	by surface type (interlocking brick, asphalt, concrete), landscaping, and if utility improvements are required (relocating/installing and connecting catch basins, signals) • Consider transit/EMS turning movements	$2,000 each (painted w/ Bollards)	Major Intersection Treatment
Mini Traffic Circle	A circular island located at the centre of an intersection, which requires vehicles to travel through the intersection in a counter clockwise direction, typically constructed with a raised centre and surrounded by a mountable apron.	Reduce travel speeds, volumes, and collisions points for vehicle traffic	• Vehicle speed reduction in 85th percentile speed up to 14 km/h[6] • Vehicle traffic volume reduction up to 20%[6] • Driver-cyclist collision rate decreased by 30%. (CMF = 0.7)	• Minor delay to EMS, transit travel speed and snow clearing operations • Range in construction costs for physical reductions driven by surface type (interlocking brick, asphalt, concrete), landscaping, and if utility improvements are required (relocating/installing and connecting catch basins)	$10-000 - 20,000 each	Minor Street Intersection Treatment
Raised Intersection	An intersection that may include crosswalks, constructed at a higher elevation than the adjacent approach roadways.	Reduce vehicle speeds, better define crosswalk areas, reduce frequency and severity of pedestrian/cyclist-vehicle conflicts	• Vehicle speed reduction in 85th percentile speed up to 10 km/h[6] • Improved driver to pedestrian yield rate from 18% to 54%[6] • Driver-cyclist collision rate increased by 9%. (CMF = 1.09) (slight increase in crash frequency)[4]	• Potential increase in delays to EMS, and maintenance (Transportation Association of Canada, Institute of Transportation Engineers, 2017) • Cyclist speeds are reduced at raised intersections where cyclists are not required to stop. (Transportation Association of Canada, Institute of Transportation Engineers, 2017) • Potential impact on local drainage (Transportation Association of Canada, Institute of Transportation Engineers, 2017)	$10,000 - $50,000 each	Major Intersection Treatment/Minor Street Intersection Treatment

Modular Pedestrian Traffic Diverter	150mm high pre-cast concrete blocks, 1m by 2.75m in size, which can be arranged to simulate various traffic calming measures such as curb and median extensions, mini-roundabouts or chicanes.	Act as a low-cost temporary or permanent option for implementing traffic calming.	• Average speed and 85th percentile speed reduction up to 3 km/h[7] • Speeding compliance improvement of 11% • Yielding compliance improvement of 47%[7]	• Ability to maintain existing drainage patterns • Can be used for permanent or temporary applications • Allows for planners/engineers to adjust the geometry after implementation	$1,000 per unit	Speed Management/Major Intersection Treatments

[6] Canadian Guide to Traffic Calming (Second Edition) *Transportation Association of Canada (2017)*

[7] Development, Construction and Operations of a New Traffic Calming Tool, City of Clagary, *Transportation Association of Canada (2017)*