Niagara Region

URBAN STRATEGIES INC.

Complete Streets for Niagara

A working method to visualize the creation of a complete street

June 20th, 2013

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Introduction and background of the report

In 2011, Healthy Living Niagara hosted an Active Transportation Summit to explore ways of making walking and cycling more accessible.

One of the key action items brought forward was the implementation of complete streets in municipalities throughout the region. In response, Niagara Region initiated the Complete Streets for Niagara project, which is intended to help direct the creation of a Regional complete streets policy and help local municipalities implement complete streets.

This document is intended to provide municipalities and stakeholders with tools for working with local communities to help visualize complete streets

Active Transportation Summi Nov. 2011

Discussion Paper June. 2011

Niagara Complete Project 2012/2013

What is a complete street?

Complete streets accommodate different kinds of movement and uses in an integrated street. The Complete Streets for Niagara project defines complete streets as:

"A public right-of-way in which the transportation facilities and adjacent land uses are planned, designed and constructed to accommodate users of all ages and abilities including pedestrians, bicyclists, transit vehicles, automobiles and freight traffic."

What can complete streets help us achieve?

Beyond simply allowing for different kinds of movement, complete streets serve a number of different functions that have social, economic, environmental and health impacts:

Social

The design of a complete street can help build a sense of place in a community by encouraging an inclusive, engaging public realm. As more people use the public realm the inevitable social interactions that happen can help build community cohesion and can even help reduce crime by providing 'eyes on the street'.

Economic

By creating a more varied and interesting public realm, complete streets often encourage the retention of smaller, locally-owned businesses, which contributes to a stronger local economy. Housing or businesses near or adjacent to complete streets often have higher property values because of their proximity to so many resources.

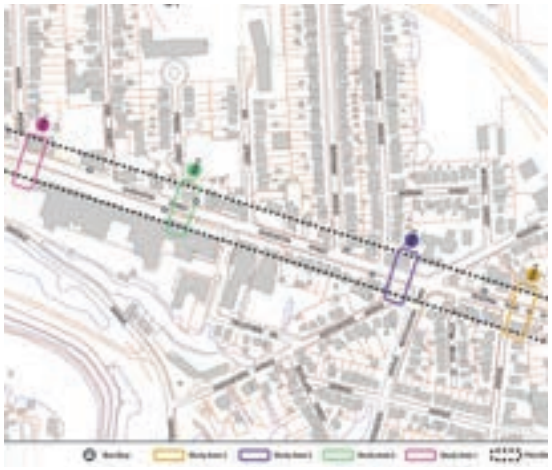
Environmental

The most immediate benefit of a complete street is its ability to reduce automobile use, subsequently reducing a reliance on fossil fuels and the production of greenhouse gasses. A complete street often contains plantings and street trees, which improve air quality and help moderate temperature.

Health

Complete streets can encourage walking and cycling as regular and frequent modes of travel. The subsequent increase in activity has a significant and positive impact on the health of local residents. Further, the design of a complete street can reduce accidents between cars, bicycles and pedestrians.

Primary site visit



Analysis of the pilot site

Walking audit

Designing and visualizing the pilot site

How this document is to be used

Niagara Region understands that great public policy comes from great public engagement.

There are often many competing objectives for a street and defining a 'vision' for a complete street will help set priorities and guide decision making. Each municipality in the region has specific road conditions, unique needs and best practices for local public engagement, and this document is not intended to be proscriptive about the process of creating a complete street.

Instead, this document is intended to help municipalities within the Niagara Region work with the public to create a vision and prioritize key elements for the implementation of local complete streets. The document includes:

- a straightforward explanation of the function of a complete street and what to consider when establishing a vision;
- a discussion of the physical elements that make up a complete street;
- a description of the methods and tools used during a pilot study for creating a vision for a complete street on Queenston Street in St. Catharines.

What to consider when establishing a vision for a street

Movement

There is more than one kind of movement on a street, and a well-designed complete street accommodates pedestrians, transit, cyclists and cars. Each form of movement has its own restrictions and the key to implement a safe street is to ensuring that one form of movement doesn't take precedence over any other.

For example, sidewalks should be wide enough to create a safe and comfortable environment for pedestrians and car lanes should be wide enough to accommodate the volume of traffic and the speed of vehicles.

The specific requirements for each type of movement will vary depending on the context, however each type of movement must be integrated into the street.

Sidewalks designed for different levels of mobility

Ability to accommodate transit

Provide safe spaces for cyclists

Accommodate both driving lanes and on-street parking

Active uses along the street helps create a vibrant and engaging environment.

Open spaces and plazas contribute to the public realm

Residential buildings can contain active uses at grade

Land use

Different land uses impact how a street functions. For example, shops and apartment buildings produce different kinds of pedestrian flow and have different impacts on street-related parking or sidewalk widths than housing or open spaces, which often require a setback from the street.

Offices and retail typically front onto the public realm, although institutional uses and office uses may have specific requirements, such as driveways or surface parking. Regardless of the type, each different land use places particular demands on a street.

A complete street will accommodate a variety of different uses, creating a more interesting and active street.

The public realm

The public realm is more than just the pavement between the front of a building and the road; it reflects the identity and character of a place. The public realm includes street trees, furniture, waste disposal and lighting and it should provide a safe and comfortable pedestrian experience. Consideration should be given to the conditions needed for healthy street trees, although plantings should not interfere with pedestrian mobility. Lighting helps increase the safety of the street and should be included and pedestrian amenities, such as information posts, garbage/recycling containers or benches contribute to a quality pedestrian environment. Overall, the public realm should be approximately 40% to 50% of the entire street width.

Street trees provide shade and increase the visual appeal of a street

Street plantings provide an interesting environment and improve the pedestrian experience

Well-placed street furniture encourages an active street life

Building size and orientation should contribute to a consistent street wall.

Building orientation and form

The massing of buildings and the way that they are oriented toward the street has a strong effect on the pedestrian experience. Buildings that front directly onto the street provide a more urban feel to the street, adding variety and interest, and often contributing to a sense of safety for pedestrians. Conversely, buildings with ample setbacks from the street produce a less urban condition and can create the perception of a wide, grand street. Regardless how far they are set back from the street, the setback line for buildings should be consistent along the length of the street and main entrances should be oriented to address the street.

Physical components of a complete street

Sidewalks

Sidewalks should provide enough room for comfortable pedestrian movement. The types of land uses lining the street should be taken into account, as should the volume of people using the sidewalk. Typically, a sidewalk should be at least 1.8 metres wide, although sidewalks may be wider if they are to accommodate street trees, plantings or street furniture.

Wider sidewalks can accommodate planting and street furniture and improve the pedestrian experience

1.5 m bike lane integrated with vehicular/on-street parking lane

Shared bike lane

Dedicated bike lane

Multi-use pathway

Cycling infrastructure

Cycling infrastructure is a critical component of a complete street, although the way that the infrastructure is implemented can vary widely. For example, bike paths can be curbed and fully separated from the vehicular roadway, or they can simply be painted as ‘sharrows’, which identify them as being included in the automobile lane. Typically, a one-way cycle lane should be at least 1.5 metres wide, although this may vary depending on the municipality or the width of the road. Consideration should be given to other forms of supportive infrastructure, such as bike-only crossing signals at key intersections or ‘bike boxes’ which allow cyclists to remain in front of cars when stopped at an intersection. Cycling infrastructure can extend beyond movement: bike lock posts can be located at key points along the sidewalk and protected bike lock stations can be built at the entrance to public buildings.

Transit infrastructure and furniture

Consideration should be given to how transit connections are integrated into the street. If stops have not been established, they should be located in close proximity to major intersections or at intersections with other modes of transit. If the opportunity exists, transit shelters or benches should be located at all stops.

Transit shelters for riders

Dedicated transit infrastructure incorporated into the street

Accommodating vehicles

Vehicular traffic must also be accommodated within the roadway and consideration must be given to the level of traffic, the number of traffic lanes, the direction of traffic, and whether the street needs to accommodate dedicated left- or right-hand turn lanes. Lanes are typically between 3.25 to 3.5 metres wide, although standards may vary depending on the municipality, the anticipated traffic volume, and the hierarchy of the street.

Traffic calming in a highly pedestrian enivironment

Accommodating parking and vehicular movement

Parking

On-street parking is an important amenity that can help support local retail, restaurants, and services by providing parking immediately adjacent to the use. Angled parking can accommodate a large number of parking stalls, however parallel parking minimizes the impact of the parking on the flow of cycling and vehicular traffic. Parallel on-street parking lanes are usually between 2.7 and 3.5 metres wide. Surface parking lots adjacent to the main street should be screened in order to minimize their impact on the pedestrian environment.

On-street parking

On-street parking integrated into the sidewalk

Off-street parking screened from the public realm

Boulevards and medians

Medians, in the centre of the street, can serve a number of different purposes, depending on their width. At their simplest, they can be used to separate opposing traffic lanes, however a planted median can be a valuable tool for enhancing the public realm. Wider medians present an opportunity to create linear parks or enhanced pedestrian connections. The creation of boulevards and street planting between the sidewalk and the roadway can significantly improve the public realm by creating a safety buffer between pedestrians and on-street vehicular traffic and producing a visually appealing environment.

Boulevards improve the quality and visual appeal of the street

Medians can provide shade, facilitate crossings or buffer lanes of opposing traffic

Street lighting and furniture

Complete streets must be safe for all users and street lighting is a key component of enhancing the safety of a street. Light standards can be designed for both pedestrian and vehicular movement, although municipalities will likely want to establish guidelines for the height and design of each standard to ensure that they fit within the surrounding context. Benches and street furniture contribute to a street by providing relief for pedestrians. Waste receptacles may also be located in close proximity to benches, allowing for easy waste disposal.

Lighting can add to the visual appeal and safety of a street

Garbage and recycling bins contribute to a clean street

Street furniture can improve activity on the street

Street furniture is an important respite for pedestrians

Signage and way-finding

Signage is critical to the function of a complete street and should include pedestrian and cyclist oriented signage in addition to signage for vehicles. Information posts can be used as place-markers, particularly in areas with a high volume of out-of-town visitors. Street signage can also help create a unified public realm if it is designed and implemented with other street furniture elements, such as street lighting, benches, and waste receptacles.

Signage designed exclusively for pedestrians

Information posts can be used to support tourism

Patios

Patios add vibrancy and life to a street. In areas with underused surface parking in front of buildings, patios can be encouraged in order to animate the street and bring the 'street wall' closer to the public realm.

Patios add to the vibrancy of the street

Patios should not compete with the pedestrian realm

Queenston Street: A pilot study

The Study

On December 8, 2012, Niagara Region hosted a workshop and walking audit. The event introduced the complete streets concept and used Queenston Street in St. Catharines as a pilot site to demonstrate what a complete street can look like in the Region. The Queenston Street corridor was chosen for its range of different roadway conditions and land uses.

The day began with a project overview and a presentation that provided precedents for a variety of complete streets in North America. The presentation was intended to introduce attendees to the project's objectives, goals and raise the issues and opportunities for implementing a complete street.

The presentation provided a foundation for how complete streets can support a range of transportation uses to effectively move cyclists, cars and public transportation while providing an engaging public realm for pedestrians. The study team also provided participants with a "tool kit" of general standards, guidelines and infrastructure required for implementing complete streets.

The following section describes the agenda and room set-up for the day and illustrates the materials that were used to facilitate the study. The section provides the outcome of the visioning session and concludes by offering two examples of illustrations that show how the vision for Queenston Street could be implemented over time.

Agenda

11:00 – 11:45 45 minute presentation about complete streets, which focused on:

- What is a Complete Street?
- Regional Model Polices and Recommendations for Implementation
- Overview of Existing Conditions and City Policy
- Precedents: what Queenston Street could be like
- Components of a Complete Street

11:45 – 12:35 A Walking Audit

12:35 – 12:50 Lunch Break

12:50 – 1:40 Break-out Session

1:40 – 2:00 Report Back and Next Steps

Room set-up

The room was set up to include a welcome table, with the following items:

a. A staffed registration table with sign-in sheets

b. Agendas and walking audit hand outs and maps for each participant

c. Participant name tags with coloured dots to correspond to break out groups

d. Feedback forms

Room logistics

a. Projector, laptop, screen, microphone

b. 40 chairs (+/-) set up to view presentation

c. 4 tables set up for break-out sessions with 7-8 chairs at each (client); table to be big enough for 3x5 foot plots

d. 5 sets of section & plan drawings (plotted at 3x5 feet), station photos, box of markers, trace, tape, study area aerial map, typical dimensions, break-out instructions

e. 5 easels and flipcharts with markers; 1 set up at each break out table

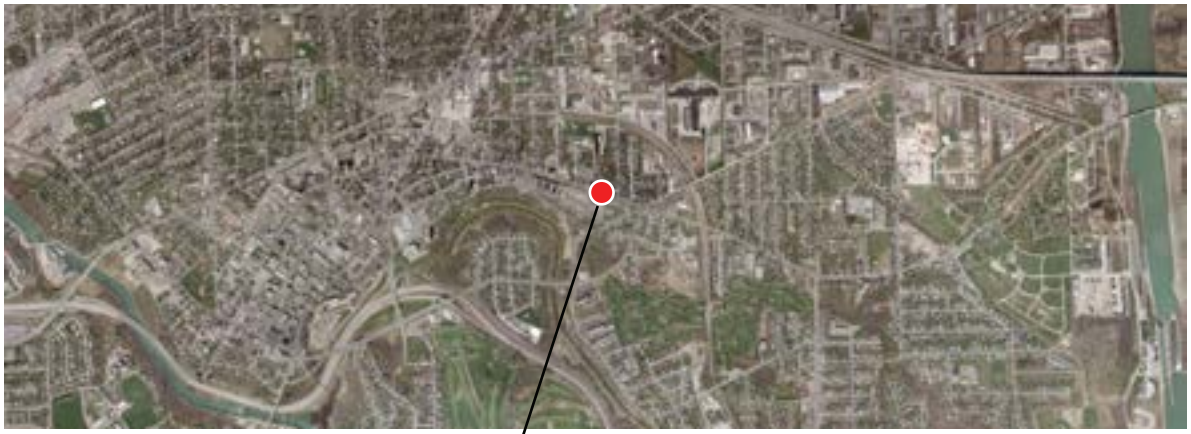
Street component check-list

The street component checklist outlines the key components of a complete street. It was used in the visioning session as a way of facilitating discussion about what components could be integrated into a local complete street. The checklist was not exhaustive, but provided an example of a tool that can be used to help create the vision of a complete street.

Study area analysis

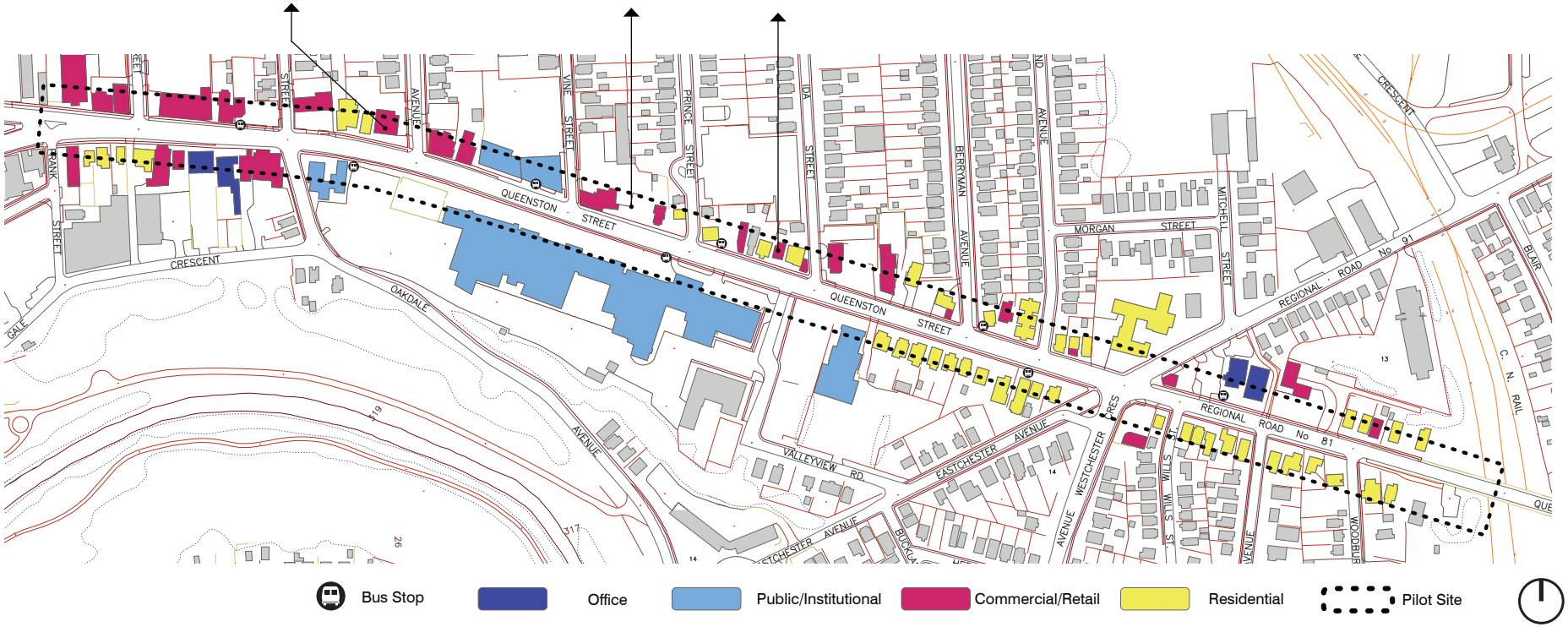
The study area was designed to include as broad a seciton of Queenston Street as possible. The easternmost portion of the study area was in important addition, as it reflected the transition of the street from a Regional Road to a local street.

The following pages illustrate the various elements of the study area analysis.



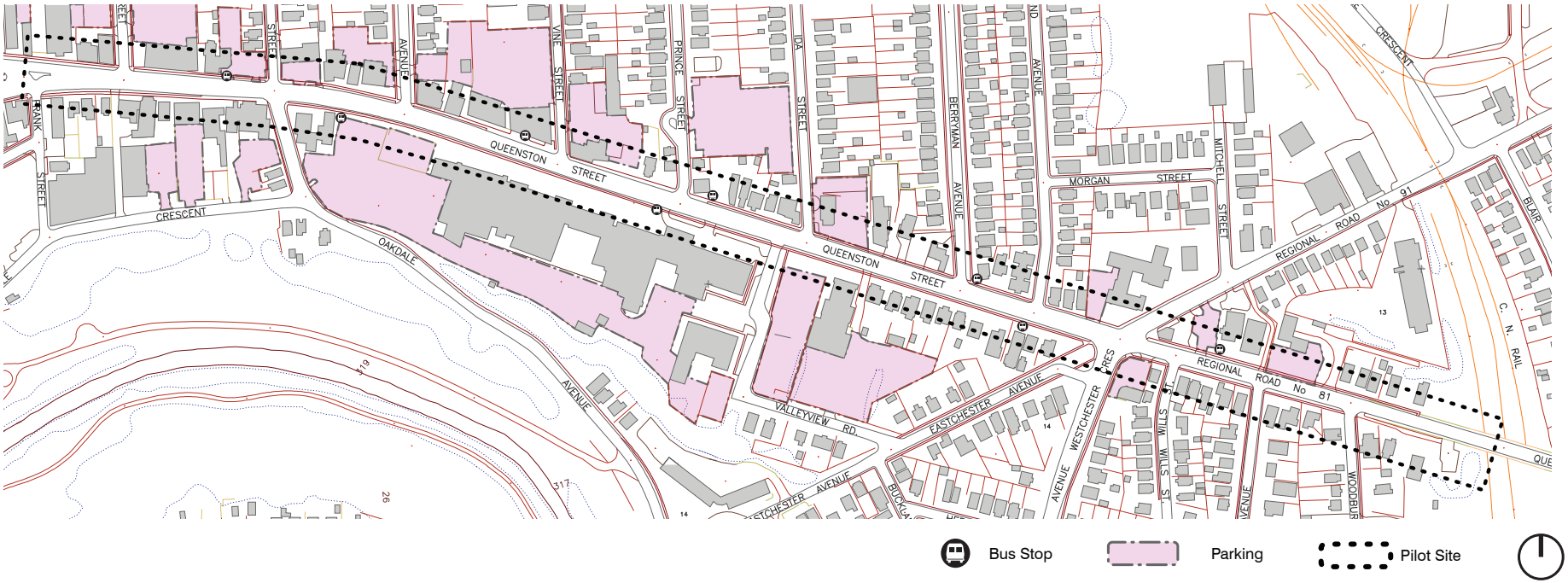
Land use

An analysis of the land uses identified and illustrated how the street was currently used, which allowed for a better understanding of the types of movement and uses the street might need to accommodate.



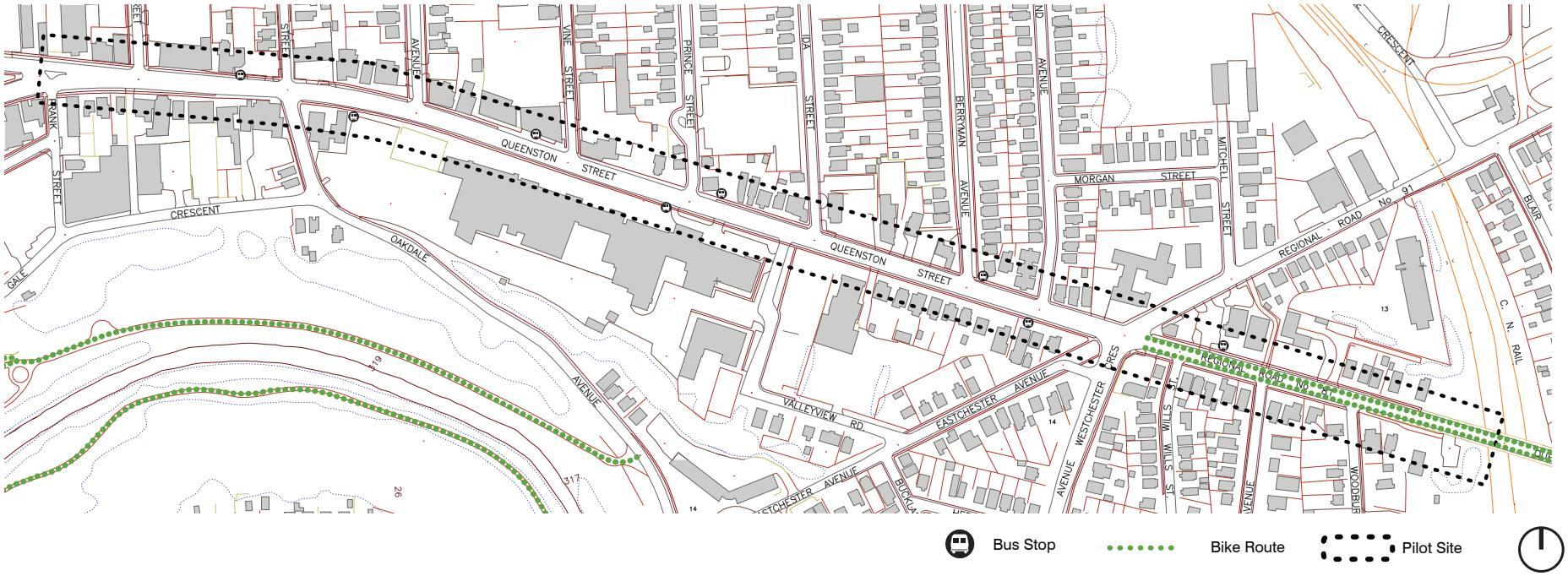
Parking

A parking analysis helped identify if on-street parking would be required or if there was sufficient capacity in lots adjacent to the street. A time of use study would help refine how and when surface lots are used and would help gain a better understanding of local parking capacity.



Bike network

An understanding of existing (or proposed) bicycle networks is critical for establishing a vison of a complete street. On Queenston Street, for example, some kind of cycling infrastructure would be a critical component of the street, as there are existing bike lanes on the Regional Road.

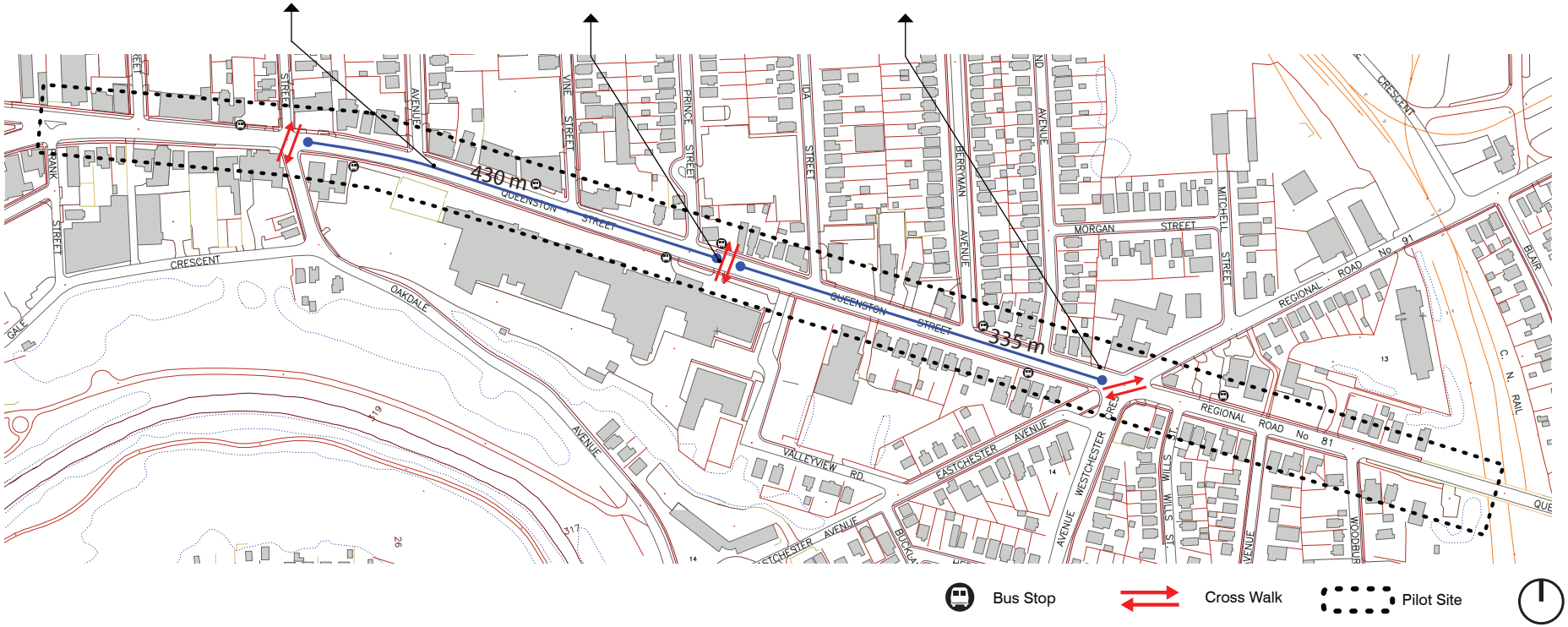


Transit

A transit analysis showed the major transit routes in the area surrounding Queenston Street and illustrated the location of bus stops and/or bus shelters.

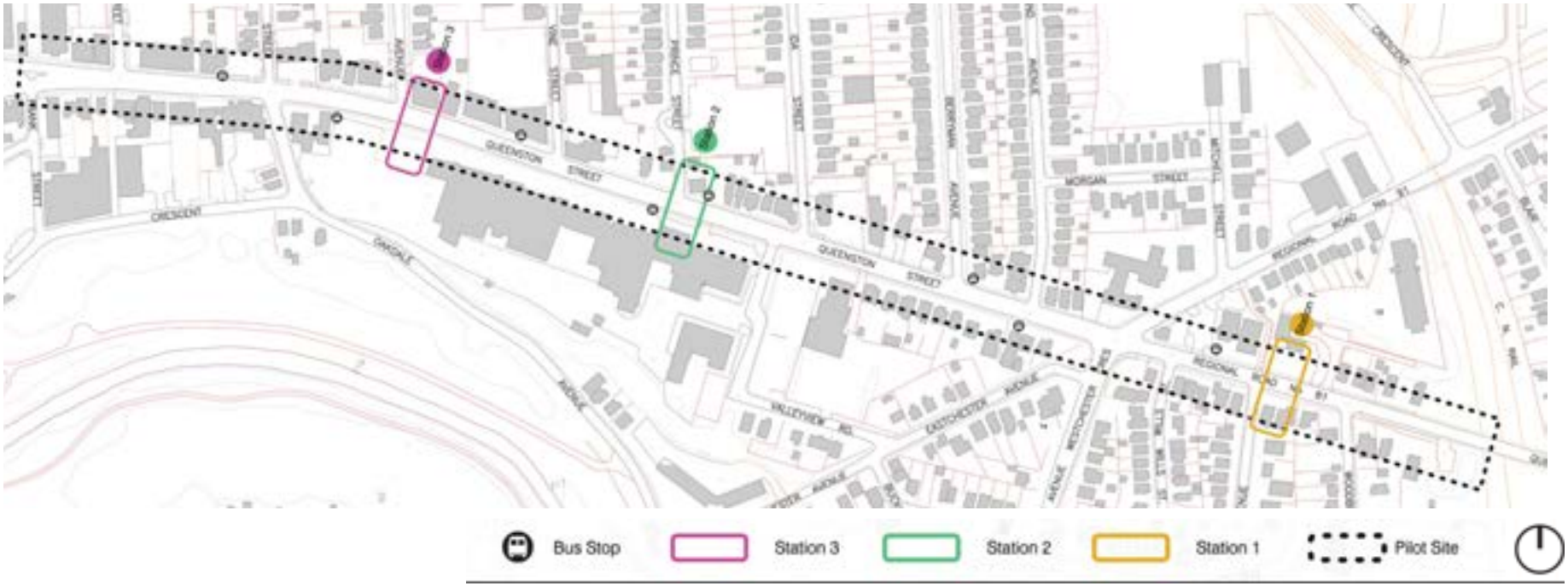
Crosswalks

The identification of crosswalks helped facilitate a discussion about pedestrian connectivity and allowed participants to highlight key crossing points and issues of safety.



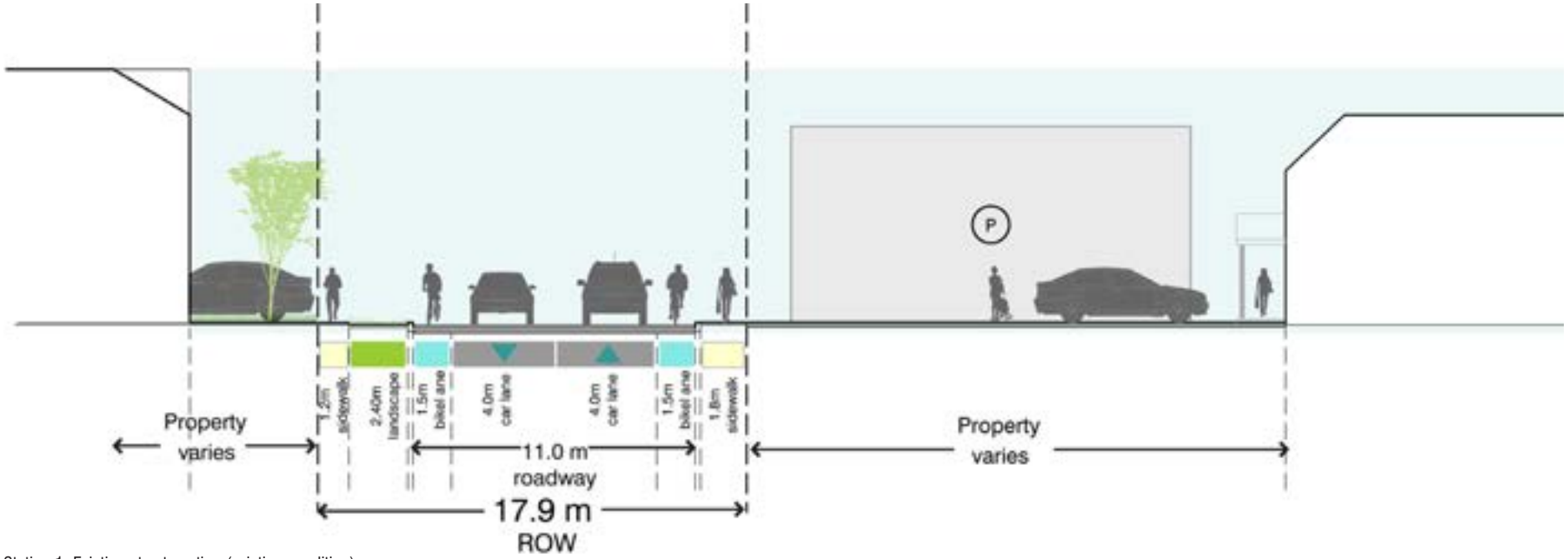
Study area and station analysis

In order to facilitate discussion during the walking audit, the study team created street sections for three different parts of Queenston Street. The sections were used as a tool for discussing how the character of the street changes and how a complete street would incorporate these different conditions.



Station 1

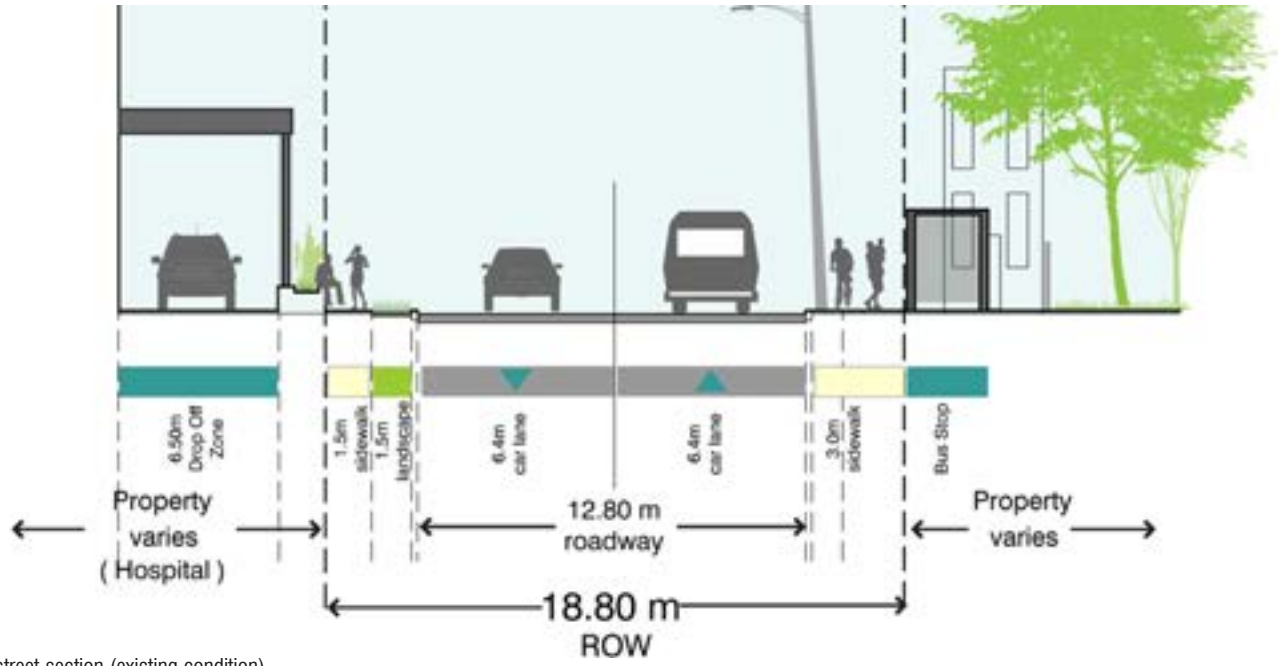
Regional Road 81 facing west



Station 1: Existing street section (existing condition)

Station 2

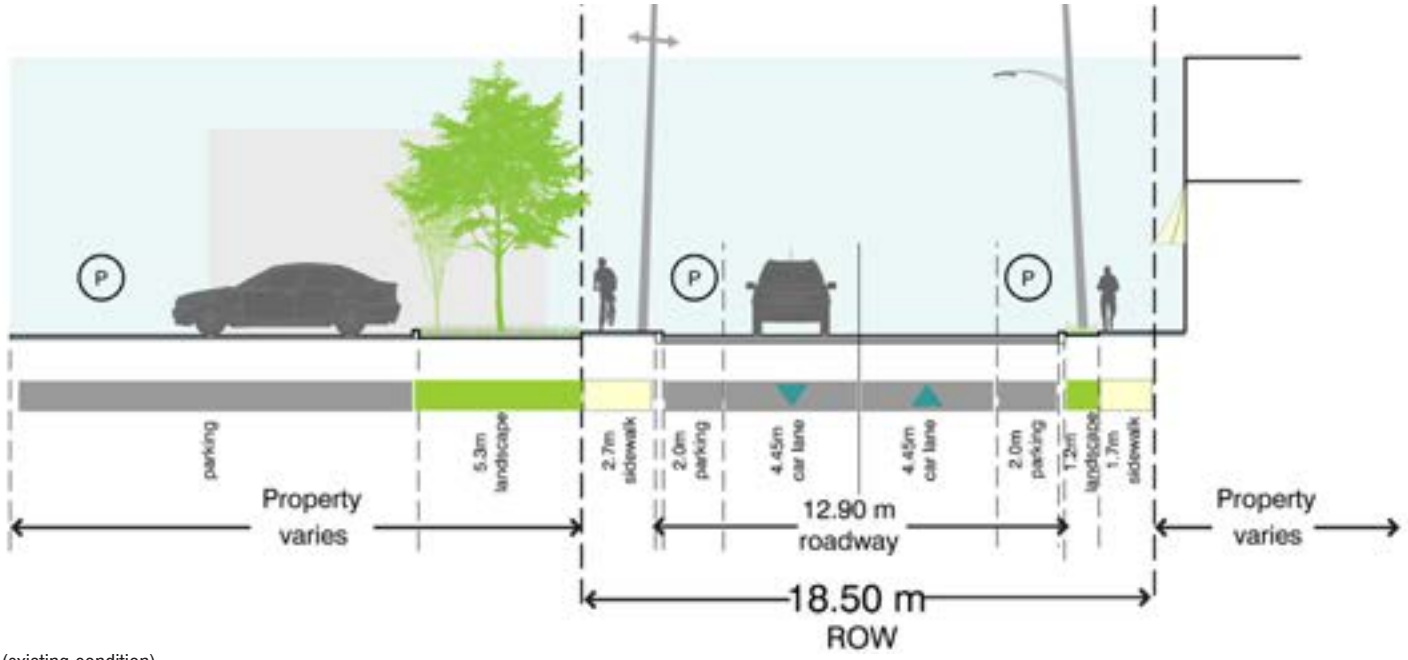
Queenston Street at Prince Street facing west



Station 2: Existing street section (existing condition)

Station 3

Queenston Street facing west



Station 3: Existing street section (existing condition)

Walking audit

The visioning session took participants on a walking audit of the pilot site – Queenston Street between Oakdale Avenue and the railway corridor. Attendees were provided with an area map detailing the walking audit route and three cross-sections of Queenston Street. The cross-sections represented three stopping points to discuss existing issues with the street and adjacent land uses. The goal of the walking audit was to help attendees visualize and discuss how the street could be improved and transformed into a complete street. Bringing the public to the pilot site also helped the Consultant Team determine areas to target for improvement.

Visioning exercise

After the walking audit, participants returned to the meeting venue to discuss their ideas and vision for transforming Queenston Street into a complete street. Participants were divided into two breakout roundtable groups and were asked to define their vision for the street using the key components presented to them in part one and their observations from the walking audit.

Discussion Points from Table 1:

Participants expressed the need for creating mixed-use spaces and transportation options for people with disabilities who cannot drive. This suggestion was informed by the supportive housing within the pilot site.

It is imperative that the street complement Queenston Street's diverse population. The street should support its local land use context and community and be designed to be accessible to everyone.

The street should promote cycling and walking through bicycle lanes, crosswalks, seating, and ample sidewalk widths. Bicycle lanes should also be provided on both sides of the street to serve as a traffic calming measure. Due to the limited width of the street, dedicated turning lanes should be removed to allow for bike lanes.

The suggestion to eliminate on-street parking to provide more pedestrian amenities was also expressed. However, it was also discussed that local businesses and restaurants rely on on-street parking to attract patrons and eliminating such parking would be detrimental to the street's economic viability.

Key Infrastructure Suggestions from Table 1:

- Provide a bicycle lane and sidewalk that are both 1.2 metres wide on the south side of the street
- Provide a bicycle lane that is 1.2 metres wide and sidewalk that is 1.8 metres wide on the north side of the street
- Retain two 2 meter wide landscaped planting strips on both sides of the street
- Limit car lane widths to 3.5 metres
- Consider a traffic circle at the Queenston-Eastchester intersection to improve pedestrian safety
- Install bicycle lanes and sidewalks on Prince Street to connect between the school and Queenston Street
- Eliminate on-street parking
- Provide a public park in front of the General Hospital to create a linear park
- Increase tree canopy
- Implement traffic calming measures

Discussion Points from Table 2:

Participants at table two commented that most residents in the immediate Queenston neighbourhood do not drive and that the street needs to be accessible to all residents.

Drive-thru restaurants should be eliminated because they create traffic and pollution in a neighbourhood that does not have a high rate of car ownership.

Queenston Street should host a mix of uses to support the local community - a grocery store and bank were noted as critical necessities. Street cafes should be encouraged to activate the street.

Parking should be located behind buildings and on-street parking should be limited to the north side of the street where there are more businesses and retail stores. Car lanes should be narrowed to provide pedestrian and cycling amenities.

Sidewalk widths need to be widened to encourage walking and hydro-electric poles should be placed underground in order to provide latitude for implementing improvements to the street. A culture of jaywalking needs to be fostered to make the street oriented towards the pedestrian.

Key Infrastructure Suggestions from Table 2:

- Eliminate on-street parking on the south side of the street
- Narrow existing car lanes
- Widen existing sidewalks and remove overhead hydro-electric poles underground

A vision for Queenston Street

After the roundtable discussions, participants were invited to share their table's suggestions for improving Queenston Street. The following are an overall vision both tables shared for the renewal of Queenston Street and key infrastructure directions for turning the Queenston Street into a complete street.

Vision Elements for Queenston Street

- Provides uses for the neighbourhood that create a "complete community"
- Create a street that is accessible to all, on a pedestrian scale (i.e. wheelchairs, scooters) and focused on local residents
- Continue to serve as a corridor for medical services
- Ensure the street supports the socio-economic character of the neighbourhood
- Serve as a wine route to support the Region's wine industry

Infrastructure Directions for Queenston Street:

- bicycle lanes and cycling facilities
- accessible curbs for people with disabilities
- traffic calming measures
- pedestrian crosswalks with countdown timers and mid-block crossings
- limited on-street parking
- pedestrian realm improvements (i.e. mixed use spaces, sidewalk cafes)

Illustrating the vision

After the visioning session, the study team incorportated the vision elements and infrastructure directions into a series of illustrations that showed how complete streets could be implemented over time at two locations on Queenston Street.

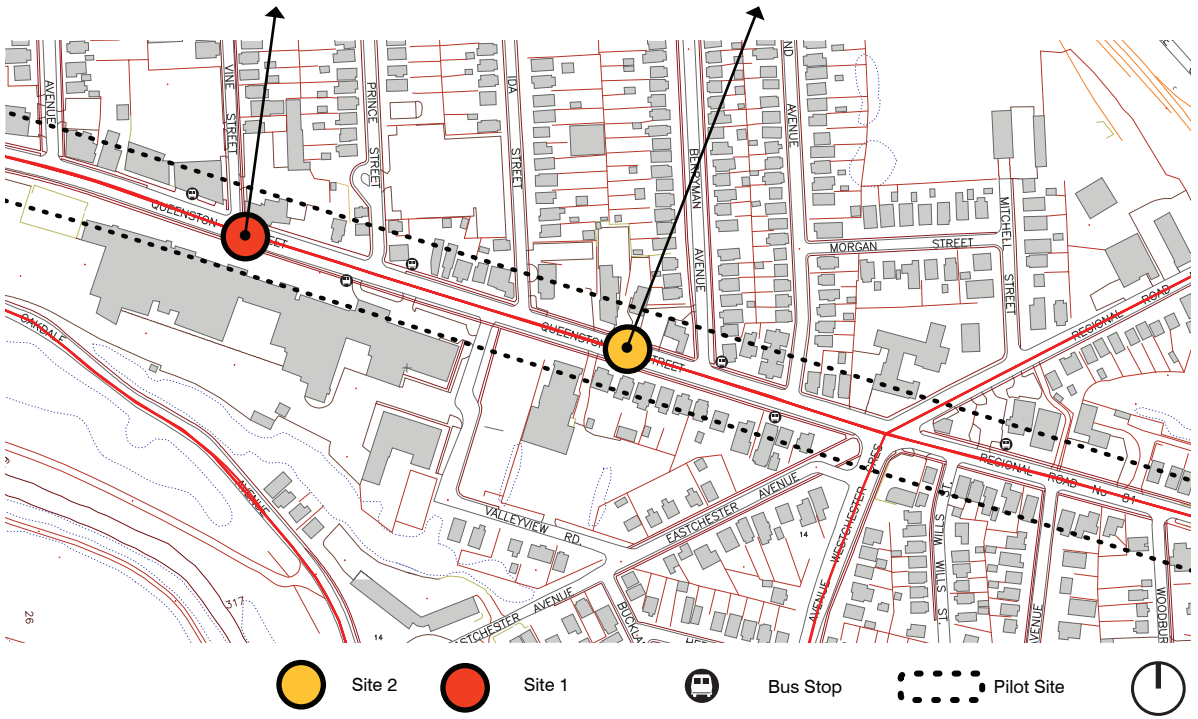
The vision includes:

- an improved pedestrian realm;
- two one-way bicycle paths;
- two traffic lanes with no impact on traffic movement;
- improved transit facilities;
- on-street parking on the north side of the street;
- additional crosswalks;
- street-trees;
- patios on select properties;
- future private development.

Two visualizations were created (Site 1 and Site 2) which are illustrated on the following pages.

Queenston Street at Vine Street facing west

Queenston Street at Berryman Avenue facing west



Site 1: Existing condition

Phase One: Roadway and crosswalk improvement

Phase Two: Public realm improvement

Phase Three: Private development improvement

Site 2: Existing condition

Phase One: Roadway and crosswalk improvement

Phase Two: Public realm improvement

Phase Three: Private development improvement

Phase Four: Further Private Intensification