Rapid Transit
Environmental Assessment

Phase 2
Public Information Session and Workshop

September 21, 2006
St. Andrew's Presbyterian Church,
54 Queen St. N., Kitchener
6-9 p.m.

INFORMATION HANDOUT AND COMMENT SHEET

Region of Waterloo

DRAFT

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This Information Handout contains the following information:

Attachments:

Background

Waterloo Region is one of the fastest growing communities in Canada. With a population of 500,000, and expected growth to 729,000 within the next 25 years, the Region is planning now for the challenges and opportunities associated with population and employment growth.

In 2003, Region of Waterloo Council unanimously adopted the Regional Growth Management Strategy, a long-term strategic framework that identifies where, when and how future residential and employment growth will be accommodated. The strategy sets out strong and innovative policies for managing growth in urban areas and townships of the Region and includes rapid transit as a key element that will help shape the future of the community.

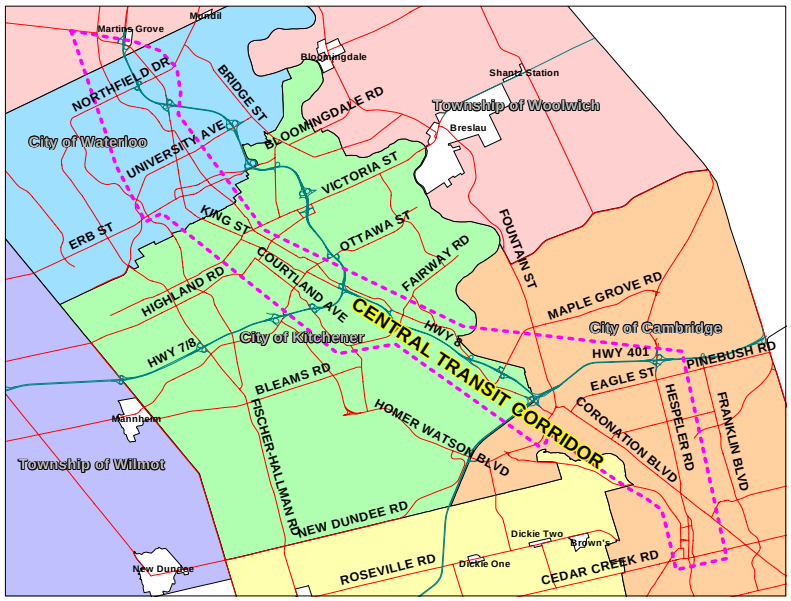
Rapid transit is also a significant part of the Province's Growth Plan for the Greater Golden Horseshoe. The Plan designates the Cities of Cambridge, Kitchener and Waterloo as Urban Growth Centres (UGCs), where much of the anticipated future population and employment growth will be directed, and calls for the development of a rapid transit system to connect the UGCs to the larger provincial transportation network.

A rapid transit service linking Cambridge, Kitchener and Waterloo with enhanced transit services throughout the Region will benefit the entire community. By providing greater transportation choice and attracting more riders, rapid transit will help address existing congestion and aid in preventing even greater levels of congestion in the future. In addition, rapid transit will help attract residential and commercial development along its route and around rapid transit stations, which will help the Region achieve Provincial and Regional targets for reurbanization and the protection of agricultural and sensitive environmental areas.

Purpose of this Public Consultation

The Region of Waterloo is carrying out an Individual Environmental Assessment (EA) for the development of a rapid transit system in the Region's Central Transit Corridor (please see Exhibit 1 below and Appendix A for more detailed maps) that extends from Cambridge through Kitchener to Waterloo.

Exhibit 1: Central Transit Corridor Map



In July 2006, Regional Council approved Phase 1 of the Environmental Assessment and selected the Rapid Transit Initiative as the preferred transportation strategy for Waterloo Region. The Region is now moving forward with Phase 2 to select the rapid transit technology, route and station locations.

Public input is an essential and ongoing component of

the Rapid Transit Environmental Assessment. The purpose of the public consultation process in Phase 2 is to get public input on how the various rapid transit technologies, route and station locations meet the goals of the Regional Growth Management Strategy and Places to Grow and contribute to the quality of life in Waterloo Region.

This input, along with the approved selection criteria from the Environmental Assessment's Terms of Reference, will be used to shortlist various route designs and technologies. These will then be studied further along with potential routes and station locations to ensure the short-listed technologies can be reasonably accommodated within the physical and environmental landscape created by roadways, rivers, bridges, and urban development.

There will be at least four public consultation meetings throughout Phase 2 and the results of each assessment and evaluation carried out in Phase 2 will be provided for public input. The public consultation process will also provide an opportunity for the public to ask questions of the project team about Phase 2 and the Environmental Assessment process. At the conclusion of the Public Consultation process for Phase 2, feedback received will be considered, and a Preferred Rapid Transit System will be presented to Regional Council for consideration.

What is the Rapid Transit Initiative?

The Region of Waterloo is proposing to develop a rapid transit system within the Central Transit Corridor (shown in Exhibit 1 and Appendix A) identified in the Regional Growth Management Strategy. Rapid transit will provide residents of Waterloo Region with greater transportation choice, promote reurbanization and intensification, improve air quality and public health, provide a more balanced and integrated transportation system, and protect the rural countryside against urban population and expansion pressure.

The Terms of Reference for the Region of Waterloo Environmental Assessment defines the Rapid Transit Initiative as:

A proposed rapid transit system that is:

- Located within the primary reurbanization area and Central Transit Corridor identified in the Regional Growth Management Strategy; and
- Connects the Region's downtown core areas.

It includes one or more proposed:

- Rapid transit technologies;
- Transit routes;
- Stations;
- Facilities to connect rapid transit with other transportation modes; and
- Maintenance and storage operations facilities.

Definition of Rapid Transit:

Rapid transit is defined as a public transportation system operating for its entire length primarily on a dedicated transit lane. The definition includes systems operating at road level, and systems operating on elevated or underground facilities.

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Rapid transit involves new forms of transit service designed to improve travel time, reliability, passenger comfort and convenience in order to be more competitive with car travel.

What is an Individual Environmental Assessment?

An Individual Environmental Assessment is a process used in Ontario to determine the potential impacts a project may have on the social, economic, cultural and natural environment so that the best possible decisions can be made for such projects. In July 2005, the Ontario Minister of the Environment approved the Terms of Reference for this Rapid Transit Environmental Assessment. The Terms of Reference provide the Region with binding approval on what must be addressed in its Environmental Assessment. This project is being carried out in accordance with the *Ontario Environmental Assessment Act* and will be coordinated within the requirements of the *Canadian Environmental Assessment Act*.

To view a copy of the Terms of Reference, please visit the Region's website at www.region.waterloo.on.ca/transitea.

The Region of Waterloo Rapid Transit Environmental Assessment is proceeding in three phases:

PHASE 1: ASSESSMENT OF THE RAPID TRANSIT INITIATIVE AND ALTERNATIVE TRANSPORTATION STRATEGIES – COMPLETED JULY 2006

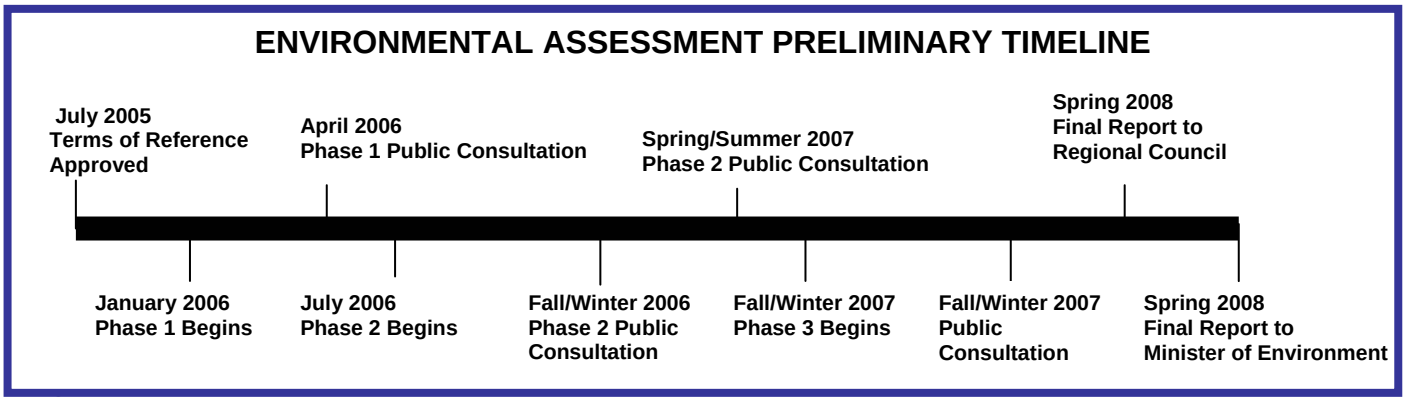
- The Rapid Transit Initiative was selected as the Preferred Transportation Strategy at the July 12, 2006 Regional Council meeting.

PHASE 2: ASSESSMENT OF ALTERNATIVE METHODS OF CARRYING OUT THE PREFERRED TRANSPORTATION STRATEGY

- Further benefits and effects of rapid transit technologies, route designs and station locations will be evaluated
- Alternative technologies, route designs and station locations will be assessed, and a preferred rapid transit system identified

PHASE 3: ASSESSMENT OF THE PRELIMINARY DESIGN OF THE RAPID TRANSIT SYSTEM AND THE PREFERRED METHOD FOR IMPLEMENTATION

- All reasonable measures to avoid or mitigate any adverse impacts of the selected Rapid Transit System will be considered



What is Phase 2?

The purpose of Phase 2 is to evaluate and rank rapid transit route designs, technologies, routes and station locations in consultation with the community, and select a Preferred Rapid Transit System that best meets the goals set out in the Regional Growth Management Strategy.

All comments and information collected during Phase 2 will be considered in developing a Preferred Rapid Transit System.

Phase 2 will be completed in three steps with public consultation throughout each step and approval by Regional Council at the conclusion of each step:

STEP 1: SCREENING OF ALTERNATIVE TECHNOLOGIES AND ROUTE DESIGNS

The Region has identified a wide range of rapid transit technologies to be evaluated. For this Environmental Assessment, rapid transit technologies and route designs identified in the Terms of Reference for consideration are briefly described below:

Dedicated On-Road (separate bus/rail lane); Dedicated Off-Road (transitway/rail line); Mix of On and Off Road

- Bus Rapid Transit (BRT) – buses operating in some form of exclusive transit lanes;
- Light Rail Transit (LRT) – uses rail technology for vehicles in an exclusive off-road right-of-way, exclusive on-road route or mixed on-off road route, and using overhead electric or hybrid diesel-electric propulsion;

Dedicated Off-Road (separate rail line)

- Commuter Rail – typically involves locomotives hauling a train of passenger cars in a rail right-of-way, sometimes sharing track with freight trains;
- Diesel Multiple Units (DMU) – self-propelled rail cars using diesel propulsion in an exclusive rail right-of-way;

Grade Separated (either above or below ground)

- Aerobus – vehicle suspended from cables;
- Automated Guideway Transit (AGT) – uses fully automated driverless trains with fully grade-separated operations typically on an elevated guideway;
- Magnetic Levitation (Maglev) – where the vehicle is magnetically lifted, guided and propelled by a wave of magnetic energy on an elevated guideway;

- Monorail – fixed guideway transit mode using a series of electrically powered vehicles that straddle atop, or are suspended from a single elevated guideway beam;
- Personal Rapid Transit System (PRT) – electrified driverless car usually designed to move small numbers of people over short distances; and
- Subway or Metro (heavy rail) – typically grade separated high capacity passenger rail cars operating in trains of two or more cars with electric propulsion on fixed rails in an exclusive right-of-way.

More information on these technologies can be found in Appendix B.

In consultation with the public, a short list of rapid transit route design and technologies will be determined using the pass/fail criteria set out in the Terms of Reference:

Screening Criteria	Pass/Fail Questions
RGMS Reurbanization	Is the route design consistent with municipal urban design, intensification and reurbanization objectives?
Service Quality	Are there proven applications of the method in comparable settings?
Threshold Capacity	Is the capacity of the method appropriate for the expected demand?

Short-listed technologies that pass the screening test in Step 1 will be combined with specific route and associated station location alternatives, creating a list of reasonable alternative rapid transit options for each of the seven sections of the entire EA study area. Those that do not meet the screening criteria will be eliminated from further consideration. The short list will be brought to the community for input and Regional Council for consideration before proceeding to Phase 2, Step 2.

STEP 2: EVALUATION AND RANKING OF REASONABLE TECHNOLOGIES, ROUTE AND STATION LOCATIONS

For the purposes of the Environmental Assessment, the Central Transit Corridor has been designated as the Study Area (Please see Appendix A). During Step 2, the short-listed route designs and technologies will be studied further in the context of specific route locations within the seven study area sections listed below:

Section 1: Uptown Waterloo North
Section 2: Uptown Waterloo to Downtown Kitchener
Section 3: Downtown Kitchener to South Kitchener (Fairview Park Mall)
Section 4: South Kitchener to Cambridge (Preston)
Section 5: Preston Towne Centre to the Delta
Section 6: Hespeler Road Section
Section 7: The Delta to South Cambridge

Each of the rapid transit alternatives for the seven sections will be evaluated and ranked and brought to the community for input and Regional Council for consideration before proceeding to Step 3.

STEP 3: EVALUATION OF RAPID TRANSIT SYSTEM ALTERNATIVES AND SELECTION OF PREFERRED SYSTEM

The results of Step 2 will be a series of rankings for each technology and route design alternative within each of the seven sections of the Study Area. The purpose of Step 3 is to identify the combinations of these alternatives that could create a reasonable Rapid Transit System, and evaluate these combinations to identify a Preferred Rapid Transit System for the entire Central Transit Corridor.

Provide Your Input!

The Region of Waterloo requests input from the public on the questions offered on the attached Comment Sheet. All comments and information collected during Phase 2 will be considered during the selection of a Preferred Rapid Transit System.

What Happens Next?

The project team will review all input received during the public consultation process. During this review, the project team may also contact and respond to agencies, stakeholders and individuals wishing to discuss any aspect of the Phase 2 evaluation and comment on Rapid Transit technologies, routes and station locations.

At the conclusion of the Public Consultation process for Phase 2, the Project Team will present the Preferred Rapid Transit System to Regional Council for consideration.

Should Regional Council approve the Preferred Rapid Transit System, Phase 3 of the Environmental Assessment will begin with an initial preliminary design of the Preferred Rapid Transit System. Phase 3 will include additional opportunities for public input and involvement. (Please see the Environmental Assessment Preliminary Timeline on Page 5).

How Do I Stay Informed?

Public consultation is a critical and ongoing part of the Environmental Assessment Process. The approved Terms of Reference, Phase 1 Report, and other study information is available on the Region's website at www.region.waterloo.on.ca/transitea. The website will be updated regularly with information and notice of future public consultation events. If you would like to have your name added to the project mailing list, please go to the website and use the Sign Up feature, or provide your name, postal address, e-mail address and any group affiliation to:

Rapid Transit Environmental Assessment
Region of Waterloo
150 Frederick Street, 8th Floor
Kitchener, ON N2G 4J3
Phone: 519-575-4757, ext. 3242
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Yanick Cyr, P. Eng., CFM
Project Director

COMMENT SHEET
Rapid Transit Environmental Assessment (EA)
Phase 2

Please complete and hand in this Comment Sheet in the Comment Box so your views can be considered during the assessment of a preferred rapid transit system for Waterloo Region. If you wish to prepare your comments later, please mail, fax or e-mail your comments no later than **September 29, 2006** to:

Rapid Transit Environmental Assessment
150 Frederick Street
Kitchener, ON N2G 4J3
Phone: 519-575-4757, ext. 3242
Fax: 575-4449
E-mail: rtinfo@region.waterloo.on.ca

1. What major destinations in the Study Area should rapid transit serve?

_____
_____
_____
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2. Considering current and future nodes of activity in the Region, where should rapid transit stations be located in the Study Area? (Please use maps provided)

_____
_____
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_____

3. Considering the characteristics of rapid transit technologies (Appendix B), which routes would you use to connect the stations? (Please use maps provided)

4. In your opinion, what are the most important characteristics for a rapid transit system in Waterloo Region?

5. Was the format and content of the information presented at this Information Session and Workshop informative and useful to you?

5. How would you like to be kept informed about the progress of the Rapid Transit Environmental Assessment?

_____
_____
_____
_____

Other Comments:

_____
_____
_____
_____
_____
_____
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_____

How did you find out about this meeting? _____

Your name:_____

Mailing Address:_____

Postal Code: _____

Phone Number:_____

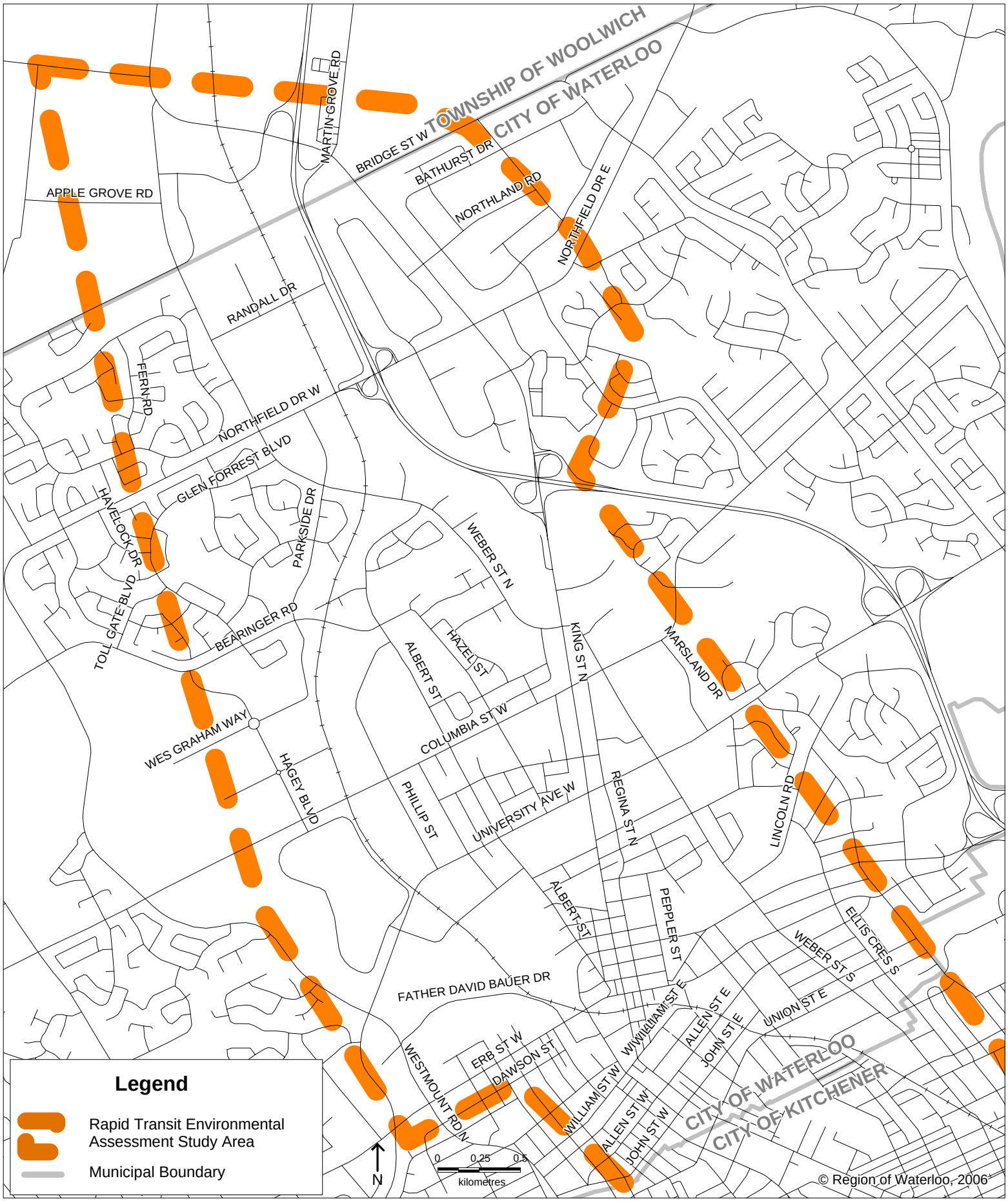
Email: _____

Please fill in all contact information, including E-mail, if you would like to be added to the Rapid Transit Contact List and receive notification of project updates and upcoming events and meetings. You can also sign up on-line at www.region.waterloo.on.ca/transitea.

Thank you for your input.

COLLECTION NOTICE: All comments and information received from the public, stakeholder groups and agencies regarding the EA project are being collected to assist the Region in meeting the requirements of the OEAA and CEAS. Under the *Freedom of Information and Protection of Privacy Act* and the *Environmental Assessment Act*, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in the submission from the public will become part of the public record files for this matter and can be released, if requested, to any person.

Appendix A Rapid Transit Environmental Assessment Study Area Map 1 of 3

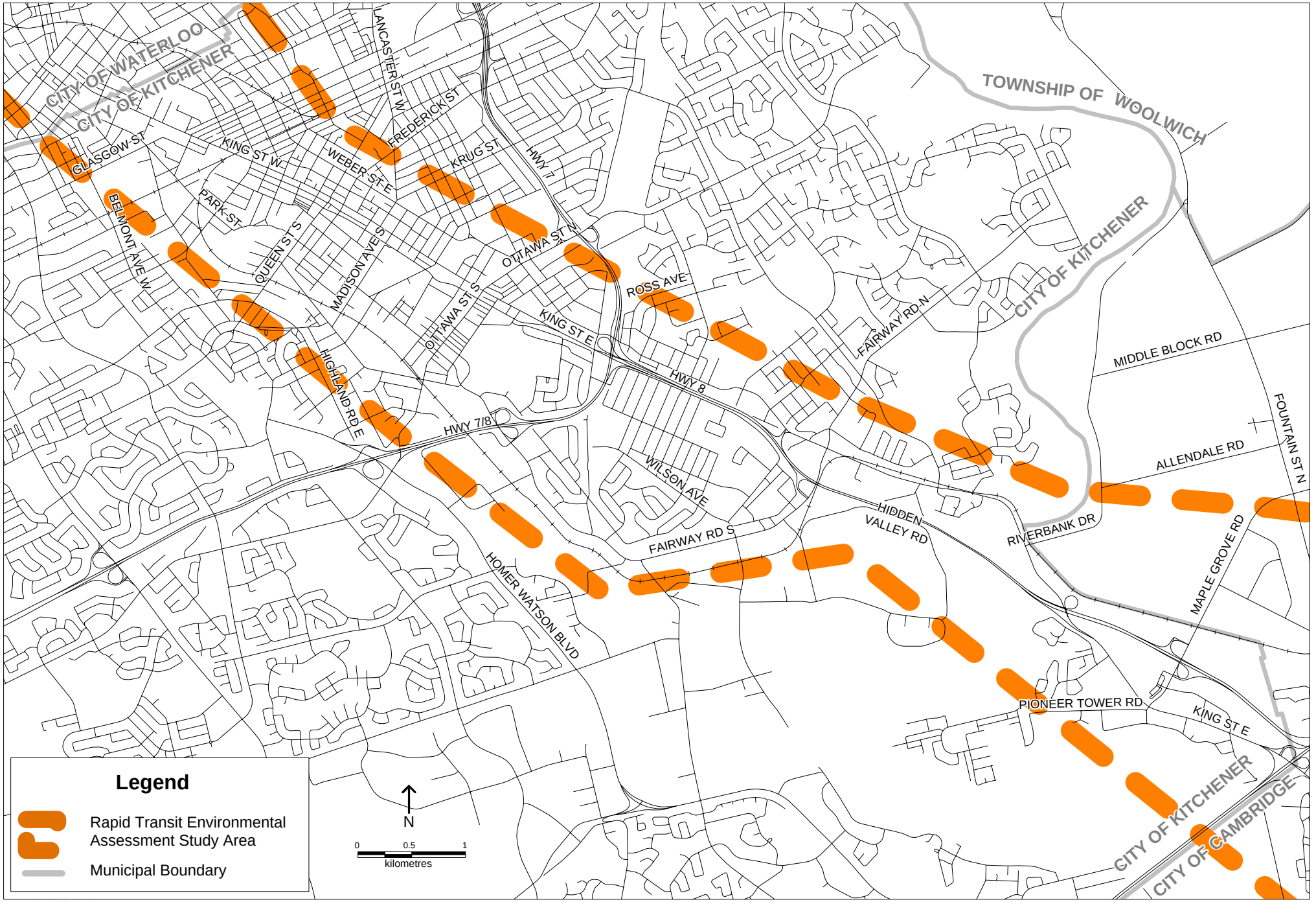


Sources: Rapid Transit EA Study Area: Region of Waterloo, Planning Information & Research, 2005
Municipal Boundaries: Region of Waterloo, Planning Information & Research, 2005

Region of Waterloo

Produced by Planning, Housing & Community Services, June 2006

Map 2 of 3



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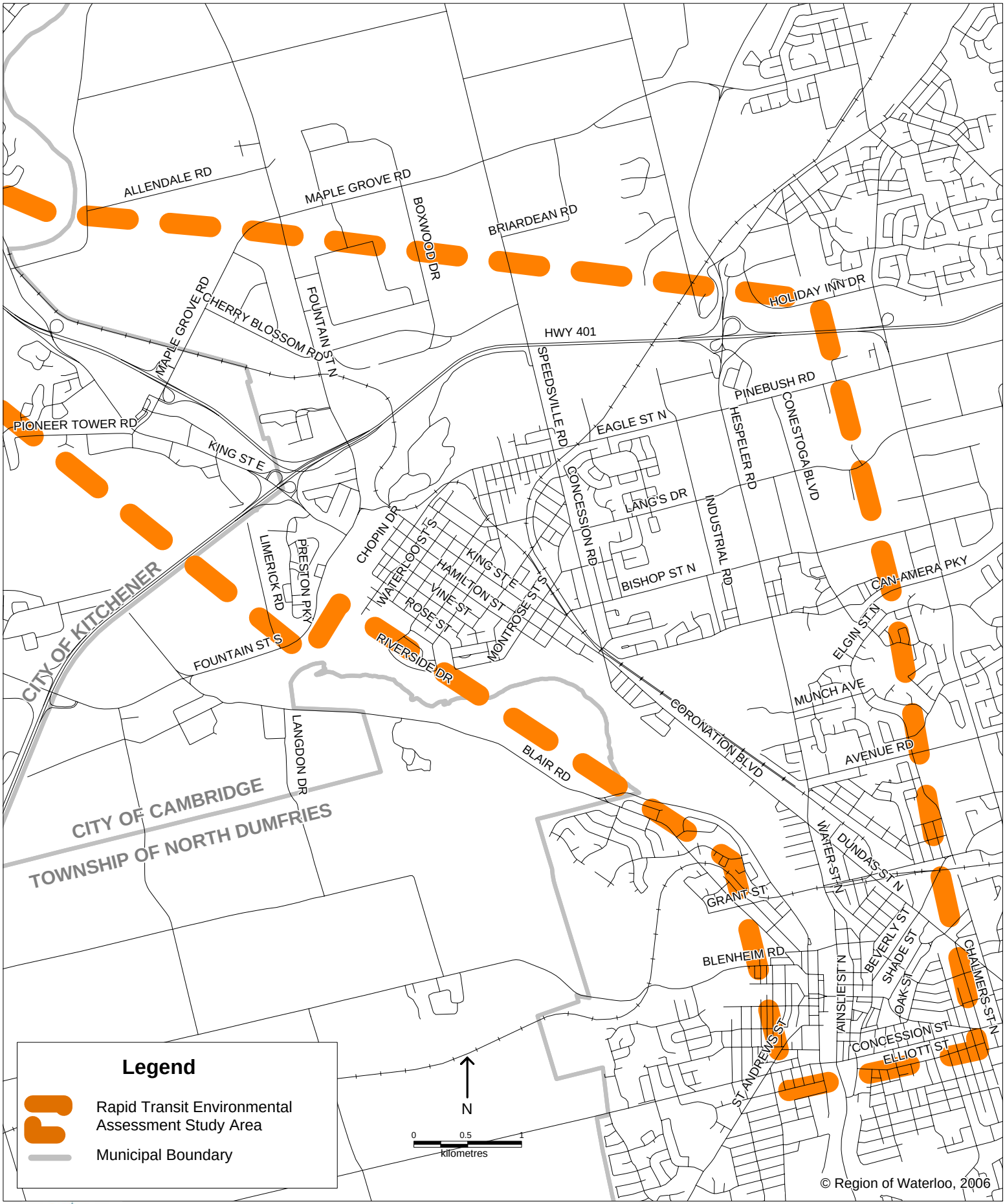
Map 3 of 3



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Region of Waterloo

Produced by Planning, Housing & Community Services, June 2006

Characteristics of Rapid Transit Technologies

Route Design Option	**Dedicated On-Road** (separate bus/rail lane) **Dedicated Off-Road** (transitway/rail line) **Mix of On and Off Road**		**Dedicated Off-Road** (separate rail line)		**Grade Separated** (either above or below ground)					
Technology	**Bus Rapid Transit (BRT)**	**Light Rail Transit (LRT)**	**Commuter Rail (CRT)**	**Diesel Multiple Units (DMUs)**	**Aerobus**	**Automated Guideway Transit (AGT)**	**Magnetic Levitation (MAGLEV)**	**Monorail**	**Personal Rapid Transit (PRT)**	**Subway**
										
Description	▪ Uses large rubber-tired buses ▪ Runs in either dedicated bus lanes where regular traffic is prohibited or separate roadways called transitways	▪ Uses steel wheeled vehicles ▪ Runs on steel rails embedded in the road surface or on a separate rail line ▪ Can range from streetcars, trams comprised of multiple vehicles to light weight rail vehicles	▪ Uses traditional passenger rail cars (i.e. single or bi-level cars) pulled by a locomotive ▪ Operates on existing freight or passenger rail lines (e.g. CN or CP) serving urban areas	▪ A form of Light Rail Transit that can operate only on its own rail line or an existing passenger or freight railway line, not on an urban roadway ▪ Vehicles operate in one to three car trains.	▪ Suspended from an overhead track or guideway ▪ Propelled by electric motors ▪ Can operate as a single car (module) but is often combined with up to 12 others ▪ Used to span difficult terrain such as ski lifts.	▪ Runs on an overhead guideway ▪ Uses driverless, steel-wheeled train vehicles running on rail tracks that have their own electric powered propulsion or are pulled along with cables ▪ Must be separated from road traffic	▪ Runs on an overhead guideway ▪ Uses magnetic forces to hover above the track and propel it along the guideway ▪ No friction between the vehicle and track, can travel at very high speeds of up to 500km/h	▪ Runs on an overhead guideway ▪ Rubber-tired vehicle straddle the guideway along a single beam, rail or tube ▪ Typically runs in a continuous loop or operates as a shuttle service at tourist attractions	▪ Runs on an automated guideway ▪ Small vehicles that carry four to eight people designed to provide “door-to-door” service to multiple destinations ▪ Under development, no active systems in operation	▪ Provides frequent, high capacity rail-based services within urban areas ▪ Typically uses steel-wheeled vehicles on steel tracks powered by electricity through a ‘third rail’ ▪ Can run below or at-grade but must be in a separate rail line
Power Source/ Propulsion	Mainly diesel engines but can also use alternative fuels like natural gas, propane, hybrid diesel-electric	Self-propelled, overhead electric wire and electric motor; also, hybrid diesel-electric	Diesel or diesel-electric locomotives pull trains of 5 or more cars	Self-propelled units with diesel engines or hybrid diesel-electric motors	Self-propelled units with electric motors	Self-propelled units with electric motors or pulled by cables	Magnetic forces generated by electricity allow vehicles to hover above track	Self-propelled units with electric motors and power supply attached to guideway	Self-propelled units with electric motors	Self-propelled units with electric motors
Typical Application	Urban/Suburban	Urban/Suburban	Inter-Urban	Suburban/Inter-Urban	Suburban/Inter-Urban	Urban/Suburban	Inter-Urban	Urban – Theme parks	Urban/Suburban	Urban/Suburban
Typical Frequency of Service	Less than 10 minutes	Less than 10 Minutes	15 minutes	15 minutes	No Regular Schedule	Less than 10 Minutes	30 minutes	15 minutes	No Regular Schedule	Less than 10 Minutes
Capacity (Passengers per hour per direction)	10,000 - downtown Ottawa transitway (maximum)	14,600 – Calgary (maximum) 7,300 – Calgary (average) with 5 minute service	10,000 – GO Rail (Lakeshore line) running at 15 minute service	1,200 – Ottawa O-Train at 15 minute service	5,000 – Theoretical Capacity	4,500 Scarborough SRT	4,000 – Linimo, Japan	2,700 – Seattle ALWEG at 10 minute service 3,200 - Las Vegas monorail	1,800 – 7,200 Theoretical Capacity at less than ten seconds between cars	20,000 – 30,000 passengers (Toronto subway) running less than 3 minute between trains
Typical Capital Infrastructure Cost (per kilometre)	$0.5-15 M (higher end cost is for a separate transitway)	$20-35 M	$5-15 M (Existing Rail Corridor)	$12-35 M (Existing Rail Corridor)	$40-60 M (estimate)	$50-100 M	$100 M	$70-85 M	$20-25M (estimate)	$100-160 M
Typical Vehicle costs (each)	$1.2 M	$3-5 M	$2.5-4.5 M	$2-3.5 M	$3-4 M	$0.8-2.7 M	$20 M	$6-10 M	unknown	$2.5-3.5 M
Canadian Examples	Ottawa York Region – Viva Vancouver Calgary Halifax Mississauga	Ottawa (in design) Calgary Edmonton	Toronto Montreal Vancouver	Ottawa – O-Train	Niagara Falls	Vancouver – Sky-Train Toronto – Pearson Airport Scarborough – SRT	None	None	None	Toronto Montreal