



**REGION OF WATERLOO**

**PLANNING, HOUSING AND COMMUNITY SERVICES  
Transportation Planning**

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**TO:** Chair Jim Wideman and Members of the Planning and Works Committee

**DATE:** February 20, 2007 **FILE CODE:** D10-20/RT

**SUBJECT: RAPID TRANSIT ENVIRONMENTAL ASSESSMENT – RECOMMENDATION TO  
SHORTLIST RAPID TRANSIT TECHNOLOGIES AND ROUTE DESIGNS**

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**RECOMMENDATION:**

THAT the Regional Municipality of Waterloo approve Bus Rapid Transit (BRT) and Light Rail Transit (LRT) operating on a Mix of On and Off Road Route Designs to form the short list of technologies and route designs, as recommended by the Region's Rapid Transit Project Team, for Phase 2, Step 1 of the Rapid Transit Environmental Assessment as described in P-07-021, dated February 20, 2007;

AND THAT the approved short list move forward for further evaluation during the ranking of potential routes and station locations in Phase 2, Step 2 of the Rapid Transit Environmental Assessment.

**SUMMARY:**

The Region of Waterloo is currently carrying out an Environmental Assessment (EA) for the development of a rapid transit system. Phase 1, approved by Regional Council in July 2006, determined that the Rapid Transit Initiative is the preferred transportation strategy for Waterloo Region because it best achieves the goals of the Regional Growth Management Strategy (RGMS) and conforms with the Provincial Growth Plan for the Greater Golden Horseshoe.

Phase 2 of the EA is now underway. It is a three-step process that will help Regional Council and the community select the rapid transit technology, routes and station locations that will best meet the Region's future transportation needs and land-use objectives.

The first step of Phase 2 was the evaluation and screening of 10 rapid transit technologies and their associated route designs. After an extensive evaluation using three evaluation criteria developed for the Terms of Reference and 13 evaluation measures developed from public input at a workshop held on Sept. 21, 2006, the Rapid Transit Project Team recommends that Bus Rapid Transit (BRT) and Light Rail Transit (LRT) technologies operating on a Mix of On/Off Road route designs form the short list for further detailed assessment.

The recommended technology and route design alternatives work together to provide the best fit for a rapid transit system in Waterloo Region. They represent systems that have been developed and have flourished in cities across North America and Europe. These systems have the potential to encourage a more compact urban form, complement pedestrian-friendly urban design, support street-level development around stations, reduce the growth of traffic congestion and associated air quality concerns and bring many other benefits to our community.

This proposed short list was presented to the public at a series of Public Consultation Centres on Jan. 9, 10 and 11, 2007. The PCCs were widely advertised in the Region through paid advertising in three newspapers, road signs displayed on major transportation corridors near each venue, a newsletter that was delivered in early December 2006 to every household in the Region, advance

news stories in local media, and on the Region's website at [www.region.waterloo.on.ca/transitea](http://www.region.waterloo.on.ca/transitea). Regular updates about the evaluation process and information about the PCCs were also sent to an extensive stakeholder contact list.

More than 350 community members attended the PCCs and took the opportunity to review the information presented. Of the 104 comments received, the majority (77 per cent) agreed with the results of the evaluation and the proposed short list or stated a preference for BRT or LRT. Eleven per cent of those in agreement also suggested that an additional technology should be considered. Fifteen per cent of those who responded declined to comment on the short list or did not provide a clear indication of their agreement/disagreement and only 8 per cent did not agree (stating a preference for another technology or disagreeing with the need for rapid transit in the Region) with the recommendation.

## **REPORT:**

Waterloo Region is one of the fastest growing communities in Canada. With a population of more than 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 rapid population and employment growth.

In 2003, Region of Waterloo Council unanimously adopted the Regional Growth Management Strategy (RGMS), a long-term strategic framework that identifies where, when and how future residential and employment growth will be accommodated. The RGMS sets out clear goals for managing growth in urban areas and townships of the Region. It also 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 core areas of 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. It also calls for the development of higher order transit in central transit corridor to connect the UGCs to the larger provincial transportation network, and recommends that priority funding be given to infrastructure projects that support an integrated regional transportation system for the movement of people and goods throughout the Greater Golden Horseshoe.

The Region of Waterloo is currently carrying out an Individual Environmental Assessment for the development of a rapid transit system. Phase 1 of the EA, approved by Regional Council in July 2006, determined that the Rapid Transit Initiative is the preferred transportation strategy for Waterloo Region in favour of expanding the road network alone or improving conventional transit.

### Environmental Assessment Process

The Region of Waterloo Rapid Transit Environmental Assessment is a three-phase process that will help Regional Council and the community select the rapid transit technology, routes and station locations that will best meet the Region's future transportation needs and land-use objectives. The EA is being conducted following Terms of Reference approved by the Ontario Minister of the Environment in July 2005:

- Phase 1:** The evaluation and selection of a preferred transportation system strategy (The Rapid Transit Initiative was selected as the Preferred Transportation Strategy on July 12, 2006 by Regional Council).
- Phase 2:** Evaluation of alternative route designs and technologies and the identification of a preferred rapid transit system including station and route locations.
- Phase 3:** Preliminary design of the recommended rapid transit system.

Regional staff meet regularly with the Rapid Transit Project Team (Local Municipal and Regional staff) and the RGMS/RT Public Advisory Committee (Community Representatives) to provide updates and to receive input throughout each evaluation process. Ongoing consultation with the public and stakeholders is also a significant component of the EA process.

### Status of the Environmental Assessment Process

Phase 2 of the EA is now underway. Phase 2, Step 1 – the evaluation and screening of 10 rapid transit technologies and their associated route designs – was completed in the Fall of 2006 and the results were presented to the public for input at a series of Public Consultation Centres on Jan. 9, 10 and 11, 2007.

The term “route design” refers to the physical structure(s) of the transit route within the urban environment (i.e. tunnels, at-grade, elevated guideways, etc.) that is associated with each technology. The route design choice influences the degree of interaction between the rapid transit system, other traffic and pedestrians, and the surrounding land uses. The route design is an important element of a rapid transit system because where the system operates will have a significant impact on its ability to meet urban design, intensification and reurbanization objectives.

For more detailed information on the four route designs and 10 technologies that were evaluated, see Background Document 1, Characteristics of Rapid Transit Technologies.

### The Phase 2, Step 1 Evaluation Process

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

Each rapid transit technology and route design has features that make it suitable for different communities and transportation needs. To help determine which technology/route design alternatives may be most suitable for Waterloo Region, three evaluation criteria were developed and approved by the Ontario Ministry of Environment for Phase 2, Step 1. They are summarized below:

- Regional Growth Management Strategy (RGMS) Reurbanization Objectives: Does the rapid transit route design and technology support municipal goals for managing future growth and development, such as promoting development in urban areas?;
- Service Quality: Has the technology been used in communities similar to Waterloo Region?; and
- Capacity: Is the technology appropriate for the expected transit demand?

Phase 2 began with a Public Information Session and Workshop on Sept. 21, 2006 to discuss potential rapid transit destinations, routes and station locations, as well as those characteristics of rapid transit the public feels are most important.

More than 140 community members from across the Region came together to provide ideas on where rapid transit routes and stations could be located. Participants at the workshop and other members of the community who provided input, also talked about the features of rapid transit that were most important to them. Accessibility, frequency and speed, safety, flexibility, environmentally friendly and a “good fit” with the existing community were some of the many ideas put forward.

Using the input from the community about which characteristics of a rapid transit system are most important to them, the Region’s consultants developed a set of evaluation measures to help answer the questions raised by the three evaluation criteria. Background Document 2 illustrates how public input was used to create 13 evaluation measures for Phase 2, Step 1.

## Evaluation Results

Each route design and technology alternative was evaluated against the three criteria and the 13 measures developed to help the assessment of each criterion. For the assessment of each technology, inherently linked to specific route designs, failure in one measure means that the technology cannot fully meet the criterion and therefore fails that criterion. Failure in one criterion resulted in a “FAIL” for the technology and elimination from further consideration as it is not expected to meet the future needs of our community. Route designs were assessed using a “preferred” rating based on how well they responded to each measure.

The Mix of On/Off Road option was the only route design to receive a “PREFERRED” rating for all three criteria (See Background Document 3, Route Design Evaluation Summary). The following are some of the reasons:

- Supports redevelopment and intensification objectives;
- Optimizes use of existing off-road routes and on-road routes to serve major destinations;
- Compatible with existing and planned built neighbourhoods; and,
- Provides the opportunity to reduce rapid transit infrastructure cost by using existing corridors where available.

The Mix of On/Off Road route design means that the technology can operate primarily in a transit lane that is at road level, either within the road right-of-way (On Road) or in a dedicated right-of-way that is separate from the road network (Off-Road).

Bus Rapid Transit (BRT) and Light Rail Transit (LRT) were the only technologies to receive “PASS” ratings for all three criteria (Background Documents 4 and 5 contain detailed summaries of the evaluation results). They represent systems that have been developed and have flourished in cities across North America and Europe. These systems have the potential to encourage a more compact urban form, complement pedestrian-friendly urban design, support street-level development around stations, reduce the growth of traffic congestion and associated air quality concerns and bring many other benefits to our community. Background Document 6 contains a comprehensive summary of the advantages of BRT and LRT technologies.

Other route designs and technologies were not selected because they failed one or more of the three evaluation criteria and are therefore not expected to be able to meet the future needs of our community or the objectives of the RGMS and the Province’s Growth Plan for the Greater Golden Horseshoe.

## Public Consultation

The Rapid Transit Project Team presented the proposed short list – Bus Rapid Transit and Light Rail Transit operating on a Mix of On/Off Road route designs – to the public and stakeholder groups at a series of Public Consultation Centres (PCCs) and presentations throughout January 2007 (see Background Document 7 for a list of public consultation activities during Phase 2, Step 1).

The PCCs were widely advertised in the Region through paid advertising in three newspapers, road signs displayed on major transportation corridors near each venue, a newsletter that was delivered in early December 2006 to every household in the Region, advance news stories in local media, and the Region’s website at [www.region.waterloo.on.ca/transitea](http://www.region.waterloo.on.ca/transitea). Regular updates about the evaluation process and information about the PCCs were also sent to an extensive stakeholder contact list.

Each of the three PCCs was held from 4-8 p.m. and featured an informal drop-in format with displays, videos showing the 10 technologies, and information handouts. Regional staff and consultants were also present to discuss the evaluation results and answer questions, and

attendees were encouraged to provide input using the Public Input Package (Background Document 8).

The first PCC took place Jan. 9, 2007 at the Cambridge Centre for the Arts and was attended by more than 65 community members. The second PCC took place Jan. 10, 2007 at the Regional Public Health and Social Services Building in Waterloo and was attended by more than 170 community members. The third PCC took place Jan. 11, 2007 at the Regional Administrative Headquarters in Kitchener and was attended by more than 115 community members.

### Summary of Public Input

Overall, 104 responses and comments on the recommended shortlist of technologies and route designs were received. In addition to the public input package, community members also provided input via e-mail, fax and letter. A summary of the public responses can be seen in Appendix A. The majority of people (77 per cent) who provided formal input agreed with the evaluation results and the proposed short list. Some of the key reasons given for their agreement included:

- Best alternatives to meet the needs of growing population;
- Most financially viable and realistic - need better transit now;
- Good balance of attractive features, practicality and realism; and
- Maintains "human scale" of transit/development.

Of those who agreed with the short list, some (11 per cent of all respondents) also recommended the addition of another technology. Eight per cent of those who responded disagreed with the proposed short list, while another 15 per cent did not indicate agreement or disagreement, but provided general comments on the evaluation process and results. The reasons given by those who either disagreed with the short list or preferred other technologies included:

- Evaluation of technologies not on the shortlist was flawed or biased or the following technologies should have also made the shortlist or been considered further: Aerobus – six mentions; Subway – four mentions; Automated Guideway Transit – four mentions; Diesel Multiple Units – three mentions; Monorail – seven mentions; MAGLEV – one mention;
- Rapid Transit is not appropriate for this region. Just improve current system.

Members of the public also took the opportunity to provide input on several key themes related to the larger Rapid Transit Initiative (routes and station locations, Grand River Transit, transportation demand management and parking policies), on factors that will be evaluated at a later date and the EA process itself. Appendix B includes a breakdown of the input by various themes. A full summary of all public input received during Phase 2, Step 1 can be seen in Appendix C.

Regional staff and the project manager from the consultant team met with individuals or stakeholders and provided written responses to those who requested additional information or raised specific questions or concerns about the evaluation process or results. A response to the common themes has been provided in Appendix D.

### Recommendation and Next Steps

Based on the results of the Phase 2, Step 1 evaluation and the public input received, the Rapid Transit Project Team recommends that Bus Rapid Transit (BRT) and Light Rail Transit (LRT) operating on a Mix of On and Off Road Route Designs be short-listed for more in-depth evaluation and additional public consultation during Phase 2, Steps 2 and 3 when potential routes and station locations will be considered and ranked.

The recommended technology and route design alternatives work together to provide the best fit for a rapid transit system in Waterloo Region. They represent systems that have been developed and have flourished in cities across North America and Europe. These systems have the potential to encourage a more compact urban form, complement pedestrian-friendly urban design, support street-level development around stations, reduce the growth of traffic congestion and associated air quality concerns and bring many other benefits to our community.

There are many different types of BRT and LRT technologies, and the two short-listed rapid transit technology and route design alternatives offer a wide variety of options in the development of an integrated transit system for Waterloo Region. An important goal of the Rapid Transit Environmental Assessment is to choose the appropriate technology and rapid transit station and route locations that will help encourage intensification and transit oriented development, develop and attract new ridership, and improve mobility and regional connectivity.

Step 2 will begin in February 2007 and public information sessions and consultation centres on potential route and station locations are expected to be held in March and May 2007.

### Background Documents

The following background documents are posted online at [www.region.waterloo.on.ca/transitea](http://www.region.waterloo.on.ca/transitea) and are also available in the Clerks Department and the Councillor's Library:

- Background Document 1 – Characteristics of Rapid Transit Technologies
- Background Document 2 – Public Input and the Development of Evaluation Measures
- Background Document 3 – Route Design Evaluation Summary
- Background Document 4 – Route Design and Technology Screening Evaluation Summary
- Background Document 5 – Rapid Transit Technology Evaluations
- Background Document 6 – Advantages of BRT and LRT
- Background Document 7 – Public Consultation Activities: Phase 2, Step 1
- Background Document 8 – Public Input Package

### **CORPORATE STRATEGIC PLAN:**

The report supports several objectives of Council's Strategic Focus. These include:

- Focus Area 1: Manage Regional Growth to Enhance Quality of Life
- Focus Area 3: Protect and Enhance the Environment
- Focus Area 4: Ensure High Quality Transportation System

### **FINANCIAL IMPLICATIONS:**

The cost of the Rapid Transit EA study is being shared by the Region and Province with 50% of the cost funded by the Province. The Region's share will be funded through the Planning Capital program.

### **OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:**

Members of the RT Project Team who have participated in reviewing the Phase 2, Step 1 Report represent various Regional Departments and Divisions, including Corporate Resources, Finance, Transportation and Environmental Services, and Legal Services.

**ATTACHMENTS:**

Appendix A – Summary of Responses to Recommended Short List

Appendix B – Summary of Phase 2, Step 1 Public Input by Theme

Appendix C – Complete Summary of Phase 2, Step 1 Public Input

Appendix D – Response to Comments: Phase 2, Step 1

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