Transport Canada

Urban Transportation Showcase Program

Expression of Interest:

Halifax Regional Municipality

HALIFAX
REGIONAL MUNICIPALITY

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1. INTRODUCTION

Halifax Regional Municipality (HRM) is committed to reducing its greenhouse gas reductions from the transportation sector while increasing the mobility of its residents. The Urban Transportation Showcase would provide us with the opportunity to continue to take concrete steps in this direction. HRM has made a number of commitments to reducing its environmental impact, such as endorsement of the Transportation Association of Canada's New Vision for Urban Transportation and participation in the Federation of Canadian Municipalities' 20% Club. One of the key strategic outcomes included in HRM Council's Business Strategy is the development of a transportation system that "reflects the desired development pattern and encourages alternative transportation modes". We also have a number of exciting ongoing projects to promote sustainable transportation, including HRM's Streets for Cycling Project, the Ecology Action Centre's trip reduction programs and a student-led committee working to create a mass student bus pass (U-Pass). However, much remains to be done to ensure a viable transportation system is in place for the 21st century.

Halifax Regional Municipality was formed in 1996, amalgamating the Cities of Halifax and Dartmouth, the Town of Bedford and the Municipality of Halifax County. With a population of nearly 360,000, Halifax is a regional hub for Atlantic Canada and with growth in the off-shore oil and gas industry, significant population increases are anticipated. It is widely recognized that this growth must be coupled with a sound transportation strategy.

Halifax was founded in 1749, and like many older cities, the inner heart of the transportation network was designed well before the invention of automobiles, let alone the traffic volumes that are common today. The lack of buffering between the arterial roadway network and the adjacent communities has decreased the quality of life experienced by local residents. Increased air and noise pollution, decreased safety and a public transit system that has struggled to keep up with sprawling development have led HRM to focus on measures that fulfill our desire for a healthy environment and community.

2. SHOWCASE BACKGROUND & OBJECTIVE

2.1 Objective

The objective of HRM's Showcase proposal is achieving greenhouse gas reductions and more efficient and safe transportation systems through the optimal use of existing underutilized corridors. The Showcase will feature optimization of two general types of corridors: arterial corridors and secondary street corridors; and one specific corridor: the CN rail corridor. Corridor optimization will mean maximizing the number of trips that are accommodated within the corridor, and not necessarily maximizing the number of vehicles.

Existing limited street width makes some traditional transportation management measures such as reserved lanes for high occupancy vehicles and transit unrealistic on a large scale. Furthermore, large scale urban renewal projects which create new transportation corridor or expansion opportunities in many communities simply do not occur in Halifax due to the historic, well-established and high-value land uses within the urban core.

Since there are very few freeways within the Halifax area, ***the arterial street network*** is the backbone of HRM's urban transportation system. Arterial streets make most of the key connections between trips origins and destinations. These arterial streets are also an important part of the transit network, but the need to fight congestion as well as pull into and out of traffic has given the bus a competitive disadvantage. Another somewhat unique characteristic of arterial network in the region's older quarters is the lack of buffering between the street and the adjacent residential and business communities.

The ***secondary street network*** provides an opportunity to accommodate both pedestrian and bicycle trips in an environment that is separated from the noisy, high-speed, high-exhaust climate of the arterial street network. Improving the efficiency and connectiveness of the secondary street network for this trips must be done with care to prevent the unwanted intrusion of automobile traffic.

The ***CN rail corridor*** is a fully grade-separated route connecting a major portion of the suburban fringe to Halifax's CBD traversing the heart of the Halifax core. Optimization of this corridor might consist of its current heavy rail transport role being shared with a mass transit role (likely either light rail or a busway) or, alternatively, a relocation of the freight linkage to surrender full use to mass transit. We recognize, however, that the time frame for a sharing or reallocation of the rail corridor is beyond the horizon of the Showcase. Therefore the Showcase will concentrate on developing a pattern of mass transit along the corridor through the establishment of parallel express bus network using adjacent surface streets.

It is possible that sharing or reallocation of the rail corridor will never happen and that the components developed for the express bus network, such a collection nodes, feeder bus routes, pedestrian connection, bicycle parking and park-and-ride facilities will become permanent. If the express bus system is eventually replaced by light rail or a busway, these components will be, for the most part, fully transferable.

With any attempt to adjust the mix of transportation uses within a corridor to achieve optimization, there will be some 'give and take'. Table 1 shows the anticipated changes of transportation use in corridor optimization.

The development of the corridor optimization programs will consist of the measures described in the Proposed Measures section.

Table 1: The Showcase Corridors

CORRIDOR	CONCESSIONS	GAINS
Arterial Corridor	• Some capacity for vehicular traffic	• Transit buses operate more competitively • Pedestrian crossings made more safe • Streets are more compatible with adjacent residential land uses
Secondary Street Corridor	• Reduced capacity for commuter traffic • Some reduced access for local traffic • Reduced on-street parking	• Safer, more effective bicycle travel • Safer, better quality pedestrian travel
CN Rail Corridor	• All-day unlimited access for heavy rail freight traffic	• Safe, highly efficient mass transit

2.2 HRM's Regional Planning Process

The Municipality has recently embarked on a three-year Regional Planning process which will develop a *Healthy Growth Plan for HRM* . The Plan will focus on managing urban sprawl, integrating transportation and transit planning, expanding transit ridership, promoting bicycle usage and walking as part of a healthy community strategy, and managing environmental assets. The Project Manager was hired two months ago.

The Regional Planning process will build on the results of HRM 20/20, a broad-based public consultation process undertaken by HRM in 1999/2000. It involved over 700 residents who helped prepare a vision and set of values to guide development of the municipality over the next 20 - 25 years. The final document identified the need for ..'*a transportation strategy that is diverse and encourages environmental sustainability'.* This Transportation Showcase submission responds to this statement, and by staying closely linked to the Regional Planning process and will provide important opportunities to demonstrate that non-traditional and innovative transportation solutions are environmentally friendly and effective ways to address transportation issues.

2.3 Additional Programs Within HRM

In addition to the Regional Growth Strategy, a number of transportation-related projects and initiatives are planned or underway. In many cases, HRM's Urban Transportation Showcase will build on successes realized in these projects. In other cases, projects will be merged into the Showcase or coordinated closely with it to act as a resource to the Showcase.

- **TRAX Project** -The TRAX Project of the Ecology Action Centre works to promote alternatives to the single occupancy vehicle, including cycling, walking, transit, carpooling and vanpooling. Since 1999 the project has been active in implementing trip reduction programs with large employers. As well, TRAX has spearheaded extensive public education and outreach on the links between transportation and climate change. TRAX has also developed successful promotional campaigns and organized high-publicity events such as Commuter Challenge and Car Free Day.

- **Metro Transit Strategic Review** - A comprehensive consultant study, the Strategic Review will provide to the region's transit system guidance on service standards, fleet replacement, best use of limited resources and a high end review of service corridors.

- **Atlantic Provinces ITS Strategic Planning Study** - The four Atlantic Provinces, in cooperation with Transport Canada, have embarked upon the development of a Strategic Plan for the deployment of Intelligent Transportation Systems (ITS) in the Region. The Plan will serve as a "roadmap" setting the direction and pace of ITS investments in the Region over the coming 10 years in a coordinated and focused manner.

- **Streets for Cycling** - With funding from the Federation of Canadian Municipalities, this project involves the evaluation of developing bikeways within the secondary street network through three pilot studies.

- **Bikeways Task Force** - A committee of Regional Council consisting of a number of stakeholder members. The task force is currently focusing on issues such as master planning, policy, funding, and education to promote bicycling.

- **ACTION Project** - A collaboration of the Ecology Action Centre's TRAX Project and Transportation Issues Committee, Clean Nova Scotia's Climate Change Centre, and Nova Scotia Sport and Recreation (funding approval pending) to promote active transportation. This is a multi-faceted project and includes such measures as developing safe routes to schools, adding bike parking, developing workshops and promotional campaigns, and assisting new cyclists with information and equipment.

- **U-PASS** -The U-Pass Program is designed to give university students unlimited access to HRM's transit system, throughout the academic year. All students pay an annual flat rate for transit service via their student fees. The U-Pass committee has been actively pursuing this initiative, which is expected go to student referendum in the spring. The U-Pass could result in substantially increased transit ridership. .

- **Bike Again! Project** - A project of the Transportation Issues Committee of the Ecology Action Centre, Bike Again! is a volunteer-run initiative aimed at increasing the number of bicycles on HRM streets. Used bicycles are donated by citizens, refurbished by volunteers and distributed to new immigrants and children via community organizations. Many of the recipients use these bicycles as their primary mode of transportation.

- **Commonweal CarShare**: HRM's first CarShare program, Commonweal, recently became operational with the purchase of its first vehicle. Members of the Carshare book time on a communal car and are billed monthly, while the organizers manage issues such as financing and insurance. The program offers its members substantially lower transportation costs when compared to the cost of car ownership and more importantly, it will help reduce the number of cars on the road.

3. PROPOSED SHOWCASE MEASURES

The following measures are proposed to comprise the core of the HRM Showcase.

3.1 Transit Priority

Transit priority is a means of using traffic signalization to give preference to transit vehicles over general traffic. Initially, these measures will also facilitate emergency vehicle response. In the future, it may be expanded to include high occupancy vehicles. Three different types of transit priority signalization will be employed in the HRM Showcase:

- Transit-only signals combined with exclusive (or semi-exclusive) bus lane
- Transit-activated half-signal to facilitate difficult access to major streets
- Accelerated green (through OPTICOM detection and SCOOT control) for transit vehicles detected in mixed traffic flows

These measures are more fully portrayed in Appendix 1. They have been explored to a limited extent in HRM this year and will be more fully developed under the Showcase program.

Additional measures related to transit priority include exemption of buses from turning restrictions and other traffic control, and development of bus-only connections between subdivisions where none exist now for reasons of traffic shortcutting potential.

3.2 Traffic Calming on Secondary Streets

Physical traffic calming measures will be employed on selected secondary streets which make a long continuous connection between major trips origins and destinations. These physical traffic calming measures will be designed to deter or remove short-cutting vehicular commuter traffic while permitting bicycle trips to continue unrestricted. In addition to the traffic calming measures, changes to on-street parking control, traffic control devices (stop signs and traffic signals), street lighting, and roadway surface conditions will be made to increase the level of service for bicycle travel. These measures will clearly benefit pedestrian travel as well and will be particularly welcomed in those neighbourhood areas where a high percentage of the pedestrian traffic is children.

HRM has completed one such project and has another underway under the Streets for Cycling project funded by the Federation of Canadian Municipalities. The Showcase program will see additional corridors developed.

3.3 Advanced Yielding at Crosswalks

HRM has led the way in research of methods to improve safety at crosswalks through measures that encourage vehicles to yield in advance of the crosswalk. The benefit of vehicles yielding well

ahead of the crosswalk location is that stopped vehicles are less likely to 'screen' crossing pedestrians and are less likely to be driven into pedestrians if struck from behind by another vehicle. Pilot projects in HRM have shown that advance yield lines can achieve greater yielding and reduced conflicts at crosswalks and the Showcase program will allow for this research to be expanded and presented for consideration nation-wide.

3.4 Transit Nodes

New transit nodes will be established and express transit service implemented. These nodes will be strategically located for possible future integration into a mass transit system. Important features of the transit nodes will be new or redesigned transit feeder routes, park-and-ride facilities, bicycle parking, and pedestrian connections (across major arterials and rail lines).

3.5 SCOOT Expansion

SCOOT is an ITS application which, through centralized measurement of traffic volumes and control of signalization, optimizes signal timing and coordination based in real time based on measured loading. Optimizing signal control allows HRM to make maximum benefit of limited capacity and results in reduced operating costs and stopped delay, thereby reducing greenhouse gases.

The former City of Halifax initially installed SCOOT control at approximately 100 intersections. The Showcase program will allow for SCOOT to be expanded to critical areas outside the boundaries of the former City of Halifax in addition to increasing detection capabilities of the existing system

3.6 Ride-sharing Database

The benefit of a ride-sharing database is its ability to link drivers with passengers whose origins, destinations, and work hours are closely related. Features of this system will likely include a website, highway information signs, and possibly ride-sharing incentives such as reduced rates or preferential locations in public parking areas. The purchase of the carpool matching database and the establishment of carpooling incentives will be coupled with a promotional campaign, to ensure that the list of applicants is sufficiently large to establish carpool matches.

4. ELEMENTS OF THE SHOWCASE

4.1 Measuring Benefits

Every measure included in the Showcase is expected, to some degree, result in reduced vehicle trips and therefore reduced greenhouse gas emission. Although safety is the primary focus of some measures, such as crosswalk treatments and bikeway development, it is expected that improved safety will result in more commuting trips being attracted to that travel mode.

Benefits, in terms of air quality, reduced operating costs, and safety will be compared against a measured baseline consisting of vehicle, transit, bicycle and pedestrian modes. HRM began establishing its transportation baseline in 2001 and have allocated sufficient funding to complete the baseline prior to implementing the Showcase program. We intend to expand our measurement program to include idling time, fuel sales, and vehicle registration as part of the Showcase.

Although the baseline will allow us to accurately measure the impacts of the full Showcase program, implementation of a number of measures over a relatively short time frame will make differentiating the effects of individual measures difficult. We intend to develop a public consultation program which will assist identifying the effects of individual measures.

4.2 Public Outreach Strategy

The public outreach strategy will be managed by our Showcase partner, the Ecology Action Centre. The Ecology Action Centre is well-respected within the community and will provide an ideal conduit for public feedback. A partnership already exists between the EAC and HRM through the joint establishment of a Transportation Demand Management Coordinator, as well as through cooperation on promotional events such as Bike to Work Week. The EAC proposes to provide public presentations to disseminate information about the Urban Transportation Showcase. The organization will also actively solicit feedback at various stages throughout the implementation of the program, mainly by using established groups, such as neighbourhood associations.

Other ongoing programs have public communication elements which will also provide input and an educational resoure to the Showcase. The Metro Transit Strategic Review is an example of a programs that has its own outreach component. It is also anticipated that a transportation committee will be formed through the Chamber of Commerce as part of the Regional Growth Plan.

4.3 Lessons to be Learned

The results of the HRM Showcase will provide valuable lessons locally, and nationally.

On a national level, we expect to generate new knowledge in the following areas:

- Ability of the OPTICOM detection system to implement different priority levels for different types of emergency response as well as transit vehicles

- Ability of SCOOT and OPTICOM to work together in modify signal timing and coordination to service an individual transit vehicle, then return quickly to a coordinated plan
- Effectiveness of a bicycle network that doesn't rely on off-street linkages
- Safety benefits realized in using yield lines to increase yielding and reduce conflicts at crosswalks and resulting increases in pedestrian trips

On a regional level, we expect to gain an understanding in areas that have not yet been explored comprehensively:

- An urban form that is most suited to optimization of transit
- The ability of an express bus corridor to create meaningful shifts in modal split
- The receptiveness of our residents to a new approach in managing urban transportation

The lessons that are learned in the HRM Showcase will be disseminated to be greatest degree possible. In addition to providing data and information on the HRM website, we commit to hosting local demonstrations and delivering technical papers through the Transportation Association of Canada, the Institute of Transportation Engineers, the Canadian Urban Transit Association, and other professional organizations.

4.4 Partners

Ecology Action Centre's TRAX Project

The TRAX Project (TRansportation HalifAX) has been actively promoting alternatives to single occupancy vehicles in HRM for two years. TRAX has delivered a number of promotional campaigns related to transportation alternatives, undertaken extensive public education and outreach, and received substantial media coverage for its work. TRAX is committed to working with HRM on the Urban Transportation Showcase by taking on the public consultation and education components of the Showcase.

Province of Nova Scotia

The Province of Nova Scotia has made it own commitment to the reduction of greenhouse gases and recognizes the importance of the Halifax Region to that commitment, particularly in the area of transportation.

3M Canada

Will provide hardware and assist in the design of OPTICOM detection required for transit bus detection in the transit priority strategy through an in-kind contribution of staff resources.

LURA Group

Will develop and manage the ride sharing database. In-kind contribution of a portion of the development costs will be provided to the Showcase program.

SNC Lavalin

Will develop the strategy and programming to modify SCOOT control to accept transit priority. In-kind contribution of a portion of development costs will be provided to the Showcase program.

5. FINANCIAL PLAN AND SCHEDULE

The HRM Showcase is projected to cost $7.5 million. The proposed breakdown is shown below.

Figure 1 Proposed Project Funding in $Millions

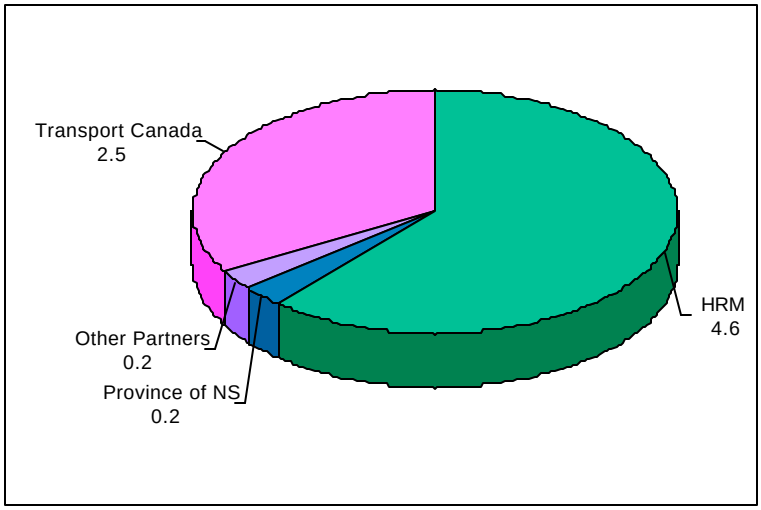

Figure 2 Project Schedule

	2002/03			2003/04				2004/05				2005/06			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Arterial Street Corridors	Design			Implementation											
Secondary Street Corridors				Design		Implementation									
CN Rail Cut						Design		Implementation							
Public Outreach															
Reporting to Council/Public	r		r		r		r		r		r		r		r
Major Report			r				r				r				r

6. CONTACTS

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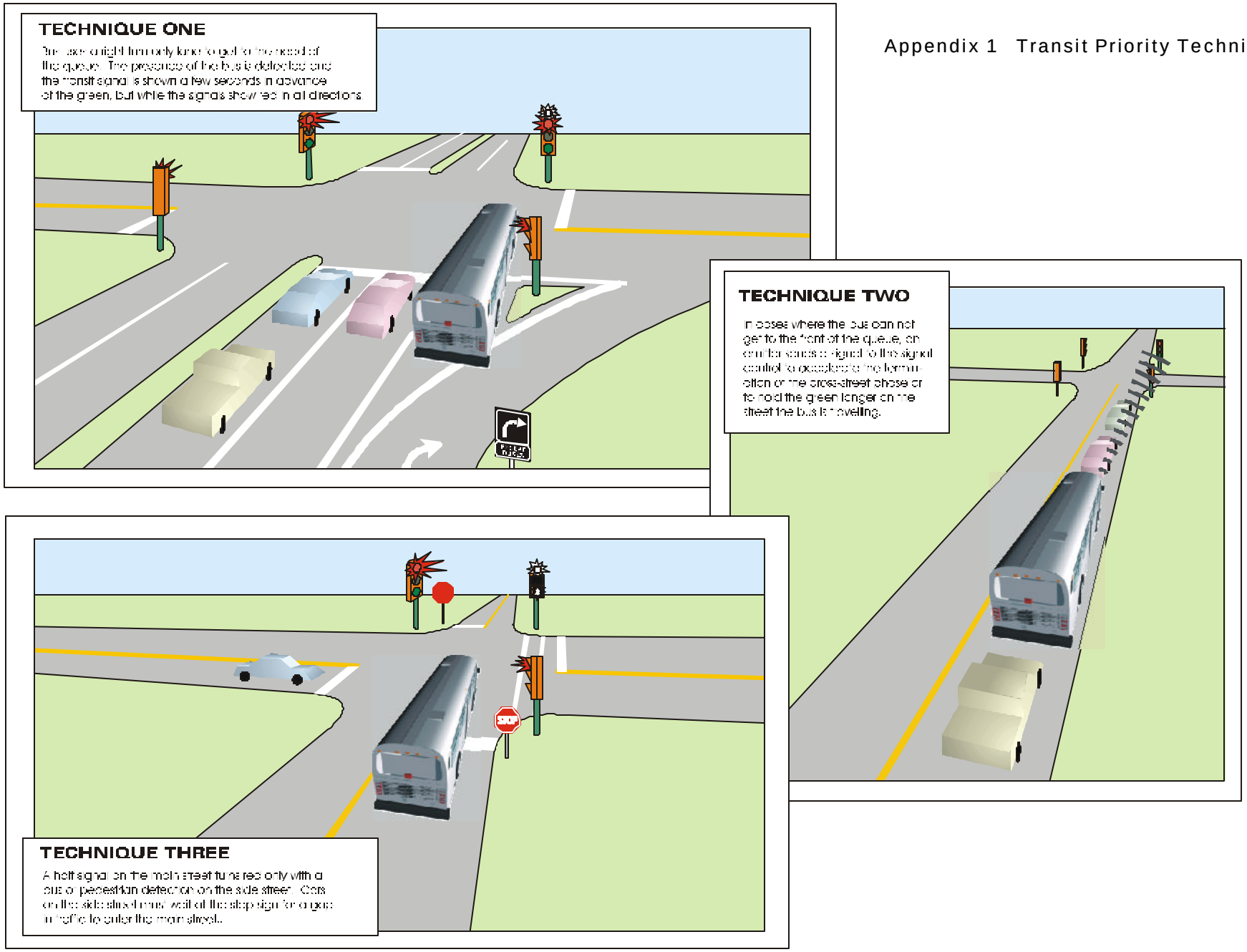
TECHNIQUE ONE
The bus can right turn only lane to get to the head of the queue. The presence of the bus is detected and the transit signal is shown a few seconds in advance of the green, but while the signals show red in all directions.
TECHNIQUE TWO
In cases where the bus can not get to the front of the queue, an overlap signal to the signal control to accelerate the termination of the cross-street phase or to hold the green longer on the street the bus is travelling.
TECHNIQUE THREE
A half signal on the main street turns red only with a bus or pedestrian detection on the side street. Cars on the side street must wait at the stop sign for a gap in traffic to enter the main street.