

# 1996, TRANSPORTATION DEMAND MANAGEMENT FOR INTERPROVINCIAL TRAVEL

## **Executive Summary:**

### Introduction

In recent years, the demand for transportation in the National Capital Region has outpaced the ability of the various government transportation agencies to provide the needed transportation supply. This has been particularly true for interprovincial travel, where planning for a new bridge has met with opposition, for economic, environment, and social reasons. In a climate of limited resources, agencies have begun to look for new, more cost-effective ways of dealing with user demand. This has led to the consideration of a number of possible measures that come under the broad classification of Transportation Demand Management (TDM). The Phase II of the study on interprovincial bridges conducted by the Joint Administration Committee on Planning and Transportation (JACPAT) has addressed the need of using such measures in order to optimize the existing infrastructures, and to delay the construction of a new bridge.

Another joint study, regrouping several government agencies, on transportation planning in the central area of Ottawa, set a common vision for a central area transportation strategy. Some guiding principles related to TDM measures are also contained in that report, as the necessity to encourage the use of public transit.

With this in mind, the JACPAT directed the TRANS committee to examine the opportunities for the use of TDM in the National Capital Region (NCR). The purpose of this initiative was to analyze the potential for applying TDM to solve the problems of interprovincial travel in the NCR, and to develop an action plan for TDM by way of the following tasks:

- Determine the set of TDM measures most suitable for interprovincial travel, based on an understanding of TDM measures implemented in Canada and elsewhere;
- Obtain consensus among affected agencies on the proposed TDM measures;
- Identify concise responsibilities and tasks for implementation associated with each of the TDM measures;
- Establish the priority of selected TDM measures;
- Obtain public input on the proposed TDM strategies.
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This study examines the possibilities for TDM implementation in the National Capital Region, and recommends an Action Plan for Transportation Demand Management for Interprovincial Travel in the National Capital Region.

## **Definition of Transportation Demand Management (TDM)**

TDM is a strategy aimed at alleviating urban traffic congestion through the management of travel demand. TDM measures are primarily directed at commuter travel and are designed to reduce dependence on the single occupant vehicles (SOV's), to shift the timing of travel to less congested time periods, and to reduce the general demand for commuter travel. TDM attempts to change commuter behaviour in three main ways: shifting the mode of transportation, eliminating trips, and lowering peak demand.

### **Study Process**

This study consisted of the following tasks:

#### Literature Review

The first step in the study was the completion of a review of the literature concerning TDM, in order to identify the full range of possible TDM measures. The measures that were identified were classified into four different types:

#### Enhanced Options

- Promotion of Ridesharing
- Promotion of Transit
- Promotion of Non-Motorized Modes
- General Traffic Improvements
- Improved Information and Education

#### Incentives

- Parking Management
- Promotion of High Occupancy Vehicles
- Trip Reduction Programs (voluntary/mandatory)
- Road/Congestion Pricing
- Increase in Convenience for Non-SOV Commuters

#### Work Management

- Flextime
- Compressed Work Week
- Telecommuting

## **Land Use**

- Changes in Land Use
- Encouragement of Neo-Traditional Neighbourhood Development (NTND)

At the same time a list was compiled of potential TDM evaluation criteria:

- Performance of Current TDM Activities
- Potential for Impact
- Marketing Potential
- Costs (capital/operating)
- Acceptability
- Feasibility/Implementability
- Benefits to Users
- Environmental Impacts
- Economic Impacts
- Time Frame
- Benefits to Transportation System

The literature review and the list of potential TDM evaluation criteria provided a master list of TDM measures and evaluation criteria that was used to select measures and criteria that fit the needs of the NCR.

## **Identification of TDM Strategies and Evaluation Criteria**

Using the master lists that were developed during the literature review, TDM strategies for the NCR were developed. Since many TDM measures act in a complementary way, it is important to group together into TDM strategies those measures that can work together synergistically. Eleven TDM strategies were developed, each containing between three and seven individual measures:

- Strategy 1: Ridesharing
- Strategy 2: Bottleneck Bypasses for Ridesharers and Transit
- Strategy 3: Implementation of HOV Facilities and Network (lane conversion)
- Strategy 4: High Occupancy Vehicle Designated Bridge
- Strategy 5: Construction of HOV Facilities and Network (lane construction)
- Strategy 6: Work Management
- Strategy 7: Vehicle Trip-Reduction By-Laws
- Strategy 8: Transit, Bicycle, and Pedestrian Friendly Development, Land Uses, and Networks
- Strategy 9: Interprovincial Central Area Transit
- Strategy 10: Transit Improvements

- Strategy 11: Improved Information and Education

At the same time, the list of evaluation criteria was modified and expanded to take into account of the requirements of the NCR. The final list of evaluation criteria used in evaluating the eleven strategies is as follows:

- Person Throughput
- Technical Feasibility
- Technical Flexibility
- Operation
- Travel-Time Reduction
- Travel-Time Reliability
- Market Potential
- Public Support
- Capital Costs
- Operating Costs
- Economic (Benefit/Cost)
- Benefits to Environment
- Implementation Scheduling
- Competition with Existing Measures
- Conformity with Local Transportation and Development Plans
- Compatibility with NCR Image Plans
- Levels of Jurisdiction and Co-ordination Required

From this research, it was possible to continue to the next phase of the study, the evaluation of the TDM strategies.

#### TDM Evaluation

The Evaluation of TDM was conducted in two stages:

Stage 1 involved the use of the Planning Balance Sheet analysis, where each of the strategies was given a score for each of the criteria. In addition to the raw score, each evaluation criteria was given a weighting factor to reflect the varying importance of the criteria. For each strategy, the weighted scores were then added up, to produce a relative ranking of all the strategies. Based on this analysis, five TDM strategies were retained for further study:

- Ridesharing Program
- Bottleneck Bypasses for Ridesharers and Transit
- Implementation of HOV Facilities and Network (lane conversion)
- HOV Designated Bridge
- Transit Improvements

In addition, the strategy Improved Information and Education was retained, since it scored quite well, and can act as a support measure for all the other strategies.

In order to implement these strategies, it is necessary to classify them into individual action programs. This allows the development of implementation priorities for the various TDM measures. The five strategies that were identified for further study corresponded to the following twelve TDM actions:

- Local ridesharing programs
- Preferential HOV parking at worksites
- Voluntary employer-based incentives
- Park and Ride facilities
- Parking management
- Bypasses to congestion at bridges
- Conversion of existing lanes to HOV -use on bridges and bridge approaches
- Financial incentives
- Congestion pricing
- Transit-fare subsidies
- Operational priority for transit
- Information and education programs

The twelve measures were then re-evaluated in Phase II of the evaluation, using the same criteria as before. This evaluation was much more qualitative in nature, and took into account the particular requirements or the NCR. This evaluation process showed that all of the measures have the potential for positive impact, but that it was important to develop some sense of implementation priorities, to ensure that the implementation was done as effectively as possible.

### **Consultation Process**

Two types of consultations were held: focus groups with randomly selected members of the public, and workshops that were conducted with representatives from community organizations and government agencies.

## Focus Groups

Four focus groups were held, two in Ottawa and two in Hull. The participants were presented with six of the twelve measures that had been chosen, and asked for their opinions on them. The opinions expressed showed there is a high level of interest in transportation planning among NCR citizens. In addition to their qualitative comments, participants were asked to give numerical rankings to the measures, in a process known as Pareto vote. Participants were asked to their most preferred option a score of 3, their second most preferred option a score of 2, and their third most preferred option a score of 1. This gave an approximate ranking of the measures, showing the most popular with this sample of the public. The overall results of this voting process across all the focus groups are presented in Table 1:

Table 1: Synthesis of Pareto Vote Results

### Measures Preferences

	Individual	Related to the Common Good
Local Ridesharing Programs	63	68
Conversion of Existing Lanes to HOV Use on Bridges	49	42
Congestion Pricing	8	5
Parking Management	6	9
Congestion Bypasses Near Bridges	43	39
Transit Priority Light Cycles	35	35

## Workshops

The second part of the consultation process involved workshops with representatives from community organizations and government agencies. In addition to soliciting the opinions these representatives, the workshops were intended to develop implementation priorities for the measures that had been chosen for further study. All twelve measures were presented to these representatives.

The first workshop was held with representatives from community organizations with a demonstrated interest in transportation issues. The representatives were presented with the selected TDM measures, and asked for their opinions. Opinions were recorded and are contained in the accompanying consultation report. During the course of these discussions, the representatives asked that three new measures be added to the list for implementation:

- Improved network and infrastructure for alternative modes.
- Land-use management
- Resident-assisted transportation planning

In addition, the measure call Transit-pass subsidies was changed to the more general, Public transit improvements, to reflect the need for better public transit in the NCR.

After this discussion, participants were asked to achieve a consensus on implementation priorities for the measures. The representatives classified the measures into three groups, according to the impact that they will have and the schedule on which they can be implemented . Placement in Group I indicated that the measure will have a large impact and can be implemented I the short-term, while placement in Group III indicated that the measure will have a low impact and/or will take a long time to implement. Through this process, the following priorities were developed:

### **Priorities - Community Organizations**

(according to scheduling and impacts)

#### Group I

- Ridesharing programs
- Preferential HOV parking at worksites
- Park and Ride facilities
- Congestion bypass for HOVs at bridge approaches
- Conversion of existing lanes to reserved HOV lanes
- Operational priority for transit at traffic lights
- Information and education programs
- Land-use management

#### Group II

- Resident-assisted transportation planning
- Voluntary employer-based incentives
- Parking management
- Congestion pricing on bridges
- Improvements to the public transit system
- Improved network and infrastructure for alternative modes

#### Group III

- Government supported incentives

The second workshop was held for representatives from government agencies. At this workshop, participants were presented with all fifteen measures, and asked to discuss them. Since most of them were already familiar with the measures, it was in fact only necessary to discuss the three measures that had been recently added at the other workshop.

Representatives were presented with the results of all the previous evaluations that had taken place, and the results of the focus groups and the previous workshop. They were asked to achieve a consensus on implementation priorities for the TDM measures. Based on this process, the following list of priorities was developed:

### **Priorities - Government Agencies**

(according to scheduling and impacts)

#### Group I

- Ridesharing programs
- Preferential HOV parking at worksites
- Park and Ride facilities
- Congestion bypasses for HOVs at bridge approaches
- Conversion of existing lanes to reserved HOV lanes
- Operational priority for transit at traffic lights

#### Group II

- Voluntary employer-based incentives
- Parking management
- Government supported incentives
- Improvements to the public transit system
- Information and education programs
- Improved network and infrastructure for alternative modes
- Land-use management
- Resident-assisted transportation planning

#### Group III

- Congestion pricing on bridges

### **TDM Action Plan**

Based on workshops and focus groups, the Action Plan for Transportation Demand Management for Interprovincial Travel in the National Capital Region was developed. This action plan modifies the three groupings, giving those from Group I high priority status, and those from group II and Group III low priority status. The actions in Group I have been given high priority status in respect with their feasibility, their schedule of implementation, their impact and their cost.



The action plan consists of the following:

Scope - description of the measure

Present Status - examples of the measure that currently exist.

Action - the actions that must be taken for implementation.

Agencies involved - public and private agencies that must be involved.

Cost (Low =< \$100,000; Medium = \$100,000 - \$500,000; High => \$500,000).

### ***High Priority TDM Actions***

#### **1. Aylmer Ridesharing Demonstration Project**

Action

Begin demonstration project for commuters travelling between Aylmer and Ottawa (2-year demonstration project).

Scope

This measure involves setting up programs, supported by both private and public sectors, that will encourage single occupant vehicle (SOV) users to travel by carpool or vanpool for their daily commute.

Agencies involved

Public: RMOC, CUO, OC Transpo, STO, MTO, MTQ, municipalities

Private: Large and medium-sized employers, insurance companies, sponsors.

Cost

Low

#### **2. Preferential HOV Parking at Government Worksites**

Action

Installation of preferential parking measures at parking lots controlled by government agencies (where applicable)

Scope

This measure involves reserving preferential parking spaces, such as those near the entrance or in a covered area, for workers who travel by carpool or vanpool.

Agencies involved

Public: RMOC, CUO, municipalities, federal and provincial government agencies.

Cost

Low

#### **3. Voluntary Employer - Based and Financial Incentives**

Action

Provide employers with material and expertise necessary to set up voluntary programs.

Promote the establishment of incentive programs among employers.

Establish programs for government employees, to provide an example to private companies.

Carefully analyze monetary incentives that can be implemented to manage transportation demand, and implement those that are most promising.

#### Scope

This measure involves implementing policies, both by government agencies and private companies, that discourage people from commuting by SOV. Incentives include rewards for transit-users, elimination of free parking and changes in tax policy, information and contests.

### **4. information and education programs on TDM Measures**

#### Action

Identify a communication strategy ensuring information and education for communities on a permanent basis.

Identify sponsors who will help to fund education and information programs as a means of product placement and advertising.

For each TDM project, prepare a communication plan and matching promotion.

#### Scope

Provide information to the public about the TDM measures that are being implemented. In addition, provide communities with information about transportation conditions and help them to make more informed travel decisions.

#### Agencies Involved

Public: NCC, RMOC, CUO, OC Transpo, STO, MTO, MTQ.

Private: Employers, Sponsors.

#### Costs

Medium.

### **5. Conversion of Existing Lanes to HOV use on the Chaudière Bridge and Approaches**

#### Action

Undertake a detailed feasibility study on the Chaudière Bridge to determine the best scenario for lane conversion and proceed with implementation.

#### Scope

This measure involves converting existing traffic lanes to HOV-only use on the bridge and approaches, aiming to increase person throughput on the existing infrastructure.

#### Agencies Involved

Public: NCC, RMOC, OC Transpo, CUO, STO, MTO, MTQ, Public Works and Government Services Canada.

#### Cost

Medium (\$500,000).

### ***Low-Priority TDM Actions***

## **6. Park and Ride Facilities**

### Action

Identify and implement information and education programs to promote the use of park and ride lots.

Identify additional park and ride lots in Aylmer, Gatineau, Hull.

### Scope

Create parking lots at strategic locations along major transit routes, where commuters can transfer to public transit, thus reducing the number of SOVs crossing the Ottawa River.

### Agencies Involved

Public: RMOC, CUO, OC Transpo, STO, municipalities.

### Cost

Low (for promotion only) - high (for new lot construction program).

## **Parking Management**

### Action

Reduce or eliminate the minimum parking space by-law requirements.

Develop a regional strategy to manage the parking supply using the tools listed above, and proceed with implementation of that strategy.

### Scope

Manage the supply of parking to reduce the number of cars that travel to and park in congested areas, using measures such as increased rates and taxes for parking spaces, reductions in employee parking subsidies, and reductions in the total parking supply.

### Agencies Involved

Public: RMOC, CUO, municipalities.

Private: Employers, parking lot operators.

### Cost

Low (mainly involves legislative efforts).

## **Public Transit Improvements**

### Action

Increase number of buses and services frequencies on both sides of the river.

Improve connectivity and routing between the two separate public transit systems.

Extension of dedicated right-of-way, high quality service into Quebec .

Better access for people with large items, children, and bicycles.

## Scope

This measure aims to improve the existing public transit infrastructure make reference to existing studies and network, as well as build new ones. Possible actions include: improve connectivity between the two systems and between transit and other modes, extension of current reserved lane / transitway service, and the implementation of new services.

## Agencies Involved

Public: STO, OC Transpo.

## Cost

High.

### **Improved Network and Infrastructure for Alternative Modes**

## Action

Construct new bicycle and pedestrian paths where needed and feasible.

Improve laws that protect the right-of-way of alternative modes.

Implement jitney or collective taxi service, possibly as a private venture.

Identify opportunities for use of other alternative modes for interprovincial travel (cross-river shuttle buses, watercraft).

## Scope

Improve the network and infrastructure for bicycles, pedestrians, paratransit (jitneys, collective taxis), cross-river shuttles, and other alternative modes.

Create incentives that will make these modes more popular and encourage commuters to use them, such as easier transfers between alternative modes and public transit.

## Agencies Involved

Public: NCC, RMOC, CUO, OC Transpo, STO.

Private: Private transportation companies.

## Cost

High

### **Land Use Management**

## Action

Sustainable planning must continue to be integrated into regional planning master plan that is under revision, so that it can start to have an effect as quickly as possible.

## Scope

In the process of creating new long-range planning strategies, include measures to encourage an urban form that is more suitable for transit and other alternative modes.

## Agencies Involved

Public: NCC, RMOC, CUO, municipalities.

Private: Citizens' groups.

Cost

Low

### **Resident-Assisted Transportation Planning**

Action

Create citizens' transportation advisory committees, to ensure that the public is included in the planning process from the very beginning and has the opportunity to provide a continual input into the process.

Scope

Planning is assisted by the individual members of the community, who work with planner, engineers and architects. Uses an ecological approach to planning to achieve the goals of the community and the region.

Agencies Involved

Public: All government transportation and planning agencies.

Private: Private transportation companies.

Cost

Low.

### **Congestion Pricing**

Action

A feasibility study of the measure should be undertaken, taking into account public opinion concerning the principle, as well as experience in other areas.

New automatic toll collection schemes may have to be developed further to ensure successful operation.

Scope

Designate one interprovincial bridge as an HOV -only facility at peak periods. Sell excess capacity to SOVs using automatic Toll Collection devices. This measure aims at increasing person throughput on the bridge without restricting it to HOVs only.

Agencies Involved

Public: STO, OC Transpo, municipalities, MTO, MTQ.

Cost

Low (Toll revenue should cover capital and operating costs).