

Regional Municipality of York

Appendix 3B

Assumptions regarding Travel Demand Management (TDM)

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1. Introduction

TDM refers to any policy or program measures that reduce total vehicular trip making, particularly, but not exclusively, during congested peak periods, or facilitate or encourage multi-occupant vehicle use including car pooling, and modal shifts from auto to transit.

TDM policies generally seek to achieve one or more of the following objectives:

1. Trip reduction – outright elimination of the need to travel through telecommuting or reduced daily travel due to compressed workweek schemes, where employees work longer hours each day in return for an extra day off every week or every two weeks.
2. Mode change – encouragement of higher occupancies in private vehicles or greater use of public transit (or other alternative modes such as bicycles) through ride-matching, employer trip reduction programs that can include a range of incentive policies, including transit subsidies, company car pools, ride-matching for car/vanpools, bicycle facilities, etc; and/or voluntary travel behaviour programs.¹
3. Temporal change – encouraging vehicle drivers to travel in less congested periods by varying working hours to avoid the peaks.

2. TDM Calculator

To evaluate the vehicle trip reduction of potential Travel Demand Management (or TDM) measures in Western Vaughan, a sketch TDM calculator was developed based on statistics extracted from the TDM literature, reports and modelling experiences (Original Research was carried out for Transport Canada in 2005-2006).

The function of the TDM calculator is to provide an approximate vehicle trip reduction associated with various combinations of TDM measures. Within the TDM calculator, minimum and maximum scenarios were identified for individual TDM measure based on a range of North American applications found in the literature and the local context for the Western Vaughan area. **Table 1** provides a summary of the individual TDM measures and the range of vehicle trip reduction.

While the table does not cover all potential TDM measures, it represents those measures that were most frequently cited in municipal transportation plans and the literature, and are most applicable to Western Vaughan. As such, it provides a basis for gauging the general effectiveness of TDM programs in Western Vaughan.

1. *Voluntary Travel Behaviour Change programs are education programs promoting sustainable communities that motivate people to use modes other than SOV by highlighting the benefits of a car-free environment. The objective is voluntary behaviour change – allowing people to choose to change their travel behaviour instead of compelling them to respond to external incentives or disincentives. Such programs encourage individuals and households to change their travel behaviour through personal choice and individual action. Studies in Australia and the USA have found behaviour change programs show consistent evidence that participating households make substantial reductions in their use of private motor vehicles.*

Table 1. AM Peak Period Vehicle Trip Reduction for Minimum and Maximum Scenarios

Incentive TDM Measures (applies to work trips only)	Vehicle Trip Reduction (%)	
	Min	Max
Telecommuting	0.8%	0.8%
Ridematching Program	0.1%	1.1%
Employer Trip Reduction Programs	0.4%	1.8%
Voluntary Travel Behaviour Change Program	0.3%	0.8%
Bike Facilities and Network	0.0%	0.1%
Resulting Vehicle Trip Reduction (%)	1.1%	3.3%

3. Vehicle Trip Reduction Rates – Sample Calculation

An example of how the vehicle trip reduction was derived is provided for telecommuting. Based on a review of employment categories and job types, it was estimated that approximately 20 percent of the Canadian workforce have jobs that are amenable to telecommuting. It was assumed that 20 percent of the eligible workers would participate and would telecommute 1 day per week. Assuming these individuals were previously auto drivers, this translates to a 0.8 percent reduction in work-related vehicle trips during AM peak period. It is also noted that the trip reduction for each measure only applies to work trips.

The trip reduction rates of each TDM measures were aggregated. It was found that the total vehicle trip reduction during the AM peak period for the combination of the TDM measures, noted above, would range approximately from 1.1% to 3.3%.

4. Vehicle Trip Reduction for Western Vaughan

Table 2 summarizes the vehicle trip reduction that would result from successful TDM programs proposed for the Western Vaughan area in 2031. It is observed that there will be around 1,040 to 2,960 vehicle trips reduced due to the TDM programs, based on the preliminary model results of the 2031 Base Alternative #1 scenario.

Table 2. AM Peak Period Vehicle Trip Reduction (Preliminary Results)

2031 Base (Alternative 1)	Vehicle Trip Reduction (Trips)*	
	Min	Max
Vehicle Trip Reduction	1,035	2,960

* Western Vaughan Orig/Dest Trips

Note that the TDM calculator is an approximate guide to estimate the impact of a combination of TDM measures for the purpose of long range travel demand forecasting, based on data and assumptions found in the literature. It is not intended to provide a thorough evaluation of TDM programs for Western Vaughan. Additional research and surveys of TDM program participants are required to enhance the robustness of the TDM calculator for more precise TDM evaluation.