

**Ministry of Transportation
Durham/Toronto/York
Area Transportation Study**

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Project Number: 109390

Date: August 31, 2009

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August 31, 2009

Project Number: 109390

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Dear Glenn:

Re: Durham/Toronto/York Transportation Study

Sincerely,
AECOM Canada Ltd.

Doug Allingham, P. Eng.
Executive Vice President, Canada Central

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Executive Summary

As part of the Province's strategy to protect the Oak Ridges Moraine (ORM), the Province agreed to exchange provincially owned lands in Seaton (Central Pickering) for privately owned lands on the Moraine. The agreement was based on the need to provide a comparable return on investment to the landholders.

The Province, through the Ministry of Municipal Affairs and Housing (MMAH) has prepared a development plan for the Central Pickering Planning Area under the authority of the Ontario Planning and Development Act, 1994 (OPDA). On May 3, 2006 the Provincial Government enacted the Central Pickering Development Plan (CPDP) - the provincial plan for a new community in Central Pickering.

The transportation and transit component of the Central Pickering Development Plan provides objectives and policies to address the internal network requirements for the area, as well as to ensure there is adequate inter-regional transportation infrastructure. This broader transportation study supports the Central Pickering Development Plan and the eastern Greater Toronto Area (GTA) component of the GGH and documents the inter-regional transportation needs of the larger Durham-Toronto-York area.

In support of the transportation objectives of the CPDP, the Province undertook the Durham/Toronto/York (DTY) Area Transportation Study to evaluate long-range strategic inter-regional road and transit improvements in these eastern Toronto areas.

The objective of the DTY Area Transportation Study is to identify the key transportation infrastructure investments required to address the long term inter-regional road and transit network needs of the area. Improving the inter-regional road and transit network will ensure that the land in Seaton will be serviceable and its value maximized. Ultimately, the study recommendations could form the framework for future provincial/municipal investments in transportation infrastructure in the Seaton area. This DTY Area Transportation Study is being conducted in support of the Central Pickering Development Plan while having regard for the overarching policies and principles contained in the Growth Plan for the Greater Golden Horseshoe including:

- Supporting the development of compact, vibrant and complete communities;
- Planning communities and managing growth to support a strong competitive economy;
- Ensuring the wise use of natural resources;
- Optimizing the use of existing and new infrastructure to support a “transit first” policy and encourage growth in a compact and efficient form;
- Providing for different approaches to managing growth that recognize the diversity of communities in the GGH; and
- Promoting collaboration among all jurisdictions and all sectors of the broader community.

Developing a responsible and sustainable transportation plan to move people and goods involves an assessment of necessary “structural” requirements and “non-structural” travel demand management strategies to reduce auto use, trip distance and time and increase transit mode share (transit refers to local bus, GO train and GO bus service). A key priority for transportation infrastructure planning and investment

will be with respect to the movement of people and where appropriate, the development of a Central Pickering transit system. Planning in general, and for the DTY Area through this Study, must also recognize that the development of a “transit first” plan must consider both the physical elements of the plan and strategies to change how people perceive transit as a viable and competitive mode of transportation. The first priority regarding goods movement will be to ensure that the local and regional transportation network facilitates safe and efficient access to the regional network and the provincial highway system.

Through technical work and agency consultation processes an Area Transportation Plan has been developed for the Study Area. Today’s transportation network in the Study Area is heavily road/auto-dependent. To achieve the directives of the Growth Plan, a strong program of transit improvements combined with supportive policies and initiatives is needed. To increase travel choices for residents and employees within the Study Area there must be a full range of integrated, easily accessible, and competitive transportation choices.

Continued expansion of the road network will be necessary to:

- accommodate and provide access to the planned development levels in Seaton;
- address existing deficiencies; and
- facilitate reliable, accessible and competitive transit service.

In addition to promoting and implementing strategies to reduce travel demand through an aggressive transportation demand management program, the emphasis within the Study Area must turn to greater investment in the transit network, infrastructure, and operations, recognizing the limits for road network expansion. A restructuring of transit services in the Region of Durham is needed to support higher-order transit in critical corridors and provide the competitive, direct, effective connections Region of Durham residents need to make transit their first choice for travel.

In order to realize a shift in current culture, perceptions and levels of transit use in the GTA and in Durham, transit initiatives and service levels provided at a local and regional level must be transformational in nature. It cannot be overlooked that bus service needs an effective network of arterial and collector roads on which to run and support a cost-effective transit system.

At the core of the Study Area transportation plan is a strategic framework that provides a context for the recommended improvements. The framework sets the context and direction for development and travel patterns within the Study Area and provides the foundation for the assessment of linkages and mode of travel within the community and to/from adjacent municipalities.

The transportation network in the eastern part of the GTA, which includes the eastern portions of the City of Toronto and the Region of York and the western portion of Durham Region, currently lacks adequate north-south and east west freeway and arterial roadway capacity resulting in operational and congestion issues within the Study Area. If congestion on the roadway network is not addressed it will also impact the operation of any regional and inter-regional transit services in the area.

The existing transportation network within west Durham and the eastern portions of the City of Toronto and the Region of York also suffers from discontinuous linkages. These constraints are exacerbated by an

inability to provide new roadway links through the Rouge Park as a result of current Provincial Policy (“no new roads in the Rouge Park”). This policy generates challenges to the development of future transit corridors linking Durham, York and Toronto. As noted earlier, the Study Area also lacks any significant transit service. Attempts to provide transit service to the CPDP area must be undertaken in conjunction with arterial roadway improvements in the area to permit a “transit first” plan with any chance of success.

To address the other transportation problems within the Study Area and the future travel demands of residents and employees in the Central Pickering Area, a number of structural and non-structural improvements are required. The infrastructure, service, and planning considerations identified in this report should be reviewed as a package of system improvements. In this regard, there are several initiatives, both structural and non-structural, which are considered early priorities or “quick starts” in order to facilitate growth and provide opportunities for greater mode choice and reduced reliance on the automobile.

Transportation strategies identified in the early phases of implementation should promote a “transit first” approach to transit service for the Central Pickering area. Key initiatives such as the provision of transit services on Taunton Road/Steeles Avenue, 407 and Highway 7 should be coordinated with the respective road network improvements to enable early implementation of a “transit first” approach. Without many of these infrastructure improvements the ability to make early and meaningful transit service available in the Study Area is severely hindered. Without these improvements it must be expected that current modal patterns (low transit use) will prevail and ultimately become entrenched in the urban fabric of the future community resulting in the need for further roadway infrastructure improvements and less emphasis on transit service.

It is worth noting that the structural and non-structural improvements identified in this report can not alone guarantee a “transit first” plan for the CPDP area – there is a need for a transformational philosophical approach by the approving authorities in the planning and implementation of the community. Approving the most appropriate land use, densities and development staging, including the early development of employment lands, will be critical to support the transportation initiatives recommended herein. Approving “business as usual” low density residential development will not result in a transit supportive plan even when combined with the transportation initiatives described in this report.

The transit improvements recommended in support of the CPDP plan are summarized in Table A and shown in Exhibit 1 below.

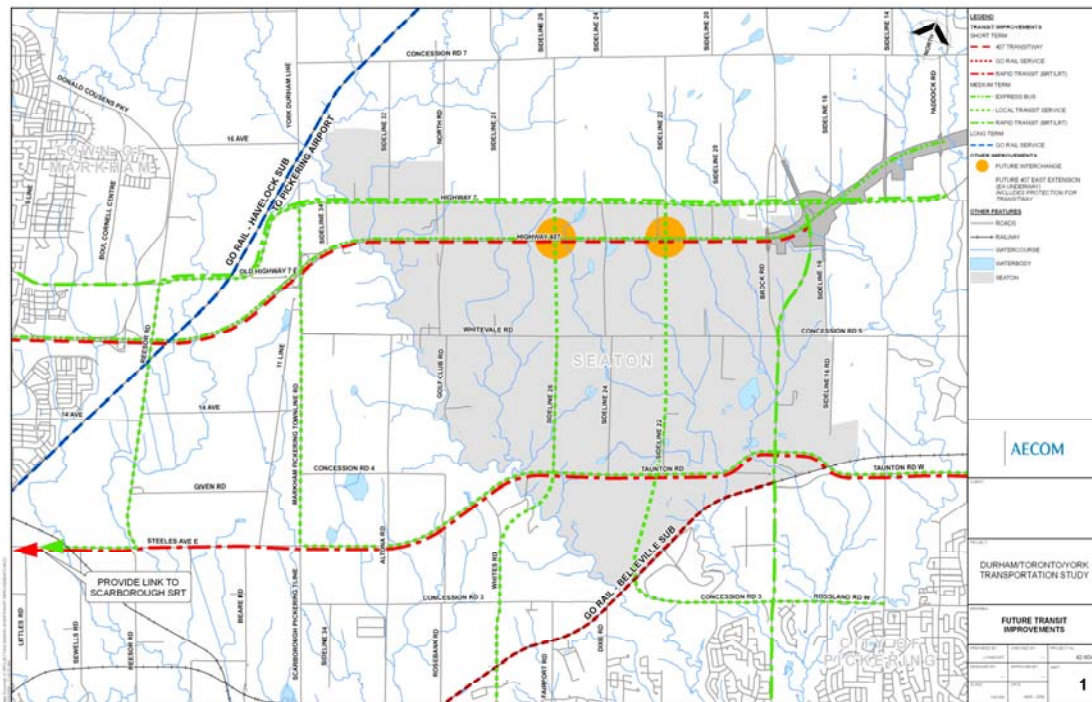
Table A: Transit Infrastructure Implementation Plan

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
<i>Durham Region</i>				
GO Rail Service – Seaton Line Expansion	Through Study Area	GO Rail service expansion on CPR Belleville subdivision to Seaton with new station at Brock and Taunton	Coordinated with development of the Study Area	Metrolinx RTP – 15 Year Plan (Project #14: Seaton to Union Station Summerhill)
407 Transitway	West of Study Area to Brock	New dedicated rapid transit alignment with	Coordinated with the development	Province of Ontario

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
	Road	stations located at 407 / local road network interchanges in Study Area (Sdrd. 26, Sdrd. 22, Brock Road)	of the Study Area	
Major Transit Corridors	Within Study Area: - Highway 7 - 407 - Brock Road - Whites Road - Rossland Road - Taunton Road	Major bus transit service feeding minor transit corridors and connecting to other transit systems.	Coordinated with the development of the Study Area	
Steeles/Taunton Rapid Transit	Through Study Area	New rapid transit line connecting Milliken GO Station in York Region to Downtown Oshawa via Steeles Ave / Taunton Rd. Should be linked to Scarborough SRT extension through surface routes on Malvern Road.	Coordinated with development of the Study Area. York Region VIVA connection to Durham Region is included in 20-year York Region transit plan	Metrolinx RTP 25-year Plan (Project #59: Steeles/Taunton: Milliken GO – Downtown Oshawa) Also included in York Region Transportation Master Plan Update (2009) (would require consultation with TTC)
Brock Rd RT	Downtown Pickering to 407	New BRT line linking downtown Pickering to the 407 and the new Seaton community	Coordinated with development of the Study Area.	Metrolinx RTP 15-year Plan (Project #39: Downtown Pickering to Hwy 407)
Rapid Transit Connection – Pickering Airport	Proposed Pickering Airport site	Station on 407 or Highway 7 Transitway, and/or rail connection to CPR Havelock subdivision	By 2032	Go Rail, Province, Metrolinx, Federal Government
Highway 7 Rapid Transit York VIVA	From West of Study Area to Cornell Terminal connecting with Durham	At-grade bus RT portions in mixed traffic	BRT currently in operation to Cornell Terminal York Region VIVA connection to Durham Region is included in 20 year Transit Plan	Included in York Region Transportation Master Plan Update (2008)
Scarborough SRT Extension	Scarborough City Centre to Malvern Road north of Sheppard Avenue.	Extension of existing SRT system – at-and below-grade. Should be connected to the CPDP area by surface bus service connecting to the Steeles Avenue BRT.	2015	City of Toronto and TTC.
Highway 7/	Markham	Connection from	2011-2021	York Region, TTC

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
Steeles Avenue Rapid Transit	Bypass into Durham	Highway 7 RT to Steeles Avenue at Durham boundary		
407 Express Bus Service	From West of Study Area into Durham	Freeway express bus service	2011	Go Transit, Province
Internal Local Bus Network	TBD	Possibly 3-4 routes within the CPDP area	Based upon development timing and routing	Durham Region
Internal School Service	TBD	TBD	Based upon development timing	Durham Region
Specialized Transit	TBD	TBD	Based upon development timing	Durham Region

Exhibit 1: Future Transit Improvements



Detailed costing for the transit initiatives identified above for both capital and operating costs were not completed by the project team for this study given that routes, schedule frequencies and implementation timing will be dependant to a large degree on development staging. Durham Region staff and staff of Durham Region Transit (DRT) have produced some preliminary capital and operating cost estimates for internal and external conventional, specialized and school services relating to the CPDP. These cost estimates are preliminary in nature and reflect a full build out scenario only. The costs also assume that a high level of service (routes and frequencies) would be provided to the community e.g. 15 min frequencies on conventional routes. Higher level transit cost estimates are provided in this document for discussion

purposes only to provide an indication of the level of initial capital and ongoing operational costs associated with transit services within the CPDP.

Capital costs for the conventional services described above could be in the order of \$97 - \$105 Million (2008 dollars). These costs do not include property costs but include the following:

- Conventional transit vehicles;
- Community buses;
- Specialized vehicles;
- Communications and other ITS equipment;
- Transit maintenance and garage facilities;
- Bus stops and stations;
- Bus Shelters;
- Transit stations and park'n'ride facilities along 407 East (Sidelines 22 and 26 and Brock Road)

Net operating costs for the conventional services described above could be in the order of \$12-\$15 Million per annum (2008 dollars).

These costs do not include capital or operating cost estimates associated with the following.

- Infrastructure and services to be provided and operated by GO Transit;
- Any services that may be provided by York Region or TTC directly to the CPDP area.

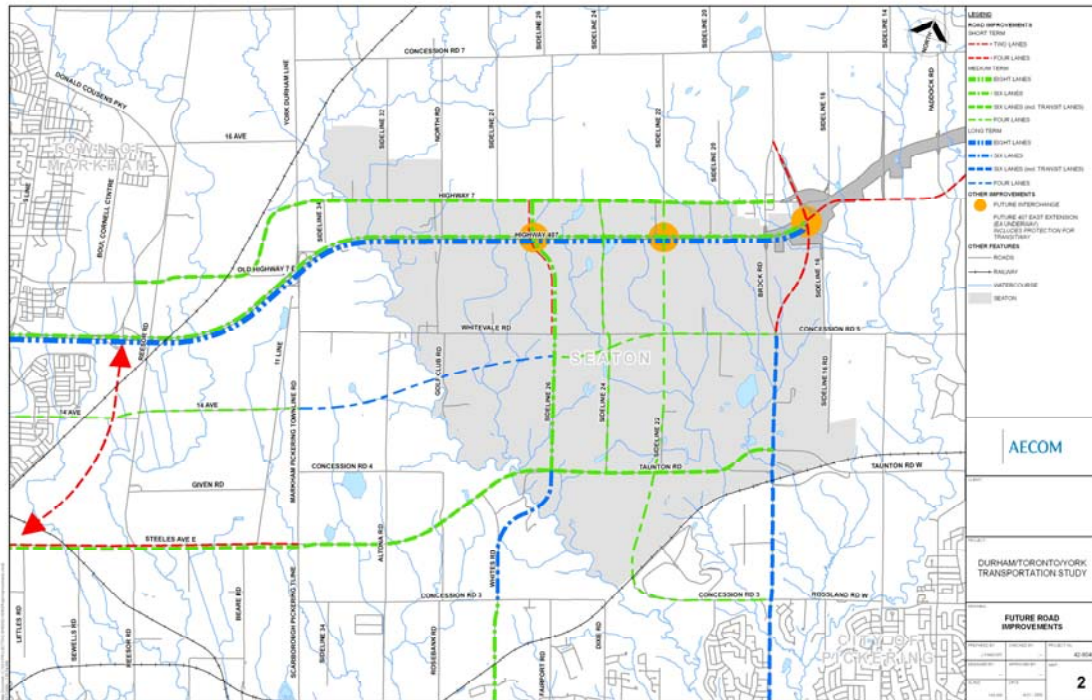
The roadway improvements recommended in support of the CPDP plan are summarized in Table B and shown in Exhibit 2 below.

Table B – Road Infrastructure Implementation Plan

Facility	From	To	Estimated Length (km)	Improvements	Short Term	Medium Term	Longer Term	Cost \$2008 (M)
Provincial								
Roadway								
Highway 7	Markham Bypass	Townline Road	3.0	Widen from 2 to 6 lanes includes Grade Separation with CP Rail and transit lanes)		√		33.8
Highway 7	Townline Road	Brock Road	7.0	Widen from 2 to 6 lanes including transit lanes		√		39
407ETR								
Freeway								
407	Markham Road	Brock Road	14	Widen from 4 to 6 lanes		√		
				Widen from 6 to 8 lanes			√	48.1
Interchange								

Facility	From	To	Estimated Length (km)	Improvements	Short Term	Medium Term	Longer Term	Cost \$2008 (M)
407 East	Sideline 26			New Interchange	√			27.3
407 East	Sideline 22			New Interchange		√		27.3
Municipal								
Roadway								
14th Avenue/5th Concession	Sideline 26	Brock Road		Widen to 4 lanes		√		
	York Durham Line	Sideline 26	7.2	New Alignment (4 lanes)			√	41
Brock Road	Finch	Taunton	4.3	Widen from 4 to 6 lanes			√	16.9
Brock Road	Taunton	5th Concession	1.7	Widen from 2 to 6 lanes		√		
Brock Road	Taunton	5th Concession	1.7	Widen from 2 to 6 lanes			√	6.8
Brock Road	Taunton	5 th Concession	1.7	Widen from 2 to 4 lanes				4.3
Brock Road	Taunton	5 th Concession	1.7	Widen from 4 to 6 (bus lanes)				2.55
Brock Road	5th Concession	Highway 7	3.2	New Alignment (2/4 lanes) (Does not include Hwy 407 interchange)	√			13.0
Rosland Road	Brock Road	Highway 7	7.65	Widen from 2 to 4 lanes		√		34.0
Sideline 24	Taunton Road	Highway 7	4.4	New Alignment (4 lanes) includes widening of underpass to 4 lane structure)		√		17.8
Sideline 26 (Extension of Whites Road)	Taunton Road	Highway 7	4.4	New Alignment (6 lanes)		√		27.10
Taunton Road	York Durham Line	Brock Road	7.5	Widen from 4 to 6 lanes		√		39.5
Whites Road	Finch Road	3rd Concession	2.0	Widen from 2 to 6 lanes (includes new CP grade separation)		√		16.6
Whites Road	3rd Concession	Taunton Road	2.3	New Alignment (6 lanes) (includes new crossing of Duffin Creek)			√	40.5
Steeles Avenue	Markham Road	York Durham Line	6.8	Widen from 2 to 4 lanes	√			
				Widen from 4 to 6 lanes (includes bus lanes)		√		58.8
14th Avenue/5th Concession	Highway 48	9th Line	2.1	Widen from 2 to 4 lanes		√		9.8
14th Avenue/5th Concession	9th Line	York Durham Line	2.1	Widen from 2 to 4 lanes		√		6.6
Markham Bypass	Steeles	Highway 407	4.3	New Alignment (4 lanes)	√			49.2

Exhibit 2: Future Road Improvements



The cost estimates included in Table B above are in 2008 dollars and do not include property, engineering or contingency costs.

In addition to the specific transit and roadway improvements contained respectively in Tables A and B, the following specific recommendations are provided and relate to the desire of the Government of Ontario and other public sector stakeholders to pursue a **“transit first”** approach to transportation servicing for the Central Pickering Area:

- i. A transit strategy for the Study Area must include the initiation of GO rail service to the area, the development of major transit corridors to and within the development area, conventional internal services operated at frequencies that will be attractive to users (i.e. competitive with the automobile) and specialized services for those with special needs within the community.
- ii. In order to accommodate higher frequency transit services within the CPDP development area, consideration should also be given to providing dedicated transit lanes on major community roadways.
- iii. The operating costs associated with a transformational transit strategy for the Study Area will not be completely recoverable through the transit fare box. Consideration should be given to developing a funding or investment strategy that considers both public and private investment opportunities.

-
- iv. The development of a final transit plan for the CPDP must be completed through cooperative discussions involving all agencies having an interest in a **“transit first”** strategy for the area including Durham Region, York Region, Metrolinx, TTC, GO Transit and the Province of Ontario.
 - v. This transit plan must have regard for broader plans for the GGH area including those initiatives identified in the Provinces’ Move Ontario 2020 program and Metrolinx Regional Transportation Plan.
 - vi. Transit policies and guidelines pertaining to the provision of services in the Study Area should contain the following elements:
 - The transit system should effectively link the urban areas within Durham, York and the City of Toronto, with special (higher order) integration to neighbouring communities (Pickering, Markham and Scarborough) and GO Transit.
 - Routes should be designed for optimal customer service (i.e., geographical coverage, minimum transfers and waiting time between transfers, minimum vehicle requirements and minimum travel time). Frequencies for conventional transit services on major routes within and serving the Study Area should be in the order of 10 to 15 minutes.
 - Service hours should be provided for weekday and Saturday/Sunday service. Service on Saturdays and Sundays should be frequent enough to attract ridership. This consistent service provides the opportunity to depend less on auto travel and more on alternative modes. Service hours should be reviewed periodically and amended as necessary.
 - Consideration should be given to accommodating school bus service using conventional services rather than the traditional yellow bus service operated by the school boards.
 - Residents and employees should have access to real time information regarding the status of local and inter-regional transit services.
 - Specialized services should be provided within the CPDP area separate from conventional services.
 - Bus shelters should be provided at all transit stations and key stops within the CPDP.
 - All transit routes should be completely accessible.
 - Fare integration should be considered for all separate systems.
 - Carpool lots are critical to support transit services. It is fundamental that car pool and transit stations be constructed along the 407 corridor in the CPDP area in conjunction with the initial development phases of the CPDP.
 - Transfer requirements should be minimized wherever possible, and where transfers are required they should be managed as un-intrusively as possible.
 - vii. TDM initiatives should be considered key elements of any transportation plan to ensure the efficient movement of people and to encourage the use of alternative modes of travel including active transportation initiatives while minimizing impacts on socio-economic and natural environments.
 - viii. The implementation of a strategic plan involves the setting of ambitious targets and strategies for increasing transit use. As such, a combination of a number of initiatives will be required including:
 - Pro-active and transformational transit improvements to lead development (both service and facilities);

- Supporting road and signal systems infrastructure improvements, both to accommodate essential private vehicle trips and to facilitate efficient transit services;
 - Development of expanded and enhanced pedestrian and cycling environments;
 - Ongoing staged implementation of changes to policies and programs, to support the balancing of transit, walking/cycling, and auto modes; and
 - Ongoing monitoring and re-evaluation of projects and programs, at regular intervals to ensure the suggested targets are being met.
- ix. Given limitations on current public sector revenue streams, provision of a dedicated and sustainable financing source is required to ensure the long-term viability of the transportation system in the Study Area and to achieve the goal of a balanced road and transit system. It is expected that other sources of funding beyond property taxes and development charges must be made available. Potential funding initiatives could include but may not be limited to:
- Establishing a residential or commercial tax or general levy on property tax bills which is utilized to fund and subsidize transit and specialized transit programs;
 - Considering 'value capture' opportunities around transit stations and hubs within the community where higher densities may warrant specific area or development charges;
 - Amending the Development Charges Act to provide municipalities and regional governments the opportunity to recover full growth related costs of transit infrastructure and to base cost recovery on a targeted level of service rather than the existing level of service. In addition, consideration should be given to amending the Development Charges Act to permit roads related Development Charges to be transferred to transit related projects;
 - Obtaining private sector capital financing in design, construction, operation or maintenance for transportation initiatives; and/or;
 - Setting aside a portion of the property tax revenue in a special fund that grows through investment. This could provide a secure source of revenue which will offset declining funding for roads, transit improvements or other regular maintenance projects.
- x. A monitoring and plan review process is an essential element in the implementation of "**transit first**" transportation strategy for the CPDP.
- xi. All stakeholders should participate in a review of potential transit initiatives and funding opportunities with respect to the servicing of the CPDP. This participation can be facilitated through the creation of a coordinating committee with members from each stakeholder group. The servicing of the CPDP also provides an opportunity for Metrolinx to facilitate implementation of the strategic transportation strategy to be developed as part of the broader DTY Area Transportation Study.
- xii. The Province should continue work with the City of Toronto and the TTC, the Regions of Durham and York and GO Transit to facilitate the integration of transit service into Durham and York, including the Central Pickering Development Area. Particular and immediate attention should be given to establishing linkages between the CPDP area and the proposed and planned transit services within the City of Toronto and Region of York. These linkages will be most critical to achieving a "**transit first**" response to development.

- xiii. Staging and implementation of the transit projects addressed in this document is a critical issue particularly when recognizing the Provincial capital investment and ongoing operational requirements of such new infrastructure. In order to ensure protection for key transit initiatives it is recommended that priority be placed on protecting property in transit corridors and at future mobility hubs and transit stations/park and ride facilities. New transit stations and passenger amenities, such as facilities for expanded GO rail service, should be phased in and built on this protected land as demand for service grows. Implementation of rapid transit should focus on connecting the Seaton lands to the planned inter-regional bus rapid transit (BRT) network.

It is worth noting that Environmental Assessment (EA) approvals will be required for a majority of the roadway and transit initiatives identified in this report. The Region of Durham has recently initiated a Class EA process for transportation and other municipal infrastructure within the CPDP area.

Funding for many of the transit and roadway initiatives identified in this document has yet to be approved and must be the subject of further discussions between the Province and the municipalities within the Study Area. The issue of proponents' and the examination of potential partnerships for each of the projects must also be considered in the context of the development of an implementation plan for the projects required to support the CPDP area.

Table of Contents

Statement of Qualifications and Limitations
Letter of Transmittal
Distribution List
Executive Summary

	page
1. Introduction	1
1.1 Objective.....	1
1.2 Approach	3
2. The Current Transportation System.....	4
2.1 Planning Context	4
2.2 Road Network.....	5
2.3 Transit Service.....	7
2.3.1 Existing Transit Service	7
2.3.2 Durham Region Transit (DRT).....	8
2.3.3 GO Transit	8
2.3.4 Existing Mode Split	9
2.3.5 Factors Influencing Mode Split	10
2.4 Review of Past Transportation Planning Assessments	11
3. Needs Opportunities and Future Transportation Challenges.....	16
3.1 Constraints	16
3.2 Land Use	16
3.3 Future Demands	19
3.3.1 Strategic Forecasts	19
3.3.2 Sub-Area Forecasts	21
3.3.3 Screenline Volumes and Problem Identification	24
3.3.4 Sensitivity Testing`	30
4. The Transportation Strategy	32
4.1 Strategy	32
4.2 Transit System.....	33
4.3 Road System	36
4.4 Policies and Programs to Support Growth Plan Objectives	37
5. The Implementation Process	40
5.1 Implementation	40
5.2 Establishing Priorities.....	41
5.3 Monitoring and Growth Management	41
5.4 Delivery.....	42

6. Implementation Summary	43
6.1 Short to Medium Term Action Plan (0-15 Years).....	43
6.1.1 Transit Improvements	43
6.1.2 Road Improvements.....	44
6.1.3 Policies and Programs	44
6.2 Long Term Plan (15-25 years)	46
6.2.1 Transit Improvements	46
6.2.2 Road Improvements.....	46
6.2.3 Policies and Programs	47
6.3 Summary of Recommendations	47

Appendices

- A. Volume Plots and Volume Capacity Categories
- B. Travel Demand Management Opportunities

1. Introduction

As part of the Province's strategy to protect the Oak Ridges Moraine (ORM), the Province agreed to exchange provincially owned lands in Seaton (Central Pickering) for privately owned lands on the Moraine. The agreement was based on the need to provide a comparable return on investment to the landholders.

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This Durham/Toronto/York Area Transportation Study (DTY Study) is a broader transportation study which supports the Central Pickering Development Plan and the eastern Greater Toronto Area (GTA) component of the GGH and documents the inter-regional transportation needs of a larger study area (Durham-Toronto-York). This Study also builds upon the Northeast Metro, Southeast York and West Durham Strategic Transportation Review which was completed in 1993 by the Ministry of Transportation of Ontario (MTO). That Review was completed in 1993 and is now somewhat dated because of the development of growth plans for the Greater Golden Horseshoe (GGH) which includes the Study Area for the DTY Study. While the 1993 review included the planned development of the Seaton area, concerns regarding the impacts of increasing congestion in the area are growing, especially with the urbanisation of the Central Pickering area imminent.

1.1 Objective

To support the implementation of the Central Pickering Development Plan (CPDP), the Province is undertaking the Durham/Toronto/York (DTY) Area Transportation Study to evaluate long-range strategic inter-regional road and transit improvements in the western Durham, northeastern Toronto and southeastern York areas. The Transportation study will be carried out in support of the Central Pickering Development Plan, Provincial land holdings in Seaton and the eastern GTA component of the Growth Plan for the GGH.

The objective is to identify the key transportation infrastructure investments required to address the long term inter-regional road and transit network needs of the area. Improving the inter-regional road and transit network will ensure that the land in Seaton will be serviceable and its value maximized. Ultimately, the study recommendations could form the framework for future provincial/municipal investments.

The Study Area for determining the transportation and transit system improvements associated with the Central Pickering Development Area is bounded by:

- Highway 7/Airport Lands in the north;
- Highway 401/Go Transit Lakeshore Rail Service in the south;
- Lake Ridge Road in the east; and

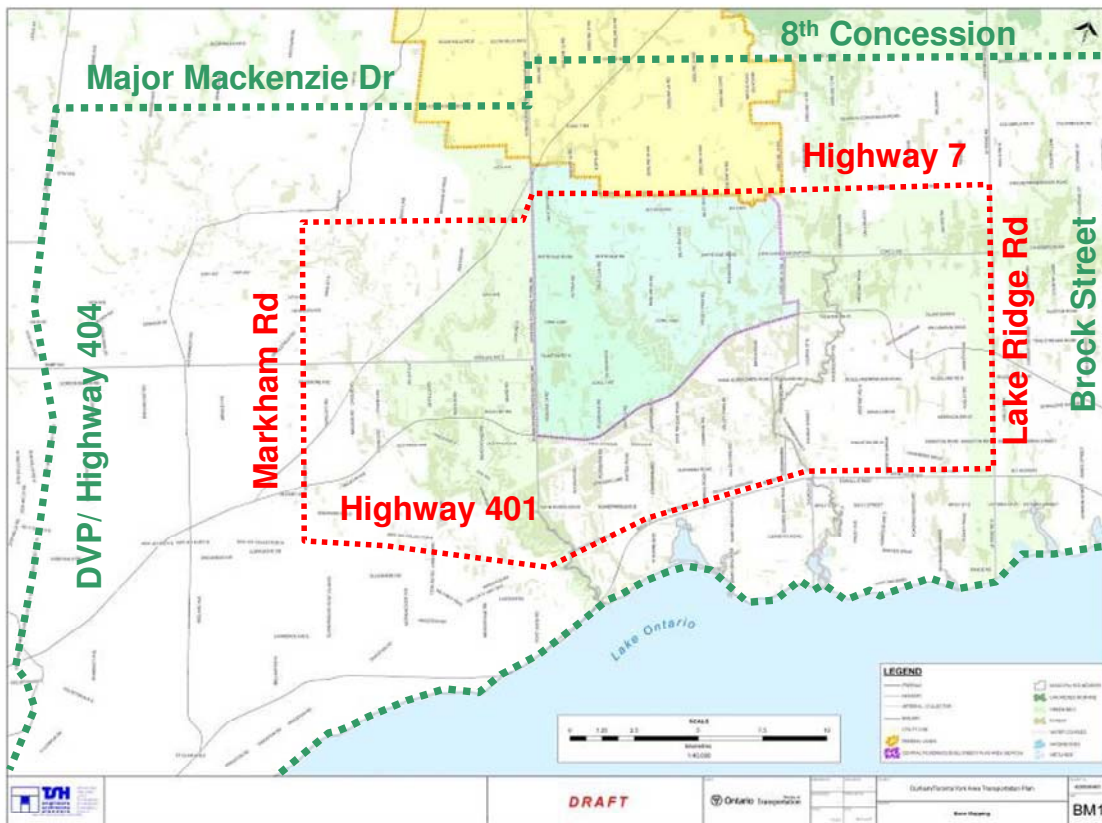
- Markham Road in the west.

A broader Analysis Area has been established for the transportation modelling exercise that is bounded by:

- 8th Concession Road (Durham) and Major Mackenzie Drive (York) in the north;
- Lake Ontario in the south;
- Brock Street in the east; and
- Highway 404/Don Valley Parkway, in the west.

The Study and Analysis Areas are shown on **Exhibit 1**

Exhibit 1: Study Area and Analysis Area



Key goals for this broader transportation study are to:

- Understand the implications of the GGH Growth Plan, Seaton, proposed Pickering Airport, etc. on the transportation network;
- Identify future travel demand needs;
- Investigate a full range of road, transit, High Occupancy Vehicle (HOV), etc. responses and develop integrated land use and combined transit network scenarios to address these demands;
- Identify auto, transit, Travel Demand Management (TDM) and Transportation Systems Management (TSM) modal share targets for Central Pickering;
- Identify “transit-first” opportunities to encourage a more transit oriented community;

- Identify policies that are required to ensure that the “*transit-first*” policy objectives are achieved;
- Identify early transportation initiatives that are needed to allow development to proceed; and
- Identify key projects and jurisdictional responsibilities to move forward.

This DTY Area Transportation Study is being conducted in support of the Central Pickering Development Plan while having regard for the overarching policies and principles contained in the Growth Plan for the Greater Golden Horseshoe including:

- Supporting the development of compact, vibrant and complete communities;
- Planning communities and managing growth to support a strong competitive economy;
- Ensuring the wise use of natural resources;
- Optimizing the use of existing and new infrastructure to support a “*transit first*” policy and encourage growth in a compact and efficient form;
- Providing for different approaches to managing growth that recognize the diversity of communities in the GGH; and
- Promoting collaboration among all jurisdictions and all sectors of the broader community.

Developing a responsible and sustainable transportation plan to move people and goods involves an assessment of necessary “*structural*” requirements and “*non-structural*” travel demand management strategies to reduce auto use, trip distance and time and increase transit mode share. With respect to the movement of people associated with the development of Central Pickering public transit, where most appropriate, will be a key priority for transportation infrastructure planning and investment. Any planning must also recognize that the development of a “*transit first*” plan consider both the physical elements of the plan along with strategies to change how people perceive transit as a viable and competitive mode of transportation. The first priority regarding goods movement will be to ensure that the local and regional network facilitates access to the regional network and the provincial highway system.

1.2 Approach

This assignment has recognized the requirement of the Ontario Ministry of Energy and Infrastructure that the Growth Plan targets for population and employment, along with the CPDP targets of 70,000 residents and 35,000 jobs, be used as the *base condition* for the analysis and that these land use forecasts would be used in the York Region model, requiring the allocation of the Regional totals to a traffic zone level of detail. Sensitivity testing for the study, with respect to land use, honours the principles and targets of the Growth Plan but also considers the potential timing and location of development within the regional context for the interim time horizons.

The travel demand forecasting component of this study was separated into two stages as follows:

1. Strategic Forecasting: using the Region of York’s EMME/2 model to prepare long term *Study Area* and *Analysis Area* transportation demand scenarios.
 - Using Growth Plan land use scenarios, prepare the model for assignment of short, mid-and long-term horizon years; and,

- Assess the screenline capacity for base horizon years (2021 and 2031) for a.m. peak hour conditions.
2. Sub Area Level Forecasting:
- Assess planned land use/development levels for Seaton for each horizon year;
 - Outside of the Strategic Model, generate, distribute and assign Seaton development related volumes to the base transportation network for the appropriate planning horizons and networks;
 - Layer Seaton development related volumes into sub area trip matrix and import back into the Region of York Model;
 - Assign combined traffic levels to horizon year networks; and,
 - Assess critical peak hour demands, providing detailed quantification of the network performance (auto and transit).

Approach 1 (The *Strategic Assessment*) provides the ability to identify the baseline conditions with respect to Regional flows and potential transit share in the Study Area.

Approach 2 (the *Sub-Area Analysis*) provides opportunities to assess land use scenarios within Seaton and the associated trip making to/from the Study Area (trips generation, distribution, mode split and route choice). It also allows for detailed network assessments to be performed on various alternative transportation networks / service conditions. The potential roadway and transit improvements can then be evaluated on their ability to satisfy demand and their consistency with federal, provincial and regional policies.

2. The Current Transportation System

An assessment of the current transportation system serves as the starting point from which future improvements and modifications can be identified. To understand the performance level of the existing transportation system, it is necessary to review all of its components which include: road and transit system use; trip purpose and modal split statistics; travel behaviour patterns; and other associated truck movements.

2.1 Planning Context

Existing Provincial, Regional and local policy documents such as those listed below provide a policy framework for the Study Area. This list of documents is continually changing as additional planning exercises are completed:

- Final Regional Transportation Plan and Investment Strategy – The Big Move, Metrolinx, November, 2008;
- Move Ontario 2020, June 2007;
- Central Pickering Development Plan, May 2006;
- Greenbelt Plan, Government of Ontario, 2005;
- Places to Grow, Better Choices, Brighter Future, A Growth Plan for the Greater Golden Horseshoe, Ministry of Public Infrastructure Renewal, 2005;
- Provincial Policy Statement: 2005;

- The Region of Durham Transportation Master Plan, Region of Durham, 2005;
- Straight Ahead – A Vision for Transportation in Canada, Transport Canada, February 2003;
- The Region of Durham Official Plan, Region of Durham, June 2008 Consolidation;
- Official Plans of the City of Toronto, Region of York and City of Pickering; and
- GO 2020 – GO Transit Strategic Plan.

There are a number of consistent themes and principles embodied in the above documents and other relevant planning, transportation and policy documents that relate to the provision of transportation services within the Province and the Region of Durham. These themes and principles can be used to identify priorities with respect to land use and the transportation infrastructure and level of service required to support that land use. The common themes and principles are:

- Manage economic growth and accommodate the future employment and population growth forecasted for the GGH to foster higher live-work ratios;
- Make effective and efficient use of existing infrastructure;
- Develop an integrated transportation network that provides transportation choice for users, with a focus on transit priorities;
- Develop a network that results in the safe and efficient movement of people and goods; and
- Develop mobility strategies and technologies that foster a clean and healthy environment.

2.2 Road Network

Roads in and through the Study Area serve the daily travel needs of residents and employees entering and leaving the Region of Durham for Toronto and York, and those commercial vehicles and tourist trips destined to and passing through the Study Area. The role, function and performance of the provincial highway and arterial road system serving the eastern portion of the Greater Toronto Area (GTA), and more specifically the Central Pickering Development Area are discussed below.

Highway 407, a major toll highway between Burlington in the west and Pickering in the east, was extended from Markham Road to Brock Road in 2001 as a 4-lane freeway. Traffic on the 407 ETR (Electronic Toll Route) has grown significantly since opening, resulting in peak period delays in some sections and a need for the recent widening of segments of Highway 407 within the central section. While traffic volumes are not made public by 407 ETR, a turning movement count at the intersection of Highway 407 and Brock Road in June 2002 revealed that approximately 18,000 vehicles use the eastern most section on a typical weekday. Similar to conditions that can be observed on Highway 401 to the south, traffic volumes during peak travel periods during the summer months (Fridays and Sundays) tend to be higher (estimated at 20 -25%) on Highway 407 in Durham Region in comparison to the same periods outside of the summer season, reflecting summer recreational and “cottage country” travel demands.

Highway 7 extends from southwestern Ontario to eastern Ontario, although sections have been transferred to municipalities where urbanization has transformed its role and function from a long distance rural highway to a major arterial roadway. Through the Region of Durham, Highway 7 is a 2-lane arterial highway with both east-west and north-south portions and is under the jurisdiction of MTO. Highway 7 volumes experience high levels of directional peaking, meaning that during the peak morning and afternoon travel periods, traffic

peaks in one direction. It carries daily traffic volumes ranging from over 9,000 vehicles at the York-Durham boundary to about 5,000 vehicles at the eastern boundary of Durham Region. Summer weekend (Friday and Sunday) volumes can be 10%-30% higher than the typical daily average.

Highway 407 currently terminates at Highway 7 in Pickering. The terminus of Highway 407, a freeway, with an arterial roadway results in significant congestion and safety issues on the section of Highway 7 to the east of Brock Road. MTO has recently completed an EA for the widening of Highway 7 between Brock Road in Pickering and Brock Street (Highway 12) in Whitby. Construction is scheduled to commence on this project in 2010.

The network of roads in the Study Area comprises a grid of major arterial, minor arterial and collector roads.

Major Arterials:

North-South:

- Whites Road (RR 38);
- Brock Road (RR 1);

East-West

- Rossland Road/Concession 3/Finch Road
- Taunton Road (RR 4).

Minor Arterials:

North-South

- North Road
- Sideline 26
- Sideline 24
- Sideline 22

East-West

- 4th Concession
- 5th Concession/Whitevale Road
- 7th Concession

The most recent traffic count information was provided by the Region of York, the Region of Durham, City of Toronto and MTO. This traffic information was supplemented with additional counts obtained from various recent studies undertaken in the Study Area (Seaton Transportation Study and the Highway 407 East Extension EA). From this recent count inventory volume conditions for the 2006 weekday a.m. peak hour were established for the Study Area.

A screenline is an imaginary line crossing a number of roads (such as the roads linking the Region of Durham and the Region of York), which is used to assess transportation capacity conditions at that location. A screenline comparison of volume to capacity is a basic transportation planning tool used to address the performance of the routes which link major destinations and to define the need for additional capacity. Screenlines are often defined at municipal boundaries and at natural and man-made barriers to travel (such as a river crossing or a rail line).

A comparison of demand to capacity has been completed for a number of screenlines within the Study Area. The link capacities are based on capacities per hour per lane, for the various road classifications.

Key results of the comparison of volume to capacity on the screenlines are shown in **Table 1**. A volume/capacity ratio of 0.90 or higher (i.e. 90 percent of capacity) has been taken as the criterion for identifying a capacity deficiency requiring action (red highlight). Where the v/c ratio is between 0.70 and 0.89, a deficiency is identified where future planning is required (yellow highlights).

Table 1: 2006 A.M. Peak Hour Screenline Summary

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
East of Regional Road 30						
Finch Ave.	44	500	0.09	336	500	0.67
3rd Concession	4	500	0.01	12	500	0.02
Taunton Rd.	300	1,800	0.17	1,847	1,800	1.03
4th Concession	8	500	0.02	250	500	0.50
5th Concession	84	500	0.17	220	500	0.44
Highway 407	475	3,600	0.13	2,027	3,600	0.56
Highway 7	190	900	0.21	852	900	0.95
7th Concession	75	500	0.15	192	500	0.38
8th Concession	43	500	0.09	75	500	0.15
Screenline Total	1,223	9,300	0.13	5,811	9,300	0.62
West of Brock Road						
3rd Concession	208	700	0.30	286	700	0.41
Taunton Rd.	404	1,800	0.22	1,669	1,800	0.93
Whitevale Rd.	15	500	0.03	32	500	0.06
Highway 407	591	3,600	0.16	2,179	3,600	0.61
Highway 7	313	900	0.35	914	900	1.02
7th Concession	31	500	0.06	15	500	0.03
8th Concession	24	500	0.05	276	500	0.55
Screenline Total	1,586	8,500	0.19	5,371	8,500	0.63
South of Highway 407						
Regional Rd. 30	397	900	0.44	268	900	0.30
North Rd.	250	500	0.50	125	500	0.25
Sideline 26						
Sideline 24	250	500	0.50	125	500	0.25
Sideline 22						
Brock Rd.	1,000	1,800	0.56	1,232	900	1.37
Screenline Total	1,897	3,700	0.51	1,750	2,800	0.63

Although the above screenlines appear to indicate that the road network has residual capacity today, many of the east-west and north-south concession roads listed in Table 1 are discontinuous i.e. do not cross the Rouge Valley in the case of the screenline "East of Regional Road 30". The main east-west and north-south arterial roadways providing the necessary capacity for inter-municipal and inter-regional travel are all currently at or close to their capacity limits.

2.3 Transit Service

2.3.1 Existing Transit Service

Existing transit services in Durham Region are provided by GO Transit and Durham Region Transit (DRT). As of January 2006, the Region of Durham became the operating authority of transit services previously operated by the Ajax-Pickering Transit Authority, Whitby Transit, Oshawa Transit and Clarington Transit.

2.3.2 Durham Region Transit (DRT)

In West Durham, DRT operates 15 routes (peak hour and midday service) primarily serving as access to the Pickering GO Station located at Liverpool Road/Bayly Street. Current service does not extend further north than the existing residential neighbourhoods between Finch Avenue and 3rd Concession.

2.3.3 GO Transit

Through its operation of commuter rail and bus services, GO Transit plays an important role in providing both intra-regional transit services as well as connecting Durham Region to the rest of the GTA. In 2001, the GO Trains carried approximately 11,000 passengers westbound across the Toronto-Durham Line during the A.M. peak period and 9,800 passengers eastbound during the P.M. peak period. **Table 2** shows the existing (2005) GO Train weekday service operation within Durham Region. It should be noted that some weekday peak hour, peak direction Oshawa trains provide limited stop services, generally operating as express trains between Pickering and Union Station.

Table 2: Existing (2006) GO Train Service Summary

GO Train	Weekday	
	Route	No. Services
Lakeshore East GO	Union to Oshawa	P.M. Peak: 8, Daily: 25
	Union to Pickering	P.M. Peak: 3, Daily: 4
	Oshawa to Union	A.M. Peak: 8, Daily: 27
	Pickering to Union	A.M. Peak: 3, Daily: 5

GO Bus operates two different services within Durham Region: the “train meets bus” service (where bus links are made at GO Rail stations to facilitate the next leg of the traveller’s journey) and the local, intra-regional and regional bus services on Highway 2 / 401, Highway 12 and Highway 407 / 7. The existing (2006) weekday GO Bus services relative to the Study Area are listed in **Table 3**.

Table 3: Existing (2006) GO Bus Service Summary

GO Bus	Weekday	
	Route	Number of Services
Highway 2 / 401	Oshawa GO to Yorkdale Terminal	A.M. Peak: 10, Daily: 42
	Oshawa to Yorkdale Terminal	A.M. Peak: 2, Daily: 7
	Oshawa GO to Finch Terminal (Express along Hwy 401)	A.M. Peak: 8
	Oshawa GO to Scarborough Centre	A.M. Peak: 3, Daily: 12
	Yorkdale Terminal to Oshawa GO	P.M. Peak: 15, Daily: 53
	Finch Terminal to Oshawa GO (Express along Hwy 401)	P.M. Peak: 7
Highway 407 East	Scarborough Centre to Oshawa GO	P.M. Peak: 12
	York University to Oshawa Terminal (Durham College / UOIT)	Peak Periods: 6, Daily: 10
	York University to Pickering GO Oshawa Terminal to York University	P.M. Peak: 7, Daily: 36

GO Bus	Weekday	
	Route	Number of Services
	(Durham College / UOIT) Pickering GO to York University	Peak Periods: 6, Daily: 10 A.M. Peak: 9, Daily: 35
Durham College / UOIT Express (Hwy 401)	Scarborough to Durham College / UOIT Durham College / UOIT to Scarborough	A.M.: 6 P.M.: 6

2.3.4 Existing Mode Split

The 2001 Transportation Tomorrow Survey (TTS) (a 5% sample survey of travel patterns of GTA residents) during a typical 24 hour period provides data on the travel behaviour of residents of the GTA as summarised in Exhibit 2 below.

Exhibit 2: Distribution of Daily Person Trips for Residents of Durham by Mode of Travel

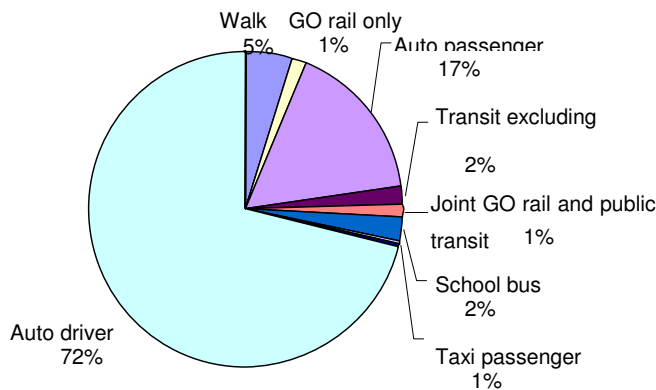


Exhibit 2 shows the predominance of the single occupant vehicle (SOV) as the preferred mode of travel. This reliance on the SOV is a result of the limited transit service available to many residents of the community. The auto has been the preferred mode of travel because in most cases it was the only convenient mode of travel available. The amalgamation and expansion of transit services within the Region of Durham has resulted in additional choices for some residents.

Table 4 summarizes the P.M. Peak Period mode splits for trips to and from the Region of Durham obtained from the 2001 Transportation Tomorrow Survey (TTS). On average, 5.6% of trips originating in the Region are by transit. By far the most significant destination for transit trips is the City of Toronto with a mode split of 22.6% (66.1% by transit to the Central Business District [CBD]). Also shown in Table 4 is comparative data from the 2006 TTS survey. This data suggests that there has been only a nominal change in percentage transit use across the GTA between 2001 and 2006.

Table 4: 2001 TTS P.M. Peak Period Transit Mode Split Summary

Table 4: Existing (2001) P.M. Peak Period Travel Flows by Trip Purpose													
From	TO DURHAM	TOTAL PERSON	AUTO VEHICLE DRIVER	TRANSIT PERSON	TRANSIT MODE SPLIT					TTS 2006 v.1.0			
					Total	Work	School	Discretionary	Non-Home Based	TOTAL PERSON	AUTO VEHICLE	TRANSIT PERSON	TRANSIT MODE SPLIT
Durham		222,019	147,970	5,481	2.5%	2.5%	6.7%	1.1%	0.9%	259,589	173,974	7,036	2.7%
Toronto		47,452	32,081	10,736	22.6%	27.7%	31.3%	4.1%	9.7%	56,117	36,649	13,851	24.7%
	Central Business District	13,985	4,027	9,244	66.1%	71.3%	72.9%	28.2%	34.7%	15,682	3,915	11,057	70.5%
	Central Toronto	8,380	6,584	758	9.0%	10.1%	19.6%	4.3%	5.2%	9,125	6,925	1,205	13.2%
	Scarborough	18,162	15,696	338	1.9%	1.3%	25.4%	0.4%	0.6%	22,620	18,860	843	3.7%
	North Toronto	5,294	4,251	359	6.8%	5.5%	21.1%	2.6%	10.7%	7,230	5,654	631	8.7%
	West Toronto	1,631	1,523	37	2.3%	2.8%	0.0%	0.0%	0.0%	1,460	1,295	115	7.9%
York		14,142	12,599	67	0.5%	0.2%	23.8%	0.0%	0.0%	17,753	15,665	100	0.6%
Peel, Halton & Hamilton		4,008	3,383	57	1.4%	1.4%	0.0%	0.0%	4.8%	4,509	4,027	86	1.9%
Externals West & North		1,443	1,040	21	1.5%	0.0%	0.0%	2.7%	0.0%	1,012	766	18	1.8%
Externals East		3,540	2,728	18	0.5%	0.0%	0.0%	0.0%	3.5%	3,938	3,323	35	0.9%
	Total	292,604	199,801	16,380	5.6%	10.2%	7.7%	1.2%	2.2%	342,918	234,404	21,126	6.2%

Focussing on Durham residents, the following is noted with respect to p.m. peak hour origins and destinations and the prevailing mode share:

- 22% of the people coming home to Durham from Toronto in the p.m. peak hour use transit, while 77% use auto (68% as auto drivers);
- 5% of the trips made to Durham originate in the CBD, with 66% of these residents using transit (predominantly GO Train);
- 6% of the trips to Durham originate in Scarborough, with only 2% of these trips made by transit;
- 76% of the trips made to Durham originated in Durham with only 2.5% of these trips made by transit.

These trip patterns show that short to medium length trips (within Durham Region, or to/from neighbouring Scarborough) are likely to involve a car, because there are no convenient transit connections available or it is more convenient to use the car. Where high speed and frequent transit service is available, as in the case of GO Rail serving the long trip to downtown Toronto, mode shares are significantly higher and in fact transit is the predominant mode of travel.

2.3.5 Factors Influencing Mode Split

Current and future transit mode split are influenced by a variety of interrelated service, land use and socio-demographic factors. By improving transit service levels, and adopting land use planning measures that support transit, a community can increase its ridership potential and/or decrease the number of trips generated. At the same time socio-demographic factors, such as income, auto ownership, occupation and related travel patterns, may limit the potential effectiveness of transit.

Increasing transit's potential will require the design of a community that maximizes access to transit by allowing residents to walk to services and offers high levels of transit service (less than 30 minute headways). Transit must provide frequent service and convenient connections to relevant destinations.

Good connectivity and convenient connections require direct transfer or transfer-minimized transit service. Transit riders will typically transfer once if it is convenient, free, and to a higher order service (GO or Subway/LRT). The CPDP envisions Seaton as a model urban community with mixed uses and options to reduce automobile trips to be promoted in land use decision-making processes. Good connectivity and convenient connections is uniquely important in the CPDP area given its location at the western boundary of the Region,; the employment opportunities in the Region of York and the City of Toronto; the significant transportation infrastructure constraints in these communities; and, the Province's vision to ensure the CPDP as a complete community is realized. A **"transit first"** approach to sustainable transportation planning for the CPDP area will require transit services to be provided to, and within, the community in conjunction with early development phases. Although out commuting will occur from the CPDP area, it is suggested that requiring both residential and employment related development within the area as part of the initial phases of development will improve the live-work ratio in the area.

2.4 Review of Past Transportation Planning Assessments

The first step in the DTY Area Transportation Study was to provide a context for the Study Area and review past planning studies to understand the elements of the transportation system that have been identified to support planned development, including the Central Pickering Area. The objective of the context review was to identify those infrastructure or service related improvements or planning processes that are considered essential and can be initiated in the short-to-mid-term.

The following reports/studies or other materials were reviewed to provide context for the Study Area:

- Durham Transportation Master Plan 2005;
- Durham Development Charges Bylaw and Study 2008;
- Greater Toronto Airports Authority, Pickering Draft Master Plan 2004;
- Highway 7 Environmental Assessment (EA), Brock road to Baldwin Street 2008,
- York Transportation Master Plan 2002 and York Transportation Master Plan Update 2008;
- Highway 407 East Partial Extension Environmental Assessment (EA) 1997;
- Highway 407 East Extension Environmental Assessment (EA) 2006;
- Highway 407 Transitway System Plan and Station Site Plan Study 1997;
- Highway 407 Transitway Stations 2002;
- Brock Road Environmental Assessment (EA) 2003;
- Taunton Road Environmental Assessment (EA) 2001;
- Seaton Transportation Review 2006;
- Steeles Avenue Environmental Assessment (EA) 1992;
- Donald Cousens Parkway (Markham By-Pass) Environmental Assessment (EA) – north of 407 1997-2002;
- Donald Cousens Parkway (Markham By-Pass) Environmental Assessment (EA) – south of 407 2005;

- Ninth Line Environmental Assessment (EA) 1999;
- Central Pickering Development Plan 2006;
- City of Toronto/TTC Scarborough SRT Extension Study 2008/2009 (Public Presentation Materials);
- Durham Preliminary Transit Servicing Plan for Central Pickering 2006;
- GO Transit Service Extension to Peterborough Feasibility Study 2007;
- Metrolinx Regional Transportation Plan “The Big Move” 2008; and
- GO 2020 – GO Transit Strategic Plan

Summaries of each of these studies are provided under separate cover in a report entitled **“Durham/Toronto/York Area Transportation Study, Transportation Infrastructure and Service Quick Starts” (TSH, February 21, 2007).**

Based on a review of past transportation and planning studies in York, Durham and north Toronto, and in consideration of discussions held with staff of stakeholder agencies (GO Transit, GTTA, Metrolinx and municipal staff and regional staff in York, Durham and Toronto), the following recommended infrastructure and service improvements have been previously identified for the Study Area.

Table 5: Past Recommended Transit Service/Infrastructure

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Status
<i>Durham Region</i>				
GO Rail Service – Seaton Line Expansion	Through Study Area	GO Rail service expansion on CPR Belleville subdivision to Seaton with new station at Brock and Taunton	Coordinated with development of the Study Area.	Metrolinx RTP 15-year Plan (Project #14: Seaton to Union Station/Summerhill)
GO Rail Service – Havelock Line Expansion	Through Study Area	GO Rail service expansion on CPR Havelock subdivision with new stations in Locust Hill.	Coordinated with development of the Study Area. Study to being in Summer 2009 for rail expansion to Clarendon, Myrtle, Pontypool and Peterborough.	Metrolinx RTP 15-year Plan (Project #13: Locust Hill (Markham) to Union Station/Summerhill)
407 Transitway	West of Study Area to Brock Road	New dedicated rapid transit alignment with stations at 407 interchanges in Study Area (Sdrd. 26, Sdrd 22, Brock Road)	Coordinated with development of the Study Area.	Transitway corridor approved as part of the 407 East Partial EA from Markham Road to Brock Road. The station sites require EA approval. The 407 Transitway/stations east of Brock Road are a component of ongoing 407 East EA
Steeles/Taunton Rapid Transit	Through Study Area	New rapid transit line connecting Milliken GO Station in York Region to Downtown Oshawa via Steeles Ave / Taunton	Coordinated with development of the Study Area. York Region VIVA	Metrolinx RTP 25-year Plan (Project #59: Steeles/Taunton: Milliken GO –

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Status
		Rd.	connection to Durham Region is included in 20-year York Region transit plan	Downtown Oshawa) Also included in York Region Transportation Master Plan Update (2009) (would require consultation with TTC)
Brock Rd RT				Metrolinx RTP 15-year Plan (Project #39: Downtown Pickering to 407)
Major Transit Corridors	Within Study Area: - Highway 7 - Highway 407 - Brock Road - Whites Road - Taunton Road	Major bus transit service feeding minor transit corridors and connecting to other transit systems.	Coordinated with development of the Study Area.	Long term plan, no status
Rapid Transit Connection – Pickering Airport	Proposed Pickering Airport site	Station on 407 Transitway or Highway 7, and/or rail connection to CPR Havelock subdivision	By 2032	Subject to GTAA Master Plan Review, no status
York Region				
GO Rail Service – Havelock Line Expansion	North and West of Study Area	GO Rail service on CPR Havelock subdivision with new Cornell station/“transit gateway”	By 2032	Metrolinx RTP 15-year Plan (Project #13: Locust Hill (Markham) to to Union Station/Summerhill)
York VIVA Highway 7 Rapid Transit	From West of Study Area to Cornell Terminal connecting with Durham	At-grade bus RT, portions in mixed traffic	BRT currently in operation to Cornell Terminal: York Region VIVA connection to Durham Region is included in 20-year York Region transit plan	Included in York Region Transportation Master Plan Update (2009)
Steeles/Taunton Rapid Transit	West of Study Area, connecting to Steeles/Taunton Rapid Transit	New rapid transit line connecting Milliken GO Station in York Region to Downtown Oshawa via Steeles Ave.	Coordinated with development of the Study Area. York Region VIVA connection to Durham Region is included in 20-year York Region transit plan	Metrolinx RTP 25-year Plan (Project #59: Steeles/Taunton: Milliken GO – Downtown Oshawa) Also included in York Region Transportation Master Plan Update (2009) (would require consultation with TTC)
Highway 7/ Steeles Avenue Rapid Transit	Markham Bypass into Durham	Connection from Highway 7 RT to Steeles Avenue at Durham boundary	2002-2011	Long term plan, no status
407 Express Bus Service	From West of Study Area into	Freeway express bus service	2002-2011	Long term plan, no status

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Status
	Durham			
Steeles Avenue – Transit Priority Network	From West of Study Area to Durham boundary	Improvements for Transit Priority Network: HOV lanes, queue jump lanes, transit-actuated signals, etc.	2002-2011	Included in 5-year City of Toronto Action Plan (as of June 2002) York Region Transportation Master Plan Update (2009) identifies transit priority improvements in other corridors, but not Steeles Ave.

Table 6: Past Recommended Roadway Infrastructure

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Status
<i>Durham Region</i>				
407 Transportation Corridor	Future Airport Access Road (East of North Road)	New partial interchange to/from west for highway	Undefined	Subject to GTAA Master Plan Review, no status
407 Transportation Corridor	Sideline 22	New highway interchange	2011-2021 (407 EA & Seaton Dev. Review) By 2012 (Airport Plan)	EA approved for conceptual location; feasibility analysis required, followed by Design Construction Report
407 Transportation Corridor	Sideline 26	New highway interchange	2011-2021 (407 EA) By 2012 (Airport Plan) By 2011 (Seaton Dev. Review)	EA approved for conceptual location; feasibility analysis required, followed by Design Construction Report
407 Transportation Corridor	Highway 48 to Brock Road	Widening highway from 4 to 6 lanes	2011-2021	Planned, not constructed
407 Transportation Corridor	Brock Road to East of Study Area	New alignment – number of lanes varies	2011-2021 (407 EA) 2021-2031 (Seaton Dev. Review)	Individual EA in progress (to be completed mid 2009)
Highway 7	Donald Cousens Parkway (Markham By-Pass) to Brock Road	Widen from 2 to 4 lanes	2011-2021	Subject to study and transfer agreement between MTO and Region of Durham and MTO and the Region of York
Brock Road	Dellbrook to Taunton	Widen from 2 to 4 lanes	2004-2007	Municipal Class EA Schedule C, Phase 5
Brock Road	Finch to Taunton	Widen from 4 to 6 lanes	2013-2021	Municipal Class EA Schedule C, Phase 5
Brock Road	Taunton to 5 th Concession	Widen from 2 to 4 lanes	2008-2012	Municipal Class EA Schedule C, Phase 5
Brock Road	5 th Concession to North of Brougham	New 4-lane alignment east of existing (Brougham Bypass) <i>Note: 6 lanes South of 407</i>	2008-2012	Municipal Class EA Schedule C, Phase 5

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Status
		<i>in Seaton Dev. Review.</i>		
14 th Avenue / 5 th Concession	York/Durham Townline to Brock Road	New 4-lane alignment	2013-2021	Municipal Class EA Schedule C, Not Started
Sideline 22	Taunton Road to Highway 7	New 4-lane alignment	2011-2021	Subject to Central Pickering development
Rossland Road	Through Study Area	4 to 5 lanes	Undefined (ultimate)	Subject to Central Pickering development
Taunton Road	York/Durham Townline to Brock Road	Widen from 4 to 6 lanes	2013-2021	Municipal Class EA Schedule C, Not Started
Taunton Road	Brock Road to Brock Street	Widen from 5 to 7 lanes	2013-2021	Municipal Class EA Schedule C, Not Started
Valley Farm Road	3 rd Concession to Whitevale Road	New 4-lane alignment	By 2011	Subject to Central Pickering development
Whites Road	Finch to 3 rd Concession	Widen from 2 to 5 lanes	2013-2021	Municipal Class EA Schedule C, Not Started
Whites Road	3 rd Concession to Taunton (incl. West Duffins Creek crossing)	New 4-lane alignment; Provide 4 additional lanes at creek crossing	2013-2021	Municipal Class EA Schedule C, Not Started
Whites Road/Sideline 26	Taunton Road to Highway 7	New alignment	Undefined	Subject to Central Pickering development
Whites Road	Finch Avenue to Highway 7	Widening from 4 to 6 lanes	2021-2031	Subject to Central Pickering development
York Region				
14 th Avenue	Highway 48 to 9 th Line	Widening from 2 to 4 lanes	2021-2031	Unknown
14 th Avenue	9 th Line to York/Durham Townline	Widening from 2 to 4 lanes	2002-2011	Unknown
Markham Bypass / Morningside Avenue	Highway 407 to Existing Morningside terminus	4-lane arterial road on new alignment – continuous versus discontinuous alternatives relative to crossing of Steeles Avenue	2002-2011	EA under review by MOE
Markham Bypass	Existing North terminus westerly to Highway 48	4-lane arterial road on new alignment	2004-2011 (407 EA) 2012-2021 (York TMP)	Long term plan, no status
Markham Bypass	Highway 48 to Highway 404	4-lane arterial road on new alignment	2011-2021	Long term plan, no status
Markham Bypass	16 th Avenue to Major Mackenzie Drive	Widening from 2 to 4 lanes	2004-2011	Long term plan, no status
Markham Bypass / Pickering Airport Connection	Markham Bypass to proposed Pickering Airport site	New alignment from Markham Bypass to future airport	Undefined	Subject to GTAA Master Plan Review, no status
9 th Line	Existing South terminus southerly to future Markham Bypass	Arterial road on new alignment	2002-2011	Subject to Donald Cousens Parkway (Markham By-Pass) EA, no status

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Status
16 th Avenue	Future Markham Bypass to York/Durham Townline	Widening from 2 to 4 lanes	2002-2011	Long term plan, no status
16 th Avenue	Woodbine Avenue to Reesor Road	Arterial improvements	2012-2021	Long term plan, no status
Steeles Avenue	Future Markham Bypass to 11 th Concession	Widening from 2 to 4 lanes	2002-2011	No status
York/Durham Townline	Steeles Avenue to Highway 7	Widening from 2 to 4 lanes	2002-2011	Long term plan, no status
York/Durham Townline	Highway 7 to Bloomington Road	Widening from 2 to 4 lanes	2012-2021	Long term plan, no status

3. Needs Opportunities and Future Transportation Challenges

3.1 Constraints

Major constraints for expansion of the road network exist at a number of key locations within and adjacent to the Study Area including:

- Community of Whitevale: a village located on 5th Concession east of the Durham/Toronto boundary limits the potential for existing 5th Concession to provide improved east-west transportation capacity;
- Access to Highway 407: current overpasses are not planned to serve as full interchanges. Revised plans are being considered for new interchange locations at Sideline 26 and Sideline 22 subject to natural environment conditions and geometric design requirements;
- Rouge River Park: many issues associated with improved connections across the Rouge Valley to major transportation corridors in York and Toronto (i.e. no ‘new’ roads);
- Duffins Creek: Limited potential for connections to north-south arterial road connections to major transportation corridors in south Pickering;
- Multiple jurisdictions: Taunton Road and Steeles Avenue comprise a single east-west transportation corridor with three competing jurisdictions. Decisions or needs in one municipality have implications in another; and,
- Several municipal road networks include a number of major jogs at intersections as a result of historical survey lines example: 5th Concession in the Region of Durham and 14th Avenue in York Region.

3.2 Land Use

For the three Regional municipalities Official Plan projections for 20 year, and ultimate horizon years, have been revisited several times over the course of the past 15 years. The 2006 Places to Grow, Growth Plan for the GGH is the most recent policy with respect to how development is anticipated to occur for the next 30

years in the GTA and surrounding area. Regional municipalities are in the process of assessing the implication of these policies on their own planning objectives.

The allocation of targets to traffic zones is not yet available from each of the Regional municipalities. Each is undergoing a review of their Official Plans with the objective of conforming to the Places to Grow, Growth Plan by mid 2009.

The population and employment projections, as included in Schedule 3 of the Growth Plan, are identified in **Table 7**. Schedule 3 serves as the population and employment forecasts for the transportation forecasting and is used for the future analysis for the Study Area transportation system needs.

Table 7: Greater Golden Horseshoe Land Use (Schedule 3 of the Growth Plan)

Schedule 3

Distribution of Population and Employment for the Greater Golden Horseshoe 2001-2031 (figures in 000's)								
	Population				Employment			
	2001	2011	2021	2031	2001	2011	2021	2031
Region of Durham	530	660	810	960	190	260	310	350
Region of York	760	1,060	1,300	1,500	390	590	700	780
City of Toronto	2,590	2,760	2,930	3,080	1,440	1,540	1,600	1,640
Region of Peel	1,030	1,320	1,490	1,640	530	730	820	870
Region of Halton	390	520	650	780	190	280	340	390
City of Hamilton	510	540	590	660	210	230	270	300
GTAH Total **	5,810	6,860	7,770	8,620	2,950	3,630	4,040	4,330
County of Northumberland	80	87	93	96	29	32	33	33
County of Peterborough*	56	58	144	149	16	17	60	60
City of Peterborough*	74	79			37	41		
City of Kawartha Lakes	72	80	91	100	20	23	25	27
County of Simcoe*	254	294			85	102		
City of Barrie*	108	157	583	667	53	77	230	254
City of Orillia*	30	33			16	17		
County of Dufferin	53	62	71	80	19	22	25	27
County of Wellington*	85	91	269	321	36	41	137	158
City of Guelph*	110	132			63	76		
Region of Waterloo	456	526	623	729	236	282	324	366
County of Brant**	35	39	157	173	16	17	67	71
City of Brantford*	94	102			39	45		
County of Haldimand	46	49	53	56	17	19	19	20
Region of Niagara	427	442	474	511	186	201	209	218
Outer Ring Total**	1,980	2,230	2,560	2,880	870	1,010	1,130	1,240
Total GGH**	7,790	9,090	10,330	11,500	3,810	4,640	5,170	5,560

Source: Hemson Consulting Ltd., "The Growth Outlook for the Greater Golden Horseshoe", January 2005

Note: Numbers rounded to the nearest 10,000 for GTAH municipalities, GTAH Total and Outer Ring Total and to nearest 1,000 for outer ring municipalities.

* Separate forecasts for these municipalities for 2021 and 2031 will be determined

** Totals may not add up due to rounding.

Past studies have used a range of land use projections for both regional municipalities and the Central Pickering Development Area. The project team reviewed population and employment forecasts derived using several sources:

- Region of Durham: DC Review allocation to traffic zone (Durham, 2003)
- Region of York: OP allocation as contained in the York model (York, 2007)
- Central Pickering Development Plan Area: MMAH allocation of CPDP targets to development parcels within the Study Area. (December 2007)

Although the Growth Plan forecasts have not been allocated to the lower tier municipal level, allocations within the context of the Growth Plan were estimated by the Ministry of Municipal Affairs and Housing (MMAH). The Central Pickering Development Plan Area calls for an ultimate population of 69,500 persons and an employment of 36,000 persons.

In order to establish desired live-work relationships, *alternative phasing* and *location of development type* is crucial. Short term development patterns have a significant bearing on future travel patterns when travel behaviour becomes entrenched in an established community.

A “*transit first*” philosophy is best supported by a high live-work relationship and short distance trip making and is best encouraged by providing high density development in mixed use environments. This approach needs to be promoted in the early stages of development.

Based on direction received from MMAH in December 2007 this study proceeded with three alternative interim staging scenarios:

- **Scenario 1 (Service logical)** – development to proceed from south to north as servicing is extended northward
 - 2011 development up to Taunton Road
 - 2021 development up to 5th Concession
 - 2031 ultimate up to and beyond Highway 7 corridor
- **Scenario 2 (Transportation logical)** – based on a review of the service logical land use scenario and assessment of interim year infrastructure needs, a refinement of the staging reflects those development parcels that are adjacent to new/improved infrastructure. The provision of transportation infrastructure and service results in an accelerated ability to develop lands. This affect is most pronounced in the major corridors and hubs such that lands served by Sideline 26, Sideline 22, Brock Road develop up to 5th concession by 2011, and up to Highway 7 by 2021. Also, lands on the north side of Taunton Road can develop by 2011.
- **Scenario 3 (Growth policy supportive)** - in order to achieve “*transit first*” and high live-work ratios (self containment), mixed use and high density development must come on line in equal proportions and in concert with infrastructure and service.

In general, scenarios 2 and 3 above assume the servicing of employment lands coincident with the early stages of residential and commercial development within the CPDP area.

Tables 8 and 9 provide summaries of the traffic zone allocation of the population and employment for the Service Logical and Transportation Logical staging scenarios for the Central Pickering Development Area.

Table 8: Land Use Forecasts for CPDP, Service Logical Staging of Development (MMAH 2007)

Servicing Logical									
Zone	Population			Employment - Base			Employment - High		
	2011	2021	2031	2011	2021	2031	2011	2021	2031
508	0	0	0	0	0	9,075	0	0	10,892
509	0	0	0	0	0	2,557	0	0	3,035
510	0	0	0	0	0	491	0	0	600
512	0	12	12,408	0	2	5,883	0	2	6,473
513	0	2,282	5,198	0	456	1,709	0	456	1,783
514	0	1,816	5,819	0	364	2,214	0	364	2,331
518	4,144	23,320	25,966	829	4,663	5,192	829	4,663	5,192
519	691	4,222	4,222	138	844	844	138	844	844
520	2,382	3,268	3,268	477	654	654	477	654	654
522	10,928	10,928	10,928	2,185	2,185	2,185	2,185	2,185	2,185
523	1,642	1,642	1,642	328	328	328	328	328	328
Total	19,787	47,490	69,451	3,957	9,496	31,132	3,957	9,496	34,317

Source: Parcel allocations of population and employment based on MMAH information provided December 2007

Table 9: Land Use Forecasts for CPDP, Transportation Logical Staging of Development

Transportation Logical									
Zone	Population			Employment - Base			Employment - High		
	2011	2021	2031	2011	2021	2031	2011	2021	2031
508	0	0	0	1,108	2,513	9,075	1,363	2,991	10,892
509	0	0	0	0	1,461	2,557	0	1,816	3,035
510	0	0	0	0	0	491	0	0	600
512	3,066	12,408	12,408	1,497	5,883	5,883	1,717	6,473	6,473
513	0	5,198	5,198	0	1,709	1,709	0	1,783	1,783
514	0	5,819	5,819	0	2,214	2,214	0	2,331	2,331
518	11,331	25,966	25,966	2,266	5,192	5,192	2,266	5,192	5,192
519	691	4,222	4,222	138	844	844	138	844	844
520	2,382	3,268	3,268	477	654	654	477	654	654
522	10,928	10,928	10,928	2,185	2,185	2,185	2,185	2,185	2,185
523	1,642	1,642	1,642	328	328	328	328	328	328
Total	30,040	69,451	69,451	7,999	22,983	31,132	8,474	24,597	34,317

Source: Parcel allocations of population and employment based on MMAH information provided December 2007

In reviewing the potential to advance development allocation to the 3 horizon time periods, it was observed that the transportation logical scenario was not significantly different from the Growth Policy supportive scenario. Therefore only Scenarios 1 and 2 were carried forward for the transportation assessment

3.3 Future Demands

3.3.1 Strategic Forecasts

The Region of York’s travel demand forecasting model was obtained and reviewed for content, consistency and suitability for use in determining volume forecasts for the Study Area. The York Rapid Transit Plan

(YRTP) model is a multi-modal transportation model calibrated to 2001 Transportation Tomorrow Survey (TTS) data. It uses the EMME/2 model system and adopts the standardized zone system (2001 GTA) and network conventions use by the Greater Toronto Area (GTA) planning agencies for travel forecasting. The YRTP estimates travel for York Region and the GTA for the a.m. peak period (6:00 a.m.-8:59 a.m.) based on five travel modes (auto driver, public transit with walk access, public transit park-and-ride, commuter rail park-and-ride, commuter rail with transit access) and six trip purposes (3 categories of work trip, 2 categories of school trip and 1 category of other purpose trip).

The YRTP model is a behavioural model, which predicts trip making characteristics of groups of individuals based on the characteristics of the group, the characteristics of their trips, the travel options available and the characteristics of these options. The approach reflects the four stage sequential process of: trip generation; trip distribution; mode split and assignment.

The modelled network is based on available future road and transit infrastructure plans as outlined in the Central Pickering Development Plan; the Durham and York Transportation Master Plans; the Highway 407 East Extension EA study; and, the Highway 407 Transitway report. The details of the 2006 and 2021 network assumptions for use in the model are provided in Appendix 'A'.

The test of a model's reliability is its level of calibration (the degree to which it replicates the pattern level of existing traffic). The 2006 base year model (land use/network) was checked for consistency against most recent MTO and area traffic count data. As part of the calibration process, the base network was reviewed in detail in terms of link assumptions, speed, capacity, number of lanes and centroid/zone connections. **Table 10** provides a summary of the modelled to observed ratio for the Study Area screenlines. Conventionally, a modelled/observed ratio on a screenline basis of less than 15% of difference is considered as an acceptable level of calibration.

Table 10: Study Area Screenline Calibration – Modelled to Observed Ratio

Screenline	Link	East/North			West/South		
		Obs	Mod	Mod/Obs	Obs	Mod	Mod/Obs
East of Townline Road	Finch Avenue	44	96	2.18	336	467	1.39
	3rd Concession Road	4	14	3.50	12	233	19.42
	Taunton Road	399	31	0.08	1,847	972	0.53
	4th Concession Road	8	242	30.25	250	338	1.35
	Whitevale Road	84	325	3.87	220	481	2.19
	Highway 407	453	588	1.30	1,424	2,689	1.89
	Highway 7	190	70	0.37	852	643	0.75
	Screenline Total	1,182	1,366	1.16	4,941	5,823	1.18
East of Brock Road	Rossland Road	261	184	0.70	762	439	0.58
	Taunton Road	687	439	0.64	1,805	1,132	0.63
	5th Concession Road	62	188	3.03	251	487	1.94
	Highway 407	179	360	2.01	966	1,751	1.81
	Highway 7	168	16	0.10	543	13	0.02
	Screenline Total	1,357	1,187	0.87	4,327	3,822	0.88
North of Taunton Road	Durham/York Townline Road	397	359	0.90	268	176	0.66
	Altona Road	535	426	0.80	238	331	1.39
	4th Line	250	361	1.44	125	284	2.27
	Sideline 26	250	419	1.68	125	323	2.58
	Sideline 22	250	203	0.81	125	483	3.86
	Brock Road	1,000	740	0.74	1,232	462	0.38
	Screenline Total	2,682	2,508	0.94	2,113	2,059	0.97

It should be noted that, for some of the smaller concession roadways (3rd Concession, Sideline 22, etc.) where there is little traffic today, the modelled to observed ratio is high reflecting the low volumes on these facilities. Comparison of the year 2006 assigned volumes with current inventory traffic counts showed that the major screenlines were calibrated to acceptable levels and within industry standards of reasonableness.

Based on the model calibration process, it was concluded that the model produces acceptable forecasts of future traffic volumes, examine highway deficiencies and test a range of roadway improvement options in the Study Area.

3.3.2 Sub-Area Forecasts

As previously discussed, the use of the YTRP model presented some opportunities and challenges from a travel demand forecasting perspective. A number of adjustments to the model were required to reflect revised Growth Plan population and employment targets for the entire Greater Golden Horseshoe and the “**transit first**” nature of the servicing plans for the CPDP. The challenges and opportunities are summarized below:

- Changes in travel behaviour – current public transit in York is less than 5% of all trips and in Durham is less than 7%. Large changes in mode split associated with land use and behaviour are difficult to model given the current nature of the equations and the variables used to reflect travel choice;
- Transit supportive land use – the introduction of high quality transit service is dependent on the ability to provide transit supportive land use. Transit conducive conditions in suburban areas are difficult to replicate without careful integration of land use and urban design factors, which are difficult to model;
- Park and ride trips – in York approximately half of public transit users’ access transit by park and ride. This mode still requires high automobile use and therefore requires that park and ride facilities be provided;
- Transit Level of service/land use interactions – improved level of service and access provided by transit will help focus development/increased densities in corridors. This land use result/outcome is not reflected in the land use as originally input to the model;
- Interaction between transit service providers – while increases in service by each provider can be reflected in the model inputs, and while these services can be complimentary, there are overlaps in the markets and integration issues between transfer facilities, fare structures that will affect real ridership of the system beyond what the model is capable of reflecting; and
- Walk access – transit use is typically higher for residents that live within 500m of a station or stop. The traffic zone system in the strategic model is not necessarily refined enough to reflect this criteria (typically an operational planning level of detail).

Therefore because of these challenges in the model, a Stage 2 (sub-area) process was used to provide more control and flexibility to incorporate these aspects of demand in the forecasts. The Stage 2 results independently controlled the travel demand behaviour generated within, to and from the Study Area to reflect these variable conditions. (See also Section 1.2 of this report.)

To determine the development-related site traffic a traditional four-step planning approach was used: Trip generation;

- Trip distribution;
- Mode split; and
- Assignment.

Trip Generation

Standard published trip rates contained in the Institute of Transportation Engineers (ITE) Trip Generation manual (7th Edition) were used as the basis for estimating trips generated by residential and employment land uses. Land uses were generated based on the traffic zone population and employment as identified in the CPDP Final Plan Schedule C, and were adjusted to reflect the DC land use allocation by the Region of Durham.

Table 11 provides an overview of the estimated trip generation for the Central Pickering Development Area based on ITE trip generation rates for the two scenarios being evaluated.

Table 11: CPDP Trip Generation (A.M. Peak Hour, Auto)

CPDP Traffic Zones	2011		2021		2031	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Service Logical	2,125	2,975	5,095	7,140	13,410	11,250
Transportation Logical	3,945	4,615	10,573	10,865	13,410	11,250

The trip generation identified in **Table 12** reflects auto vehicles only. The ITE rates typically reflect a 5% transit mode share. From the base model assignments, transit mode shares for CPDP trips were calculated as follows:

- 2011 - less than 1% inbound; 8% outbound
- 2021 - less than 1% inbound; 8% outbound
- 2031 - less than 1% inbound; 9% outbound

As the 8-9% transit share was calculated on a lower trip generation rate from the model, the higher model rates were used as the base transit scenario.

Trip Distribution

The distribution of proposed development traffic to the various roads approaching the Study Area was based on the Regional model assignments of the commensurate Study Area trip generation. **Tables 12 -14** provide a summary of the trip distribution by horizon year. The variation in the trip distribution is a result of changes in travel patterns due to varying municipal population and employment growth and changes in the prevailing network performance as congestion results in increasing delays to longer distance trip making.

Table 12: Trips Distribution 2006 A.M. Peak Hour – CPDP Trips

	To	From
CPDP	5%	6%
Rest of Durham	68%	71%
Toronto	19%	14%
York	7%	8%
Other (Peel/Halton/Hamilton)	1%	1%
Total	100%	100%

Table 13: Trips Distribution 2021 A.M. Peak Hour – CPDP Trips

	Service Logical		Transportation Logical	
	To	From	To	From
CPDP	9%	11%	11%	13%
Rest of Durham	41%	62%	40%	57%
Toronto	29%	15%	26%	17%
York	19%	12%	20%	12%
Other (Peel/Halton/Hamilton)	1%	1%	2%	1%
Total	100%	100%	100%	100%

Table 14: Trips Distribution 2031 A.M. Peak Hour – CPDP Trips

	Ultimate	
	To	From
CPDP	17%	22%
Rest of Durham	48%	60%
Toronto	21%	9%
York	13%	9%
Other (Peel/Halton/Hamilton)	1%	0%
Total	100%	100%

Mode Split

The transit mode split review is intended to establish the transit mode split that will be required to estimate future road improvements and assess the adequacy of the planned road network for the Study Area. Achievable transit mode split targets are required to estimate the residual road requirements related to the planned level of development in the undeveloped areas of the Region.

Mode splits (the level of auto versus transit use) were generated by the model. For the study area, adjustments were made in the future year to reflect land use, road infrastructure improvements and increased level of transit service.

Table 15 provides a summary of the mode splits generated by the demand forecasting model for the horizon year assessments using the base model. These mode splits have been extracted directly from the base model and are prior to adjustments to reflect a “*transit first*” approach to transportation servicing.

Table 15: Mode Split to Transit (A.M. Peak Hour) – CPDP

Horizon Year	CPDP Mode Split to Transit	
	All To CPDP	From CPDP to All
2006	0.2%	0.4%
2021	0.5%	9.0%
2031	0.1%	8.0%

Future horizon years show a significant increase in the trips made by transit leaving the Region of Durham, especially for trips leaving the CPDP area. A majority of the transit trips leaving the CPDP and the Region of Durham are destined for areas in Toronto. Very few trips are forecast to leave Toronto with destinations in the CPDP. Even with increased internalization/live-work, the percentage of transit trips to Seaton from Seaton and from Durham to Seaton is forecast to be relatively low based upon the “limited” transit network assumed in the base plan (Section 3.3.1).

The mode shares presented in **Table 15** are model derived splits to transit using demographic inputs and mathematical probabilities of mode choice based on generalize travel costs (user costs versus travel time savings). Additional review and sensitivity testing has been performed to determine the impact of increased mode shares beyond those calculated in the strategic forecasting tool. The mode splits identified in **Table 15** are considered the base future condition for transit and could be considered the “business as usual” scenario.

Assignment

The adjusted matrices were assigned to the base year networks to represent forecast traffic volumes for the 2011, 2021 and 2031 a.m. peak hour conditions.

3.3.3 Screenline Volumes and Problem Identification

A screenline analysis was conducted to assess existing conditions and to strategically assess any deficiencies in the future base road network for total traffic conditions in 2011, 2021 and 2031 for both the *service logical* and *transportation logical* land use scenarios.

A screenline is used to aggregate traffic volumes on roads crossing a real or imaginary barrier within a Study Area, such as a road, river, rail line, or municipal boundary. The crossing roadways are grouped in this way to provide a useful measure of system demand and capacity for a strategic assessment of network requirements. By comparing the total screenline capacity versus forecasted volumes, network deficiencies can be determined and options to address the deficiencies, such as road widening or new roads to increase capacity, can be identified.

Service Logical 2011**Table16: 2011 A.M. Peak Hour Screenline Summary – Service Logical**

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
<i>East of Regional Road 30</i>						
Finch Ave.	146	500	0.29	485	500	0.97
3rd Concession	83	500	0.17	330	500	0.66
Taunton Rd.	52	1,800	0.03	1,583	1,800	0.88
4th Concession	245	500	0.49	374	500	0.75
5th Concession	201	500	0.40	417	500	0.83
Highway 407	971	3,600	0.27	4,133	3,600	1.15
Highway 7	130	900	0.14	683	900	0.76
7th Concession	38	500	0.08	328	500	0.66
8th Concession	6	500	0.01	283	500	0.57
Screenline Total	1,873	9,300	0.20	8,616	9,300	0.93
<i>West of Brock Road</i>						
3rd Concession	383	700	0.55	363	700	0.52
Taunton Rd.	598	1,800	0.33	1,654	1,800	0.92
Whitevale Rd.	230	500	0.46	512	500	1.02
Highway 407	658	3,600	0.18	2,830	3,600	0.79
Highway 7	318	900	0.35	745	900	0.83
7th Concession	94	500	0.19	357	500	0.71
8th Concession	20	500	0.04	320	500	0.64
Screenline Total	2,300	8,500	0.27	6,781	8,500	0.80
<i>South of Highway 407</i>						
Regional Rd. 30	890	900	0.99	714	900	0.79
North Rd.	267	500	0.53	146	500	0.29
Sideline 26	467	700	0.67	150	700	0.21
Sideline 24	382	500	0.76	255	500	0.51
Sideline 22						
Brock Road	682	1,800	0.38	390	900	0.43
Screenline Total	2,688	4,400	0.61	1,655	3,500	0.47

The following problems are identified based on the *service logical* land use scenario for 2011:

- Screenline East of Regional Road 30 is at capacity
 - Taunton Road is approaching capacity
 - 5th Concession is approaching capacity
 - Highway 407 is over capacity
- Screenline West of Brock Road is approaching capacity
 - 5th Concession (Whitevale Road) is over capacity
 - Taunton Road is at capacity
 - Highway 407 is approaching capacity
 - Highway 7 is approaching capacity
- Screenline South of Highway 407 is operating within capacity
 - Regional Road 30 is at capacity

Service Logical 2021

Table 17: 2021 A.M. Peak Hour Screenline Summary – Service Logical

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
<i>East of Regional Road 30</i>						
Finch Ave.	24	500	0.05	434	500	0.87
3rd Concession	5	500	0.01	222	500	0.44
Taunton Rd.	377	2,700	0.14	1,946	2,700	0.72
4th Concession	312	500	0.62	385	500	0.77
5th Concession	1	1,400	0.00	852	1,400	0.61
Whitevale Road	12	500	0.02	28	500	0.06
Highway 407	2,298	5,400	0.43	5,423	5,400	1.00
Highway 7	461	900	0.51	787	900	0.87
7th Concession	202	500	0.40	449	500	0.90
8th Concession	8	500	0.02	402	500	0.80
Screenline Total	3,700	13,400	0.28	10,929	13,400	0.82
<i>West of Brock Road</i>						
3rd Concession	326	700	0.47	481	700	0.69
Taunton Rd.	1,203	2,700	0.45	1,818	2,700	0.67
Whitevale Rd.	376	700	0.54	472	700	0.67
Highway 407	2,215	5,400	0.41	4,059	5,400	0.75
Highway 7	335	900	0.37	768	900	0.85
7th Concession	147	500	0.29	453	500	0.91
8th Concession	103	500	0.21	476	500	0.95
Screenline Total	4,705	11,400	0.41	8,528	11,400	0.75
<i>South of Highway 407</i>						
Regional Rd. 30	985	900	1.09	686	900	0.76
North Rd.	373	500	0.75	30	500	0.06
Sideline 26	952	1,400	0.68	258	1,400	0.18
Sideline 24	336	500	0.67	98	500	0.20
Sideline 22	477	700	0.68	425	700	0.61
Brougham Bypass	258	1,800	0.14	657	1,800	0.37
Screenline Total	3,380	5,800	0.58	2,154	5,800	0.37

While some of the planned regional infrastructure on the 20 year horizon will address capacity requirements to some extent, the following problems, based on the service logical land use scenario for 2021, remain:

- Screenline East of Regional Road 30 is approaching capacity
 - Highway 407 is at capacity
 - Highway 7 is approaching capacity
 - 7th Concession is approaching capacity
 - 8th Concession is approaching capacity
- Screenline West of Brock Road is operating at an acceptable level of service (within capacity)
 - Highway 7 is approaching capacity
 - 7th Concession is at capacity
 - 8th Concession is at capacity

- Screenline South of Highway 407 is operating within capacity
 - Regional Road 30 is over capacity

Transportation Logical 2011

Table 18: 2011 A.M. Peak Hour Screenline Summary – Transportation Logical

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
<i>East of Regional Road 30</i>						
Finch Ave.	164	500	0.33	419	500	0.84
3rd Concession	50	500	0.10	314	500	0.63
Taunton Rd.	91	1,800	0.05	1,550	1,800	0.86
4th Concession	258	500	0.52	373	500	0.75
5th Concession	236	500	0.47	395	500	0.79
Highway 407	969	3,600	0.27	4,111	3,600	1.14
Highway 7	96	900	0.11	590	900	0.66
7th Concession	16	500	0.03	311	500	0.62
8th Concession	2	500	0.00	323	500	0.65
Screenline Total	1,881	9,300	0.20	8,385	9,300	0.90
<i>West of Brock Road</i>						
3rd Concession	362	700	0.52	371	700	0.53
Taunton Rd.	910	1,800	0.51	1,569	1,800	0.87
Whitevale Rd.	268	500	0.54	501	500	1.00
Highway 407	687	3,600	0.19	2,843	3,600	0.79
Highway 7	425	900	0.47	629	900	0.70
7th Concession	71	500	0.14	331	500	0.66
8th Concession	35	500	0.07	367	500	0.73
Screenline Total	2,757	8,500	0.32	6,612	8,500	0.78
<i>South of Highway 407</i>						
Regional Rd. 30	911	900	1.01	764	900	0.85
North Rd.	282	500	0.56	179	500	0.36
Sideline 26	511	700	0.73	228	700	0.33
Sideline 24	375	500	0.75	212	500	0.42
Sideline 22						
Brock Road	722	1,800	0.40	371	1,800	0.21
Screenline Total	2,801	4,400	0.64	1,755	4,400	0.40

The following problems are identified based on the *transportation logical* land use scenario for 2011:

- Screenline East of Regional Road 30 is at capacity
 - Taunton Road is approaching capacity
 - 5th Concession at approaching capacity
 - Highway 407 is over capacity
- Screenline West of Brock Road is approaching capacity
 - 5th Concession (Whitevale Road) is over capacity
 - Taunton Road is approaching capacity
 - Highway 407 is approaching capacity

- Highway 7 is approaching capacity
- Screenline South of Highway 407 is operating within capacity
 - Regional Road 30 is over capacity
 - Sideline 26 and 24 are approaching capacity

Transportation Logical 2021

Table 19: 2021 A.M. Peak Hour Screenline Summary – Transportation Logical

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
East of Regional Road 30						
Finch Ave.	38	500	0.08	355	500	0.71
3rd Concession	79	500	0.16	188	500	0.38
Taunton Rd.	457	2,700	0.17	1,807	2,700	0.67
4th Concession	322	500	0.64	431	500	0.86
5th Concession	10	1,400	0.01	718	1,400	0.51
Whitevale Road	27	500	0.05	36	500	0.07
Highway 407	2,374	5,400	0.44	5,350	5,400	0.99
Highway 7	420	900	0.47	844	900	0.94
7th Concession	209	500	0.42	465	500	0.93
8th Concession	5	500	0.01	387	500	0.77
Screenline Total	3,941	13,400	0.29	10,581	13,400	0.79
West of Brock Road						
3rd Concession	314	700	0.45	480	700	0.69
Taunton Rd.	1,317	2,700	0.49	1,812	2,700	0.67
Whitevale Rd.	448	700	0.64	439	700	0.63
Highway 407	2,152	5,400	0.40	4,040	5,400	0.75
Highway 7	299	900	0.33	795	900	0.88
7th Concession	149	500	0.30	454	500	0.91
8th Concession	95	500	0.19	435	500	0.87
Screenline Total	4,773	11,400	0.42	8,454	11,400	0.74
South of Highway 407						
Regional Rd. 30	964	900	1.07	841	900	0.93
North Rd.	357	500	0.71	376	500	0.75
Sideline 26	957	1,400	0.68	629	1,400	0.45
Sideline 24	272	500	0.54	151	500	0.30
Sideline 22	466	700	0.67	435	700	0.62
Brougham Bypass	203	1,800	0.11	715	1,800	0.40
Screenline Total	3,218	5,800	0.55	3,147	5,800	0.54

While some of the planned regional infrastructure on the 20 year horizon will address capacity requirements to some extent, the following problems, based on the *service logical* land use scenario for 2021, remain:

- Screenline East of Regional Road 30 is at capacity
 - Highway 407 is over capacity
 - 7th Concession is over capacity
 - 8th Concession is over capacity

- Screenline West of Brock Road is approaching capacity
 - Highway 407 is approaching capacity
 - Highway 7 is approaching capacity
 - 7th Concession is at capacity
 - 8th Concession is approaching capacity
- Screenline South of Highway 407 is operating within capacity
 - Regional Road 30 is at capacity

Ultimate 2031

Table 20: 2031 A.M. Peak Hour Screenline Summary – Ultimate

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
East of Regional Road 30						
Finch Ave.	72	700	0.10	316	700	0.45
3rd Concession	92	500	0.18	363	500	0.73
Taunton Rd.	378	2,700	0.14	2,025	2,700	0.75
4th Concession	285	500	0.57	468	500	0.94
5th Concession	51	1,400	0.04	841	1,400	0.60
Whitevale Rd.	32	500	0.06	42	500	0.08
Highway 407 mainline	2,731	5,400	0.51	5,550	5,400	1.03
Highway 7	1,043	900	1.16	721	900	0.80
7th Concession	379	500	0.76	268	500	0.54
8th Concession	71	500	0.14	527	500	1.05
Screenline Total	5,135	13,600	0.38	11,121	13,600	0.82
West of Brock Road						
Finch Ave.	296	700	0.42	538	700	0.77
Taunton Rd.	1,595	2,700	0.59	2,691	2,700	1.00
Whitevale Rd.	461	700	0.66	543	700	0.78
Highway 407 mainline	2,115	5,400	0.39	4,322	5,400	0.80
Highway 7	74	900	0.08	1,091	900	1.21
7th Concession	294	500	0.59	737	500	1.47
8th Concession	75	500	0.15	434	500	0.87
Screenline Total	4,910	11,400	0.43	10,357	11,400	0.91
South of Highway 407						
Regional Rd. 30	933	900	1.04	806	900	0.90
North Rd.	536	500	1.07	636	500	1.27
Sideline 26	926	1,400	0.66	850	1,400	0.61
Sideline 24	423	500	0.85	264	500	0.53
Sideline 22	489	700	0.70	484	700	0.69
Brougham Bypass	322	1,800	0.18	768	1,800	0.43
Screenline Total	3,629	5,800	0.63	3,808	5,800	0.66

The following problems are identified based on the *ultimate* land use scenario for 2031:

- Screenline East of Regional Road 30 is approaching capacity
 - Highway 407 is over capacity
 - Highway 7 is over capacity
 - 8th Concession is over capacity

- Screenline West of Brock Road is at capacity
 - 5th Concession (Whitevale Road) is approaching capacity
 - Taunton Road is over capacity
 - Highway 407 is approaching capacity
 - Highway 7 is over capacity
 - 7th Concession is over capacity
 - 8th Concession is approaching capacity
- Screenline South of Highway 407 is operating within capacity
 - Regional Road 30 is over capacity
 - North Road is over capacity
 - Sideline 24 is approaching capacity

Volume plots and volume to capacity (v/c) categories on a facility by facility basis are provided in **Appendix A**

3.3.4 Sensitivity Testing`

Sensitivity testing was performed to reflect additional considerations for transit mode shares to, and from, the CPDP area. Accounting for increased transit service and connections within the network in early phases of the development, revised transit shares were incorporated into the trip generating characteristics of the proposed development.

Transit mode share changes were implemented to achieve significant share of trips by transit. The baseline conditions for transit achieved through the strategic model assessment reflect a mode split of approximately 8-9% in the CPDP and 6-7% Region of Durham wide.

A review of the trip making characteristics of the CPDP land use and trip behaviour suggests that, with appropriate transit service (routing and connections) and transit supportive land use and urban design, transit shares could be increased significantly. **Table 21** provides a summary of mode split targets for the CPDP.

**Table 21 – Revised Mode Share Targets
(for CPDP Based Trips Only – A.M. Peak Hour)**

Major Origin/Destin.	Mode Split to Transit	
	Model Derived	Target
CPDP	<1%	20%
Rest of Durham	<1%	15%
Toronto	28%	25%
York	3%	10%
Rest of GTA	10%	10%

The application of these target mode splits to the travel demand matrices result in a reduction in auto trips of 10% region wide and a 15% reduction to/from the CPDP.

An assignment of the demands to the road network resulted in the ultimate (2031) screenline volume/capacity assessment as shown in **Table 22**.

Table 22: 2031 A.M. Peak Hour Screenline Summary – Target Transit Mode Share

Link Name	Northbound/Eastbound			Southbound/Westbound		
	Volume	Total Capacity	v/c	Volume	Total Capacity	v/c
East of Regional Road 30						
Finch Ave.	62	700	0.09	373	700	0.53
3rd Concession	43	500	0.09	225	500	0.45
Taunton Rd.	316	2,700	0.12	1,738	2,700	0.64
4th Concession	319	500	0.64	376	500	0.75
5th Concession	60	1,400	0.04	430	1,400	0.31
Whitevale Rd.	31	500	0.06	18	500	0.04
Highway 407 mainline	2,597	5,400	0.48	4,579	5,400	0.85
Highway 7	803	900	0.89	644	900	0.72
7th Concession	270	500	0.54	235	500	0.47
8th Concession	61	500	0.12	428	500	0.86
Screenline Total	4,563	13,600	0.34	9,046	13,600	0.67
West of Brock Road						
Finch Ave.	311	700	0.44	650	700	0.93
Taunton Rd.	1,282	2,700	0.47	2,620	2,700	0.97
Whitevale Rd.	399	700	0.57	478	700	0.68
Highway 407 mainline	2,078	5,400	0.38	4,291	5,400	0.79
Highway 7	34	900	0.04	955	900	1.06
7th Concession	179	500	0.36	801	500	1.60
8th Concession	39	500	0.08	250	500	0.50
Screenline Total	4,322	11,400	0.38	10,045	11,400	0.88
South of Highway 407						
Regional Rd. 30	970	900	1.08	780	900	0.87
North Rd.	465	500	0.93	493	500	0.99
Sideline 26	817	1,400	0.58	966	1,400	0.69
Sideline 24	383	500	0.77	330	500	0.66
Sideline 22	435	700	0.62	511	700	0.73
Brougham Bypass	267	1,800	0.15	605	1,800	0.34
Screenline Total	3,337	5,800	0.58	3,684	5,800	0.64

In comparing the base line and increased transit screenline analyses, the benefits of reducing auto travel through increased transit is clear.

The 2021 and 2031 base case analyses indicate that, in the absence of frequent transit, the current planned road network will not be sufficient to accommodate potential future growth in the Study Area. Even with improved road infrastructure projected traffic volumes are at, or approaching, the practical capacity of the road network.

Even with the reduction in automobile use associated with the increased transit scenario, east-west travel in the Study Area continues to be constrained on key facilities. It is important to note that, in order to achieve the level of transit service that corresponds with the auto reduction, the service requires the development of new road infrastructure and rights-of-way in which to operate.

4. The Transportation Strategy

The preceding sections of this report have identified the transportation context (need and justification) for infrastructure and service improvements. The horizon year conditions have been quantified and specific deficiencies identified for a range of land use scenarios and transportation conditions. The following transportation strategy identifies the combinations of service, infrastructure and policies that will be required to support the proposed development levels for the Central Pickering Development Plan Area.

The transportation strategy is not simply a listing of ultimate timeframe improvements that are required to support the long term development levels. It is an implementation plan, identifying sequential policies, services and infrastructure that are required, in concert, to support the transportation and growth plan objectives outlined in both the Growth Plan and the CPDP. The following section set out a strategy for transportation infrastructure investment.

4.1 Strategy

Through technical work and agency consultation processes an area transportation plan has been defined for the Study Area. Today's transportation network in the Study Area is heavily road/auto-dependent. To achieve the directives of the Growth Plan, a strong program of transit improvements, combined with supportive policies and initiatives is needed. To increase travel choices for residents and employees within the Study Area there must be a full range of integrated, easily accessible, efficient and competitive transportation choices.

Continued expansion of the road network will be necessary to: accommodate and provide access to planned development levels in Seaton; address existing deficiencies; and, facilitate reliable, accessible and competitive transit service. In addition to promoting and implementing strategies to reduce travel demand through an aggressive transportation demand management program emphasis must be placed on greater investment in the transit network, infrastructure, and operations and in recognition of limitations for road network expansion within the Study Area. A restructuring of transit services in the Region of Durham is needed to support higher-order transit in critical corridors and provide the competitive, direct, effective connections Region of Durham residents need to make transit their first choice for travel (transit refers to local bus, GO train and GO bus service).

In order to realize a shift in current culture and perceptions and levels of transit use in the GTA, and in Durham, the transit initiatives and service levels provided at a local and regional level must be transformational in nature. It cannot be overlooked that surface bus service needs an effective network of arterial and collector roads on which to run and support a cost-effective transit system.

At the core of the area transportation plan is a strategic framework that provides a context for the recommended improvements. The framework sets the context and direction for development and travel patterns within the Study Area and provides the foundation for the assessment of linkages and mode of travel within the community and to/from adjacent municipalities.

4.2 Transit System

Table 23 provides a summary of the transit service improvements that should be considered to support the “**Transit first**” objective in the Study Area. A “Transit First” strategy assumes an aggressive approach to providing high quality and competitive transit services within the CPDP area. The timing and scheduling of the suggested improvements contained in **Table 21** is tentative and should be further reviewed in consideration of the following:

- The final development phasing plan for the CPDP area;
- Funding availability;
- Priority improvement plans developed by Metrolinx; and,

Transit improvement plans and capital works programs for the Region of Durham, the City of Toronto, the Region of York, TTC (Transit City) and GO Transit

Table 23: Transit Infrastructure Implementation Plan

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
<i>Durham Region</i>				
GO Rail Service – Seaton Line Expansion	Through Study Area	GO Rail service expansion on CPR Belleville subdivision to Seaton with new station at Brock and Taunton	Coordinated with development of the Study Area	Metrolinx RTP – 15 Year Plan (Project #14: Seaton to Union Station Summerhill)
Highway 407 Transitway	West of Study Area to Brock Road	New dedicated rapid transit alignment with stations at 407 interchanges in Study Area (Sdrd. 26, Sdrd. 22, Brock Road)	Coordinated with the development of the Study Area	Province of Ontario
Major Transit Corridors	Within Study Area: - Highway 7 - Highway 407 - Brock Road - Whites Road - Rossland Road - Taunton Road	Major bus transit service feeding minor transit corridors and connecting to other transit systems.	Coordinated with the development of the Study Area	
Steeles/Taunton Rapid Transit	Through Study Area	New rapid transit line connecting Milliken GO Station in York Region to Downtown Oshawa via Steeles Ave / Taunton Rd. Should be linked to Scarborough SRT extension through surface routes on Malvern Road.	Coordinated with development of the Study Area. York Region VIVA connection to Durham Region is included in 20-year York Region transit plan	Metrolinx RTP 25-year Plan (Project #59: Steeles/Taunton: Milliken GO – Downtown Oshawa) Also included in York Region Transportation Master Plan Update (2009) (would require consultation with TTC)
Brock Rd RT	Downtown Pickering to Highway 407	New BRT line linking downtown Pickering to Highway 407 and the Seaton community	Coordinated with the development of the Study Area	Metrolinx RTP 15-year Plan (Project #39: Downtown)

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
				Pickering to Hwy 407)
Rapid Transit Connection – Pickering Airport	Proposed Pickering Airport site	Station on 407 or Highway 7 Transitway, and/or rail connection to CPR Havelock subdivision	By 2032	Go Rail, Province, Metrolinx, Federal Government
Highway 7 Rapid Transit York VIVA	From West of Study Area to Cornell Terminal connecting with Durham	At-grade bus RT portions in mixed traffic	BRT currently in operation to Cornell Terminal York Region VIVA connection to Durham Region is included in 20 year Transit Plan	Included in York Region Transportation Master Plan Update (2008)
Scarborough SRT Extension	Scarborough City Centre to Malvern Road north of Sheppard Avenue.	Extension of existing SRT system – at-and below-grade. Should be connected to the CPDP area by surface bus service connecting to the Steeles Avenue BRT.	2015	City of Toronto and TTC.
Highway 7/ Steeles Avenue Rapid Transit	Markham Bypass into Durham	Connection from Highway 7 RT to Steeles Avenue at Durham boundary	2011-2021	York Region, TTC
407 Express Bus Service	From West of Study Area into Durham	Freeway express bus service	2011	Go Transit, Province
Internal Local Bus Network	TBD	Possibly 3-4 routes within the CPDP area	Based upon development timing and routing	Durham Region
Internal School Service	TBD	TBD	Based upon development timing	Durham Region
Specialized Transit	TBD	TBD	Based upon development timing	Durham Region

As noted in **Table 23** above, a transit strategy for the Study Area must include the initiation of GO rail service to the area, the development of major transit corridors to and within the development area, conventional internal services operated at frequencies that will be attractive to users (i.e. competitive with the automobile) and specialized services for those with special needs within the community.

In order to accommodate higher frequency transit services within the CPDP development area, consideration should also be given to providing dedicated transit lanes on major community roadways.

Detailed costing for the transit initiatives identified above for both capital and operating costs were not completed by the project team for this study given that routes, schedule frequencies and implementation timing will be dependant to a large degree on development staging. Durham Region staff and staff of Durham Region Transit (DRT) have produced some preliminary capital and operating cost estimates for internal and external conventional, specialized and school services relating to the CPDP. These cost estimates are preliminary in nature and reflect a full build out scenario only. The costs also assume that a high level of service (routes and frequencies) would be provided to the community e.g. 15 min frequencies on conventional routes. Higher level transit cost estimates are provided in this document for discussion purposes only to provide an indication of the level of initial capital and ongoing operational costs associated with transit services within the CPDP.

Capital costs (2008 dollars) for the conventional services described above could be in the order of \$97 - \$105 Million. These costs include the following, but do not include property costs:

- Conventional transit vehicles;
- Community buses;
- Specialized vehicles;
- Communications and other ITS equipment;
- Transit maintenance and garage facilities;
- Bus stops and stations;
- Bus Shelters;
- Transit stations and park'n'ride facilities along Highway 407 East (Sidelines 22 and 26 and Brock Road)

Net operating costs for the conventional services described above could be in the order of \$12-\$15 Million per annum (2008 dollars).

These costs do not include capital or operating cost estimates associated with the following.

- Infrastructure and services to be provided and operated by GO Transit;
- Any services that may be provided by York Region or TTC directly to the CPDP area.

The operating costs associated with a transformational transit strategy for the Study Area will not be completely recoverable through the fare box. Consideration should be given to developing a funding or investment strategy that considers both public and private investment opportunities.

As previously noted, the transit strategies detailed in this document suggest an aggressive approach to service delivery. The development of a final transit plan for the CPDP must be completed through cooperative discussions involving all agencies having an interest in a **“transit first”** strategy for the area (Durham Region, York Region, Metrolinx, TTC and the Province of Ontario). This transit plan is generally consistent with the broader plans for the GGH area including those initiatives identified in the Provinces' Move Ontario 2020 program - an \$11.5 billion transit investment.

Transit policies and guidelines pertaining to the provision of services in the Study Area should contain the following elements:

- The transit system should effectively link the urban areas within Durham, York and the City of Toronto, with special (higher order) integration to neighbouring communities (Pickering, Markham and Scarborough) and GO Transit.
- Routes should be designed for optimal customer service (i.e., geographical coverage, minimum transfers and waiting time between transfers, minimum vehicle requirements and minimum travel time). Frequencies for conventional transit services on major routes within and serving the Study Area should be in the order of 10 to 15 minutes.
- Service hours should be provided for weekday and Saturday/Sunday service. Service on Saturdays and Sundays should be frequent enough to attract ridership. This consistent service provides the opportunity to depend less on auto travel and more on alternative modes. Service hours should be reviewed periodically and amended as necessary.

- Residents and employees should have access to real time information regarding the status of local and inter-regional transit services.
- Specialized services should be provided within the CPDP area separate from conventional services.
- Bus shelters should be provided at all transit stations and key stops within the CPDP.
- All transit routes should be completely accessible.
- Fare integration should be considered for all separate systems.
- Carpool lots are critical to support transit services. It is fundamental that car pool and transit stations be constructed along Highway 407 in the CPDP area in conjunction with the initial development phases.
- Transfer requirements should be minimized wherever possible, and where transfers are required they should be managed to be as un-intrusive as possible.

4.3 Road System

Table 24 provides a summary of the required road network infrastructure improvements required to support future transportation network demands in the Study Area. Each improvement has been allocated to a time horizon based on the assessment of the needs generated by the forecast horizon year demands

Table 24 – Road Infrastructure Implementation Plan

Facility	From	To	Estimated Length (km)	Improvements	Short Term	Medium Term	Longer Term	Cost \$2008 (M)
Provincial								
Roadway								
Highway 7	Markham Bypass	Townline Road	3.0	Widen from 2 to 6 lanes includes Grade Separation with CP Rail and transit lanes)		√		33.8
Highway 7	Townline Road	Brock Road	7.0	Widen from 2 to 6 lanes including transit lanes		√		39
407ETR								
Freeway								
407	Markham Road	Brock Road	14	Widen from 4 to 6 lanes		√		
				Widen from 6 to 8 lanes			√	48.1
Interchange								
407 East	Sideline 26			New Interchange	√			27.3
407 East	Sideline 22			New Interchange		√		27.3
Municipal								
Roadway								
14th Avenue/5th Concession	Sideline 26	Brock Road		Widen to 4 lanes		√		
	York Durham	Sideline26	7.2	New Alignment (4 lanes)			√	41

Facility	From	To	Estimated Length (km)	Improvements	Short Term	Medium Term	Longer Term	Cost \$2008 (M)
	Line							
Brock Road	Finch	Taunton	4.3	Widen from 4 to 6 lanes			√	16.9
Brock Road	Taunton	5th Concession	1.7	Widen from 2 to 6 lanes		√		
Brock Road	Taunton	5th Concession	1.7	Widen from 2 to 6 lanes			√	6.8
Brock Road	Taunton	5 th Concession	1.7	Widen from 2 to 4 lanes				4.3
Brock Road	Taunton	5 th Concession	1.7	Widen from 4 to 6 (bus lanes)				2.55
Brock Road	5th Concession	Highway 7	3.2	New Alignment (2/4 lanes) (Does not include Hwy 407 interchange)	√			13.0
Rossland Road	Brock Road	Highway 7	7.65	Widen from 2 to 4 lanes		√		34.0
Sideline 24	Taunton Road	Highway 7	4.4	New Alignment (4 lanes) (includes widening of underpass to 4 lane structure)		√		17.8
Sideline 26 (Extension of Whites Road)	Taunton Road	Highway 7	4.4	New Alignment (6 lanes)		√		27.10
Taunton Road	York Durham Line	Brock Road	7.5	Widen from 4 to 6 lanes		√		39.5
Whites Road	Finch Road	3rd Concession	2.0	Widen from 2 to 6 lanes (includes new CP grade separation)		√		16.6
Whites Road	3rd Concession	Taunton Road	2.3	New Alignment (6 lanes) includes new crossing of Duffin Creek)			√	40.5
Steeles Avenue	Markham Road	York Durham Line	6.8	Widen from 2 to 4 lanes	√			
				Widen from 4 to 6 lanes (includes bus lanes)		√		58.8
14th Avenue/5th Concession	Highway 48	9th Line	2.1	Widen from 2 to 4 lanes		√		9.8
14th Avenue/5th Concession	9th Line	York Durham Line	2.1	Widen from 2 to 4 lanes		√		6.6
Markham Bypass	Steeles	Highway 407	4.3	New Alignment (4 lanes)	√			49.2

4.4 Policies and Programs to Support Growth Plan Objectives

Beyond the provision of transportation infrastructure and service, an effective strategy for transportation includes the need to provide and implement policies and programs that result in the improvement of public transit, cycling and walking (active transportation) and the creation of real environments that reduce dependence on personal auto use. The way to achieve these objectives is through policies that:

- Integrate different types of transportation modes so that each contributes its full potential allowing people to move easily between them;
- Integrate infrastructure and service with the environment so that transportation choices support a sustainable and protected environment;
- Integrate the transportation network with land use planning at the national, regional and local levels, so that transportation and planning work together to support more sustainable travel choices and reduce the need to travel; and
- Integrate transportation policies with policies for education, public health and economic sustainability so that transportation is better integrated into the social fabric of the community.

Chapter 4 of The Regional Transportation Plan prepared by Metrolinx identifies ten broad strategies that are needed to achieve a high quality of life, a thriving, sustainable and protected environment and a strong, prosperous and competitive economy. The policies and programs embodied in this document are consistent with the Metrolinx strategies and build upon these broad strategies to ensure that development in the CPDP is truly reflective of a community that embodies concepts of transformational change contained in the Metrolinx plan.

Travel Demand Management (TDM) strategies include measures that improve the operation of the current transportation system by managing travel demand, independent of other infrastructure improvements (e.g. constructing or expanding roads). The emphasis of TDM strategies is to reduce overall demands on the transportation network, especially auto trips; shift demands to time periods outside of the critical congestion periods; and, shift demands from auto based trips to alternative modes of transportation (principally transit, cycling and walking). Active transportation is a critical element of a comprehensive and effective TDM program. Active transportation, including walking, cycling and other non-motorized modes, are healthy, cost-effective alternatives to motorized mobility options.

TDM encompasses a wide range of potential measures, ranging from financial incentives/disincentives to changes in development patterns. The generic family of TDM measures below have been identified as potentially applicable in Durham Region are identified below. These initiatives should be applied in the planning, design and implantation of development within the Study Area:

- Land Use Planning Initiatives – encouraging increased densities and mixed-use developments to reduce overall travel demand and average trip lengths while facilitating the use of alternative travel modes. Transit-oriented development is a subset of land use policies that focuses on higher density and mixed use development around transit stations and along major transit corridors to increase transit demand and the efficiency/effectiveness of transit service. Communities that make travelling easier by offering a mix of complementary uses that facilitate walking, cycling and transit are healthier;
- Ridesharing – a range of measures to encourage carpooling and vanpooling in order to increase the average occupancy of vehicles on the road network during peak periods;
- Walking/Cycling – the provision of bike lanes, paths, trail networks, support facilities and other incentives to encourage increased use of non-vehicular travel modes, particularly for short trips;
- Telecommuting – the application of communications technology to allow employees to work from home;

- Road pricing – charging motorists for their use of transportation facilities according to congestion levels, to discourage travel during peak periods by using variable toll rates, central area tolls, high-occupancy/toll (HOT) lanes and variable parking charges; and
- Commuter incentives – including a range of financial incentives to encourage use of alternative travel modes, including employer transit subsidies, cash-in-lieu of parking for non-drivers, etc.

TDM-related auto trip reductions, beyond those attributable to increased transit use, could be anticipated in the CPDP area. Additional auto trip reductions may be realized through reductions in the average home-work trip length that are expected to occur with implementation of initiatives contained in the Growth and CPDP Plans, particularly an increase in the proportion of internal trips within each neighbourhood.

Recent work undertaken as part of the 407 East EA Study into the potential effectiveness of TDM measures based upon experience in North America, has been applied to Durham Region in consideration of the existing and planned land use and transportation characteristics of the Region. The potential for variations in auto trip reduction by trip length and for phasing in of trip reductions over time has also been estimated. These results are summarized in **Table 25**. Note that the potential trip reductions shown in **Table 25** reflect levels achieved by successful programs across North America. Few municipalities have been able to implement and achieve *maximum* benefits from all of the programs listed in **Table 25**. Given the CPDP objectives of creating a complete community, served by a strategic “*transit first*”/sustainable transportation plan, the trip reduction levels shown in the table may be achievable.

Table 25: Summary of TDM Auto Trip Reduction Potential (Exclusive of Transit)

TDM Measure	Short Trips (<10 km)			Long Trips (>10 km)		
	2011	2021	2031	2011	2021	2031
Smart Growth (internalization effect only)	Percent Reduction in Number of Automobile Trips					
	-	1%	2.5%	-	1%	2.5%
Transit-Oriented Development	Included in assumed transit mode share increases.					
Ridesharing (numbers reflect potential for overlap with transit)	1%	2%	2%	2%	3%	3%
Walking/Cycling (except winter)	2%	4%	5%	-	-	-
Telecommuting	-	0.5%	0.5%	1%	1%	1.5%
Road Pricing	No significant effect expected under current policy regime.					
Commuter Incentives	Included in effect of other TDM measures and assumed transit mode share increases.					

As shown in the preceding table, shifts in demand from auto travel to alternate modes, or to off-peak time periods, are gradual phenomena that depend on: the structure of the land use form; the trip length and purpose being served; the availability and suitability of service; and, the underlying economics and policies of the governing agencies (particularly for commuter incentives, road pricing, transit initiatives).

A description of the specific policies and programs suggested to achieve significantly reduced auto use in the Central Pickering Development Plan area is attached as **Appendix B**.

TDM initiatives should be considered key elements of any transportation plan to ensure the efficient movement of people and to encourage the use of alternative modes of travel while minimising impacts on socio-economic and natural environments.

5. The Implementation Process

A strong and coordinated implementation strategy is needed to ensure that the transportation objectives of the Study Area are met. This section identifies the elements of an implementation strategy that are needed to realize the future sustainability of the Central Pickering Development Area.

5.1 Implementation

Although predominantly rural landscape today, the population of the Study Area is anticipated to grow at a rapid rate and reach significant densities in the next 20 years. The regional and provincial transportation system will not be able to accommodate this growth if the transportation “status quo” continues with the current heavy dependence on single occupant vehicle trips. Existing major corridors, including Highway 7, Taunton Road/ Steeles Avenue, and Brock Road will experience significant congestion causing delay to the movement of people and goods without a plan for improvements to infrastructure or service.

The implementation of a strategic plan involves the setting of ambitious targets and strategies for increasing transit use. As such, it will require a combination of a number of initiatives including:

- Pro-active and transformational transit improvements to lead development (both service and facilities);
- Supporting road and signal systems infrastructure improvements, both to accommodate essential private vehicle trips and to facilitate efficient transit services;
- Development of expanded and enhanced pedestrian and cycling environments;
- Ongoing staged implementation of changes to policies and programs, to support the balancing of transit, walking/cycling, and auto modes;
- Ongoing monitoring and re-evaluation of projects and programs, at regular intervals to ensure our established targets are being met.

Prior to the implementation of the recommended infrastructure and services, projects must achieve the appropriate environmental approvals. This could involve the completion of separate studies or projects could be included as part of an area wide Master Plan, conducted within the Provincial Environmental Assessment process. Given the symbiotic relationship between development and the required related infrastructure, the approval process should consider how each of these projects relates to, and are contingent on, each other to successfully achieve their objectives. Alternative processes defined in the Planning Act via development/review of the Official Plan, Secondary Plans, Block Plans, Subdivisions and environmental reports might also fulfill the requirements for some initiatives.

In 2008, the province adopted a new regulation to streamline the Environmental Assessment process for transit projects. The Transit Projects and Greater Toronto Transportation Authority Undertakings Regulation

(Transit Projects Regulation) has been made under the Environmental Assessment Act and filed with the Registrar of Regulations as Ontario Regulation 231/08.

This new Transit Project Assessment Process differs from the traditional environmental assessment and is intended to be focused so that the assessment of potential environmental effects and decision-making related to transit projects can be completed within six months.

Transit projects recommended in Section 4 could be considered for delivery using this process.

5.2 Establishing Priorities

Accomplishing the overarching goals outlined in this transportation study will require in general terms:

- Coordinated expansion of GO rail, GO Bus and rapid transit services connecting across the Durham boundary to York Region and Toronto;
- A revised routing structure for surface transit;
- Supporting infrastructure in the transportation network including road, signal and transit priority;
- High occupancy vehicle lanes (HOV) and/or reserved bus lanes (RBL);
- Supporting policies and travel management programs; and
- Additional transit vehicles to provide new and expanded transit service.

The suggested transit system improvements are articulated in Section 4.2 of this report. The roads program is outlined in Section 4.3 of this report.

Funding will continue to be the driving force behind prioritisation and delivery of infrastructure. The potential capital costs identified in this study will require a significant financial commitment to address outstanding rehabilitation and expansion needs. Given limitations on current public sector revenue streams, provision of a dedicated and sustainable financing source is required to ensure the long-term viability of the transportation system in the Study Area and to achieve the goal of a balanced road and transit system. It is expected that other sources of funding beyond property taxes and development charges must be made available.

5.3 Monitoring and Growth Management

A monitoring and plan review process is an essential element in the implementation of this strategy. Monitoring of land use is assumed to be undertaken through the Growth Management Program of the Region. It will be essential for transportation, planning, and transit staff of the public agencies to coordinate transportation and land use plans.

The transportation monitoring program should track changes in travel characteristics including:

- Trip generation rates;
- Modal splits;
- Trip lengths;
- Auto occupancies;

- Road and transit system performance; and
- Utilization, focussing on auto and commercial vehicle demands at key constraint points in the network;
- Transit ridership.

A key component of the transportation monitoring program is a regular, well-defined program of traffic counts (performed on an annual basis). Coordination with Durham, York, Toronto and Provincial staff should be maintained for collection of traffic data along major routes.

By monitoring results in relation to objectives and targets, municipal, regional and provincial staff will be able to assess whether existing policies and programs need to be strengthened: whether new policies and programs are needed; whether shifts are needed in road and transit capital and operating expenditures; and, whether upgrades in transit technology need to be considered.

5.4 Delivery

The list of recommended infrastructure, services and programs required to support the level of development anticipated in the Study Area is significant. Cost is a constraint in the implementation and delivery of the plans various components. Best practices in the selection, development and implementation of infrastructure projects are required to define alternate funding or delivery mechanisms in order that transportation projects can be delivered in support of the planned growth.

Potential funding initiatives could include:

- Residential or commercial tax or general levy on property tax bill utilized to fund and subsidize transit and specialized transit programs;
- Investigate 'value capture' opportunities around transit stations and hubs within the community where higher densities may warrant specific area or development charges;
- Develop and maintain pedestrian and bike trails in exchange for promotion of companies through advertising;
- Amending the Development Charges Act to provide municipalities and regional governments the opportunity to recover full growth related costs of transit infrastructure (capital) and to base cost recovery on a targeted level of service rather than the existing level of service. In addition, consideration should be given to amending the Development Charges Act to permit roads related Development Charges to be transferred to transit related projects;
- Private sector capital financing in design, construction, operation or maintenance for transportation initiatives; and/or,
- Setting aside a portion of the property tax revenue in a special fund that grows through investment. This provides a secure source of revenue which will offset declining funding for roads, transit improvements or other regular maintenance projects.

These, and other, delivery options must be researched and a plan developed for an area-wide program that ensures that funding is available for the required infrastructure. It is understood that Metrolinx will be

reporting back to the Province by June 2013 with an investment strategy for their RTP. The RTP includes the GO Transit and inter regional transit projects identified in this report.

6. Implementation Summary

6.1 Short to Medium Term Action Plan (0-15 Years)

6.1.1 Transit Improvements

Transit service in the area of the Central Pickering Development Area is currently non-existent. In addition, the location of the Central Pickering area within the Region of Durham dictates that residents and employees within the area will require local, inter-municipal and inter-regional transit services to ensure that the community can achieve the desired level of sustainability. The prevailing transit infrastructure in the GTA, where service is provided by a number of jurisdictions and operators, requires the co-ordination of these services to ensure seamless transit travel for Central Pickering residents and employees.

Improving the linkages between the CPDP area and the City of Toronto in particular should be an initial priority of the transportation servicing plan.

Work on the Scarborough SRT extension by the City of Toronto and TTC was initiated in 2008. Public Information Centres were conducted in April and June of 2008 to deal with network options for an SRT extension, a preferred network and possible alignment options. In June 2009, the City of Toronto and TTC identified a preferred alignment for the extension of the Scarborough SRT on Neilson Road north of Sheppard Avenue in Scarborough/Malvern. It should be noted that funding has been approved by the Province for this project and schedule for completion is 2015.

Transportation constraints in the area, particularly in an east-west orientation, suggest that in the short to medium planning horizons (5-15 years) Taunton Road/Steeles Avenue, Brock Road, 407 and Highway 7 will play a key role in the provision of transit services to Central Pickering. This will require the linking of the community to these corridors using the internal roadway network and further strengthens the case for early implementation of interchanges on 407 west of Sideline 26 and at Sideline 22. In the longer term, the realignment and extension of Whites Road to connect with Sideline 26 will also provide opportunities to provide improved north-south transit connections between the Highway 401 and 407 corridors.

Local transit routes for the Central Pickering Development Area are required to provide north-south connections to the developed areas of Pickering and Ajax and to provide access to GO Transit rail service serving Durham Region on the Lakeshore Corridor via Whites Road and Brock Road.

407, Highway 7, Taunton Road and Brock Road are all identified as major transit corridors in the Region. To provide increased levels of transit to, from, and through the Central Pickering Development Area these facilities need to be expanded for transit to work, either through the application of dedicated Right of Way for transit or through expansion of the facilities for general purpose traffic.

Staff of the Region of Durham and Durham Region Transit are in the process of developing transit service plans for Central Pickering. These plans are in response to the Central Pickering Development Plan prepared by the Province (May 2006). Discussions with Durham Region Transit staff have confirmed the importance of early implementation of interchanges on Highway 407 west of Sideline 26 and at Sideline 22. The preliminary plans also confirm the importance of Taunton Road/Steeles Avenue and Brock Road as critical transit links within the Study Area for local, intra-, and inter-regional transit services.

All stakeholders need to participate in a review of potential transit initiatives and funding opportunities with respect to the servicing of the Central Pickering Development Area. This participation can be facilitated through the creation of a coordinating committee with members from each stakeholder group. The servicing of the Central Pickering Development Area also provides an opportunity for Metrolinx to facilitate implementation of the strategic transportation strategy to be developed as part of the broader DTY Area Transportation Study.

6.1.2 Road Improvements

The traffic analysis suggests that the following road network improvements will be required by 2011, within the short to medium term range in order to facilitate projected demands:

- Continuous 4 lane Steeles Avenue between Brock Road in the Region of Durham and Highway 48 in York Region;
- 4 lane Sideline 26, Taunton Road to Highway 7 (with 407 interchange);
- 4 lane Sideline 22, Rossland Road to 5th Concession; and
- 4 lane Brock Road from Taunton Road to 407.

6.1.3 Policies and Programs

In addition to a **“transit first”** approach to providing transportation services for the Central Pickering Development Area, the transportation system supporting Central Pickering should include sustainable concepts in the transportation planning process. Sustainable concepts would include consideration of travel demand management (TDM) strategies that reduce the number of auto vehicles on the transportation network and/or the number of trips generated.

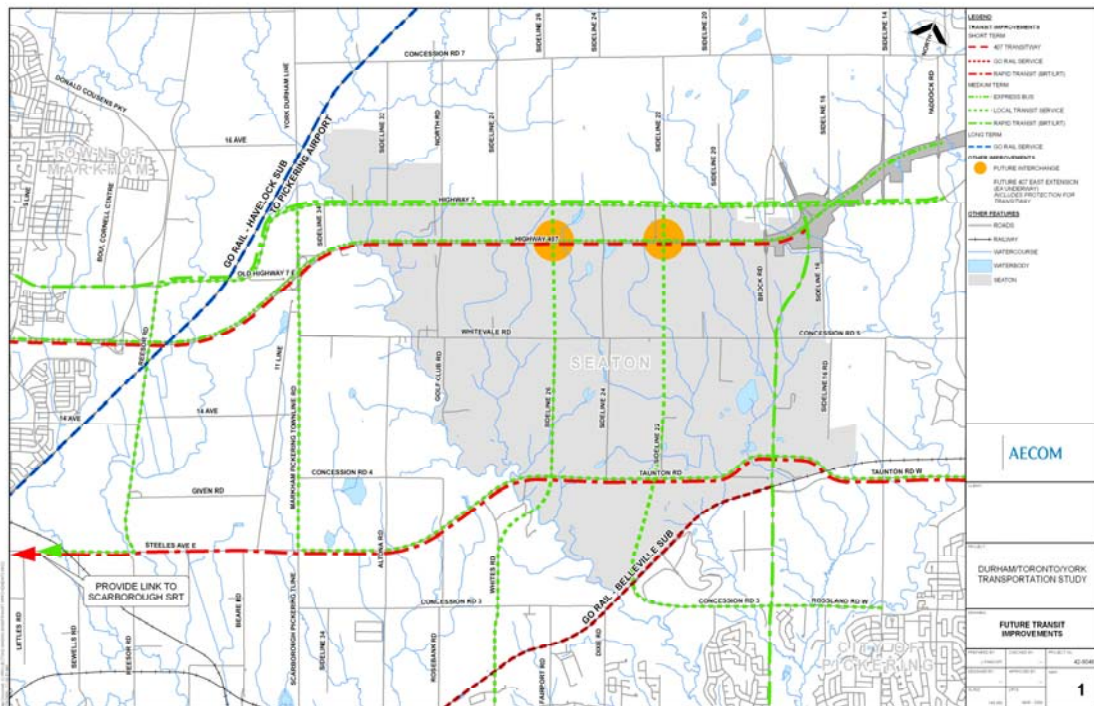
The Region of Durham’s Transportation Master Plan includes a TDM strategy that has merits for direct application to the Central Pickering Development Area including:

- Improving public transit;
- Creating more transit, cycling and pedestrian supportive development through land use management; promoting walking, cycling and ridesharing (i.e. provision of appropriate facilities like pedestrian paths, paved shoulders and carpool lots);
- Policies directed at encouraging non-auto use (i.e. tax exemption for employee transit passes); and,
- Marketing measures for business, residents, and schools aimed at influencing travel behaviour.

TDM strategies not only provide opportunities to reduce auto vehicles using the network, they also provide a mechanism to maximize transit use potential (i.e. less auto dependence means more potential for transit use) and improve transportation choices available to residents.

In order to ensure that planning for Central Pickering includes development of a strategy, a TDM co-ordinator is required within the City of Pickering. This individual should take responsibility for the development and implementation of TDM initiatives specifically designed for Central Pickering. This coordinator should liaise with and work in concert with the Regional TDM coordinator responsible for the Region of Durham TDM program.

Future Transit Improvements



6.2 Long Term Plan (15-25 years)

6.2.1 Transit Improvements

GO Transit, the Province and GTA municipalities are pursuing the implementation of a new integrated fare card system to serve public transit users across the GTA. An integrated, seamless transit system will offer major benefits for the public and the environment. Implementation of the fare card and associated systems is scheduled to begin in 2007, and is expected to be fully operational by 2010. This non-structural transit improvement represents a key element in the tool box of transit initiatives directed at reducing auto use in the Central Pickering Development Area.

6.2.2 Road Improvements

Network analysis indicates that the following improvements are required by **2021** to facilitate projected demands:

- 6 lane Sideline 26, Taunton Road to Highway 407 (with Highway 407 interchange);
- 4 lane Sideline 22, Rossland Road to Highway 7 (with Highway 407 interchange);
- Continuous 4-lane Highway 7 from Donald Cousens Parkway (Markham By-Pass) to Brock Road;
- 4 lane realignment of 5th Concession from Sideline 26 to Brock Road;
- 6 lane Taunton Road from York/Durham Line to Brock Road; and
- 4 lane Brock Road; and
- Widened Highway 407 from Brock Road westerly to Highway 48 from 4 to 6 lanes.

With respect to the potential widening of Highway 7 as noted above, this facility is currently under the jurisdiction of the Province of Ontario. While discussions have previously taken place between the Province and the Regions of York and Durham with respect to a transfer of this facility to the respective Regions, no recent discussions have been held. As a result, consideration of a widening of Highway 7 is not being considered in the context of the Region's Class EA for the Seaton area, currently underway..

Network analysis further indicates that the following improvements will be required by **2031** to facilitate projected demands:

- 4 lane Sideline 24, Highway 7 to south of Taunton Road;
- 6 lanes White Road extension to Taunton Road/Sideline 26 intersection (includes new crossing of East Duffins Creek);
- 6 lane Brock Road;
- 4 lane connection of 5th Concession to 14th Avenue; and
- Additional widening of Highway 407 from Brock Road westerly to Highway 48 from 6 to 8 lanes.

These improvements are required in the long-term depending on the rate of development and the full realization of the ultimate build-out of the CPDP.

within the Study Area. If the congestion on the roadway network is not addressed, it will also impact the operation of any regional and inter-regional transit services in the area.

The existing transportation network within west Durham and the eastern portions of the City of Toronto and the Region of York also suffers from discontinuous linkages. These constraints are exacerbated by an inability to provide new roadway links through the Rouge Park as a result of current Provincial Policy (“no new roads in the Rouge Park”) creating challenges to the development of future transit corridors linking Durham, York and Toronto. As noted earlier in this document, the area also lacks any significant transit service. Attempts to provide transit service to the CPDP area must be undertaken in conjunction with arterial roadway improvements in the area to permit a **“transit first”** plan to have any chance of success.

In order to address these issues, other transportation problems within the Study Area, and future travel demands of residents and employees in the Central Pickering Area, a number of structural and non-structural improvements are required. The infrastructure, service, and planning considerations identified in this report should be reviewed as a package of system improvements. In this regard, there are several initiatives, both structural and non-structural, which are considered early priorities or “quick starts” in order to facilitate growth and provide opportunities for greater mode choice and reduced reliance on the automobile.

Transportation strategies identified in the early phases of implementation should promote a **“transit first”** approach to transit service for the Central Pickering area. Key initiatives such as the provision of transit services on Taunton Road/Steeles Avenue, Highway 407, and Highway 7, should be coordinated with the respective road network improvements to enable early implementation of a **“transit first”** approach. Without many of these infrastructure improvements the ability to make early and meaningful transit service available in the Study Area is severely hindered. Without these improvements it must be expected that current modal patterns will prevail and ultimately become entrenched in the urban fabric of the future community, resulting in the need for further roadway infrastructure improvements and less emphasis on transit service.

It is worth noting that the structural and non-structural improvements identified in this report can not alone guarantee a **“transit first”** plan for the CPDP area – there is a need for a transformational philosophical approach by the approving authorities in the planning and implementation of the community. Approving the most appropriate land use, densities and the staging of development, including the early development of employment lands, will be critical to support the transportation initiatives recommended herein. Approving “business as usual” low density residential development will not result in a transit supportive plan even when combined with the transportation initiatives described in this report.

The transit improvements recommended in support of the CPDP plan are summarized in Table 26 below and shown in Exhibit 3

Table 26: Transit Infrastructure Implementation Plan

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
<i>Durham Region</i>				
GO Rail Service – Seaton Line Expansion	Through Study Area	GO Rail service expansion on CPR Belleville subdivision to Seaton with new station at Brock and Taunton	Coordinated with development of the Study Area	Metrolinx RTP – 15 Year Plan (Project #14: Seaton to Union Station Summerhill)
Highway 407 Transitway	West of Study Area to Brock	New dedicated rapid transit alignment with	Coordinated with the development of	Province of Ontario

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
	Road	stations at 407 interchanges in Study Area (Sdrd. 26, Sdrd. 22, Brock Road)	the Study Area	
Major Transit Corridors	Within Study Area: - Highway 7 - Highway 407 - Brock Road - Whites Road - Rossland Road - Taunton Road	Major bus transit service feeding minor transit corridors and connecting to other transit systems.	Coordinated with the development of the Study Area	
Steeles/Taunton Rapid Transit	Through Study Area	New rapid transit line connecting Milliken GO Station in York Region to Downtown Oshawa via Steeles Ave / Taunton Rd. Should be linked to Scarborough SRT extension through surface routes on Malvern Road.	Coordinated with development of the Study Area. York Region VIVA connection to Durham Region is included in 20-year York Region transit plan	Metrolinx RTP 25-year Plan (Project #59: Steeles/Taunton: Milliken GO – Downtown Oshawa) Also included in York Region Transportation Master Plan Update (2009) (would require consultation with TTC)
Brock Rd RT	Downtown Pickering to Highway 407	New BRT line linking downtown Pickering to Highway 407 and the new Seaton community	Coordinated with development of the Study Area	Metrolinx RTP 15-year Plan (Project #39: Downtown Pickering to Hwy 407)
Rapid Transit Connection – Pickering Airport	Proposed Pickering Airport site	Station on 407 or Highway 7 Transitway, and/or rail connection to CPR Havelock subdivision	By 2032	Go Rail, Province, Metrolinx, Federal Government
Highway 7 Rapid Transit York VIVA	From West of Study Area to Cornell Terminal connecting with Durham	At-grade bus RT portions in mixed traffic	BRT currently in operation to Cornell Terminal York Region VIVA connection to Durham Region is included in 20 year Transit Plan	Included in York Region Transportation Master Plan Update (2008)
Scarborough SRT Extension	Scarborough City Centre to Malvern Road north of Sheppard Avenue.	Extension of existing SRT system – at-and below-grade. Should be connected to the CPDP area by surface bus service connecting to the Steeles Avenue BRT.	2015	City of Toronto and TTC.
Highway 7/ Steeles Avenue Rapid Transit	Markham Bypass into Durham	Connection from Highway 7 RT to Steeles Avenue at Durham boundary	2011-2021	York Region, TTC
Highway 407 Express Bus Service	From West of Study Area into Durham	Freeway express bus service	2011	Go Transit, Province
Internal Local Bus Network	TBD	Possibly 3-4 routes within the CPDP area	Based upon development timing	Durham Region

Facility/Service	Limits	Nature of Improvement	Timing/Schedule	Jurisdiction
Internal School Service	TBD	TBD	and routing Based upon development timing	Durham Region
Specialized Transit	TBD	TBD	Based upon development timing	Durham Region

The roadway improvements recommended in support of the CPDP plan are summarized in Table 27 below and shown in Exhibit 4.

Table 27 – Road Infrastructure Implementation Plan

Facility	From	To	Estimated Length (km)	Improvements	Short Term	Medium Term	Longer Term	Cost \$2008 (M)
Provincial								
Roadway								
Highway 7	Markham Bypass	Townline Road	3.0	Widen from 2 to 6 lanes (includes Grade Separation with CP Rail and transit lanes)		√		33.8
Highway 7	Townline Road	Brock Road	7.0	Widen from 2 to 6 lanes including transit lanes		√		39
407ETR								
Freeway								
Highway 407	Markham Road	Brock Road	14	Widen from 4 to 6 lanes		√		
				Widen from 6 to 8 lanes			√	48.1
Interchange								
Highway 407	Sideline 26			New Interchange	√			27.3
Highway 407	Sideline 22			New Interchange		√		27.3
Municipal								
Roadway								
14th Avenue/5th Concession	Sideline 26	Brock Road		Widen to 4 lanes		√		
	York Durham Line	Sideline 26	7.2	New Alignment (4 lanes)			√	41
Brock Road	Finch	Taunton	4.3	Widen from 4 to 6 lanes			√	16.9
Brock Road	Taunton	5th Concession	1.7	Widen from 2 to 6 lanes		√		
Brock Road	Taunton	5th Concession	1.7	Widen from 2 to 6 lanes			√	6.8
Brock Road	Taunton	5 th Concession	1.7	Widen from 2 to 4 lanes				4.3
Brock Road	Taunton	5 th Concession	1.7	Widen from 4 to 6 (bus lanes)				2.55
Brock Road	5th Concession	Highway 7	3.2	New Alignment (2/4 lanes) (Does not include Hwy 407	√			13.0

Facility	From	To	Estimated Length (km)	Improvements	Short Term	Medium Term	Longer Term	Cost \$2008 (M)
				interchange)				
Rossland Road	Brock Road	Highway 7	7.65	Widen from 2 to 4 lanes		√		34.0
Sideline 24	Taunton Road	Highway 7	4.4	New Alignment (4 lanes) (includes widening of underpass to 4 lane structure)		√		17.8
Sideline 26 (Extension of Whites Road)	Taunton Road	Highway 7	4.4	New Alignment (6 lanes)		√		27.10
Taunton Road	York Durham Line	Brock Road	7.5	Widen from 4 to 6 lanes		√		39.5
Whites Road	Finch Road	3rd Concession	2.0	Widen from 2 to 6 lanes (includes new CP grade separation)		√		16.6
Whites Road	3rd Concession	Taunton Road	2.3	New Alignment (6 lanes) (includes new crossing of Duffin Creek)			√	40.5
Steeles Avenue	Markham Road	York Durham Line	6.8	Widen from 2 to 4 lanes	√			
				Widen from 4 to 6 lanes (includes bus lanes)		√		58.8
14th Avenue/5th Concession	Highway 48	9th Line	2.1	Widen from 2 to 4 lanes		√		9.8
14th Avenue/5th Concession	9th Line	York Durham Line	2.1	Widen from 2 to 4 lanes		√		6.6
Markham Bypass	Steeles	Highway 407	4.3	New Alignment (4 lanes)	√			49.2

In addition to the specific transit and roadway improvements contained in Tables 26 and 27, respectively, the following specific recommendations are provided and relate to the desire of the Province, and other public sector stakeholders to pursue a **“transit first”** approach to transportation servicing for the Central Pickering Area:

- i. A transit strategy for the Study Area must include the initiation of GO rail service to the area, the development of major transit corridors to and within the development area, conventional internal services operated at frequencies that will be attractive to users (i.e. competitive with the automobile) and specialized services for those with special needs within the community.
- ii. In order to accommodate higher frequency transit services within the CPDP development area, consideration should also be given to providing dedicated transit lanes on major community roadways.
- iii. The operating costs associated with a transformational transit strategy for the Study Area will not be completely recoverable through the fare box. Consideration should be given to developing a funding or investment strategy that considers both public and private investment opportunities.

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- iv. The development of a final transit plan for the CPDP must be completed through cooperative discussions involving all agencies having an interest in a “**transit first**” strategy for the area. (Durham Region, York Region, Metrolinx, TTC, GO Transit and the Province of Ontario). This transit plan must have regard for broader plans for the GGH area including those initiatives identified in the Provinces’ Move Ontario 2020 program and Metrolinx Regional Transportation Plan.
- v. Transit policies and guidelines pertaining to the provision of services in the Study Area should contain the following elements:
- The transit system should effectively link the urban areas within Durham, York and the City of Toronto, with special (higher order) integration to neighbouring communities (Pickering, Markham and Scarborough) and GO Transit.
 - Routes should be designed for optimal customer service (i.e., geographical coverage, minimum transfers and waiting time between transfers, minimum vehicle requirements and minimum travel time). Frequencies for conventional transit services on major routes within and serving the Study Area should be in the order of 10 to 15 minutes.
 - Service hours should be provided for weekday and Saturday/Sunday service. Service on Saturdays and Sundays should be frequent enough to attract ridership. This consistent service provides the opportunity to depend less on auto travel and more on alternative modes. Service hours should be reviewed periodically and amended as necessary.
 - Consideration should be given to accommodating school bus service using conventional services rather than the traditional yellow bus service operated by the school boards.
 - Residents and employees should have access to real time information regarding the status of local and inter-regional transit services.
 - Specialized services should be provided within the CPDP area separate from conventional services.
 - Bus shelters should be provided at all transit stations and key stops within the CPDP.
 - All transit routes should be completely accessible.
 - Fare integration should be considered for all separate systems.
 - Carpool lots are critical to support transit services. It is fundamental that car pool and transit stations be constructed along Highway 407 in the CPDP area in conjunction with the initial development phases.
 - Transfer requirements should be minimized wherever possible, and where transfers are required they should be managed to be as un-intrusive as possible.
- vi. TDM initiatives should be considered key elements of any transportation plan to ensure the efficient movement of people and to encourage the use of alternative modes of travel including active transportation initiatives while minimising impacts on socio-economic and natural environments.
- vii. The implementation of a strategic plan involves the setting of ambitious targets and strategies for increasing transit use. As such, it will require a combination of a number of initiatives including:
- Pro-active and transformational transit improvements to lead development (both service and facilities);
 - Supporting road and signal systems infrastructure improvements, both to accommodate essential private vehicle trips and to facilitate efficient transit services;
 - Development of expanded and enhanced pedestrian and cycling environments;
 - Ongoing staged implementation of changes to policies and programs, to support the balancing of transit, walking/cycling, and auto modes; and

- Ongoing monitoring and re-evaluation of projects and programs, at regular intervals to ensure the suggested targets are being met.
- viii. Given limitations on current public sector revenue streams, provision of a dedicated and sustainable financing source is required to ensure the long-term viability of the transportation system in the Study Area and to achieve the goal of a balanced road and transit system. It is expected that other sources of funding beyond property taxes and development charges must be made available. Potential funding initiatives could include but may not be limited to:
- Establishing a residential or commercial tax or general levy on property tax bill utilized to fund and subsidize transit and specialized transit programs;
 - Considering 'value capture' opportunities around transit stations and hubs within the community where higher densities may warrant specific area or development charges;
 - Amending the Development Charges Act to provide municipalities and regional governments the opportunity to recover full growth related costs of transit infrastructure and to base cost recovery on a targeted level of service rather than the existing level of service. In addition, consideration should be given to amending the Development Charges Act to permit roads related Development Charges to be transferred to transit related projects;
 - Obtaining private sector capital financing in design, construction, operation or maintenance for transportation initiatives; and/or;
 - Setting aside a portion of the property tax revenue in a special fund that grows through investment. This could provide a secure source of revenue which will offset declining funding for roads, transit improvements or other regular maintenance projects.
- ix. A monitoring and plan review process is an essential element in the implementation of "transit first" transportation strategy for the CPDP.
- x. The Province should continue work with the City of Toronto and the TTC, the Regions of Durham and York and GO Transit to facilitate the integration of transit service into Durham and York, including the Central Pickering Development Area. Particular and immediate attention should be given to establishing linkages between the CPDP area and proposed and planned transit services within the City of Toronto and the Region of York. . These linkages will be most critical to achieving a "transit first" response to development
- xi. Staging and implementation of the transit projects addressed in this document is a critical issue particularly when recognizing the Provincial capital investment and ongoing operational requirements of such new infrastructure. In order to ensure protection for key transit initiatives it is recommended that priority be placed on protecting property in transit corridors and at future mobility hubs and transit stations/park and ride facilities. New transit stations and passenger amenities, such as facilities for expanded GO rail service, should be phased in and built on this protected land as demand/service grows. Implementation of rapid transit should focus on connecting the Seaton lands to the planned inter regional bus rapid transit (BRT) network.