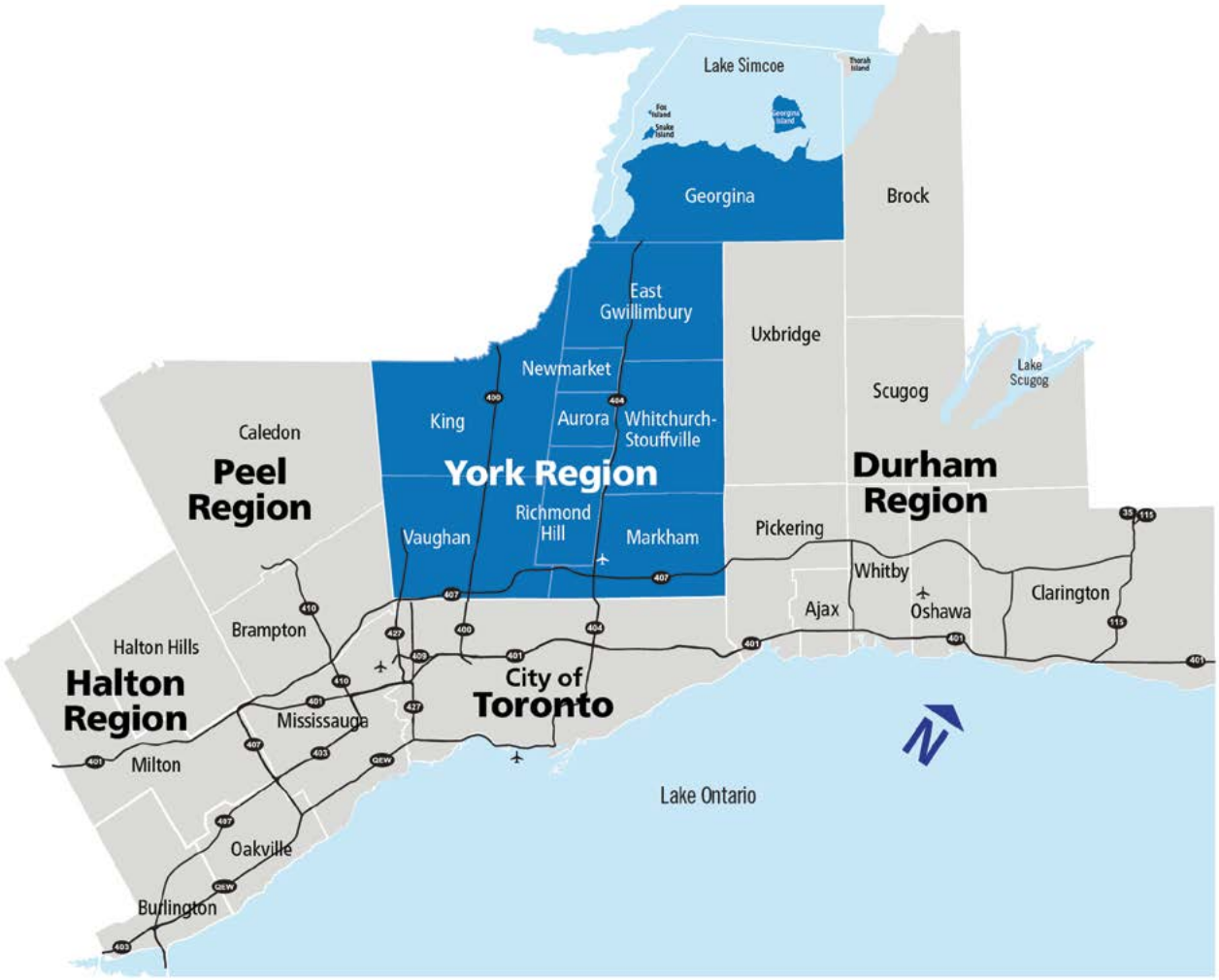
Transportation Mobility Plan Guidelines

for Development Applications

York Region

Executive Summary

The Regional Municipality of York is located in the heart of the Greater Toronto Area (GTA) in southern Ontario. York Region is comprised of nine cities and towns covering 1,776 square kilometres, stretching from Steeles Avenue in the south to Lake Simcoe in the north, and bounded by Peel Region in the west and Durham Region in the east.



Growth in the Region

York Region is expected to grow to over two million residents and nearly one million jobs by 2051. Given the significance of this growth, it is important to integrate land use with transportation planning to create complete and sustainable communities. This is consistent with the Regional Official Plan, municipal official plans and York Region's Transportation Master Plan (TMP).

As the Region matures toward a more urban environment, growth and development cannot be assessed solely on road capacity and intersection operation impacts. In many developed areas, the existing transportation network for motorists has reached or is near capacity, therefore, transportation impact studies must identify policy, program improvements and infrastructure requirements necessary to move people and goods across a multimodal (walking, cycling, transit and driving) transportation environment.

The TMP indicates that "The Region's economy also depends on a well designed transportation network. Businesses operate in a global economy that relies on moving people, goods and resources quickly and efficiently. Roads with robust highway, rail and air connections strengthen supply chains and move goods to market faster, while convenient public transit allows employees to get to and from workplaces".

Managing the demand for travel generated by new developments is a potentially powerful strategy for controlling costs, environmental impacts and permitting developments in road capacity constrained areas.

Land use and transportation

To address future requirements, the Regional Official Plan (2022), as amended, requires communities be designed to provide an enhanced mobility system using a "people and transit first approach". This connects land use and transportation planning by balancing pedestrians, cyclists, public transit and motorists, through the sustainability initiatives identified in the TMP and other development guidelines.

Purpose of the guidelines

As part of the approval process, York Region and its nine cities and towns require development applications to provide a transportation mobility plan study assessing the impacts of the proposed development on the existing and future transportation network. This requirement will be even more important in the future because parts of the Region's transportation network are already constrained.

The Regional Official Plan and TMP contain policies and requirements emphasizing the goals of sustainability, alternative modes of transportation and mobility. The Transportation Mobility Plan Guidelines contains implementation tools, providing the structure required to implement, connect the policies and requirements in the official plans.

A transportation mobility plan combines a multimodal mobility plan with traditional transportation impact study analyses. The transportation mobility plan is required to support all development applications having

potential impacts on Regional and local transportation systems. This Plan focuses on transit, active transportation and measures that will reduce the travel demand and minimize single-occupant-vehicle trips. The Transportation Mobility Plan Guidelines for Development Applications is an update to the Region's existing Transportation Impact Study Guidelines for Development Applications (2016) and builds on other documents to provide greater clarity and detail on appropriate data sources and methods related to active transportation and transit:

- **Access Guidelines for Regional Roads**
- **YRT's Transit Service Guidelines**

From a transportation planning perspective, the Transportation Mobility Plan Guidelines will help expedite the development review process and provide benefits for both review agencies and applicants, including:

- **Reducing Regional and local municipal review time for supporting transportation studies as both staff and transportation specialists will follow the same set of guidelines**
- **Requiring fewer iterations and revisions to reports**
- **Reducing the number of technical issues related to transportation at Ontario Land Tribunal**
- **Providing guidance to proposed development applicants to comply with Regional and local Municipal Official Plans, standards and requirements**
- **Consolidating general Regional and local municipal requirements in one set of guidelines**

The Transportation Mobility Plan Guidelines for Development Applications provides information about:

- **Development process in York Region**
- **Key transportation principles of a Mobility Plan**
- **Transportation Mobility Plan process**
- **Transportation Mobility checklist**
- **Step-by-step process about how to complete a Transportation Mobility Plan report**

These guidelines incorporate requirements from the nine cities and towns in York Region; however, there are localized issues and requirements that may not be covered. For example, parking, loading, urban design and internal site circulation are under the jurisdiction of local municipalities. Transportation specialists are encouraged to consult with local municipal and Regional staff to include all requirements prior to the commencement of a Transportation Mobility Plan.

A Transportation Mobility Plan is a specialized multimodal study involving traffic, transportation engineering principles and practices, and must be undertaken by transportation specialists. These requirements apply to all development applications including Official Plan Amendments, Secondary and Development Area Plans, Draft Plans of Subdivision, Site Plans and Rezoning Applications. Prior to the commencement of a Transportation Mobility Plan, transportation specialists should contact York Region staff from the Development Engineering or Transportation Planning divisions, municipality, to discuss the scope of work and requirements.

York Region and the respective municipality may suggest transportation specialists attend an initiation or project scoping meeting with Regional and local municipal staff.

The Transportation Mobility Plan Guidelines for Development Applications is a living document and will be updated as required. To download the latest visit **york.ca**

When is a Transportation Mobility Plan required?

A Transportation Mobility Plan is prepared in support of the Official Plan Amendment, Secondary Plan, Block Plans, Zoning Bylaw Amendment, Draft Plan of Subdivision and Site Plan applications.

It is important the applicant or transportation specialist contact Regional and local municipal staff to develop an appropriate scope of work for the proposed development. To reduce review time and number of revisions to the final plan.

Guidelines organization

The Transportation Mobility Plan Guidelines for Development Applications is made up of five chapters:

Chapter 1 – Transportation Mobility Plan Process and Requirements: general information about the Transportation Mobility Plan Guidelines structure, process and a Transportation Mobility Plan checklist.

Chapter 2 – Transportation Mobility Plan Technical Guidelines: guidance on key elements, acceptable data sources and procedures for assessing the transportation impacts required to support development applications.

Chapter 3 – Transportation Demand Management Requirement and Implementation: general information, requirement and checklist for Transportation Demand Management.

Chapter 4 – Guideline Updates and Expectations: an overview of how this document will be updated and the professional judgment expected when applying these guidelines.

Chapter 5 – Contact Information and Related Resources: agency contact information and links to reference documents.

Transportation specialists should use the checklist outlined in **Table 10** to ensure all requirements are included or addressed in the Transportation Mobility Plan. Each requirement and expectation in the checklist is explained in **Chapter 2**. For further assistance, consult York Region Transportation Planning staff.

For completeness and to fully understand the requirements, all chapters should be consulted when evaluating the transportation requirements to support development applications.

Transit rider waiting to board a York Region Transit bus.

Table of Contents

CHAPTER 1

Transportation Mobility Plan Process and Requirements

1.1 Transportation Planning in York Region

Many of the communities within York Region and the Greater Toronto Area (GTA) were planned around the use of automobiles. This traditional transportation planning practice has resulted in traffic congestion and places tremendous pressures on existing transportation systems as communities continue to grow and become more urbanized. As construction, maintenance and property costs continue to rise rapidly, it is more difficult to build and maintain new transportation infrastructure to support growth.

Today, the Region's approach to transportation planning is guided through policies in the Regional Official Plan (2022) and the recommendations in the TMP (2022).

York Region policies and practices include infrastructure and strategies to increase walking, cycling and transit mode share to reduce single occupancy automobile trips.

Figure 1 below illustrates the approval process hierarchy in York Region.

Figure 1 – Development Approval Process Hierarchy

The Region is a commenting agency for the local municipalities on Site Plans, Subdivision plans, condominium applications, zoning amendments, consent and minor variance applications.

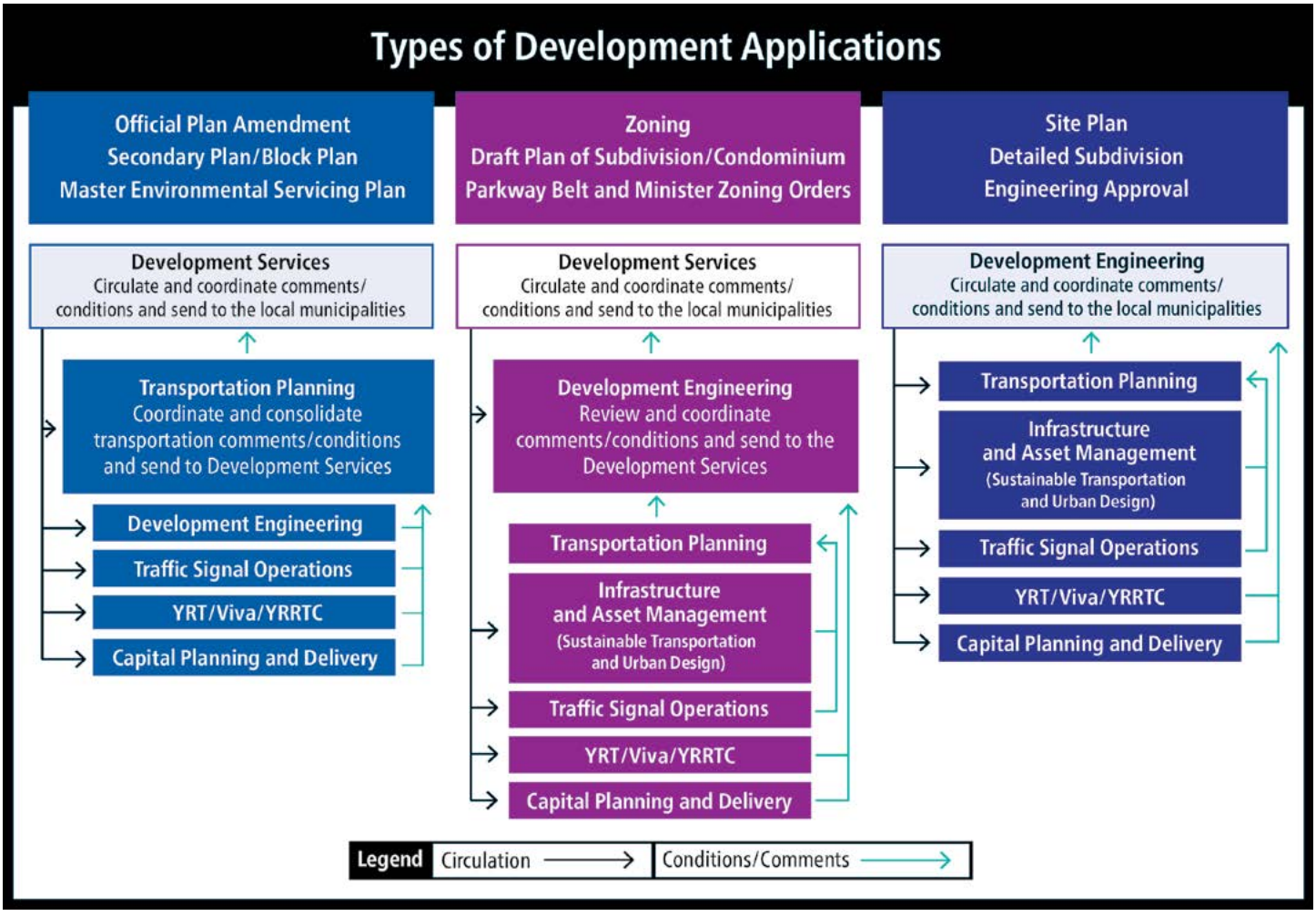
Regional staff also assist the local municipalities by participating in various technical and advisory committees for strategic land use studies (Secondary Plans), corridor studies and Environmental Assessments. There is strong coordination between Regional staff and municipal staff on the assumptions and methodologies.

The Region has designated Economic and Development Services as a one-window contact for all development applications:

- **Official Plan Amendment (OPA)**
- **Secondary Plan Area**
- **Rezoning (ZBA)**
- **Subdivision and Condominium Draft Plans**
- **Site Plans**
- **Pre-Consultation Submissions**
- **Other (consent/minor variance)**

Figure 2 illustrates the coordinated Regional transportation comments and conditions for development applications.

Figure 2 – Coordinated Regional Transportation Comments/Conditions Flow Chart



1.2 What is a Transportation Mobility Plan and why is it Required?

A Transportation Mobility Plan is a combination of multimodal plans and traditional traffic impact analyses.

It required to meet the objectives and requirements in the Regional Official Plan (2022) and nine municipal official plans. The Transportation Mobility Plan Guidelines are the implementation tools required to implement the policies and requirements in the Regional Official Plan and TMP.

These guidelines build upon two documents to provide greater clarity and detail on appropriate data sources and methods related to active transportation and transit:

- **Access Guideline for Regional roads**
- **York Region Transit service guidelines**

The Guideline purposes are to:

- **Update the Transportation Mobility Plan Guidelines (2016)**
- **Guide transportation specialists in undertaking a Transportation Mobility Plan or Transportation Study in support of development applications to conform with requirements of the Regional Official Plan and TMP**
- **Become a reference document for Regional and local municipal technical staff ireviewing Transportation Mobility Plan studies**

Since the Transportation Mobility Plan requirements include multimodal analysis, the capacity and operation of other modes of transportation, including automobiles, transit, walking and cycling, must be evaluated in the same way as the auto mode to identify physical mitigation measures and programs/strategies to manage congestion, and to accommodate the proposed development.

The following details must be documented in a Transportation Mobility Plan:

1. **Existing and future performance analysis for each mode**
2. **Existing and future levels of service and deficiencies for each mode**
3. **A recommended list of mitigation measures/programs to address any deficiencies identified in 1 and 2 above**
4. **A detailed implementation plan for each mode based on the recommendations identified**
5. **Functional designs of the proposed improvements**
6. **Illustrated compliance with the existing Regional and local municipal active transportation plans**
7. **Transportation Demand Management plan and implementation strategy**

The existing and future levels of service for all four modes of transportation are to be summarized in a table format for comparison purposes. The table is to also include information such as the improvements considered to address deficiencies related to all four modes of transportation. If tabulating improvements is not possible or too complex, a brief description of the improvements should be included in the report.

1.3 When is a Transportation Mobility Plan Study Required?

A Transportation Mobility Plan Study is prepared in support of the Official Plan Amendment, Secondary Plan, Block Plan, Zoning By-law Amendment, Draft Plan of Subdivision and Site Plan applications. A Transportation Demand Management Plan is required as a component of the Transportation Mobility Plan Study. It is recommended that the applicant or transportation specialist contact the Region and local municipality for the proposed scope of work.

1.4 Transportation Mobility Plan and Land use Planning

The key elements of the Regional Official Plan related to transportation planning include:

- **City building, focusing on Regional centres and corridors and including innovation in urban design and green building**
- **New community areas, designed to a higher standard that includes requirements for sustainable buildings, water and energy management, public spaces, mixed-use, compact development, and urban design**
- **York Region Transportation Mobility Plan (2022)**
- **Enhanced mobility systems using a "people and transit first approach" to connect land use and transportation planning**

The objectives of the TMP include:

- **Makes the best use of infrastructure and services**
- **Encourage all types of travel**
- **Provide a resilient and adaptable transportation network**
- **Enhance partnerships**
- **Actively engage and share information**
- **Align project costs**

The Regional Official Plan and TMP have a common goal to building complete communities. Complete communities are places where people can live, work, play and learn without the need to travel long distances. Integrating a Transportation Mobility Plan and land use planning will offer communities different travel choices including; convenient access to transit, walking, cycling or carpooling, which supports the economy with meaningful employment and opportunities for local businesses to thrive. The applicant's transportation specialists, planners and architects are encouraged to work together to integrate land use and to achieve a complete community.

To achieve this, the following transportation principles are applicable for all types of development applications including Official Plan Amendments, Secondary and Development Area Plans, Draft Plans of Subdivisions, Site Plans and Rezoning Applications:

- Transportation capacity will be assessed based on congestion management linking improvements to all transportation modes (auto, bike, walk, transit and carpooling)
- Travel demand impacts of the proposed development will be mitigated with infrastructure and program improvements to shift a higher proportion of travel demand to transit and other non-auto modes and not increasing traffic congestion on adjacent Regional roads during peak periods
- Interconnections with and between adjacent developments for auto and non-auto modes are required, in consultation with the respective local municipalities
- A connected finer grid street network will be planned and implemented through the development approvals and phasing process, including the identification of additional street, pedestrian, cycling and transit linkages, in consultation with respective local municipalities
- Where necessary, triggers for each phase of development will include improvements and performance-based standards tied to road, transit and other sustainable transportation modes
- Parking supply and design will reflect and support the transit-priority policies through Secondary Plan area studies and shall reflect parking rates consistent with mode share assumptions
- Increase sustainable transportation modal split including transit through initiatives such as Transportation Demand Management measures, strategies and programs, including cycling, walking, transit use incentives and ride-matching programs for residents/ employees, are required to mitigate the travel demand impacts of each phase of development
- A proponent should be identified for every recommendation in the Transportation Mobility Plan

Family cycling along the Nokiidaa Trail in the Town of East Gwillimbury.

1.5 Transportation Mobility Plan Process

The Transportation Mobility Plan process is illustrated in **Figure 3** and further explained in **Chapter 2**.

1.6 Transportation Mobility Plan Requirements for Types of Development Applications

A Transportation Mobility Plan is required for all development applications, including Official Plan Amendments, Secondary and Development area Plans, Draft Plans of Subdivisions, Site Plans and Rezoning applications. Prior to starting a Transportation Mobility Plan study, the transportation specialists should contact Regional and local municipal staff to discuss the scope of work and requirements.

1.6.1 Transportation Mobility Plan for Official Plan Amendment

An Official Plan Amendment (OPA) application is required when policies and/or land use designations in the Regional Official Plan or local municipal Official Plans are changed. An OPA is the first application to determine the appropriateness of the change in land uses or policies. These changes will shape the development pattern and may require substantial transportation infrastructure improvements to accommodate the proposed land uses. The applicant's engineers, planners and architects must work together to achieve the key transportation principles identified in **Section 1.4**. The main objectives and requirements of a Transportation Mobility Plan to support an OPA application are to:

- **Provide sufficient details about the impact of the proposed land use or policy changes on the existing transportation system for all modes of transportation**
- **Identify what other transportation infrastructure improvements for all modes of transportation are required, above and beyond those identified in the Regional and local municipal Transportation Master Plans or the Region's 10-year Roads and Transit Capital Construction Program, as well as municipal construction programs**
- **To identify high level Transportation Demand Management plans, measures and initiatives to achieve the non-auto modal split and to reduce single-occupant-vehicles. This level of analysis is similar to the Secondary Plan/Block Plan requirement**
- **Identify a realistic implementation plan to achieve complete community building objectives as required in the Regional and local municipal Official Plans**

The requirements above will be reflected in the Transportation Mobility Plan report and Official Plan Amendment policies and will act as a framework to guide the Secondary Plans and Block Plans, as well as the final stage of the development such as Draft Plans of Subdivision and Site Plans.

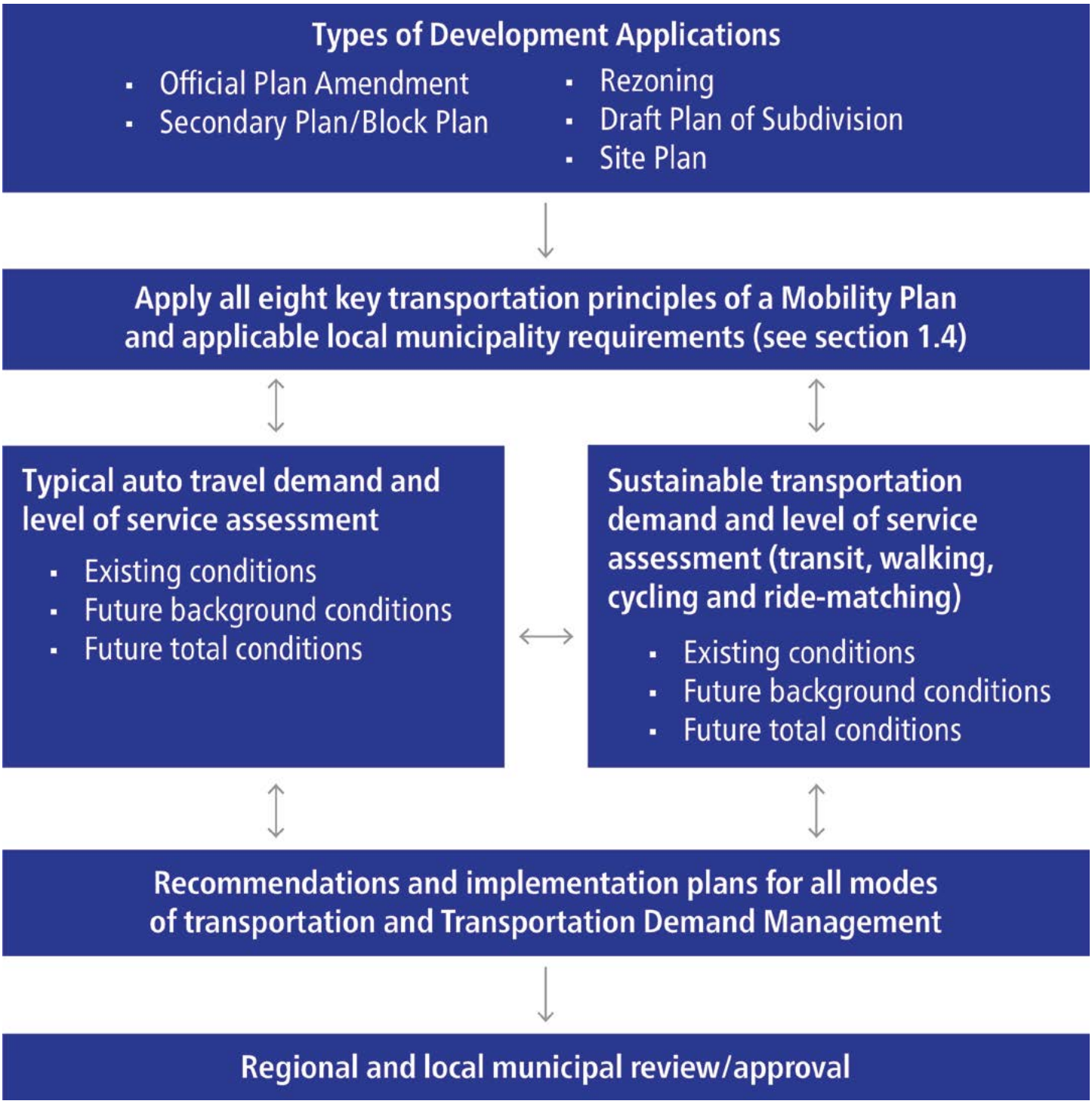
1.6.2 Transportation Mobility Plan for Secondary Plan and Block Plan

The Secondary Plan implements the objectives, policies and land use designations of the Regional and local municipal Official Plans at the community and neighbourhood scale. Secondary Plans provide a detailed policy framework and direction for a specific geographic area on topics such as land use, infrastructure, transportation, environment and

urban design. A Secondary Plan is one of the most important types of applications for the approval and reviewing agencies because it will designate the appropriate location for each type of land use and how the community will be built around it. The applicant's engineers, planners and architects must work together to achieve the key transportation principles identified in **Section 1.4**. The main objectives and requirements of a Transportation Mobility Plan to support a Secondary Plan application are:

- **Providing sufficient details about the impact of the proposed land use or policy changes on the existing transportation system for all modes of transportation**
- **Identifying a more defined external and internal transportation network to accommodate all modes of transportation. This includes finer grid road network, active transportation network and detailed transit network in consultation with York Region Transit. The recommended transportation network must meet the objectives and requirements of the Regional and local municipal Official Plans, TMP, Region's New Communities Guidelines and local municipal guidelines and requirements**
- **Identifying other transportation infrastructure improvements and missing links for all modes of transportation required above and beyond those identified in the Regional and local municipal TMP or the Region's 10-year Roads and Transit Capital Construction Programs, as well as local municipal construction programs**
- **Identifying development phasing plans based on planned and scheduled proposed transportation infrastructure improvements**
- **Identifying high level Transportation Demand Management plans, measures and initiatives to achieve the non-auto modal split and to reduce single-occupant-vehicles. This level of analysis is similar to the OPA requirement**
- **Identifying a detailed implementation plan to achieve complete community building objectives**

Figure 3 – Transportation Mobility Plan Process



These requirements will be reflected in the Transportation Mobility Plan report, Secondary Plan report and schedules to guide the Draft Plans of Subdivision and Site Plans.

1.6.3 Transportation Mobility Plan for Site Plan and Draft Plan of Subdivision

As indicated in **Figure 1**, Site Plans and Draft Plans of Subdivision are the last stage of the development application process where the development policies, principles and requirements of the OPA and Secondary Plan will be implemented. The applicant's engineers, planners and architects must work together to achieve the key transportation principles identified in **Section 1.4**. The main objectives and requirements of a Transportation Mobility Plan to support a Site Plan or Draft Plan of Subdivision application are to:

- **Provide detailed impacts of the proposed development on the existing transportation system for all modes of transportation**
- **Identify a defined external and internal transportation network to accommodate all modes of transportation. This includes finer grid road network, active transportation network and detailed transit network in consultation with York Region Transit and municipalities. The recommended transportation network must meet the objectives and requirements of the Regional and local Municipal Official Plans, TMPs, Region's New Communities Guidelines and municipal guidelines and requirements**

Construction of the GO Train railway grade-separation on Rutherford Road in the City of Vaughan.

- **Apply the proposed development phasing plans based on planned and scheduled proposed transportation infrastructure improvements identified in the Secondary Plan process**
- **Identify a site specific implementation plan for other transportation infrastructure improvements for all modes of transportation required as identified in the Secondary Plan**
- **Identify appropriate site access arrangements based on the Region's Access Guidelines and respective municipality's guidelines that will accommodate all modes of transportation**
- **Identify site specific and detailed Transportation Demand Management plans, measures and initiatives to achieve the non-auto modal split and to reduce single-occupant-vehicles in consultation with Regional and municipal staff. A TDM checklist is provided in Chapter 3 of this report**
- **Identify site specific implementation plans in order to achieve complete community building objectives**
- **Meet the appropriate local municipal bylaws on parking, loading, urban design and internal site circulation requirements**

The requirements above will be reflected in the Transportation Mobility Plan report.

1.7 York Region's Multimodal Level of Service Evaluation Approach

York Region has developed its preferred multimodal level of service evaluation approach to address the performance requirements for each mode of transportation. These requirements are based on policies from the Region's 2022 Official Plan and recommendations from the TMP. Other guidelines such as the Context Sensitive Solutions Design for Regional Roads were also consulted and included in the evaluation approach.

The level of analysis and detail within a Transportation Mobility Plan will depend on the scale and location of the development and purpose of the study. Area-wide studies for Secondary Plans and Block Plans require an assessment of road, active transportation and transit network implications along with impacts at key intersections while Subdivision Plans and development Site Plans may concentrate more on immediate impacts of adjacent intersection operations and access arrangements.

The integrated multimodal approach analysis provides a snapshot of levels of service for the entire corridor as a whole, which fits into the Transportation Mobility Plan context. It provides agencies with a tool to understand the constraints and limitations to find innovative solutions beyond the traditional practices addressing only traffic operational issues. The Regional and local municipal Official Plans and TMPs also contain policies and guidelines which require new community and intensification areas to accommodate all modes of transportation. These requirements should be included in, but not limited to, transportation studies undertaken for new communities, intensification areas and infill developments.

1.7.1 Travel Mode Performance and Indicators

The Region requires the transportation specialist to provide both quantitative and qualitative evaluation approaches to assess each mode of transportation. The quantitative methods are used as a tool to evaluate urban street operations from an integrated multimodal performance perspective. The level of service provided for each travel mode is separately evaluated. The transportation specialist should determine the relative importance of each mode's level of service based on the purpose and objective of the analysis. The level of service for each mode should not be combined into one overall level of service for the street since the trip purpose, length and expectations for each mode are different. Each travel mode also has different performance indicators. These indicators are based on the policies, localized experience and professional judgment related to the built-form of the area. However, all modes should be reviewed together to ensure the interconnection and interaction between them are documented. The recommended mitigation measures and improvements should complement each other in a holistic manner.

Table 1 on **page 13** summarizes the typical quantitative and qualitative indicators for each travel mode that are applicable to most of the Regional corridors. These indicators should be evaluated and included in the Transportation Mobility Plan.

Target levels of service have been provided for each mode. Where existing or future target levels of service have not been met, it is expected that the transportation specialist will recommend reasonable mitigation measures and improvements to achieve the target level of service.

All modes should be reviewed together to ensure the interconnection and interaction between them are documented. The recommended mitigation measures and improvements should complement each other in a holistic manner.

Construction of the CP Rail bridge on Highway 27 in the City of Vaughan.

Table 1 - Travel Mode Indicators

Travel Modes	Indicators
Automobile	• Intersection level of service (delay seconds/vehicle) • Volume-to-capacity ratio (v/c) • Queuing • Storage capacity/auxiliary turning lanes • Potential conflicts/weaving/safety issues
Pedestrian	• Facility and connectivity • Designs, gaps and missing links • Average crossing delay at signalized intersections • Average crosswalk length/crossing distance • Qualitative measure of pedestrian experience • Traffic volume • Traffic speeds • Buffer between sidewalk and traffic lanes
Bicycle	• Bike lane facility and connectivity • Designs, gaps and missing links • Access to bikeways (distance and time) • Potential barriers
Transit	• Access to transit stops, stations or transfer points • Transit service frequency and boarding volumes • Transit vehicle performance at the intersection approach

1.7.2 Automobile Performance Evaluation Requirement

Capacity and Level of Service (LOS) analyses are conducted for interrupted-flow conditions in the form of signalized and unsignalized intersection operations assessment for motorists.

There are two criteria required for the automobile mode level of service performance: vehicle delay and volume-to-capacity ratio. Both of these criteria are to be completed and included in the Transportation Mobility Plan Study.

It should be noted that signalized intersections with high left turn and right turn traffic volumes, channelized right turn and significant width will have negative impacts on pedestrian and bicycle modes. When conducting intersection capacity analysis, transportation specialists should consider and evaluate the pedestrian and bicycle modes to provide appropriate mitigation measures and improvements to address these impacts.

Automobile LOS and v/c Target: D (0.85) or better for urban areas and LOS C (0.70) or better for rural areas.

Table 2 summarizes the level of service evaluation requirement for the automobile mode.

Table 2 - Automobile Level of Service Criteria (signalized intersection)

Level of Service	Delay (seconds/veh)	v/c
A	≤10	0 to 0.60
B	>10-20	0.61 to 0.70
C	>20-35	0.71 to 0.80
D	>35-55	0.81 to 0.90
E	>55-80	0.91 to 1.00
F	>80	>1.00

Table 3 illustrates an example of automobile level of service criteria for signalized intersections.

Table 3 - Automobile Level of Service Summary

Intersection	Existing Conditions LOS (delay in seconds) Critical Movement[1] [v/c ratio]	Future Conditions LOS (delay in seconds) Critical Movement[1] [v/c ratio]
Main Street/ Street A	C (22) SB T: [0.90] NB L: [0.95]	E (58) SB T: [1.11] NB L: [0.96]
Main Street/ Street B	B (15) No Critical Movement	C (23) No Critical Movement
Main Street/ Street C	A (3) No Critical Movement	E (70) SB T: [1.16] NB L: [0.98]

Note: SB T = Southbound Through **NB L** = Northbound Left

1.7.3 Transit Performance Evaluation Requirement

When performing the intersection capacity analysis, transportation specialists should also consider transit vehicles, especially when transit vehicles share the same facilities as automobiles. The intersection capacity analysis should consider the frequency of transit vehicle stops and whether the intersection would be able to accommodate the scheduled transit service frequency.

There are three required criteria for the transit mode level of service performance:

1) Access to the transit stops,

2) Transit headways and

3) Transit vehicle performance at the intersection approach.

Where there are more than one intersection within the study area, the most critical intersection approach should be identified and LOS indicated for each intersection. All of these criteria should be completed and included in the Transportation Mobility Plan Study.

Transit LOS Target: C or better for Access to Transit Stops and Transit Headways. LOS, D or better for Intersection Approach.

Table 4 summarizes the level of service criteria for the transit mode.

Table 4 - Transit Level of Service Criteria

Level of Service	Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)	
			Delay (seconds/ veh)	v/c
A	90% within ≤200 m	≤5 minutes	≤10	0 to 0.60
B	90% within ≤500m and 70% within ≤200	>5-10 minutes	>10-20	0.61 to 0.70
C	90% within ≤500m and 50% within ≤200m	>10-15 minutes	>20-35	0.71 to 0.80
D	100% within ≤600m	>15-20 minutes	>35-55	0.81 to 0.90
E	100% within ≤800m	>20-30 minutes	>55-80	0.91 to 1.00
F	100% >800m	>30 minutes	>80	>1.00

Definitions

Access: Development's potential transit riders' straight line walking distance to transit stops

Stops: Bus stops, rapid transit stations, subway stations, GO Train/Bus stations, Mobility On-Request stops

Transit headway: Time interval between transit vehicles for a transit corridor

Intersection approach: Critical lane group or curb lane with transit vehicles approaching an intersection

Transit or curb lanes: General purpose lane or curb lane where buses operate

Rapidway: Dedicated lanes, typically in the centre of a roadway, for bus only use

Table 5 illustrates the example of transit level of service.

Table 5 - Transit Level of Service Summary

Transit Stop Location	Direction	Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)
		LOS	LOS	LOS
Main Street/ Street A	Eastbound	C	D	D
	Westbound	C	D	D
	Northbound	C	C	C
	Southbound	C	C	C
Main Street/ Street B	Eastbound	B	D	D
	Northbound	B	C	C
	Southbound	B	C	C

All detailed analyses or supporting information related to the level of service calculations or observations for transit mode should be included in the appendices.

1.7.4 Pedestrian Performance Evaluation Requirement

Walking can be a mode of choice for short trips such as going to transit stations, schools, running errands, and going to work. Pedestrians are more vulnerable than motorists, facilities and measures should be provided to separate pedestrians from vehicular traffic. Traffic control devices such as pedestrian signals, marked crosswalks, sufficient illumination, proper sidewalks and designated waiting areas can improve pedestrian safety.

In general, 1.2 metres-per-second walking speed can be used to calculate pedestrian clearance time at the signalized intersections. However, in school or senior resident areas, one metre-per-second walking speed should be used to calculate pedestrian clearance time at the signalized intersections.

There are two required criteria for the pedestrian mode level of service performance, at the segment (between two or more intersections) and at intersection (signalized or unsignalized) areas. Both criteria should be completed and included in the Transportation Mobility Plan Study.

It should be noted that signalized intersections with high left turn and right turn traffic volumes, channelized right turn and wide intersection will have negative impacts on pedestrian mode. When conducting intersection capacity analysis, transportation specialists should consider and evaluate the pedestrian mode to provide appropriate mitigation measures and improvements to address these impacts.

Pedestrians and a cyclist crossing the road at Rutherford Road GO Station in the City of Vaughan.

Pedestrian LOS Target: C or better for these LOS Categories.

Table 6 summarizes the level of service criteria for pedestrian mode.

Table 6 - Pedestrian Level of Service Criteria

Level of Service	Segment	Intersection
A	≥2.0 metre sidewalk with minimum 3.5 metre buffer including planting and edge zone; or ≥3.0 metre multi-use path	• ≥2.0 metre sidewalk with minimum 3.5 metre buffer including planting and edge zone; or ≥3.0 metre multi-use path • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
B	≥1.5 metre sidewalk with minimum 1.0 metre buffer including edge zone; or <3.0 metre multi-use path	• ≥1.5 metre sidewalk with minimum 1.0 metre buffer including edge zone; or <3.0 metre multi-use path • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
C	≥1.5 metre curb-faced sidewalk (no buffer)	• ≥1.5 metre curb-faced sidewalk (no buffer) • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
D	<1.5 metre sidewalk	• <1.5 metre sidewalk • Pedestrian signal head sufficient pedestrian clearance time • No clearly delineated crosswalk
E	Paved shoulder or no sidewalk provision	• Paved shoulder or no sidewalk provision • No pedestrian signal head • No clearly delineated crosswalk
F	No sidewalk provision	• No sidewalk provision • No pedestrian signal head • Not clearly delineated crosswalk

Definitions

Buffer: Green or landscaped space separating the sidewalk and pavement street curb.
Curb-faced: Sidewalk is located adjacent to the pavement and street curb.
Delineated crosswalk: Painted or special pavement to accomodate pedestrians.

Table 7 illustrates an example of pedestrian level of service.

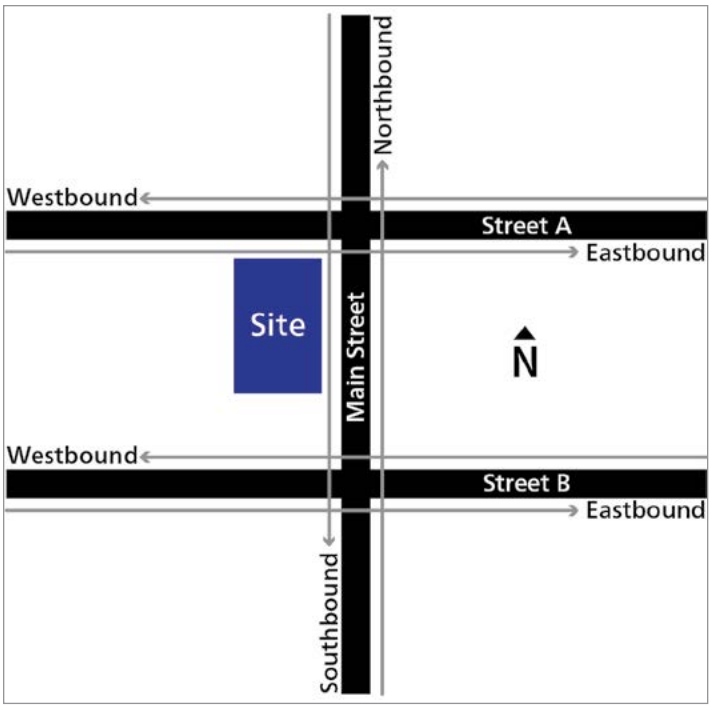
Table 7 - Pedestrian Level of Service Summary

Intersection	Direction	Segment		Intersection
		Description	LOS	LOS
Main Street/ Street A	Eastbound	Street A	C	B
	Westbound	Street A	B	A
	Northbound	Main Street	C	B
	Southbound	Main Street	B	B
Main Street/ Street B	Eastbound	Street B	A	A
	Westbound	Street B	B	B
	Northbound	Main Street	C	B
	Southbound	Main Street	C	B

It should be noted that all detailed analyses or All detailed analyses or supporting information related to the level of service calculations or observations for pedestrian mode should be included in the appendices.

Figure 4 illustrates an example of level of service assessment for pedestrian and bicycle modes.

Figure 4 - Example of Level of Service Assessment



1.7.5 Bicycle Performance Evaluation Requirement

Cycling can also be a mode of choice for short to medium distance trips. A bicycle is defined as a vehicle under the *Ontario Highway Traffic Act* and cyclists must abide by the rules of the road. However, cyclists are more vulnerable than motorists so safety measures should be provided as much as possible. Bicycle signals, dedicated or separated cycling facilities, shared facilities, crossrides and other pavement markings can improve cycling safety.

There are two required criteria for the bicycle mode level of service performance, at the segment (between two or more intersections) and at intersection (signalized or unsignalized) areas. Both criteria should be completed and included in the Transportation Mobility Plan Study.

Signalized intersections with high left turn and right turn traffic volumes, long exclusive right turn lanes, channelized right turn and wide intersection will have negative impacts on bicycle mode. When conducting intersection capacity analysis, transportation specialists should consider and evaluate the bicycle mode to provide appropriate mitigation measures and improvements to address these impacts.

Bicycle LOS Target: C or better for these LOS Categories.

Table 8 summarizes the level of service criteria for bicycle modes.

Table 8 - Bicycle Level of Service Criteria

Level of Service	Segment	Intersection
A	Separated cycling facilities (e.g. cycle tracks, multi-use path)	Separated cycling facilities Bicycle box or clearly delineated bicycle treatment or bicycle signal head
B	≥1.8 metre dedicated cycling facilities (e.g. bicycle lanes with and without buffer)	>1.8 metre dedicated cycling facilities (e.g. bicycle lanes with and without buffer), Bicycle box, clearly delineated bicycle treatment or bicycle signal head
C	<1.8 metre dedicated cycling facilities with no buffer	<1.8 metre dedicated cycling facilities with no buffer, Bicycle box, clearly delineated bicycle treatment or bicycle signal head
D	≤1.5 metre bicycle lane with no buffer	≤1.5 metre bicycle lane and no buffer Bicycle treatment
E	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 metre in constrained area)	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 metre in constrained area) No clearly delineated bicycle treatment
F	No bicycle provision	No bicycle provision

Definitions

Shared: Shared facilities include roadways or streets where cyclists and motorists use the same road space. Types of shared facilities include signed routes, bicycle boulevards or shared lanes ("sharrows"). Since cyclists and motorists share the same space, these facilities are appropriate on streets with low traffic volumes and/or low speeds.

Dedicated: Designated or dedicated facilities are those that provide space on the road intended for use by cyclists only. They are generally adjacent to motor vehicle lanes and defined by pavement markings. In urban areas, dedicated facilities typically include bike lanes and buffered bike lanes while paved shoulders provide dedicated space on rural roads.

Separated: Separated bikeways are separated from traffic by more than a painted line. Separation may consist of bollards or delineators, mountable or barrier curbs, planters, concrete medians, etc. Types of separated facilities can include cycle tracks, raised bike lanes or multi-use trails. These facilities improve safety and comfort for cyclists along higher-speed, busy roadways.

Buffer: A painted area or physical barrier separating the bicycle lane from the adjacent traffic lane.

Bicycle box: A bike box is used at intersections with dedicated bike lanes or a cycle track to designate a space for cyclists to wait at a red light or to assist cyclists in making left turns. Cyclists stop in front of motorists and can proceed through the intersection first when the light turns green.

Paved shoulder: Paved shoulders are located next to the travelled portion of the roadway and used to accommodate cyclists on rural roads.

Table 9 illustrates the example of bicycle level of service.

Table 9 - Bicycle Level of Service Summary

Intersection	Direction	Segment		Intersection
		Description	LOS	LOS
Main Street/ Street A	Eastbound	Street A	C	B
	Westbound	Street A	B	A
	Northbound	Main Street	C	B
	Southbound	Main Street	B	B
Main Street/ Street B	Eastbound	Street B	A	A
	Westbound	Street B	B	B
	Northbound	Main Street	C	B
	Southbound	Main Street	C	B

A detailed analyses or supporting information related to the level of service calculations or observations for bicycle modes should be included in the appendices.

1.8 Alternate Multimodal Level of Service Evaluation Methodologies

Recognizing that the multimodal level of service analysis methods are new, the Region will accept both the Region's multimodal level of service analysis approach, or quantitative methods that are recognized as the industry best practices including those found in the latest edition of the Highway Capacity Manual (HCM2010), Pedestrian Exposure to Traffic at Signalized Intersections (PETSI) or other published approaches that are appropriate to the York Region context. However, all referenced methodologies should be consulted and examined carefully for appropriateness.

While engineering and professional judgment are required to interpret the results, all assumptions must be clearly documented. As illustrated in **Figure 3**, there are potential interactions between the automobile mode and non-auto modes of transportation. As automobile volume or speed increases, level of service for other modes may decrease due to potential conflict and other safety issues. If bicycle, pedestrian, or transit flows increase, the level of service for the automobile traffic stream may decrease. When preparing analysis and recommendations, the analyst must keep in mind that not all factors can be improved as level of service for one mode may affect the other modes. Typically, a combined level of service is not required or recommended.

A cyclist riding on Yonge Street in a dedicated bike lane in the City of Richmond Hill.

1.9 Software and Input Parameters

For intersection operational analysis, there are several tools and methods accepted, including:

- **Highway Capacity Software based on the Highway Capacity Manual (HCM)**
- **Synchro software using HCM outputs**
- **InterCalc software based on the Canadian Capacity Guide for Signalized Intersections**
- **Micro-simulation software such as Vissim, Paramics and Sim-Traffic**
- **Other specialized roundabout analysis software (Rodel, Sidra, Arcady, etc.)**

Other proprietary tools based on the Highway Capacity Manual and Canadian Capacity Guide for Signalized Intersections can be applied subject to approval by Regional and local municipal staff. Transportation specialists using the above should consult with Regional and local municipal staff prior to its application in the Transportation Mobility Plan. It is the Region's preference that transportation specialists apply the latest version of the analytics software, where applicable.

All input parameters and assumptions should be clearly documented. The transportation specialist should confirm that inputs and assumptions comply with the Region's standards and current practices. The following are some examples of input parameters for conducting intersection capacity analysis:

- **Peak-hour factors should be based on existing traffic counts. The future proposed intersection peak-hour factors should be based on adjacent existing intersections**
- **Traffic signal cycle lengths, signal phasing and timing plans should be obtained from the Region/local municipality**
- **Saturation flow rate default is 1,900 vphpl. Reasonable adjustment values of 2,000 vphpl may be permitted for critical movements only. However, the Region will request field studies to support the adjustments**
- **Lost Time Adjustment default is zero. Reasonable adjustment values of less than three seconds are permitted for critical movements only. However, the Region will request field studies to support the adjustments**
- **Lane utilization for High-Occupany Vehicle lanes should not be more than 50% capacity of the adjacent general purpose lanes**
- **All parameters that are modified shall be justified and documented in the report**

It should be noted that these parameters may change over time. The transportation specialist conducting the Transportation Mobility Plan should consult with Regional and respective local municipal staff to confirm these parameters, prior to the commencement of the study.

1.10 Transportation Mobility Plan Process Confirmation and Checklists

As illustrated in **Figure 3**, the Transportation Mobility Plan process is similar to a traditional transportation study that supports the development application. Some notable differences include:

- **The Transportation Mobility Plan requires the assessment of all four major modes of transportation. This approach is a requirement to conform to the Regional Official Plan policies**
- **The Transportation Mobility Plan also requires the following assessment for each horizon year**
  - Mitigating auto demand
    - Identify/exhaust possible physical transportation improvements to address the development impacts without significantly impacting other modes
    - Recommend a list of physical improvements
  - Promoting non-auto demand Identify and recommend active transportation requirements
    - Identify and recommend transit stops, routes and network requirements for each horizon year
    - Identify and recommend infrastructures and strategies to increase walking, cycling and transit mode share for each horizon year considered
- **A detailed implementation plan and functional design**

Where unique land use or situations warrant, the Region encourages transportation specialists to use relevant experience/first principles or methodologies accepted by the industry to estimate multimodal trip generation and multimodal performance analysis for auto, walking, cycling and transit trips. In all cases, the methods used should be clearly documented in the study.

To better assist transportation specialists in preparing a quality Transportation Mobility Plan report, the following checklist provides a step-by-step guide to fulfill the Region's requirements. The information contained in **Table 10** is explained in more detail in **Chapter 3**.

Regional and respective local municipal staff will be using the information contained in **Table 10** as a checklist for reviewing the Transportation Mobility Plan for completeness. If required elements are not included in the Transportation Mobility Plan without a detailed explanation in the document, the submitted Transportation Mobility Plan may be considered incomplete and staff may return it to the author for further revision.

Widening of Major Mackenzie Drive and construction of York Region Transit Major Mackenzie West Terminal in the City of Vaughan.

Table 10 – York Region Transportation Mobility Plan Checklist

	Report elements for various types of development applications	Have these requirements been included in the report?	Chapter 2 reference	• Official Plan • Secondary Plan • Major Area Plans	• Rezoning • Draft Plan of Subdivision • Site Plans
1	Title page including company name and project title	☐	2.1	✓	✓
2	Cover letter or signature page	☐	2.2	✓	✓
3	Table of contents	☐	2.3	✓	✓
4	Executive Summary - summarizes the assumptions and findings of the study	☐	2.4	✓	✓
5	Introduction	☐	2.5	✓	✓
6	Summary of transportation planning policies and how they have been addressed	☐	2.6	✓	-
7	Summary of consultation with agencies	☐	2.7	✓	✓
8	Study area	☐	2.8	✓	✓
9	Existing transportation system characteristics and performance	☐	2.9	✓	✓
10	Peak periods of analysis	☐	2.10	✓	✓
11	Input parameters and assumptions	☐	2.11	✓	✓
12	Existing multimodal data and performance analysis	☐	2.12	✓	✓
13	Existing automobile mode performance	☐	2.12.1	✓	✓
14	Existing pedestrian mode performance	☐	2.12.2	✓	✓
15	Existing bicycle mode performance	☐	2.12.3	✓	✓
16	Existing transit mode performance	☐	2.12.4	✓	✓
17	Horizon years analysis to be consistent with the requirement in Figure 5, Chapter 2 of the guidelines	☐	2.13	✓	✓
18	Provide a list and brief description of each background development in the study area	☐	2.14	✓	✓
19	Background development multimodal trip generation	☐	2.15	✓	✓

Table 10 – York Region Transportation Mobility Plan Checklist *continued*

	Report elements for various types of development applications	Have these requirements been included in the report?	Chapter 2 reference	• Official Plan • Secondary Plan • Major Area Plans	• Rezoning • Draft Plan of Subdivision • Site Plans
20	Background development multimodal trip distribution and assignment	☐	2.16	✓	✓
21	Background multimodal growth rates	☐	2.17	✓	✓
22	Transportation demand forecasting model (used in growth area where appropriate)	☐	2.18	✓	-
23	Future transportation improvement	☐	2.19	✓	✓
24	Future background multimodal volumes and performance and recommendations	☐	2.20	✓	-
25	Site trip generation	☐	2.21	✓	✓
26	Auto site trip generation	☐	2.21.1	✓	✓
27	Transit site trip generation	☐	2.21.2	✓	✓
28	Walking and cycling site trip generation	☐	2.21.3	✓	✓
29	Site multimodal trip distribution and assignment	☐	2.22	✓	✓
30	Total multimodal forecast volumes and performance	☐	2.23	✓	✓
31	Automobile mode impact	☐	2.24	✓	✓
32	Mitigation measures for auto mode	☐	2.24.1	✓	✓
33	Transit mode impact	☐	2.25	✓	✓
34	Active transportation mode impact	☐	2.26	✓	✓
35	Transportation demand management	☐	2.27	✓	✓
36	Safety analysis	☐	2.28	-	✓
37	Recommendations		2.29	✓	✓
38	Implementation plan	☐	2.30	✓	✓
39	Conclusions	☐	2.31	✓	✓

Report submissions: If submission of a Transportation Mobility Plan Study is required, please follow the process outlined in **Figure 2** and send the report to Development Services or Development Engineering for circulation depending on the type of application. Please do not send the report to individual Regional departments. Report resubmissions should also follow this process.

CHAPTER 2

Transportation Mobility Plan Technical Guidelines

General Requirements

These requirements should be provided as part of a Transportation Mobility Plan Study:

- **Pre-consultation meeting minutes and correspondence should be included in the appendices**
- **If the Transportation Mobility Plan is prepared in response to the comments provided by the Region or respective local municipality, a response matrix should be provided as part of the report to indicate how these comments are addressed**
- **A Transportation Mobility Plan Study should be submitted through a normal development application submission process**
- **If a Transportation Mobility Plan Study is an addendum or revised study, it can be submitted to the respective local municipality and York Region's Development Services/Development Engineering staff.**
- **In some cases, electronic copies of the analyses (Synchro files, drawings) may be requested**

Detailed Requirements

The following detailed requirements must be provided as part of a Transportation Mobility Plan Study:

2.1 Title Page

The title page should include the following information:

- **Company name**
- **Project name/title**
- **Municipal address/Concession block**
- **Landowner/Applicant name**
- **Date**

2.2 Cover Letter or Signature Page

The cover letter or signature page should include the following information:

- **Company name**
- **Date**
- **Project name/title**
- **Municipal address/Concession block**
- **A brief project description and purpose of the report**
- **Report revision number (if applicable) and titles/dates of related reports**
- **Overall study conclusions/recommendations**
- **Contact information of the qualified transportation specialist**
- **Signature of the transportation specialist conducting and recommending the results of the study. Studies without a signature and contact person will be deemed incomplete**

2.3 Table of Contents

A table of contents is required for all Transportation Mobility Plan studies and should include the following information:

- **List of section and sub-section names, and page numbers**
- **List of exhibits and tables**
- **List of appendices**

2.4 Executive Summary

An executive summary is required for all Transportation Mobility Plan studies and should include the following:

- **A summary of the proposed development: location, statistics, phasing type of development and other background information to help the reviewer understand the context of the development**
- **A summary of the study/analysis process**
- **Key findings and recommendations of the study**
- **A summary of the implementation plan for the report recommendations**

2.5 Introduction

The introduction section should include the following:

- **Identification of the applicant**
- **Site location**
- **Type or nature of the application (Official Plan Amendment, Rezoning, Draft Plan of Subdivision, Site Plan or others)**
- **Proposed land use**
- **Proposed study area**

The study area should be confirmed with Regional and local municipal staff before commencing data collection and analyses. Relevant maps should be included to show the study area. Typically, the study area should include all local Municipal, Regional and Provincial roads, expressways, intersections, interchanges, transit services and facilities affected by the proposed development.

Maps or plans should be provided and illustrate:

- **Location and extent of the proposed development**
- **Existing land use of the subject site and its adjacent lands**
- **Relevant Secondary Plan studies, approved and pending subdivisions, as well as the site plans within the study area boundaries for the subject development, assumptions should be documented in the Transportation Mobility Plan**

A description of the type of land uses proposed, including size of individual land use components expressed in units related to transportation analysis (floor area, number of residential units, population, employment, number of parking spaces, etc.). Special attention should be paid to gross versus net floor area definitions.

The following information may be included as part of the introduction:

- **A Site Plan or concept drawing showing site layout and proposed accesses**
- **Identification of any phasing schemes and schedule of implementation with associated land use statistics**
- **The expected dates of completion and full occupancy of the ultimate development and any interim phases, if known**

2.6 Summary of Transportation Planning Policies

A summary of the key Regional and respective local municipal transportation-related policies in Official Plans and/or Secondary Plans specific to the development site or area should be provided. These policies will provide transportation specialists and reviewers with a better understanding of the context for the proposed development relative to a corridor, urban growth centre or other planning areas.

2.7 Summary of Consultation With Agencies

It is recommended that the transportation specialists consult with Regional and respective local municipal staff when preparing a Transportation Mobility Plan. A summary of the pre-consultation comments provided by Regional and local municipal staff should be included in the final report appendices. Examples may include a summary of pre-consultation discussions, identification of network assumptions or identification of the study area. If applicable, copies of any formal correspondence/meeting minutes should also be included.

2.8 Study Area

A study area must be established prior to the data collection process. Under current practices, the study area is selected based on the impact of the vehicle and pedestrian traffic generated by the proposed development. For example, the intersections or roadways that will carry five percent or more of the site generated traffic should be included in the analysis. The Transportation Mobility Plan should include all major and minor arterial roads, collector roads, Provincial highway interchanges, intersections and transit services/stations that will be affected.

Since every development is unique due to the proposed land use and strategic location, it is recommended that the transportation specialist consult with Regional and local municipal staff to establish the study area prior to starting the Transportation Mobility Plan.

2.9 Existing Transportation System

The existing transportation system should be summarized through either maps and/or tables, including, but not limited to:

- **Key roads, jurisdiction, number of lanes, posted speed limits**
- **Intersection traffic controls, lane configuration, turning restrictions**
- **Railway crossings, specifically where parking facilities are provided such as GO Train stations**
- **Transit routes and service frequencies**
- **Transit stops and stations**
- **Higher order transit including transit priority lanes, High-Occupancy vehicle lanes and bus rapid transit networks**
- **Pedestrian facilities**
- **Cycling facilities**
- **Locations with critical horizontal and vertical grades**
- **Other traffic controls, restrictions on travel movements**
- **Heavy vehicle (truck) restrictions**
- **Adjacent and opposite driveways and other site accesses including spacing between driveways and accesses**
- **Other large scale traffic generators such as schools, parks, stadiums, shopping centres and parking facilities**
- **Other features of importance**

2.10 Peak Periods of Analysis

Time periods for analysis are critical for certain types of land use applications. The peak hours will be identified based on the "worst-case" combination of site-generated trips plus background traffic/transit volumes across the study area. Other peak hours, such as weekday noon hour, Saturday/Sunday afternoons or Friday evenings for retail/ commercial uses, should be reviewed to see if they will result in a "worst-case" situation.

If the proposed development generates a significant amount of truck traffic, the analysis periods and volumes should be specified and included in the analysis.

Table 11 summarizes typical requirement for time periods based on land use type. It is recommended that the analysis time periods be confirmed with Regional staff before starting the Transportation Mobility Plan.

For mixed-use developments, the predominant trip generation and "worst case" combination should be reviewed for impact to the surrounding transportation system.

Table 11 – Typical Peak Periods for Analysis

Land Use Type	AM Peak	PM Peak	Weekend/ Saturday	Site Specific
Retail, Commercial (e.g. shopping centre, restaurant, specialty store, super market)	No	Yes	Yes	No
Residential (e.g. single family, townhouse, condominium, apartments, senior homes)	Yes	Yes	No	No
Employment (e.g. business park, industrial park, office, warehouse)	Yes	Yes	No	No
Institutional (e.g. school, church, banquet hall, entertainment centre, community centre)	-	-	-	Yes
Centres and Corridors (mixed-use developments area)	Yes	Yes	Yes	No

A cyclist riding on the mulit-use pathway on Highway 7 over Highway 400 in the City of Vaughan.

2.11 Input Parameters and Assumptions

All assumptions concerning saturation flows, peak hour factors, lost times, lane utilization, traffic signal cycle lengths, signal phasing and signal timings should be documented. The transportation specialist should confirm that assumptions are in conformance with Regional and local municipal standards and current best practices. The following are some examples for input parameters for conducting intersection capacity analysis:

- **Saturation flows above the ideal saturation flow of 2,000 vehicles/hour/lane will not be accepted unless substantiated through surveys of existing conditions or approved by the Region. These adjustments should be reserved for critical movements only. However, the Region will request field studies to support the adjustments**
- ***Saturation flow for local municipal roads may be less than 2,000 vehicles/hour/lane. The Transportation specialist should consultant with respective local municipalities to obtain the appropriate saturation flow rates***
- **Peak-hour factors should be obtained from existing traffic counts**
- **Traffic signal cycle lengths, signal phasing and timing plans should be obtained from the Region and respective local municipality, where appropriate**
- **Lane utilization for High-Occupancy Vehicle lanes should not be more than 50% capacity of the adjacent general purpose lanes**

These parameters may change over time, and the transportation specialist conducting the Transportation Mobility Study should consult with Regional and respective local municipal staff to confirm these parameters prior to starting the Transportation Mobility Plan.

2.12 Existing Multimodal Data and Performance Analysis

A multimodal review of existing active transportation (walking and cycling), transit and traffic volumes for links, intersections, and major transit stops/stations in the study area should be shown on appropriate figures:

- **Volumes should be based on the most recent traffic counts available from the Region or local municipalities. The transportation specialist should conduct additional counts where existing count data is more than two years old or where existing data appears to be anomalous or insufficient. Since 2011, the Region has supplemented the Turning Movement Count program to include both cyclists and pedestrians**
- **Transit routes should be based on the peak points of the routes involved. Ridership data can be obtained from York Region Transit**

If recent counts are not available, new data must be collected to cover time periods:

A typical weekday (Tuesday through Thursday)

- 7 a.m. to 10 a.m.
- 11 a.m. to 2 p.m. (as applicable)
- 4 p.m. to 7 p.m.

In addition, the transportation specialist should review any other relevant peak periods. It may include extended morning and afternoon peak periods (3 p.m. to 7:30 p.m., Friday evenings or Saturday/Sunday afternoons) for certain types of developments.

Existing conditions should be analyzed using existing Regional offset, signal timing and phasing parameters. These can be obtained from the Region's Traffic Signal Operations Division and the local municipality. Any recommendations to improve existing traffic operations should be documented and approved by Regional and local municipal staff, where appropriate, before being used in the analysis to reference the 'existing' scenario.

All modes should be reviewed together to ensure the interconnection and interaction between them are documented. The recommended mitigation measures and improvements should complement each other in a holistic manner.

2.12.1 Existing Automobile Mode Performance

The automobile mode includes all motor vehicle traffic using a roadway. Capacity and level of service analyses are conducted for interrupted-flow conditions in the form of signalized and unsignalized intersection operation assessment for motorists. These intersections are typically located within the study boundary. In many instances, pedestrians, cyclists and transit vehicles are not included in the intersection operations analysis. This assessment is considered insufficient and does not provide a full picture of the intersection operations as a whole.

When assessing the automobile mode performance, the transportation specialist should include the requirements listed in ***Section 1.7.***

Both the delay and volume-to-capacity (v/c) ratios are acceptable parameters used in assessing the operational performance of an intersection for motorists. These parameters are usually translated into level of service. Delay is widely used in the Highway Capacity Manual method while the v/c ratio is the selected measure in the Canadian Capacity Guide for Signalized Intersections. These parameters should be considered in the assessment of an intersection at various levels including at the individual movement level, the approach level, and the whole intersection level.

For intersection operational analysis, there are several tools and methods accepted including:

- **Highway Capacity Software based on the Highway Capacity Manual**
- **Synchro software**
- **InterCalc software based on the Canadian Capacity Guide for Signalized Intersections**
- **Micro-simulation software such as Vissim, Paramics and Sim-Traffic**
- **Other specialized roundabout analysis software (Rodel, Sidra, Arcady)**

Other proprietary tools based on the Highway Capacity Manual and Canadian Capacity Guide for Signalized Intersections can be applied subject to approval by York Region staff. Transportation specialists using proprietary software other than those mentioned above should consult with York Region staff prior to its application in the Transportation Mobility Plan.

Historically, York Region has identified a v/c ratio threshold of 0.85 for critical movements and intersections in urban areas, or 0.70 in rural areas (Region's Transportation Impact Study (TIS) Guideline for Land Development Applications (August 2007). Since centres and corridors can experience greater levels of congestion, critical movement v/c ratios are not the only indicators that should be considered to address the impacts of the developments.

As the Region and local municipalities experience more traffic congestion, developments within the urban area, particularly on transit priority and rapid transit corridors, the transportation specialist will need to consider alternative access arrangements for vehicular traffic including consolidation of accesses and/or right-in/right-out accesses only. Where additional capacity is required through signalization of an intersection, a signal warrant analysis should be carried out for the location and should be included in the appendices.

For developments with impacts on signalized intersections with spacing at or near the minimal distance, a queuing analysis should be carried out to demonstrate that there is adequate storage length in the turning lanes and that queue spillback will not create adverse conditions. This can be demonstrated through micro-simulation modelling or analysis tools indicating the critical queue length (95th percentile) at the intersection approaches.

York Region's Access Guideline for Regional Roads (2020) specifies that the absolute minimum signalized intersection spacing on arterial roads is 215 metres and desirable spacing is 300 to 400 metres.

While the use of micro-simulation is considered appropriate for detailed operational analysis including intersection capacity, queuing, weaving and other access implications, the application of macro-scopic and meso-scopic simulation can also be used to assess sub-areas. Regional and respective local municipal staff should be consulted on the appropriateness of the tools prior to its application.

2.12.2 Existing Pedestrian Mode Performance

From a transportation planning perspective, York Region's 2022 TMP provides guidance connecting and integrating pedestrian facilities between local municipalities within York Region and surrounding municipalities to help create a seamless and comprehensive pedestrian network.

When assessing the pedestrian mode performance, transportation specialists should include the key indicators for the pedestrian mode as outlined in ***Chapter 1, Table 1***.

The Transportation Mobility Plan should provide the following analysis:

- **Assessment of existing facilities and connectivity**
- **Identify substandard designs, substandard operations, gaps and missing links**
- **Assessment of average crossing delay at signalized intersections**
- **Assessment of average crosswalk length/ crossing distance**

- **Qualitative assessment of pedestrian experience based on:**
  - Potential impact of high left and right turn traffic volumes
  - Traffic speeds
  - Buffer between sidewalk and traffic lanes
  - Potential impact of channelized right turn
  - Availability/quality of pedestrian realm
  - A cursory review of the pedestrian collision data for intersections and mid-block locations
- **Identify potential mitigation measures for the existing conditions, if applicable**

Recognizing that these methods are new, York Region and local municipalities are willing to accept all evaluation methods that are identified by the industry as best practices, such as the new edition of the Highway Capacity Manual (HCM2010) and Ontario Traffic Manual Book 15. While engineering and professional judgment are required to interpret the results, all assumptions must be clearly documented.

2.12.3 Existing Bicycle Mode Performance

From the transportation planning perspective, cycling facilities are being implemented with guidance from York Region and the municipality's Transportation Master Plans and guidelines. Bike lanes/cycle tracks are considered for urban cross-sections, while paved shoulders with adequate width for cycling are considered for rural road cross-sections. From the traffic engineering perspective, the Region and local municipalities are currently undertaking a comprehensive design guideline.

Similar to walking, cycling is encouraged as a viable mode of transportation in urban areas.

*When assessing the bicycle mode performance, the transportation specialist should include the requirements in **Section 1.7**.*

The Transportation Mobility Plan should provide the following analysis:

- **Assessment and identification of bicycle facility crossing types including bicycle signals and crossrides**
- **Assessment of existing facilities and connectivity**
- **Potential impact of the long right turn lane**
- **Potential impact of high left and right turn traffic volumes**
- **Identify substandard design, substandard operations, gaps and missing links for the existing conditions**
- **Assessment of accessibility to cycling facilities by distance and time**
- **Identify potential mitigation measures for the existing conditions, if applicable**
- **Origin/destination information**

As indicated, the Region and local municipalities recognize these methods are new and are willing to accept all evaluation methods that are identified by the industry as best practices such as the new edition of the Highway Capacity Manual (HCM2010) and Ontario Traffic Manual Book 18. While engineering and professional judgment are required to interpret the results, all assumptions must be clearly documented.

2.12.4 Existing Transit Mode Performance

Besides auto mode, transit is one of the most frequently used modes of transportation in urbanized areas, especially in the southern parts of York Region.

As part of the transit mode analysis, the transportation specialist should summarize the transit connections available to the potential transit riders and document the interactions between the service operators (YRT, TTC, GO Transit and adjacent municipal transit) and any special arrangements for encouraging ridership. The surrounding transit corridors and/or transit hubs should be described in the evaluations to inform the reader of available services and providers under the existing and the future conditions.

From the transit network planning perspective, York Region's TMP (2022) allows the Region to address future transportation needs in an efficient and integrated manner, while meeting Provincial and Regional policies supporting sustainable development. York Region's TMP process has resulted in a set of progressive transit, roadway and policy recommendations supporting the Region's vision of a more sustainable transportation system. The fast pace of growth projected in York Region between now and 2051 must be complemented by a transportation system that preserves the environment, enhances York Region's economic viability, seamlessly integrates with new and existing developments and offers more reliable travel choices for residents and employees. The Region's Transit Oriented Development Guidelines provides recommendations about how the development should be designed to maximize the usage of public transportation.

From an engineering perspective, York Region Transit has developed design guidelines for facility design. The transportation specialist should contact York Region Transit staff to discuss facility design.

When assessing transit mode performance, the transportation specialist should include the requirements in ***Section 1.7****.*

A Transportation Mobility Plan should provide the following analysis with regard to the transit mode:

- **Assessment of existing routes, ridership, connections to transit facilities and designs of the facilities**
- **Assessment of existing transit modal split**
- **Identify substandard designs, substandard operations, gaps and missing links to transit facilities under the existing conditions**
- **Transit service frequency and boarding volumes**
- **Relative transit speed – average transit speed/average traffic speed (mixed traffic, High-Occupancy Vehicle, dedicated transit lane)**
- **Rapid transit connectivity**

The Transportation Mobility Plan should identify potential mitigation measures for the existing conditions, if applicable. Since these requirements are new and may have some challenges, the Region will accept all evaluation methods recognized by the industry as best practices, subject to confirmation and approval from York Region Transit. While engineering and professional judgment are required to interpret the results, all assumptions must be clearly documented.

2.13 Analysis Horizon Years

The Region requires several horizon years to be analyzed when preparing a Transportation Mobility Plan. The analysis years should include but not be limited to:

- **Existing Analysis Year for Baseline: Transportation Mobility Plan commencement year**
- **Opening Year Analysis: the last phase and/or full build-out of construction and occupancy of the proposed development. If the proposed development consists of more than one phase, each phase must be analyzed based on the anticipated/scheduled opening year of that phase**
- **Five-Year Horizon Year Analysis: it is required that an assessment be carried out for the conditions five years after the last phase and/or full build-out of the proposed development. For example, if the last phase of the proposed development is anticipated to be in 2030, the five-Year horizon analysis should be carried out for the 2035 horizon**
- **10-Year Horizon Analysis: projects involving multi-phased development or projects that generate more than 1,000 peak total two-way person trips (including pass-by trips) will require an additional analysis of the conditions 10 years after the last phase or full build-out of the proposed development. For example, if the last phased or full build-out of the proposed development is anticipated to be in 2030, the ultimate horizon year is 2040**

Figure 5 below illustrates typical analysis year requirements as part of a Transportation Mobility Plan.

Figure 5 - Typical Analysis Years

Large multi-phase development proposals should analyze all phases of the development, as part of the development application for the first phase. The Transportation Mobility Plan should be updated as the development progresses and more accurate information becomes available. If separate Transportation Mobility Plan studies are conducted for future phases then the traffic generated by previous phases, of the development should not be added to background traffic, but should be considered as part of development traffic.

Analysis years should be confirmed with Regional and local municipal staff before starting the Transportation Mobility Plan.

2.14 Background Developments in the Study Area

All background developments in the study area should be identified and included in the analysis. This section should be accompanied with a map and table summarizing the development applications within the study area to be included in the review.

The transportation specialist should obtain details on these background developments from the municipal Planning Department. All the sources should be clearly documented.

2.15 Background Development Multimodal Trip Generation

In some cases, the trip generation may be available for background developments from other transportation planning studies. However, when this information is not readily available, the methodologies outlined in **Section 2.19** can be used to estimate the trip generation.

2.16 Background Development Multimodal Trip Distribution and Assignment

In some cases, the trip distribution may be available for background developments. However, when this information is not readily available, the methodologies outlined in **Section 2.20** can be used to estimate the trip distribution and assignment.

2.17 Background Multimodal Growth Rates

Background multimodal growth rates can be estimated by the following methodologies:

1. **Historical traffic counts (AADT and cordon counts)**
2. **Transportation demand forecasting model (strategic planning model or sub-area model)**
3. **Recent background transportation studies (Class Environmental Assessment, secondary plan or other transportation studies)**

Although each of the methodologies noted above are generally applicable to the auto mode, Method 1 (historical counts) can be applied to walking and cycling and Method 2 (modelling) can be applied to transit mode. York Region will accept any combination of the methodologies noted for all four modes of transportation considered. However, all assumptions and calculations must be clearly documented, explained and included in the final report for reference purposes.

2.18 Transportation Demand Forecasting Model

York Region's Travel Demand Forecasting Model is an activity-based model (ABM). The model simulates daily activities and travel patterns of all individuals in the Greater Golden Horseshoe (GGH) area, focusing on York Region, as affected by transportation system level of service. The ABM has a 2016 base year calibrated with the 2016 Transportation Tomorrow Survey (TTS) data, 2031 and 2051 forecasting years using road and transit network data consistent with the Region's 10-Year Roads and Transit Capital Construction Program and 2022 York Region TMP and Regional Council adopted population and employment land use data. The Regional strategic transportation planning model only provides a high level measure of the transportation implications resulting from growth at the traffic zone level. For most Transportation Mobility Plan studies, it may not be appropriate to apply the results of the model directly to traffic operational impacts without conducting a sub-area analysis. A sub-area model should be considered for Secondary Plans, Block Plans and major developments that will have larger area impacts. The model may need to be calibrated and validated with the most up-to-date TTS data and current traffic counts.

Transportation specialists using modelling outputs from the ABM as the basis for sub-area analysis or other model refinements are required to acknowledge in writing prior to receiving modelling information and agree to take full responsibility for all assumptions with respect to land use, networks, and any other input parameters. York Region's ABM is intended for overall Regional transportation planning and has limitations on direct application to specific area analyses.

Other modelling tools are at the meso-scopic level, which combines both the strategic and operational aspects of transportation modelling. It requires more intersection and network input details such as signal timing plans, turning lane configurations, lane widths, and saturation flow rates, while its output includes average speed, delays, queue lengths, turning volumes, etc. For sub-area analyses of major developments, meso-scopic modelling is considered appropriate.

Operating conditions and analyses should be carried out for weekday peak hours of the adjacent street traffic for land uses, such as residential and office/commercial. Other peak periods may be appropriate depending on the land uses. For retail uses, such as shopping centres, the peak periods could be weekday afternoon and Saturday early-afternoon depending on local characteristics. Consideration should also be made about the type of vehicles to be generated by the site. Where heavy trucks are expected for deliveries during the street peak or off-peak, appropriate analysis should be carried out to address the queuing and impacts of the heavy vehicles at the intersections and access points.

Particularly for Secondary Plans, Block Plans, and larger developments, the travel demands between intersections and mid-block capacities should be reviewed and assessed to determine if transportation infrastructure or additional capacities are required to accommodate the future background and total demands. Assessments could include screenline analysis by identifying traffic volumes, person trips and/or transit ridership.

When physical improvements are required on Regional roads, consideration should be made with respect to York Region's policy on road widening from four lanes to six lanes. In accordance with the Regional Official Plan, all future road widening from four lanes to six lanes should only be made to accommodate transit or High-Occupancy Vehicle lanes along with bicycle lanes within the right-of-way. With the High-Occupancy Vehicle lanes or centre median rapid transitways, the analysis should appropriately reflect the lane configurations and effects of the transit facilities and capacity implications in the Transportation Mobility Plan documentation. The assumptions and methods used in the Transportation Mobility Plan to address the transit and High-Occupancy Vehicle facilities should be fully documented in the report such as lane utilization adjustment factor or other methodologies.

2.19 Future Transportation Improvement

The Regional Official Plan contains maps which guide the implementation of the Region's road and transit network based on the TMP (2022) and other sources of planning information. Road and transit network information should be reviewed and considered in the preparation of a Transportation Mobility Plan for a specific development.

Depending on the study horizon and location, the available sources of transportation network planning information include:

- **York Region's TMP (2022)**
- **Municipal Transportation Master Plans**
- **York Region and local municipality's 10-year Road Construction Program**
- **York Region Transit (YRT) - Five-year Service Plan**
- **Municipal pedestrian and cycling master plans**
- **Road and rapid transit project environmental assessment studies**
- **Metrolinx Regional Transportation Plan ("The Big Move")**
- **Adjacent area municipalities' and other development transportation planning studies**

As part of the Transportation Mobility Plan, future background and total traffic conditions should examine the need for the transportation infrastructure to accommodate both background and site generated traffic. This review should include both planned infrastructure and additional improvements recommended through the analysis. Available transportation studies from other developments in the vicinity or adjacent municipalities should be reviewed for any pertinent information to form the background conditions. This review should also recommend revisions to the phasing of the planned infrastructure and/or other operational improvements for consideration in the next update to Regional and local municipal plans.

Transportation Master Plans provide the most comprehensive combination of road, active transportation, and transit network plans for the long term along with anticipated phasing. Official Plans reflect these network elements in more generality and leaves the Transportation Master Plans and Class Environmental Assessment studies to address the details on needs, justification and implementation.

The Transportation Mobility Plan should recognize network improvements proposed or recommended in the Transportation Master Plans and/or the 10-year Roads Capital Construction Program. York Region's 10-year Roads Capital Construction Program is reviewed and adjusted each year by the Region's Public Works Department based on priorities and needs within the Region. Environmental Assessment (EA) studies are typically scheduled on the basis of project timelines identified in the 10-year Program. Where available, the EA study should be referenced for more details on recommended road/transit improvements in the study area that may impact the development-generated traffic.

York Region Transit publishes a Five-year Service Plan that provides information on the routes and local transit improvements anticipated within the communities. Details on specific routes, services objectives, and future transit services are documented in the annual Transit Service Plan.

For larger area studies, such as Secondary Plans or development applications located in the Regional Centres and Corridors, Metrolinx's "The Big Move" and the Regional Transportation Plan update are also reference documents that could provide information on the rapid transit network plans. Metrolinx's "The Big Move" has identified a set of priority projects including the Yonge subway extension into York Region. It contains a recommended set of transportation network improvement projects for the GTHA including those included in the 15-year plan, 25-year plan and beyond 25-year plan.

2.20 Future Background Multimodal Volumes and Performance

Future background multimodal volumes should be estimated based on the addition of the following layers:

- **Existing multimodal volumes**
- **Background developments multimodal volumes**
- **Background growth rates for multimodal volumes**

Since the background development and rates for multimodal volumes may be difficult to estimate, the Region will accept the following methodologies, or combination of these methodologies in consultation with local municipalities:

- **Background growth based on existing multimodal volumes and non-auto modal split for background developments**
- **Planned active transportation facilities and non-auto modal split targets based on the Region and local municipality's plans for the study area**
- **Outputs from transportation demand forecasting models or other background studies in the study area**

Future background multimodal figures should be provided in the report.

Future background multimodal performance analysis should be based on the following requirements for each horizon year considered for all four modes:

- **Assessment of future background conditions. A table should be provided to summarize the performance results for the four travel modes**
- **Identify substandard design, problematic operations, gaps, missing links and potential mitigation measures to address future background conditions such as new bus routes, expanding facilities, route realignment and frequencies**

2.21 Site Trip Generation

A requirement of a Transportation Mobility Plan is identifying total multimodal volumes generated by the proposed development. Site multimodal trip generation can be estimated using one or some of the following methodologies and data sources, subject to confirmation and acceptance by Regional and local municipal staff:

- **Institute of Transportation Engineers (ITE) Trip Generation Manual (latest edition)**
- **Existing site trip generation surveys**
- **Proxy site surveys (minimum three days of data), including raw data**
- **Other transportation studies in the area**

Site trip generation for each mode of travel is discussed in greater detail in the following sections.

A Transportation Mobility Plan identifies all trips generated from the site including all transit and non-auto trips. Historically, these trips are identified as reductions to the ITE trip generation rates. Using professional judgment, including but not limited to first principles approach, the Transportation Mobility Plan must identify, as appropriate, the total transit and non-auto trips generated from the site.

2.21.1 Auto Site Trip Generation

Primary Auto Trip Generation

Automobile trip generation is the cornerstone of a traditional Transportation Impact Study (TIS) since it provides an estimation of the expected number of trips produced and attracted by a development. Data sources and trip generation procedures vary depending on the type of land use and scope of the study.

Most commonly applied, the ITE Trip Generation Manual provides a comprehensive resource for typical land uses based on surveys and procedures established collaboratively in North America with most of the information from United States cities. It should be noted that ITE trip rates mainly account for auto trips generated by developments, however, trips generated by other modes such as transit, walking and cycling are not known. Other data sources and a first principles approach must be used in order to complete the multimodal trip generation estimates.

Application of the ITE trip rates should be undertaken using professional judgment recognizing the differences between York Region development context and major cities in the United States. This would include assessment in the early stages of transit accessibility in York Region's centres and corridors versus other urban areas, as well as the wide range of maturity in the Regional communities.

This review must recognize that trip rates contained in the ITE Trip Generation Manual for condominium uses are based on surveys of existing developments in major cities in the United States and have a large amount of transit and alternative trip modes reflected in the vehicle trip rates. Until York Region's transit network matures, it may not be appropriate to reduce the trip rates to any greater extent in the short to medium term (less than five years) to account for high transit modal split targets. This can be confirmed in consultation with Regional and local municipal staff.

Justification and assumptions should be documented in the Transportation Mobility Plan for any additional reductions or adjustments to the ITE trip rates in order to reflect local circumstances and influences.

The most representative source of trip rate data for development applications in the Region is through surveys and studies of similar uses within York Region or the Greater Toronto Hamilton Area (GTHA). Peak period trip rates can be determined by site access counts or cordon counts around an existing development or isolated area. Counts and surveys are most reliable for uses that can be isolated, such as office building complexes, residential block and shopping centres. For multi-use developments, the challenge is to identify the trips associated with each use and the potential synergies between uses. Consultation with Regional and local municipal staff is required in advance of the use of prior studies and surveys of proxy sites to confirm agreement of their applicability to the current application.

For land uses not contained in the ITE database or well established in the GTHA, sufficient detailed information should be gathered to estimate the trip generation from a first principles approach. Based on anticipated characteristics of the trip makers and parameters in the development, such as the number of employees, auto occupancies, modal splits, visitors or directional splits, the trip generation of the site can be estimated. The assumptions and methods should be consulted with Region and local municipal staff prior to its application and fully documented in the Transportation Mobility Plan.

Transportation Tomorrow Survey (TTS) data is not appropriate for proxy auto trip generation rates due to limited sample size. The Region will not accept this approach for a Transportation Mobility Plan Study.

Traditionally, the analyses contained in a Transportation Impact Study are based on vehicle or auto trip generation mainly to serve intersection operational assessments. However, since the Region is providing more sustainable choices in travel including High-Occupancy Vehicle lanes and rapid transit services, the need to assess mid-block capacity effects and impacts on a person-trip level should be considered. Person-trip generation rates may be appropriate for mid-block capacity and transit impact analyses to better represent the multimodal requirements of the Transportation Mobility Plan.

Pass-by Trips

Pass-by trips are trips attracted from the traffic passing the site on adjacent streets. Although pass-by trips are not part of the new trip generation, pass-by trips will impact trip assignments at site accesses and adjacent intersections, and it should be included in the analysis. Pass-by trips are only applicable to retail/commercial developments such as shopping centre, fast-food restaurants or gas stations.

Synergy/internal Trips

If a proposed development consists of several types of land uses such as retail/commercial, residential or employment, there is a potential for internal trip interaction between the uses. For example, residents can walk or ride a bicycle to a place of employment. Employees can also walk or ride a bicycle to the stores within and adjacent to the site without the need to drive onto the Regional or local road network.

In York Region, synergy or internal captured trips are typically estimated through proxy site surveys or existing data. Transportation specialists should document all methodologies and background information to support the proposed synergy or internal captured trips within the development.

2.21.2 Site Transit Trip Generation

Site transit trip generation can be estimated by using the appropriate transit modal split for the proposed development. Typically, transit modal split can be obtained through various data sources and estimation methodologies such as the TTS data, existing and surrogate site surveys, strategic transportation planning model and first principles.

While transit modal split serves as an important indicator of our mobility system, it is the priority of the Region to develop a multimodal transportation system that would include active transportation modes such as walking and cycling that can benefit from convenient access to transit, and built form that provides for live-work opportunities within walking distances.

The site transit trip generation of a development will depend on the type of land use and the location of the development. The highest propensity of transit use is expected in the rapid transit corridors and York Region's four designated urban growth centres: Markham Centre, Richmond Hill-Langstaff Gateway Centre, Vaughan Metropolitan Centre and Newmarket Urban Growth Centre. The type of transit technology and accessibility will also have an influence on the likelihood of people choosing to use the transit system. Transit technologies and services can range from subway, bus rapid transit, light rail transit, GO Train and bus, conventional bus and local community buses. The Region is developing transit priority measures that consist of initiatives including, but not limited to, High-Occupancy Vehicle/transit lanes, queue jump lanes and/or transit signal priority on the arterial system.

The range of acceptable transit modal splits for a specific development will depend on the maturity of the transit system within the study area for a particular horizon year. It is recommended that transportation specialists use sound engineering judgment and practices to estimate the transit modal split for the particular development. Sources of data and approaches to develop the transit modal split include:

- **Existing published surveys such as the Transportation Tomorrow Survey (TTS) for proxy traffic zone household travel information with similar transit service characteristics**
- **Surveys of surrogate land uses with similar transit service characteristics and site context**
- **Previous transportation planning studies prepared for the study area**

Pre-consultation with Regional and local municipal staff is recommended to confirm approaches and

assumptions to estimate future modal splits and the planned transit infrastructure. In all cases, the assumptions and methodologies used in the study should be documented within the report.

The application of the TTS is most suitable when dealing with larger community or area transportation studies which can indicate transit modes and trip making at a traffic zone level. Since the TTS is undertaken every five years, caution should be used in areas of high growth or redevelopment since the transit and travel characteristics may change significantly over the five year window. For a particular growth area, a critical review of the existing development pattern versus observed development pattern at the time of the TTS is required. The local traffic zones, sample size and land use characteristics (residential, commercial, institutional and industrial) within the study area should also be considered. The Transportation Mobility Plan should provide details about how the TTS is applied along with justification of the traffic zone area.

The Region's rapid transit and transit priority initiatives are expected to increase transit modal splits significantly over the medium to long term. When producing a Transportation Mobility Plan for a development, the transportation specialist is required to provide justification for the transit modal split assumptions presented in the Transportation Mobility Plan.

Justification and recommendations in the Transportation Mobility Plan should include, but not be limited to, the following:

- **Review of the Regional and local Official Plan policies and objectives related to public transit and transit modal split for the development area**
- **Identification of existing and planned public transit service and phasing**
- **Identification of existing transit modal split using best practice methodologies**
- **Recommendation of an appropriate modal split for each development horizon and an ultimate modal split based on site design and anticipated level of transit infrastructure required**
- **Recommendation of a non-auto trip rate reduction to be used in the trip generation analysis, as appropriate**
- **Opportunities for expansion of existing alternative transportation systems including cycling, trails, sidewalks and pedestrian connections**
- **An examination of the mix of land uses within the development area may also give an indication of the opportunities to reduce vehicle trips (because of proximity to services)**

Local Official Plans, Secondary Plans, and development area plans may identify site specific transit modal split objectives that are more prescriptive than overall Regional and respective local municipal targets. The Transportation Mobility Plan should provide adequate recommendations reflecting the transit infrastructure requirements to achieve the target modal splits for background and site traffic including any phasing of infrastructure improvements in coordination with development in the area.

2.21.3 Walking and Cycling Site Trip Generation

Site walking and cycling trip generation can be estimated by using the following methodology or data source:

- **York Region or respective local municipality collected data if available for the particular site or study area**
- **Transportation Tomorrow Survey (TTS) data (should be used carefully due to incompatible urban characteristics)**
- **Proxy site surveys (must have similar built-forms and characteristics)**

At this time, York Region has many different types of land uses and developments located throughout different areas. For this reason, transportation specialists should undertake surveys at proxy sites having similar characteristics as the proposed development such as size, land use types, transit service frequency and road network. The surveys can collect information on different modes of transportation at the same time. For example, the following proxy site survey was conducted for a site's multimodal trip generation. **Table 12** summarizes the survey results.

Table 12 – Sample Survey for Proxy Site Multimodal Trip Generation

Survey Period Weekday Peak Periods	Inbound					Outbound				
	Total Person Trips	Car (%)	Passenger (%)	Transit (%)	Walk/Cycle (%)	Total Person Trips	Car (%)	Passenger (%)	Transit (%)	Walk/Cycle (%)
AM 7:30-8:30	373	74	18	5	3	87	70	20	4	6
PM 4:30-5:30	252	72	17	5	6	449	74	18	4	4

If a proxy site survey is not possible, similar to transit modal split, walking trip percentage can be extracted from the most up-to-date TTS data. However, TTS data should be used carefully due to incompatible urban characteristics.

Any assumptions and methodologies used to estimate site walking and cycling trip generation should be clearly documented and included in the final report for further review and future reference. A table that summarizing the estimation of the walking and cycling trip generation is also required.

2.22 Site Multimodal Trip Distribution and Assignment

Multimodal Trip Distribution

Trip distribution generally determines the direction of approach and departure for trips to and from a development. Similar to the traditional auto mode, the multimodal trip distribution also utilizes surveys and studies to establish the trip distribution pattern to and from the proposed development.

Below are some of the accepted methods that can be used for multimodal trip distribution. Transportation specialists may combine these methods to yield better distribution patterns for different types of land uses.

- **For larger retail and commercial land uses, marketing studies identifying the catchment area of the proposed development is acceptable. The study could include a review of similar sites and the population/ employment within the catchment area served by the development. Since this method may not contain multimodal information, it should be used in conjunction with some of the methods listed below**
- **The use of the Transportation Tomorrow Survey (TTS) data for origin-destination patterns of trip generators or attractors at a traffic zone level. This information is mostly applicable to mature proxy residential neighbourhoods or business areas with similar land uses throughout the zone**
- **If the proposed development is located within a stable neighbourhood, the use of existing traffic counts or observed volumes at accesses and surrounding intersections is acceptable. This data can be collected through license plate traces or manual observations to determine the general direction of approach and departure of existing site traffic on the adjacent streets**
- **If the Transportation Mobility Plan is conducted for a larger study area, the use of simulation/ forecasting tools which form part of a travel demand model using methods such as the Gravity Model or Fratar Model may be required. This can be applicable to sub-area or larger area analyses**

The resulting trip distribution as a percentage of total trips should be illustrated on a road network figure or tabulated format identifying the directions of travel for site traffic along with the road segments involved. The methodology selected should be fully documented in the Transportation Mobility Plan along with the assumptions applied. Details of the methodology and supporting calculations should be included as part of the technical appendices of the Transportation Mobility Plan.

Multimodal Trip Assignment

Similar to traditional auto mode trip assignment, multimodal trip assignment can be established by several methods. Any combination of these methods is acceptable given the main objective is to establish better trip assignment for different types of land uses on the proposed development site. The following are some of the common multimodal trip assignment methods:

- **Existing traffic routing patterns can be used to establish multimodal trip assignment**
- **Access configuration and design (for example, the walking and cycling trips can be assigned to the access that connects to Regional and local facilities)**

- **Existing and future restrictions at the boundary intersections**
- **Existing and future facilities such as rapidways, cycling lanes, sidewalks and other destinations (for example, transit trips can be assigned to the nearby transit stops or station within reasonable walking distance of five to 10 minutes)**
- **Other methodologies in consultation with Regional staff**

The resulting site generated total multimodal trips assigned should be illustrated on a road network figure or tabulated format identifying the directions of travel for site traffic. The methodology selected should be fully documented in the Transportation Mobility Plan along with the assumptions applied. Details of the methodology and supporting calculations should be included as part of the technical appendices of the Transportation Mobility Plan.

2.23 Total Multimodal Forecast Volumes and Performance

Total multimodal forecast volumes should be estimated based on the addition of the following two layers:

- **Total background multimodal volumes (Section 2.20)**
- **Site multimodal trip assignment (Section 2.22)**

Total multimodal forecast volume figures should be provided in the report.

All modes should be reviewed together to ensure the interconnection and interaction between them are documented. The recommended mitigation measures and improvements should complement each other in a holistic manner.

Total multimodal performance analysis should include the requirements in **Section 1.7** for each horizon year considered, where appropriate. A comprehensive summary table should be provided to summarize the performance results for each travel mode to compare the existing conditions, future background conditions and total traffic conditions.

In areas where major improvements to the transportation system are planned, a minimum of two scenarios must be included to review the impact of the development with and without these major transportation system improvements. It should be noted that the "without" scenario will cover situations where risk factors such as funding and necessary permits that may not be available within the horizon year are considered. To avoid delay and potential costs, the transportation specialist consult with Regional and local municipal staff to determine the appropriateness and requirements of these scenarios.

When conducting multimodal analysis, the transportation specialist should review and follow the eight key transportation principles of a Transportation Mobility Plan as outlined in **Section 1.4**.

2.24 Automobile Mode Impact

All site access locations and all relevant signalized and major unsignalized intersections in the study area should include the requirements in **Section 1.7**. The operational analysis for proposed signalized intersections should be conducted using the intersection capacity analysis software listed in **Section 1.9**. The printouts of the summary results should be included in the final Transportation Mobility Plan appendix.

When there are more than two signalized intersections being considered in the intersection capacity analysis, Synchro software is preferred and the results of the Synchro' analysis should be supplemented with the results of 'Sim-Traffic' analysis. The 'Synchro' and 'Sim- Traffic' evaluations should be supplied to the Region and local municipality as part of the Transportation Mobility Plan submission.

If these software applications are unavailable to the transportation specialist, then the transportation specialist is required to contact the Region and local municipal staff to discuss possible alternatives. For the analysis of unsignalized intersections, in addition to 'Synchro', the current version of the Highway Capacity Software (HCS) may be used. The analysis of unsignalized intersections should be supplemented by field studies, including gap survey and queuing survey. In addition, in high collision locations, historical collision statistics should be analyzed to determine whether the proposed development and access locations will aggravate the existing problems.

When analyzing background and future development conditions, some degree of optimization in signal timing design is permitted as long as it falls within accepted Regional constraints and parameters. Any changes in lane configuration and signal phasing (advance left turn phases) must require clearance by Regional and local municipal staff, where appropriate.

For all intersections and critical turning movements, volume-to-capacity (v/c) ratios, level of service indicators and 95th percentile queue lengths should be clearly tabulated. Critical intersections and movements should be highlighted.

Critical intersections and movements include:

- **An intersection where the overall volume-to-capacity ratio will exceed 0.85 in urban areas or 0.70 in rural areas**
- **An individual movement volume-to-capacity ratio will exceed 0.85 in urban areas or 0.70 in rural areas**
- **An exclusive turning movement which will result in queues exceeding the available storage space**
- **Exclusive left and right turn lanes that are inaccessible due to the length of queues in the adjacent through lanes**

This information should be presented for each peak period for the:

- **Existing traffic condition**
- **Existing traffic condition plus background growth for each horizon year**
- **Existing traffic condition plus background growth plus the site-generated traffic for each horizon year**
- **Queuing assessment along with summary tables for the requirements above**

All intersections or individual movements identified as 'critical' should be discussed in terms of contribution of the development proposal to the situation, possible remedial measures, a recommended solution and the effectiveness of the solution resolving the situation.

All exclusive turning lanes used by site-generated traffic should be examined to ensure adequate storage space.

All proposed new traffic signals should be evaluated in terms of signal warrants, intersection and signal spacing, queuing, effects on existing signal coordination, corridor progression, timing of implementation and sight lines.

All proposed adjustments to cycle lengths, signal phasing and signal timing should be evaluated in terms of pedestrian crossing time, effect on queue lengths and adequacy of existing storage, modifications required to existing signals and controllers and effects on existing signal coordination.

These adjustments must consider additional phases, pedestrian requirements, any special phasing such as railway pre-emption and transit priority. All methodologies and assumptions should be documented including source of information and justification for their use.

2.24.1 Mitigation Measures for Auto Mode

2.24.1.1 Finer Grid Road Network

A finer grid transportation network provides permeability and options for different modes of travel such as transit and active transportation. It also provides relief to congested areas and eliminates unnecessary critical movements at key intersections. The Transportation Mobility Plan should identify all potential opportunities to protect a finer grid transportation network which includes a series of public roads, direct pedestrian and cycling connections, midblock collectors, mid-block crossings over major barriers (400 series highways) and other planned improvements identified in the approved plans and planning documents (Transportation Master Plans, Official Plans, Environmental Assessment Studies and Provincial Studies). Transportation specialists are encouraged to consult with Regional and local municipal staff on the recommendations, implications and cost estimates of the identified finer grid transportation network.

2.24.1.2 Auxiliary Lanes

The Transportation Mobility Plan should identify all movements at signalized intersections that may result in exclusive left or right turn lanes. The warrant criteria for auxiliary lanes could be volume, volume-to-capacity ratio, delay or other factors such as safety or potential conflict. Auxiliary lanes warrant analysis should also be conducted at unsignalized intersections based on the criteria outlined in the Ontario Ministry of Transportation Guidelines and Warrants.

The Transportation Mobility Plan Study should identify all exclusive left turn or right turn lanes that are required as part of the development proposals but do not meet the Region's and local municipal's design criteria (parallel lengths). Mitigation measures must be identified to ensure safety and maintain effective intersection operation.

York Region's current experiences and practices discourages new double left turn lanes as a remedial measure. Double left turn lanes will require allocation of additional green time that will affect other directions and pedestrian crossing time. The consultant should discuss the analysis of any existing double left turn lanes and its impacts on the pedestrian realm, including pedestrian mobility and pedestrian safety with Regional and local municipal staff.

2.24.1.3 Traffic Signals

For each proposed traffic signal, on a local or Regional road, a traffic signal warrant analysis is required. Should a traffic signal not meet warrant requirements, but is close to the requirements, a detailed justification should be provided as to why a traffic signal should be permitted. The minimum signal spacing requirement should be consistent with York Region's Access Guidelines and local municipality's guidelines. In general, the preferred traffic signal spacing is 300 to 400 metres. In the Centres and Corridors, a minimum traffic signal spacing of 215 metres may be acceptable, but it dependent on existing and future traffic operating conditions to ensure safety and effective corridor operation. Queuing and progression analysis is required to demonstrate the proposed new signal will not negatively impact the corridor or adjacent intersections.

2.24.1.4 Site Access and Circulation

Site access location and design should be determined with an operational analysis undertaken and in conjunction with York Region's Access Guideline for Regional roads, and applicable guidelines from the respective local municipality. At minimum, the following requirements should be included in the analysis:

- **All site access points on Regional and local roads should be evaluated in terms of capacity, corridor operation, safety, sight distance and adequacy of queue storage capacity along the corridor. This evaluation should be similar in scope to that for signalized and unsignalized intersections described previously**
- **Proposed access points should be evaluated with possible mutual interference with adjacent access points and intersections, on- street weaving problems, need for acceleration or deceleration lanes and safety related to walking and cycling**
- **On-site parking and circulation systems should be evaluated to demonstrate a high safety factor with respect to the possibility of queues spillback on to Regional and local roads (clear throat distance)**
- **Sight lines should be evaluated to ensure safe conditions in accordance with York Region's Access Guidelines for Regional roads and guidelines from local municipalities**
- **Proposed truck/courier loading facilities and access to these facilities should be evaluated to ensure that they are adequately designed and provided with suitable access to not adversely affect traffic and transit operations on Regional and local roads**
- **Any required turning or other restrictions should be identified**
- **Based on the Regional Official Plan policies, the number of private site accesses to Regional roads will be minimized and consolidated to ensure the integrity and operation of the arterial road network**
- **Site access should be provided via the local road network and adjacent development sites, where appropriate, to promote inter-connectivity and a complete community for all modes of transportation. Benefits and potential impacts to the Regional road network should be demonstrated when an access is proposed onto Regional roads**
- **Any additional accesses should be justified as described in York's Region's Access Guidelines**

2.24.1.5 Parking

Parking requirements are typically under the jurisdiction of local municipalities. As such, the transportation specialist should consult with the enforced bylaw and specific requirements from the local municipality.

Since the number of parking spaces provided on site may have some direct impact on the effectiveness of the Transportation Demand Management measures and incentives, the transportation specialist is encouraged to review and provide recommendations to properly manage the parking requirement. This will support other modes of transportation to reduce the numbers of single-occupant-vehicle trips to and from the proposed development. The transportation specialist is encouraged to consult with local municipal staff to meet their requirements.

2.24.1.6 Loading Area

Loading area requirements are typically under the jurisdiction of local municipalities. As such, the transportation specialist should consult with the enforced bylaw and specific requirements from the respective local municipality.

The Region will not permit service vehicles backing into or out of loading areas onto Regional roads. All loading accesses must be provided via internal roads or local roads, subject to applicable local municipal bylaws and specific requirements by local municipalities.

In general, proposed loading areas should not be located within areas where it may impact pedestrian, cycling or vehicle turning movements.

The transportation specialist is encouraged to consult with the local municipality on the design and requirement for loading areas.

2.25 Transit Mode Impact

All major development applications, Secondary Plans, Block Plans, Draft Plans of Subdivision and Site Plans should include a conceptual transit route plan to demonstrate how the development will connect with existing services and help achieve the Regional Official Plan (2022) and local Municipal Official Plan targets for transit accessibility and transit coverage.

Transit mode level of service should include the requirements in ***Section 1.7***.

The need for new transit services should be evaluated if the development is of significant scope and would impact the existing transit network. The transportation specialist should coordinate with YRT, YRRTC and York Region staff, as well as local municipal staff regarding potential transit impacts and mitigation measures.

Pedestrian and cyclist access to transit services from the proposed development should be evaluated and improvements to the Site Plan to facilitate access to transit services and facilities should be recommended.

Any impacts on transit operations caused by site-generated traffic should be identified and appropriate mitigation measures should also be recommended. New or relocation of transit facilities, such as bus stops, should be identified and alternative locations determined and evaluated regarding their effect on traffic and transit operations.

At the Secondary and Block Plan level, a conceptual transit route plan should be recommended in the supporting Transportation Mobility Plan to demonstrate how it can connect with existing services and provide the appropriate level of

transit coverage. York Region Transit staff should be consulted along with their transit service plans during the study. The transit coverage should be quantified through scaling off the proportion of development covered by a 500-metre and 200-metre bandwidth distance from the road centre line of a transit route or radii distance from existing or reasonably assumed future bus stop locations. The analysis should also identify service levels (frequency of service) for each recommended service and the staging and implementation of proposed transit services, as well as potential bus stop locations.

For Subdivision and Site Plan applications where conceptual transit routes have been recommended and established through earlier studies in the Secondary Plan process, the Site Plan layout should detail the pedestrian and cycling access and connections to the transit service including sidewalks and pathways.

Similarly, for Site Plan applications within areas of congestion or where no previous studies have established future transit service, appropriate connections to existing and future services should be identified and protected as part of the supporting studies and plans for the application to ensure that the required transit coverage is met. For detailed information on Transit Service Planning in York Region, refer to the YRT's Transit Service Guidelines.

At signalized intersections, intersection capacity that impacts transit vehicles should be evaluated. Appropriate mitigation measures such as queue jump lanes and transit signal priority should be identified and implemented.

2.26 Active Transportation Mode Impact

All major development applications, Secondary Plans, Block Plans, Draft Plans of Subdivision and Site Plans should include a detailed pedestrian and cycling plan on a Site Plan to demonstrate how the development will prioritize connections to Regional roads. This will help support the non-automotive modal split targets and walkability policies in the Regional and local Municipal Official Plans and the implementation of the pedestrian and cycling components of the Transportation Master Plans.

Pedestrian and bicycle level of service should include the requirements in ***Section 1.7***.

The need for new active transportation networks, intersection performance from walking and cycling perspectives, should be considered. Ontario Traffic Manual (OTM) Books 15 and 18, along with Regional and local municipal standards and guidelines should be consulted regarding the design recommendations for these facilities.

Pedestrian and cyclist access to transit services from the proposed development should be evaluated and appropriate improvements to the Site Plan to facilitate access should be recommended.

Transportation demand management, active transportation and alternative modes of transportation are critical to support future growth in York Region. To ensure these modes provide viable and safe alternatives to residents and employees, the study should identify any pedestrian and bicycle safety concerns, and evaluate the impacts of the additional traffic on

pedestrian and cycling mobility. As a component of the study, the transportation specialist should review the existing and planned pedestrian and cycling facilities and corridors to support the development. This review should include, but not be limited to, whether the existing pedestrian and bicycle facilities are sufficient to support the proposed development. A preliminary safety audit of the existing and planned infrastructure should be considered to ensure that the proposed recommendations support the urban environment.

Walking and cycling mode share of a development will depend on the type of land use and the location of the development. The highest propensity for active modes of travel is expected in the rapid transit corridors, schools, and the Region's four designated urban growth centres: Markham Centre, Richmond Hill-Langstaff Gateway Centre, Vaughan Metropolitan Centre, and Newmarket Centre.

The transportation specialists and architects working on behalf of the proposed development are encouraged to consult with Region and local municipality streetscaping and urban design staff at the early stages of the proposed development to establish design concepts and principles for pedestrian facilities.

2.27 Transportation Demand Management

Please refer to **Chapter 3** - Transportation Demand Management Requirement and Implementation for guidelines to support new developments.

A Transportation Demand Management plan is required as a component of the Transportation Mobility Plan study.

2.28 Safety Analysis

If the proposed development is located within an area that has a history of safety-related issues due to road geometry or other conditions affecting transportation operation, a safety analysis should be included in the Transportation Mobility Plan Study. The identification of potential safety or operational issues associated with the following elements should be conducted:

- **Geometric design for existing arterial road and proposed site accesses**
- **State of Good Repair (pavement condition)**
- **Potential weaving (access close to major intersections)**
- **Merging/diverging of site traffic and adjacent accesses**
- **Collision history in the area related to access or turning movement conflict**
- **Sight line and stopping distance**
- **Potential access conflicts**
- **Any other issue identified by Regional staff or by the transportation specialists**

These are only a few examples. Regional and local municipal staff may ask for additional criteria or analysis depending on the nature of the application, location and study area.

2.29 Recommendations

A summary of the key findings with respect to the transportation impact of the proposed development should be presented along with a summary of the recommended improvements. As traffic congestion continues to build throughout the Region, there is a need to assess transportation impacts of major developments with a comprehensive study to develop a Transportation Mobility Plan.

The goals of sustainable communities are embedded throughout the Regional and local Municipal Official Plans. With regards to transportation, sustainability is achieved in part, by requiring that new developments be walkable, bikeable, transit-supportive and integrated into existing communities with high-quality urban design.

2.30 Implementation Plan

Provide a realistic implementation plan for the proposed recommendations in **Section 2.27** that should address the following requirements:

- **How will these recommendations will be implemented?**
- **What are the cost estimates for these recommendations?**
- **Who is responsible for the implementation?**
- **What is the timing of the implementation?**
- **How will it be monitored?**

2.31 Conclusions

Provide an overall conclusion of the Transportation Mobility Plan findings, recommendations, implementation plans and next steps based on the results of the multimodal analysis. The conclusion should indicate the following requirements:

- **Physical improvements to the intersections, such as turning lanes, sufficient storage lengths and other improvements such as concrete centre medians and new traffic signal equipment**
- **Signal timing plan optimization and coordination are required to accommodate four modes of transportation**
- **All signalized intersections considered in this analysis must be monitored for further improvements in the future**
- **Transportation Demand Management programs and measures that are applicable to the proposed development will be required to reduce the use of auto mode and encourage a shift to other modes of travel**
- **Bicycle and pedestrian facilities and circulation within the proposed development**
- **Streetscaping to enhance pedestrian safety and movements**
- **Shared pedestrian and cycling connections from the proposed development to adjacent developments and transit stops to accommodate other modes of travel**

CHAPTER 3

Transportation Demand Management Requirement and Implementation

3.1 Why is Transportation Demand Management Required?

To achieve the sustainability goals of the Regional Official Plan and local Municipal Official Plans, communities are required to employ the highest standard of urban design and reduce automobile dependence by enhancing opportunities for residents and employees to walk, cycle, take transit and rideshare. Further, the Regional Official Plan has policies (as outlined in the executive summary) to require that appropriate Transportation Demand Management measures be identified in transportation studies and in development applications in order to reduce the number of single-occupant automobile trips.

Managing the demand for travel generated by new developments is a powerful strategy for controlling costs, mitigating environmental impacts, and permitting developments to proceed in road capacity constrained areas.

Effective application of Transportation Demand Management measures should be viewed as a cost-effective means to reduce the need for additional road infrastructure typically associated with new developments. Transportation Demand Management strategies and objectives complement and reinforce other policies such as use of alternative modes of transportation and non-auto modal split targets. Any policy or program that reduces single-occupant-vehicle trips during peak travel periods can be considered a Transportation Demand Management strategy.

3.2 When is a Transportation Demand Management Plan Required?

A Transportation Demand Management Plan is required as a component of the Transportation Mobility Plan. It is suggested that the transportation specialist consult with Regional or local municipal staff to develop a detailed scope of work for a Transportation Demand Management Plan. The following are the general guidelines to determine when a Transportation Demand Management Plan is required:

- **Location of the proposed development such as Regional centres and corridors, employment centres, multimodal mixed-use areas, congested areas, mobility hub area**
- **Type of land use: office, institutional, residential, commercial, mixed-use**

3.3 Transportation Demand Management Plan Component

Below are general requirements to conduct a Transportation Demand Management Plan:

1. **Project description**
2. **Description of the existing conditions affecting non-auto mode**
3. **Existing performance analysis for each mode**
4. **Non-auto trip forecast**
    a. Volumes (see Chapter 2)
    b. Modes (see Chapter 2)
    c. Origins/destinations (if known)
    d. Description/documentation of the methodologies used above
5. **Review required performance targets by the Region and local municipalities**
    a. Non-auto modal split recommendation in the Transportation Mobility Plan Study to accommodate the proposed development
    b. Non-auto modal split target in the Regional and Municipal Official Plans for the centres/corridors and key development areas
    c. Non-auto modal split target in the Secondary Plan
6. **Future conditions analysis and mitigation measures (see Checklist in Table 10)**
    a. Site design and physical infrastructure for active transportation
        i. Examine and recommend an enhanced pedestrian and cycling network within the site
        ii. Demonstrate how site design will ensure a comfortable, connected pedestrian and cycling environment
        iii. Demonstrate how the pedestrian and cycling facilities within the site can be integrated with the York Region Transportation Master Plan active transportation network, local municipal master plans, and adjacent municipal transportation systems. Please refer to Sustainable Transportation's Pedestrian and Cycling Planning and Design Guidelines.

b. Parking strategy

   i. Opportunities to provide short and long term bicycle parking within buildings, shared parking between different uses, and/or carpool parking spaces

   ii. Opportunities to reduce and unbundle parking spaces

   iii. Opportunities for shared parking

c. Transit incentives

   i. Explore transit incentives, information dissemination, and incentives to encourage people to use different modes of transportation to and from the development

d. Trip reduction strategy

   i. Identify trip reduction opportunities with the Region, local municipalities, Smart Commute Transportation Management Associations and any other agencies

   ii. Technical analysis of the recommended TDM program impact including an appropriate estimate of a trip generation reduction rate

   iii. Opportunities for telecommuting or shared office space

e. Community-based social marketing, incentives, education and liaison strategy (Regional initiative)

f. Identify the role and responsibilities of the landowner for each recommended program and its implementation

g. Identify the operational and financial responsibilities of the landowner. This should include, but not be limited to, program development, implementation, operations and on-going management/monitoring of the TDM programs

h. Identify TDM measures that would be compatible with the development area

7. Performance monitoring and adaptive management plan (Regional initiative)

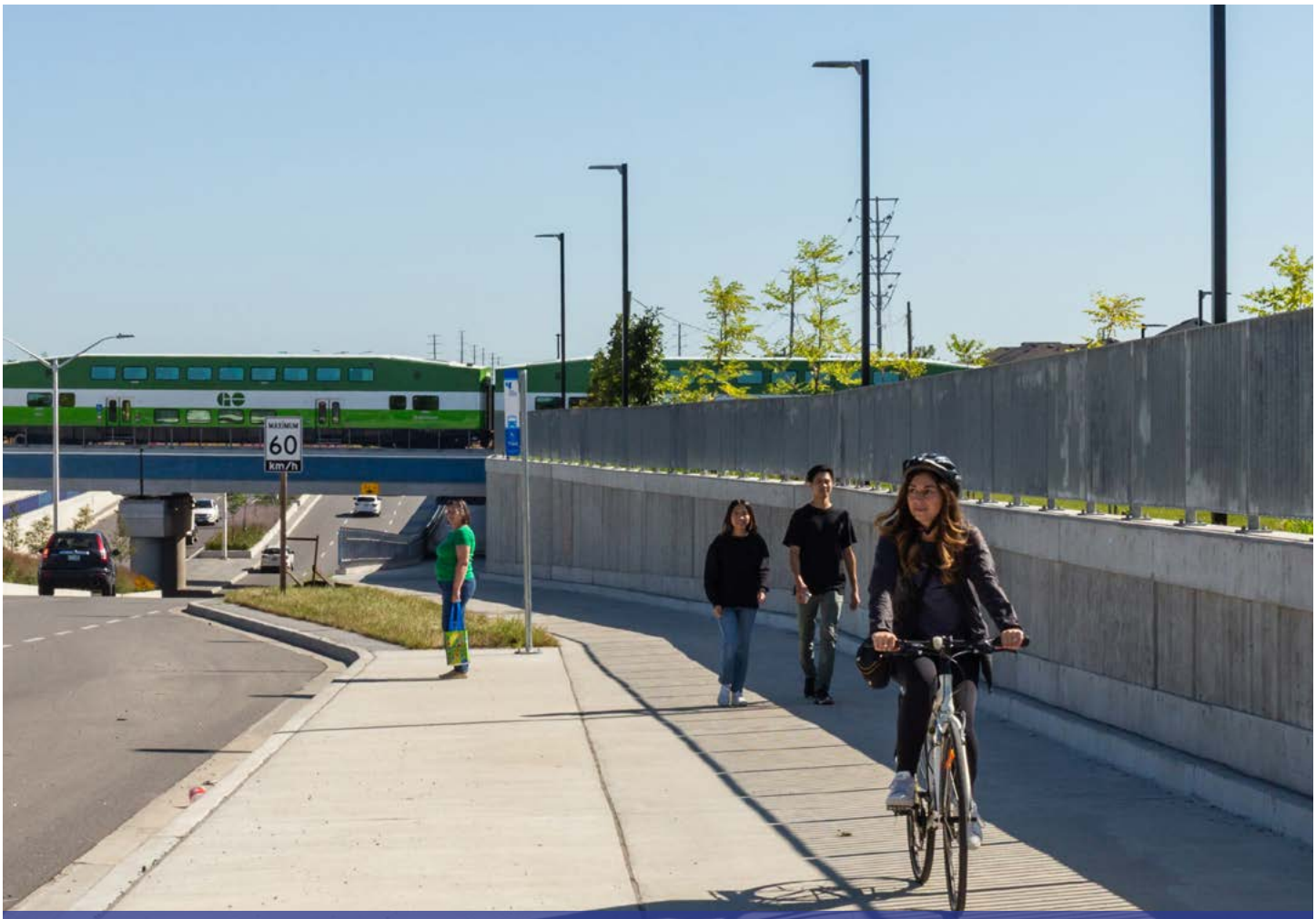
a. The TDM Plan should propose additional TDM actions to achieve the non-auto modal split targets and be evaluated and implemented if interim recommendations of the mode share targets are not achieved

3.4 Transportation Demand Management Checklist

York Region, in consultation with local municipalities, has developed a Transportation Demand Management checklist to assist the transportation specialist in the development of a comprehensive Transportation Demand Management Plan. York Region and local municipalities will consider other recommendations beyond the requirements outlined in the checklist, as long as it meets the objectives of the Regional and local Municipal Official Plans and policies.

This checklist is a requirement to be completed and included as part of the Transportation Demand Management Plan report, for review by Regional and local municipal staff. The TDM checklist requirements are summarized in **Table 13**.

It is required that all proposed development applications complete the TDM Checklist outlined in **Table 13** of this report and include it in the Transportation Mobility Plan study report.



A transit rider waiting at a bus stop and pedestrians and a cyclist using the multi-use path near the Rutherford Road GO Station in the City of Vaughan.

Table 13 – Transportation Demand Management Checklist

TDM Measures	For Residential Developments		For Non-Residential Developments	
	Requirement	Responsibility	Requirement	Responsibility
Outreach programs	Yes	York Region to consider	Case-by-case	Applicant
Pedestrian connections	Yes	Applicant	Yes	Applicant
Cycling connections	Yes	Applicant	Yes	Applicant
Ped/cycling connections to transit facilities	Yes	Applicant	Yes	Applicant
Internal ped/cycling circulation	Yes	Applicant	Yes	Applicant
Active transportation network/fine-grid	Yes	Applicant	Yes	Applicant
Bicycle parking/shelter	Only applies to condos	Applicant	Yes	Applicant
Bicycle repair station	Where appropriate	Applicant	Where appropriate	Applicant
Bicycle parking	As per local bylaw	Applicant	As per local bylaw	Applicant
Benches/receptacles	Case-by-case	Applicant/ Municipality	Case-by-case	Applicant
Illumination of ped/cycling connections	Case-by-case	Applicant/ Municipality	Case-by-case	Applicant
Carpool parking	No	-	Case-by-case	Applicant
Car share management	Only applies to condos	Applicant	Case-by-case	Applicant
Shared-parking between land uses	Case-by-case	Applicant	Case-by-case	Applicant
Parking reduction	Where appropriate	Applicant/ Municipality	Where appropriate	Applicant
Trip end facilities (i.e. showers)	No	-	Where appropriate	Applicant
Membership with Smart Commute	No	Applicant	Where appropriate	Applicant
Survey/monitoring/report	Yes	York Region to consider	Yes	Applicant
Transit incentives (PRESTO) and information	Yes	York Region/ municipality/applicant	Case-by-case	Applicant
Site plan/drawings showing internal/external pedestrian and cycling connections	Yes	Applicant	Yes	Applicant
Site plan/drawings showing connectivity to Regional Road/ adjacent streets/development/ transit	Yes	Applicant	Yes	Applicant

CHAPTER 4

Guideline Updates and Expectations

4.1 Regular Updates of the Document

As York Region progresses along its path of city building, requirements to support development applications will mature and evolve. To this end, the Transportation Mobility Plan Guidelines for Development Applications should be considered a living document and subject to continuous update and refinement. The updates to these Guidelines will be published and made available on the Region's website (**york.ca**).

Some of the key factors that may trigger an update to the Guidelines include:

- **Changes in Regional and local Municipal Official Plan policies**
- **Changes in Provincial policies or regulations**
- **New or revised policies of Regional and local Municipal Council**
- **New best practices**

4.2 Pre-Consultation with Regional and Local Municipal Staff

The Region encourages a pre-consultation meeting between the developer representatives, Regional and respective local municipal staff. The requirement for this meeting is dependent on the size and complexity of the development application. This meeting is typically used to convey staff expectations to the developer related to supporting documentation requirements.

As part of pre-consultation, developers and transportation specialists are encouraged to arrange a meeting with the Region and the local municipality early in the preparation of the Transportation Mobility Plan to discuss and confirm the various parameters to be used in the subject analysis.

4.3 Where to use the Guidelines

The Guidelines apply to any scale of development or type of application from Site Plans for higher density developments within urban York Region, to the development of Secondary Plans in greenfield areas. The scope of the Guidelines will apply in different ways depending on whether it is a large, medium or small development. For example, the extent or range of policy options for implementing a Transportation Demand Management program within the urban areas of southern York Region may differ significantly, compared to the urban fringes in northern York Region. However, both development applications would be required to review and consider Transportation Demand Management as a cost-effective means to reduce the need for additional road infrastructure typically associated with new developments (**Chapter 3**).

As such, the scope of the Transportation Mobility Plan will depend significantly on the application type and on the location, scale and Regional impact of the proposed development. It should be the responsibility of the transportation specialist to review Official Plan policies related to mobility plans and these Guidelines.

4.4 Application of Professional Judgment and Experience

These Guidelines are intended to assist transportation specialists in understanding the transportation requirements of the Regional Official Plan and provide guidance in developing a Transportation Mobility Plan and background reports to support development. They are not intended to be prescriptive or to eliminate professional judgment or experience.

As a Region of nine municipalities, these Guidelines and transportation solutions identified for each development may vary across each geographic area. The role of the Transportation Mobility Plan will differ between centres and corridors and to an even greater degree, within the rural communities and villages across the Region. York Region expects transportation specialists will:

- **Provide detailed documentation of assumptions and methodologies utilized in the study**
- **Conduct professional quality work**
- **Present acceptable up-to-date technical methods and procedures in the transportation planning and traffic operations fields**

York Region Transit bus pulling up to a Viva rapidway stop on Davis Drive in the Town of Newmarket.

CHAPTER 5

Contact Information and Related Resources

5.1 Contact Information

The Regional Municipality of York

Public Works Department
17250 Yonge Street
Newmarket, Ontario L3Y 6Z1
transportationservices@york.ca

Roads and Traffic Operations
Traffic Data, AADT, Signal Timing Request
traffic.data@york.ca

Access York
Hours of operation:
Monday to Friday: 8:30 a.m. to 4:30 p.m.
Phone: 1-877-464-9675
TTY: 1-866-512-6228 or 905-895-4293
(for deaf and hearing impaired)
accessyork@york.ca

Local Municipalities

Town of Aurora
P.O. Box 1000
100 John West Way
Aurora, ON L4G 6J1
aurora.ca

Town of East Gwillimbury
Community Programs and Infrastructure
19000 Leslie Street
Sharon, ON L0G 1V0
eastgwillimbury.ca

Town of Georgina
Operations and Engineering
26557 Civic Centre Road, R.R. 2
Keswick, ON L4P 3G1
georgina.ca

Township of King
Engineering and Public Works
2585 King Road
King City, ON L7B 1A1
king.ca

City of Markham
101 Town Centre Boulevard
Markham, ON L3R 9W3
markham.ca

Town of Newmarket
395 Mulock Drive, P.O. Box 328
Newmarket, ON L3Y 4X7
newmarket.ca

City of Richmond Hill
225 East Beaver Creek Road
Richmond Hill, Ontario, L4B 3P4
richmondhill.ca

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1
vaughan.ca

Town of Whitchurch-Stouffville
111 Sandiford Drive
Stouffville, ON L4A 0Z8
whitchurch-stouffville.ca

Other Agencies

407 ETR
General Information
6300 Steeles Ave. West
Woodbridge, ON L4H 1J1
Phone: 1-888-407-0407
407etr.com

City of Toronto
City Services Information Hotline
Phone: 416-392-2489
toronto.ca

Ministry of Transportation
MTO Info, General Information Line
Phone: 1-800-268-4686
mto.gov.on.ca

Peel Region
10 Peel Centre Drive, Suite A and B
Brampton, ON L6T 4B9
Phone: 905-791-7800
Toll-free: 1-888-919-7800
peel.ca

Simcoe County
110 Highway 26
Midhurst, Ontario L0L 1X0
Phone: 705-726-9300
Toll-free: 1-866-893-9300
simcoe.ca

Metrolinx
97 Front Street West
Toronto, ON M5J 1E6
Phone: 416-874-5900
metrolinx.com

Toronto Transit Commission (TTC)
1900 Yonge Street
Toronto, ON M4S 1Z2
Wheel-Trans Reservations: 416-393-4222
Phone: 416-393-INFO (4636)
ttc.ca

Durham Region
605 Rossland Road East
Whitby, ON L1N 6A3
Phone: 905-668-7711
Toll-free: 1-800-372-1102
durham.ca

GO Transit
20 Bay Street, Suite 600
Toronto, ON M5J 2W3
Phone: 1-888-GET ON GO (438-6646)
gotransit.com

5.2 Related Resources

Regional Official Plan

Regional TMP

Access Guidelines for Regional Roads

York Region Transit

York Region Rapid Transit Corporation (YRRTC)

York Region Cycling

York Region Transportation Demand Management

York Region, Public Works