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Appendix B: Policies, By-laws and Procedures Supporting Technical Paper

City of Vaughan

Pedestrian and Cycling Master Plan

Supportive Policies, By-Laws and Procedures Report

April 29, 2019

B000773

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City of Vaughan

Pedestrian and Cycling Master Plan

Supportive Policies, By-Laws and Procedures Plan

Project No. B000773

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1. Introduction

CIMA+ in association with Mobycon and Lura was retained by the City of Vaughan (the City) to develop a strategy to promote the use of active transportation. This strategy will include the expansion of associated facilities in the City and community engagement to guide the behavioral change of the community. To support the determination of the elements compositing this strategy, CIMA+ has reviewed the following documents:

- City of Vaughan Sidewalk Policy
- City of Vaughan Official Plan: A Plan for Transformation (2010) and associated Secondary Plans
- City of Vaughan Transportation Master Plan: A New Path (2012)
- City of Vaughan Pedestrian and Bicycle Master Plan Study (2007)
- City of Vaughan Active Together Master Plan: Parks Recreations & Libraries (2013 & 2018)
- City of Vaughan Comprehensive Zoning By-law 1-88
- City of Vaughan Parking By-Law 1-96
- City of Vaughan Parkland By-Law 205-2012
- City of Vaughan Parks By-Law 134-95
- City of Vaughan Traffic By-Law 284-94
- Green Directions Vaughan: Sustainability and Environmental Master Plan (2010)
- City of Vaughan Accessibility Plan (2013)
- City of Vaughan Accessibility Policy (2012)
- City of Vaughan City-wide Urban Design Guidelines and Technical Reference Manual (2016)
- City of Vaughan City-Wide Streetscape Implementation Manual and Financial Strategy for Intensification Areas and Heritage Conservation Districts (2014)
- Vaughan Metropolitan Centre (VMC) Secondary Plan (2018 Office Consolidation)
- VMC Streetscape and Open Space Plan (2015)
- York Region Transportation Mobility Plan Guidelines (2016)
- York Region Pedestrian & Cycling Master Plan (2008)
- York Region Transportation Master Plan Update and Background Report D: Pedestrian and Cycling Plan Development Report (2016)
- York Region School Sites Design Guidelines (2017)
- York Region Sustainability Strategy (2007)
- York Region Official Plan (2016)
- York Region Lake to Lake Cycling Route and Walking Trail (2013)
- City of Markham In-Boulevard Cycle Track Annual Maintenance Policy (2017)
- #CycleON: Ontario's Cycling Strategy (2013)
- #CycleON Action Plan 1.0
- #CycleON Action Plan 2.0
- #CycleON: Province-wide Cycling Network (2018)

- Ontario's Climate Change Action Plan (2016)
- Accessibility for Ontarians with Disabilities Act, 2005, S.O. 2005, c. 11
- Places to Grow: Growth Plan for the Greater Golden Horseshoe (2017)

Main findings of our review are summarized and integrated in the following sections: municipal active transportation policies and bylaws, regional active transportation policies, and provincial active transportation policies.

2. Municipal Active Transportation Policies

The City of Vaughan planning documents included in this review primarily discuss the City's long-term vision for active transportation and strategies for reaching the vision, as well as the provision of a set of Council policies that have been established in order to achieve the vision. Although specific action-based policies are not included in the planning documents, action items and recommendations have been made for the future development of these polices.

The specific action-based recommendations discussed in the municipal planning documents are included below.

2.1. City of Vaughan Sidewalk Policy

The City's first Sidewalk Policy was adopted by Council on February 26, 1996 and has not been formally updated since that time. In 2007 the City undertook a review of the Sidewalk Policy as part of the Pedestrian and Bicycle Master Plan study and recommended updates to the 1996 Sidewalk Policy. The policies included in both the 1996 Sidewalk Policy and the 2007 Pedestrian and Bicycle Master Plan were based on road classification as well as number of units adjacent to the subject roadway.

In 2010, the City's Official Plan Update identified high-level policies for the provision of sidewalks throughout the City based on land-use. With the approval of the Official Plan and related policies, the 2012 Transportation Master Plan further re-iterated the need to update the City's Sidewalk Policy to support proposed intensification. The TMP recommended sidewalk policies based on road classification reflective of current best practices by neighbouring municipalities at the time.

City of Vaughan's current sidewalk policies are summarized in Table 1.

In general, the City's existing policies identify the need for sidewalks based on a number of different factors including:

- Road classification,
- Number of units adjacent to the subject roadway,
- Land use, and
- Main generators of pedestrian traffic.

The application of road classification, land use, and pedestrian generators as factors for evaluation are consistent with standard practice in other municipalities, which is discussed further in Section 5.

However, the use of number of units adjacent to the subject roadway is not a standard factor utilized for evaluation by the municipalities reviewed and considered for the discussion of standard practice. The number of units adjacent to the roadway may be difficult to define because the number of residents within one unit can vary depending on housing density or dwelling type. In these cases, it is challenging to define the number of units that should be assigned to the dwelling to accurately reflect the need for pedestrian facilities in the subject area.

Table 1: City of Vaughan Sidewalk Policies

Criteria	Requirement	Source
Arterial Road	• Sidewalk on both sides of the road in urban areas	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Major Collector Road	• Sidewalks or multi-use pathways are required on both sides of the road	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Minor Collector	• Sidewalk on both sides of the road in urban areas	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Local Road	• Sidewalks shall be installed on at least one side of all local roads and on both sides of all streets within 300m of a school	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Industrial Road	• Sidewalks are required on one side of internal industrial roads not served by transit	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
New Subdivision	• In new developments, sidewalks should be built on both sides of the road. • Where sidewalks are currently not provided on both sides of the street, sidewalks will be considered during major redevelopment or substantial reconstruction of the right-of-way.	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Intensification Area	• Sidewalks shall be provided on both sides of all streets in intensification areas.	City of Vaughan Official Plan (2017) Vol. 1 Policy 4.2.3.4 and City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Urban Areas	• On roads in urban areas, including those within residential subdivisions where pedestrian/cycling routes are proposed, these	City of Vaughan Official Plan (2017) Vol. 1 4.2.3.4 and City of Vaughan Pedestrian and Bicycle Master Plan Update

Criteria	Requirement	Source
	routes should have sidewalks on both sides of the road even if the 40 unit minimum is not met	
Residential Areas	• Sidewalks should be installed in existing neighbourhoods where sidewalks are not currently present when roadways are improved and if a majority of residents are in support (recommended as part of 2007 MP)	City of Vaughan 2007 Pedestrian and Bicycle Master Plan

Local Amenity - School, Park, Transit Routes, Retail	• Sidewalks on both sides of the street may be considered through the Block Plan approval process
	• Sidewalks are required in locations where pedestrian routes connect to local amenities such as schools, parks, transit routes, retail areas, etc.
	  ○ One sidewalk where 40 to 100 units are tributary to the sidewalk route
	  ○ Two sidewalks where over 100 units are tributary to the sidewalk route
	  ○ Where only one sidewalk is required, it shall be located on the side of the street that provides the most direct route to a local amenity
	• Pedestrian connections should be provided to and along main roads to access pedestrian destinations (i.e. shopping malls, plazas, theatres, business and transit stops).
	• Ensure that sidewalks, street lighting and other pedestrian amenities are provided on all streets serviced by transit
		City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria, City of Vaughan 2007 Pedestrian and Bicycle Master Plan, and 2010 Vaughan Official Plan

Criteria	Requirement	Source
Curb Radii	• Smaller curb radius is recommended for pedestrian benefits. A tight curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crosswalk, and requires vehicles to slow more as they turn the corner.	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Pedestrian and Cycling Network	• All residents should be within a 15 minute walk or 5 minute bike ride to the Pedestrian and Bicycle Network. • Sidewalks are required to connect destinations that are more local in nature. • Sidewalks are required where they form part of a walkway system. • Minimize gaps in the street network by the provision of strategically located sidewalk and pathway connections.	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria and City of Vaughan 2007 Pedestrian and Bicycle Master Plan

2.2. City of Vaughan Official Plan (VOP) 2010

The 2010 Official Plan calls for a transformation in how people travel around Vaughan. It recognizes that land use and transportation are inextricably linked, and that a sustainable transportation network is critical to supporting the City's approach to growth and development. The Official Plan identifies the Pedestrian and Bicycle Master Plan as the guiding document for improvements to existing and proposed pedestrian and cycling infrastructure and sets out the following general policies specific to active transportation in Section 4.2.3 Supporting Active Transportation:

- To support walking and cycling as viable modes of transportation for commuter, recreational and other travel.
- To support a comprehensive pedestrian and bicycle network that addresses the needs of all Vaughan's residents and employees, including children, seniors and people with disabilities.
- To maximize the connectivity of the street network for pedestrians and cyclists
- In order to promote increased pedestrian activity and enhance access to transit services and community facilities, sidewalks shall be provided on both sides of the street on all arterial and collector streets, and streets in Intensification Areas. Within areas in proximity to schools, parks, transit stops and stations, and other public facilities, sidewalks on both sides of the street may be considered through the Block Plan approval process. Where sidewalks are currently not provided on both sides of the street, sidewalks will be considered during major redevelopment or substantial reconstruction of the right-of-way. All sidewalks shall be provided and located in accordance with City Guidelines and standards to accommodate and encourage safe travel by pedestrians.
- To plan for dedicated bicycle lanes, where feasible, on arterial and collector streets.
- To facilitate convenient bicycle travel within the street network by minimizing restrictions to bicycle flow and considering the specific needs of cyclists in street design and traffic safety measures.
- To encourage a comprehensive network of connected parks and multi-use trails within utility and abandoned rail corridors to support pedestrians and cyclists and augment the on-street network.
- To plan for the provision of cycling facilities in mixed-use buildings, residential apartment buildings, institutions, and office buildings by developing bicycle parking and facilities standards within zoning by-laws.
- To provide convenient locations for bicycle parking within the right-of-way of street and at public facilities including at all secondary schools.
- To promote the use of bicycles as a way of getting to and from public transit.
- To consider the coordination of central bicycle parking facilities, which may also include supporting amenities such as lockers, showers and changing facilities, in the Vaughan Metropolitan Centre, Primary Centres and other locations where demand to support such facilities is demonstrated.
- To consider development a bike-share program.

The VOP has a total of 99 policies directly and indirectly related to supporting walking and cycling in the City of Vaughan related to a number of different themes including:

- planning and supportive land uses
- policies specific to users (i.e. pedestrians, transit users, people on bikes, utilitarian versus recreational)
- network and connectivity including first/last mile connections
- safe and comfortable infrastructure
- travel demand management including automobile parking management and bicycle parking
- programming

The Official Plan currently does not include a schedule for the pedestrian, cycling or multi-use recreational trails networks. City of Vaughan, along with the Town of Whitchurch-Stouffville are the only two local municipalities within York Region that do not include some form of active transportation (whether cycling or multi-use recreational trail) schedule in the Official Plan. It is recommended that the City of Vaughan include a schedule(s) as part of the next municipal comprehensive review of the Official Plan.

2.3. City of Vaughan Transportation Master Plan (TMP) 2012

A critical component of the TMP is the long-term Transportation Vision, which set the context for the more detailed plan. The focus of the 2012 TMP was on reducing automobile dependence and moving the City closer to achieving the goal of a more livable, sustainable community. The Transportation Vision led to the development of thirteen principles which guided policy development

Nine out of thirteen principles identified are directly related to active transportation:

- Provide safe, accessible, affordable, reliable and efficient transportation for everyone.
- Make Vaughan neighbourhoods pedestrian and bicycle.
- Integrate land use and transportation planning to encourage more sustainable lifestyles.
- Promote the economic vitality of the City by providing safe, reliable and efficient transportation system throughout the City.
- Support diverse transportation system funding.
- Avoid unnecessary capacity Improvements.
- Reduce the need to travel.
- Develop parking strategies that reduce single-occupant vehicle travel.
- Foster awareness of sustainable transportation.

The TMP emphasizes the importance of considering the above principles in land use and transportation decision making to achieve the Transportation Vision and led to the identification of action items under three broad categories:

- Formal Land Use and Transportation Policies;
- Priorities for Transportation Capital Investment; and
- Supportive Programs and Other Initiatives.

Appendix J of the TMP provides a review of transportation policies and guidelines available in Vaughan at the time of the study and organized them under 18 general themes. Many of these affect the City's ability to provide a safe and comfortable environment for those travelling by foot or on bike. As part of the next TMP Update, the City should review these themes and consider updates and revisions to the 2012 TMP policy recommendations using an active transportation lens. Some of these considerations are outlined in the Section 5 Recommended Policies for City of Vaughan. The following transportation policies and guidelines themes were identified in the 2012 TMP:

- ROW Width
- Speed Limits
- Property Access
- Implementation of Road Improvements
- Surface Transit
- Sidewalks
- Pedestrian and Bikeway System
- High Occupancy Vehicle (HOV) Lanes
- Stop Signs
- Turn and Entry Prohibition at Intersections
- Traffic Control Signals and Pedestrian Crossovers
- On-Street Parking
- Permit Parking
- Heavy Truck Prohibition
- Traffic Calming
- Road Maintenance
- Transportation Impact Study Guidelines
- Site Plan Criteria Guide

2.4. City of Vaughan Pedestrian and Bicycle Master Plan (2007)

The 2007 Pedestrian and Bicycle Master Plan (PBMP) was the City's first plan to encourage and support active transportation and healthy living in the City. The Plan focused on developing a comprehensive City-wide pedestrian and cycling network that built on existing facilities in order to accommodate a wide range of users. The plan was very much focused on the network and facility types and included a Technical Appendix that provided a reference to planning and design guidelines to be considered when implementing pedestrian or bicycle facilities. Details are provided in the PBMP for the parameters identified in Table 3 to support network design. Since that time and particularly in the last five years, significant progress has been made in the understanding of the planning, design, implementation and operation of active transportation, specifically cycling facilities. As such in 2016 the City also initiated an update of the Pedestrian and Bicycle Master Plan, develop a strategic plan that goes beyond the active transportation network and provides guidance for shifting the culture, gaining political support, prioritizing the

network plan, managing and executing the strategy including roles, responsibilities and resourcing needs, etc.

Table 2: Network Design Parameters (PBMP Technical Appendix, 2007)

Category	Design Parameters
Pathway Design Parameters (MUT)	• Travel width • Pathway surface • Clearing width • Clearing height • Drainage
Network Users Operating Space	• Pedestrians • In-line skaters • Cyclists
Pedestrian and Cyclist Clear Distance to Obstructions	• Horizontal clearances • Vertical clearances
Gradients	• On-road cycling routes • Off-road pedestrian and cycling routes
Design Speed	• Pedestrians • In-line skaters • Wheelchairs • Cyclists • On-road • Off-road
Stopping Distances	• On-road • Off-road
Environmental Impacts	• Clearing of trails/human impact with wildlife • Soil erosion • Short cutting • Side trampling • Improper disposal of wastes
Alignment Elements	• Horizontal alignment • Vertical alignment • Cross slope

Additional guidelines for the selection of network facility class are described in the PBMP Technical Appendix. The guidelines indicate that route selection and facility type typically involve seven considerations:

- **Access** – Defined Pedestrian / Cycling routes should provide direct and convenient access to destinations. This will serve the needs of Vaughan's residents.
- **Intersections** – Defined Pedestrian / Bicycle routes should intersect with other network routes at key nodes, and overcome barriers such as expressways and rail lines. This will allow for efficient and safe movement along the Pedestrian and Bicycle system.
- **Volume** – Defined Pedestrian / Bicycle routes and facility types should be appropriate for the volume of traffic expected on and/or adjacent to the facility.
- **User** – Defined routes and facility types should accommodate expected users of the system, including pedestrians, cyclists and in-line skaters. This will allow the route and facility to meet the needs of Vaughan residents.
- **Continuity** – Defined routes and facility types should provide continuity between other existing and proposed network routes. This will provide for safe and extended use of the system by cyclists of varying skill levels, pedestrians and those using mobility devices.
- **Trailheads** – Well defined network routes should have attractive and noticeable signing at various city and neighbourhood entry points to provide network routes as defining features of the City of Vaughan.
- **Views and vistas** – Defined routes should provide views and vistas of prominent landmarks, community and neighbourhood features and open spaces. This will permit residents a diverse experience and provide the opportunity for the users to enjoy the Pedestrian and Bicycle system as a desirable amenity.

The PBMP Technical Appendix also provides guidance for the following

- Facility treatment
- Network amenities
- Network signing
- Maintenance

In 2016, the City established a Cycling and Pedestrian Advisory Task Force (CPATF), which was responsible for developing recommendations that would allow the city to better integrate cycling and pedestrian perspectives into land use, infrastructure, and resource allocation planning processes. In 2017, the CPATF brought forth a findings report to council that identified two strategic opportunities: infrastructure-related and organizational and management strategies. Since that time the City has used the findings report to bridge the gap between the 2007 PBMP and the updated master plan.

2.5. City-Wide Streetscape Implementation Manual and Financial Strategy (2014)

The City's existing City-Wide Streetscape Implementation Manual and Financial Strategy for Intensification Areas and Heritage Conservation Districts is a comprehensive design, construction and financial framework used to manage the design, construction and costing of streetscapes in Intensification Areas and Heritage Conservation Districts in the City. The manual aims to develop streetscapes for all modes of transportation (walking, cycling and transit) to support happy and healthy lifestyles through the creation of "complete streets". The manual pivots on the Complete Streets for Canada's definition of a complete street which states that a complete street "is designed for all ages, abilities, and modes of travel. On Complete Streets, safe and comfortable access for pedestrians, bicycles, transit users and the mobility-impaired is not an afterthought, but an integral planning feature."

The manual emphasizes the importance of context sensitive design and identifies road classification, streetscape type and level of service as the structuring elements of streetscapes for the City of Vaughan. It is important that the streetscape is designed with consideration of the context of the street in the overall street network, the function of the roadway, the functions within the pedestrian boulevard, the adjacent land uses, and the future development of the area. Currently the manual identifies cycling facilities as part of the roadway. With the move to provide more separated facilities and in line with the manual's focus on designing streets for all ages and abilities, as part of the next update, the City should consider including cycling as one of the streetscape zones in the Level of Service definitions and financial model for both capital and operating/maintenance costs. The city should review the potential to apply a similar model city-wide (i.e. in areas outside of Intensification Areas and Heritage Conservation Districts) for all city-owned infrastructure, with consideration for appropriate Level of Service reviews through the Corporate Asset Management Strategy.

2.6. City of Vaughan City-Wide Urban Design Guidelines (2016)

The City of Vaughan's Urban Design Guidelines provide performance-based directions for building and site design. They establish a consistent level of design excellence for new intensification and infill development throughout the City including that for active transportation. One of the guiding principles is to promote active transportation and healthy environments.

The UDG identify six design priorities that provide direction for the performance standards contained in the document.

Priority 1 – Enhance and Protect Vaughn's Natural Heritage Network

New developments

Priority 2 – Respond to Site Context

Undertaking a context analysis for a new development forms part of the Urban Design Brief required as part of a complete development application package. New developments are expected to respond carefully to site and area conditions, including natural heritage, existing

landscape, built development and circulation networks. All development applications should include context mapping, showing the development site within a 400 to 800 metre radius.

This radius is generally considered to be a 5 to 10-minute walk and will encompass key features or places that will be used by future users of the site such as existing/planned trails or active transportation facilities.

2.7. City of Vaughan Accessibility Policy (2012) and Plan (2013)

The objective of the City of Vaughan Accessibility Policy is to provide a primary framework that guides the review and development of other City of Vaughan policies, standards, procedures, By-laws and guidelines from an accessibility perspective. However, the content of this policy does not provide guidance for active transportation facilities.

The City of Vaughan Accessibility Plan is very high-level. It references the 2005 Accessibility for Ontarians with Disabilities Act and identifies the need to apply the Integrated Accessibility Standards Regulation 191/11 to all transportation projects and including the City's master plans.

2.8. Municipal By-Laws

A by-law can be defined as municipal legislation passed or enacted by Council in order to keep the community safe, ensure compatible property uses and preserve its long-term health and well-being.

With respect of active transportation related activities, the existing City of Vaughan by-laws considers the following:

Parking By-Law 1-96

- 4.(6) General Stopping and Parking Regulations regarding sidewalks, crosswalks, pedestrian crossovers.

Parks By-Law 134-95

- 30. Bicycles - While in any park, no person shall:
  - (a) ride or operate any bicycle where posted to prohibit same; or
  - (b) obstruct, inconvenience or endanger other users of the park while riding or operating a bicycle.

Traffic By-Law 284-94

- 4. Pedestrian Rules: No crossing where signage restricting crossing is present
- 5. Bicycle Rules: No crossing where signage restricting crossing is present
- 13. Pedestrian Crossovers
  - The location on City roads as set out in the Schedules are designated as pedestrian crossovers and shall be indicated as such as pursuant of the HTA

Comprehensive Zoning By-law 1-88

- Provisions for minimum number of long and short-term bicycle parking spaces, showers and location.

3. Regional Active Transportation Policies

The York Region planning documents included in this review provide action oriented policies for the implementation of active transportation facilities. The specific action based policies discussed in the regional planning documents are included below.

York Region's 2016 Transportation Master Plan (TMP) is an update to the 2009 Transportation Master Plan and the 2008 Pedestrian and Cycling Master Plan (PCMP). The TMP is shaped by Provincial policy, aligned with existing Regional and local policies and informed by stakeholder input. The TMP has five main objectives. Those related to active transportation, i.e. walking and cycling, include:

Objective 2 – Develop a Road Network Fit for the Future

A Road Network Fit for the Future will use technology and innovation to optimize the Road Network by leading in traffic management, urban design and provide opportunities to support all modes of travel within the Region's right-of-way.

The road network supports local, regional and provincial economies by carrying people, cars, cyclists, buses and commercial vehicles. Roads are an integral part of the public transit system and are important for the movement of goods by linking rail and air transport systems. The Region's road network is the foundation upon which transit and active transportation services are built.

Objective 3 – Integrate Active Transportation in Urban Areas

Focused attention on improving the viability of Active Transportation in York Region's urban areas is key to ensuring sustainable transportation alternatives.

The Region is supporting and encouraging a change in personal travel choices and providing a range of transportation options. The Region recognizes many benefits of a variety of transportation options, alternative modes of transportation, including improved health to residents, improved air quality and reduced greenhouse gas emissions, a more connected and efficient transportation network, reduced traffic congestion and reduced dependence on the automobile. The promotion of alternative travel modes such as walking, cycling, transit and carpooling will help the Region reach its sustainable transportation objectives to reduce single-occupant vehicle trips.

Objective 5 – Make the Last Mile Work

The "last mile" refers to the point or moment when consumer decisions are actually made. It refers to the tactics used to increase adoption of transit and active transportation while lowering the amount of single occupant vehicle use especially during peak periods.

In addition to addressing the above objectives, the TMP and Pedestrian and Cycling Plan speaks to:

- Regionally-significant trails within local municipal plans
- Municipal Partnership Programs
- Boulevard jurisdiction
- Education and Promotion
- Network improvements

Various pedestrian and cycling facility types were presented in the 2008 PCMP. Since then, new practices were implemented and reflected in the 2016 TMP:

- Standards for accessible sidewalks and street crossings have been approved through the Accessibility for Ontarians with Disabilities Act (AODA)
- A method for selecting comfortable cycling facilities based on roadway characteristics is available in the Ontario Traffic Book 18 Cycling Facilities
- A wider range of separated cycling facilities are now being implemented in North America

The York Region Official Plan includes a map of the Regional Cycling Network. In addition, all local municipalities except for the City of Vaughan and the Town of Whitchurch-Stouffville include some form of active transportation (whether cycling or multi-use recreational trail) schedule in their Official Plans. It is recommended that the City of Vaughan include a schedule(s) as part of the next municipal comprehensive review of the Official Plan.

The York Region Pedestrian and Cycling Master Plan (2008) includes policies for actions related to implementation of pedestrian and cycling facilities. The following recommendations for improving walking and cycling require consideration from the Region and the City:

- Develop the pedestrian system and cycling network as identified in the York Region Pedestrian and Cycling Master Plan, including cycling facilities and multi-use recreational trails, for both utilitarian and recreational trip purposes. Improve and expand upon this network and add missing links through opportunities offered by unopened road allowances, hydro rights-of-way, existing or abandoned rail corridors, open green space development and future roadway improvements;
- Enable the Plan to be flexible to accommodate route revisions or changes in facility types, provided that continuity and functionality of the route is maintained in the same general location;
- York Region should work to encourage pedestrian and cycling friendly streetscaping, urban design and pedestrian-oriented land development through the proposed Inter-Municipal Working Group as well as the Municipal Streetscape Partnership Policy, the Municipal Pedestrian and Cycling Partnership Policy and through planning/design studies and development review where the Region and local municipalities and conservation authorities together have a role;
- Consider transportation operational measures as part of transportation system management to support safe and convenient cycling. These measures may include, but are not limited to:
    - Exemptions from turn prohibitions for cyclists;
    - Bicycle detection at intersections;
    - Management of loading zones and street parking to minimize disruption to cyclists and pedestrians; and
    - Enforcing speed limits on roadways where observed speeds exceed acceptable levels.
- Apply prevailing, recognized and best available guidelines and standards in the planning, design, construction, maintenance and operations of pedestrian and cycling facilities such as those documented under separate cover to as part of this study;

- Complete missing sidewalks on Regional and local roads and improve connections to pedestrian destinations such as shopping malls, plazas, theatres, businesses and transit stops and terminals;
- Designate some roads with low or moderate traffic volumes as an existing component of the cycling network by simply adding signage;
- The Region, Local Municipalities and the Development Industry should apply the Institute of Transportation Engineers (ITE) recommended practices for the application site design guidelines that “Promote Sustainable Transportation Through Site Design”.
- Investigate and establish a position and a process for working with local municipalities and interest groups who wish to designate a specific section of the Regional Pedestrian and Cycling Network as a recreational destination.
- Continue to promote the Smart Commute strategy, the 20/20 The Way to CleanAir program, the Active and Safe Routes to School program and other programs that encourage other forms of transportation, and integrate these with the objectives and recommendations of the Regional Pedestrian and Cycling Master Plan.

York Region has established Transportation Mobility Guidelines (2016) through the Transportation Mobility Plan to be utilized in the development process. A Transportation Mobility Plan is required when a proposed development is expected to generate 100 or more trips.

The plan requires analysis of sustainable transportation demand and level of service assessment for transit, walking, cycling and ride-matching. Pedestrian level of service is determined using walking speed to establish pedestrian clearance time. The target LOS for pedestrians is LOS C or better. Table 4 describes the level of service criteria for pedestrians.

Table 3: Pedestrian Level of Service (York Region Transportation Mobility Guidelines, 2016)

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

Definitions

Buffer: green or landscaped space separating the sidewalk and pavement street curb.

Curb-faced: the sidewalk is located adjacent to the pavement and street curb.

Delineated cross-walk: painted or special pavement to facilitate pedestrians.

Bicycle level of service is determined based on performance at segments and at intersections. The target LOS for bicycles is LOC C or better. Table 5 describes the level of service criteria for bicycles.

Table 4: Bicycle Level of Service (York Region Transportation Mobility Guidelines, 2016)

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 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer)	>1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer), Bicycle box, clearly delineated bicycle treatment or bicycle signal head
C	<1.8 m dedicated cycling facilities with no buffer	<1.8 m dedicated cycling facilities with no buffer, Bicycle box, clearly delineated bicycle treatment or bicycle signal head
D	≤1.5 m bicycle lane with no buffer	≤1.5 m bicycle lane and no buffer Bicycle treatment
E	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 m in constrained area)	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 m in constrained area) No clearly delineated bicycle treatment
F	No bicycle provision	No bicycle provision

The regional planning documents provide specific policies for the implementation of active transportation facilities to be used in planning and development processes.

4. Provincial Active Transportation Polices

In the last ten years, there has been steady increase in societal and governmental interest and support in cycling as a viable and healthy mode of transportation. In 2013, the Province released Ontario's first cycling strategy and action plan, #CycleOn, with a vision to "develop a safe cycling network that connects the province, for collision rates and injuries to continue to drop, and for everyone from the occasional user to the daily commuter to feel safe when they get to bicycle in Ontario." The action plan is a strong basis for strategic municipal plans as they address both soft and hard infrastructure as well as the importance of short-term actions and priorities to demonstrate early success.

Following the release of Ontario's first cycling strategy and action plan in 2013, there has been significant support and advancement at the provincial level, for cycling through the development of strategies, policies, legislation and guidelines for the planning, design, implementation and operation of safer cycling facilities. Achievements include:

- 2018 #CycleON: Action Plan 2.0
- 2018 #CycleON: Province-wide Cycling Network
- 2018 O. Reg. 239/02: Minimum Maintenance Standards for Municipal Highways – updated to include minimum maintenance of bicycle facilities for the first time
- 2017 Ontario Municipal Commuter Cycling Program (MCC) - Ontario to invest $93 million in cycling infrastructure – Vaughan was awarded $908,612 in the first year of the program
- 2017 Province announces $3 million for Active & Safe Routes to School
- 2017 Ontario taking action to keep pedestrians, cyclists and drivers safe
- 2017 Ontario making commuting easier for cyclists in Southern Ontario – Province Building New Secure Bike Storage at GO Stations and Carpool Lots
- 2017 Draft Province-wide Cycling Network
- 2017 Tour by Bike – Ontario's Cycling Tourism Plan
- 2017 Growth Plan for the Greater Golden Horseshoe updated to encourage municipalities to provide cycling infrastructure and secure bike parking near major transit stations
- 2016 Bill 213, Highway Traffic Amendment Act (Careless Driving), second reading - Increased files for careless driving causing serious bodily harm or death
- 2016 Ontario's Five-Year Climate Change Action Plan
- 2016 Ontario Municipal Cycling Infrastructure Program (Ontario allocating $10 Million in local cycling infrastructure)
- 2015 Bill 31, Transportation Statute Law Amendment Act (Making Ontario's Roads Safer
- 2014 Ministry of Transportation (MTO) Bikeways Design Manual Update
- 2014 #CycleON: Action Plan 1.0
- 2013 Ontario Traffic Manual (OTM) Book 18: Cycling Facilities, 1st ed.
- 2013 #CycleON: Ontario's Cycling Strategy

In addition, the following provincial policies are important in providing strategic guidance for active transportation

- 2014 Provincial Policy Statement
- 2005 Amended Places to Grow Act
- 2005 Amended Accessibility for Ontarians with Disabilities Act
- 2005 Ontario Trails Strategy
- 2001 Amended Municipal Act

5. Recommended Policies for City of Vaughan

The previous section outlined past the most significant policy initiatives that are currently in place that apply to City of Vaughan. This section outlines proposed updated policies for pedestrian and cycling. These are presented for discussion purposes.

5.1. Sidewalk Policy

Review of sidewalk policies from other municipalities and proposed sidewalk policy for City of Vaughan is included in the following section.

5.1.1. Standard Practice in Other Municipalities

The sidewalk policies from the following comparable municipalities were reviewed and considered for the discussion of standard practice:

- Town of Grimsby,
- City of Kitchener,
- City of Peterborough,
- City of Barrie, and
- City of Charlotte.

The sidewalk policies for these municipalities are largely based on the type and location of the main generators of pedestrian traffic with a specified radius surrounding the generator requiring sidewalks to service pedestrians. As discussed in Section 2, road classification and land use are also considered as criteria to determine the need for sidewalks. The standard practice sidewalk policy criteria are outlined in Table 6.

These polices also identify considerations such as environmental impact, property requirements and costs, that may allow for deviation from the guidelines. The considerations determine the feasibility and efficiency of implementing sidewalks at a specific location. If the negative impacts outweigh the benefits, a modification to the guideline may be permitted such as the implementation of a sidewalk on one side of the road rather than both if impacts are significant.

5.1.2. Proposed City of Vaughan Sidewalk Policy

The proposed City of Vaughan sidewalk policies are outlined in Table 7. The policies were developed by evaluating the existing City of Vaughan Sidewalk Policy and incorporating standard practices of other municipalities that align with the City of Vaughan Transportation Master Plan and Official Plan objectives.

The proposed policies identify the need for sidewalks based on:

- Land use,
- Road classification,
- Main generators of pedestrian traffic, and
- Connectivity to the pedestrian and cycle network.

The proposed policies may be utilized to determine where sidewalks are required to provide adequate pedestrian facilities within a reasonable distance to main generators of pedestrian traffic and to ensure connectivity through the pedestrian and cycle network. The proposed policy

identifies the need for sidewalks based on the radius surrounding generators of pedestrian traffic. The sidewalk requirement radius varies based on the generator (i.e. school, place of worship, transit terminal, etc.).

Table 5: Standard Practice Sidewalk Policies in Other Municipalities

Criteria	Sidewalk Policy	Source
Collector Road	AADT of 2000 vehicles per day	Town of Grimsby Official Plan (2012) City of Kitchener Sidewalk Infill Policy (2015)
Local Road	AADT of 1600 vehicles per day	Town of Grimsby Official Plan (2012) City of Kitchener Sidewalk Infill Policy (2015)
New Local Road	All new local roads require sidewalks on at least one side of the road	Town of Grimsby Official Plan (2012) City of Kitchener Sidewalk Infill Policy (2015)
School	Within 800 meters of an elementary school, high school, or post-secondary school	City of Kitchener Sidewalk Infill Policy (2015)
Downtown Core	Within 800 m of the downtown	City of Kitchener Sidewalk Infill Policy (2015)
Place of Worship	Within 400 m of a place of worship	City of Kitchener Sidewalk Infill Policy (2015)
Public Parks	Within 400m of a community facility or park	City of Kitchener Sidewalk Infill Policy (2015)
Commercial Developments	Within 400m of a mixed use corridor Within 800m of a major employer (>500 employees)	City of Kitchener Sidewalk Infill Policy (2015)
Transit	Within 800m of the proposed multi modal hub and rapid transit station areas	City of Kitchener Sidewalk Infill Policy (2015)
Conservation Areas	Within 400m of a community facility or park	City of Kitchener Sidewalk Infill Policy (2015)
Town Hall	Within 400m of a community facility or park	City of Kitchener Sidewalk Infill Policy (2015)
Cemetery	Within 400m of a place of a cemetery	City of Kitchener Sidewalk Infill Policy (2015)
Hospital	Within 400m of a healthcare facility	City of Kitchener Sidewalk Infill Policy (2015)

Criteria	Sidewalk Policy	Source
Trails	Within 400m of a trail	City of Kitchener Sidewalk Infill Policy (2015)
Collision Protection	A sidewalk will provide mitigation measures for collisions involving pedestrians	City of Barrie Infill Sidewalk Policy (2015)
Traffic Speed	Traffic speed greater than 50 kilometers per hour (85th percentile)	City of Peterborough Sidewalk Strategic Plan (2012)
Environmental Impact	There are significant environmental impacts that cannot be mitigated (such as large tree removals or significant vegetation removal that could result in increased erosion, etc.)	City of Barrie Infill Sidewalk Policy (2015)
Property Acquisition	There are significant site-specific impacts (such as driveway impacts) that cannot be mitigated	City of Barrie Infill Sidewalk Policy (2015)
Capital Cost	The capital cost of the sidewalk is more than 3 times typical costs (including related costs such as property, grading, retaining walls, utility relocations, etc.)	City of Barrie Infill Sidewalk Policy (2015)
Collector and Local Roads	Minimum 60% of property owners on both sides of the street support sidewalk infill	City of Charlotte Sidewalk Retrofit Policy (2011)

Table 6: Proposed City of Vaughan Sidewalk Policies

Criteria	Proposed Sidewalk Policy	Source
Arterial Road	Sidewalks should be included on both sides of arterial roads	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Collector Road	Sidewalks should be included on both sides of collector roads	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Local Road	Sidewalks should be included on at least one side of all local roads	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Industrial Road	Sidewalks should be included on one side of internal industrial roads not served by transit and on both sides of internal industrial roads served by transit	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Vaughan Metropolitan Centre (VMC)	Sidewalks should be included on both sides of every street within 800 m of the Vaughan Metropolitan Centre (VMC)	City of Kitchener Sidewalk Infill Policy (2015) City of Vaughan Community Improvement Plan
Intensification / Urban Area	Sidewalks shall be provided on both sides of the street in Intensification Areas identified by the City of Vaughan or Region of York	City of Vaughan Official Plan (2010) Vol. 1 4.2.3.4
School	Sidewalks should be included on both sides of every street within 800 m of an elementary school, high school, or post-secondary school	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Place of Worship	Sidewalks should be included on both sides of every street within 400 m of a place of worship	City of Kitchener Sidewalk Infill Policy (2015)

Criteria	Proposed Sidewalk Policy	Source
Transit	Sidewalks should be included on both sides of every street that serves a transit route, stop/terminal, hub or station. Ensure that sidewalks, street lighting and other pedestrian amenities are provided on all streets serviced by transit.	City of Kitchener Sidewalk Infill Policy (2015), City of Vaughan Official Plan (2019) 4.2.2.9
Community Facilities/Local Amenities	Sidewalks should be included on both sides of every street within 400m of a community facility or local amenity (i.e. community centre, retail centre, major entertainment/cultural location)	City of Kitchener Sidewalk Infill Policy (2015) City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria
Parks and Trails	Sidewalks should be included on both sides of every street within 500m of a park or trail	City of Kitchener Sidewalk Infill Policy (2015) City of Vaughan Active Together Master Plan (2018)
Municipal Office	Sidewalks should be included on both sides of every street within 400m of a municipal office	City of Kitchener Sidewalk Infill Policy (2015)
Cemetery	Sidewalks should be included on both sides of every street within 400m of a cemetery	City of Kitchener Sidewalk Infill Policy (2015)
Hospital	Sidewalks should be included on both sides of every street within 400m of a healthcare facility	City of Kitchener Sidewalk Infill Policy (2015)
Pedestrian and Cycling Network	Sidewalks should be implemented to minimize gaps in the street network providing pathway connections, as well as the multi-use recreational trails network.	City of Vaughan TMP Appendix J: Review of Transportation Policies and Road Classification System, Design Standard and Criteria

Criteria	Proposed Sidewalk Policy	Source
Environmental Impact	Where identified above: Sidewalks should be included on both sides of every street unless there are significant environmental impacts that cannot be mitigated (such as large tree removals or significant vegetation removal that could result in increased erosion, etc.)	City of Barrie Infill Sidewalk Policy (2015)
Sidewalk Width	Sidewalks shall be a minimum of 1.5m wide or in accordance with AODA standards. In urban areas, the sidewalk or pedestrian clearance shall be a minimum of 2.0m wide. In general, sidewalks should be separated from cycling facilities but may be placed side-by-side in constrained situations. Where a multi-use recreational trail connects to a roadway corridor, and especially where pedestrian and cycling facilities are required to close a gap in the trail system, a 3.0m wide in-boulevard multi-use pathway, or equivalent should be considered.	

It is recommended that the City of Vaughan consider the proposed sidewalk policies outlined in Table 7. The proposed policies are consistent with the City's Official Plan policies, TMP recommendations, Secondary Plan policies, Urban Design Guidelines, Heritage Conservation District Plans, etc.

In plans of subdivision, the owner/developer should be required to extend sidewalk beyond the limits of the subdivision in order to provide a connection with other pedestrian related facilities. Identified pedestrian facilities include, but are not limited to other planned or existing sidewalks, walkways/mews, trails and bus stops (ex. Kitchener).

Mid-block pedestrian connections/mews should be located centrally in blocks that are longer than 200 metres in length and connect to sidewalks, trails or pathways on either end (Vaughan UDG). In line with OP 2010 Policy 4.2.3.3. To maximize the connectivity of the street network for pedestrians and cyclists by:

- Ensuring grid-like connectivity that minimizes trip distance;
- Ensuring that gaps in the street network are minimized by the provision of strategically located sidewalk and pathway connections;
- Ensuring convenient and direct connections to transit stops and stations; etc.

The City should also consider developing:

- Criteria for prioritization of sidewalk infill (formalize existing practice)
- Standard practice for responding to sidewalk inquiries (ex. City of Mississauga)
- Standardize requirements under the development review process
- A more focussed pedestrian master plan

5.2. Cycling Facilities

General

- Many types of traditional cycling facilities only appeal to people who are comfortable riding in traffic. However, bikeways on quiet streets, separated cycling facilities including protected intersections and open space multi-use recreational trails appeal to a wider range of people of all ages and abilities including families with children, seniors and new riders. As such it is recommended that the City apply an "all ages and abilities" framework to assess the necessary quality of cycling facilities in accordance with O. Reg. 191/11 – Integrated Accessibility Standards and the contextual guidance of the National Association of City Transportation Officials. (https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/choosing-ages-abilities-bicycle-facility/). An inviting and connected network of low stress "all ages and abilities" routes will provide a wide spectrum of the population the option to cycle for most short trips". The general approach includes:
    - Ensuring low motor vehicle speeds and volumes on local streets and providing physical separation on busy streets

- All relevant City design documents shall be updated to reflect applicable aspects of recent cycling design guidelines for Ontario and Canada. International best practices should also be reviewed for applicability to ensure design standards take advantage of all existing innovations in design and safety.

Cycling Facilities

- A “protected intersection” type design shall be the preferred intersection treatment for pedestrians and cyclists. This treatment has shown to improve street level interactions a more comfortable and predictable experience for all users including motorists.
- Separated cycling facilities shall be provided on all collector and arterial corridors and sufficient buffer shall be provided to minimize impacts to curb side management, transit service, waste management, on-street parking/dooring, etc.
- Providing separation between cyclists and motorists should be prioritized over providing separation between cyclists and pedestrians due to the severity of the potential conflict between users.
- Consideration should be given to separating pedestrians and cyclists in busy areas and intensification corridors. The type of separation can vary and could be a landscaped buffer, a beveled curb, a painted line depending on content.
- During review of development applications and during road construction and reconstruction projects, require the provision of separated cycling facilities on all existing, new and reconstructed roads, as follows:
    - On arterial and collector roads
    - On all roads that serve transit
    - On local roads where the design speed exceeds 30km/h
    - On local roads that exceed ADT of 1500 vehicles/day
    - Within and between neighbourhoods and from neighbourhood streets (including cul-de-sacs, P streets and crescents) to connect to arterial and collector roads at sufficient intervals to create porous bikeable communities.
- On all new and reconstructed urban local roads where bicycle facilities are required in accordance with these policies, but no dedicated bicycle facility is provided, require that roads be designed for a speed of 30 km/h or lower (pending development of a new 30 km/h roadway design standard).
- When initiating a roadway design for new road construction, road reconstruction or road resurfacing (regardless of whether it is identified as part of the priority cycling network), staff shall determine the appropriate facility type to safely accommodate cyclists using an all ages and abilities approach. Cycling needs shall be considered during Environmental Assessments and Community Design Plans and included in the City’s road and design standards.
- All consultants hired to undertake transportation planning projects, EAs, corridor feasibility studies, detailed design, implementation and any project that includes an active transportation component shall have an active transportation subject matter expert on the team. The City shall include this requirement in all new requests for proposal, requests for quote, vendor of records, etc.

- Require Transportation Impact Assessments to undertake analysis and consideration of active transportation and produce a plan depicting prescribed bicycle facilities.
- Discourage new curb cuts along the cycle network and remove redundant curb cuts adjacent to cycle track alignments to decrease potential motor vehicle/bicycle conflict. Move car and commercial vehicle access to alleys or side streets to provide continuous bicycle travel.
- Require the additional provision of cycling facilities and connections:
    - Direct, high quality bicycle connections to rapid transit stations, major bus stops and other major destinations.
    - In or adjacent to rapid transit corridors, to be constructed simultaneously.
    - Bicycle crossings of rapid transit corridors, considering the level of demand and alternative crossing opportunities.
    - Active transportation crossings to link neighbourhoods that are separated by roads or other physical barriers.
    - Pedestrian and cycling connections must be provided to local community facilities, parks, greenways, multi-use recreational trails, local retail and services, transit stops and stations, etc. within the vicinity of the development including from neighbourhood streets such as culs-de-sac, P Streets, crescents, etc and vise versa. Provisions should be address through the development process.
- Install bicycle detection at traffic signals on every new bicycle facility, as well as with all street replacement projects:
    - Implement bicycle countdown timers at all new and rebuilt traffic signals along identified bicycle routes
    - Develop bicycle detection standards
- Standardize (technology, placement, leading detection needs, and coordination tools) by bicycle facility type.
    - Experiment and test new bicycle detection technology to incorporate higher-quality detection and enhanced data collection tools
- The City will continue to implement stand-alone retrofit cycling facilities in accordance with the priority cycling network, as resources permit.

5.3. Multi-Use Recreational Trails

- The proposed multi-use recreational trails network plan is conceptual and high-level in nature and will be further refined with appropriate consideration of secondary trail network connections through, including but not limited to, the Block, Subdivision and/or Site Planning processes.
- The City will continue to implement stand-alone off-road bicycle facilities in accordance with priority, as resources permit.

- Priority will be determined by identifying missing linkages which provide direct access to major destinations, and also prioritize these routes as the first for winter maintenance.
- Proposed prioritization should not preclude implementation of local network through development or opportunities where capital infrastructure works and related environmental assessments may allow for implementing larger municipal key connections.
- The City should consider developing formal guidelines related to the timing of trail construction, specifically when they form part of a subdivision. It is recommended that trails be built prior to or at occupancy of residential units where feasible. Constructing trails after occupancy should be discouraged.
- The City should consider mid-block crossings per established guidelines where necessary to connect multi-use recreational trail networks across arterial, collector and/or local roads.
- Grade separation infrastructure should be seriously considered when multi-use recreational trails intersect key barriers such as major highways and arterial roads, rail corridors to promote a seamless and integrated trail network.
- In cases where multi-use recreational trails serve a dual purpose of both recreational and commuter in nature, the aim should be develop a seamless and integrated system.
- Where a continuous trail system is not possible without on-road connection, on-road segments should be designed to match the trail facility (width, markings and material).
- The City should continue to use the Technical Appendix: Planning and Design Guidelines from the 2007 Pedestrian and Bicycle Master Plan, as well as the Accessibility Design Guidelines for York Regional Forest Trails, TRCA Trail Planning and Design Guidelines, and the Toronto Multi-use Trail Design Guidelines, until such time that the City or Region develop their own standards and guidelines. At a minimum the City should consider updating the 2007 Technical Appendix dated December 2005. At a minimum these guidelines should address updates to:
    - Trail types: Asphalt, limestone screenings, boardwalk, earth, etc…
    - Key dimensions - Requirements and absolute minimums (widths, clearance, design specification, edge details)
    - Elements (bollards, P-Gates, markings, signage, bridges, trip-start and trip end facilities such as bike lock posts and lockers, bike repair stations, seating/rest area opportunities, etc.)
    - Acceptable grades
    - Lighting considerations for various conditions such as managed parkland, natural valleyland, underpasses and bridges where required
- Design for maintenance, waste removal, and/or emergency access as required.
- Design, construct, and maintain trails consistently according to expected user volumes (e.g., as primary, and secondary trail classes).
- Design, construct, and maintain trails following best practices to minimize impacts to adjacent environments, especially those identified as environmentally sensitive sites,

habitat corridors, floodplains, or ravines (e.g., concerns with lighting, trail-sizing, all-season use)

5.4. Transportation Master Plan Updates

Appendix J of the TMP provides a review of transportation policies and guidelines available in Vaughan at the time of the study and organized them under 18 general themes. Many of these affect the City's ability to provide a safe and comfortable environment for those travelling by foot or on bike. As part of the next TMP Update, the City should review these themes and consider updates and revisions to the 2012 TMP policy recommendations using an active transportation lens. The following should be considered:

- ROW Width
  - ROW Widths should have consideration for the implementation and expansion of active transportation facilities such as in-boulevard sidewalks, cycle tracks and multi-use pathways. Elimination of active transportation facilities should not be considered with the purpose of reducing ROW widths.
- Speed Limits
  - The 2012 TMP recommends the city adopt a mix of standards set forth by TAC, the City of Toronto and York Region. As part of the upcoming TMP Update, the City should review current standards for design and posted speed limits. Many municipalities are reducing design and posted speed limits in order to provide a safer travelling environment for all users.
- Property Access
  - The TMP recommended that the City develop Access Management Guidelines similar to those of Towns of Markham and Oakville. Property access needs of different travellers should be considered. Those travelling on foot, mobility device, by transit or by bike etc. require more direct access than those travelling by automobile.
- Implementation of Road Improvements
  - Road improvement projects should always have consideration for improved active transportation facilities. The City's Capital Program should also include implementation of stand-alone active transportation projects especially for corridors that do not have planned road improvement projects in the short-term.
- Surface Transit
  - Given that the Public Transit is under the jurisdiction of the Region and other governing bodies, the City should continue to develop policies around the convenient pedestrian and cyclist access to transit stops and stations. Policies related to providing short and long-term bicycle parking, especially at transit stations and hubs should be considered.
- Sidewalks
  - The City's first Sidewalk Policy was adopted by Council on February 26, 1996 and has not been formally updated since that time. The 2012 Transportation Master Plan identified the need to update the City's Sidewalk Policy to support proposed intensification and recommended updated sidewalk policies based on road

classification reflective of current best practices by neighbouring municipalities at the time. The City should consider formally adopting the Sidewalk Policies outlined in this technical paper.

- Pedestrian and Bikeway System
  - The 2012 TMP identified the need to expand the pedestrian and cycling network, provide first/last mile connections to transit, provide secure bicycle parking, improve pedestrian crossings and crossing evaluation procedures. The TMP should reflect and expand on the main recommendations of the Pedestrian and Bicycle Master Plan Update.
- High Occupancy Vehicle (HOV) Lanes
  - Transit responsibilities, including the provision and maintenance of HOV lanes fall under the jurisdiction of York Region. The City should continue to support HOV lanes and work with the Region to adopt standards including permitting bicycles to use these lanes.
- Stop Signs
  - The City should continue to review current warrants for the installation of 3 and 4 way stop signs to consider pedestrian exposure and vehicle speeds. It is recommended that the City also include consideration of those travelling by bike.
- Turn and Entry Prohibition at Intersections
  - The 2012 TMP identified that standards for determining turn and entry prohibitions at intersections are currently not available for the City of Vaughan. Turn and entry prohibitions at intersections can significantly reduce conflicts between motorists and pedestrians/cyclists improving the overall safety of users. The City should still consider developing these standards.
- Traffic Control Signals and Pedestrian Crossovers
  - With the recent update to Ontario Traffic Manual (OTM) Book 12 and release of Book 12A Bicycle Traffic Signals, the TMP recommendations should be revisited.
  - Consideration should be given to signal timings and accessible crossings in relation to the City's aging population.
- On-Street Parking/Permit Parking
  - The City should consider the effects of on-street parking on pedestrians and cyclist such as using on-street parking as a means of providing added separation between travelling motorists and pedestrian/cycling facilities, dooring if sufficient space cannot be provided between on-street parking and pedestrian/cycling facilities, when and where on-street parking is warranted, the effects of intersection and driveway set-backs on on-street parking etc.
- Heavy Truck Prohibition
  - The 2012 TMP flagged that with the advent of the Vaughan Metropolitan Centre VMC) and development intensification focusing on active transportation, it is appropriate for the City to establish clear standards to minimize heavy truck traffic through the City's future downtown.
- Traffic Calming
  - A review of the City's policy and procedures related to traffic calming in existing neighbourhoods in 2012 showed consistency with those of other municipalities across Canada. In addition, City staff requires developers to submit, as part of their traffic impact study, a traffic management plan that takes into consideration traffic

calming measures for new development applications. The updated TMP should provide further recommendations.

- Road Maintenance
  - The City of Vaughan maintains hundreds of municipal roadways, sidewalks, multi-use pathways, cycling facilities and trails throughout the City.
- Transportation Impact Study Guidelines/Site Plan Criteria Guide
  - The 2012 TMP identified the need for the City to develop formal standards and guidelines for transportation impact studies and site plan review.

5.5. Schools Zones

Cycling facilities within and near the school zones will apply the following to ensure the safety of all road users:

General

- Develop a 'safe school zone' evaluation tool to help identify measures required (traffic calming, facility implementation, etc.) to ensure all students can safely travel to school by bicycle.
  - Measures to be consistent with the "all ages and abilities" approach
  - To be undertaken with student travel surveys to help identify priority routes
- New School/refurbished school – require traffic impact study (student population in school changes over the years or consider max. student population in new school), appropriate signage and site circulation to be assessed.
- Secure, highly-visible bicycle parking should be provided on all school sites to support cycling amongst both staff and students.
- Partner with the York Region District and Catholic School Boards to implement the Active and Safe Routes to School program, and to design and locate school campuses to promote walking, cycling and transit as a primary means of transportation.
  - Implement and support school-based safe cycling training programs.

5.6. Bicycle Parking

The following policies apply to the installation and maintenance of bicycle parking facilities such as bicycle racks, corrals and storage within City of Vaughan.

General

- The amount and type of bicycle parking recommended as part of the Bicycle Parking Program is detailed in the network plan.
- The City shall update its Comprehensive Zoning By-law to:
  - Identify separate requirements for both short-term and long-term bicycle parking City-wide.
  - Provide further direction within the Comprehensive Zoning By-law to ensure proper rack placement and design of all bicycle parking facilities including:

        - Bicycle parking space dimensions, clearances, aisle widths, set-backs etc. for horizontal and vertical short-term and long-term bike racks as well as, two-tier/stackable bike racks.
    - Include bike parking rates for Transit, Schools and Recreational uses. Consider including a nominal rate for all other uses similar to the Halifax Land-use by-law that requires 1 space per 500m2 GFA 50% Class A / 50% Class B which equates to a rate of 0.1 short-term bicycle parking spaces per 100m^2 and 0.1 long-term bicycle parking spaces per 100m^2.
    - Include a provision that curb cut ramps must be provided adjacent to any bicycle parking spaces to allow for improved accessibility.
    - Include provisions for end of trip facilities, in particular change and shower facilities for developments that require long-term bicycle parking.
    - Review progressive practices for vehicular parking reductions contingent on additional bicycle parking being provided or parking for alternate sustainable modes of transportation or proximity to transit.
- Consider standardizing short- and long-term bike rack types to create consistency across the City. Medium-high security bike racks permanently anchored to the ground (i.e. with an in-ground mount) should be required for short-term bicycle parking such as the inverted 'U' with in-ground mount). Long-term bicycle parking should be located in a secure building or room with restricted access.
- Short-term bicycle parking should be integrated into all grade-level privately owned publicly accessible spaces as per the City-Wide Urban Design Guidelines.
- Prioritize the installation of bicycle parking in high-demand locations
    - High-demand locations include, but are not limited to, neighbourhood business districts, community centers, libraries, universities and colleges, employment centers, parks, and schools
    - Determine when bicycle parking should be sheltered bicycle parking, such as at schools where students/staff will park their bicycles for extended periods of time.
- Consider creating a process that allows the City to use curb space for on-street bicycle corrals.
    - Work with neighbourhood business districts to identify locations that will replace on-street parking with on-street bicycle corrals
- Provide bicycle parking at the entrance to all Environmentally Significant Areas for security for hikers
- Create a standard practice on how private entities can install bicycle parking in the right-of-way. The standard practice should address installation guidance, permitting fees, responsibilities for maintenance, replacement, abandoned bicycles, and/or liability insurance.
- Consider developing and operating an annual bike rack program.
- Continue to research, experiment with, and update bicycle rack standards, types of racks, and installation details, as well as add standards for on-street bicycle corrals.

- Provide short- and long-term secure bicycle parking at high-capacity transit stations, transit hubs, and heavily-used bus stops
    - Coordinate with transit agencies and large institutions to develop clear, comprehensive, and consistent bicycle parking demand estimation and documentation methodologies
    - Integrate convenient, secure bicycle parking into the development of all new high-capacity transit stops
- Require bicycle parking at City and private large/special events
    - Define thresholds determining what large/special events will require attended bicycle parking
    - Develop event parking guidelines for organizers. Events can be accommodated by potential partners for bicycle valet services using a variety of temporary event parking strategies
    - Require vendors to obtain a permit for temporary event bicycle parking. The application for the permit would stipulate a certain percentage of bicycle parking per the estimated number of attendees and standard arrangement of bicycle parking.

5.7. Education & Outreach

Based on the programs and common practice in other jurisdictions, the following approaches are recommended to educate and reach residents.

General

- Develop educational materials and programs that explain how to safely drive and bicycle on or near streets with bicycle facilities as well as on multi-use recreational trails.
    - This information will help people understand how to use new and existing facilities for all modes of travel. Work with the York Region Police (YRP) to help share materials promoting all users' responsibilities for safe streets.
- Collaborate with partners to develop, strengthen and distribute "Bike 101" materials to assist a wide range of current and new riders
    - Make materials accessible to non-English speakers and include information about e-bicycles (electric bicycles) to help overcome geographic and mobility barriers
- Facilitate information sharing and communication between the freight, professional driver, and bicycling communities
    - Utilize direct communication channels to facilitate safer and more considerate behaviours by all roadway users
- Develop targeted marketing campaigns to encourage people to try bicycling:
    - Integrate evaluation metrics into campaign design
    - Collaborate with the York Region Police (YRP) on community outreach, safety education, and enforcement of traffic laws.

  - Develop marketing campaigns aimed at the following:
    - Specific populations to encourage more people to try bicycling by identifying groups that are interested, but have not yet tried bicycling. Groups that currently complete high levels of “bikeable” trips should be of particular interest.
    - The general population throughout the city to encourage motorists and people riding bicycles to be aware of how to operate safely, such as for Bike to Work Month or Bike to Work Day
    - Evaluate all marketing campaigns to determine whether goals are being accomplished
- Improve wayfinding and trip-planning opportunities pedestrians, cyclists and multi-use recreational trails users:
  - Develop a citywide wayfinding and signage strategy for the combined pedestrian, cycling and multi-use recreational trail networks.
  - The City should consider developing a branding strategy, followed by a branded wayfinding and signage strategy and implementation plan for the Vaughan Super Trail as well as significant trail systems such as the Bartley Smith Greenway, William Granger Trail, and local neighbourhood loops.
  - Consideration should be given to complementing major trails with relevant educational, cultural, and art installations.
  - Develop a wayfinding system to incorporate new destinations and include wayfinding signs as a component of all projects.
  - Coordinate with major institutions to encourage cohesive signage and information sharing
- Support improved access to bicycles and encouragement of bicycling opportunities
  - Partner with other departments and organizations to develop education and encouragement programs for populations historically underrepresented in bicycling, including youth, older adults, women, economically disadvantaged, and visible minorities
  - Support and advertise events and programs that provide bells and lights at free or reduced rates
  - Work with neighbourhood groups and other partners who want to promote and improve bicycling
- Provide bicycle education for primary school children
  - Work with schools to develop and expand a ‘Safe Routes to School’ program to teach children to safely walk and ride a bicycle to school
- Assess the feasibility and cost of including middle school and high school roadway safety education in Vaughan schools
- Develop partnerships with active user groups to develop recreational programs and activities on trails. The City should continue to expand the Great Walks of Vaughan initiative.

- The City should consider developing Vaughan specific guides, maps, online mapping, and similar communication tools to enhance the use of the multi-use recreational trail and cycling networks.

5.8. Transit

The connection between transit and bicycle facilities will be fostered through the following:

General

- Major transit projects will include funding for first/last mile connections
- Design transit passenger waiting and boarding facilities to minimize conflicts and pinch points with pedestrians and cyclists.
    - Consider design alternatives that avoid bicycle and bus conflict zones at the transit stop. Install signage and other visual cues or infrastructure to encourage people on bicycles to yield to pedestrians.
    - Provide protection and visibility for pedestrians in zones where people riding bicycles and people walking may intermix at transit stops.

5.9. Data Collection & Management

To further advance data collection and management within the City for future planning and design of pedestrian, cycling and multi-use recreational facilities, the following is recommended:

General

- The City should consider developing a monitoring program for:
    - Existing infrastructure and associated attributes
    - User counts
- The monitoring program may include data collection in the form of permament and automated counters, traffic cameras, physical monitoring, in-person and online surveys and other forms of user feedback.
- The City should consider developing and implementing programs to monitor the following criteria on an ongoing basis:
    - Existing linear infrastructure and associated attributes, updated annually and used to inform network progress and expansion
        - Integrate bicycle parking data
    - User volumes along key pedestrian, cycling and multi-use recreational trail corridors
        - Permanent and automated counters are the preferred method and should be installed as part of all new projects
    - Cyclist safety (Perceived and Objective) through resident surveys and available collision data
    - Modal share performance measures

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