Pedestrian and Bicycle Master Plan Full Report

December 2020

VAUGHAN

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The vision, goals and recommendations of the City of Vaughan Pedestrian and Bicycle Master Plan were adopted without amendment by the Council of the City of Vaughan on Dec. 17, 2019.

CIMA+
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A Message from the Mayor

In Vaughan, we are dedicated to championing a healthier and greener environment that will elevate the quality of life for everyone who lives and works here. With more than 230 kilometres of signed cycling and pedestrian routes, including 60 kilometres of multi-use recreational pathways, the city of Vaughan offers countless opportunities for people to get outside and be active.

The health and well-being of citizens remain at the heart of our city-building efforts, and the 2020 Pedestrian and Bicycle Master Plan is a reflection of this. It will serve as our roadmap toward creating a pedestrian- and bicycle-friendly city for years to come.

The City's multi-use paths, tracks, lanes, routes and trails are designed to bring the community together, establish transit connections and get people moving. With more citizens choosing cycling as a transportation method, we continue to expand Vaughan's comprehensive transportation network to promote a full range of options to get around safely and seamlessly.

Enhancing existing multi-use networks and installing new active transportation options supports a healthier environment, alleviates traffic and encourages active living. This will contribute to Vaughan's ongoing success. As a truly green city, we remain committed to building safe, accessible and sustainable spaces for future generations.

Sincerely,

Hon. Maurizio Bevilacqua, P.C.

Mayor

Annual Updates and Addendums

The Pedestrian and Bicycle Master Plan and active transportation programs are intended to be flexible and respond to new practices, development, capital program opportunities (both City of Vaughan and York Region), easement negotiations and available funding/grant opportunities, etc. On an annual basis, staff will bring forward a report to the Mayor and Members of Council highlighting the previous year's accomplishments while providing updates to the Plan and active transportation programs. The annual reports will serve as addendums to the Pedestrian and Bicycle Master Plan until the next update.

Annual Updates

#	Report Title and Link
1	Active Transportation Programs – First Annual Update – February 9, 2021, Committee of the Whole (2) (Item 10, Report No. 6)

Addendums

Version	Date	Notes

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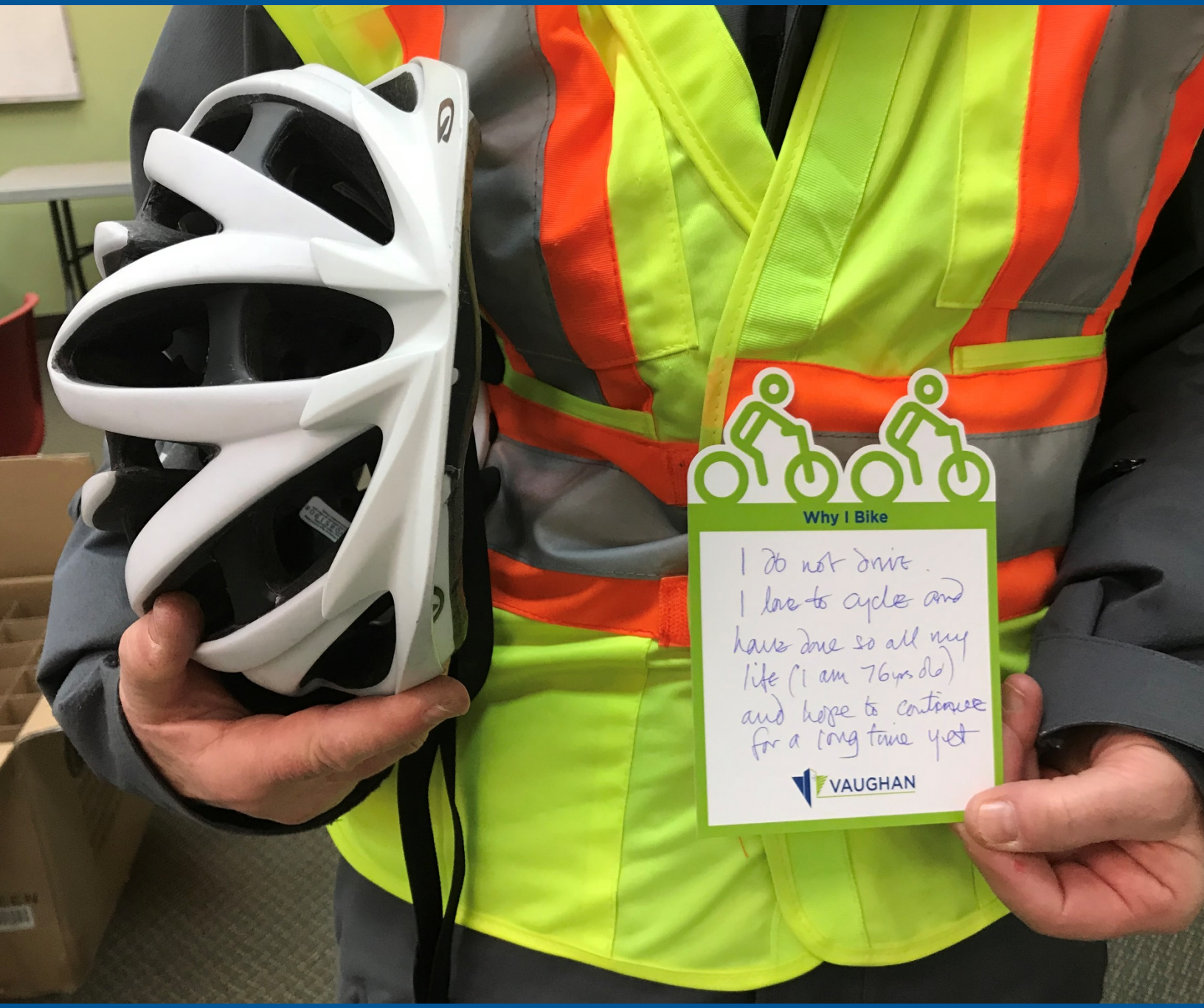
1. Introduction



Community Engagement at Woodbridge Library Senior Social (2018)

1. Introduction

1.1. Study Purpose

The purpose of the study was to inspire trust, confidence and collaboration among the stakeholders and residents of Vaughan to build support for walking, rolling and cycling in the City by undertaking a robust and transparent engagement process in updating the Pedestrian and Bicycle Master Plan (PBMP).

Key goals of the study were to:

- Generate excitement and support for active transportation through extensive public and stakeholder engagement;
- Identify and justify active transportation network improvements to accommodate future growth for input to the Development Charges By-Law update and update the pedestrian and cycling network plan accordingly;
- Develop a plan that looks beyond the active transportation network infrastructure and provides guidance for shifting the culture and guidance support among all stakeholders; and
- Develop an implementation framework and plan which identifies signature projects, funding, and partnership opportunities as well as expertise needs.

This report summarizes the process undertaken for this study and recommendations for the City to advance the participation of its residents in walking, rolling and cycling activities.

1.2. Vision / Objectives for Active Transportation

The 2007 Pedestrian and Bicycle Master Plan (PBMP) was progressive for its time, setting the City on a path towards becoming a more walkable and bikeable community. It was the first active transportation (AT) focused master plan in York Region and one of few in the Province. The original plan was visionary, long-term and included a wide range of innovative recommendations for the City. However, the implementation of the Plan faced many challenges. The 2019 PBMP focussed on building community and internal support, while also updating the technical content to reflect current state of practice. The updated plan is evolutionary, building on the original plan, 2010 Vaughan Official Plan and 2012 Transportation Master Plan creating a path forward that is flexible, short-term and focused on the needs of the community.

Since the 1970s, Vaughan has been one of the fastest growing municipalities in Canada. This growth has taken place in a primarily suburban form and auto-oriented structure focused on moving vehicles rather than people. Vaughan Official Plan 2010 (VOP 2010) calls for a transportation transformation in how people move around Vaughan. This is to be done by establishing a comprehensive transportation network that allows a full range of mobility options, including walking, cycling and transit. The 2012 Transportation Master Plan further indicates that it will take more than just large investments in transit infrastructure to cope with future transportation demand.

With transit under Regional jurisdiction, the City has a major role to play in the implementation of walking and cycling facilities on local corridors for first and last mile connections.

1.2.1. City of Vaughan Guiding Documents

2007 City of Vaughan Strategic Plan – Vision 2020

The Strategic Plan envisions Vaughan to be a City of choice that promotes diversity, innovation, and opportunity for all citizens, fostering a vibrant community life that is inclusive, progressive, environmentally responsible, and sustainable. This vision can be supported through a diverse transportation system that includes viable options for walking and cycling.

2010 City of Vaughan Official Plan

The Official Plan addresses the City's long-term planning requirements to the year 2031. It calls for the transformation in how people move around in Vaughan by establishing a comprehensive transportation network that allows a full range of mobility options, including walking, rolling, cycling and transit. This includes implementing and regularly updating the Pedestrian and Bicycle Master Plan to meet the needs of users of pedestrian and bicycle facilities.

2012 City of Vaughan Transportation Master Plan

The Transportation Master Plan further elaborates on the call for transformation in the 2010 Official Plan and indicates that it will take more than just large investments in transit to cope with future transportation demand. Higher-order walking and cycling infrastructure, connected to transit is needed to provide a balanced transportation network.

The PBMP update outlines a strategic plan to "grow" walking, rolling and biking in Vaughan through the development of supportive municipal processes, policies and programs as well as a plan for the implementation of more comfortable infrastructure and connected network. The PBMP update will be used to inform the upcoming Municipal Comprehensive Review of the Official Plan and Transportation Master Plan update.

1.3. Policy Framework

In the last ten years, there has been a steady increase in societal and governmental interest and support in cycling and walking as a viable and healthy mode of transportation. Municipal, Regional, Provincial and Federal levels of government are continually evolving polices and strategic plans to support the development of active transportation programs, multi-modal transportation infrastructure and build healthy communities.

Given that Provincial, Regional and Municipal policies have the most direct influence on active transportation, these policy frameworks were reviewed as part of the Pedestrian and Bicycle Master Plan update study. In general, City of Vaughan planning documents primarily discuss the City's long-term vision for active transportation and strategies for reaching the vision, as well as the provision of policies that have been established in order to achieve the vision. York Region planning documents provided action-oriented policies for the implementation of active transportation facilities. Provincial planning documents provide an overarching strategy towards a cycling-friendly Ontario. In particular, the release of the #CycleON: Ontario's Cycling Strategy in 2013, resulted in significant support and advancement for cycling through the development of strategies, policies, legislation and guidelines for the planning, design, implementation and operation of safer cycling and walking facilities. The updated Plan reflects these and current best practices.

The following is a list of provincial, regional and municipal policies and plans that were reviewed at the onset of the PBMP update. A detailed summary of the policies and plans reviewed can be found in **Appendix B: Policies, By-laws and Procedures Supporting Technical Paper**.

1.3.1. Provincial

- Places to Grow: Growth Plan for the Greater Golden Horseshoe (2017)
- Municipal Act (2001, amended)
- Ontario's Climate Change Action Plan (2016)
- #CycleON: Ontario Cycling Strategy (2013)
- #CycleON: Province-wide Cycling Network (2018)
- Accessibility for Ontarians With Disabilities Act (2005, amended)

1.3.2. Regional

- York Region Official Plan (2016)
- York Region Sustinability Strategy (2007)
- York Region Transportation Master Plan Update (2016)
- Background Report D: Pedestrian and Cycling Plan Development Report (2016)
- York Region Transportation Mobility Plan Guidelines (2016)
- York Region School Site Design Guidelines (2017)

1.3.3. Municipal

- City of Vaughan Official Plan (2010) and associated Secondary Plans
- Green Directions Vaughan: Community Sustainability and Environmental Master Plan (2009)
- City of Vaughan Transportation Master Plan (2012)
- City of Vaughan Pedestrian and Bicycle Master Plan (2007)
- City of Vaughan Sidewalk Policy (1996) – revoked in 2018
- City of Vaughan Active Together Master Plan (2013 and 2018 update)
- City-wide Urban Design Guidelines and Technical Reference Manual (2016)
- City-wide Streetscape Implementation Manual and Financial Strategy (2014)
- Vaughan Metropolitan Centre (VMC) Secondary Plan (2010)
- Vaughan Metropolitan Centre (VMC) Streetscape and Open Space Plan (2015)
- Traffic By-law 284-94 (as amended)
- Parking By-law 1-96 and 064-2019 (2019, consolidated)
- Cycling and Pedestrian Task Force Findings Report and Vaughan Super Trail Concept (2017)

1.4. Municipal Class Environmental Assessment Process

Municipal projects that affect the purpose, capacity or function of a roadway, or propose new roadways are subject to the five phase Municipal Engineers Association Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011 and 2015) (MCEA) process. The MCEA is a planning and design process for transportation/transit and water/wastewater infrastructure projects which have a predictable range of impacts under the following Schedules:

Schedule A Activities have minimal environmental effects. Projects are pre-approved.

Schedule A+ Activities have minimal environmental effects. Projects are pre-approved so long as the public is advised prior to implementation.

Schedule B Activities have some adverse environmental effects. Projects typically involve improvements and minor expansions to existing facilities. These projects proceed through a screening process (Phases 1 and 2 of the Class EA), including consultation with the potentially affected public.

Schedule C Activities have some adverse environmental effects. Projects typically involve the construction of new facilities and major expansions to existing facilities. These projects proceed through the full Class EA planning and design process (Phases 1 through 5).

In 2015, the MCEA process was updated to establish pre-approval under Schedule A and A+ for the design and implementation of active transportation projects including:

- Normal or emergency operation and maintenance of cycling facilities and multi-use paths, sidewalks located within or outside existing rights-of-way.
- Construction of sidewalks, multi-use paths or cycling facilities within existing or protected rights-of-way as well as outside existing rights-of-way.
- Reconstruction to add cycling facilities, provided no change in the number of motor vehicle lanes.
- Re-designation of existing general-purpose lanes or on-street parking to cycling facilities, through signage or pavement marking modifications not requiring physical construction beyond localized operational improvements.
- This pre-approval has no financial limit and therefore can be used to expedite next steps in the implementation of active transportation projects however, public must be advised prior to implementation.

The City of Vaughan Pedestrian and Bicycle Master Plan update addresses and exceeds Phases 1 and 2 under Schedule B of the Municipal Class EA process as a result of the extensive public and stakeholder engagement conducted throughout the study process.

Phase 1 Identify the problem or opportunity

Phase 2 Identify alternative solutions to address the problem or opportunity

1.4.1. Problem and Opportunity Statement

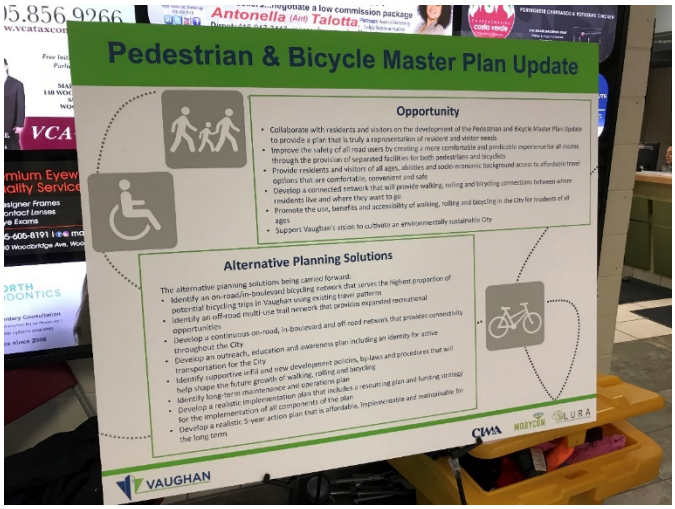
The following opportunity statement was developed to guide this master planning study:

- Collaborate with residents and visitors on the Pedestrian and Bicycle Master Plan Update to develop a plan that is truly a representation of resident and visitor needs
- Improve the safety of all road users by creating a more comfortable and predictable experience for all modes through the provision of separated facilities for both pedestrians and bicycles
- Provide residents and visitors of all ages, abilities and socio-economic background access to affordable travel options that are comfortable, convenient and safe
- Develop a connected network that will provide walking, rolling and bicycling in the City for residents of all ages
- Support Vaughan's vision to cultivate an environmentally sustainable City

1.4.2. Alternative Planning Solutions

The following alternative planning solutions were considered to support the opportunity:

- Identify a priority cycling network that serves the highest proportion of potential bicycling trips in Vaughan using existing travel patterns
- Identify a multi-use trail network that provides expanded recreational opportunities within open spaces
- Develop a continuous network of pedestrian and cycling facilities that provides connectivity throughout the City of Vaughan



Opportunity statement display board for community conversations

- Develop an outreach, education and awareness plan including an identity for active transportation for the City
- Identify supportive infill and new development policies, by-laws and procedures that will help shape the future growth of walking, rolling and bicycling
- Identify long-term maintenance and operations plan
- Develop a realistic implementation plan that includes a resourcing plan and funding strategy for the implementation of all components of the plan
- Develop a realistic 5-year action plan that is affordable, implementable, and maintainable for the long term

2. Public and Stakeholder Engagement Summary

Community Engagement at Vaughan Canada Day Celebration, Boyd Conservation Park (2017)

2. Public and Stakeholder Engagement Summary

Community engagement was a high priority when discussing a Vaughan Pedestrian and Bicycle Master Plan update. The voices of all residents and visitors was a critical component in shaping the future of walking, rolling and riding within the City of Vaughan. From the outset, the direction was clear, from all involved, that the Vaughan Pedestrian and Bicycle Master Plan needed to be truly reflective of the community's shared values and priorities.

Over 10 months (June 2017 – April 2018) of collaborative engagement, the City of Vaughan with LURA Consulting, directly engaged over 3,500 people in sharing their current personal experiences and perspectives as well as their future hopes and ideas about walking, rolling and riding in the City of Vaughan. Additionally, more than 20,000 people had the opportunity to learn about the project through an established project emailing list, city facilities, newspapers, e-newsletters and social media. We estimate that at least 100,000 City of Vaughan residents and visitors were indirectly reached during the engagement process.

The level of engagement was remarkable, and engagement will continue to be an important component of the implementation phase of the plan. On-going education, engagement and awareness with residents, community stakeholders, city staff and other organizations will fundamentally shape the behavioural changes of this plan update and continue to build stronger communities across the City of Vaughan. The engagement timeline is illustrated in **Figure 2-1.**

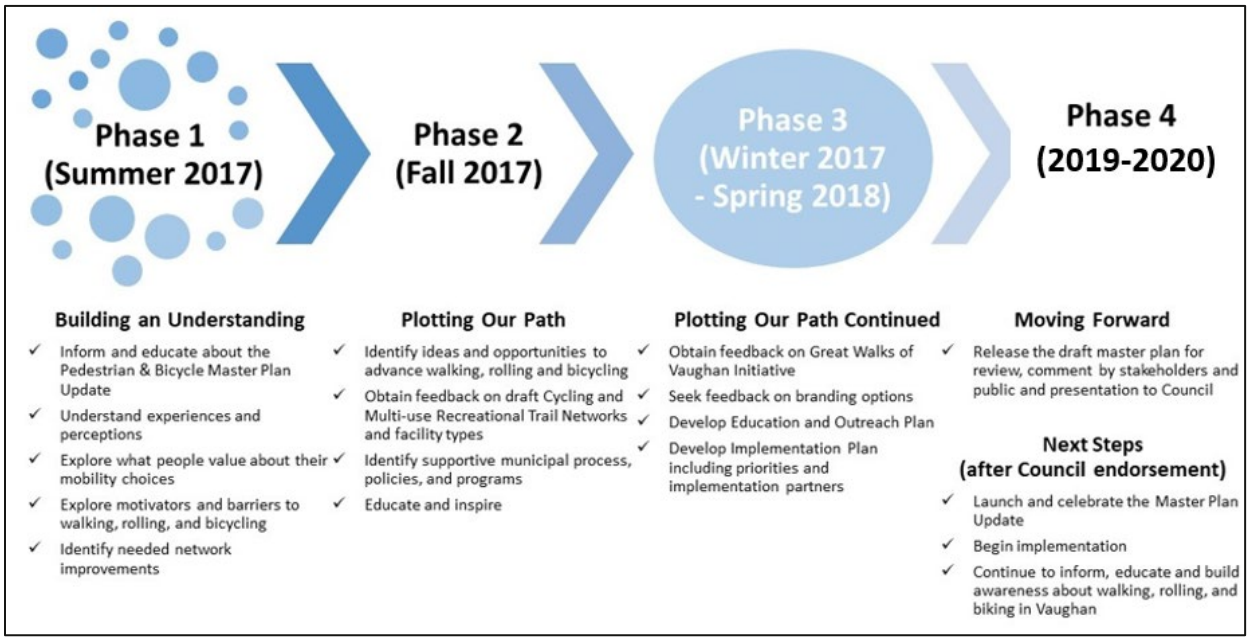


Figure 2-1: Public and Stakeholder Engagement Timeline

2.1. Overview of Engagement

The community engagement program strategy was designed to ensure that local residents, visitors, businesses, and other stakeholders had an opportunity to participate in conversations about walking, rolling and riding in the City of Vaughan and provide feedback on ways to make non-motorized forms of transportation more desirable and commonplace. Gaining an understanding of the public's perspectives, experiences and current behaviors helped the project team tailor the Pedestrian and Bicycle Master Plan update to reflect the community's needs.

The engagement program combined methods of face-to-face and online engagement while using various channels to promote and disseminate information about the plan update. The City of Vaughan established a project specific webpage on the general Vaughan cycling website (www.vaughan.ca/cycling) and used Twitter, Facebook, project posters, information cards, city facilities and more, to create awareness about the project.

Highlights of the engagement process and overview of all engagement activities are shown in Error! Reference source not found.**2**. For full details refer to **Appendix A: Community Engagement Summary Report and Appendices**.

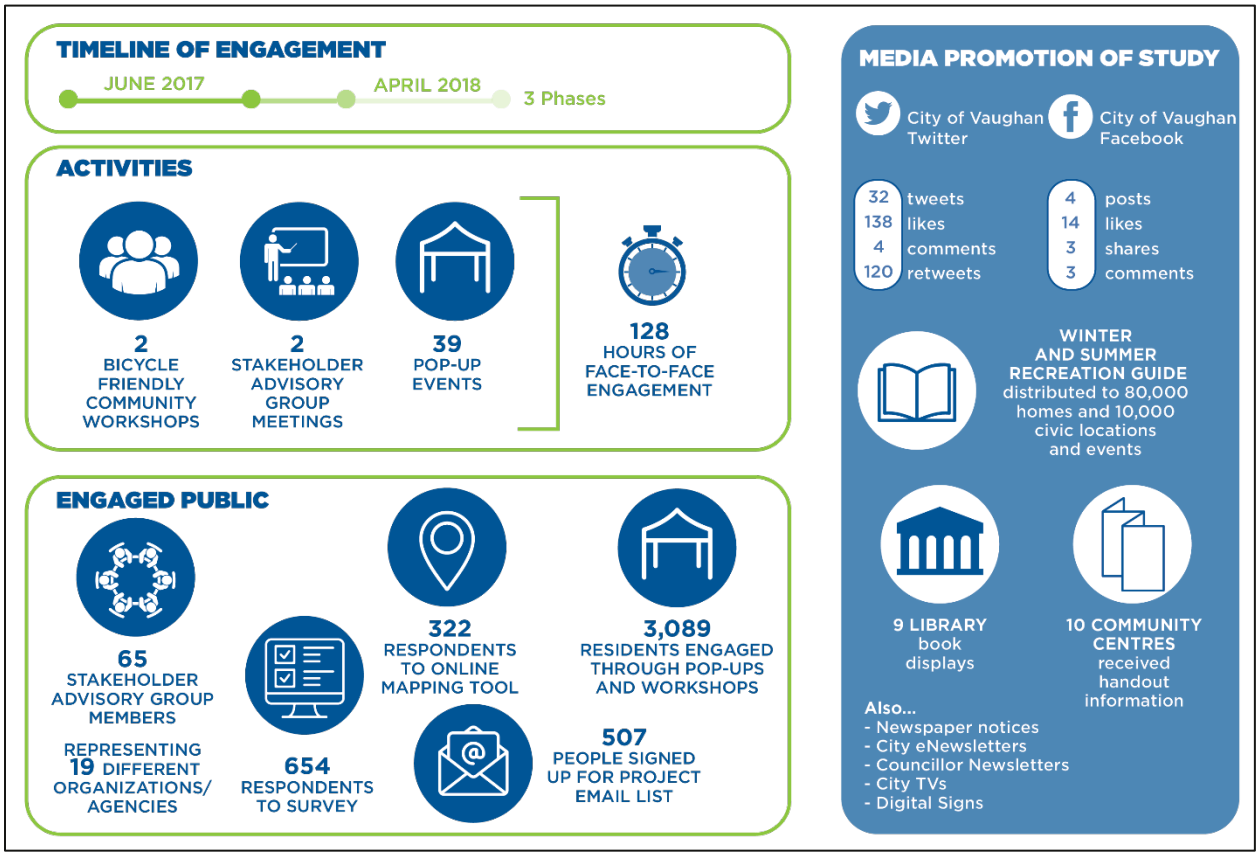


Figure 2-2: Public and Stakeholder Consultation Highlights Infographic

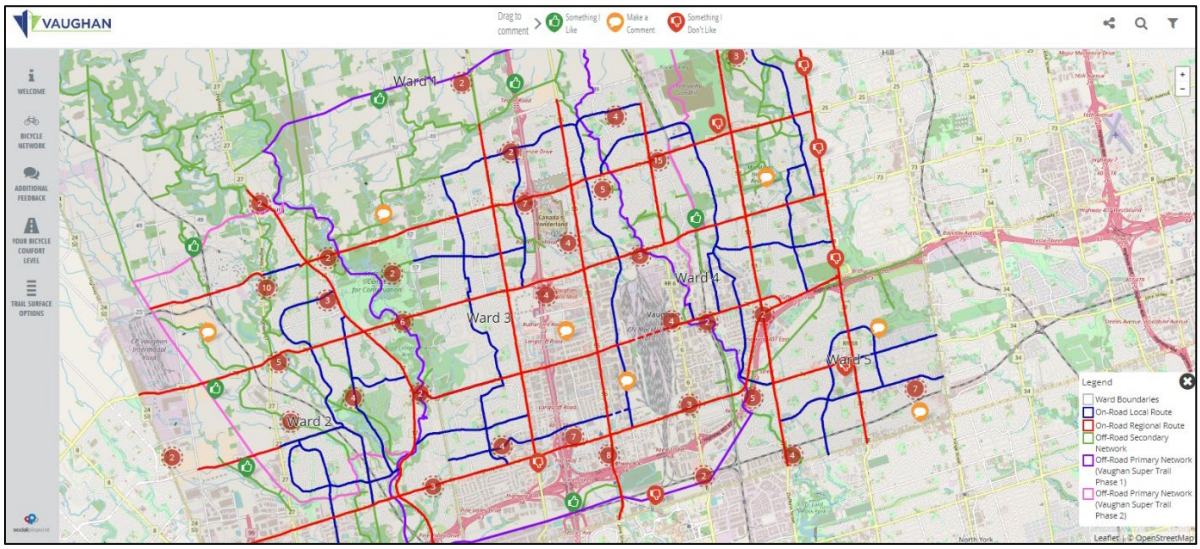
2.1.1. Pop-Up Community Conversations

Community Pop-up Conversations Promotion

Pop-up community conversations were held in public facilities and at local events to bring the engagement process to places people already gather. Over 3000 people were engaged in face-to-face conversations over 128 hours across 39 community 'Pop-Up Events' held at community centres, parks, libraries and events located in all five wards of the city. Locations were selected in order to reach a diverse array of residents. Some well-attended events included the City's Concerts in the Park series; Neighbourhood Park Opening Events; Canada Day Celebration; Woodbridge Village Farmer's Market; Christmas Tree Lighting and Menorah Lighting Ceremonies; Winterfest; and the City of Vaughan Earth Hour Celebration.

2.1.2. Digital Engagement

Digital engagement mirrored the pop-up community conversations and allowed for people to provide feedback at their leisure. Over 900 people were engaged in digital engagement by participating in two online surveys that were collectively live to the public for 14 weeks. 654 respondents completed an online public perception and behaviour survey administered through SurveyMonkey. The survey was used to explore perceptions related to walking, rolling and biking including motivators and barriers as well as willingness to walk, roll or bike more frequently. Additionally, 322 unique users visited an online interactive mapping tool (Social Pinpoint) to provide feedback on potential network improvements. 169 comments were received on the proposed network maps and 30 people shared their insights on the facilities and surface type activities.



Screenshot of online interactive mapping tool from phase 2 stakeholder and public consultation

2.1.3. Stakeholder Advisory Group

A more in-depth approach to engagement was undertaken with the establishment of a Stakeholder Advisory Group (SAG). This group of 65 key stakeholders, representing different perspectives, was formed to discuss and shape the development of the Pedestrian and Bicycle Master Plan Update. Some of the SAG members included City of Vaughan Staff from across the organization, York Region Staff including representatives from York Region Transportation Services, York Region Community and Health Services, York Region Police, York Region Transit, etc.; Toronto and Region Conservation Authority (TRCA); Canadian Automobile Association; Central Counties Tourism; Smart Commute North Toronto/Vaughan; York Region Cycling Coalition; Vaughan Bicycle User Group (BUG); Metrolinx; Rate Payers Associations, to name a few. For a full list of participants see **Appendix A: Community Engagement Summary Report and Appendices**. The group was able to provide an ongoing forum for advice, feedback and guidance to the City of Vaughan and the project team at key points during the plan update process. This group was also able to disseminate information about the project to their various networks. The group has met three times over the course of the Pedestrian and Bicycle Master Plan update and will continue to be involved in implementation.

2.1.4. Bicycle Friendly Community Workshop

A Bicycle Friendly Community Workshop was hosted in partnership with York Region and facilitated by Share the Road Cycling Coalition and served as the third Stakeholder Advisory Group (SAG) meeting. Members of Council, City Staff, Stakeholder Advisory Group members and the public were invited to participate in two workshop sessions held on March 8, 2018. The first afternoon session included a 4-hour strategic visioning exercise around policies, programming and public awareness of the Pedestrian and Bicycle Master Plan Update. The evening session included a 2-hour world café style discussion around key themes that were identified during the afternoon session. A total of 52 people participated in the two Bicycle Friendly Community Workshop sessions.

Bicycle-Friendly Community Workshop Promotion

2.1.5. Cycling and Pedestrian Advisory Task Force

Although the City of Vaughan Cycling and Pedestrian Advisory Task Force was formed outside of the study process, the findings report brought forth to Council on April 3, 2017 were used to inform the outcomes and recommendations of the Pedestrian and Bicycle Master Plan. Council appointed 10 members to the Task Force representing various organization and residents interested in cycling and/or pedestrian issues. The first meeting of the Task Force was April 6, 2016 and a findings report was brought forth to Council a year later.

See **Appendix A1: Cycling and Pedestrian Advisory Task Force Findings Report** and **Appendix C4: The Vaughan Super Trail Concept Presentation**.

2.2. What we heard – Key Messages

The community's care and passion for shaping the future of walking, rolling and riding within the City of Vaughan was evident from what we heard throughout the engagement process. Many participants expressed excitement for the Pedestrian and Bicycle Master Plan update and were enthusiastic to provide their thoughts and opinions to the project team regarding this important city-driven initiative. Feedback collected through engagement activities was analyzed to inform the update and is summarized below.

For full details refer to **Appendix A: Community Engagement Summary Report and Appendices**.

2.2.1. Current Behaviour

Most respondents engaged throughout the study indicated that they drive their car alone every day or several times a week. However, a significant segment of the respondents indicated they walk or bike several times a week.

Most respondents self-identified as recreational or occasional users of both walking and biking. A few participants noted that existing trails are working well for both walking and biking (i.e. Bartley Smith Greenway and Humber Trail). These trails were noted as being good for fun and enjoyable family activities. It was also noted that users of existing trails enjoy experiencing the outdoors and nature.

Economic factors (i.e. no associated cost), environmental benefits, a way to experience natural surroundings and ease of getting around were also cited as motivations to walk, roll and ride more. Overall, physical, mental, and environmental health reasons were leading motivational factors in encouraging people to walk, roll and ride.

Respondents noted that these forms of active transportation are important for the environment as well as being a fun, enjoyable exercise and leisure activities for individuals, families and groups. Several respondents also noted that these activities are good forms of stress relief for overall mental health and quality of life. This motivational rationale correlates with a strong indication of public willingness to walk, roll or ride more frequently, and for longer durations, for recreational purposes.

Most respondents, for both walking/rolling and biking, indicated that they would consider it acceptable to spend 15-30 minutes for their commute to/from work, school or other frequent commitments, and 5-15 minutes for part of the trip to carry out tasks or errands. In terms of recreational activities, respondents were more willing to walk/roll or socially bike for 30 minutes or more.

Error! Reference source not found. summarizes current behaviour highlights from the Phase 1 Survey.

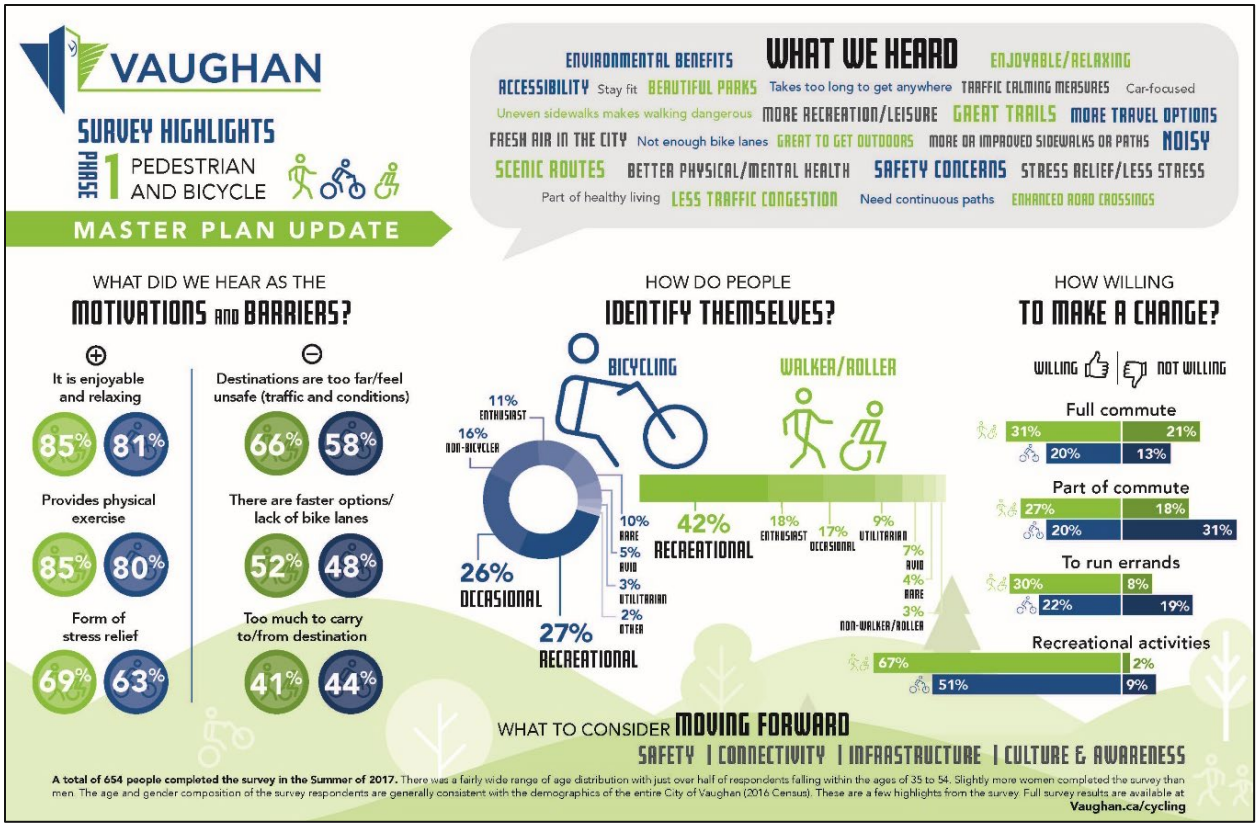


Figure 2-3: Phase 1 Survey Highlights

Bike into Spring Event hosted by Dufferin Clark Library (2017)

2.3. Areas of Opportunity

Factors for walking, rolling and riding in the City of Vaughan were most noted around four prominent areas of opportunity.

2.3.1. Safety

Although there is a willingness to walk, roll and ride more throughout the City, safety is an extreme concern and was consistently expressed throughout the engagement process. There is a general lack of confidence in all modes of motorized and non-motorized forms of transportation being able to interact safely on the roads, and a concern that drivers are unaware of non-motorized forms of transportation. Regarding both walking and biking, many respondents noted they are currently uncomfortable moving through the City, regardless of the distance of travel required.

A sense of safety and comfort for walking, rolling and riding centers also around the level of comfort at road and intersection crossings, as well as connections between on-road and off-road networks. The prioritization of signal timing for pedestrians and cyclists was suggested along with right-of-way signaling and driver awareness of non-motorized forms of transportation. Off-road paths are important to provide safe bicycling options to busy arterial roads. Some specific areas mentioned when discussing safety were crossings at and around: Highway 400, Highway 407, Keele Street (up to Steeles Avenue), Rutherford Road, Major Mackenzie Drive, Jane Street and rail yards and railways.

2.3.2. Infrastructure

Many respondents indicated the need for more and/or improved sidewalks and cycling facilities to increase non-motorized travel options. Several respondents indicated a preference for buffered cycling facilities particularly if bollards, planters or other physical obstacles were introduced. Greater separation between all modes of transportation (drivers, cyclists and pedestrians) is preferred. Paved shoulders are seen as well-suited to rural routes as well as curb cuts, surface maintenance and lighting on trails. General concerns around infrastructure were raised, including concerns about cycling facilities coming at a cost of reducing road space and increasing congestion for drivers.

Physical barriers (i.e. Highway 400 or sidewalks ending abruptly), and land use patterns for direct routes to destinations were highlighted opportunities, particularly when it comes to enhancing road crossing and accessibility.

On-going maintenance was emphasized as important to users for new and existing sidewalks, cycling facilities and trails. Strong support for the ‘Vaughan Super Trail’ concept as an off-road network and recreational opportunity/destination was noted as valuable to respondents. Additionally, there was emphasis noted on maintenance for on-road and off-road infrastructure for new and existing cycling facilities and pathways.

2.3.3. Connectivity

Overall, respondents indicated that there is a lack of connectivity in Vaughan. Access over physical barriers is also critical and extremely valuable to users. Many respondents also noted a need for pathway connections within communities and subdivisions especially connecting to schools so students can walk or cycle more easily and safely as well as linkages between trails and parks. Better connections were emphasized specifically to major trails, key destinations and facilities such as: GO Transit Stations; TTC; Viva/York Region Transit; Wonderland, CN Rail overpass, Vaughan Mills Mall, Future Edgeley Pond and Park, York University and; Vaughan Metropolitan Centre destinations.

2.3.4. Awareness & Culture

There is a strong public perception that roads are primarily used by motorized transportation and a shift in culture is strongly desired. With the current dominant car culture, an emphasis on education and creating a cycling and pedestrian culture is needed. Training, education and marketing campaign was repeatedly suggested to create awareness of existing facilities and encourage a change in behaviour for the future. Wayfinding and signage branding was suggested in order to shift the current cultural perception, create awareness, and make it easy and convenient to get around the city by walking, rolling and riding. Programs and education for drivers and youth were particularly noted for being included in any public awareness process as the project progresses.

Annual Earth Hour Event Glow Bike Ride (2018)

Community Conversation at Winterfest, Vellore Village Community Centre (2018)

Community Conversation at North Thornhill Community Centre (2017)

Community Conversation at City of Vaughan Tree Lighting Ceremony, City Hall (2017)

Community Conversation at Woodbridge Farmers Market (2018)

Stakeholder Advisory Group Meeting #1 (2017)

Bicycle-Friendly Community Workshop, City Hall (2018)

3. Implementation of Pedestrian, Cycling and Multi-use Recreational Trail Infrastructure

Wide sidewalks and cycling facilities along Millway Avenue in the Vaughan Metropolitan Centre (VMC)

3. Implementation of Pedestrian, Cycling and Multi-use Recreational Trail Infrastructure

3.1. Routine Accommodation

Routine accommodation is the technical term for considering the needs of one mode of travel and accommodating the users of that mode as a routine part of any planning, design, construction, operation, and maintenance activities conducted by a road authority.

The concept of routine accommodation to consider the needs of pedestrian and cyclists as part of the roadway funding, design and implementation process is not new. In the late 1990's, the US Federal Highway Administration (FHWA) started promoting the accommodation of pedestrian and cycling infrastructure in conjunction with all new construction and reconstruction of transportation projects.

Ten years later, on March 2011, the US Department of Transportation (DOT) issued a Policy Statement establishing as a responsibility of each transportation agency the integration of walking and cycling into their implementation processes and to consider the accommodation of pedestrians and cyclists as an integral part of the transportation system.

In 2017, the FHWA guide to Develop a Pedestrian and Bicycle Safety Plan stated that routine accommodation for pedestrian and cyclists in all projects, programs, and maintenance activities is the most cost-effective funding strategy for reducing collisions and encouraging more walking and cycling activities. A similar conclusion was made by the City of Ottawa Infrastructure Standards Review (ISR) Working Group in 2017 as well.

With respect of the Province of Ontario, although the term "routine accommodation" is not explicitly indicated as part of provincial legislation, the promotion of the use of active transportation and transit was required in Section 1.8.1. (b) of the Provincial Policy Statement in 2014 and further expanded as part of the Growth Plan for the Greater Golden Horseshoe implemented on 2017 which requires municipalities to ensure that active transportation networks are comprehensive and integrated into transportation planning (Section 3.2.3.4.).

An example of the implementation of routine accommodation of pedestrian and cycling modes of transportation at municipal level is the Pedestrian Mobility Plan (Step Forward) completed by the City of Hamilton in 2012, in which the recommended improvements to the pedestrian infrastructure identified as part of the Plan will be implemented as part of ongoing streetscape and road improvements, including road reconstruction for infrastructure repair, replacement or upgrades.

Although the elements to be considered as part of routine accommodation vary depending of the type of mode of transportation, the following are an example of the most common elements of the implementation process:

- Identification of the infrastructure improvement needs
- Development of design guidelines or standards supporting the implementation of the infrastructure improvements
- Training, engagement, and empowerment of staff across the organization

- Development of performance measures and data collection to support the decision-making process
- Evaluation of capital plans, budgets, and improvement projects prioritization
- Identification of external funding and grants for implementation

While the concept of routine accommodation of pedestrian, cycling and multi-use recreational trail infrastructure is not a formal City policy, it is a standard practice undertaken by City Staff as part of development, implementation, and construction of all projects where appropriate. **Figure 3-1** illustrates common elements of the routine accommodation process.

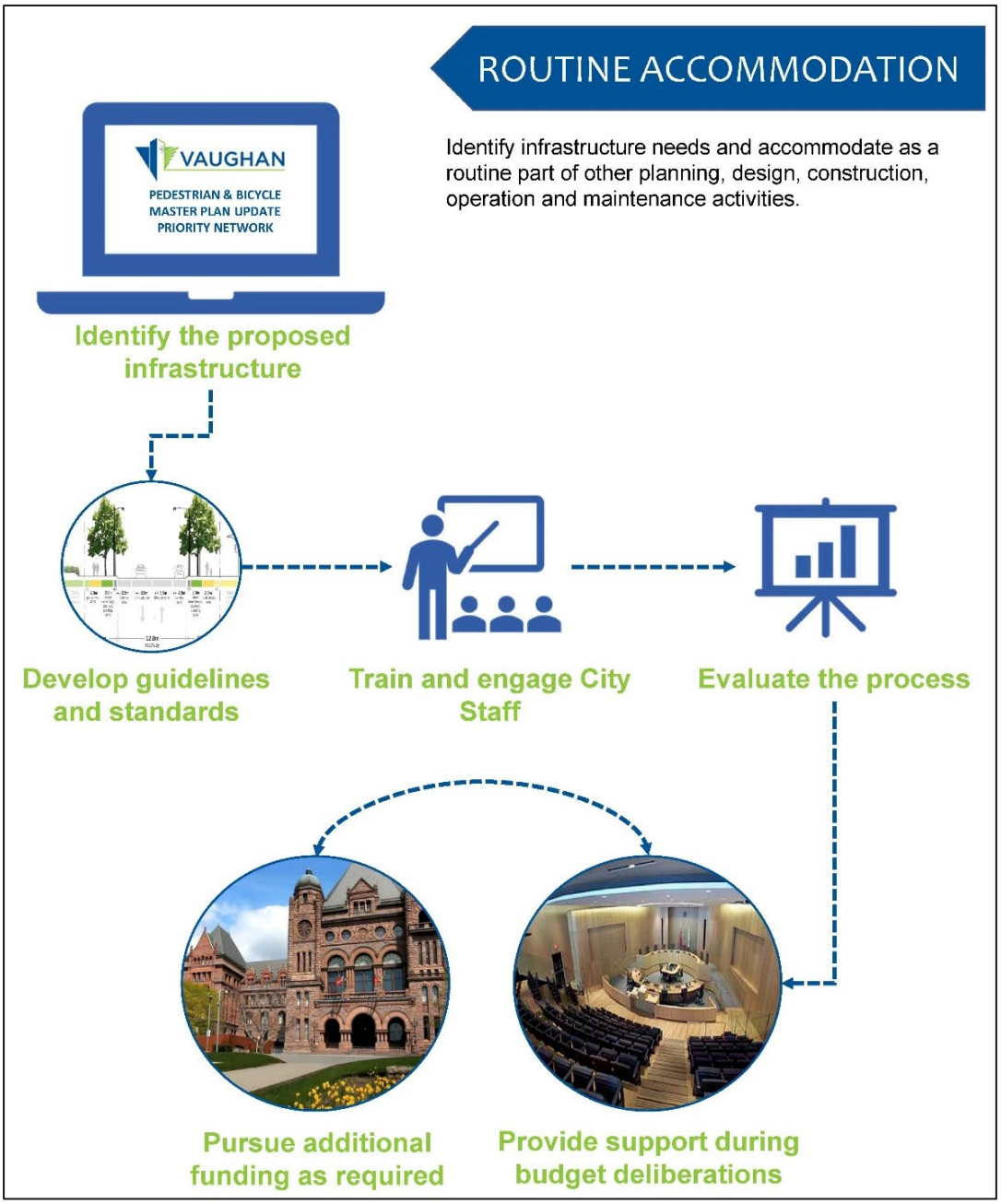


Figure 3-1: Common Elements of a Routine Accommodation Process

3.2. Implementation Framework and Recommendations

Many residents noted the need for more and improved infrastructure to make active transportation a viable travel option. Identifying and leveraging comprehensive capital projects and urban growth developments to improve active transportation infrastructure, also known as routine accommodation, is the most cost-effective way to implement or enhance the pedestrian, cycling and multi-use recreational trail networks.

It is recommended that the city formally adopt the routine accommodation approach for the implementation of active transportation facilities.

Although routine accommodation provides good value for money and has served well in advancing active transportation infrastructure in the City, as a sole strategy it often does not result in a cohesive network of facilities in a timely manner. In the pursuit of providing an active transportation network that is suitable for all ages and abilities, facilities must be connected to each other to form an interconnected network.

Cycling and multi-use recreational trail priority networks were developed through extensive public consultation as well as technical analysis to facilitate the prioritization of standalone active transportation projects that will contribute to this ultimate vision of an interconnected network. Pedestrian, cycling and multi-use recreational trail infrastructure gaps along key corridors not addressed through routine accommodation should be identified, prioritized and incorporated into the annual active transportation planning and implementation programs and confirmed through the budget approval process. The active transportation planning and implementation programs allow flexibility in responding to active transportation needs and gaps within the pedestrian, cycling and multi-use recreational trail networks as they are identified.

As such, it is recommended that the City adopt a two-pronged implementation framework for an “all ages and abilities” network of physically separated pedestrian and cycling infrastructure (sidewalk and cycle track) and trail system. Firstly, a cost-effective methodology that identifies and leverages previously planned capital projects and new development to provide physically separated AT infrastructure. Secondly, establish standalone, dedicated AT planning and implementation programs to flexibly address the remaining gaps in the network. This implementation framework, shown in **Figure 3-2**, creates a cost-effective, yet timely and cohesive AT infrastructure network.

Cycle tracks under construction along Clark Avenue (2020)

Bartley Smith Greenway and Vaughan Super Trail underpass opens at Major Mackenzie Drive (2019)

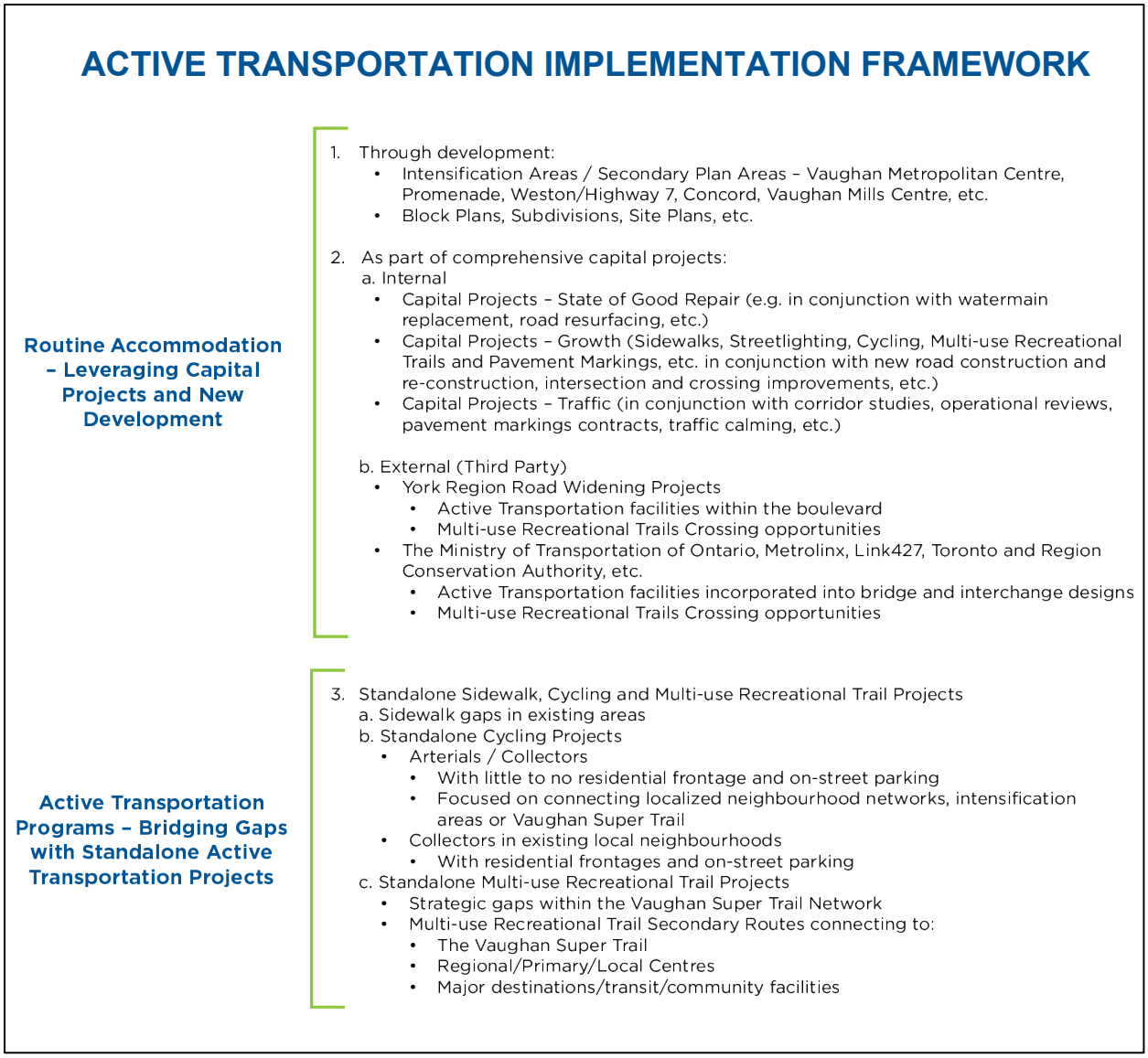


Figure 3-2: Active Transportation Implementation Framework

3-1 It is recommended that the City adopt a two-pronged implementation framework that utilizes routine accommodation and active transportation planning and implementation programs for an “all ages and abilities” network of physically separated pedestrian and cycling infrastructure (sidewalk and cycle track) and trail system.

3-2 The design and implementation for all roadway reconstruction, state of good repair, and operational improvement projects should consider the inclusion or at minimum protect for implementation of protected intersections, pedestrian and cycling facilities on both sides of the roadway and consider crossings that will service the multi-use recreational trails system. This includes paving shoulders on rural / non-urbanized cross-sections for use by pedestrians and cyclists.

The implementation framework should be supported with the following general active transportation recommendations:

3-3 Active transportation programs should be developed and updated annually as part of the budget approval process that reflects infrastructure being implemented through routine accommodation as well as standalone priorities identified through the PBMP Update.

3-4 The City should continue to identify annual planning and implementation program budgets for pedestrian, cycling and multi-use recreational trail projects.

3-5 The City should continue to develop agreements with agencies and authorities where partnership would provide additional investment, synergies and support to implement pedestrian, cycling and multi-use recreational trail network segments.

3-6 The Pedestrian and Bicycle Master Plan should inform the policy updates in the Transportation Master Plan and ultimately the Official Plan as well as other secondary plans and studies.

3-7 It is recommended that the upcoming municipal comprehensive review also include an active transportation schedule(s) in the Official Plan that reflects the policies recommended below showing cycling facilities on all arterial and collector roadways as well as the Vaughan Super Trail and comprehensive multi-use recreational trails network. This is in line with local best practices as seven out of York Region's nine local municipalities currently have at least one active transportation related schedule in their Official Plans.

3-8 For the next update the City should consider undertaking separate master plan studies for the walking, cycling and multi-use recreational trails.

3-9 The City should update the City-wide Engineering Design Criteria and Standard Drawings to reflect current best practices for the design of pedestrian, cycling and multi-use recreational trails facilities and consolidate all existing standards and guidelines from various departments into one integrated document for use by all staff as a starting point for the planning, design and construction of all infrastructure projects.

3-10 The City should review, develop and maintain by-laws for pedestrian, cycling and multi-use facilities (in-boulevard and open space), including but not limited to:

- Designation of facilities upon the erection of authorized signs
- Operation and stopping of motor vehicular restrictions
- Operation of bicycle restrictions
- E-bike / e-scooter usage
- Power to regulate by York Region Police
- Exemptions to any of the above; etc.

4. Pedestrian Network and Policies

Vaughan Metropolitan Centre (VMC) Transit Square and York Region Transit Terminal

4. Pedestrian Network and Policies

4.1. Existing Pedestrian Network and Policies

The City's first Sidewalk Policy was adopted by Council on February 26, 1996. 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.

The City of Vaughan Sidewalk Policy identified 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 the **Appendix B: Policies, By-laws and Procedures Supporting Technical Paper**.

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 persons that should be assigned to the dwelling to accurately reflect the need for pedestrian facilities in the subject area.

In 2010, the Vaughan Official Plan (VOP) identified policies for the provision of sidewalks throughout the City based on land-use. With the approval of the VOP and related policies, the 2012 Transportation Master Plan (TMP) 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.

As such, since that time, the pedestrian network was implemented through the principles of routine accommodation in accordance with the sidewalk policies outlined in the VOP and TMP. In 2018, the City's Policy Committee made a recommendation to revoke 77 city policies, one of them being the 1996 Sidewalk Policy given that sidewalk implementation was governed by the VOP and TMP. Gaps are prioritized and filled through the annual capital program and budget processes.

The existing pedestrian network at the time this study was initiated in 2017 is illustrated in Error! Reference source not found..

4.2. Recommended Pedestrian Network and Policies

The recommended City of Vaughan pedestrian policies criteria are outlined in Table 4-1. 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 pedestrian facilities based on:

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

The recommended policies outlined in

Table 4-1 are consistent with the existing criteria with the exception of the sidewalk requirement for local amenities where the existing policy identifies the need for sidewalk based on the number of units tributary to a sidewalk route.

The recommended policy identifies the need for pedestrian facilities based on the radius surrounding generators of pedestrian traffic. The requirement radius varies based on the generator (i.e. school, place of worship, transit terminal, etc.). Pedestrian facilities can be provided in the form of a sidewalk or an in-boulevard multi-use pathway shared by pedestrians and cyclists.

The proposed policies may be utilized to determine where pedestrian facilities are required within a reasonable distance to main generators of pedestrian traffic and to ensure connectivity through the pedestrian, cycling and multi-use recreational trails network.

Error! Reference source not found.**Figure 4-2** illustrates the proposed policy for pedestrian facilities. The buffer zones around main generators of pedestrian traffic highlight the gaps in the current pedestrian network that need to be addressed in order to satisfy the recommended policy.

Great Walks of Vaughan guide

Community conversation at Woodbridge Library Senior Social (2018)

Table 4-1: Recommended City of Vaughan Pedestrian Facilities Implementation Policies

Generator	Pedestrian Facilities Implementation Policies
Arterial Road	On both sides of arterial roads.
Collector Road	On both sides of collector roads.
Local Road	On at least one side of all local roads.
Industrial Road	On one side of internal industrial roads not served by transit and on both sides of internal industrial roads served by transit.
Transit	On both sides of every street that serves a transit route, stop/terminal, hub or station. Ensure sidewalks, street lighting and other pedestrian amenities are provided on all streets serviced by transit.
Vaughan Metropolitan Centre (VMC)	On both sides of every street within 800 metres of the Vaughan Metropolitan Centre (VMC).
Intensification/ Urban Area	On both sides of the street in intensification areas identified by the City of Vaughan or York Region.
School	On both sides of every street within 800 metres of an elementary school, high school or post-secondary school.
Place of Worship/ Cemetery	On both sides of every street within 400 metres of a place of worship or cemetery.
Community Facilities/Local Amenities	On both sides of every street within 400 metres of a community facility or local amenity (community centre, municipal office, retail centre or major entertainment/ cultural location).
Hospital	On both sides of every street within 400 metres of a healthcare facility.
Parks and Trails	On both sides of every street within 500 metres of a park or trail.
Pedestrian and Cycling Network	To minimize gaps in the street network providing pathway connections, as well as the multi-use recreational trails network.

If the negative effects resulting from environmental impacts, property requirements, or costs outweigh the benefit of implementing a pedestrian facility, consideration may be given to modifying the guidelines in the pedestrian facilities policy.

The recommended policies are consistent with the City's Official Plan policies, Transportation Master Plan (TMP) recommendations, Secondary Plan policies, Vaughan Urban Design Guidelines (UDG), Heritage Conservation District Plans, etc. and should be used to inform the TMP and Official Plan updates.

Pedestrian facilities should be implemented based on road classification and the radius surrounding generators of pedestrian traffic in accordance with **Table 4-1**. For urbanized cross-sections, sidewalks or multi-use pathways may be used to provide pedestrian facilities. For rural / non-urbanized cross-sections, pedestrian accessible paved shoulders are appropriate.

4-1 In plans of subdivision, the owner/developer should be required to extend sidewalk beyond the limits of the subdivision 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.

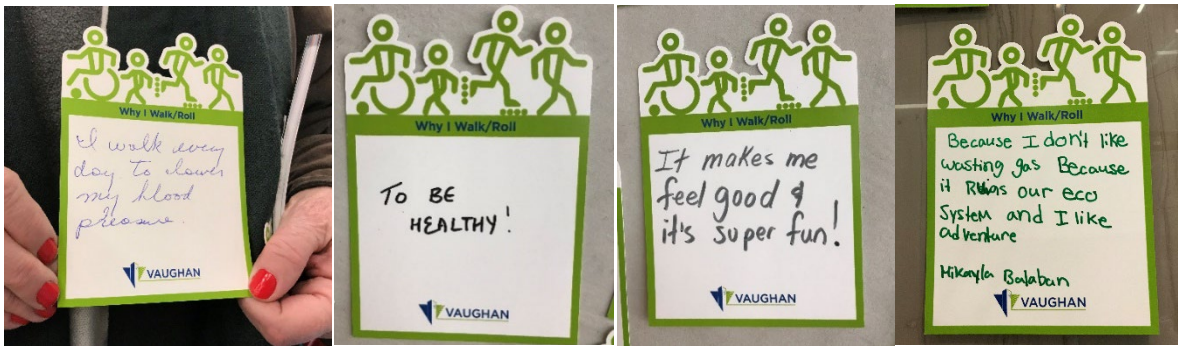
4-2 Mid-block pedestrian connections/mews should be located centrally in blocks that are longer than 200 metres in length and connect to sidewalks, trails or pathways on either end (UDG and OP 2010 Policy 4.2.3.3) to maximize the connectivity of the street network for pedestrians and cyclists by:

- 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.

4-3 The City should also consider developing:

a) Pedestrian Design Guidelines in accordance with current best practices and AODA standards
b) Criteria for prioritization of sidewalk infill (formalize existing practice)
c) Standard practice for responding to sidewalk inquiries
d) Standardize requirements under the development review process
e) A more focussed pedestrian master plan

For additional information refer to **Appendix B: Policies, By-laws, and Procedures Supporting Technical Paper**.



"Why I Walk/Roll" profile cards from Phase 2 Public and Stakeholder Engagement

Pedestrian improvements on Clark Avenue (2020)

Clark Avenue wide sidewalks at Dufferin Clark Library

In-boulevard multi-use pathway along McNaughton Road East

Pedestrian connection through Matthew Park in Vellore Village

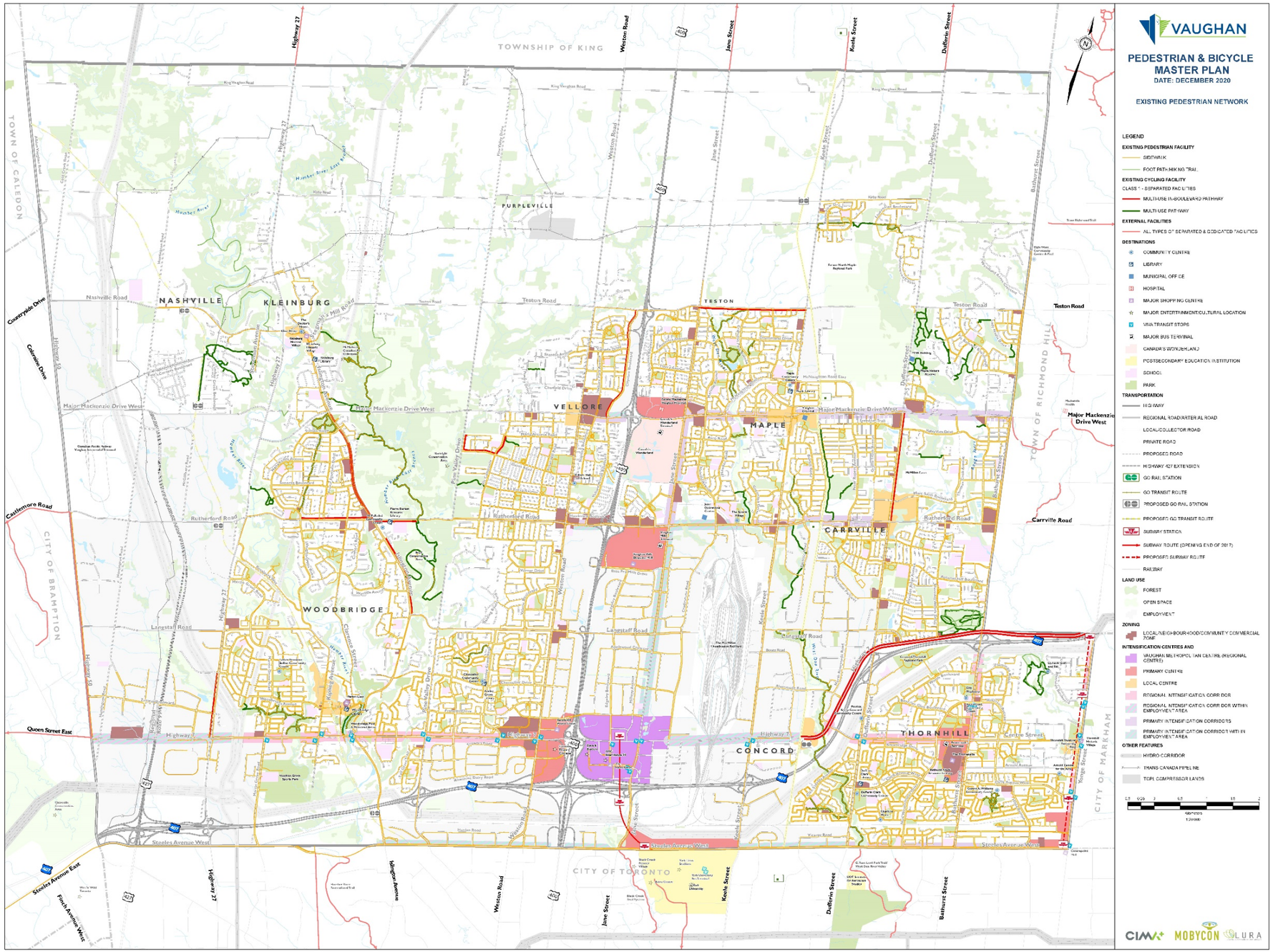


Figure 4-1: Existing Pedestrian Network (2017)

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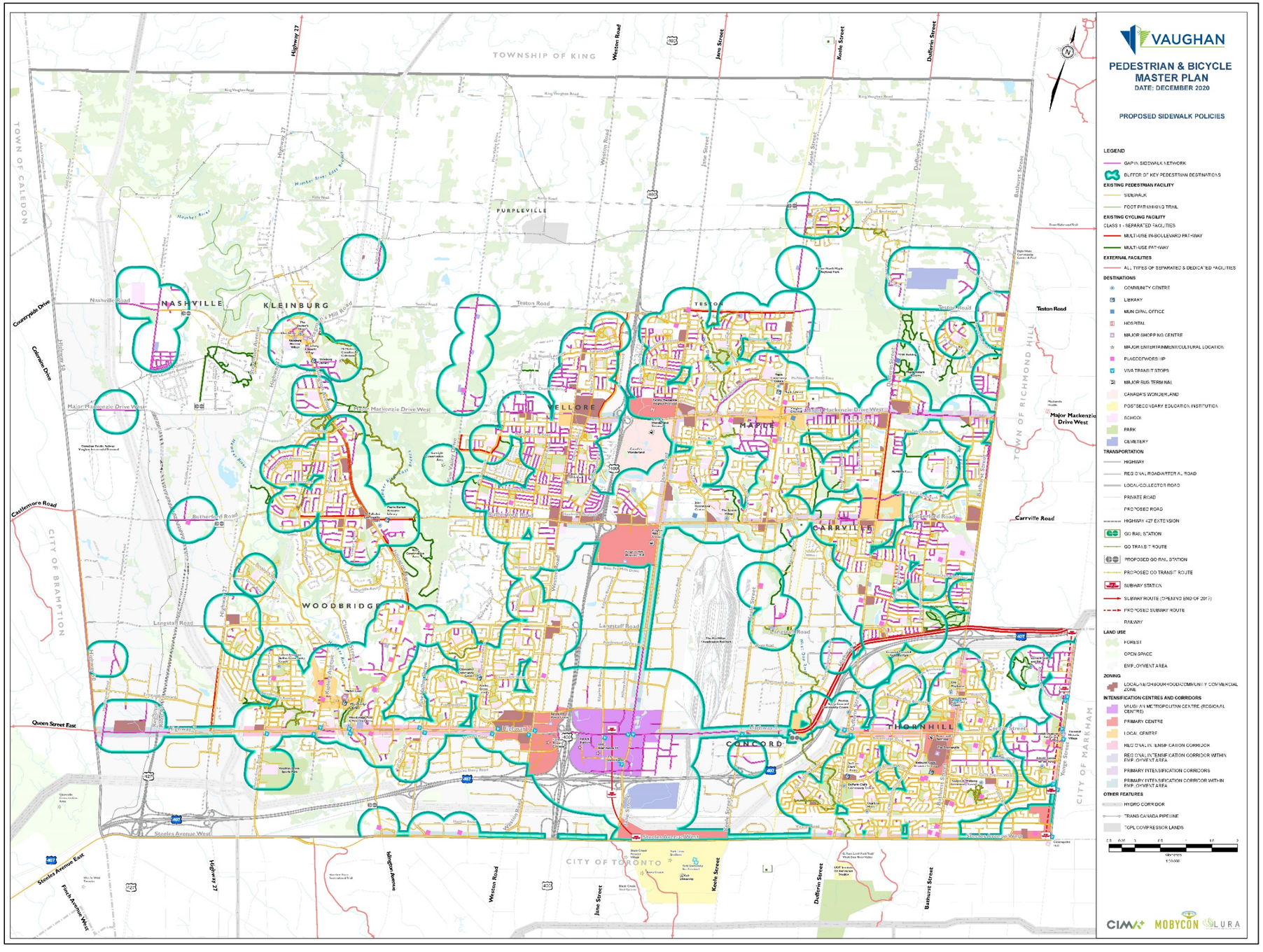

Figure 4-2: Proposed Pedestrian Facilities Implementation Criteria

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5. Cycling Network and Policies

Cycle Track along Millway Avenue in the Vaughan Metropolitan Centre (VMC)

5. Cycling Network and Policies

5.1. Existing Cycling Network and Policies

Most of the urban areas of the City of Vaughan were developed in the decades prior to the more recent increased societal interest in cycling and walking as viable and healthy modes of transportation. This has resulted in much of the existing transportation network being focused on moving vehicles rather than people as reflected in the existing cycling network in 2017 illustrated in **Figure 5-1**.

Given the current state of cycling facilities across the City of Vaughan, there is an opportunity to increase cycling in Vaughan through the implementation of more high-quality and comfortable separated cycling infrastructure and connected network.

More recently, cycling infrastructure is routine accommodated as part of new development, new roadway construction or reconstruction, intersection improvements and or streetscaping projects. Currently, Ontario Traffic Manual (OTM) Book 18: Cycling Facilities, OTM Book 12A: Bicycle Signals, York Region Pedestrian and Cycling Planning and Design Guidelines as well as the National Association of Transportation Officials (NACTO) Urban Bikeway Design Guide and Designing for All Ages and Abilities High-Comfort Bicycle Facilities and Bicycle Crossings are used to guide the facility selection and design of cycling facilities within the road allowance.

5.2. Recommended Priority Cycling Network

The priority Cycling Network was developed applying a collaborative planning process which included both extensive public consultation as well as technical analysis. This network identifies key corridors throughout the City which will serve to expand the transportation choices for residence and visitors of Vaughan through the inclusion of safe and comfortable infrastructure.

The goal of the network is to increase connectivity and access to infrastructure that facilitate the greatest number of bicycle trips, existing and future, in a cost-effective way that caters to riders of all ages and abilities. Cycling network priorities should be implemented regardless of whether or not there is a routine accommodation opportunity through development or leveraging a larger capital project and this priority network should inform the annual active transportation planning and implementation programs.

5.2.1. Development Approach

To help identify the most effective cycling network for Vaughan, a three-step process was undertaken:

1. Identification of existing travel patterns
2. Focus on bikeable trips
3. Route allocation

The methodology employed to inform this process was the Star Analysis. This methodology was developed as a multifaceted tool to guide the development of ideal cycling networks within existing areas; ones that will safely and effectively accommodate the greatest number of users and trips.

This approach revolves around gaining an understanding of the travel motives and patterns of all residents and identifying trip patterns that are well suited to be completed by bicycle. This understanding of travel demand along with land use considerations, existing infrastructure and local knowledge inform the route allocation phase of the network development.

Identification of Existing Travel Patterns

Fundamental to developing an effective cycling network is to understand the existing trips being taken by all modes. Regardless of how these trips are currently undertaken, they illuminate key movement patterns for people moving in and around Vaughan. While most of these trips are not currently undertaken by bicycle, they provide vital insight into the potential for cycling, and enable planning a connected and safe network for people of all ages and abilities.

This analysis was initiated by mapping existing travel patterns within and around Vaughan based on the Transportation Tomorrow Origin-Destination Survey (TTS, 2011). To focus on trips that are best suited to being made by bicycle, a distance filter was applied to the initial travel survey data. The distance filter was based on the understanding that the greatest potential for cycling trips between origin and destination are those shorter than about 7.5km. The technical analysis of travel patterns was completed in tandem and supplemented by public mapping exercises and stakeholder workshops, as well as consideration given to the building out of the Vaughan Metropolitan Centre (VMC).

Bikeable Trips

To focus on trips that are best suited to being made by bicycle, a distance filter was applied to the initial travel survey data. The greatest potential for cycling trips are those shorter than about 7.5 to 8.5 km. This boundary represents most trips made by any mode, as well as a behavioural limit where an increased number of people will no longer choose a bicycle for their trip regardless of the presence of comfortable facilities. For this study we identified bikeable trips as less than 7.5 km.

Route Allocation

The next stage of the network development was to allocate specific routes that best facilitate the travel patterns identified, as well as provide high quality connections to key destinations and support future growth in the City. In allocating routes, the following five design principles were applied. Cycling routes should be:

- Straight — In order to be direct
- Connected — In order to be coherent
- Separated — In order to be safe
- Flat — In order to be comfortable
- Attractive — In order to heighten user experience and encourage new users

To achieve a network that reflects the principles set out, a two-tier network was developed. This is comprised of a Regional and a Local network of priority routes that work in tandem to support bicycle trips throughout Vaughan.

As with previous stages in the network development, the technical analysis for route allocation was complemented with public mapping exercises to help identify connections and corridors that may have been overlooked by the technical analysis.

Significant consideration was also given to the future prominence of the VMC as a trip generator within Vaughan. As with other urban cores, it stands to support the greatest number of bicycle trips within the City.

5.2.2. Regional Priority Routes

The regional network priorities identify cycling routes that require the highest quality of facilities and level of connectivity. It adheres most closely to the five design principles set out. This network represents a plan of how cyclists can move across the greatest distances through the city. These routes also access most key destinations throughout Vaughan and provide connectivity to adjacent communities.

Although at a large scale, the grid the Regional Network establishes serves as a backbone to the Cycling Network and is crucial to increasing the viability of cycling in Vaughan.

5.2.3. Local Priority Routes

The local network is focused on access comparatively to the regional network. These priority local routes serve to improve connections to origins and destinations not directly adjacent to the primary network. These routes are likely to see lower bicycle volumes and are less direct but extend the reach and connectivity of the regional network.

The priority local network also serves to provide alternate route choices to the regional network on streets that experience less vehicle traffic and slower speeds. While the most direct route may be the fastest, experience is an important factor for route choice while cycling and providing a variety of options in the network further improves the quality of service to users. It is especially important that the priority local network strives towards an all ages and abilities design principle as these will often be the routes used.

For more detailed information on how the Pedestrian and Bicycle Master Plan Update Priority Cycling Network was developed refer to **Appendix C: Priority Cycling and Multi-use Recreational Trails Network Development Supporting Technical Paper** and **Appendix C1: Priority Cycling Network Development – Star Analysis**.

Figure 5-2 illustrates both regional and local routes that make up the recommended priority cycling network that should be implemented regardless whether there is a routine accommodation opportunity available. These routes will form the basis of the cycling program.

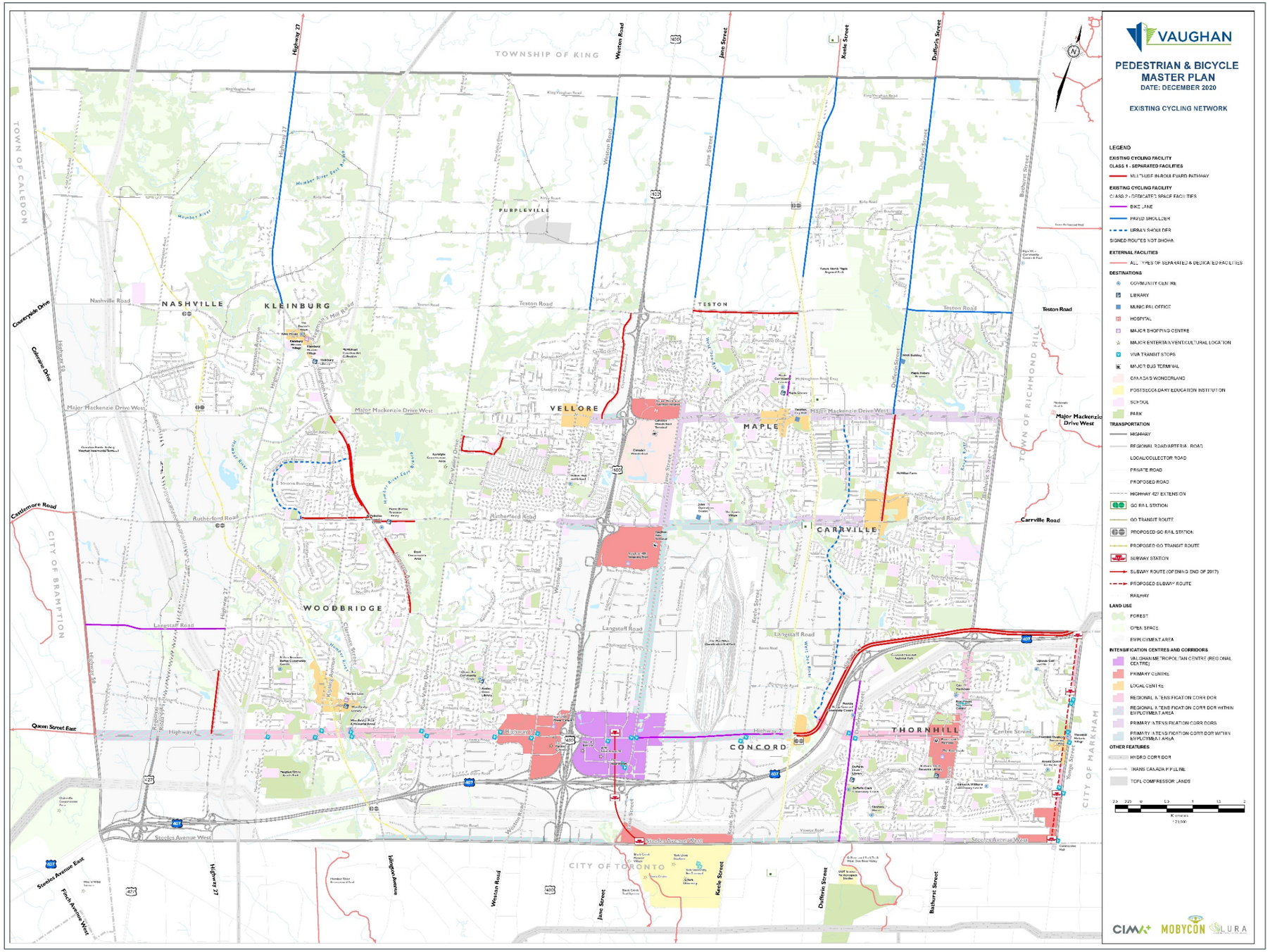

Figure 5-1: Existing Cycling Network (2017)

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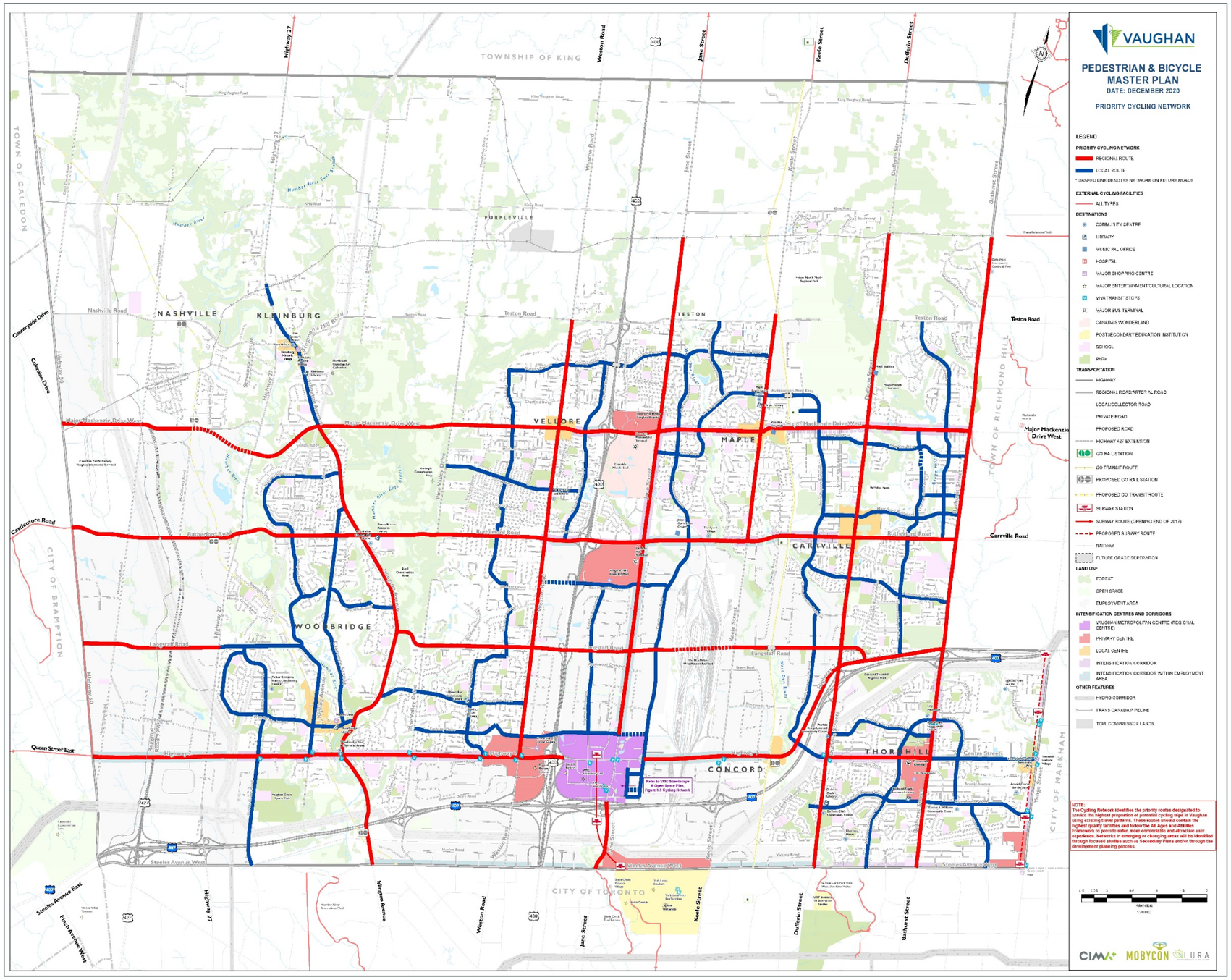

Figure 5-2: Recommended Priority Cycling Network

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5.2.4. Expanding the Cycling Network and Vaughan Metropolitan Centre (VMC) Cycling Network

The Star Analysis methodology utilizes existing travel patterns and does not consider developing areas and future travel patterns. Secondary Plan studies, focused area and corridor studies, the development process and staff professional judgment should be utilized to build on the priority routes identified for existing areas. There is significant opportunity, particularly in new development areas, to provide access to high-quality and affordable sustainable transportation options for Vaughan residents. Many major cities across Canada are retrofitting their downtowns and intensification areas to include a denser network of separated facilities.

With the rapid development occurring in the Vaughan Metropolitan Centre (VMC), a focused review of the street and cycling network was advanced as part of the Pedestrian and Bicycle Master Plan update. Significant consideration was given to the future prominence of the VMC as a trip generator within Vaughan. As with other urban cores, it stands to support the greatest number of bicycle trips within the City. The VMC, still in its emerging stages, provides the City with a unique opportunity to allocate space for cycling now, to avoid impacts to the boulevard space or vehicular roadway in the future. Anticipated development, population density, land-use mix, and higher order transit services in the VMC substantiate the need for a grid-network of connected and separated cycling facilities for all ages and abilities.The revised and council approved VMC Separated Cycling Network is illustrated in **Figure 5-3** and included in the November 2018 consolidated version of the VMC Streetscape & Open Space Plan, Figure 5.3.

5-1 The City should prioritize the buildout of the Vaughan Metropolitan Centre (VMC) Separated Cycling Network as well as intensification area separated cycling networks within the Highway 7 and Weston, Concord, Promenade, Vaughan Mills Centre as well as, Maple and Rutherford GO station areas, etc.

5-2 The City should revisit the active transportation plans for all intensification and secondary plan areas and corridors and aim to plan and implement an “all ages and abilities” cycling network in these key areas. This includes but is not limited to Highway 7 and Weston, Concord, Promenade, Vaughan Mills Centre as well as Maple and Rutherford GO station area, etc.

Bike Box at Millway Avenue and Applemill Road within the Vaughan Metropolitan Centre (VMC)

Bike Parking at Vaughan Metropolitan Centre (VMC) Terminal Subway Station

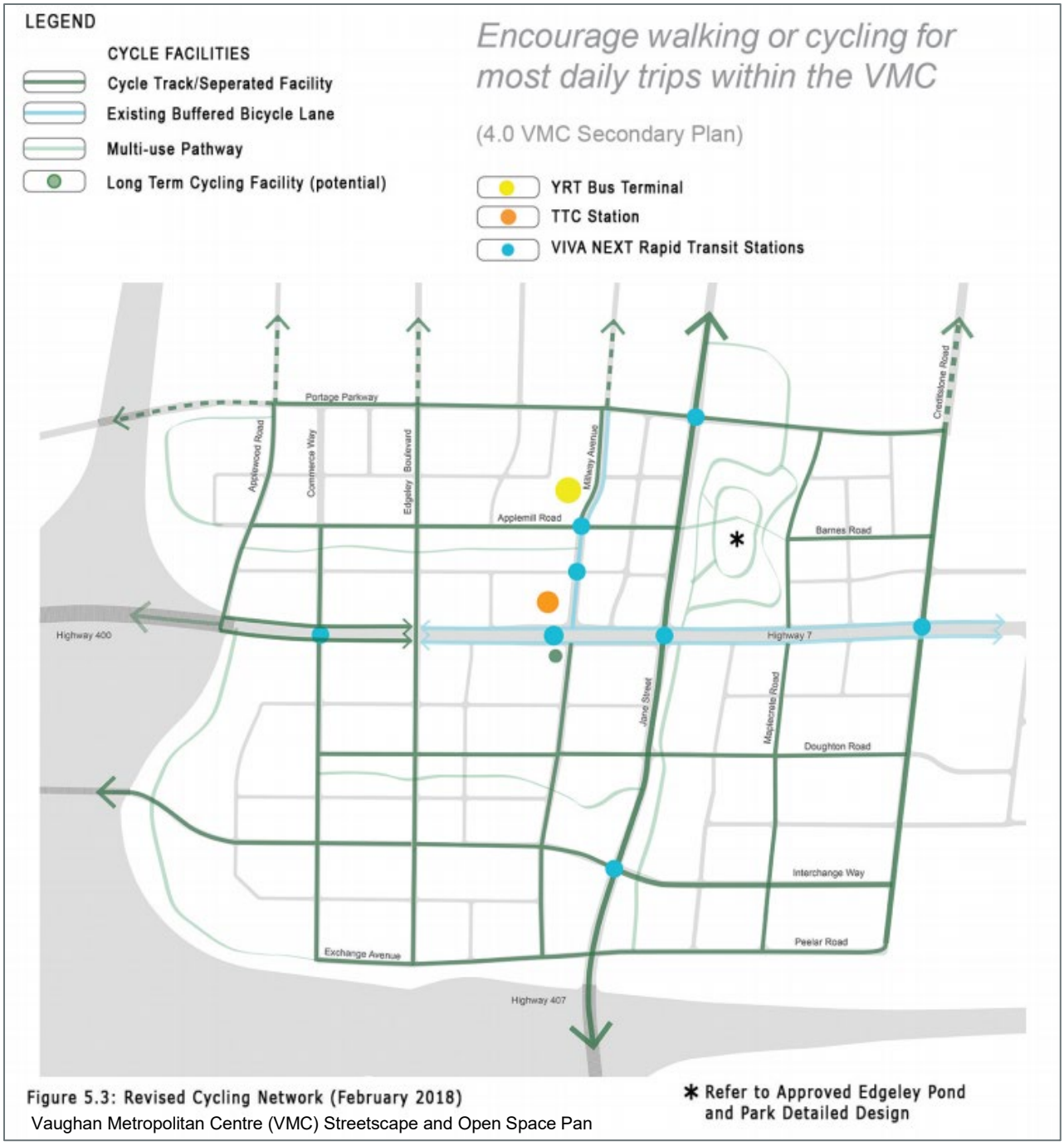


Figure 5-3: Vaughan Metropolitan Centre (VMC) Separated Cycling Network

See **Appendix C2: Vaughan Metropolitan Centre Cycling Network – Proposed Revisions** for approved Council report advanced before the completion of the Pedestrian and Bicycle Master Plan.

5.2.5. Signature Projects

In order to help inspire bicycle use in Vaughan, signature projects have been identified to represent the ambitions of the Cycling Network and the City's desire to expand transportation and recreation choices for residence and visitors.

Neighbourhood Networks

Facilitating bike trips within Vaughan's neighbourhoods is an important part of developing a culture of active transportation. Resultantly, four neighbourhoods have been identified as primary locations for developing localized networks:

- Maple
- Thornhill
- East Woodbridge (East of Humber River)
- Woodbridge

While each localized network serves as a valuable component to the entire network, these neighbourhood networks should attempt to reflect a unique identity through signage and other design elements. Particular attention should be payed to providing access to and identifying key destinations in each neighbourhood and building out these localized networks with connectivity and safety as the primary focus.

5-3 The City should prioritize the development of localized mini-networks within existing Maple, Thornhill and Woodbridge communities and intensification area networks within the Vaughan Metropolitan Centre (VMC), Hwy 7/Weston, Promenade Mall as well as, Concord, Maple and Rutherford GO areas, etc.

Jane Street Uptown Link

The 2010 Vaughan Official Plan identified Jane Street as an intensification corridor. Intensification areas have been established through the City's Official Plan to make efficient use of underutilized sites served with high-level of existing or planned transit and are envisioned as linear places of activity. They will be developed with a mix of uses and mid to high densities generating increased walking, cycling and transit use as a mode of transportation. The ongoing development of the City's emerging downtown along with existing importance of Jane Street as a corridor that provides access to significant local and regional destinations including York University in Toronto, VMC, Vaughan Mills, Canada's Wonderland, Mackenzie Health Hospital, make it a critical north/south connection for Vaughan and the region. York Region Transit / Viva Strategic Plan plans to operate high-frequency transit along this corridor with connections between the Vaughan Metropolitan Centre (VMC) and the Richmond Hill GO Station. To reflect the significant role Jane Street plays, it has been identified as a key priority and signature project for the Cycling Network.

Kleinburg Gateway

Vaughan's location positions it to serve as a gateway for many of its residents as well as visitors looking to cycle north towards popular cycling destinations such as Kleinburg and throughout

King Township. Existing Strava data shows that Islington Avenue is the most commonly used corridor and attracts significant bicycle traffic throughout the summer months. Kleinburg currently benefits from the existing economic activity brought by cyclists. By recognizing this opportunity for further economic development through fostering this demand for cycling and tourism, Vaughan stands to put itself on the map as a destination for cycle tourism.

Transforming Islington Avenue into a corridor that caters to cyclists, responds to a growing segment of the population that are looking to cycle beyond the urbanized areas found in Vaughan and the GTA. Creating safe, comfortable facilities that also reflect the unique needs of cycling stand to create a unique experience for those traveling through the corridor.

5.2.6. Facility Selection

A fundamental component to creating a cycling network that caters to riders of all ages and abilities is implementing appropriate facility type to the traffic environment. It is well understood that the simple presence of a bicycle facility is not enough to encourage widespread use if it is not perceived as safe and comfortable.

To aid in appropriate facility selection during the implementation of the Cycling Network, **Table 5-1** lays out a decision guide that responds to the needs of users of all ages and abilities based on 2017 National Association of Transportation Officials (NACTO) Contextual Guidance for Selecting All Ages and Abilities Bikeways. It is anticipated that this selection tool will be incorporated into the Ontario Traffic Manual (OTM) Book 18: Cycling Facilities update currently underway.

This framework provides the standard to which new bicycle facilities implemented are to meet. This allows for context sensitive design on implementation while ensuring a minimum standard of user experience is maintained across the priority Cycling Network as well as along other corridors. This is in line with current best practices. This framework should be revisited as current practices are updated and incorporated into pedestrian and cycling infrastructure design guidelines released by the Ontario Traffic Council (OTC) through their Ontario Traffic Manuals (OTM) and the National Association of Transportation Officials (NACTO).

In-boulevard Cycle Track along Clark Avenue substantially constructed in 2020

In-boulevard Multi-use Pathway on Islington Avenue at Boyd Conservation Area

Table 5-1: Contextual Guidance for Selecting All Ages and Abilities Cycling Facilities

Contextual Guidance for Selecting All Ages & Abilities Cycling Facilities (NACTO 2017)				
Roadway Context				All Ages and Abilities – Bicycle Facility
Target Motor Vehicle Speed	Target Max. Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any			Any of the following: High curbside activity, frequent buses, motor vehicle congestion or significant turning conflicts***	Cycle Track (Class 1)
≤15km/h	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	Shared Street
≤30km/h	≤1,000 – 2,000		<50 motor vehicles per hour in the peak direction at peak hour	Bicycle Boulevard
≤40 km/h	≤500 – 1,500			
	≤ 1,500 – 3,000	Single lane each direction or single lane one-way	Low curbside activity or low congestions pressure	Conventional or Buffered Bicycle Lane or Cycle Track (Class 2)
	≤ 3,000 – 6,000			Buffered Bicycle Lane or Cycle Track (Class 1)
	Greater than 6,000	Multiple lanes per direction		Protected Cycle Track (Class 1)
>40 km/h	≥ 6,000	Single lane each direction or single lane one-way	Low curbside activity or low congestions pressure	Protected Cycle Track (Class 1), or Reduce Speed
		Multiple lanes per direction		Protected Cycle Track (Class 1), or Reduce to Single Lane & Reduce Speed
	Greater than 6,000	Any		Protected Cycle Track, or Bicycle Path (Class 1)
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts	Any	High pedestrian volume		Bike Path with Separate Walkway or Protected Cycle Track (Class 1)
		Low pedestrian volume		Shared-Use Path or Protected Bicycle Lane (Class 1)

* While posted or 85th percentile motor vehicle speed are commonly used design speed targets, 95th percentile speed captures high-end speeding, which causes greater stress to bicyclists and more frequent passing events. Setting target speed based on this threshold results in a higher level of bicycling comfort for the full range of riders.

**Setting 40 kilometres per hour as a motor vehicle speed threshold for providing protected bikeways is consistent with many cities' traffic safety and Vision Zero policies. However, some cities use a 50 kilometres per hour posted speed as a threshold for protected bikeways, consistent with providing Level of Traffic Stress level 2 (LTS 2) that can effectively reduce stress and accommodate more types of riders.

***Operational factors that lead to bikeway conflicts are reasons to provide protected bike lanes regardless of motor vehicle speed and volume.

5.3. Recommended Cycling Policies

The following policies are recommended for the City to support the planning and design of future cycling facilities in the City of Vaughan. These policies are consistent with the design approach used for establishing the recommended cycling network.

5-4 All new and reconstructed arterial and collector roads (both major and minor) shall include protected intersections/driveways, separated in-boulevard linear cycling facilities on both sides of the roadway and consider crossings that will service the multi-use recreational trails system in order to provide the most direct and comfortable route for pedestrians and cyclists. For example:

5-5 Road Reconstruction projects should include protected intersections, separated pedestrian and cycling facilities (sidewalk and cycle track) within the boulevard and consider crossings that will service the multi-use recreational trails system.

5-6 Road Resurfacing projects should consider opportunities to include dedicated space for cyclists through the narrowing of vehicular travel lanes, narrowing or elimination of vehicular parking lanes, lane conversions (e.g. 4 lane cross-sections converted to a 2-lane cross-sections), paving shoulders on rural / non-urbanized cross-sections, etc.

5-7 New and Upgraded Traffic Signal projects should not preclude the opportunity to implement cycling facilities. All new or upgraded traffic signal designs and implementation should comply with AODA standards and include appropriate crossing treatments for pedestrians and cyclists.

5-8 Staff should provide an annual report of priority projects as well as Planning and Infrastructure Capital Program to Council as an acknowledgement that the program is a living plan. The report will serve as an addendum to the Pedestrian and Bicycle Master Plan highlighting the previous year's accomplishments while providing updates to the plan and program based on up to date information such as new development, annual additions to the capital infrastructure programs (both City of Vaughan and York Region), easement negotiations and available funding/grant opportunities, etc.

5-9 Acknowledging that intersections pose the greatest danger to vulnerable road users (VRU), pedestrians and cyclists, a "protected intersection" type design shall be the preferred intersection and driveway treatment for pedestrians and cyclists. This treatment has shown to improve street level interactions, making them a more comfortable and predictable experience for all users including motorists.

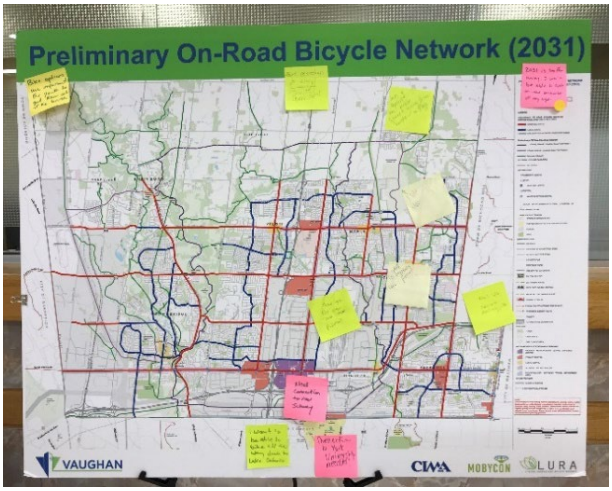
5-10 The City should provide active transportation infrastructure (pedestrian, cycling and multi-use recreational trail) that is suitable for all ages and abilities.

5-11 In the design of cycling facilities, the City should 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 and Ontario Traffic Manual (OTM) Book 18: Cycling Facilities and OTM Book 12A: Bicycle Signals.

5-12 The one-way travel portion of cycling facilities should be a minimum of 1.8 metres wide or in accordance with Ontario Traffic Manual (OTM) Book 18: Cycling Facilities. Wider facilities should be considered in urban areas. Appropriate buffers, separation or off-sets must be provided between cycling facilities and vehicular

travel lanes, vehicular parking lanes/dooring zones, barrier curb (all measured from face of curb) as well as sidewalk, vertical obstructions such as raised planters/hydro poles, etc.

5-13 The use of minimum width cycling facilities should be limited to constrained corridors where desirable or preferred cycling facility widths cannot be achieved after all other vehicular travel lanes or parking lanes (if applicable) have been narrowed to minimum widths appropriate for the context of the roadway.



Display Board from Phase 2 Public and Stakeholder Consultation and Engagement (2017)

Display Board from Phase 2 Public and Stakeholder Consultation and Engagement (2017)

Community Conversation at York Region Cycling Coalition Annual BBQ (2017)

Community Conversation at Concerts in the Park, North Thornhill Community Centre (2017)

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6. Multi-Use Recreational Trail (MURT) Network and Policies

Multi-use recreational trail through Vellore Village Woodlot 6 Trail at La Rocca Avenue and Via Campanile

6. Multi-Use Recreational Trail (MURT) Network and Policies

6.1. Existing MURT Network and Policies

The existing multi-use recreational trail network is comprised of local trail segments except for the following two key trail routes:

- The Barley Smith Greenway - A 15 km trail following the course of the West Don River through Maple, Concord, and Thornhill; and
- The William Granger Greenway - This Trail follows the course of the East Humber River and is part of the historic Carrying Place Trail used by the Aboriginal people. The trail runs uninterrupted from Kleinburg to the Boyd Conservation Area.

Using existing GIS information, a map of current cycling conditions was created, and information was updated based on input from staff and field reviews. **Figure 6-2** illustrates the existing multi-use recreational trail network in Vaughan at the time this plan was initiated in 2017.

There are several well connected existing multi-use trail systems outside of City of Vaughan boundary that come to the City border such as:

- City of Toronto - Humber River Recreational Trail
- City of Toronto - Black Creek Trail System
- City of Toronto - G. Ross Lord Park Trail/West Don River Valley Trail System
- City of Richmond Hill - Trans Richmond Trail

6.2. Recommended Priority MURT Network

6.2.1. The Vaughan Super Trail

The idea of the Vaughan Super Trail was first endorsed by Council through the Cycling and Pedestrian Advisory Task Force recommendations in April 19, 2017. See **Figure 6-1** for the Vaughan Super Trail proposed concept framework. The Task Force recommendations included several goals and objectives, which have been further developed through this study:

- Identified by the City as a key component of the future multi-use recreational trail network
- Strong marketing tool to promote Active Transportation within the City of Vaughan
- Branded as the Vaughan Super Trail and becomes a Regional attraction itself
- Provides a platform for City-wide initiatives & programs such as charity bike rides & marathons
- Increase connectivity options within the Vaughan boundary by adding connections within the Vaughan Super Trail
- Provide alternative route options for both commuters & recreational trail users; and
- Potential to increase Municipal connections & Regional systems such as the Pan Am Path and the Lake to Lake Trail.

The development of the planned multi-use recreational trail network had broad input from the public during the development of the network plan. During the community outreach program strong support for the Vaughan Super Trail concept as a multi-use recreational trail network and

recreational opportunity/destination was noted as being valuable. Residents acknowledged their enjoyment of the current trail system and encouraged the City to provide a more extensive and connected network. As a result of this feedback, the key guiding principles for the multi-use recreational trail network are as follows:

- Promote the Vaughan Super Trail as a signature project
- Enhance the existing multi-use recreational trail network and support the proposed pedestrian and cycling network
- Provide connections to well established trail networks in surrounding municipalities
- Maximize continuous pedestrian and cycling routes in Primary and Secondary loops
- Provide safe pedestrian and cycling routes and crossing locations

The Vaughan Super Trail (Primary Network) was modified slightly in the course of this study to better fit the needs of the community and also the connectivity with all parts of the trail system and cycling network.

As such, the revised network connects key destinations and areas within the City with continuous connected loops. The Vaughan Super Trail will be integrated with existing land use patterns optimizing the use of utility and transportation corridors, existing trail facilities, and the cycling network. Proposed additions to the trail network will connect the missing links in order to achieve a continuous network.

See **Appendix C4: The Vaughan Super Trail Concept Presentation**.

William Granger Greenway Trailhead at Rutherford Road

Phase 1 North Maple Regional Park Trail Network

William Granger Greenway and Vaughan Super Trail at Binder Twine Park

Vellore Village Woodlot 6 Trail at La Rocca Avenue and Via Campanile

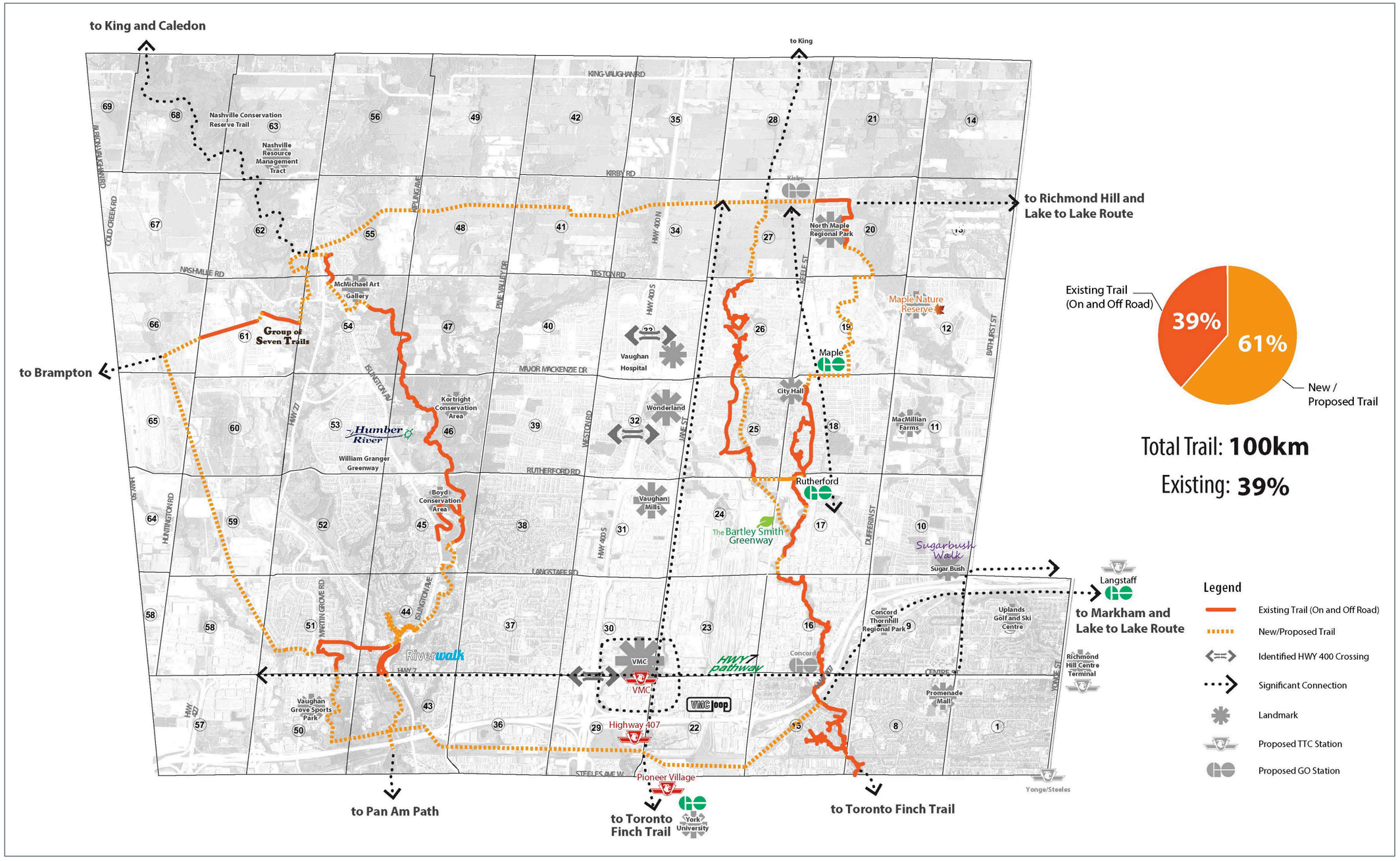

Figure 6-1: Vaughan Super Trail Proposed Concept Framework (2017)

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6.2.2. Secondary Network

The Secondary Network was developed building upon the existing trail facilities, the primary trail network (Vaughan Super Trail), and proposed additions, to create a cohesive and continuous system of on and off-road cycling facilities throughout the City.

A series of Secondary Network connections supports shorter local secondary loops for access from neighbourhoods. These routes will also be interconnected with the cycling network and multi-use trail networks of adjacent municipalities. The proposed network does not preclude possible opportunities to connect across the City of Vaughan limits to adjacent cities and towns at other locations.

Secondary Network trails connect destinations within a small geographic area and provide feeder links between neighbourhoods and the primary trail. The Secondary Network will be made up of existing neighbourhood trail facilities and proposed additions that will connect to the Vaughan Super Trail network.

6.2.3. Route Determination

The preferred multi-use recreational trail routes were ultimately selected based on input provided from residents and stakeholders through the public information process, stakeholder meetings and the information collected through field and desktop investigations.

Route determination for the multi-use recreational trail network is further guided by user experience and the following principles:

- A user experience that is inspiring and memorable
- Maximize connectivity for continuous multi-use recreational trails and commuter benefit
- Integrate trail connections and crossings with cycling routes
- Provide alternatives to cycling routes
- Maintainable and sustainable infrastructure
- Maximize use of city-owned lands and integrate natural and parkland corridors, and available spaces in utility and transportation corridors
- The City should continue to pursue the assembly and securement of lands through acquisitions, easements, or licensing agreements for public access in line with desired future trail routes through available legislative and policy tools.
- Meet Accessibility for Ontarians with Disabilities Act (AODA) requirements
- Enhance access and use of parks and open spaces in an environmentally sensitive manner
- Provide key amenities along the network (seating, parking, washrooms, bicycle parking etc.)
- Enhance route aesthetics to heighten user experience and encourage new users by being diverse and multi-seasonal

The recommended Vaughan Super Trail and priority multi-use recreational trail network is illustrated in **Figure 6-3**. This network includes the primary network (Vaughan Super Trail) and the secondary network. Refer to **Appendix D: Priority Multi-use Recreational Trails Network Development Supporting Technical Paper** for more detailed information on the evolution of the multi-use recreational trails network that evolved as part of the Pedestrian and Bicycle Master Plan Update.

The network maps do not include all local and tertiary local connections and therefore do not preclude developing tertiary and local connections where warranted through future development.

The network maps also do not include all potential barrier crossings at local, arterial and highway points, rail ways, and other infrastructure. Additional crossings will be determined through feasibility and detail studies of trail segments through implementation.

Multi-Use Recreational Trail network priorities should be implemented regardless of whether there is a routine accommodation opportunity through development or leveraging a larger capital project. Appropriate consideration of secondary and tertiary trail networks connections will be required through the Block, Subdivision and/or Site Planning processes.

The various routes proposed in the Pedestrian and Bicycle Master Plan are to be further "ground-proofed" as each trail alignment is reviewed and considered by the City for implementation. As part of this future analysis, certain trails and locations may have to be recategorized and realigned to better meet the needs of the local community and local context. Alignments in planning with other provincial and regional trail master plans such as the TRCA Trails Strategy and Province-wide Cycling Network Study will also be considered.

The following is general design guidance for trails in relation to the Trans Canada Pipeline (TCPL) right-of-way. This guidance outlines some of TCPL's regulatory requirements, best practices, safety requirements, and CSA standards at the time of finalizing this study and are subject to change. Consideration will be given to the most up to date guidelines from TCPL as part of any trail planning within the pipeline(s) right-of-way and application for approval from TCPL:

- Pathways crossing over TCPL's pipeline(s) shall be installed as close as possible to a ninety (90) degree angles to the TCPL pipeline(s);
- The width of the pathway shall not exceed three (3) metres;
- Pathways shall maintain a minimum five (5) metre separation from the edge of TCPL's pipeline(s);
- Where the installation of a pathway requires a ground disturbance, and the pathway crosses the pipeline, within five (5) metres of the pipeline; TCPL's pipeline must be hand-exposed at certain intervals to be determined, as directed by TCPL's regional field representative; and
- The presence of the pipeline(s) is clearly visible through the installation of above ground pipeline signage. Signage is to be installed at all road, pathway, and other crossings; throughout the development area at intervals of 100metres. Signage will be double sided.

TCPL's guidelines and best practices may change over time due to revised federal regulations. As such, these guidelines are verified prior to planning and design and prior to any application for approval from TCPL.

6.3. Recommended MURT Policies

The following policies are recommended for the City to support the design of future multi-use recreational trails in the City of Vaughan. These policies are consistent with the design approach used for establishing the recommended multi-use recreational trail network.

6-1 The completion of the 100km Vaughan Super Trail loop will be prioritized in the implementation of the Multi-use Recreational Trails Network.

The design of multi-use recreational trail facilities in the City of Vaughan will follow:

6-2 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.

6-3 The City will continue to implement stand-alone open space multi-use recreational trails in accordance with priority, as resources permit.

6-4 Multi-use recreational trail priority will be determined by identifying missing linkages which provide direct access to major destinations and prioritize these routes as the first for winter maintenance.

6-5 Proposed multi-use recreational trail prioritization should not preclude implementation of local network through development, relevant capital infrastructure projects, or related environmental assessments put forward by other agencies or parties that may allow for key municipal connections.

6-6 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.

6-7 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.

6-8 Grade separation infrastructure should be considered and evaluated through feasibility reviews 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.

6-9 In cases where multi-use recreational trails serve a dual purpose of both recreational and commuter in nature, the aim should be developing a seamless and integrated system.

6-10 Where a continuous trail system is not possible connections within the road allowance should be considered and where possible designed to match the trail facility (width, markings and material).

6-11 The City should continue to use the 2007 Pedestrian and Bicycle Master Plan Technical Appendix: Planning and Design Guidelines, 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 a time that the City or Region develop their own standards and guidelines.

6-12 The City should develop a trails focussed master plan on providing a connected city-wide green space network, developing policies that facilitate the securement of land assembly, as well as reviewing and updating the 2007 Pedestrian and

Bicycle Master Plan Technical Appendix: Planning and Design Guidelines for current best practices and standards of multi-use recreational trail planning and design.

6-13 Design multi-use recreational trails for maintenance, waste removal, and/or emergency access as required.

6-14 Design, construct, and maintain multi-use recreational trails consistently according to expected user volumes (e.g., as primary, and secondary trail classes).

6-15 Design, construct, and maintain multi-use recreational 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)

Vaughan Super Trail at Rutherford Road and Peter Rupert Avenue

William Granger Greenway and Vaughan Super Trail south of Bindertwine Park

William Granger Greenway and Vaughan Super Trail south of Rutherford Road

Purpleville Creek pedestrian bridge at Pine Valley Drive and Teston Road

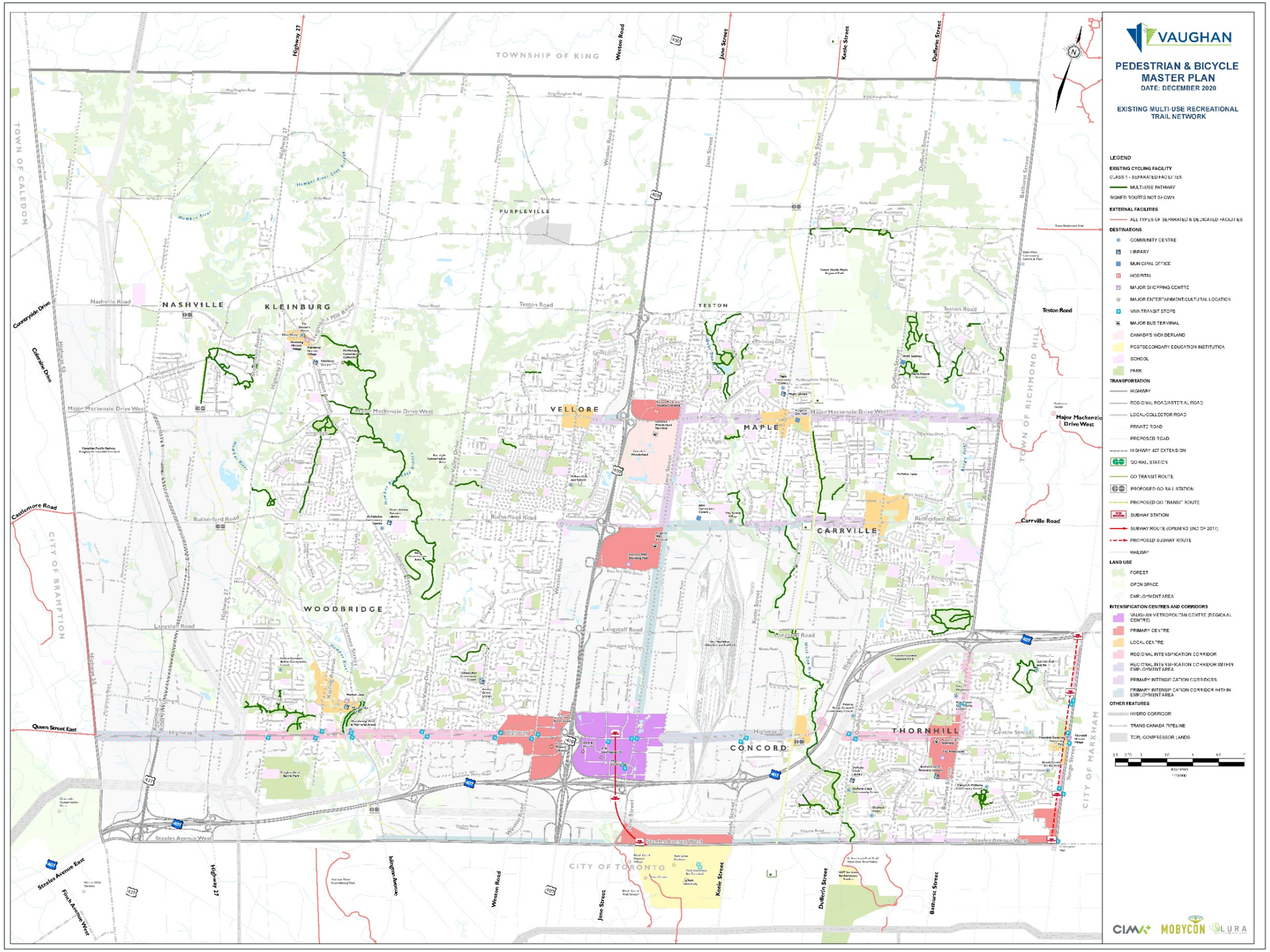

Figure 6-2: Existing Multi-Use Recreational Trails Network (2017)

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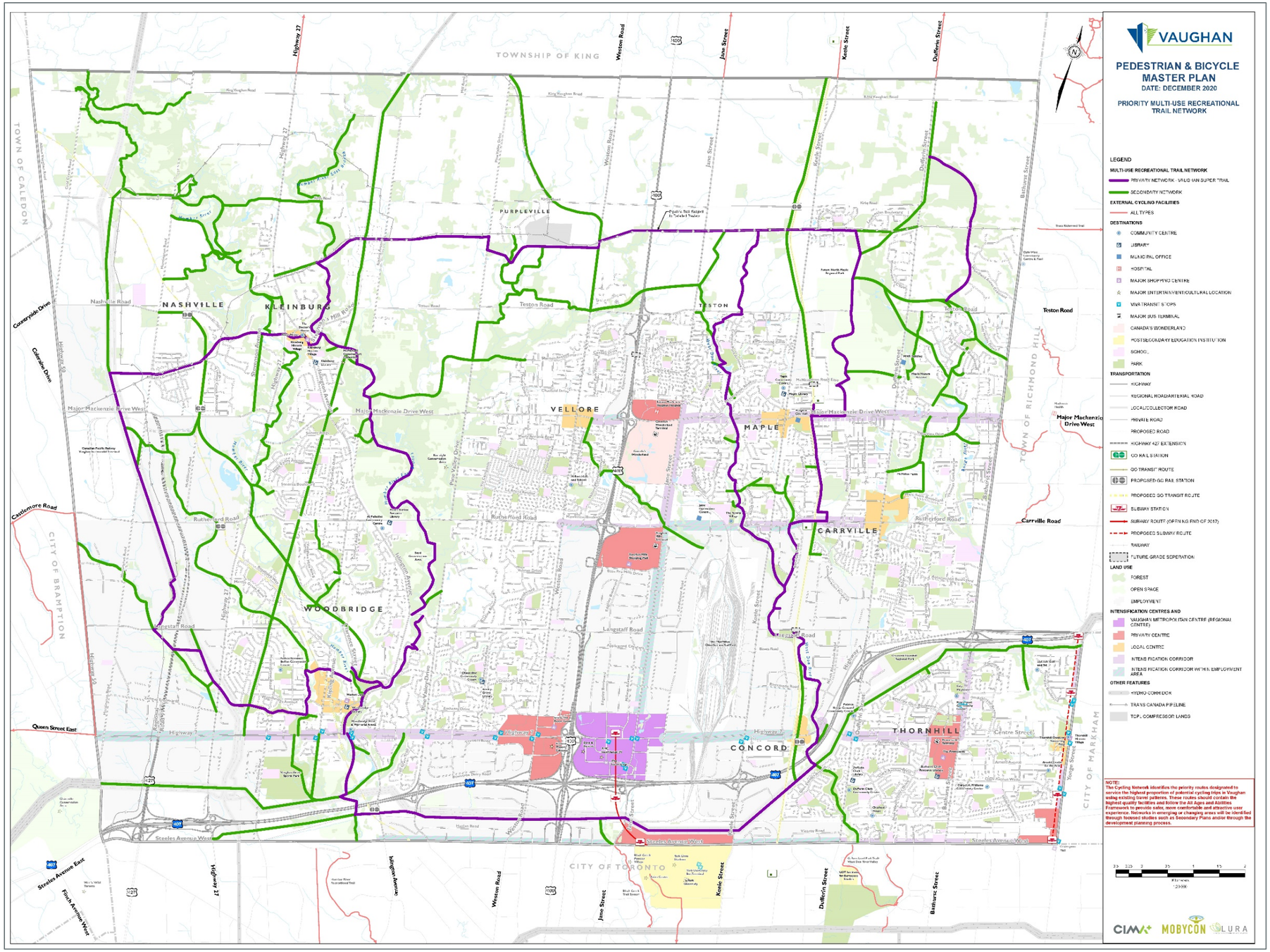

Figure 6-3: Priority Multi-use Recreational Trail Network

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7. Operations and Maintenance

City of Vaughan sidewalk winter maintenance practices

7. Operations and Maintenance

The intent of the Master Plan update was to lay out a framework to grow walking, rolling and cycling in the City of Vaughan. A key consideration in the development of the plan and particularly the network plans is the life cycle operations and maintenance of active transportation infrastructure and replacement costs. The appropriate maintenance of active transportation facilities can help protect capital investments by maintaining the lifespan of the infrastructure. Achieving standards of excellence for the construction and maintenance of active transportation facilities also promotes the use by meeting standards for safety, comfort, and aesthetics. In general, as the network expands, and best practices emerge, the maintenance practices and level of service limits will need to be adapted to address existing and new facilities, expectations of the public, and minimum maintenance standards.

The intent is for the PBMP to position the City to do this through high-level strategic recommendations rather than recommend specific operations and maintenance activities and service levels. However, **Appendix D: Operations and Maintenance Supporting Technical Paper** provides a comprehensive list of potential operations and maintenance activities and services levels for consideration by the City when a formal operations and maintenance plan is developed. Operations and maintenance requirements should be established and included in annual operational budgets and considered during the design process. Successful cycling and trail function will rely on a continued and regular program of maintenance of cycling facilities, multi-use recreational trails and associated support facilities.

7.1. Current Practices and Related Activities

A review of current practices and related activities relevant to the purpose of the Master Plan was conducted to determine potential synergies and integration with the recommended pedestrian, cycling and multi-use recreational trail networks.

7.1.1. Asset Management and Service Levels

- The City is in the process of finalizing a strategic asset management policy and developing asset management plans for all municipal infrastructure assets by 2023 as mandated by O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure.
- The City is undertaking a review of service level and service delivery approach of public works operations.

7.1.2. Operations and Maintenance

- Maintenance and operations staff regularly review the O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways, O. Reg. 191/11: Integrated Accessibility Standards and other applicable regulations standards to ensure City practices are consistent with them as they pertain to pedestrian facilities, bicycle facilities and multi-use recreational trails.
- The City's existing City-Wide Streetscape Implementation Manual and Financial Strategy 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.

7.2. Operations and Maintenance Related Recommendations

Operating and maintaining the active transportation network will require a service level and financial commitment from the City and should be embedded into the asset management protocol.

In existing practice, the City is responsible for the construction, maintenance and operation of all sidewalks within the Regional road allowance as mandated by Section 55(1) of the Municipal Act and is currently silent on cycling facilities. York Region pays for the construction of all cycling facilities within the Regional road allowance whether on-road (e.g. Dufferin Street Bike Lanes), in-boulevard curbside (e.g. Centre Street and Bathurst Street Asphalt Cycle Tracks) or in-boulevard adjacent to the sidewalk. Formal maintenance and operation practices of cycling facilities within the Regional road allowance have not been confirmed and require further discussion between York Region and the City of Vaughan as this may impact the operating budget of the City.

The following recommendations with respect to maintaining sidewalks as well as the local cycling and multi-use recreational trail networks were the outcome of internal engagement and consultation efforts as part of the Master Plan development process:

7-1 The City should undertake a corporate-wide review and identify mechanisms to link operation and maintenance budget needs associated with capital infrastructure and development projects prior to project budget approval.

7-2 Maintenance and operations staff should be a key stakeholder during the design and approval process for any new active transportation facilities including sidewalks, cycling facilities and multi-use recreational trails as part of both projects being delivered through development and internally through capital programming and delivery.

7-3 Public works staff should include a level of service standard specifically related to active transportation facilities including sidewalks and on-road, in-boulevard cycling facilities and multi-use recreational trails. This should be used to inform service levels for active transportation facilities and associated financial requirements.

7-4 The City's existing City-Wide Streetscape Implementation Manual and Financial Strategy 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. The next update of the City-Wide Streetscape Implementation Manual and Financial Strategy 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.

7-5 Asset management staff should continue to engage applicable departments in their effort to develop a comprehensive inventory of all pedestrian, cycling, shared-use and multi-use recreational trails (official and unofficial) infrastructure including key

attributes such as wayfinding and directional signage to understand the full life cycle costs of an active transportation facility.

7-6 Using the best practices review undertaken as part of the PBMP study, Service Level Review and other information as it emerges, maintenance and operations staff should develop a formal maintenance program and Standard Operation Procedures (SOPs) for the pedestrian, cycling, shared-use and multi-use recreational trail networks and assess the impact to operating budgets, equipment needs and resources.

7-7 The City should adjust, and review maintenance costs and impacts to operating budgets, equipment needs and resources on an annual basis. There may be opportunity to do this through the City-Wide Streetscape and Implementation Manual and Financial Strategy in the interim and through the Corporate Asset Management Strategy in the future. The formal maintenance program and SOPs should be used to inform addendums to the Master Plan.

7-8 The City should integrate facility maintenance access requirements into open space systems which may dually serve as local trail connections.

7-9 In the interim, maintenance and operations staff should continue to regularly review the O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways, O. Reg. 191/11: Integrated Accessibility Standards and other applicable regulations standards to ensure City practices are consistent with them as they pertain to pedestrian facilities, bicycle facilities and multi-use recreational trails. Noting that as these standards evolve, and level of service requirements increase through these regulations, additional financial commitment will be required for operations and maintenance.

Pedestrian and Bicycle Master Plan Study Staff Engagement

8. Outreach, Education and Awareness

Outreach materials during the Pedestrian and Bicycle Master Plan study

8. Outreach, Education and Awareness

Many residents indicated that more awareness and education was needed and identified it as one area of opportunity to grow the culture of walking and cycling within Vaughan. Public awareness, acceptance and a shift in culture is arguably the most important ingredient in successful implementation of a Pedestrian and Bicycle Master Plan Update for the City of Vaughan. There is a strong public perception that roads are primarily used by motorized vehicles and a shift in culture is strongly desired by respondents. An emphasis on education, encouragement and creating a culture of walking/rolling and biking is needed to enhance the public understanding about the importance of active transportation and the services available across the City of Vaughan. Training programs, education and marketing campaigns were repeatedly suggested to generate public awareness of existing cycling facilities and active transportation infrastructure to encourage a change in behaviour for the future.

The information collected from public and stakeholder consultations, as well as, a review of best practices, have been incorporated into recommendations with a focus on building on or expanding the City's existing initiatives based on training, education, and marketing as discussed in the Awareness and Culture theme of the Master Plan Update.

The recommended outreach, education and awareness activities follows an approach similar to the one implemented during the preparation of the Master Plan, in which the different activities conducted by the City and other civic and governmental organizations during the year, are part of a collaborative effort in which resources, information and materials relevant to the promotion of active modes of transportation are offered to the public.

8.1. Outreach Related Recommendations

Emulating the significant success of utilizing existing City-wide events to connect with residents during the Pedestrian and Bicycle Master Plan Update engagement efforts, it is recommended that:

8-1 The City should continue to use these annual events as a means of reaching, educating and informing residents about walking, cycling and multi-use recreational trails. The following events should be considered:

- February – Winterfest
- March – Earth Hour
- April – Environmental Days (one in each Ward)
- May – Public Works Day
- June – Bike Month
- July/August – Concerts in the Park / Annual Canada Day Celebration
- December – Tree Lighting / Menorah Lighting Ceremonies
- Year-round – New Pedestrian, Cycling, Multiuse Recreational Trail and Park Openings
- Additional events or special one-time events may also be identified where it would be prudent to have the education and outreach booth attend and have a presence at a city event once a month.

8-2 In June of 2014, Council proclaimed the month of June as Recreation and Parks Month as well as Bike Month. The City should promote Bike Month in conjunction with Recreation and Parks Month and include more activities and events around

walking and cycling as part of the Recreation's annual promotion of free activities and events during the month of June.

To support this continuous outreach effort the following recommendations are provided:

8-3 The City should develop an annual communications plan and calendar for on-going annual messaging. For example, safety tips, bike month promotion, active and safe routes to school, trail etiquette, etc.

8-4 The City should develop a consistent and recognizable public "identity" for active transportation and use it to create a display and associated materials that can be used in the format of a booth at City events, etc. This "identity" will help to raise awareness of active transportation within the City and indicate its importance as a Term of Council priority.

8-5 The City should establish an annual education, outreach and awareness plan and program budget should be identified for outreach related to active transportation. Grant opportunities related to education, outreach and awareness may supplement the annual budget.

It is also recommended that the City formalize the interaction with other stakeholder and organizations – already engaged as part of the completion of the Master Plan, or with others sharing the goal of shaping the future of walking, rolling and riding within the City of Vaughan.

8-6 In 2011 the City of Vaughan established the Vaughan Cycling Forum. The City should consider re-establishing the Vaughan Cycling Forum (or similar) as a means of continually exchanging information with residents and building capacity.

8-7 The City should consider enhancing the trail experience by partnering with organizations and independent groups to develop educational, cultural and other similar engagement programs, to promote the trail network as a platform for special events and encourage active lifestyles.

8-8 The City should facilitate the development of community stewardship programs to support trail building programs, monitoring and maintenance. This may be achieved by partnering with local or regional trail exploration groups, expanding the Park Ambassador Program to include trails, expanding the Tree and Bench Sponsorship program to include trails, expanding the Adopt a Park program to include tails, partnering with children and youth organizations such as the Scouts Canada and Girl Guides, and exploring the creation of a children and youth oriented 'Trail Blazer' program through Recreation.

Public Works Day Kids Bike Rodeo Promotion (2017)

Bike into Spring Event at Dufferin Clark Library (2017)

Bike into Spring Event Outreach at Dufferin Clark Library (2017)

Public Works Day Kids Bike Rodeo (2017)

Public Works Day Bike Maintenance Station (2018)

Earth Hour Event Lantern Walk (2017)

Earth Hour Event Glow Bike Ride (2017)

8.2. Education Related Recommendations

8-9 As a means of building internal capacity and improving coordination of initiatives related to active transportation, the City should consider establishing an internal active transportation working group that meets at a minimum, quarterly. To facilitate discussion and focus meetings, consideration should be given to focus meetings by topic such as hard infrastructure versus soft education and outreach, acknowledging that some overlap will occur.

8-10 To succeed, the Vaughan Super Trail requires the collaboration of leadership and teams across the City. The initiative must have a clear structure, and line of authority in order to expedite decision-making, promote, conduct projects, and utilize funds effectively. As such a working group specific to the Vaughan Super Trail should be established to provide strategic advice and general oversight to the Vaughan Super Trail initiative. The governance structure could consider topics such as strategic direction, implementation and construction, policy development, grants and funding, capital projects, studies and operations and maintenance.

8-11 Educate internal staff on the key themes and recommendations of the PBMP as it relates to their role and department. Active transportation and trails subject matter expert staff should do focused presentations to Council, Senior Management Team and internal staff/departments.

8-12 Expand internal knowledge base as it relates to active transportation by organizing learning sessions or webinars on a regular basis on active transportation or consultation related topics. Organizations such as the Transportation Association of Canada (TAC), Ontario Traffic Council (OTC), Institute of Transportation Engineers (ITE), Association of Pedestrian and Bicycle Professionals (APBP), National Association of City Transportation Officials (NACTO), Ontario Trails Association (OTA) etc. offer valuable learning opportunities that the City could utilize.

In addition, it is recommended that the City considers the continuation – and if possible, the expansion of current educational activities:

8-13 The City should continually monitor and update the School Crossing Guard Program to improve the safety of children and youth as they make their way between home, school, and out-of-school-time programs. The program provides an opportunity to educate children and parents on school crossing procedures, road safety and rules of the road on an ongoing basis and work with schools to develop active school travel plans for the surrounding community. The City should promote and build awareness of the program through various media and communication channels.

8-14 The City should provide and promote bicycle skills training for people of all ages and abilities interested in riding a bike. Training could be provided in the form of workshops, programs and/or summer camps through the Recreational Services similar to neighbouring municipalities such as Richmond Hill and Markham. Some programs for consideration could include, how to ride a bike, rules of the road, bike mechanics 101, etc.

8.3. Awareness Related Recommendations

Education and engagement of the residents and visitors of the City of Vaughan regarding the benefits of active modes of transportation will be incomplete if the target of these efforts is not aware of the availability of active transportation supporting infrastructure. To this purpose it is recommended that the City consider the following activities as part of the Master Plan implementation:

8-15 The City should celebrate and promote the opening of new active transportation facilities and educate the local community on use. It is recommended that these "grand opening" events should form part of the short-term education and outreach program. In addition, education on use should be incorporated into the events and complimented by communications through social media and the City's digital platforms.

8-16 The City should develop a resident facing Vaughan specific city-wide cycling and multi-use recreational trails map or guide to complement and build upon the Great Walks of Vaughan Trail Guide, York Region Cycling Map, and York Region Trails Guide. These maps or guides should be updated every other year and distributed at minimum at local community centres, libraries, municipal buildings and City events. These maps or guides should be provided both in hard copy and online.

8-17 The City should develop a branding and wayfinding signage strategy for citywide trail networks such as the Vaughan Super Trail, identifiable systems such as Bartley Smith Greenway, or local and neighbourhood loops. Branding and wayfinding should also complement, update, and build upon existing initiatives, such as the Great Walks of Vaughan. The City should explore engaging active transportation and recreational users with online interactive experiences.

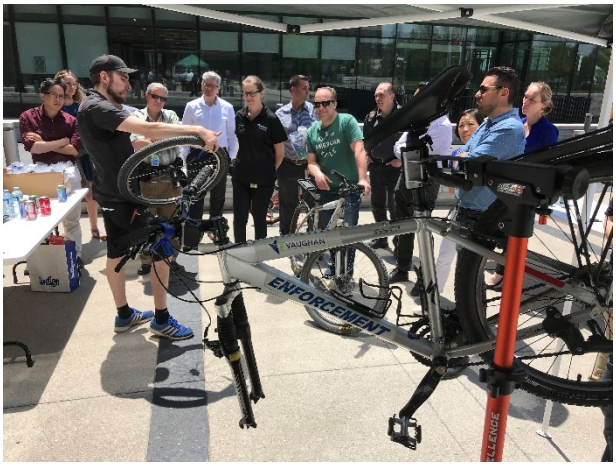
8-18 The City should provide free bike valet services at large City-wide events such as Canada Day Celebration. The City could also purchase temporary bicycle racks to set up at City of Vaughan events if bike racks are not available to encourage people to cycle. In addition, event permitting should require events of certain size to provide bike valet services.

The above recommendations represent the short-term actions that should be considered immediately after approval of the PBMP. Education, Outreach and Awareness of Active Transportation should be considered a long-term program, with the actions and results being reported every 2 years, and new actions identified in the future as needed. A comprehensive list of programs and outreach initiatives that were identified through consultation and as common practice in other jurisdictions is included in the **Appendix E: Outreach, Education and Awareness Supporting Technical Paper**.

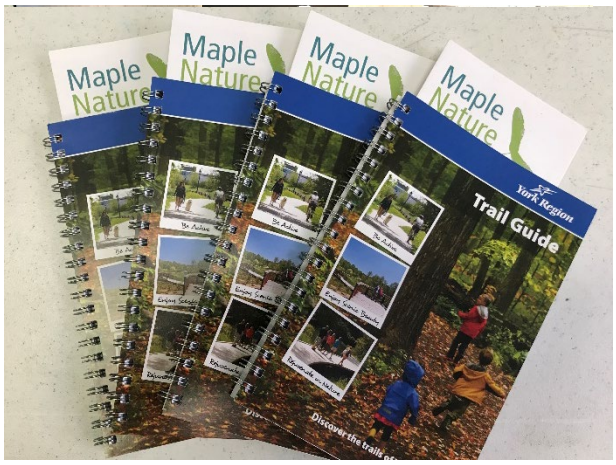
York Region Cycling Coalition (YRCC) at Bike into Spring Event at Dufferin Clark Library (2017)

Pedestrian and Bicycle Master Plan Stakeholder Advisory Group Meeting (2018)

Earth Hour Event Smoothie Bike (2019)



Bike Maintenance 101 Workshop Bike Month (2019)



York Region Trail Guide and Maple Nature Reserve Pamphlet

Partner resources handed out to citizens at events

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9. Implementation Approach

Bartley Smith Greenway and Vaughan Super Trail underpass at Major Mackenzie Drive, under construction 2019

9. Implementation Approach

In keeping with the ambitions of this plan to facilitate the greatest number of pedestrian and bicycle trips in a cost-effective manner, the prioritization and phasing of pedestrian, cycling and multi-use recreational trail infrastructure follows a two-pronged implementation framework as detailed in **Section 3.2**. This is facilitated through two main steps:

1. Leveraging approved capital projects and new development
2. Bridging gaps through the implementation of standalone active transportation projects

9.1. Leveraging Capital Projects and New Development

The first component of this strategy is focused on maximizing value for money on approved capital projects while also delivering the highest quality bicycle infrastructure. Identifying and leveraging approved larger capital projects and new development to improve active transportation is the most cost-effective way to implement the pedestrian, cycling and multi-use recreational networks, as well as adjoining routes. It is recommended that implementation of the active transportation facilities will follow a routine accommodation approach composed by the following main elements:

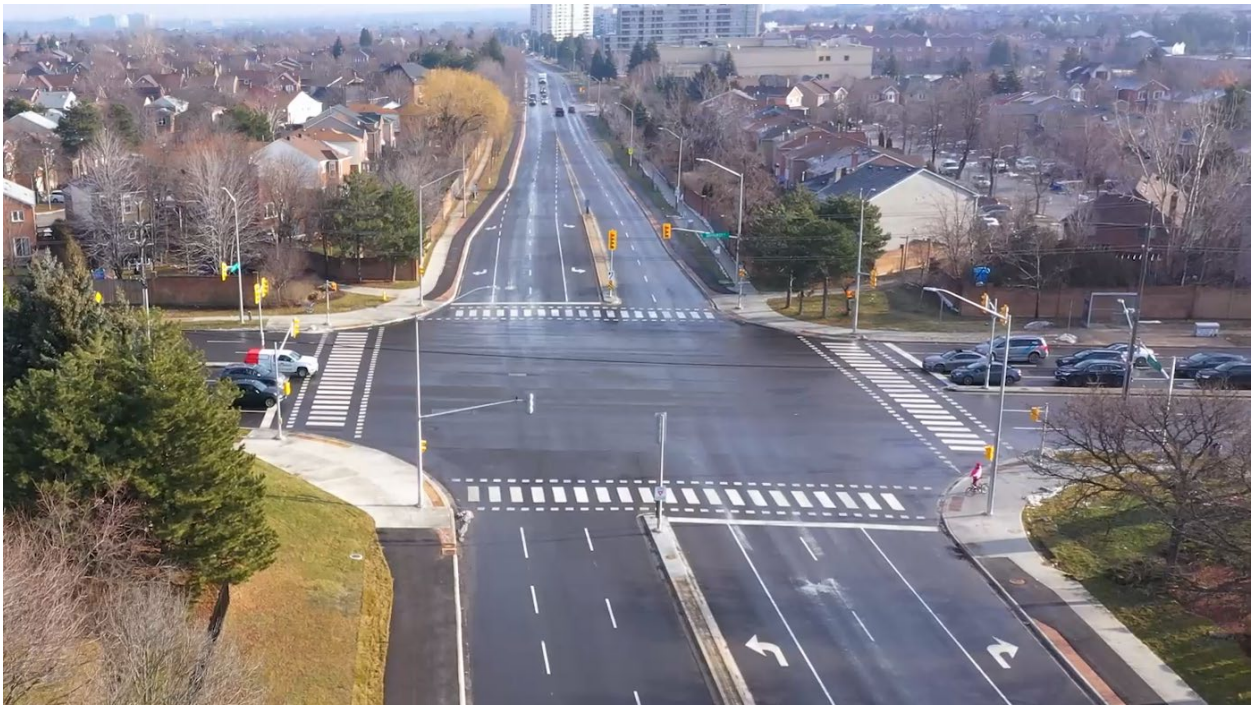
- Identify infrastructure improvements for consideration
- Update/modify capital plans, budget and re-evaluate improvement projects prioritization
- Identify opportunities for external funding and grants for implementation

Example of leveraging development - Multi-use Recreational Trail implemented through Block 55 development

9.2. Bridging Gaps with Standalone Active Transportation Projects

Although leveraging approved capital projects and new development can provide good value for money, if relied upon as a sole strategy it often fails to deliver a cohesive network of facilities in a timely manner. In the pursuit of providing an active transportation network that is suitable for all ages and abilities, facilities must be connected to each other in a meaningful way. To achieve this, priority should be placed on identifying and filling gaps that connect existing capital and development projects. This serves to implement a connected network expediently and efficiently. **Figure 9-1** once again illustrates the Active Transportation Implementation Framework and **Figure 9-2** illustrates how the recommended priority cycling and multi-use recreational trail systems are integrated into a cohesive connected active transportation network. It is recommended that an annual planning and implementation budget be identified for pedestrian, cycling and multi-use recreational trail planning and infrastructure projects.

- **9-1** The City should identify and leverage larger capital projects and development to improve active transportation infrastructure (i.e. routine accommodation).
- **9-2** The City should identify, prioritize and incorporate infrastructure gaps not addressed through routine accommodation into the annual active transportation planning and implementation programs.
- **9-3** The City should develop a prioritization matrix that builds on the Pedestrian Implementation Criteria (**Figure 4-2**) and Priority Cycling and Multi-use Recreational Trail Network (**Figure 9-2**) developed as part of the Pedestrian and Bicycle Master Plan study and incorporates new opportunities as they arise to create a dynamic program that responds to emerging needs. The prioritization matrix and program should be tweaked on an annual basis through the budget approval and capital programming process.



Example of standalone active transportation project – Cycle tracks along Clark Avenue at Bathurst Street substantially constructed (2020)

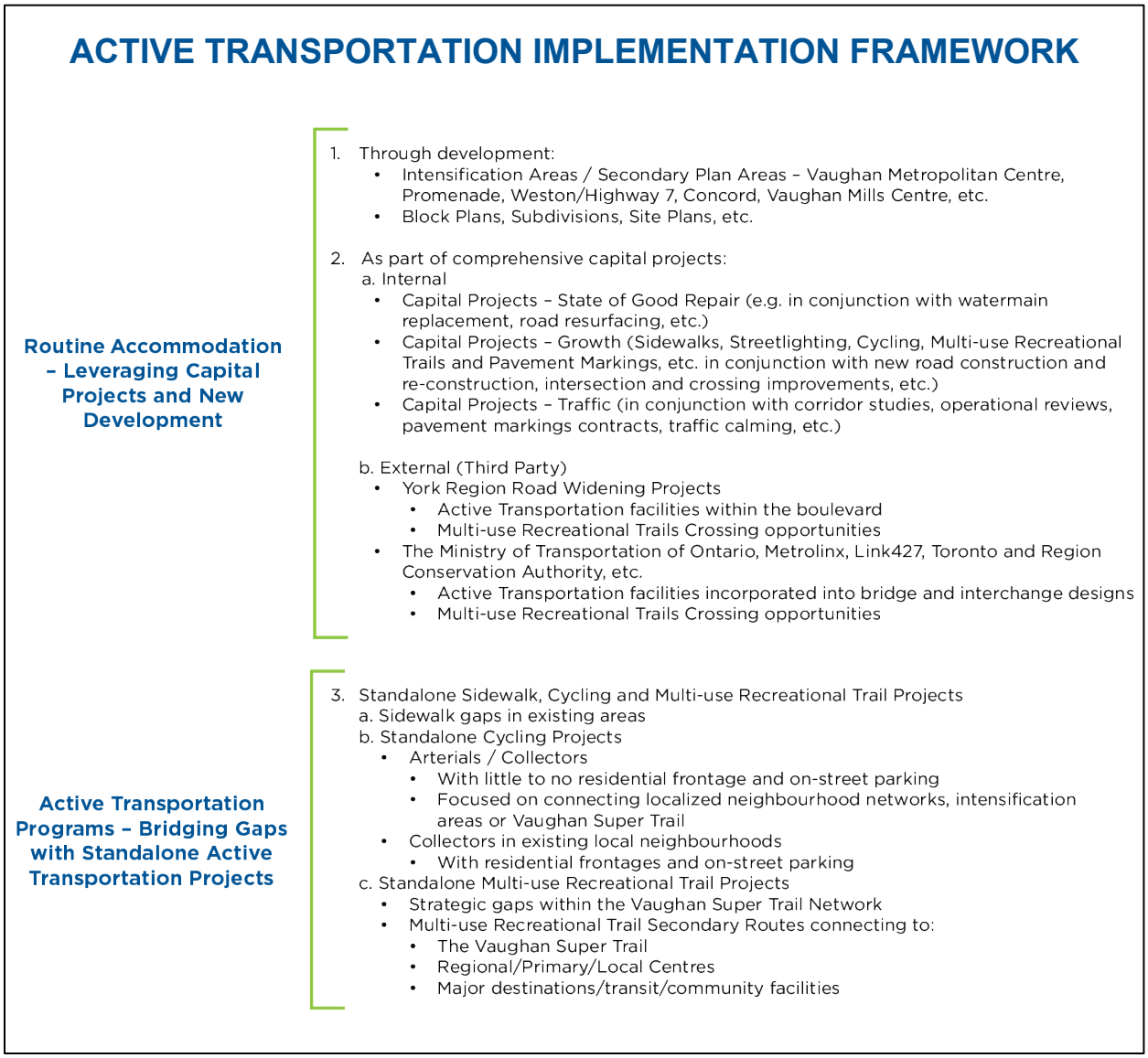


Figure 9-1: Active Transportation Implementation Framework

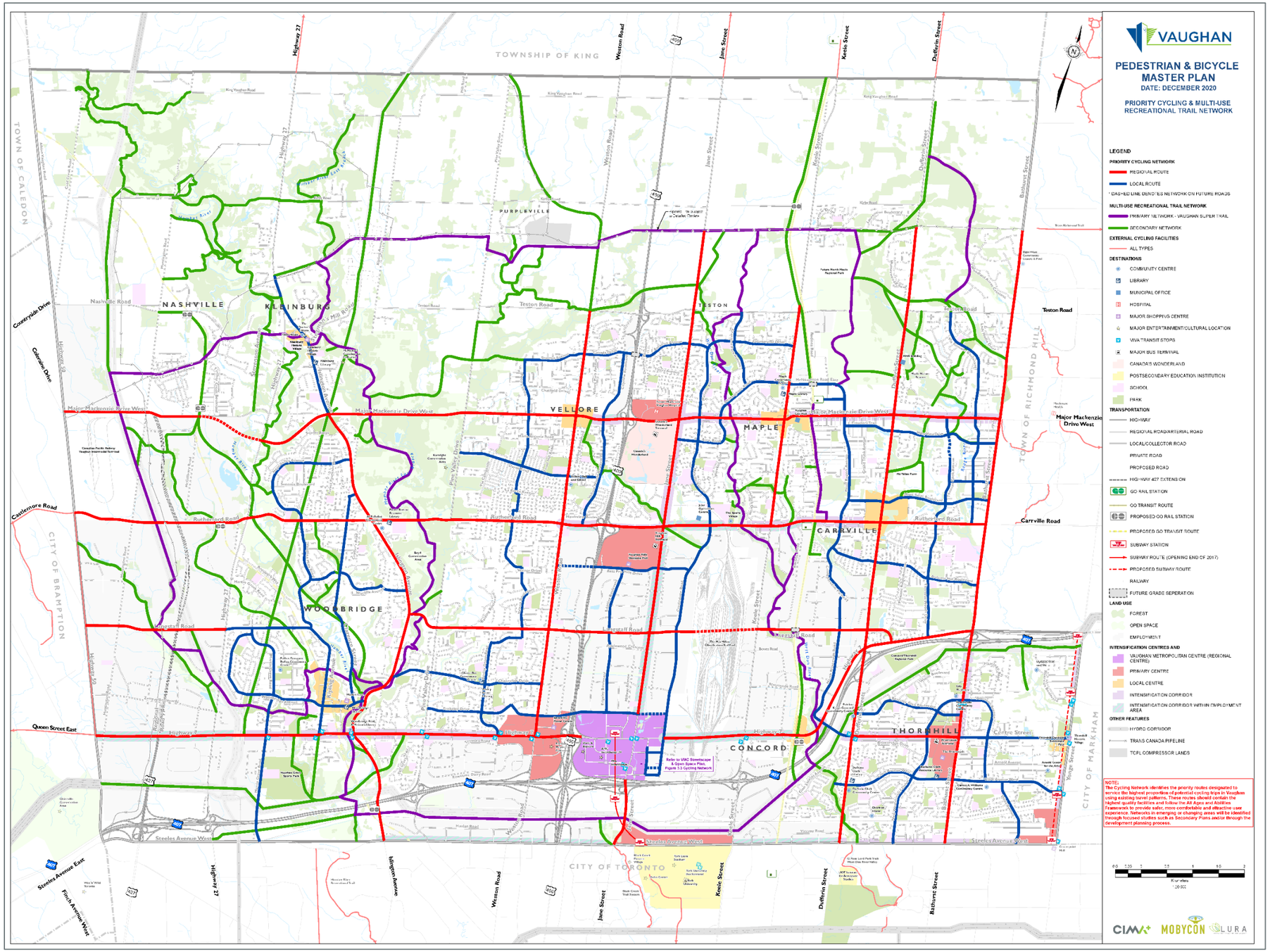


Figure 9-2: Priority Cycling and Multi-Use Recreational Trail Networks

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9.3. Funding and Partnership Opportunities

9.3.1. Development Charges

Significant population and employment growth is planned for Vaughan and transportation demand is expected to similarly increase with new residents, jobs and local activity. Acknowledging that accommodating the increased travel demand through road widening is limited and not sustainable, improving and increasing Active Transportation infrastructure is crucial to supporting growth. Infrastructure within the City's defined growth areas as well as infrastructure leveraging and supporting transit investment are triggered and driven by the need to accommodate new growth. As a result, the City has dedicated development charges for implementation of active transportation facilities through the City's 2018 Development Charges By-law update.

As part of the 2018 Development Charges Background Study, the City developed a Development-Related Capital Program which required Council to express its intent to provide future capital facilities at each level incorporated in the development charge calculation.

Based on development forecasts as of December 31, 2017, a development-related capital program, setting out those projects that are required to service anticipated growth, was established. The 2018 by-law includes pedestrian and cycling specific projects, critical active transportation crossings for the open space network and transportation demand management programs to support growth to 2031 under the city-wide engineering projects category. This is in addition to all larger city-wide engineering projects (i.e. roads project) that automatically include active transportation in the costing under routine accommodation.

The Pedestrian and Bicycle Master Plan Cycling and Multi-use Recreational Trail Network Priorities map and preliminary costing information informed the 2018 Development Charges (DCs) active transportation specific project list.

Currently, all individual active transportation projects and routine accommodation projects are being fully funded through DCs as they are growth related. This funding source is critical to the planning and implementation of pedestrian, cycling and multi-use recreational trail infrastructure.

The study is supported by a Local Service Policy that supports the City's Fiscal Framework through a conceptual framework representing a principle-based approach to decision-making to ensure short- and long-term financial stability of the City.

The policy sets out the City of Vaughan's general guidelines on determining growth-related engineering infrastructure and parkland development that may be eligible for funding, in whole or in part by development charges or area-specific development charges (ASCDs). The following policies are included in the Local Service Policy related to active transportation infrastructure:

- 3.5.1. Traffic and pedestrian signals and related appurtenances due to development and growth-related traffic increases, other than at locations considered a subdivision or site entrance, are to be included in the DC calculation to the extent permitted under s.5(1) of the DCA.

- 3.5.3. Pedestrian and bicycle related works external to a development area that form part of the City-wide network, in accordance with the City's current Pedestrian and Bicycle Master Plan, including sidewalks and multi-use paths along Regional or arterial roads are to be included in the DC calculation in the extent permitted under s.5(1) of the DCA.
- 6.5. Major community recreational multi use pathways including related structures, crossings and appurtenances that service the City's City-wide pedestrian and bicycling network in accordance with the current Pedestrian and Bicycle Master Plan (or any successor thereto) may be eligible for reimbursement through Development Charges.

For more information see the City's 2018 Development Charge Background Study and By-law Update.

9.3.2. Bill 108 impact on Development Charges

The 2019 Bill 108 amendments to the Planning Act and the Development Charges Act, 1997 may result in several financial implications to the City's ability to provide community benefits to historical service levels, including City-wide multi-use recreational trails. Some impacts to community benefits may be minor in nature, while others may have more significant impacts to Vaughan's fiscal future to provide public services.

The Growth-Related Capital Revenue impacts will predominantly be seen through combining Development Charges (associated with soft services), parkland dedication under the Planning Act and Section 37 Height and density bonusing into one Community Benefit Charge. Overall, the provincial government has advised municipalities that these changes will result in a cost neutral economic impact to municipalities, allowing cities to maintain current community benefit services levels for new urban growth areas. However, without any additional information regarding the value of the cap on community benefits, there is the possibility that development charge eligible growth-related soft services are viewed as a potential major loss in revenue for the City.

Many of these implications are, however, difficult to estimate at this time. Once the province releases the necessary information regarding the cap on the value of the community benefit and associated regulations are issued, there should be greater clarity around specific financial implications.

9.3.3. Grants

City staff continue to utilize grant opportunities and partnerships with upper tier governments such as the Ontario Municipal Commuter Cycling Funding Program and the York Region Pedestrian and Cycling Municipal Partnership Program, to partially fund active transportation projects. As funding opportunities change regularly, the City should regularly check with all levels of government to keep up to date on current funding opportunities. Partnerships with the Provincial and Regional governments have been instrumental to building out the active transportation networks.

9.4. Cost of Network Improvements

As part of the Master Plan update, the study team undertook a high-level review of the priority cycling and multi-use recreational trails corridors to identify potential facility type, opportunities and constraints, as well as barrier crossings in order to inform high-level cost estimates of implementation (construction only). These cost estimates were used to inform the 2018 Development Charges By-law update. The City should review and revisit these estimated high-level construction costs during the budget approval process and evolve as more detailed information becomes available during functional, preliminary and detailed design. The methodology and breakdown of preliminary construction only cost estimates for each of the priority cycling routes and multi-use recreational trails network including unit costs is provided in the **Priority Cycling Network and Multi-use Recreational Trails Network Development Supporting Technical Papers in Appendices C and D**, respectively.

9.5. Prioritization and Phasing

9.5.1. Cycling Network Prioritization and Phasing

As part of this study, a phasing plan has been developed that focuses on creating a connected network of facilities that address the areas of greatest demand first. This is followed by filling in lower priority links and expanding the service of the network as resources are allocated. The phasing has been broken down to three-time horizons:

5 to 10 Year Plan

The 5-year plan focuses on supporting the most bikeable travel patterns as identified through the network development process as quickly as possible. This strives to achieve the greatest positive impact early in the implementation. To achieve this, four goals were set out to guide the development of the 5-year plan:

- Maximize service of existing bikeable trips
- Develop localized mini networks in focus areas with high internal trip counts
- Optimize effects of implemented/planned regional routes through connectivity improvements
- Facilitate key movements where Regional network currently lacks service

The result of applying these goals to the network identified four geographies that warranted prioritization:

- Maple
- Thornhill
- Woodbridge
- Woodbridge East

To connect these localized networks, corridors that support key linkages throughout the city were also identified. **Figure 9-3** illustrates the local routes proposed for implementation within the 5-year plan based on technical analysis and public consultation only. City staff should use the proposed phasing plan as a starting point and framework to develop a prioritization matrix that is dynamic and tweaked on an annual basis through the budget approval and capital programming process.

Regional corridors represent the most direct routes within the City and are the location of many of they key destinations and amenities, therefore they play a critical role in the cycling network. Key priority regional corridors identified include:

- Jane Street – arguably the most important transportation corridor in Vaughan and key north-south connection to the Vaughan Metropolitan Centre and City of Toronto
- Weston Road – key north-south corridor west of Highway 400 and gateway into the Vaughan Metropolitan Centre from the west
- Bathurst Street – key crossing of Highway 407 into Thornhill neighbourhood
- Highway 7 – main east-west corridor and access to the Vaughan Metropolitan Centre and VivaNEXT Bus Rapid Transit
- Rutherford Road – key east-west crossing of Highway 400 and Rail yard and connection to Rutherford GO Transit Station
- Major Mackenzie Drive – key east-west corridor through Maple with highest bikeable trip levels and connection to Maple GO Transit Station

The 10-year plan should be focused on creating a more connected and fined grained cycling network that supports the key routes implemented during the 5-year plan. It provides opportunities to strategically schedule future capital expenditures to optimize effectiveness. As Vaughan grows and the cycling network evolves, additional required connections will become evident and should be integrated into this plan.

Long-Term Strategy

The post-10 Year horizon for Vaughan will likely see significant changes to the population, built environment, and travel patterns. Based on these assumptions the long-term strategy is focused on identifying and improving key facilities throughout the city as well as filling persistent gaps in the network. Pending the full implementation of the priority cycling network within the 10-year plan, monitoring of travel patterns will better illuminate how residents are moving through the city by bicycle.

The considerable foreseeable changes to transportation over the next decades will also inform the role that active transportation plays in delivering sustainable transportation options across Vaughan.

City staff should use the proposed phasing plan as a starting point and framework to develop a prioritization matrix that is dynamic and tweaked on an annual basis through the budget approval and capital programming process.

The prioritization matrix that will inform the cycling program should at minimum:

- Determine if the routes will be implemented through routine accommodation or as standalone projects
- consider partnership opportunities
- consider impact to residents and businesses
- build on other investments
- identify new routes and required connections
- identify opportunities to close gaps in both the cycling and multi-use recreational trails networks

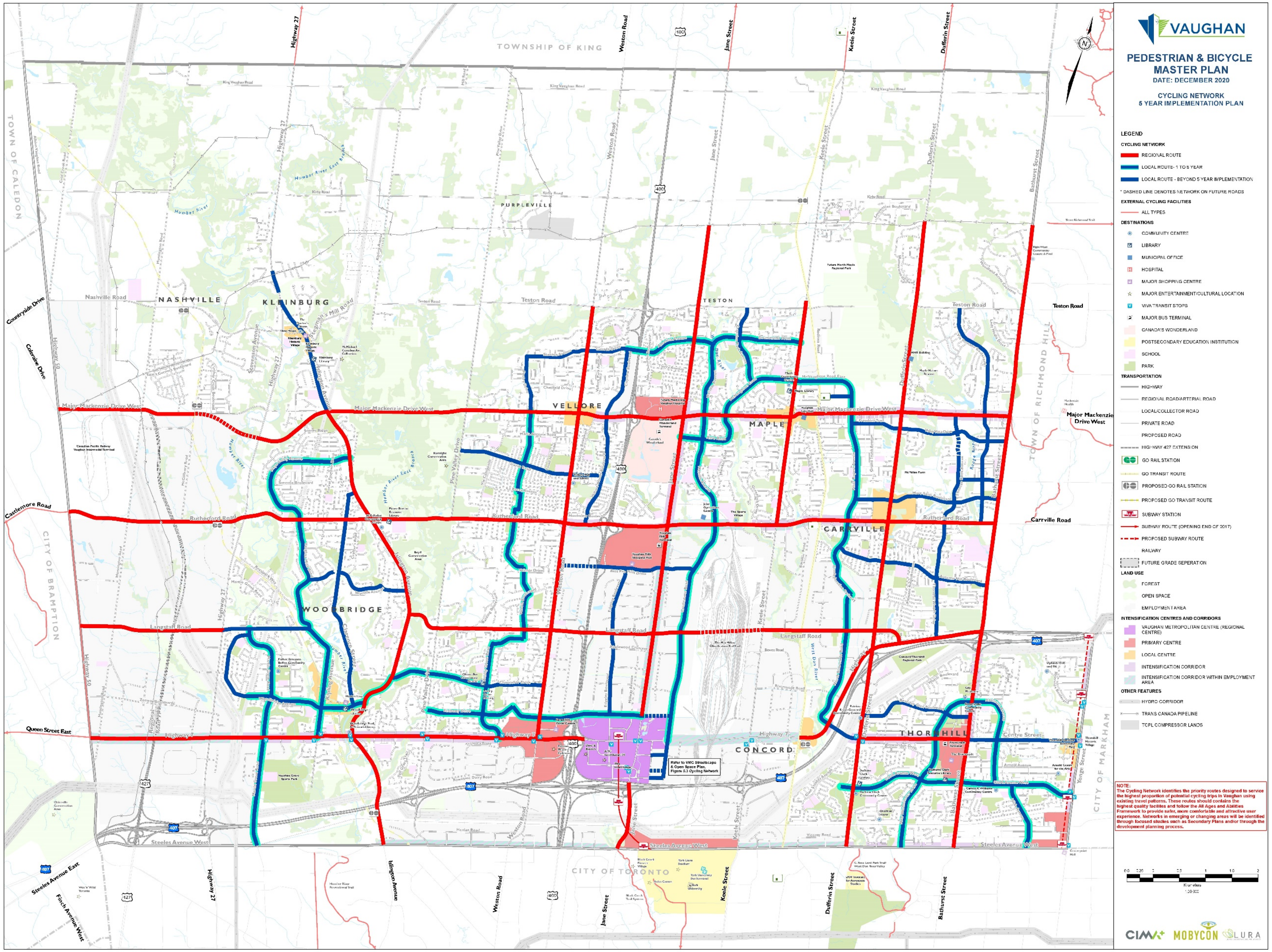

Figure 9-3: Priority Municipal Cycling Network 5 Year Plan

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9.5.2. Multi-use Recreational Trails Network Prioritization and Phasing

The development of the Vaughan Super Trail and Secondary Multi-use Recreational Trails Network Plans provide a framework for making recreational walking and cycling comfortable, convenient, and connected. The intent is that trail initiatives are implemented in phases with the connected networks as the ultimate goal.

Recognizing that the long-term vision will require significant investment, an implementation phasing plan is required to prioritize and identify short-term, medium-term, and long-term improvements. To assess priority for implementation of trail segments, an evaluation criteria and route priority ranking matrix was developed to assist in establishing a phasing strategy for trail construction. To assess alternative routes, a series of evaluation criteria were applied to determine priorities and phasing of recommendations. In general, segments of the Vaughan Super Trail are prioritized over secondary routes from a network connectivity perspective. Another critical factor in selecting trail priorities is land ownership and linear infrastructure easements. Other considerations included:

- Critical gap in the trail network
- Land-use and density
- Connectivity to community facilities and services
- Connectivity to entertainment and cultural destinations
- Connectivity to trail systems outside of Vaughan,
- Access to Transit

This aided in ranking the order by which trail initiatives will be investigated. For the trail initiatives that rank equally further considerations will be made based on the available funding and consultations.

William Granger Greenway in Nashville Conservation Reserve

It is important to note that the network is a dynamic system that staff regularly reviews to confirm priorities. Staff should continue to act on opportunities for trail development as they arise, including negotiation of easements, implementation through subdivision agreements, or utilizing partnerships. Subsequently, some projects may be advanced ahead of others.

Other factors that may influence the priority of trail segments and route alignment and should be used to optimize the implementation of the overall trail network include:

- **Feasibility Studies** – Initial feasibility studies may provide further detail and understanding on route opportunities or constraints and confirm exact trail location prior to proceeding with preliminary and detailed design. Feasibility studies are also a good tool to use to confirm priority and implementation phasing.
- **Infrastructure Capital Works** – Trail development would be prioritized in areas identified for infrastructure capital works and associated EAs to benefit from implementation and cost synergies and limit future disturbances.
- **Environmental Sensitivities and Restrictions** – The approval process related to environmental concerns can influence the schedule of design and construction.
- **Land Development** – Where trails are identified within lands with development applications in progress, the trail schedule can be accelerated to meet development timing.
- **Linear Infrastructure Easements (e.g. Pipeline, Hydro, Rail corridor)** – Available unobstructed land in these areas can be simplify implementation of trail design, approval, and construction.

The following map highlights the trail gaps that the City should focus on over the next five years. The Multi-use Recreational Trails Network 5 Year Plan Map is illustrated in **Figure 9-4**.

Vellore Village Woodlot 6 Trail at La Rocca Avenue and Via Campanile

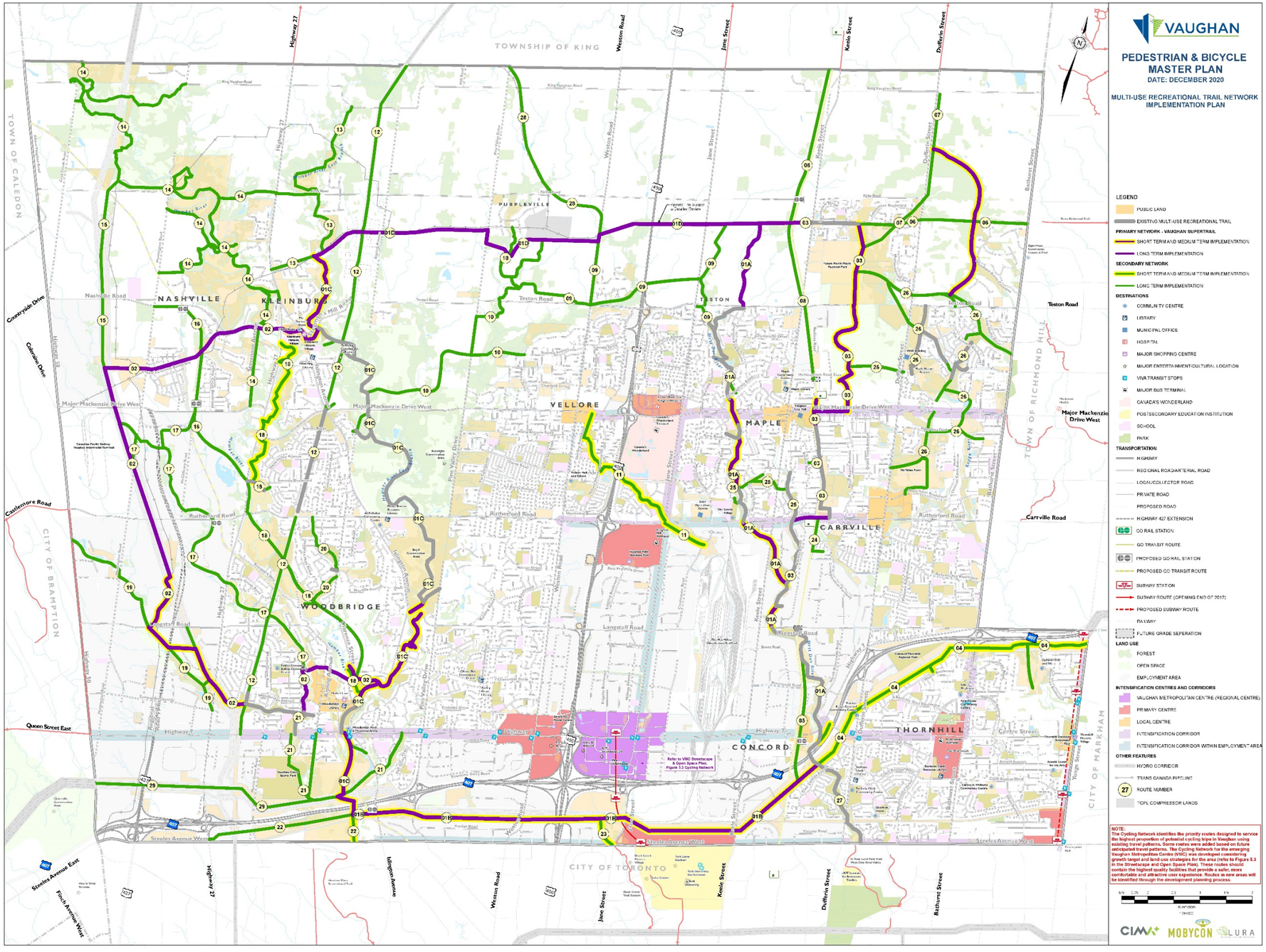

Figure 9-4: Multi-use Recreational Trails Network 5 Year Plan

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9.6. Staff Expertise Requirements

Best practices in the planning, design, maintenance and operation of cycling and multi-use recreational trails in North America is evolving at a rapid rate. Many municipalities that are leading the way in the delivery of cycling and multi-use recreational trail programs and projects have dedicated teams that manage and coordinate the implementation of pedestrian/cycling and trails plans. More importantly these teams keep up with emerging trends and evolving best practices playing an advisory role to other departments and their projects.

To successfully advance active transportation as per the Term of Council Strategic Plan, increased resources dedicated to active transportation are required and linked to expected level of service. The City should consider establishing dedicated coordination teams with expertise in the following functional areas:

- Strategic Policy and Network Planning
- Infrastructure Feasibility
- Infrastructure Design and Implementation
- Education, Outreach and Communication
- Operations and Maintenance
- By-law and Enforcement
- Data Collection, Monitoring and Analysis

Active transportation within the City should be supported by a review of roles and responsibilities, knowledge sharing, focused working groups, and the development of a vendor of record linked to the active transportation program to be used on an as-needed basis. It is recommended that the City:

9-4 Establish and expand dedicated coordination teams with expertise in strategic policy and network planning, infrastructure feasibility, design and implementation, education, outreach and communication, operations and maintenance, by-law and enforcement, data collection, monitoring and analysis.

Based on a review of other municipalities, standard process for implementing pedestrian, cycling and multi-use recreational trail infrastructure starts with planning staff developing initial master plans that are reviewed regularly, typically in line with the budget and capital planning process. Priorities are tweaked based on opportunities as they arise including partnerships, land acquisition and easement negotiations, subdivision agreements, upcoming capital projects and professional judgement and used to inform the capital program plans and develop business cases for implementation. This information is fed into the overall capital program for the City and ultimately to delivery staff for design and construction. Once delivered, maintenance and operations staff acquire the asset and are ultimate the owners of the pedestrian, cycling and multi-use recreational trail facilities. It is important that maintenance and operations staff be a key stakeholder during the design and approval process for any new active transportation facilities. This is the approach recommended for City of Vaughan.

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10. Other Considerations

Bike Parking at the Vaughan Metropolitan Centre (VMC) Subway Terminal

10. Other Considerations

There are several other considerations that support the principles and goals of the Pedestrian and Bicycle Master Plan objectives and the City's overall strategic plan to advance active transportation. The following sections highlight a few of those considerations. Additional considerations can be found in the attached technical appendices.

10.1. Pilot Projects

As part of Vaughan's shift towards offering more transportation options to residents and visitors, pilot projects present the opportunity to trial innovative concepts in order to evaluate the potential for long-term success and implementation. Cities across Ontario have employed cycling pilot projects to foster significant positive change in their community at reduced cost.

Vaughan's history of development as an auto-centric city provides significant opportunities for pilot projects and other temporary or seasonal measures given the surplus of pavement width found on many roadways. These corridors are considered prime candidates for bicycle pilot projects. Though competing interests with on-street parking must be considered, continuous monitoring and evaluation provide an opportunity to demonstrate the effectiveness of such projects.

The use of tactical urbanism approaches can also serve to trial potential changes to the roadways in a manner that engages the local community and helps explore any benefits prior to a more permanent implementation.

10-1 The City should continue to research new and emerging trends and technologies such as bike share, e-bikes and e-scooters.

10.2. Data Collection & Management

Data collection and management is a critical for planning pedestrian, cycling and multi-use recreational trail infrastructure. The City should consider implementing programs to monitor pedestrian and cyclist volumes along key corridors, pedestrian and cyclist safety (perceived and objective) and modal share.

Bike counters should be included and installed as part of the implementation of new pedestrian, cycling and multi-use recreational trail infrastructure. And trails observation studies should be conducted to measure open space trail use.

10.3. Bicycle Parking

The provision of bicycle parking is a critical to supporting the development of cycling and multi-use recreational networks and increase in cycling. Currently the City of Vaughan Zoning By-law 1-88 only includes provisions for bicycle parking in the Vaughan Metropolitan Centre. As such the following recommendations are made in relation to bicycle parking:

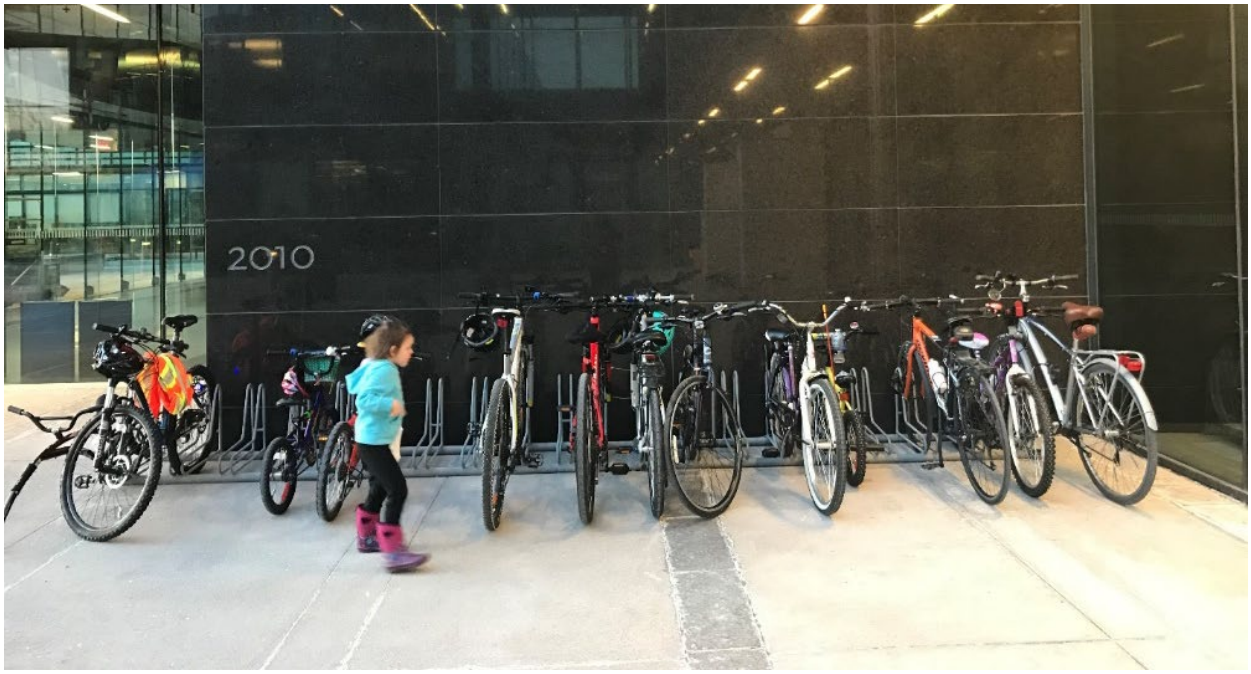
10-2 Through the comprehensive by-law update, the City should include provisions for bicycle parking City-wide in line with current best practices.

10-3 All new development should require short and long-term bicycle parking. Short-term bicycle parking should be visible from the destination for security and should be in a high-traffic area with passive surveillance but located in such a way as not

to unnecessarily impede pedestrian movement. Short-term bicycle parking should be provided with medium-high security bike racks with two points of contact such as the inverted 'U' rack permanently anchored to the ground (i.e. with an in-ground mount) preferably sheltered by an awning or equivalent. Long-term bicycle parking should be located on the ground floor or first parking level (P1) of a building if accessible via an elevator or ramp to provide convenient access to users. Parking garage ramps should include bike lanes and wayfinding signage to long-term bicycle parking.

10-4 The City should undertake a review of existing bicycle parking (both short and long term) at all municipal buildings. Short-term bicycle parking should be provided or upgraded in accordance with the above recommendation for new develops. Long-term bike parking should be implemented at City Hall and the Joint Operations Centre.

10-5 The City should develop an annual city-wide bicycle parking program. The program should be supported by a plan that outlines location, justification, purchase, and installation of bike racks city-wide.



Bicycle Parking at Vaughan City Hall

10.4. Wayfinding and Signage

To ensure a successful integration of cycling facilities, focus should be prioritizing the implementation of supportive amenities such as wayfinding and signage. Creating a cohesive and continuous system of on and off-road cycling facilities can be reinforced by implementing a consistent visual identity in the form of a city-wide wayfinding and signage strategy, which can further enhance the ability for pedestrians and cyclists to identify facilities and destinations City-wide. This can include information kiosks identifying key information such as transit, community facilities and businesses, and nearby destinations. This would need to be implemented consistently in areas where increased trail use is anticipated.

The wayfinding strategy will help increase awareness and provide trail users with information that will assist them in navigating through the trail system and connect residents to local neighborhood multi-use paths and green spaces. Wayfinding signage is also an important amenity for trail users and can potentially improve the function or operation of a trail, such as providing landmarks for wayfinding or demarcation of sensitive environments. These elements also help to create an identity for each trail and to designate trails as public spaces in the City. The need to implement a wayfinding and signage strategy was also clearly emphasized throughout much of the public input and feedback received throughout public consultation.

Considerations to be included in a wayfinding signage strategy:

- Coordinated pedestrian, cycling and multi-use recreational trail signage concept should be developed
- Comprehensive wayfinding signage program along key routes as they are implemented
- Clear warning and wayfinding signage for trail crossings at intersections with other trails and roadways
- Highly visible sign panels and posts that provide adequate clearance for trail users and minimize the risk of vandalism or theft
- Signs installed at the top and bottom of all significant grade changes and structures, providing accessibility and alternative route information
- Wayfinding signage located near the entrances to trail access points (trailheads)

In addition to the City-wide wayfinding information, the City of Vaughan should consider working with partner agencies and organizations to develop neighborhood-based maps showing walking and cycling routes within their community at a local scale. This can provide people with detailed information on where to travel within their own neighborhood to access local destinations and can complement the city-wide information.

Bartley Smith Greenway Wayfinding Signage at Teston Road and Cranston Park Avenue

10.5. Trail Lighting

Lighting trails can significantly increase the utility of a trail by extending the hours where trail users will be comfortable on a trail. However, due to the cost of trail illumination and considering that it is not essential, the focus should be on developing a larger and more integrated trail network and address the question of whether lighting is required if a need for it is established in the future. Every proposed new or upgraded trail should be considered independently and in consultation with stakeholders before a decision is made to provide illumination.

In certain locations, lighting could impact sensitive wildlife activities and habitat. Where trail lighting is considered, it should be continuous between access points to ensure that trail users feel secure. If lighting of entire trail segments is not feasible, an alternative would be to consider lighting the entrances and exits, tunnels, underpasses, and intersections.

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