



Final Report

Executive Summary

City of Vaughan

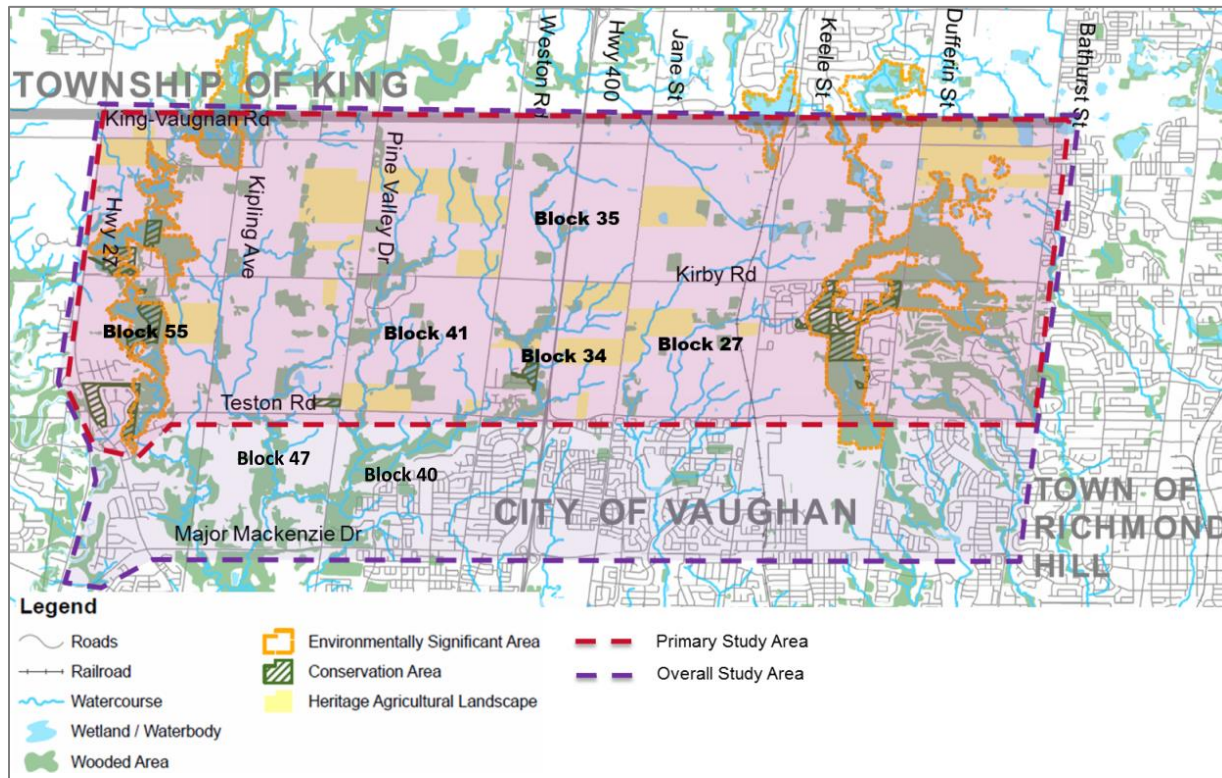
January 2019



Executive Summary

The North Vaughan and New Communities Transportation Master Plan (NVNCTMP) is a long-range plan that recommends policies, programs and infrastructure required to meet existing and future (2031) mobility needs and provide context for transportation decisions within North Vaughan. The primary study area is bound by King-Vaughan Road to the north, Highway 27 to the west, Teston Road to the south and Bathurst Street to the east, while the overall study area extends to Major Mackenzie Drive. **Exhibit A** illustrates the boundaries of the primary and overall study areas.

Exhibit A: Primary and Overall Study Area



This study is being conducted in parallel with the Block 27 and 41 Secondary Plan Studies for the New Community Areas and will address the following goals:

1. Review and provide input to the planning policies and infrastructure master plans covering the study area.
2. Reflect the principles and objectives of the Vaughan Official Plan 2010, the city-wide Transportation Master Plan 2013, and the 2007 Pedestrian and Bicycle Master Plan (currently being updated)
3. Identify and address the opportunities and constraints imposed by current transportation infrastructure and emerging influences, including the review of the roadway functions and identify jurisdictional transfer opportunities.
4. Address the transportation requirements for the Block 27 and 41 Secondary Plan areas considering the development of the internal transportation networks in these blocks and their connectivity to the external transportation networks.

A. Study Approach and Consultation

This study follows the master planning process Approach #1 described in the Municipal Engineers Association Municipal Class Environmental Assessment (MCEA) (October 2000, as amended in 2007, 2011 and 2015). This Master Plan satisfies Phase I and II of the MCEA for recommended infrastructure improvements at a broad level and recommended EA Schedule B and C infrastructure projects will require further detailed studies as per the MCEA process. The MCEA is an open, public process and the public announcements and opportunities for public and agency input and participation in the study are summarized as follows:

- Notice of Commencement in July 2015
- Notice of Public Information Centre #1 issued online and in the Vaughan Citizen Newspaper on October 1 and October 8, 2015
- Public Information Centre #1 held at Vaughan City Hall on October 13, 2015
- Notice of Public Information Centre #2 issued online and in the Vaughan Citizen Newspaper on March 23 and 30, 2017
- Public Information Centre #2 held at Vaughan City Hall on April 5, 2017

B. Study Background and Context

The NVNCTMP builds upon:

- Provincial plans for Regional Express Rail all-day two-way GO Rail service, the Kirby GO station, and intensification surrounding Major Transit Station Areas
- York Region's Transportation Master Plan (TMP) 2016's transportation improvements and policies including support for building finer grid collector road systems and making the last mile work by providing a wide range of mobility options around transit stations
- Vaughan Official Plan, TMP 2013 (city-wide), Pedestrian and Cycling Master Plan, Secondary Plans and Block Plans.

The York Region TMP 2016, which considers the City of Vaughan TMP 2013's recommendations, identifies a number of regional improvements in the study area to support the planned growth. The recommendations made by the NVNCTMP are made in the context of both the York Region and City of Vaughan plans.

C. Problem and Opportunity

A thorough review of the existing transportation conditions within the study area and current future plans was undertaken to define the problem and opportunity. The review included documentation of the current road, transit, and active transportation networks, current land use, travel patterns, modal share, demand and operations, and planned growth and planned improvements.

With all of this considered, a problem and opportunity statement was identified:

The NVNCTMP study area is in need of capacity and operational improvements with regards to transportation network supply for all travel modes. The rural nature of the area, limited transit service and limited active transportation facilities have resulted in overwhelming automobile dependency by local residents. In addition, several network gaps, sub-standard road cross-sections, and challenging vertical alignments have reduced connectivity, safety, and led to overburdened east-west and north-south continuous links such as Major Mackenzie Drive and Highway 400.

Through the development of the New Communities and the Highway 400 North Employment Area, opportunities exist to build upon existing plans to provide better connectivity and continuity by bridging gaps, connecting to the provincial highway network, eliminating jogs, expanding transit service to the study area, improving cross-sections and slopes, and providing active transportation facilities to reduce the reliance on the automobile.

D. Transportation Vision

Building upon the problem and opportunity statement, a vision statement was identified to frame the recommendations of the study was developed, which builds upon the City's strategic vision of transformation into a vibrant, beautiful and sustainable City:

The North Vaughan and New Communities will establish a comprehensive transportation network that allows a full range of mobility options including transit, walking, cycling, and place making initiatives with an emphasis on creating more pedestrian and transit-friendly streets that are connected, safe, and accessible for users of all ages and abilities.

E. Alternative Networks

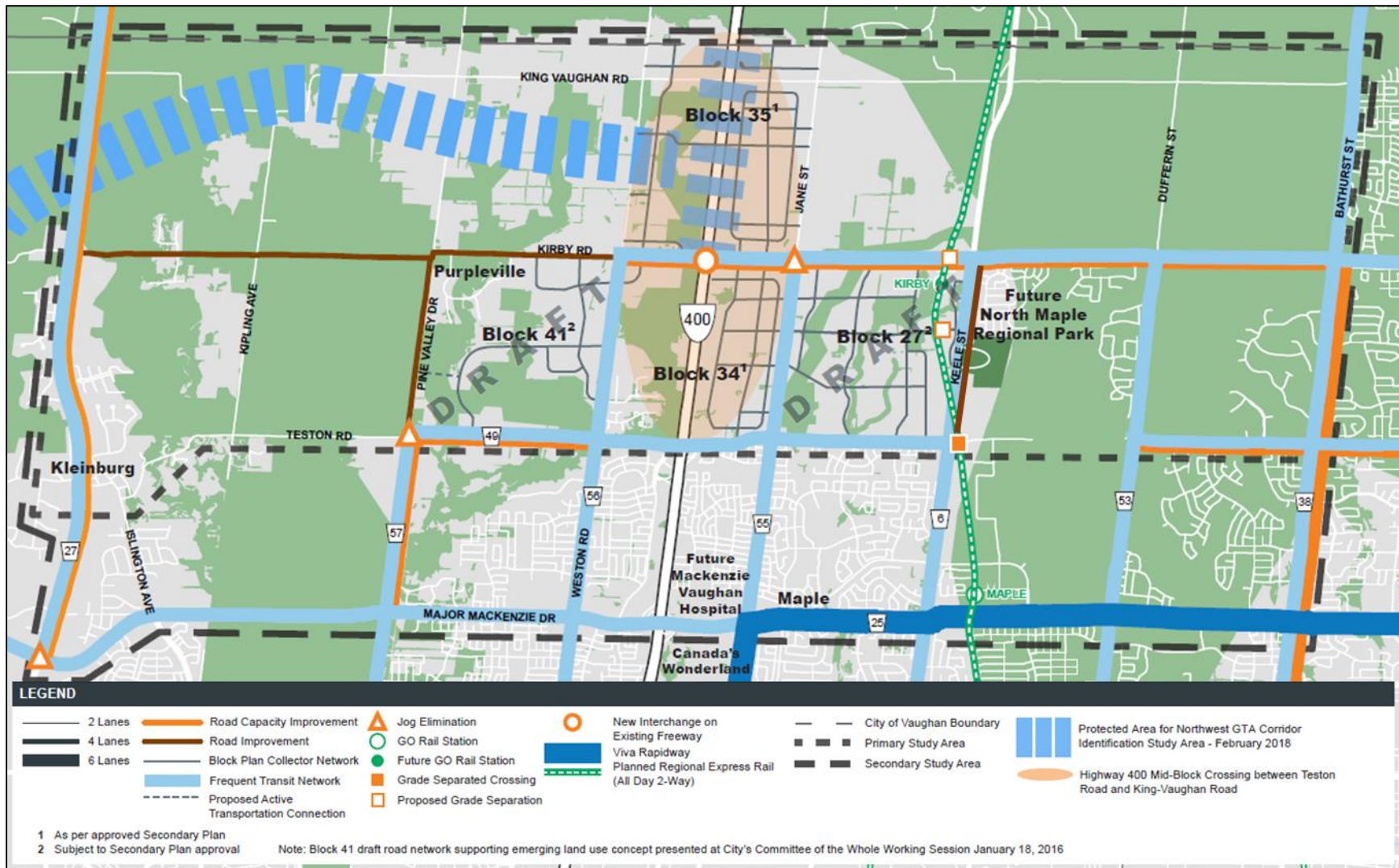
Two broad alternative networks were considered to address the issues and support the transportation vision for the study area. The alternatives considered for the NVNCTMP are:

1. Alternative Network 1 – York Region TMP (minus GTA West corridor)
2. Alternative Network 2 – Enhanced Network

For further input and consideration, sensitivity tests were conducted on the alternative networks. This included a scenario which considers the transportation impacts without the Kirby Road missing link (Dufferin to Bathurst). A second test was conducted based on the York Region Development Charges 2017 network which excluded a number of improvements identified in the York TMP 2016, Region wide. The widening of Weston Road was among those removed. Based on these sensitivity tests, the analyses confirmed the need for the Kirby Road missing link as well as the need for the road and transit network improvements identified in the York TMP to the year 2031.

Alternative Network 2 – Enhanced Network is recommended to be carried forward as the preferred Transportation Master Plan alternative as it minimizes overall network congestion and delay. **Exhibit B** illustrates the recommended transportation network.

Exhibit B: Recommended Transportation Network



F. Recommended Transportation Strategy

The recommended transportation network includes a number of improvements outside the jurisdiction but critical to growth and development in study area. The recommendations of this study support current Provincial and Regional initiatives, which are listed in the following sections.

Provincial Highway Improvements

- Widening of Highway 400 including High Occupancy Vehicle (HOV) Lanes (currently under construction)
- Highway 400 interchange at Kirby Road (by 2026)

Metrolinx Improvements

- All-day two-way, 15 minute rail service on the Barrie GO Corridor (by 2025)
- Kirby GO Station (by 2025)

Regional Improvements

As identified in the York Region TMP with the exception of the recommendations on Kirby Road (which are itemized in the following section under City of Vaughan improvements).

City of Vaughan Road Improvements

Road improvements to be initiated by the City are identified in the table.

Exhibit C: City of Vaughan Road Improvements

ID	Improvement	Timing
1A	Kirby Road from Weston Road to Dufferin Street - Widening 2 to 4 lanes	By 2026
1B	Kirby Road from Dufferin Street to Bathurst Street - New 4 lane road	By 2026
1C	Kirby Road at Barrie GO corridor - Grade separation	By 2026
2A	Block 27 - Street 2 Major Collector Road	By 2026
2B	Block 27 - Street 5 Major Collector Road	By 2026
2C	Block 27 - Street 8 Major Collector Road	By 2026
2D	Block 27 Minor Collector Road Network	By 2026
3	Block 41 Collector Road Network	By 2026
4	Block 34 - North South Major Collector Road	By 2026
5	Highway 400 Midblock Crossings (either Block 34, Block 35, or both)	By 2031
6	Kirby Road from Highway 27 to Weston Road - Reconstruction	By 2031
7	Pine Valley Drive from Kirby Road to Teston Road - Reconstruction	By 2031

Jurisdiction Transfers

- Kirby Road Jurisdiction transfer to York Region, from Highway 27 to Dufferin Street
- Pine Valley Drive Jurisdiction transfer to York Region from King-Vaughan Road to Teston Road

Kirby GO Station Recommendations

- Kirby Road Grade Separation:
 - Build the Kirby Road grade separation by 2026 prior to all day two-way service implementation on the Barrie GO corridor,
 - Advance construction of the grade separation prior to or in parallel with the construction of the Kirby GO station and integrate the grade separation EA into the Transit Project Assessment Process wherever possible,
 - Preliminarily recommend a supporting “jughandle” system to provide vehicular access to lands between the rail line and Keele Street, due to insufficient space for a signalized intersection with Kirby Road.
 - It is recognized that this system has challenges with respect to active transportation so future study and preliminary design should account for the provision of direct walking and cycling infrastructure between Kirby Road and the future GO station.
- Micro-transit
 - Explore private partnerships with businesses / ride share companies to provide first and last mile on-demand service in conjunction with Maple GO and Rutherford GO
- Wayfinding
 - Signage integrated with the local trails and multi-use path system, particularly at major hubs (GO Station, Community hubs) and at key access points to the off-road system
 - Streets and public spaces within 2km of the GO station should have signage showing how community members can walk to the station
 - Provide a public realm that includes proper lighting, amenities, and other design elements to encourage walking or cycling to major hubs and destinations
 - Special designs or branding such as “GO Active community” or “Kirby GO Transit Village” should be incorporated in partnership with local and regional partners to promote community awareness to active mode of access to stations.
 - Consider utilizing emerging multimodal, real-time wayfinding technologies such as *TransitScreen* at the Kirby GO Station and at key locations throughout the surrounding community and Block 27 (i.e. North Maple Regional Park, community hubs)
- EcoMobility Hub Pilot Program
 - Consider hubs at key locations including Kirby GO station, the community hub, the North Maple Regional Park (east side of Keele Street), and other key locations integrated with public squares, parks or schools.
 - Promote multi-modal trip planning apps that also take into account bike, carpool or walk access to stations (such as the CityMapper app)
 - Consider utilizing multi-modal, real-time wayfinding technologies such as *TransitScreen*
 - Explore carpooling and ridesharing marketing to residents about HOV lanes to provide access to VMC and the TTC Spadina Subway extension (as suggested in the Vaughan Official Plan 2010)

Active Transportation

New active transportation facilities are identified in **Exhibit D**:

Exhibit D: New Active Transportation Facilities

Road	Segment	Recommendation	Rationale
King Vaughan Rd	Pine Valley Dr – Bathurst St	Separated Facility	Upgrade from dedicated facility recommended in York Region TMP. City of Vaughan OP states that where feasible, arterial streets should be designed to accommodate separate bike lanes.
Kirby Rd	Hwy 27 – Weston Rd	Separated Facility	Natural environmental features and goods movement in the area may constraint the ROW; however, cycling should still be accommodated by separated facilities.
Kirby Rd	Weston Rd – Dufferin St	Separated Facility	As an arterial road, it should be designed to accommodate separate bike lanes, especially as the corridor is identified as a Regional Strategic Goods Movement Corridor. Kirby Road will also be widened to four lanes between Weston Road and Bathurst Street.
Kirby Rd	Dufferin St – Bathurst St	Separated Facility	Natural environmental features and development in the area may constrain the ROW; however, cycling should still be accommodated by separated facilities.
Teston Rd	Hwy 27 – Pine Valley Dr	Separated Facility	Per City's OP, arterial road should be designed to accommodate separate bike lanes and will feed into the Regional Network.
Teston Rd	Pine Valley Dr – Bathurst St	Separated Facility	City of Vaughan Bicycle and Pedestrian Master Plan and York Region TMP.
Pine Valley Dr	Major Mackenzie Dr – Teston Rd	Separated Facility	York Region TMP, incorporate into road widening.
Pine Valley Dr	Teston Rd – Kirby Rd	Separated Facility	Natural environmental features in the area may constrain the ROW; however, cycling should still be accommodated by separated facilities.
Pine Valley Dr	Kirby Rd – King Vaughan Rd	Separated Facility	Natural environmental features in the area may constrain the ROW; however, cycling should still be accommodated by separated facilities.
Weston Rd	Major Mackenzie Dr – King Vaughan Rd	Separated Facility	York Region TMP.
Jane St	Major Mackenzie Dr – Teston Rd	Separated Facility	York Region TMP.
Jane St	Teston Rd – Kirby Rd	Dedicated Facility	Upgrade from shoulder to cycle tracks with expansion to 4 lanes. Consistent with Facility Type in York Region TMP.
Keele St	Major Mackenzie Dr – Kirby Rd	Dedicated Facility	Continue dedicated facility that currently exists south to Major Mackenzie Drive. Consistent with Facility Type in York Region TMP.
Bathurst St	Major Mackenzie Dr – Kirby Rd	Separated Facility	York Region TMP, with widening of Bathurst St to 6 lanes, incorporate separated facility
TCPL Trail	Hwy 27 – east of Keele St	New Trail	Part of the Vaughan Super Trail, identified in the City of Vaughan 2018 Pedestrian and Bicycle Master Plan update
Bartley Smith Greenway Extension	Bartley Smith Greenway – TCPL Trail	New Trail	Part of the Vaughan Super Trail, identified in the City of Vaughan 2018 Pedestrian and Bicycle Master Plan update

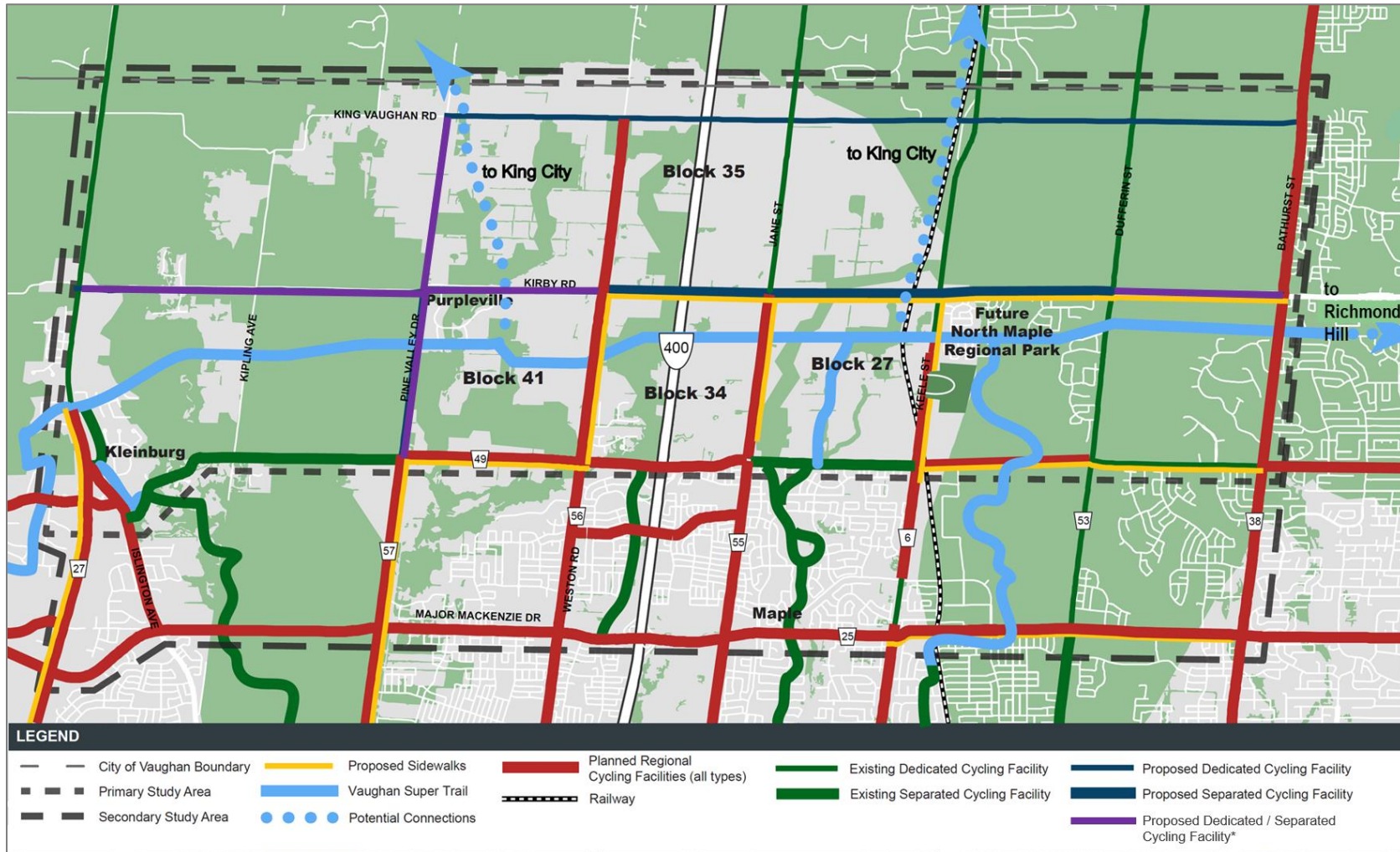
Road	Segment	Recommendation	Rationale
Segment from McNaughton northbound through Keele Valley Lands and North Maple Regional Park	Vaughan City Hall to TCPL Trail	New Trail	Part of the Vaughan Super Trail, identified in the City of Vaughan 2018 Pedestrian and Bicycle Master Plan update

Further recommendations to improve active transportation in the study area include:

- A future EA study for the TCPL trail considering:
 - Consolidation of a potential Block 34 midblock crossing with the TransCanada Pipeline (TCPL) trail
 - Potential routing of TCPL trail to the signalized intersection at Weston Road and Block 41 Street 2 or an actuated traffic signal at the TCPL alignment
 - Potential routing of TCPL trail to the signalized intersection at Keele Street and Peak Point Boulevard or an actuated traffic signal at the TCPL alignment
- Urbanization of Keele Street to include sidewalks and cycling facilities
- Dedicated cycling facilities throughout Blocks 27 and 41

The recommended Active Transportation Network for the NVNCTMP study area is illustrated in **Exhibit E**.

Exhibit E: Recommended Active Transportation Network Improvements



* Recommend upgrading to separated facilities upon redevelopment of the area or future improvements of the road.

Travel Demand Management

Travel Demand Management (TDM) policies and programs encourage more efficient travel and travel outside of peak periods. TDM recommendations are summarized in **Exhibit F**.

Exhibit F: Travel Demand Management Recommendations

Strategy	Directions	Partnerships
Residential / Community TDM	<ul style="list-style-type: none"> • Provide individual travel planning and marketing for all new residents in Blocks 27 and 41 • Community champions program • Identify a singular information portal for travel options, planning and information • Collaborate with local neighbourhood social networks • Design TDM programs for existing and planned recreational facilities, community centres including Maple Community Centre, Vellore Village Community Centre, and the future North Maple Regional Park 	Healthyork, Metrolinx, Vaughan Cycling Forum
Developer TDM	<ul style="list-style-type: none"> • Introduce reporting requirements for developers and property managers reporting on TDM plan establish at site plan approval stage. To incent these reports, a reward/recognition program may be implemented similar to Smart Commute's workplace designation program. This includes primarily the local centre area surrounding the Kirby GO Station in Block 27. • Implement reduced parking requirements, unbundling, and other supportive policies at local centres, near higher-order transit hubs, and in primary centres / intensification areas. • Encourage / incentivize Smart Commute membership by developers and tenants 	Smart Commute North Toronto Vaughan
School-based TDM	<ul style="list-style-type: none"> • Learn to Bike programs for physical education classes • Incorporate active transportation infrastructure (active / safe routes to school) into new school and their surroundings • Provide information / incentives / resources for students and parents to change travel behaviour • Create campaigns to create a culture of sustainable transportation • Bike safety education programs • Take advantage of regional programs including Healthyork and Metrolinx 	Healthyork, Metrolinx, Safe Routes to School
Business / Employer TDM	<ul style="list-style-type: none"> • Leverage partnerships with organizations and agencies already delivering sustainable programs to maximize reach. • Require major employers above a certain size to join Smart Commute • Implement workplace focused marketing campaign • Implement workplace individualized marketing programs at key employers • Create economic development materials to encourage TDM friendly workplace locations and development. • Survey workplace destinations of new residents, and explore opportunities for shuttle services, rideshare opportunities 	Major businesses
First and Last Mile Connections	<ul style="list-style-type: none"> • Build on the lessons of the Milton GO Connect pilot program, which allowed individuals to schedule a subsidized taxi/Lyft/Uber ride to and from the Milton GO Station using an app. 	Metrolinx, Smart Commute North

Strategy	Directions	Partnerships
to Transit Stations	<ul style="list-style-type: none"> • Encourage carpooling to and from the local GO Train stations as well as the VMC subway station. • Promote multi-modal trip planning apps that also take into account bike, carpool or walk access to stations (such as the CityMapper app). • Create secure bike parking at GO Stations and prioritize AT infrastructure around stations. • Explore dedicated park and ride lots for carpooling to the subway station in coordination with rideshare marketing to residents about HOV lanes (as suggested in the City of Vaughan Official Plan 2010). • Partner with SmartCommute North Toronto Vaughan to pilot EcoMobility Hubs¹ within Block 27 which include designated safe waiting areas for rideshare, electric vehicle car share stations, bike share stations to leverage multiple shared mobility solutions 	Toronto Vaughan

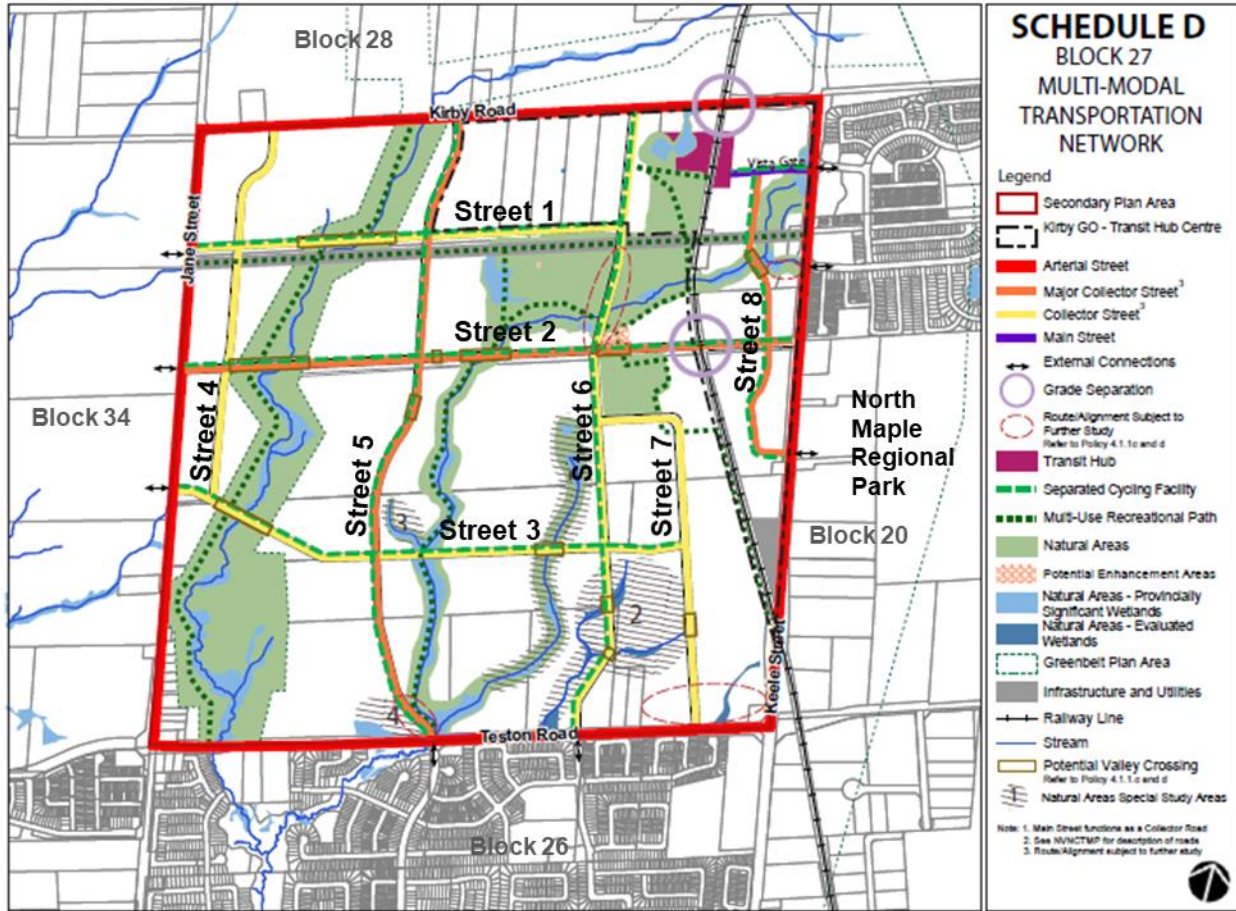
G. Block 27 Transportation Network

A preferred transportation network for Block 27 was identified through an integrated approach in consultation with the Block 27 Secondary Plan team, landowners and their representatives, and the NVNCTMP study team. The process for the network development included consideration of alternative network solutions, evaluation of those alternatives to select a preferred alternative, and detailing of the preferred alternative, identified in **Exhibit G**.

¹ 1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.

2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

Exhibit G: Block 27 Recommended Transportation Network



Source: Block 27 Secondary Plan, OPA 33 adopted by Vaughan Council June 2018

Critical elements of the preferred transportation network include:

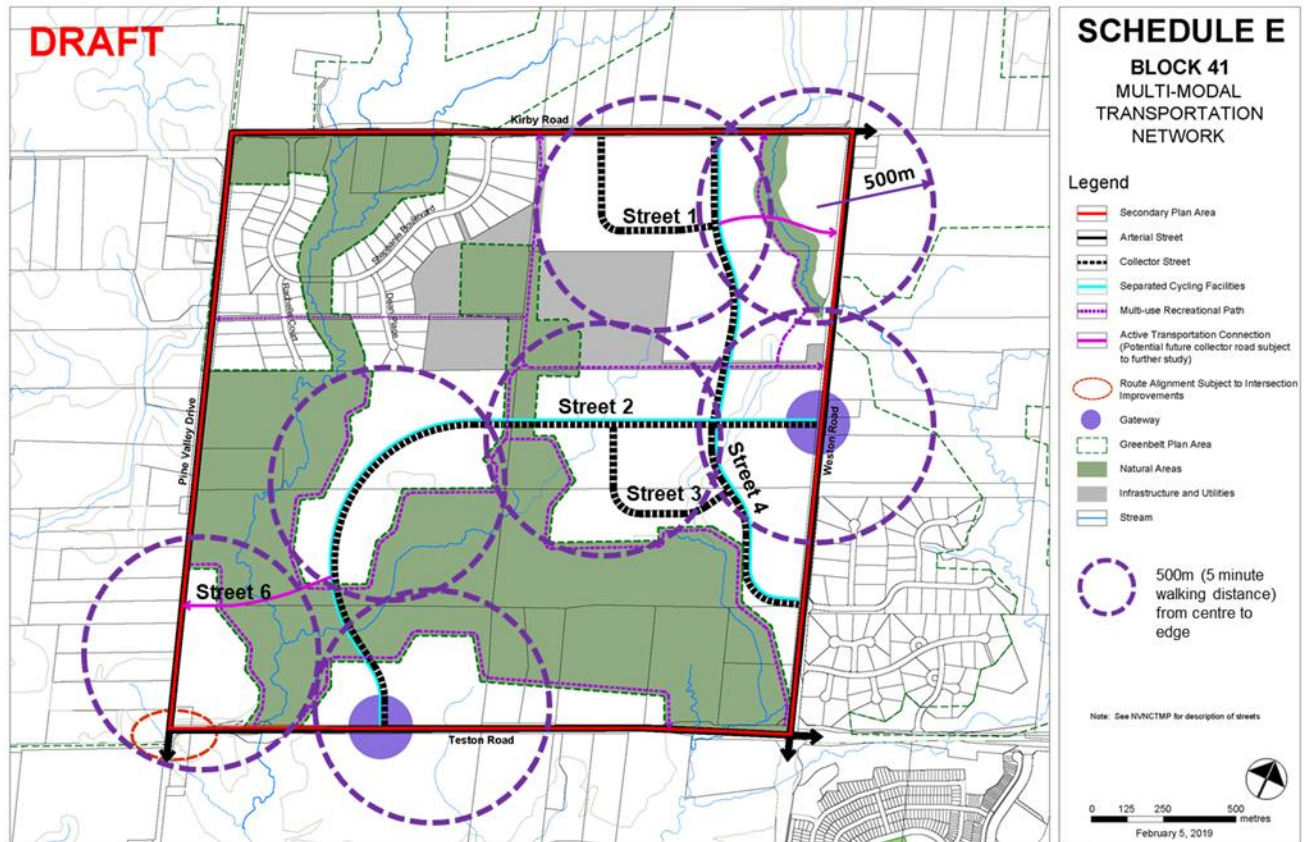
- A grid-like road network supporting intensification and providing access to Kirby Road at the Kirby GO Station - subject to further study for the Kirby GO station
- Grade separated crossings of the Barrie GO Rail line at Kirby Road and Street 2
- Direct connections to collector roads in adjacent Blocks, including three connections at Jane Street with Block 34, two connections at Teston Road with Cranston Park Avenue and St. Joan of Arc Avenue, and two connections at Keele Street with Vista Gate and the main entrance for the North Maple Regional Park
- Major collector roads (26m ROW width) include Street 2, Street 5, and Street 8 with 14m paved surface which may be used for 2 travel lanes plus on-street cycling, on-street parking, or other uses.

H. Block 41 Transportation Network

A preferred transportation network for Block 41 was identified through an integrated approach in consultation with the Block 41 Secondary Plan team, landowners and their representatives, and the NVNCTMP study team. The process for the network development included consideration of

alternative network solutions, evaluation of those alternatives to select a preferred alternative, and detailing of the preferred alternative. The draft recommended network, identified in **Exhibit H**, was presented to the public at the Block 41 public hearing, February 13, 2019. The network is subject to change as the Block 41 Secondary Plan is finalized.

Exhibit H: Block 41 Recommended Transportation Network



Source: Block 41 Public Hearing, February 13, 2019

Two potential refinements to the Block 41 plan include a potential Street 1 extension to connect to Block 34, and a new Street 6 connecting to Pine Valley Drive. Based on projected demand within the Block and adjacent areas, it is recommended that both of these connections be planned as active transportation only.

All other collector roads within Block 41 are minor collector roads with a 24m ROW and 2 travel lanes. Street 2 and Street 4 which provide connectivity between neighbourhoods within Block 41 and to the Regional arterial network, are recommended to incorporate separated cycling facilities. A network of off-street trails is also recommended.

I. Future Considerations and Actions

Northwest GTA Corridor

Depending on the outcome of the Northwest GTA Corridor Identification Study, an update to the findings of the NVNCTMP may be required to consider and incorporate MTO's future

recommendations; such as impact on the Highway 400 midblock crossing requirements, connections of transit network, goods movement network, and any other supporting infrastructure improvements.

Block 28 and 42 Growth

Blocks 28 and 42 are potential new community areas beyond the current urban boundary. Future study within the North Vaughan area should consider beyond 2031 potentially to 2041 to understand the impacts of potential Block 28 and 42 developments on the broader network.

Future Studies

The following studies are recommended to be undertaken by the City of Vaughan following the completion of the NVNCTMP:

- Kirby Road Environmental Assessment Study from Jane Street to Dufferin Street, including grade separation at Barrie Corridor GO railway and active transportation improvements, satisfying Phase 3 & 4 of the Class EA.
- Vista Gate Extension and Street '8' / GO Access #1 extension Environmental Assessment Study satisfying Phase 3 & 4 of the Class EA.
- City-wide Transportation Master Plan update to the year 2041

Subsequent studies pending adjacent development (i.e. concurrent with Block Plan Processes) and the outcome of Northwest GTA Corridor Study:

- Kirby Road widening and active transportation improvements from Weston Road to Jane Street Environmental Assessment Study to satisfy Phase 3 & 4 of the Class EA
- Environmental Assessment Study for Block 27 and Block 41 collector road networks – to satisfy Phase 3 & 4 of the Class EA, which maybe integrated with the *Planning Act* process.
- Environmental Assessment Study for Keele Street Urbanization and Cycling Facilities
- TransCanda Pipeline Trail EA study
- Northwest GTA Corridor supporting infrastructure study

Other Future Considerations

In light of the province's ongoing work on the Greater Golden Horseshoe Transportation Plan and rapidly advancing transportation technologies which are changing the way that we move, it is recognized that the NVNCTMP reflects the current planned needs to the 2031 horizon year which are foreseen at this time. The City of Vaughan, in future updates to its transportation plans and visions must be prepared to be flexible, responsive, and resilient in its planning to account for rapidly changing technologies including new mobility solutions and connected and automated vehicles.