



TRANSPORTATION NETWORK ALTERNATIVES

4

4 Transportation Network Alternatives

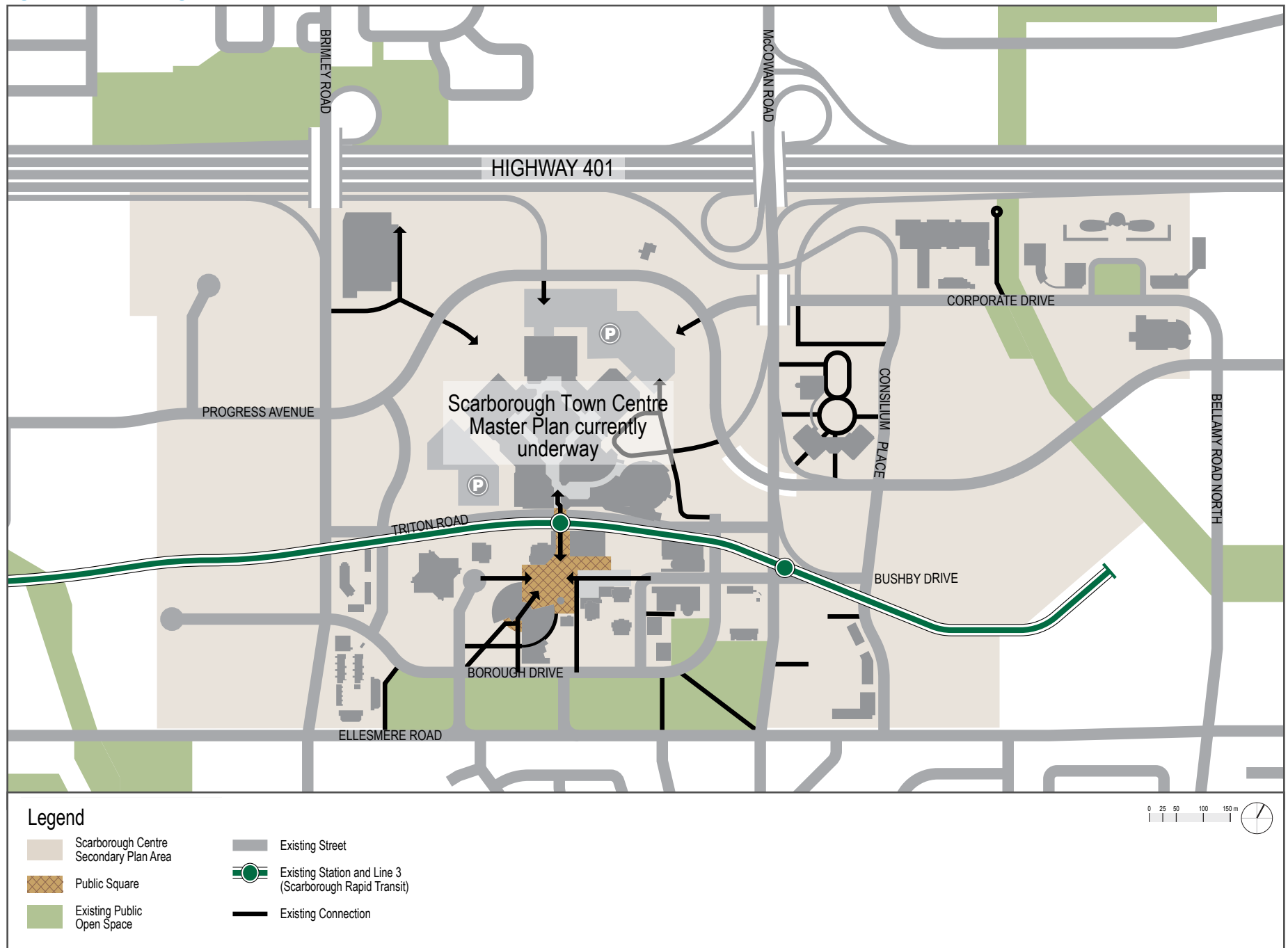
4.1 Development of Transportation Network Alternatives

Three future transportation network alternatives were identified for the study area: Existing Conditions, Current Policy Framework, and Emerging Vision. The Existing Conditions alternative represents the Centre as it is seen today – with automobile priority, little connectivity, and large blocks. Realizing the constraints of Existing Conditions, the Current Policy Framework reflects the current thinking from the planning studies mentioned in section 2.2. The Emerging Vision was developed by the Scarborough Centre on the Move Transportation Master Plan (SCTMP) team in consultation with the public to address the Problem and Opportunity Statement.

4.1.1 Existing Conditions

Existing Conditions or the “Do Nothing” alternative is used as a reference to compare proposed network changes against. In essence, it is the transportation network found today in the study area. Figure 4.1 illustrates what the future network would look like if nothing changed.

Figure 4.1: Existing Conditions Transportation Network



4.1.2 Current Policy Framework

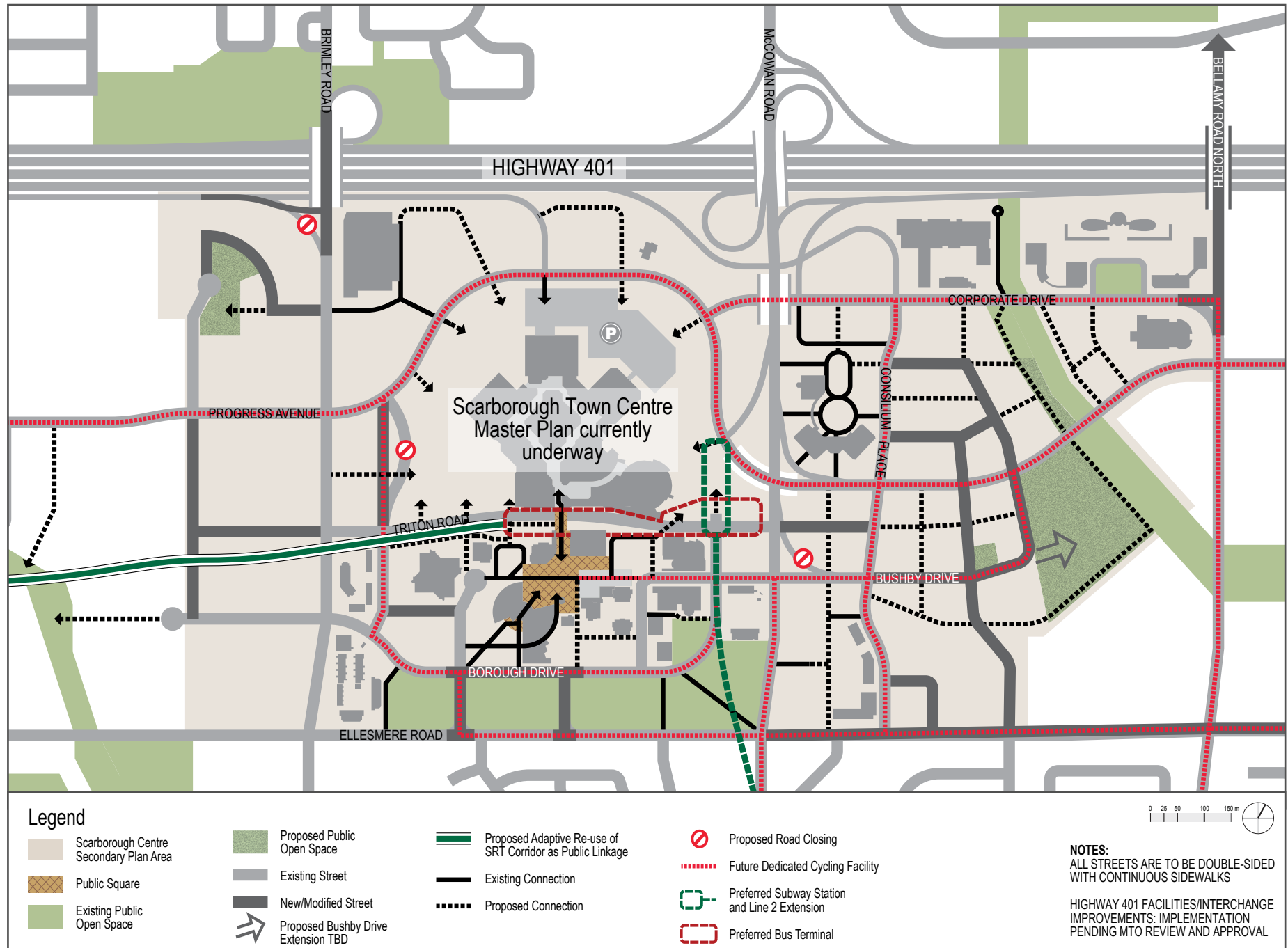
The Current Policy Framework is the alternative that identifies future transportation conditions outlined in previous planning work, including planned improvements from the Scarborough Centre Secondary Plan, McCowan Precinct Plan, Civic Precinct Implementation Plan, and Scarborough Centre Public Space & Streetscape Master Plan. It also includes the future extension of TTC Line 2 to Scarborough Centre.

The current policy framework begins to address gaps in existing conditions by providing a fine-grained grid network in the McCowan Precinct. This alternative begins to establish a network in areas where a previous network did not exist, and creates connections between major uses in the Centre.

While this alternative sets the foundation for policies related to enhancing active transportation connections and creating a permeable network, changes to the transportation network are not consistent across the Centre. This alternative proposes streetscape improvements within existing rights-of-way (ROW) in the Centre, but focuses major network improvements on the Civic and McCowan Precincts.

Figure 4.2 illustrates what the future network would look like if the Current Policy Framework was implemented.

Figure 4.2: Current Policy Framework



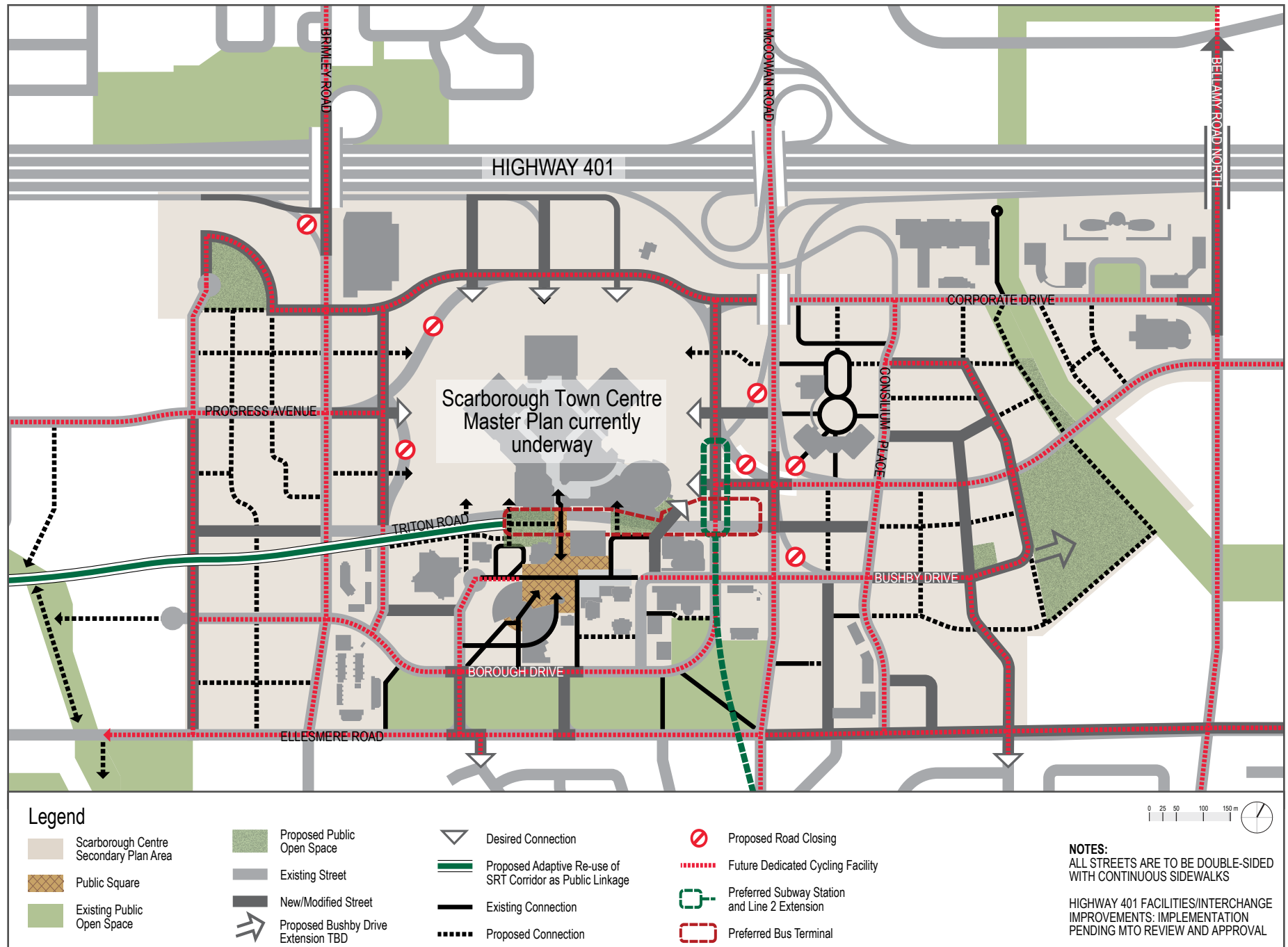
4.1.3 Emerging Vision

The Emerging Vision was developed in consultation with the public to address issues that remained outstanding from the Current Policy Framework alternative and the existing Scarborough Centre context. It builds upon the previously completed work, with guidance from the eight principles outlined in Chapter 3.

The Emerging Vision builds upon the design framework for the McCowan Precinct Plan by proposing a simplified street network for the entire Centre area, which allows for a more walkable block pattern and still provides opportunity for development. It develops a comprehensive street network for all precincts and includes connections between precincts and to/from surrounding communities.

Figure 4.3 illustrates what the future network would look like if the Emerging Vision was implemented.

Figure 4.3: Emerging Vision









4.2 Preliminary Preferred Alternative

Each of the three network alternatives – Existing Conditions, Current Policy Framework, and Emerging Vision – were evaluated based on the evaluation framework of key questions, criteria, and measures. The evaluation measures were used to determine if the alternatives met, partially met, or did not meet the specified criteria.

The MetroQuest online survey was also used during this stage of the study to receive feedback on the transportation network alternatives being evaluated. Participants were asked to rank the top five evaluation principles that were most important to them. It was determined from this exercise that all eight principles were equally important, as only marginal differences existed between the options. Therefore, all eight principles were weighted equally during the evaluation.

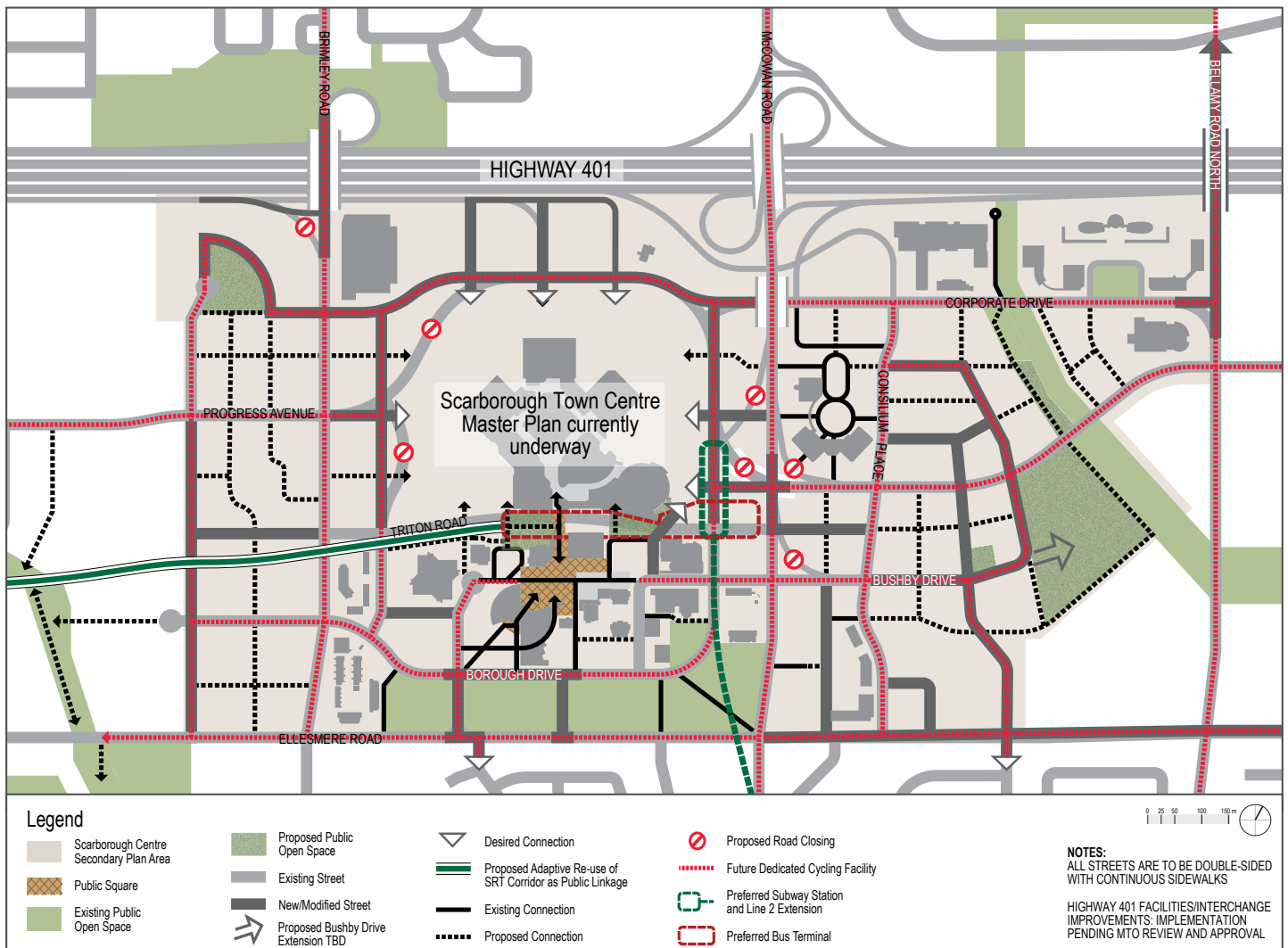
A summary of the evaluation results is presented in Table 4.1, and detailed evaluation matrices can be found in Appendix E.

Table 4.1: Summary Evaluation Matrix of Network Alternatives

Principle	Question	Alternative 1: Existing Conditions	Alternative 2: Current Policy Framework	Alternative 3: Emerging Vision
 CHOICE	Does it promote a shift towards sustainable modes of transportation?	No Does not provide adequate amount of sidewalks (6.7 km) and dedicated cycling lanes (0 km)	Partially Provides for increased sidewalks (10 km) and dedicated cycling lanes (5 km)	Yes Identifies the most sidewalks (15 km) and dedicated cycling lanes (15 km)
	Does it provide an efficient and integrated transportation network for all users?	No Favours automobile travel	No Does not comprehensively address the study area, or efficiently incorporate proposed transit investments	Yes Identifies connections between the study area and surrounding communities to transit investments via walking and cycling
 EXPERIENCE	Does it support an attractive and vibrant public realm and sense of place?	Partially Provides some sense of place on segments of Borough Drive, Albert Campbell Square and main entrance to mall	Partially Provides for an improved sense of place through mixed land use, with a focus on the pedestrian and cycling experience	Yes Builds upon Alternative 2 and defines street types based on Complete Streets Guidelines
	Does it allow for the convenient and safe movement of users of all modes of transportation?	No Favours automobile travel through existing street design. Lacks wayfinding and active transportation connections	No Identifies a pedestrian network, but does not define a wayfinding and signage strategy	Yes Provides a defined and unique strategy for the Centre, specifying wayfinding improvements to street design
 SOCIAL EQUITY	Does it provide for opportunities to improve connectivity to work, school and other destinations?	Partially Key routes and transit stations are not well-connected to key origins/destinations	Partially Some improved connections to key origins/destinations	Yes Adds new connections for the entire Centre
	Does it accommodate all users, including vulnerable street users?	Partially Does not fully comply with AODA, but does provide accessibility ramps in Albert Campbell Square and provides elevators in Scarborough Centre TTC Station	Partially Does not improve all accessibility deficiencies in the network	Yes Complies with AODA with regards to transportation network
 HEALTHY NEIGHBOURHOODS	Does it support the mixed-use and transit-oriented vision of the Secondary Plan?	No Does not achieve the objectives set out by the provincial and municipal policies	Partially Complies with planning policies, but identifies further work is required for planning complete transportation network and facilities	Yes Builds upon Alternative 2 and related planning policies, recommending a master plan for new transportation facilities throughout the study area
	Does it create a transportation network and block plan that supports a vibrant urban centre?	No Encourages automobile travel through large blocks and street design	Partially Provides guidelines for intersection spacing to encourage pedestrian activity for the McCowan Precinct	Yes Proposes a fine-grained transportation network for the entire Centre
 SHAPING THE CITY	Does it improve connectivity and access within the Centre and to/from surrounding communities?	No Does not provide adequate connections within Scarborough Centre and to/from surrounding communities	Partially Creates policy framework for improving connectivity	Yes Reconfigures transportation network for better connections between Scarborough Centre and surrounding communities
	Does it encourage and support active and sustainable modes of transportation?	Partially Provides few transportation demand management (TDM) measures	Partially Provides general TDM recommendations only	Yes Identifies strategies for car share, bike share, demand-responsive transit, and outreach programs that encourage the use of active modes of transportation
 PUBLIC HEALTH & ENVIRONMENT	Does it minimize the impact on the natural environment and cultural heritage?	Yes Does not impact existing natural environmental and cultural heritage	Partially May impact ecology, built/cultural heritage or areas with archaeological impact	Partially Potential greater impact on ecology, built/cultural heritage or areas with archaeological impact
	Does it support and enhance the open space network?	Partially Maintains existing open spaces, but does not propose new open space connections	Yes Promotes enhancements to the natural environment to improve the livability and sense of place in the Centre	Yes Offers new connections to parks and open spaces throughout the Centre
 AFFORDABILITY	Is it economically feasible to implement (considering full life cycle costs, impact to utilities, durability and future expansion opportunities)?	Yes Does not require investment for transportation network changes, but requires operating and maintenance costs	Partially Requires some investments from public and private sector	Partially Requires greater investment from public and private sector
 SUPPORTING GROWTH	Does it encourage public and private investments?	Partially Provides some potential for development on large parcels of land	Partially Improves development potential in the Centre	Yes Improves development potential in the Centre and maximizes connections and accessibility to the proposed public investments in transit
	Does it allow for the safe and efficient movement of goods?	No Does not address the movement of goods and designated truck routes	No Does not address the movement of goods and designated truck routes	Yes Provides designated truck routes that are more efficient and separated from non-motorized traffic

Based on the above evaluation, and input from the public and key stakeholders, the Emerging Vision was determined to be the recommended transportation network to be carried forward for further assessment and refinement. The evaluation was further confirmed through the MetroQuest survey, where participants were asked to rate all three network alternatives. Alternative 3: Emerging Vision received the most ratings of 5 out of 5.

Figure 4.4: Preliminary Preferred Alternative Network (Emerging Vision)



The following is a list of proposed changes in the preliminary preferred alternative (Emerging Vision):

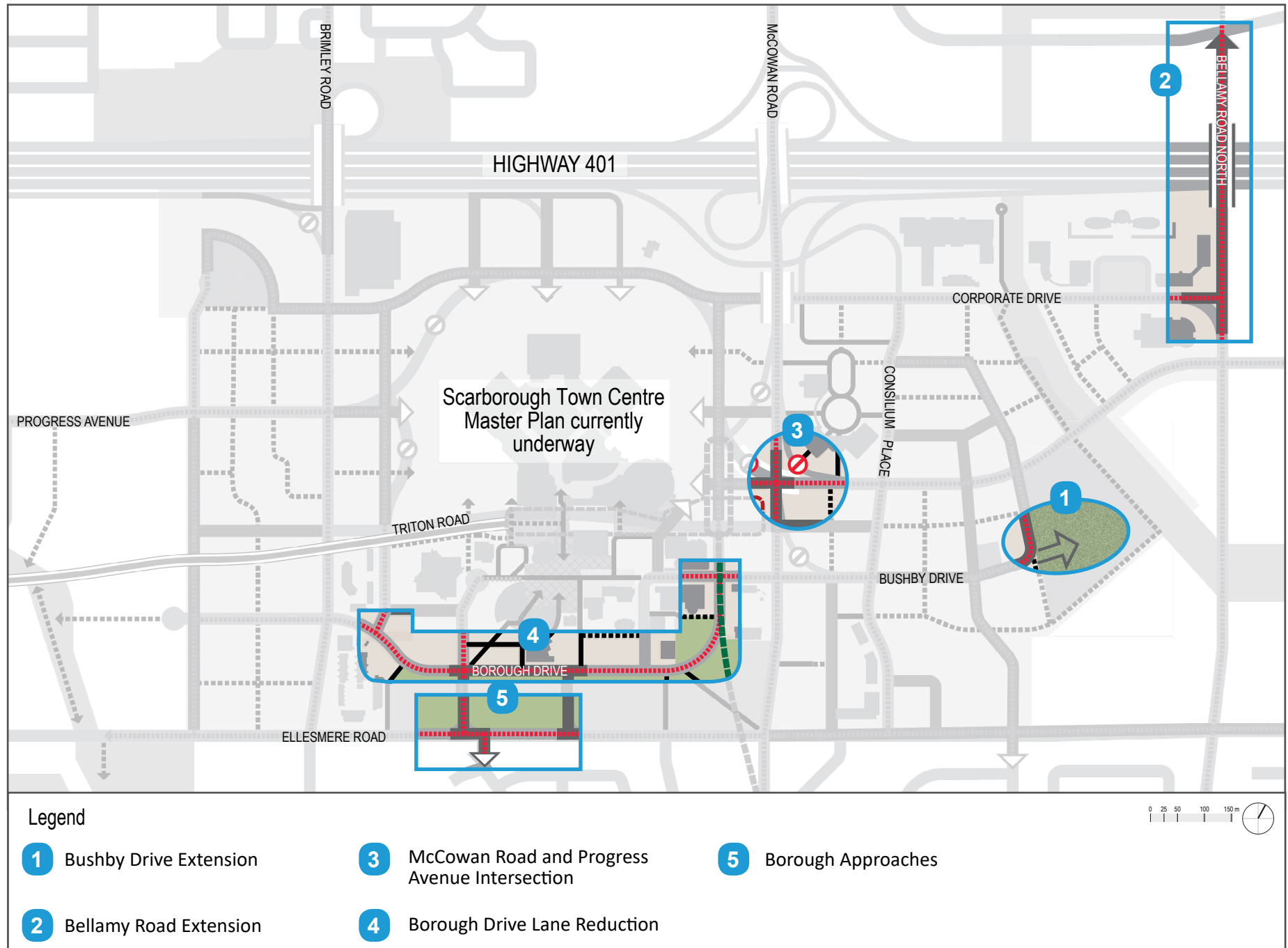
- Establish a simplified grid street network that allows for stronger north-south and east-west connections within the Centre and to/from surrounding communities
- Enhance east-west connections through Albert Campbell Square by connecting with the proposed Bushby Drive Promenade as a vibrant mixed-use main street in the Centre
- Enhance Borough Drive into a complete Civic Street with a cluster of public landmarks and open spaces
- Redesign Highway 401 interchanges to accommodate a safe and accessible environment and connections for pedestrians and cyclists
- Reconfigure the form, function and operation of the transportation network along the McCowan Road Corridor to accommodate the new Scarborough Subway Extension and bus terminal
- Determine the function and operation of Triton Road, including transit (bus) access, servicing routes, as well as connections for active modes of transportation
- Widen Ellesmere Road from McCowan Road to Morningside Avenue to accommodate future transit improvements
- Identify crossing opportunities including mid-block crossing and conflict points that require enhancements for pedestrians and cyclists
- Identify the type and location of parking required within the Centre and recommend appropriate parking strategies to help reduce automobile dependency
- Designate pedestrian/cycling connections to encourage the Centre's residents, workers and visitors to rely less on automobiles
- Develop a wayfinding and signage strategy to aid in the navigation of all modes of travel
- Reconfigure the Line 3 – Scarborough infrastructure into green east-west connections and pathways

4.3 Refinement of the Preliminary Preferred Alternative

Following feedback from Public Consultation Meeting #2, Local Advisory (LAC) Meeting #2, and stakeholder consultation, the preliminary preferred alternative underwent a series of modifications and refinements. Certain refinements of the Emerging Vision's Transportation Network were identified as requiring further study, as shown in Figure 4.5.

Further evaluation was conducted during this stage of the study, where options for each of the five network modifications were evaluated based on the study's eight guiding principles. The following section outlines the options that were evaluated and identifies the preferred option for each modification. A more detailed evaluation is provided in Appendix F.

Figure 4.5: Refinement of the Preliminary Preferred Alternative



4.3.1 Bushby Drive Extension

Option 1: Bushby Drive Extension to Progress Avenue

Option 1 considers the extension of Bushby Drive to Progress Avenue, as illustrated in Figure 4.6. This option connects Scarborough Civic Centre, Scarborough Town Centre shopping mall, and the future subway station with the new school site and park to be located at 705 Progress Avenue.

Figure 4.6: Option 1 - Bushby Drive Extension to Progress Avenue

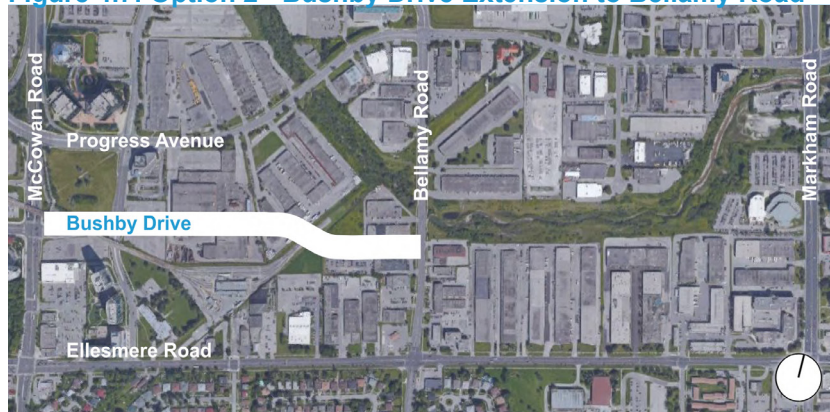


*for illustration purposes only; does not identify a specific alignment

Option 2: Bushby Drive Extension to Bellamy Road

Figure 4.7 shows the extension of Bushby Drive to Bellamy Road (Option 2), which would provide access to the new school and park site for all modes, as well as contribute to the grid network of the Centre. This option extends the Bushby promenade and urban plaza to Bellamy Road, providing cycle tracks and wide boulevards.

Figure 4.7: Option 2 - Bushby Drive Extension to Bellamy Road

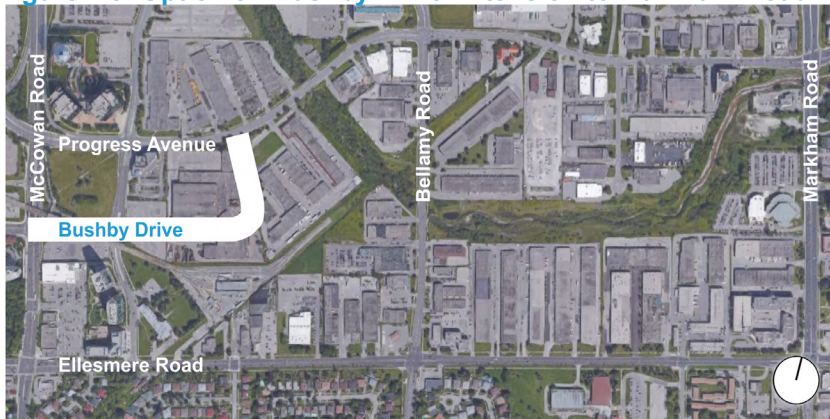


*for illustration purposes only; does not identify a specific alignment

Option 3: Bushby Drive Extension to Markham Road

Schedule 2 of the Official Plan identifies the future extension of Bushby Drive to Markham Road (Figure 4.8), which would extend beyond the new school and park site and connect more land uses. This option also provides an alternative east-west route for travelling through the Centre to/from key destinations.

Figure 4.8: Option 3 - Bushby Drive Extension to Markham Road



*for illustration purposes only; does not identify a specific alignment

Preferred Option

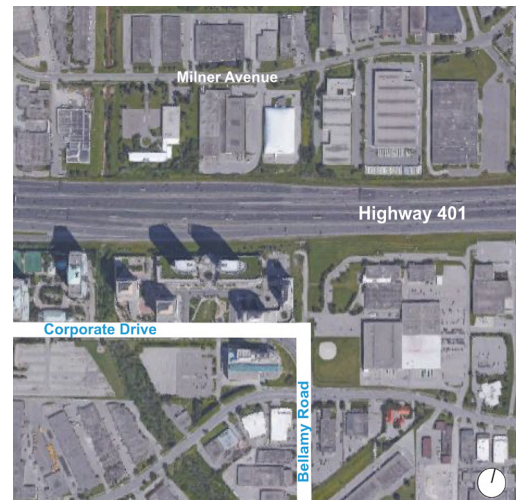
Option 2: Bushby Drive Extension to Bellamy Road emerged as the preferred option as it provides an improved pedestrian and cyclist environment, supports transit investment, improves connectivity, and reduces the traffic load on Progress Avenue and Ellesmere Road. Option 1, on the other hand, only provides some improvement to connectivity, as the limited east-west extension of Bushby Drive only provides marginal improvement to route options. While the extension of Bushby Drive to Markham Road provides the greatest connectivity of the three options, it results in increased property and natural environment impacts as well as congestion on Markham Road, which is already facing congestion issues. The extension of Bushby Drive to Bellamy Road therefore provides the greatest benefits.

4.3.2 Bellamy Road Extension

Option 1: Bellamy Road Ends at Corporate Drive

Bellamy Road currently turns into Corporate Drive in existing conditions, with an access to Toyota Place along the curve. The first option under consideration was the reconfiguration of Bellamy Road and Corporate Drive to intersect at a right angle. Bellamy Road would therefore turn into Toyota Place north of Corporate Drive, as shown in Figure 4.9.

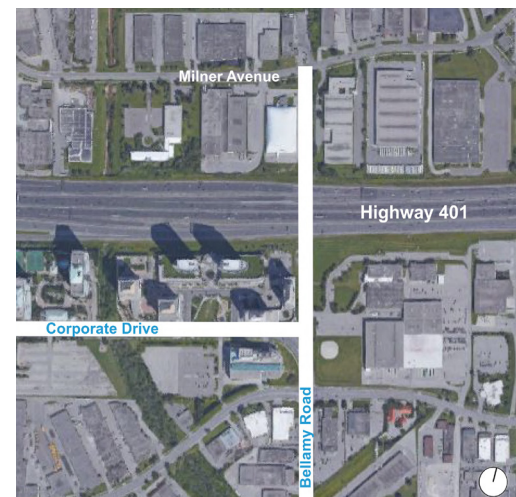
Figure 4.9: Option 1- Bellamy Road Ends at Corporate Drive



Option 2: Bellamy Road Extension to Milner Avenue

The Scarborough Centre Secondary Plan and Official Plan recommended the possibility of extending Bellamy Road over Highway 401 to provide the opportunity for pedestrians and cyclists to cross the highway. The option to extend Bellamy Road is shown in Figure 4.10.

Figure 4.10: Option 2 - Bellamy Road Extension to Milner Avenue



Preferred Option

Option 2 was selected as the preferred option because it provides a safer north-south connection over Highway 401 for all modes, particularly for active transportation users who currently must navigate complex highway interchanges to cross Highway 401. This option also represents an alternative for vehicles currently using McCowan Road and Markham Road, improving traffic conditions and connectivity beyond Scarborough Centre. There are, however, greater costs associated with constructing a bridge over Highway 401 than the costs associated with Option 1. Despite the higher costs of Option 2, it has greater benefits for the connectivity of the network for all modes.

4.3.3 Progress Avenue and McCowan Road Intersection

Option 1: McCowan Road and Progress Avenue Overpass

One objective of the Scarborough Centre on the Move Transportation Master Plan is to create a simplified grid network. With plans to reconfigure Progress Avenue and Borough Drive, the existing grade separated intersection of McCowan Road and Progress Avenue was reassessed. The first option was for Progress Avenue to cross McCowan Road as an overpass (Figure 4.11), similar to the existing grade separation.

Figure 4.11: Option 1 - McCowan Road and Progress Avenue Overpass



Option 2: McCowan Road and Progress Avenue At-Grade

The second option evaluated was the normalization of Progress Avenue and McCowan Road into an at-grade intersection, as illustrated in Figure 4.12. This would provide a simplified intersection that allows pedestrians and cyclists to cross, providing greater access to key destinations in the Centre.

Figure 4.12: Option 2 - McCowan Road and Progress Avenue At-Grade



Preferred Option

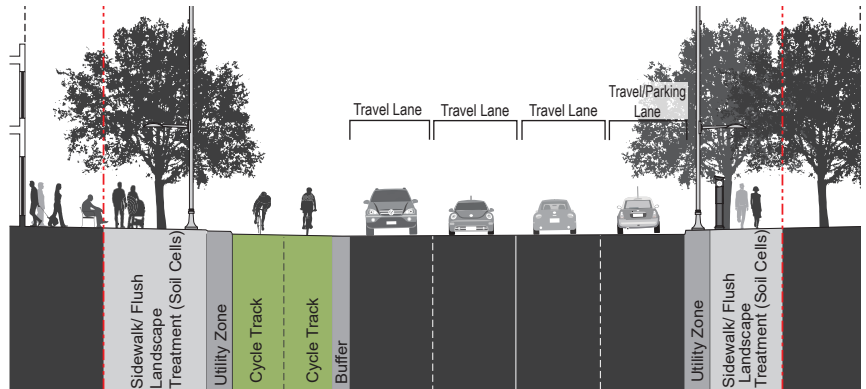
The normalization of McCowan Road and Progress Avenue into an at-grade intersection (Option 2) was identified as the preferred option. Option 2 improves the pedestrian and cycling environment on McCowan Road and Progress Avenue, and allows for greater accessibility to the future subway station and bus terminal; whereas Option 1 limits connectivity for all modes, as it reduces the number of crossing opportunities for pedestrians and cyclists, and limits route choices for transit vehicles and cars. Option 1 also limits development opportunities near the future subway station, while Option 2 increases development potential. Greater investment is needed to normalize intersection, but Option 2 improves connectivity for all modes of transportation and supports the transit investment and the Scarborough Centre vision.

4.3.4 Borough Drive Lane Reduction

Option 1: Borough Drive with Four Lanes

Referring to the segment of Borough Drive from Omni Drive to the northeast intersection of Town Centre Court and Borough Drive, the first option for Borough Drive is to maintain four travel lanes (two lanes in each direction), and introduce bi-directional cycling lanes on one side of the street (Figure 4.13). On-street parking is provided during off-peak periods only.

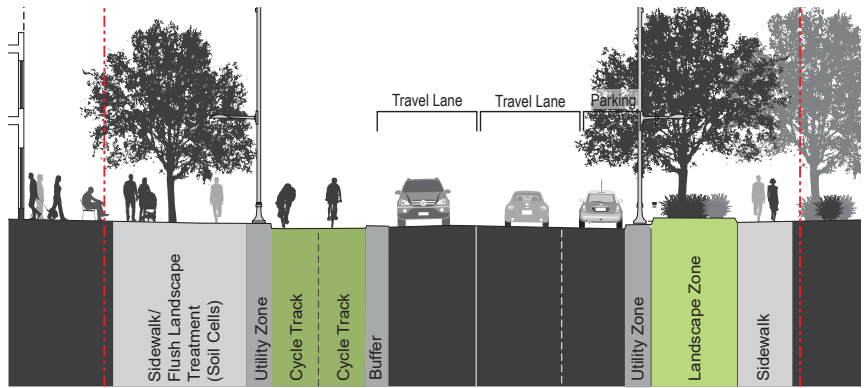
Figure 4.13: Option 1 - Borough Drive with Four Lanes



Option 2: Borough Drive with Two Lanes

To achieve a reduction in single-occupant vehicles, a lane reduction (“road diet”) was considered on Borough Drive from Omni Drive to the northeast intersection of Town Centre Court and Borough Drive to prioritize alternative modes of travel. Figure 4.14 provides a conceptual cross-section with two travel lanes (one lane in each direction), on-street parking, cycle tracks, a wider boulevard, and street trees in softscape on the south side.

Figure 4.14: Option 2 - Borough Drive with Two Lanes



Preferred Option

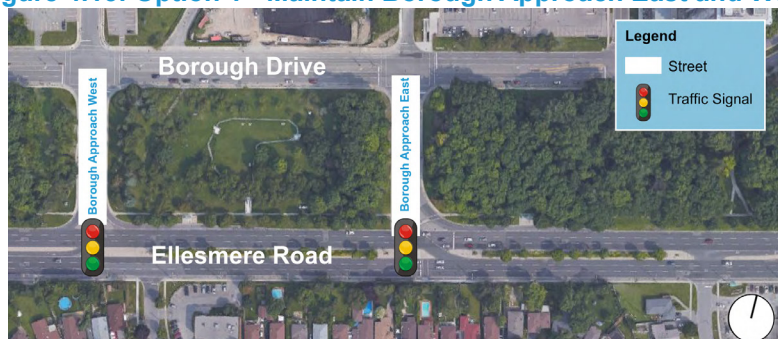
Option 2: Borough Drive with Two Lanes was selected as the preferred option as the lane reduction accommodates vehicle traffic while enhancing space for other modes of travel. Separated active transportation facilities are paired with reduced travel speeds, further improving safety for active transportation users. Option 1, however, prioritizes vehicle movement, which results in higher traffic speeds. Option 2 was also selected because it provides greater support for an attractive public realm through a focus on public landmarks, wide pedestrian walkways, and active transportation amenities.

4.3.5 Borough Approaches

Option 1: Maintain Borough Approach East and West

One initiative identified in the Secondary Plan as well as the Scarborough Centre Public Space and Streetscape Master Plan (2012) was the reconfiguration of Borough Approach East and West to improve access to Scarborough Civic Centre. This option includes two full-moves signalized intersections, as shown in Figure 4.15.

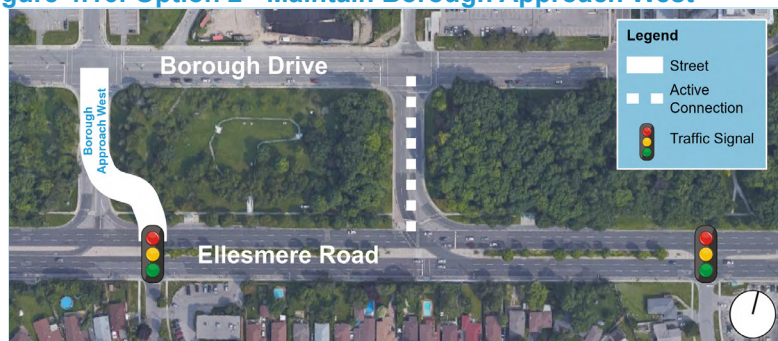
Figure 4.15: Option 1 - Maintain Borough Approach East and West



Option 2: Maintain Borough Approach West

The second option that was developed and evaluated is the reconfiguration of Borough Approach West only into a four-leg signalized intersection with Ellesmere Road and Packard Boulevard, paired with the signalization of Ellesmere Road and Saratoga Drive. Borough Approach East would be decommissioned, allowing only pedestrians and cyclists, as shown in Figure 4.16.

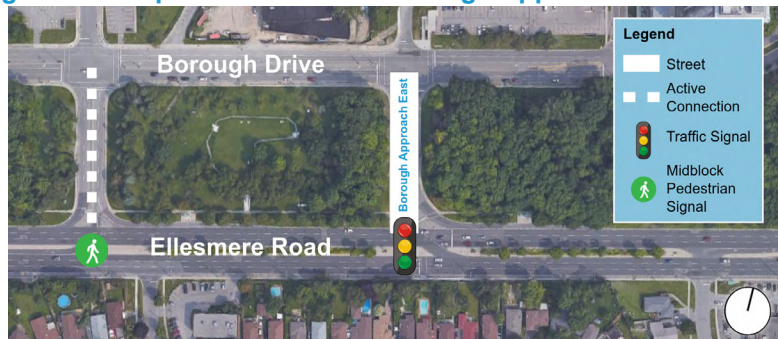
Figure 4.16: Option 2 - Maintain Borough Approach West



Option 3: Maintain Borough Approach East

Option 3 maintains Borough Approach East as a street for vehicular traffic and reconfigures the existing intersection of Borough Approach East and Ellesmere Road into a signalized T-intersection. To provide a north-south crossing opportunity for residents accessing the Centre from Packard Boulevard, a midblock pedestrian signal is proposed along with the active transportation connection at Borough Approach West (Figure 4.17).

Figure 4.17: Option 3 - Maintain Borough Approach East



Preferred Option

While maintaining both approaches (Option 1) improves connectivity to the Centre from surrounding communities, this option favours vehicle movement by allowing automobiles on both approaches. Decommissioning one of the approaches and replacing it with a park path (Option 2 or 3) provides a separated active transportation connection, consolidates parkland, and improves open space connections.

4.3.6 Network Modification Evaluation Summary

Each refinement was evaluated based on the eight guiding principles. Detailed evaluation matrices are provided for each network modification in Appendix F. A summary of the evaluation results is shown in Table 4.2.

Table 4.2: Summary of Network Modification Evaluation Results

Network Modification	Option 1	Option 2	Option 3
1. Bushby Drive Extension	To Progress Avenue	To Bellamy Road	To Markham Road
2. Bellamy Road Extension	Ends at Corporate Drive	North over Highway 401 to Milner Avenue	
3. McCowan Road and Progress Avenue Intersection	McCowan Road and Progress Avenue Overpass	McCowan Road and Progress Avenue At-Grade	
4. Borough Drive Lane Reduction	Borough Drive with Four Lanes	Borough Drive with Two Lanes	
5. Borough Approaches	Maintain Both Approaches	Maintain Borough Approach West	Maintain Borough Approach East

Legend:

Least Preferred
 More Preferred
 Most Preferred

The preferred network modification options were presented to the public for feedback. The resulting preferred network consists of the following network modifications:

1. Bushby Drive Extension to Bellamy Road
2. Bellamy Road Extension to Milner Avenue
3. McCowan Road and Progress Avenue At-Grade
4. Borough Drive with Two Lanes
5. Maintain Borough Approach West

These network modifications were then applied to each of the four network layers – Walking and Cycling Network, Transit Network, Street Network, and Block Plan. The four network layers correspond with the four study pillars – Encourage Active Modes of Transportation, Support Transit and Innovative Mobility Solutions, Reduce Single-Occupancy Vehicle Use, and Integrate Land Use and Transportation.



