

Binbrook Village Neighbourhood Traffic Management Plan

City of Hamilton

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Quality information

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1. Introduction

The City of Hamilton regularly receives questions and concerns from Binbrook residents about the negative impact of traffic infiltration, speeding, and mode conflicts within the community. AECOM has been retained by the City to perform an analysis that proposes traffic calming measures that address the needs of the community; this will be accomplished through the creation of a Neighbourhood Traffic Management Plan (TMP).

The project requires an assessment of current conditions, identification of specific problems and opportunities for improvement, development, and assessment of alternative treatments, and the recommendation and functional design of infrastructure measures to provide and enhance safety for all road users including pedestrians, cyclists, and motorists of all ages and abilities.

The “menu” from which appropriate traffic calming measures will be selected includes:

- Speed humps, speed tables, raised crosswalks, raised intersections;
- Textured pavement;
- Traffic circles, roundabouts;
- Chicanes;
- Re-aligned intersections;
- Knockdowns, centre island narrowing, chokers;
- Full closures, half closures, diagonal diverters, median barriers;
- Enhanced pavement markings and signing;
- Traffic control devices (e.g., turn restriction signs, traffic signals, etc.);
- Speed display or speed limit signage;
- Lighting;
- Gateway feature using natural and man-made materials; and
- Other site-specific measures that may be identified during the study.

Through community engagement and consultation, an understanding among interested community members of the impact and effectiveness of possible street modifications was developed. Using this information, a suite of measures that address the issues present in the Binbrook neighbourhood are proposed.

2. Existing Conditions

AECOM reviewed various data sources to select appropriate measures for Binbrook. Data received and collected as part of this study include:

- Existing turning movement counts, link volume, and speed data;
- Collision history and characteristics;
- A survey of residents to identify areas of concern; and
- A site visit with video recording of all streets in the study area.

This data was used to examine the characteristics of key streets and intersections within the study area. Using this information, an understanding of the existing conditions was developed that allowed for more effective targeted interventions.

2.1 Road Network

Binbrook's road network largely consists of bi-directional streets with speed limits of 40 km/h. Analysis of the major arterial roads in the community, Binbrook Road and Highway 56, are outside of the scope of this study and only intersections with these roads will be considered. Major collector roads within the study area include:

- Binhaven Boulevard/ Royal Winter Drive,
- Fall Fair Way/ Maggie Johnson Drive,
- Great Oak Trail,
- Tanglewood Drive,
- Southbrook Drive,
- Windwood Drive, and
- Pumpkin Pass.

Many roads in the study area have wide lane widths and lack painted lines and other pavement markings, though some occupied residential roads are still under construction and are without top coat asphalt. The clear, wide roadway may act to encourage speeding; however, clear and straight roadways with painted laneways can have a similar affect. Most intersections in the neighbourhood are controlled by roundabouts or stop controls. In the past, most of the concerns that the City of Hamilton has received are in regards to speeding and disobeying of traffic laws. In response, City Traffic Engineering staff have conducted over 56 individual traffic studies and completed additional reviews including School Safety Audits throughout the Village since 2010. The Village has received a great deal of attention which has resulted in numerous enhancements in recent years, including:

- 10 Pedestrian Crossovers (PXOs),
- 40 km speed limit reduction of all roads within the Village (53 roads total),
- 14 Ladder Crosswalks,
- 13 "Slow Down, Safety Zone" Gateway Features,
- 4 Permanent Dynamic Radar Feedback Signs (on approaches to Village),
- 3 temporary Speed Humps; and
- 6 new All-Way stop locations.

2.1.1 Traffic conditions and Parking Facilities

Existing traffic conditions were assessed using data obtained and made available by the City of Hamilton. Data obtained included:

- Volume, Class, and Speed Data for 3 locations within the Village;
- Speed Data for 11 locations within the Village;
- 20 TMCs for 10 locations within the Village;
- 17 Short Turning Movement Counts for 13 locations within the Village; and,
- Collision data identifying approximate location, point of initial impact, and type of collision between 2012 and 2016.

See **Appendix A** for a list of the traffic data considered within this study.

Despite repeated reports of speeding in Binbrook, the speed data revealed that many motorists in the Village are obeying the speed limits. As shown in **Table 1**, the 85th percentile speed¹ at many locations in the study area was found, at various dates, to be below the posted speed limit. The highest 85th percentile speed was only 6km/h over the posted limit (on Royal Winter Drive).

It should be noted that speed counts may not reflect present day conditions as development in the town and interventions, such as reduced speed limits, may have been implemented after the data was collected. However, the data still suggests that the speeding problem many residents have expressed concerned about may be a perceived issue rather than a systemic issue. As such, measures proposed in this study have been tailored to address the perception of speeding and reinforce, through structural cues, the lower speed limits that have already been posted.

Table 1: 85th Percentile Speeds at Key Locations within the Study Area

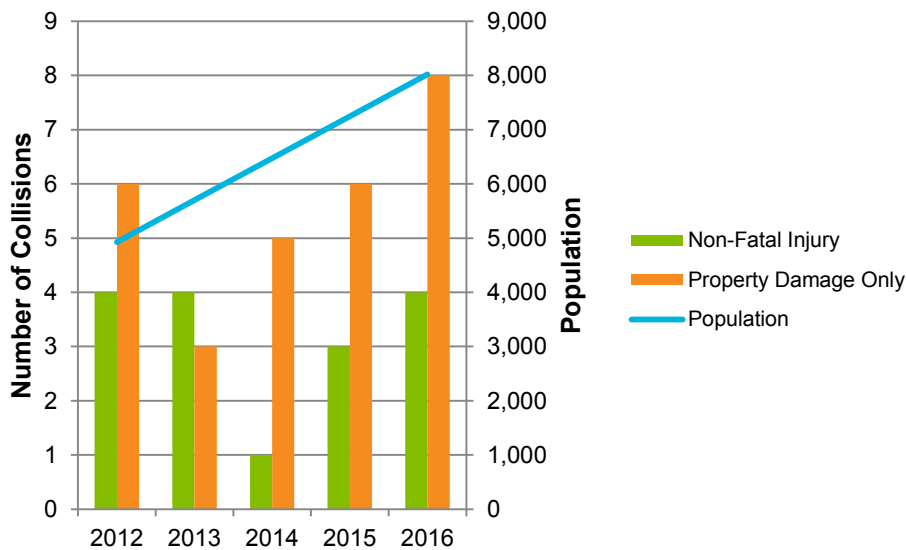
Location	Year	Time	Posted Speed at Time of Study	85th Percentile Speed (km/h)
Great Oak Trail at Viking (NB)	2007	PM	50	51.1
Great Oak Trail at Viking (NB)	2007	PM	50	54.7
Great Oak Trail – Binbrook to Voyager*	2010	AM	40	53.1
Fall Fair Way – Binbrook to Traffic Circle	2012	AM	50	53.5
	2012	PM	50	52.6
Gowland – Binhaven to Bradley	2012	PM	50	43.2
Southbrook – Etherington to Riverside	2012	PM	50	40.9
Royal Winter – Binbrook to Pumpkin	2013	AM	50	56.3
	2013	PM	50	52.8
Tanglewood – Maggie Johnson to Binbrook	2013	AM	50	47.8
	2013	PM	50	43.5
Windwood – Regional Road 56 to Voyager	2013	PM	50	48.1
Great Oak Trail – Viking to Binbrook	2015	AM	50	50
	2015	PM	50	48.2

¹ The 85th percentile speed is that 85% of all vehicles are observed to travel under free-flowing conditions.

* The posted speed was recorded at 40 km/h in the data file; however, it is believed that the speed at the time of study was actually 50 km/h. This conclusion is supported by other speed studies at the same location, taken both before and after the study in question, noting a speed limit of 50 km/h.

A cursory analysis of the collision data revealed that there have been relatively few collisions in Binbrook over the past 5 years². Within the years assessed, none of the collisions in Binbrook have caused fatal injuries and there have been a maximum of four accidents per year resulting in personal injury, as can be seen in **Figure 1**. The number of non-fatal injury collisions has also remained the same or decreased in the last 5 years. As shown in **Figure 2**, the majority of accidents in Binbrook were single motor vehicles striking unattended vehicles; speaking to the potential hazard caused by the quantity of on-street parking in Binbrook. A key takeaway is that there has only been one incident over the past five years (0.02% of all accidents) involving a pedestrian. It should be noted that this record may be a result of the low number of pedestrians within Binbrook or communicate a positive message about the relationship of motorists and pedestrians in the community. Additionally, only three of the incidents over five years (0.07%) were recorded as being a result of speeding, supporting the conclusions regarding speeding from the speed study data.

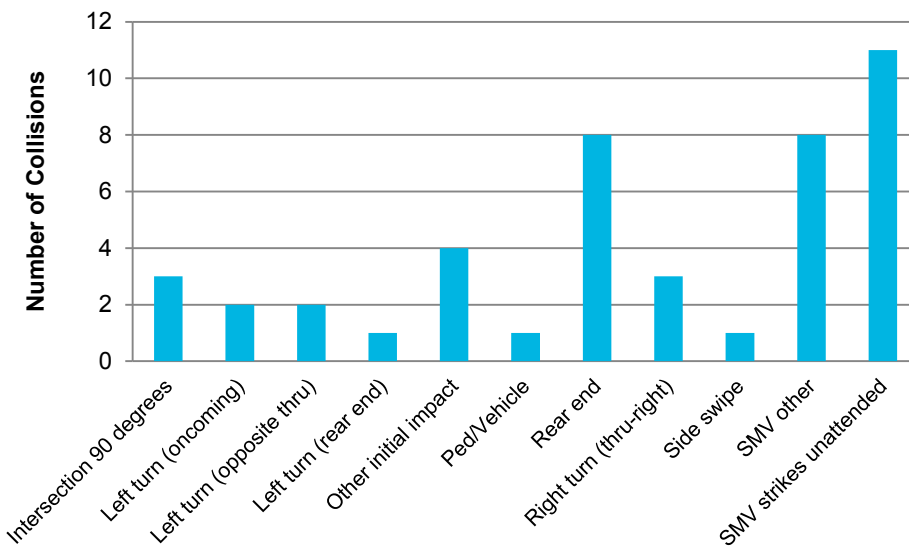
Figure 1: Collision Class of Collisions in Binbrook (2012-2016)³



² Due to the small sample size, a detailed analysis of the collisions following TAC guidelines would not reveal any substantive conclusions.

³ Population growth based on 2011 and 2016 data for Binbrook Population from Statistics Canada, 2016 Census of Population.

Figure 2: Initial Impact of Collisions in Binbrook (2012-2016)



As a residential community, every home built in Binbrook includes private parking facilities for the residents (for single detached homes, by-laws require at least 2 spaces for each dwelling)⁴. In addition to private parking spaces, on minor streets there are small designated parking areas consisting of a few spaces allocated for visitor parking. On-street parking is permitted on most streets, either on both sides of the road or on alternating sides of the road based on time of year, as indicated by posted signage. Additionally, near attractions and destinations in the neighbourhood, including the Fresh Co. grocery store, strip mall on Regional Road 56, fairgrounds, library, and community schools, there are sizeable parking lots available for use.

2.2 Active Transportation Infrastructure

The active transportation network within Binbrook consists of pedestrian facilities, bike lanes, and unpaved off-road multi-use paths.

Most roadways within Binbrook have paved pedestrian sidewalks along one or both sides of the road, often accompanied by boulevards separating the pedestrian space from motorists. Collector roads have existing or planned paths on both sides of the road, whereas most of the smaller local roads have sidewalks on one side only. Some streets or blocks of local roads do not have pedestrian facilities. There are also few signalized or marked pedestrian crossings at intersections, roundabouts, or walkable destinations, including both of the schools within the community. Some of these aspects of the pedestrian network impact walkability of the Village.

Binbrook has a multi-use path running through the neighbourhood along the creek from the northwest corner to the southeast corner of the community. There are a few connection points between this multi-use path and the paved roadway; however, some of these spots lack integration into the roadway (through curb-cuts) or wayfinding material.

Cycling facilities can be categorized based on the level of separation from motor vehicle traffic.

- Shared bike lanes exist where cyclists share the roadway with motorists. They are often identified by posted signs or painted sharrows along the roadway.
- Designated facilities exist where cyclists are provided their own space delineated by a painted line.
- Separated facilities exist where cyclists are provided physical or spatial separation from the vehicle right-of-way, using a painted buffer, a barrier such as bollards or planters, or through a boulevard along the roadway that establishes a cycle track.

⁴ Hamilton By-Law 494

On-road cycling facilities within the Binbrook Village consist of:

- Designated bike lanes along the south side of Fall Fair Way between Regional Road 56 and Pumpkin Pass, located in the second lane of traffic between parked cars and vehicle right of way;
- Sharrows and a designated lane on both sides of Fall Fair Way between Pumpkin Pass and Binbrook Road;
- Designated lanes along both sides of Bradley Avenue, where there is a connection to the multi-use trail just south of Whitwell and to St. Matthew Catholic Elementary School; and
- Sharrows indicating more lanes on Bradley Avenue south of Windwood Drive, and Windwood Drive east and west of Bradley Avenue, but no indication that cycling space continues along Windwood Drive or south on Bradley Avenue.

3. Summary of Public Engagement

The public outreach program was developed and implemented to understand the traffic-related concerns of community members, educate the community about possible street improvements, gain feedback about the range of available measures, and inform the recommended priorities. Public consultation for the Binbrook TMC included a web-enabled survey and two Public Information Centres (PICs).

3.1 Resident Survey

A web-enabled survey was distributed to gain an understanding of the concerns of community members related to traffic-related issues in Binbrook. Information material about the survey was delivered to each household in the study area (door-hanger format). The material provided a brief project overview (what's happening and why) and a link to the project web page on the City website where individuals could complete the survey on-line. Lawn signs with a link for the survey and information about the public information centers were installed at strategic locations in the community.

The survey was available for residents to complete between March 9, 2017 and April 4, 2017.

The survey included a number of questions aimed to identify resident's traffic concerns. In addition to demographic details, this included:

- Rating traffic issues of concern;
- Rating the perception of safety when driving or participating in active transportation;
- Identifying locations within the village where residents use active transportation to get to;
- Identifying intersections that are most utilized and concerning; and
- Space to identify individual concerns.

A copy of the survey can be found in **Appendix B**.

3.1.1 Survey Results

There was a total of 559 responses to the survey (555 online and 4 completed at PIC #1).

Figure 3 summarizes the location within the neighbourhood where respondents reside.

Figure 3: Respondents Divided into Quadrants

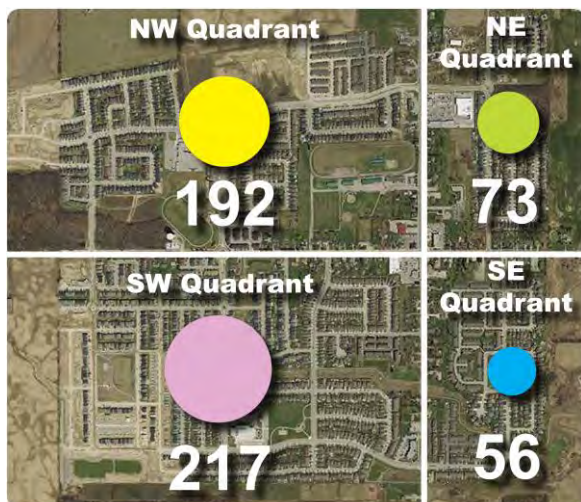


Table 2 summarizes the primary and secondary modes of travel for the respondents.

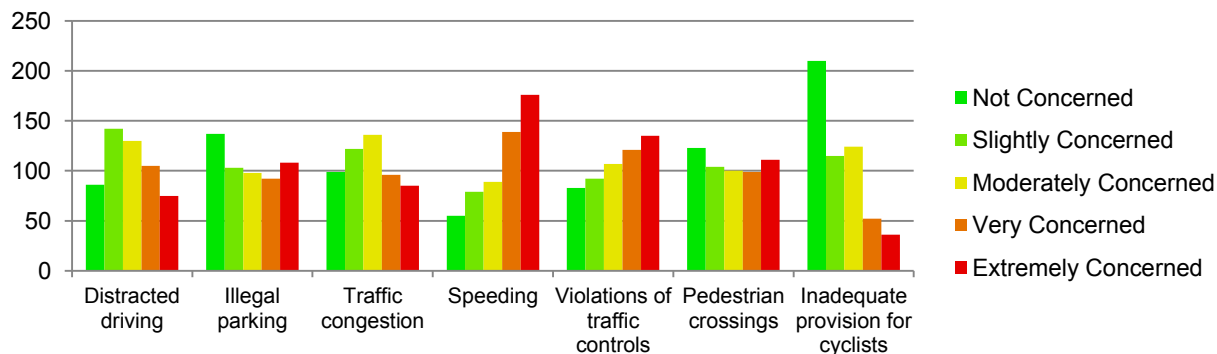
Table 2: Survey Respondents Mode of Travel⁵

Mode of Travel	Percent of Respondents
Driving	85%
Walking	18%
Cycling	1%

3.1.1.1 Common Concerns

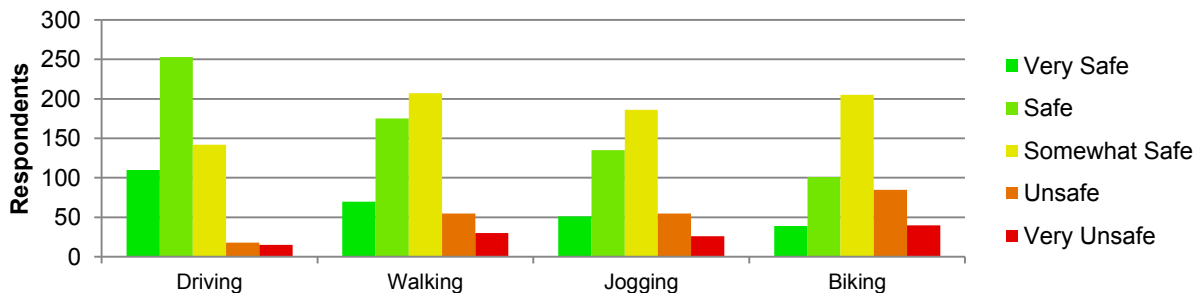
It was found that most respondents were concerned about speeding; 315 of the 559 respondents were either extremely concerned or very concerned about speeding as can be seen in **Table 3**. Violations of traffic controls were the second area of concern, considering level of concern and frequency of responses. This concern was also reflected in the comment section of the survey, where approximately 40% of respondents that commented expressed a need for more traffic enforcement. Many respondents also expressed that they were extremely concerned regarding pedestrian crossings and illegal parking. Respondents expressed least concern about an inadequate provision of facilities for cyclists, though a total of 327 still expressed some level of concern for cyclist facilities.

Table 3: Areas of Traffic Concerns



More respondents expressed feeling safe on all in all modes of transport than expressed feeling unsafe, see **Table 4**. Unsafe or very unsafe were selected most frequently for biking.

Table 4: Safety Associated with Different Modes



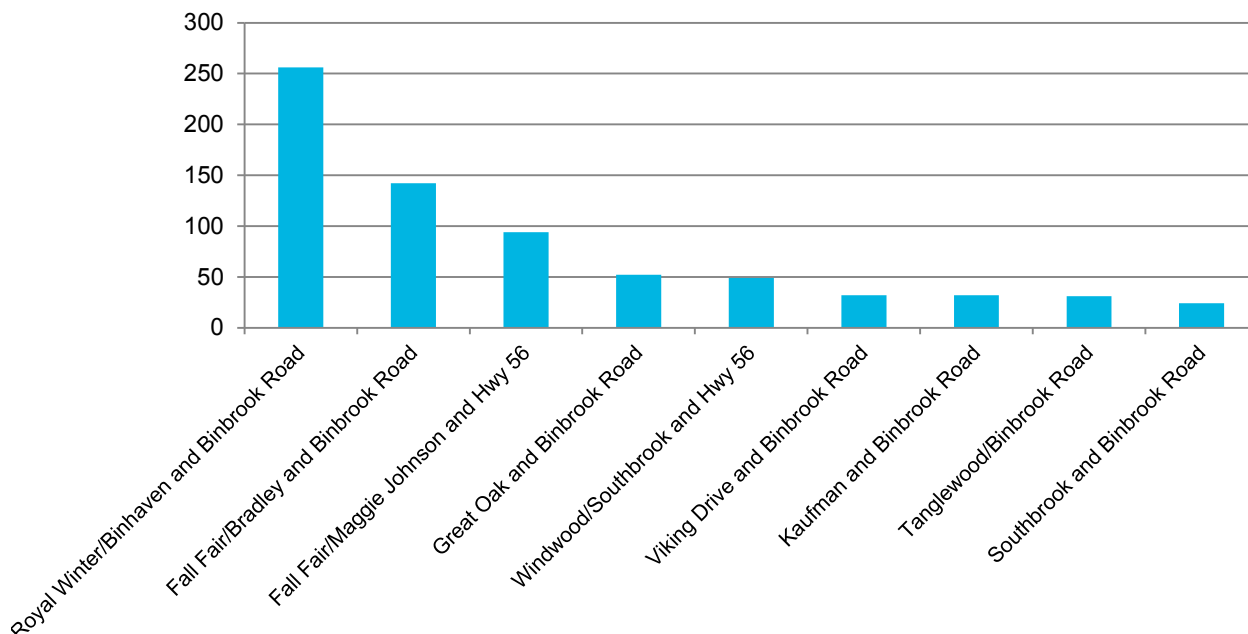
Intersection specific results revealed respondents concerns about individual intersections, which included:

⁵ Includes primary and secondary modes of travel

- 256 respondents expressing the most concern about the intersection of Royal Winter Drive/ Binhaven Boulevard and Binbrook Road.
- 43% of residents, in the written comments, expressing a need for a controlled or signalized intersection at Binbrook Road and Royal Winter Drive/ Binhaven Boulevard.
- 142 respondents expressing concern for the second most frequently selected intersection, Fall Fair Way and Binbrook Road.

A complete list of all intersection rankings can be found in **Table 5**.

Table 5: Intersections of Concern



Based on written responses in the comment sections provided on the survey, additional conclusions drawn from the surveys include the following:

- 50% of respondents are in favours of traffic calming, 33% of which stated a preference for speed humps/ tables;
- 40% commented specifically on a need for parking enforcement;
- 37% expressed a preference for less on-street parking;
- 26% of respondents expressed an interest in more and wider sidewalks; and
- 15% of respondents were in support of protected bike lanes.

3.2 Public Information Centre 1: Saturday April 1, 2017

The purpose of the first PIC was to share and confirm preliminary results of the survey, while presenting and obtaining feedback on the initial (60%) design of mitigation measures. PIC boards with the initial design were on display at Glanbrook Community Centre between 11:00 AM and 1:00 PM accompanied by AECOM staff, the City of Hamilton Project Manager, and local Councillor Brenda Johnson.

Approximately 30 residents attended the PIC and provided significant feedback on the initial design. The sign in sheet for PIC #1 can be found in **Appendix C** and comment sheets and additional commentary posted directly onto the PIC boards is documented in **Appendix D**.

The comments received at PIC #1 requested:

- Traffic and enforcement measures proposed to reduce speed;
- Reduction of on-street parking or the limiting of parking to one side of the street, including at specific locations of Voyager Pass, Royal Winter Drive, and Country Fair Way;
- Speedbumps;
- Red light cameras;
- Crosswalks and crossing guards at key intersections; and
- A traffic light at Royal Winter Drive/ Binhaven Boulevard and Binbrook Road.

3.3 Public Information Centre 2: Tuesday, April 25, 2017

The completed design and preliminary recommendations were presented at the second PIC after being further developed from discussion with the City and feedback from PIC #1; further feedback received at PIC #2 helped to confirm the final recommendations. PIC boards with the proposed design were on display at Glenbrook Community Centre between 6:00 PM and 8:00 PM accompanied by AECOM staff, City of Hamilton Project Manager, and local Councillor Brenda Johnson.

Approximately 50 residents attended the PIC and provided significant feedback on the initial design. The sign in sheet for PIC #2 can be found in **Appendix E** and comment sheets are documented in **Appendix F**.

Comments received at PIC #2 touched on similar concerns to those received at PIC #1. Attendees requested:

- A controlled intersection at Royal Winter Drive/ Binhaven Boulevard and Binbrook Road;
- Traffic calming measures to address speeding;
- Limiting of on-street parking limited to one side of the street (with multiple attendees specifically referring to Southbrook Drive); and
- Consideration for bike lanes.

4. Development and Analysis of Alternatives

4.1 Opportunities and Constraints

The opportunities and constraints within Binbrook encompass the potential for traffic safety improvements as well as the limitations confronted in the implementation of some improvements.

4.1.1 Traffic Conditions

There are a number of opportunities for improving traffic conditions in Binbrook, as there is few traffic safety measures currently in place. The limited pavement markings, an attribute of the relatively new roads in the Village, create a blank canvas on which to place the new measures. Wide roads without markings, while they potentially encourage speeding, also provide space for the implementation of calming measures and beautification. Additional room for measures can also be made by removing on-street parking. Considering the number of private parking spaces including spots available for visitors, there is the potential to limit on-street parking without significantly impacting residents and guests.

4.1.2 Active Transportation

There is also opportunity to enhance the active transportation facilities within the community. As the number of destinations within and in close proximity to the residential neighbourhood has increased the potential to and interest in walking and cycling has also increased, thereby justifying improvements to the network. There are only a few bike lanes in Binbrook presently and therefore it is possible to expand the network to improve connections to a number of destinations, such as the community schools. There is also potential to improve walkability of the neighbourhood by enhancing pedestrian facilities, especially at intersections as there are currently few marked pedestrian crossings in the Village. Additionally, due to the number of locations where the multi-use paths cross the roadway, there is opportunity to expand the pedestrian and cyclist network by improving the connections at these crossings. Refining the active transportation network will also provide an opportunity to improve the safety of users.

Some attributes of the community pose limitations to the effectiveness of traffic safety improvement measures. Existing road widths, while an opportunity in some areas, can limit the measures that can be implemented where the roads are narrow. Overall, the built form can create various constraints. For example the existing setbacks in most of the neighbourhood make it virtually impossible to install a separated cycle track without completely reconfiguring the roadway and road network. Public perception of traffic measures, such as a negative opinion regarding speed cushions, can also impact the implementation and success of the measures.

4.2 Traffic Management Measures Considered

The following measures were considered based on the road conditions and traffic concerns in Binbrook revealed from the data and public consultation.

4.2.1 Bike lanes

Bike lanes are a defined portion of the roadway reserved for cyclists without interference from other road users. Bike lanes can be implemented with different levels of separation, including shared facilities, designated facilities, and protected facilities, as defined in **Section 2.2**.

Selecting the optimal type of bike facility is based on:

- Existing roadway width: designated bike lanes require a minimum width of 1.5m, or a road approximately 9.6m wide⁶
- Traffic volumes and speed: it may be inappropriate to install a bike lane along a roadway where volumes and speed limits for vehicular traffic are too high

⁶ Ontario Traffic Manual, Book 18

- On-street parking: installing bike lanes that are adjacent to parking facilities is not ideal, but can be configured to improve the interaction between motor vehicles and cyclists

The installation of cycling facilities have been proven to increase cycling participation and, where utilized, cause motorists to drive more cautiously. See **Figure 4** for examples of cyclist facilities.

Figure 4: Shared, Designated, and Separated Cyclist Facilities



4.2.2 Curb Extensions

Curb extensions physically and visually narrow the roadway, compelling drivers to be more cautious when driving through them. Curb extensions have multiple applications ranging from traffic calming to midblock crossings. They create a shorter and safer path for pedestrians and increase space available for street furniture and trees. When used at intersections (a tool referred to as a “bump-out”), they tighten intersection curb radii and encourage slower turning speed. Conventional curb extensions are a recommended feature when there is on-street parking, as they increase visibility for pedestrians utilizing adjacent sidewalks.

Figure 5: Curb Extensions



4.2.3 Pinchpoints

Pinchpoints consist of two mid-block curb extensions at the same location on opposite sides of the road that reduce a two lane bi-directional road to a single bi-directional passing lane, or a four lane bi-directional road to a two lane bi-directional road. This traffic calming treatment is also known as a traffic “choker”. By decreasing the overall width of the road, they serve as a visual cue to drivers to slow down. They can also be used at the entrance of a neighbourhood street or area to indicate a minor street; this is referred to as a “gateway”. Pinchpoints can also facilitate midblock pedestrian crossings on low-volume streets by reducing crossing distances and provide additional public space for aesthetic elements and street furniture.

Figure 6: Pinchpoints in Hamilton



4.2.4 Medians

Medians are barriers, often raised or depressed, that separate opposing directions of traffic. They curtail the space available for vehicles by narrowing the travelled way and therefore act as a visual cue for drivers to slow down. Medians provide refuge space for pedestrians as they cross the street by splitting up a wide roadway. They also offer aesthetic benefit as additional public space for amenities and landscaping.

Figure 7: Median in a Residential Setting



4.2.5 Speed Cushions

Speed cushions are speed humps that allow for unrestricted passage of large vehicles, emergency vehicles, and bicycles while reducing the speeds of passenger cars. Since large vehicles can pass by speed cushions, a reduction in noise from suspension and shifting loads is achieved. Speed cushions can be designed to be removable so that snow ploughing operations are unaffected during the winter when traffic speeds tend to be slower anyways.

Figure 8: Speed Cushion in Hamilton



4.2.6 Raised Intersections

Raised intersections are flush with the sidewalk and therefore facilitate pedestrian crossing while encouraging drivers to drive cautiously by mimicking the effect of a speed table, a vertical traffic calming device similar to a speed bump. Raised intersections reinforce slow speeds and encourage motorists to yield to pedestrians at the crosswalk. Raised intersections create a safe, slow-speed crossing and public space at minor intersections. Crosswalks at raised intersections do not need to be marked as they are at grade with the sidewalk.

Figure 9: Raised Intersection in Ajax



4.2.7 Pedestrian Cross-overs

In locations where right of way is to be given to pedestrians over cyclists and vehicles at uncontrolled crossings, such as to get to parks or schools, a pedestrian cross-over (PXO) can be utilized to satisfy a desired line. Pedestrian crossovers require both vehicles and cyclists to yield to pedestrians until they have cleared the entire roadway. It is likely that any PXO warranted in the study area would only need to be constructed to the Type D specification⁷. Enhanced styles of pedestrian crossings are not justifiable/ permitted based on existing pedestrian and motor vehicle volumes as defined by OTM. PXOs can be raised, like raised intersections, to meet sidewalk height to slow vehicles down and increase safety and accessibility for pedestrians. Pedestrian cross-overs use a variation of signage,

⁷ See Ontario Traffic Manual, Book 15 for diagram of Type D specification

signals, and line painting to increase visibility of pedestrians to drivers. Pedestrian cross-overs can also be used at roundabouts. A traffic measure matrix compares the traffic problems against the “menu” of traffic measures.

Figure 10: Pedestrian Crossing in Sudbury



4.3 Traffic Measure Matrix

A traffic measure matrix compares the traffic problems against the “menu” of traffic measures. In choosing appropriate measures for different locations, problems were identified at a given site based on the data and especially comments received from residents. Consideration was also given to multimodal functionality of each measure. The matrix is included in **Figure 11**.

Figure 11: Traffic Measure Matrix

	Speeding	Parking	Distracted Driving	Traffic Congestion	Pedestrian Safety	Facilities for Cycling
Curb Extensions	✓	✓	✓		✓	
Pinchpoints	✓		✓		✓	
Median Islands	✓				✓	
Speed cushions, raised crosswalks or intersections	✓		✓		✓	
Pedestrian Crossings					✓	
Roundabouts	✓					
Enhanced pavement markings and signing	✓	✓	✓		✓	✓
Traffic Control Devices	✓			✓	✓	✓
Speed Limit Signage	✓				✓	
Lighting					✓	

5. Concept Plan for Proposed Infrastructure Measures

Each of the selected TMP elements proposed to address the traffic concerns were developed first to a concept level, then to a functional design as per City of Hamilton standards. The final proposed plans and their aspects of their implementation, including the potential impact on utilities and cost are described below.

5.1 Selected Measures

The proposed traffic safety improvement measures selected for each quadrant of Binbrook Village are depicted in **Figure 13**, **Figure 14**, and **Figure 15**, and are listed in **Table 6**, **Table 7**, **Table 8**, and **Table 9**. A complete list of the improvement measures is included in **Appendix G**. A legend of the Possible Roadway Cross Sections precedes the maps of the traffic safety improvement measures in **Figure 12**.

5.1.1 Northwest Quadrant

Table 6: List of Proposed Measures in the Northwest Quadrant

Measure	Location Employed
Parking Restrictions	Country Fair Way between Royal Winter and Hitching Post Ridge (one side) Country Fair Way at two bends
	Valiant Circle between Fall Fair Way and Valiant Circle (one side) Valiant Circle at all three bends
	Garinger Crescent at two bends
	Pumpkin Pass, west end to Blue Ribbon Way parking restriction on the south side Pumpkin Pass, Blue Ribbon Way to Fall Fair Way parking restriction on the south side
	Fall Fair Way, between Binbrook Road and north of Valiant Circle
Pedestrian Cross-over	Royal Winter Drive and Pumpkin Pass
	Valiant Circle at Fall Fair Way
Stop-Controlled Intersection	Royal Winter Drive and Festival Way
	Blue Ribbon Way and Pumpkin Pass
Median Island	Fall Fair Way at Valiant Circle
Speed Hump	Pumpkin Pass between Royal Winter Drive and Blue Ribbon Way
	Pumpkin Pass between Blue Ribbon Way and Fall Fair Way

Enhanced Trail Crossing	Bradley Avenue
	Whitwell Way
	Great Oak Trail

5.1.3 Northeast Quadrant

Table 8: List of Proposed Measures in the Northeast Quadrant

Measure	Location Employed
Parking Restrictions	DeGrows Crescent at both bends
	Willis Crescent at both bends
	Dependent on Petition: Tanglewood Drive, between Maggie Johnson Drive and Binbrook Road
Pedestrian Cross-over	Maggie Johnson Drive and Tanglewood Drive
Speed Humps	Maggie Johnson Drive between Regional Road 56 and Tanglewood Drive, east of the entrance to the Fresh Co. parking lot
	Tanglewood Drive between Maggie Johnson Drive and DeGrows Crescent
	Tanglewood Drive Maggie Johnson Drive and Wills Crescent
	Tanglewood Drive south of the north intersection of Tanglewood Drive and Wills Crescent
	Tanglewood Drive north of the south intersection of Tanglewood Drive and Wills Crescent

5.1.4 Southeast Quadrant

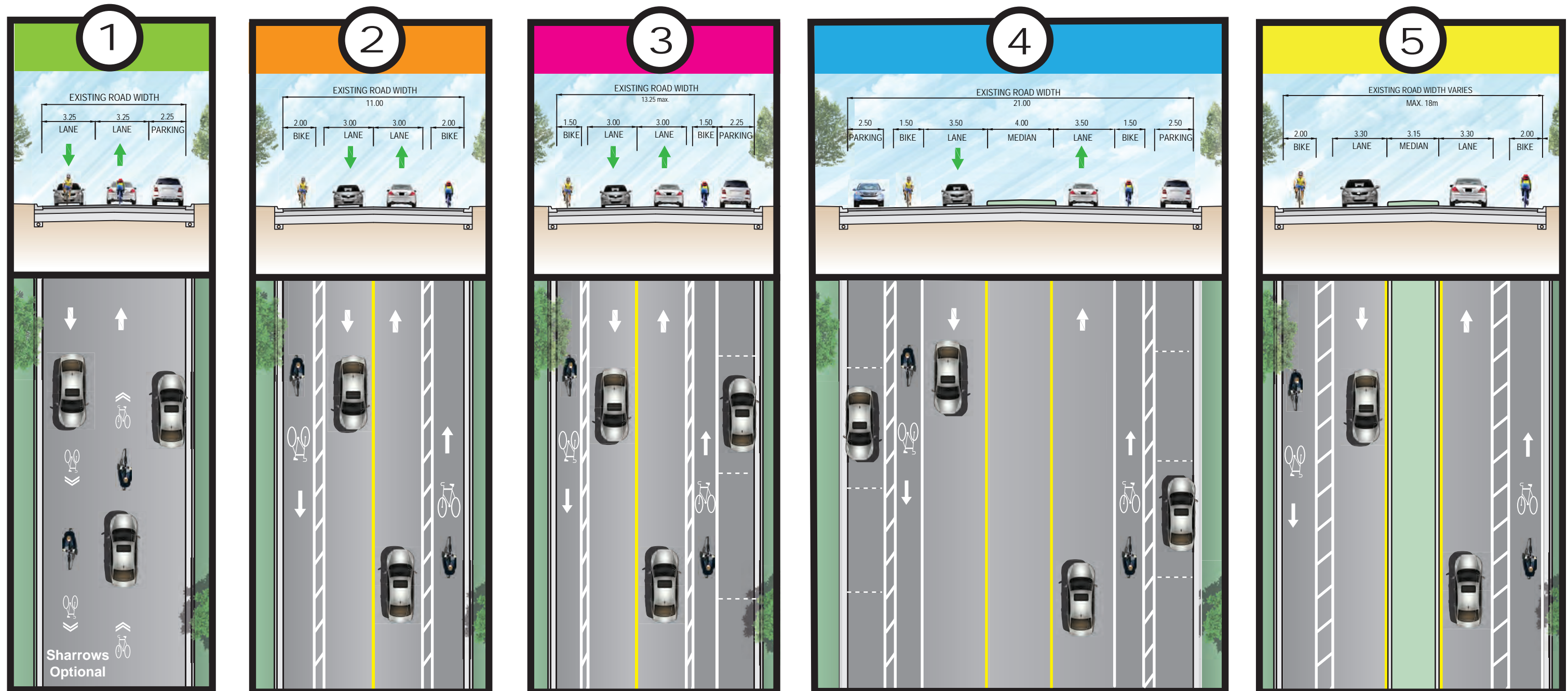
Table 9: List of Proposed Measures in the Southeast Quadrant

Measure	Location Employed
Parking Restrictions	Switzer Crescent at both bends
	Southbrook Drive to the northwest, west and southwest of Southbrook Park
	Etherington Crescent at both bends
	Dependent on Petition: Southbrook Drive, between Binbrook Road and Southbrook Park
Enhanced Trail Crossing	Southbrook Drive

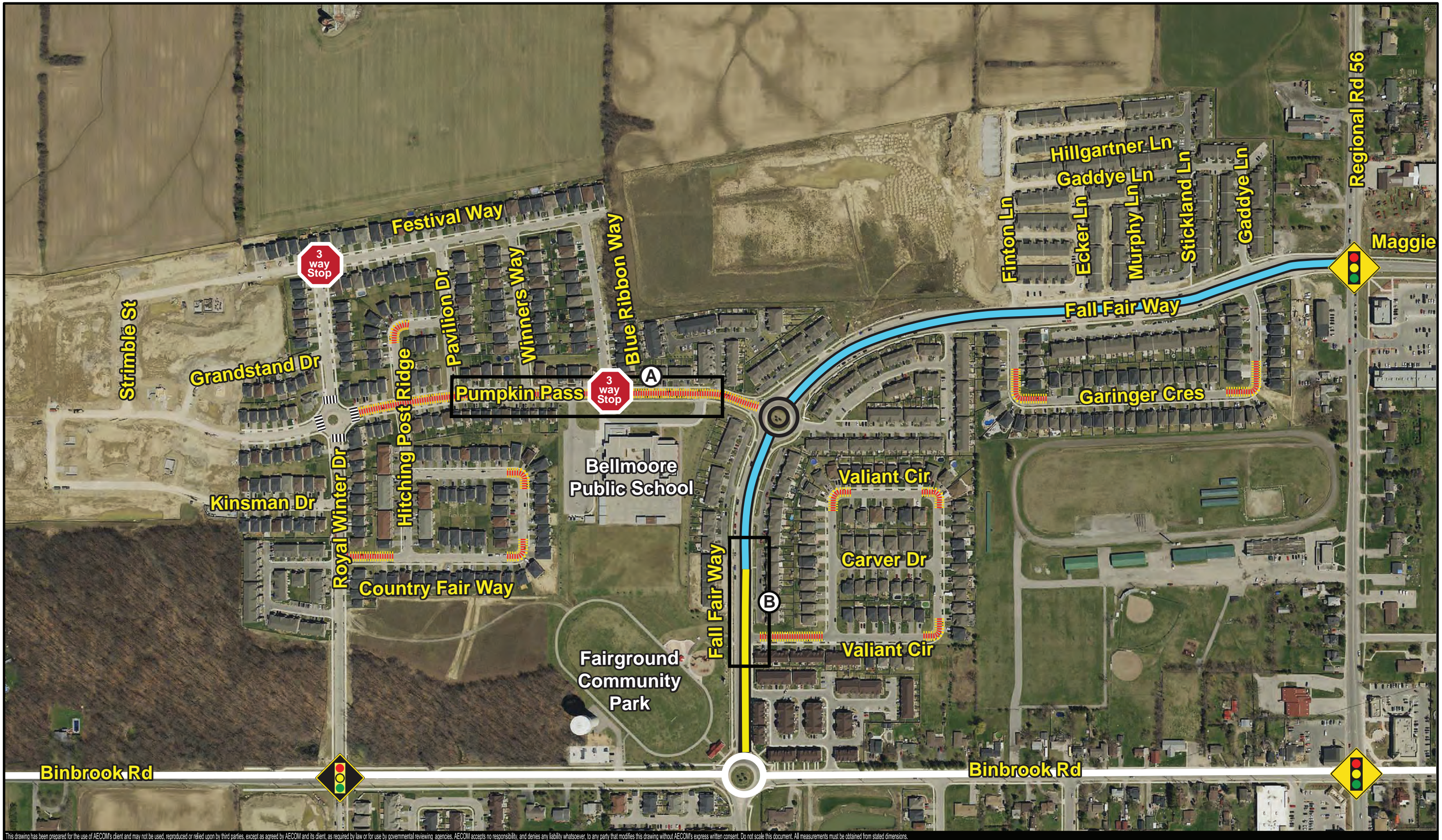
Traffic Calming Measures for Binbrook Village

The maps on the following boards show the possible traffic calming measures and roadway changes for Binbrook Village. Use the legend here and on the maps to see what has been proposed.

Legend – Possible Roadway Cross Sections



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TRAFFIC MANAGEMENT PLAN FOR BINBROOK VILLAGE
 NORTH WEST QUADRANT
 CITY OF HAMILTON
 Project No.: 60537607 Date: 2017-08-11

Existing Feature

Signalized Intersection

Proposed Features

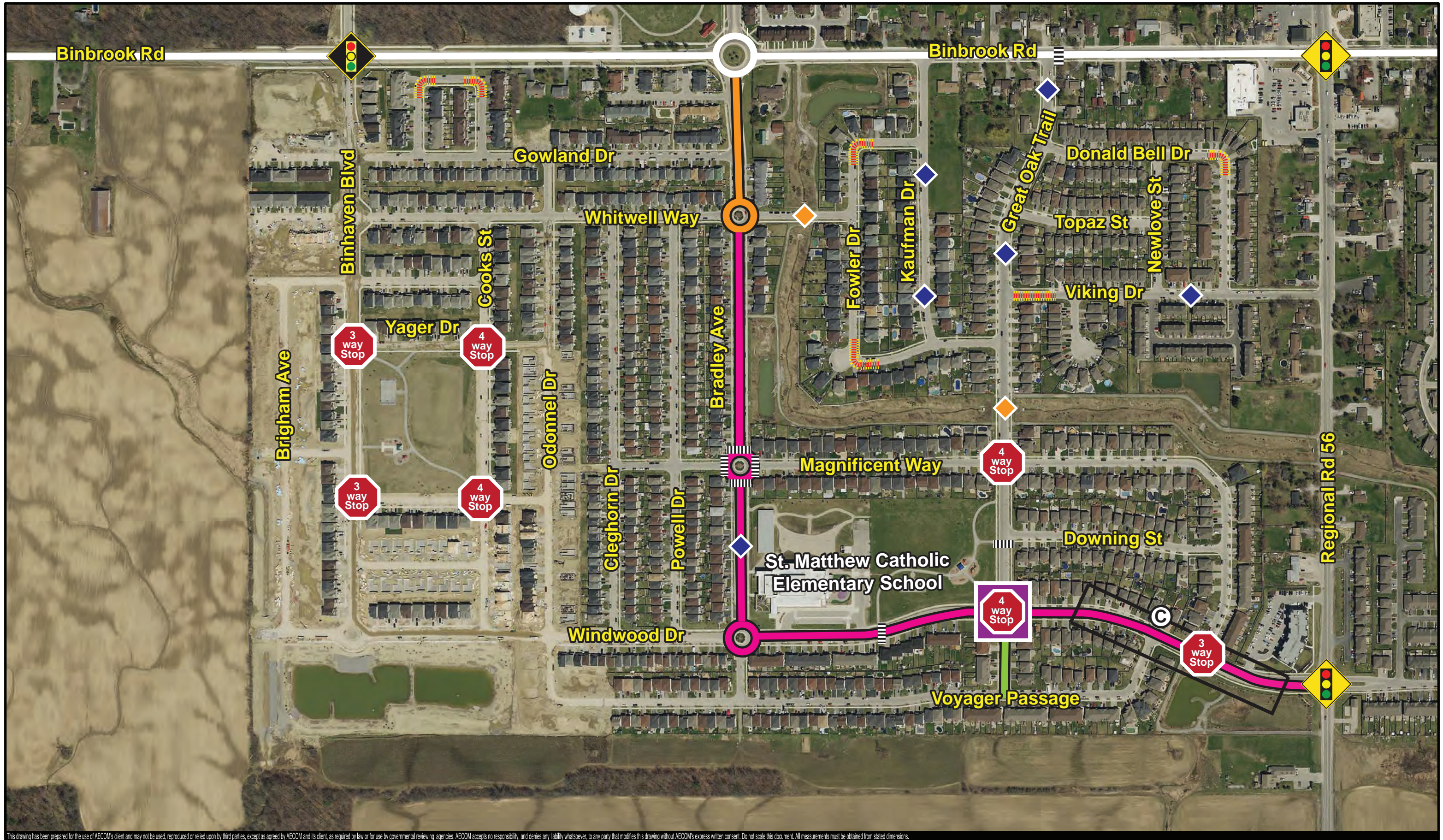
Cross-walk / PXO

Future Traffic Signal

Parking Restrictions

All-way Stop

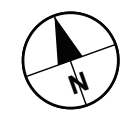
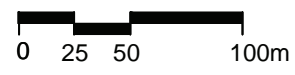


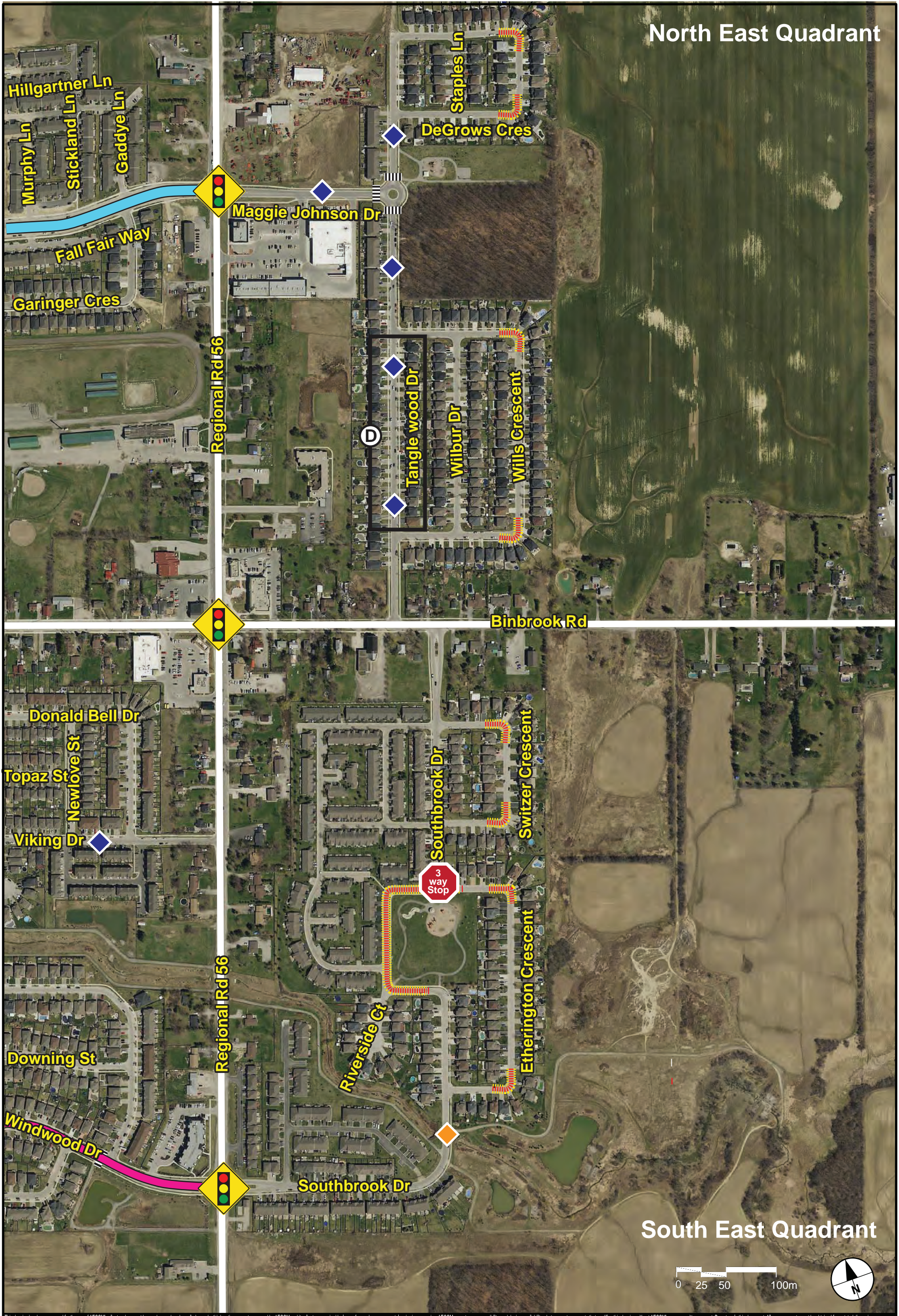


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TRAFFIC MANAGEMENT PLAN FOR BINBROOK VILLAGE
 SOUTH WEST QUADRANT
 CITY OF HAMILTON
 Project No.: 60537607 Date: 2017-08-11

Existing Feature		Proposed Features	
	Signalized Intersection		Cross-walk / PXO
	All-way Stop		Raised Intersection
			Parking Restrictions
			Enhanced Trail Crossing
			Speed Hump
			Future Traffic Signal
			3-way Stop











North East Quadrant

South East Quadrant

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TRAFFIC MANAGEMENT PLAN FOR BINBROOK VILLAGE
 NORTH / SOUTH EAST QUADRANT
 CITY OF HAMILTON
 Project No.: 60537607 Date: 2017-08-11

Existing Feature		Proposed Features	
	Signalized Intersection		Cross-walk / PXO
	All-way Stop		Parking Restrictions
			Enhanced Trail Crossing
			Speed Hump

5.1.5 Traffic Conditions and Parking Facilities

It is proposed that parking be removed around parks, on tight corners of smaller streets and at the intersection of larger streets and smaller streets such as Great Oak Trail and Viking Drive, where parked cars act as a blind spot to vehicles turning onto the smaller street. The reduction of on-street parking was requested by many residents of Binbrook during both PIC events as well as in the survey. Where parking has been retained, it is utilized as a method of traffic calming through narrower roadways. If residents wish to pursue further on-street parking restrictions, it can be requested through a petition of residents of the affected street.

Speed humps are proposed at locations where a significant amount of speeding has been noted by residents, such as along Great Oak Trail, Maggie Johnson Drive, Tanglewood Drive and Pumpkin Pass. Speed humps have been selected more frequently than other traffic calming measures due to their performance and cost effectiveness.

Medians have also been proposed along larger roadways such as Fall Fair Way and Windwood Drive to narrow the travelled portion and act as a visual cue to slow drivers where the current road width and design facilitates speeding.

5.1.6 Active Transportation

Painted crosswalks are proposed to improve walkability of the neighbourhood and encourage drivers to be cautious around intersections. Crosswalks have been recommended at all roundabouts, as well as at key attractions, including Bellmore Public School, St. Matthew Catholic Elementary School, and Fairground Community Park to ensure safe crossing.

A single raised intersection is proposed at the corner of Windwood Drive and Great Oak Trail due to the volume of pedestrians as a result of the proximity to the school and park. Though the raised intersection is a larger installation than speed cushions, it has been selected because the goal of this tool is not only to reduce speed, but also to draw attention to and better facilitate pedestrian crossing.

Cycling facilities have been proposed throughout the neighbourhood in accordance with the City's Cycling Master Plan. Designated bike lanes have been proposed along the widest collector roads, Fall Fair Way and part of Windwood Drive to provide a safer area for cyclists to travel as well as visually narrowing the road for motorists.

Enhanced trail crossings, proposed at Southbrook Drive south of Etherington Crescent has been identified as an additional feature meant to improve the existing connection of the multi-use trail and the road network. Though Binbrook is unlikely to see a large shift from driving to walking and cycling, improving active transportation facilities can have a positive impact on the active transport mode share while reducing the automobile mode share. Additionally, when routes are utilized by more cyclists, drivers are required to be more cautious while sharing the road with these other uses and the facility has the potential to have an indirect impact on traffic volume and speed.

5.1.7 Intersection Controls

Two stop-controlled intersections have been proposed as part of this plan. A three-way stop has been proposed at Festival Way and Royal Winter Drive at the request of residents to slow traffic on the approach to the intersection. Another three-way stop is proposed for Pumpkin Pass and Blue Ribbon Way as it is adjacent to Bellmoore School and has a high number of pedestrians that use the intersection to get to school.

A traffic signal at the intersection of Binhaven Boulevard/Royal Winter Drive and Binbrook Road was also highly requested by respondents to the survey and PIC attendees. It is being recommended that one be installed in the near future to alleviate the delay for vehicles exiting Royal Winter Drive and Binhaven Boulevard as well as provide a safer crossing for pedestrians.

A Pedestrian Crossover (PXO) is proposed for the intersection of Great Oak Trail and Binbrook Road to improve walkability and provide a safer crossing for pedestrians and should be reviewed and prioritized for installation based on the City's PXO ranking system.

5.2 Impact on Utilities

The majority of the traffic measures proposed are expected to have no impact on utilities. All changes are above grade and do not add width to the roadway in a way that would impact utility infrastructure such as hydro poles.

In the installation of permanent measures using concrete medians, there may be potential to impact drainage. While temporary versions should not cause any change, concrete medians may interfere with the location and function of sewers or catch basins. Further assessment should be completed on the potential impact at the time of confirming the proposed measures to ensure minimal impact.

6. Prioritized Implementation Plan and Recommendations

6.1.1 Short-Term Actions

The implementation plan is divided into short-term and long-term actions in order to prioritize important interventions that can be completed quickly and leave interventions that require significant construction for more study and tendering. Short term measures may also include some temporary versions of permanent traffic calming measures proposed within the plan.

One short-term focus is on painted features. This includes painted lanes, pedestrian crossings, and shared or designated cycling facilities.

Some traffic calming measures can also be painted; usually to serve a temporary or short-term purpose to acclimatize residents to the change before permanent implementations are installed. Painting sections of pavement encourages motorists to avoid the area and can be very effective when combined with flex posts or bollards to create a physical barrier. Traffic calming measures that can be established using paint and posts include separated bike lanes and medians, which are depicted in Figure 16 reducing the width of the roadway and narrowing available space for motorists along Fall Fair Way. Additional tools can be used to create traffic calming measures that cannot be established with paint alone. This includes custom-made features such as rubber speed humps which could be used at many locations in the study area.

Additionally, signage can be easily installed to assist in designating cycling facilities, establishing no-parking areas, and improving wayfinding at the connection of multi-use paths to the roadway and paved pedestrian facilities.

Figure 16: Short-Term Measures on Fall Fair Way

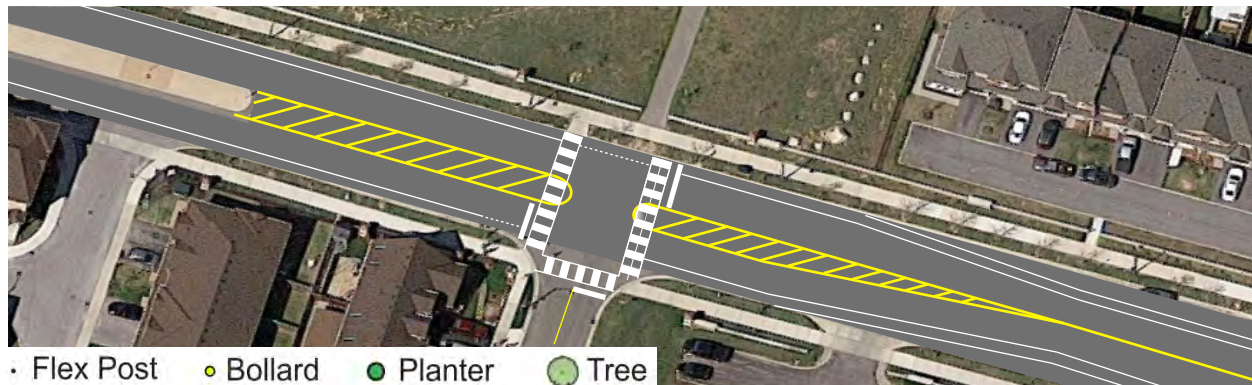


Figure 17: Short-Term Measures on Tanglewood Drive



6.1.2 Long-Term Actions

The long-term suggestions focus on the installation of permanent features, including the replacement of some temporary traffic calming measures.

The long-term proposal involves the installation of concrete and landscaped features, including:

- Landscaped medians are proposed for Fall Fair Way at Valiant Circle as shown in **Figure 20**;
- Concrete medians on Windwood Way as shown in **Figure 21**;
- Raised intersections as proposed at Great Oak Trail and Windwood Drive; and
- Permanent concrete speed humps.

Additionally, the long term plan includes the completion of enhanced trail crossings. This involves completing any physical changes, such as curb cuts or pavement markings, at the connections between trails and the roadway.

Some of the proposed long-term measures are shown in detail below. Long-Term measures proposed on Pumpkin Pass include permanent concrete speed humps in front of Bellmoore Public School and between Pavillion Drive and Winners Way in order to encourage caution from drivers along this street. Many residents of Binbrook expressed concern for the number and speed of vehicles around the school.

Figure 18: Long-Term Measures on Pumpkin Pass



Most of the comments received about Tanglewood Drive identified concerns about speeding and on-street parking. Some residents noted that they believed that the existing speed humps encouraged drivers to slow down. In the TMP, permanent concrete speed humps are recommended to replace the existing temporary rubber humps. Parking could be restricted along one side of the roadway if a petition were brought forth from the residents, which may assist with the concerns and maintaining the benefit that parked cars can provide for slowing traffic.

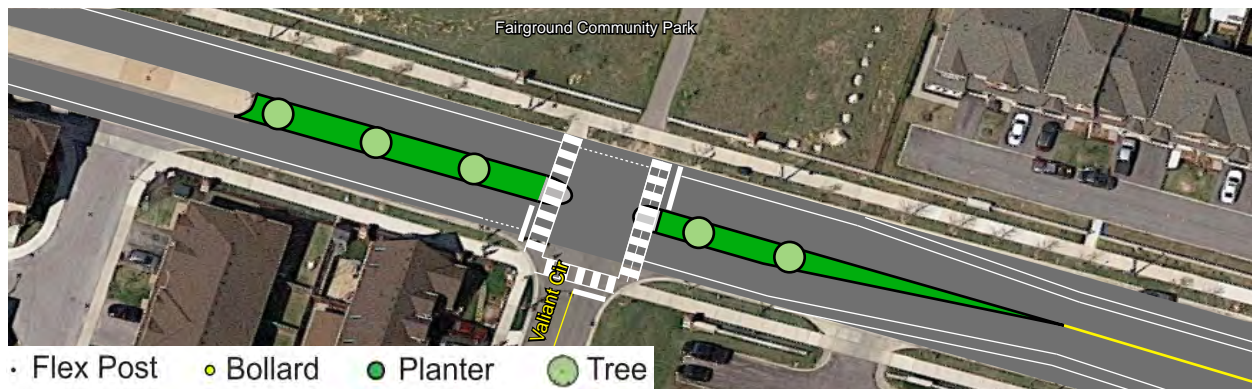
Figure 19: Long-Term Measures on Tanglewood Drive



Some residents expressed concern about speed along the wide roadway on Fall Fair Way, especially between Highway 56 and Pumpkin Pass. To address speeding, the TMP proposed adding a centre median at Valiant Circle to provide a refuge area for pedestrians crossing the roadway to the Fairground Community Park and to encourage motorists to be more cautious.

The plan sought to effectively utilize the space provided on Fall Fair Way by proposing designated bike lanes and parking lanes along the majority of either side of the street. Bike lanes provide a safe space for residents who currently cycle and may encourage residents who expressed an interest in more bike lanes to cycle.

Figure 20: Long-Term Measures on Fall Fair Way



Windwood Drive, between Highway 56 and Voyager Pass is another wide roadway and some residents expressed concerns about speeding along this portion of the road. The TMP proposes a centre median and bike lanes in order to reduce space available for vehicles and encourage motorists to slow down. An all-way stop is also proposed at the intersection of Windwood Drive and Magnificent Way.

Figure 21: Long-Term Measures on Windwood Drive



7. Conclusion

AECOM has developed a traffic management plan for Binbrook Village that proposes traffic calming measures that suit the needs of the community. Developing the plan began with a review of data available for traffic conditions in Binbrook. However, there have not been many collisions recorded or speed studies completed in Binbrook; there was only a small data sample and that data does not reflect the impact of traffic calming measures that were implemented in the Village in 2016 as most of the data was collected prior to these changes. Available data provided some insight into the traffic issues in Binbrook, but did not provide sufficient evidence of a significant speeding issue or other serious traffic concern in the Village.

Considering the data available is too limited to confirm the issues expressed by the residents of Binbrook and supports the conclusion that the issues in the town are likely perception based, many of the measures proposed were based on the responses received within the public consultation process to directly address the perceived issues. The web-enabled survey provided feedback that shaped the first iteration of the proposed plan presented at PIC #1. The survey provided insight into Binbrook demographics as well as the residents' opinions on traffic related issues. Most respondents expressed concerns about speeding, on-street parking, disobeying of traffic laws, and safety of pedestrians. Comments received from PIC #1 and PIC #2 were then used to refine the plan. Issues discussed at the PICs were consistent with those from the survey; many attendees provided specific examples of where on-street parking should be removed, pedestrian safety should be a priority, and further traffic measures, like signalized intersections, are a necessity.

Proposed measures, therefore, focused on traffic calming, the removal of on-street parking, and improving pedestrian and cyclist facilities. Measures include the addition of speed humps and centre median islands to address speeding. Proposed enhancements to the active transportation network can contribute to the reduction of speed, but also encourage cyclist and pedestrian activity and safety. The plan also proposes the removal of some existing on-street parking at the request of residents, while also maintaining some on-street parking where it has potential to reduce speeding. Additional parking restrictions may be implemented if residents of the affected street provide a petition.

The proposed plan is comprised of short-term and long-term actions. Short-term actions include painted features and other temporary measures, whereas long term actions focus on measures that will require greater time to implement, such as concrete traffic calming measures and physical changes at enhanced trail crossings and curb-cuts.

Based on the findings from the available data and the community engagement and consultation process, the traffic calming measures proposed within this Traffic Management Plan will address the concerns of the Village and improve the safety of all Binbrook residents.