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Traffic Management Strategy

The Corporation of Haldimand County

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The Corporation of Haldimand County

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May 2025
300058527.0000

Distribution List

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0	Yes	Yes	The Corporation of Haldimand County

Record of Revisions

Revision	Date	Description
0	May 15, 2025	Initial Submission to The Corporation of Haldimand County

R.J. Burnside & Associates Limited

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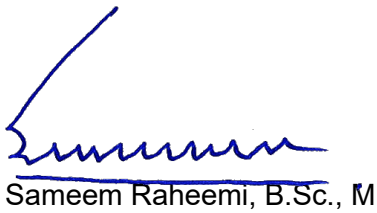

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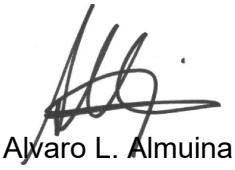

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Table of Contents

Tables

Figures

Appendices

1.0 Introduction

Haldimand County Council has recognized traffic management on county roads as a key priority for their 2022-2026 term. The county faces traffic situations concerning vehicle speed and driving behaviors, leading to significant road safety issues. To address these concerns, a County-wide Traffic Management Strategy was developed to manage the concerns of the public and stakeholders using the three E's of traffic management (Engineering, Education and Enforcement) for rural and urban environments. This strategy was created through comprehensive public and stakeholder engagement.

1.1 Background

Like most municipalities in Ontario, Haldimand County deals with traffic conditions on its roadways that do not respond or follow established traffic expectations, particularly with regards to the speed of traffic and, particularly, this driving behaviour not being commensurate with the adjacent land use.

To address the Council's objective and public concern about traffic speed and other roadway safety concerns, a traffic management strategy was developed that puts in place an appropriate process to address these concerns through traditional engineering, education, and enforcement practices after an extensive public consultation program.

The strategy was defined through an extensive assessment of technical information, a scan of best practices and appropriate input from stakeholders. The Traffic Management Strategy contains updated policies, procedures, and specifications as well as appropriate new practices and policies for the implementation of traffic calming measures.

1.2 Goals and Objectives

In response to public concerns about traffic, the County developed this traffic management strategy and established an effective process to address speeding and other roadway safety concerns. This process involved traditional engineering methods, educational initiatives, and enforcement practices, along with a comprehensive public consultation program.

The objective was to develop a strategy that harnesses extensive experience, combining technical expertise with effective public engagement to identify the best approach for the County.

The Traffic Management Strategy was developed through a comprehensive assessment of technical data, a review of best practices, and meaningful stakeholder input. This strategy features updates to policies, procedures, and specifications, alongside the introduction of new practices for implementing traffic calming measures. Furthermore, it outlines the financial implications for future capital and operational budgets, ensuring a well-rounded approach to enhancing traffic management in the County.

1.3 Desktop Review

A preliminary investigation was undertaken to establish a baseline understanding of issues related to speeding, roadway safety and traffic calming.

1.3.1 Existing Traffic Conditions

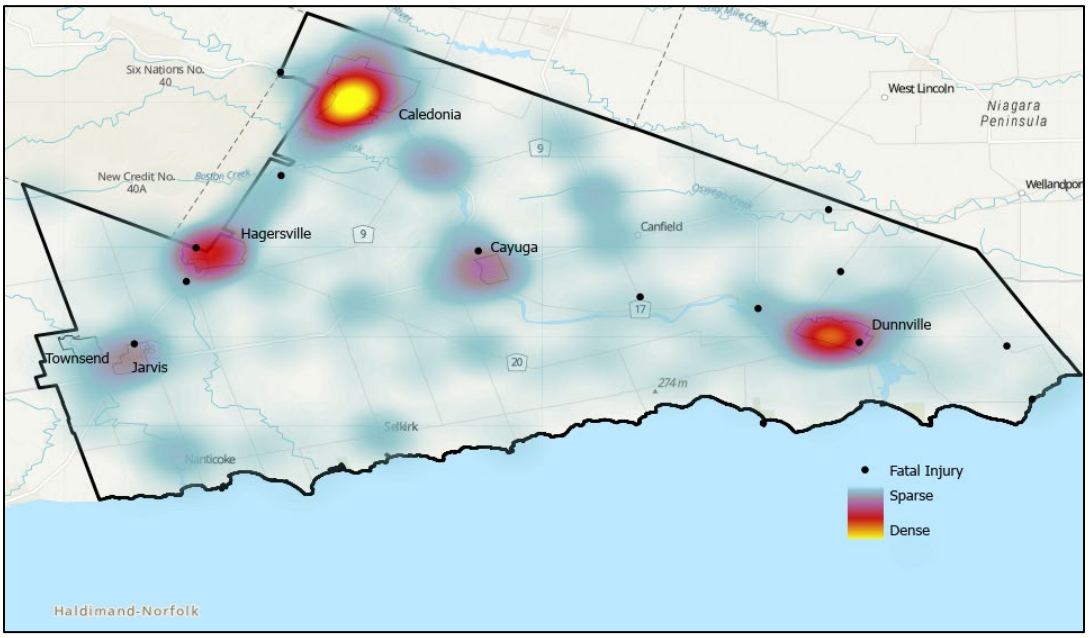
At the outset of the study, the County provided data on existing traffic conditions, including speed, traffic volumes, and collision records. An analysis of the traffic volumes along County roads revealed consistency with their respective classifications and also indicated that the network is generally functioning at an acceptable level of service during the peak periods of travel.

To monitor speed, the County strategically places speed monitoring devices throughout the County roadway network, providing valuable data with regards to vehicular speeds by time of day and day of week. The analysis of this data indicates cases of speeding reaching up to 40 km/h above the posted limits.

A thorough review of historical collision data covering the years 2021 to 2023 was conducted to identify patterns related to collision type, severity, and contributing factors. Figure 1.1 displays a heat map highlighting hotspots for injury-related and property damage only (PDO) collisions, with black dots indicating locations of fatal injury-related collisions.

Detailed figures for each settlement area are presented in Appendix A.

Figure 1.1: Heat Map of Traffic Collisions in Haldimand County (2021-2023)



1.3.2 Master Servicing Plans

Several studies have been undertaken to define infrastructure needs for the next 20 years. These studies are summarized below.

1.3.2.1 Caledonia Master Servicing Plan (2020)

The 2020 Servicing Master Plan for Caledonia built on the previous Master Servicing Plan (MSP) completed in 2006, with some updates in 2015-2018. These updates projected needs for the year 2035. The transportation component of the MSP was updated in 2019 and used for the 2020 update.

1.3.2.2 Cayuga Master Servicing Plan (2010)

The goal of the transportation component of the Cayuga Master Servicing Plan (MSP) was to assess infrastructure needs for roads (both for cars and commercial vehicles), transit, cycling, and pedestrians. The MSP aimed to develop policies, guidelines, and a recommended plan that fosters a safe, efficient, and sustainable transportation environment for all travel modes. The Cayuga Master Servicing Plan is being updated by the County.

1.3.2.3 Dunnville Master Servicing Plan (2008)

The transportation service plan discussed the existing condition of the roadway network (2009), intersection operation, capacity analysis, and active transportation facilities.

It also looked at the future condition (2026) forecast, capacity analysis, and recommended road improvements. Dunnville Master Servicing Plan is being updated by the County.

1.3.2.4 Hagersville Master Servicing Plan (2024)

The update to the Master Servicing Plan, addressing Phase 1 and Phase 2 requirements of the Municipal Class Environmental Assessment (MCEA), is currently under review by Council. This update builds on the 2009 Master Servicing Plan, which projected population and household growth through 2026 and proposed the construction of three new two-lane collector roads with traffic calming features and a new traffic circle. The revised Master Servicing Plan (MSP) evaluates future growth conditions, confirms transportation servicing alternatives, selects the preferred option, and outlines an implementation plan for the chosen transportation servicing strategy.

1.3.2.5 Jarvis Master Servicing Plan (2010)

The 2010 Master Servicing Plan assessed the infrastructure for roads (both for cars and commercial vehicles), transit, cycling, and pedestrians. Land uses in the area include residential, industrial, institutional, and commercial.

1.3.3 Haldimand County Official Plan

Haldimand County's Official Plan was approved in 2009 with a vision for the next 20 years, leading up to the horizon year of 2026. The County includes six fully serviced urban areas and 25 hamlets.

Haldimand County is served by an extensive road network, which includes Provincial highways, and Municipal roads (local, collector and arterial). Road Classification according to the official Plan is as follows:

- Provincial highways are primary transportation routes under the control of the Ministry of Transportation. Connecting links linking provincial highways are controlled by the County. Direct access to a Provincial highway will be limited. Access will be restricted to roads that are not Provincial highways, where applicable, for all new developments. Permits must be obtained from the Ministry of Transportation for all developments located within their permit control area.
- Arterial roads are generally recognized as the principal traffic thoroughfares within the County. Direct access to arterial roads should be limited and means of alternative access should be investigated for all new development or redevelopment adjacent to an arterial road. In some instances, the flow of traffic on an arterial road may take precedence over parking.
- Collector roads are identified as those roads that distribute traffic from the arterial road network to local roads. Direct access to a collector road is permitted.

- Local roads are intended to distribute traffic from collector roads to individual properties. The design of local roads should discourage high-speed traffic through the incorporation of appropriate design measures.
- Private roads are roads that are not owned or maintained by the County but are under private ownership and provide vehicular access to more than one property. The County encourages the upgrading of private roads to municipal standards; however, the improvement of private roads will not obligate the County to assume such roads. The County cannot guarantee the provision of emergency services on private roads.

Haldimand County Official Plan Update Phase 1 Growth Strategy Report (June 2021) was reviewed, which discusses the transportation components of Servicing Master Plans for each of the six urban areas as discussed in Section 1.3.2.

In addition, the Growth Strategy anticipates that no major transportation improvement is required to handle the growth needs of Townsend over the planning horizon of 2046. The growth is expected to be accommodated by extensions to the local network.

1.3.4 Canadian Guide to Traffic Calming, Second Edition (CGTC) (TAC, February 2018)

The publication CGTC guides the application of traffic calming measures on neighbourhood local / collectors, and urban and rural arterials. CGTC proposes a step-by-step procedure which includes initiation, development, approval, implementation and evaluation. The guide also proposes various traffic calming measures and categorizes them into three groups of engineering, enforcement and education. For design purposes, it provides a list of detailed considerations for each of the proposed measures. CGTC serves as a provincial framework that outlines a standard procedure for implementing traffic calming measures. It offers a generic and widely applicable methodology; it encourages municipalities to develop their own tailored traffic calming plans and policies that align with the specific needs and unique characteristics of their local areas.

The guidelines within the CGTC can form the foundational basis of a traffic calming strategy, providing technical recommendations on various measures. The guide also emphasizes the importance of public engagement and data-driven decision-making in the planning process.

1.3.5 Best Practices

Burnside conducted a review of the best practices for traffic calming in the Province of Ontario, focusing on policies and plans implemented by municipalities such as Norfolk County, Brant County, the Town of Oakville, King Township, the City of Hamilton, the Town of Fort Erie, and the City of Guelph. The review highlighted that each municipality has developed its own tailored traffic calming strategy and policy, reflecting its unique challenges related to speeding and traffic management. Notably, the screening criteria for implementing traffic calming measures vary across municipalities. While some have adopted score-based systems to prioritize interventions, others follow a step-by-step approach, starting with softer measures such as pavement markings before opting for more permanent solutions like vertical or horizontal deflections. Further details of the best practices review can be found in Appendix B.

2.0 Policy Review

A review and analysis of existing County policies, plans, reports and other strategic documents was undertaken in the context of how these policies conform to current industry best practices. The draft memo outlining the details of the policy review and recommended updates are provided in Appendix C. Below is a summary of the policy review.

2.1 All-way Stop Policy (2007-03)

The policy provides an overview of the evaluation process to consider for the installation of all all-way stops. There are two processes to evaluate the justification of an all-way stop depending on who initiated the request:

- The Technical Justification Warrant Process.
- The Community Justification Process.

The policy meets the criteria for collision history warrants, and traffic volume warrants as per OTM Book 5.

The policy should be revised to clarify that stop signs are intended to manage right-of-way conflicts, not control speed, as outlined in OTM Book 6. It is also recommended to remove the current 50 km/h minimum speed threshold for all-way stop control, aligning the policy with OTM Book 5 and common municipal practices in Ontario. Additionally, the stopping sight distance should be updated to reflect the appropriate value of 130 m for roads with a 60 km/h speed limit. Some consideration should be given to coordinating the community justification warrant process with the traffic calming request process for consistency.

2.2 Speed Limit Policy (2007-02)

The policy aims to set reasonable speed limits that ensure the safe and efficient operation of the road network, ranging from 50 km/h to 80 km/h in 10 km/h increments, ideally aligned with the 85th percentile speed based on actual measurements. It also includes an annual review of posted speed limits and a procedure for public requests. This Policy needs revision to align with current HTA recommendations and comply with TAC guidelines.

Unrealistic, arbitrary, and inconsistent speed limits have led to widespread non - compliance, increasing collision risk and misleading unfamiliar drivers and pedestrians about actual traffic speeds. To address this, it is recommended that posted speed limits be reviewed every three to five years as part of a comprehensive speed management strategy, considering factors such as operational changes, road geometry, collision history, and enforcement feedback, in line with the Canadian Guidelines for Establishing Posted Speed Limits.

Additionally, speed limits should be updated to align with the Operating Speed principles outlined in Section 2.3.6.5 of the 2017 TAC Geometric Design Guidelines and Table 1 of the Policy to create a road classification system. It is also recommended that the County set a specific percentage requirement for speed limit review petitions, mandating a minimum of two-thirds (67%) support, and to monitor speed reduction areas and include consideration for traffic calming measures.

2.3 Community Safety Zone Policy (2003-09)

This policy establishes criteria for designating Community Safety Zones (CSZs) on County roads to enhance safety and modify driver's behavior. Four warrants must be met for CSZ designation:

- Designated Areas of Special Concern: CSZs are designated in locations like schools and playgrounds.
- Safety Warrant: Either the crash or risk components must be satisfied.
- Other Measures: All other countermeasures must be attempted and found ineffective before implementing a CSZ.
- Ability to Enforce: A maximum of two CSZs may be active in the County at any one time, one in the west and one in the east. The policy is consistent with the community safety zone policies for other jurisdictions like the Town of Puslinch and Oxford County.

It is recommended to update the risk factor scorecard. Industry best practices don't have a minimum or maximum limit on the number of Community Safety Zones (CSZs) that can be established, allowing flexibility to expand their use as needed. Depending on the County's ability for enforcement, it is recommended to implement more CSZs to improve slower traffic speeds within communities.

2.4 Traffic Warrant Sign Policy for Agricultural Equipment on County Roads (07-2008)

The purpose of this policy is to establish criteria for installing caution and warning signs for agricultural equipment (slow-moving vehicles) on roads managed by Haldimand County. Criteria for installation:

- The road must be used by vehicles that comply with the slow-moving vehicle regulations outlined in the Highway Traffic Act, Section 76, and Ontario Regulation 616. This policy applies exclusively to roads under County jurisdiction. The road must have an average annual daily traffic (AADT) volume of at least 2,000 vehicles per day and / or accommodate a minimum of 20 agricultural vehicle trips per week. The slow-moving vehicle sign dimensions are in conformation to Ontario Regulation 616.

The County conforms to the guidelines and is up to date.

2.5 School Speed Limit Warrant Guidelines

The County adopted a *"School Speed Limit Warrant Guideline"* as a part of Council report PW-ES-2015 that evaluates speed limits on roads adjacent to schools and recommends speed reductions based on a warrant assessment using six criteria: school type, road classification, fencing, property line separation, school entrance, and sidewalk location. Each criterion is weighed, with a total score calculated out of 100:

- Roads that score over 40 points are designated as a School Area and / or School Zone.
- Roads that score above 65 points are recommended for a reduced speed limit.
- Roads that score above 81 points are recommended for either a reduced speed limit or School Zone Maximum Speed When Flashing signs.

The policy aligns with other municipalities and conforms to the Transportation Association of Canada's (TAC) *"School and Playground Areas and Zones: Guidelines for Application and Implementation (2006)".*

2.6 Road Care and Use By-Law (358/82)

The municipality established the Road Care and Use Bylaw to regulate the maintenance, use, and protection of public roads. This bylaw defines key terms related to roadways and infrastructure while outlining regulations for municipal roads and properties. The current Road Care and Use Bylaw for the County of Haldimand is originally dated 1982 and last amended in 1994. Several definitions need revision, and the regulations would benefit from clearer categorization based on their specific purpose.

Following a review of Road Care and Use policies from various Ontario municipalities, the following recommendations are proposed:

- Update definitions for road types and roadway infrastructure.
- Refine and categorize regulations into distinct sections, such as general requirements, exemptions, fouling of streets, and encroachments.
- The current policy provides a brief overview of temporary road closures and repair work; however, adding more detailed guidelines and procedures would improve clarity and implementation.
- A detailed list of offences and fines associated with those offences.
- General update to the policy (can refer to City of Brockville or Town of Oakville).

2.7 Parking By-Law (307/02)

The Parking Bylaw 307/02, consolidated in November 2023, provides comprehensive regulatory guidance for the regulation and prohibition of parking, standing, and stopping of vehicles on roads and streets within Haldimand County. This bylaw aligns with the Highway Traffic Act and other relevant regulatory frameworks, ensuring consistent enforcement throughout the county. Key provisions of the bylaw include the following:

- Stopping: Defined as halting a vehicle, even momentarily. The bylaw designates specific locations and streets where stopping is prohibited to ensure safety and traffic flow.
- Parking: Refers to the standing of a vehicle, whether occupied or not, except when loading or unloading passengers or merchandise. The bylaw identifies specific locations and conditions where parking is prohibited.

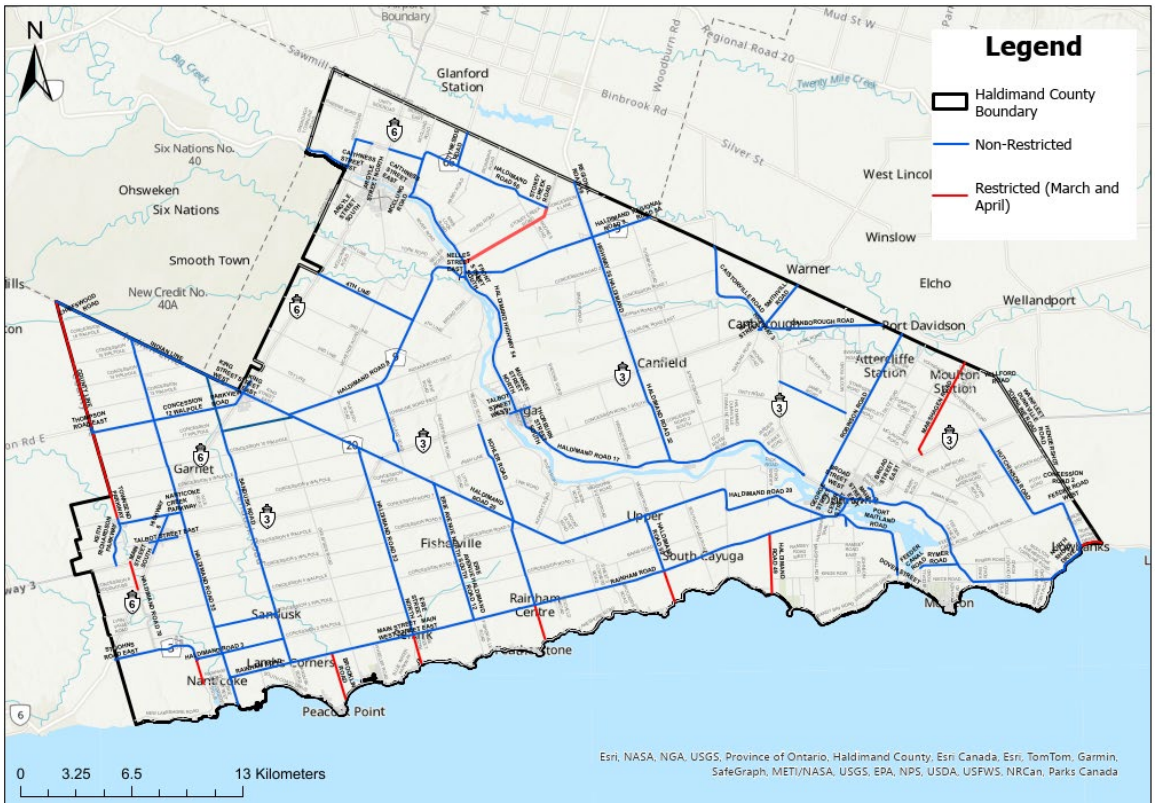
The bylaw provides a detailed list of streets within Haldimand County where parking is either prohibited or restricted. Additionally, the bylaw stipulates penalties and fines for violations of its provisions, ensuring compliance and effective management of parking within the County.

It is recommended that the County update Schedule C and Schedule D if on-street parking is adopted as a traffic calming measure in any of the streets where parking is prohibited or restricted under specific circumstances.

2.8 Heavy Truck By-law (By-law No. 2079/19)

The County designates Truck Routes and requires truck traffic to use these routes. These truck routes are intended to reduce truck traffic impact on urban and hamlet areas. Truck Routes are shown in Figure 2.1

Figure 2.1: Haldimand County Truck Routes



This bylaw is up to date and no changes are recommended.

2.9 Non-Standard Warning Sign Request Form

The request form outlines numerous non-standard warning signs, such as:

- Pedestrian Ahead Sign
- Horse Warning Sign
- Child with Disability Warning Sign

The form details the requirements for requesting and implementing these signs on the road and the restrictions regarding their placement.

The Road Operations Department will review the need for each sign every five years. If the need continues after five years, the sign will remain and be maintained; if not, it will be removed.

It is recommended that the County implement online service portals to improve efficiency and make it easier for residents to report issues. Additionally, the County should consider the use of non-standard signage where it clearly benefits a specific group or addresses urgent safety concerns.

However, such decisions must be supported by sound engineering judgment and a traffic engineering study, evaluating factors such as roadway conditions, traffic volumes, sight distance, collision history, and the effectiveness of alternative measures. This approach aligns with guidance from OTM Books 1, 2, and 15.

2.10 Haldimand County Design Criteria-Roadway (2015)

Haldimand County's roadway design standards include roadway classifications based on their transportation service function, as detailed in Table 1.

Table 2.1: Haldimand County's Roadway Classification

Criteria	Arterial Road	Collector Road	Local Street
Traffic Service Function	Priority to traffic mobility	Traffic mobility and land access of equal importance	Priority to land access and urban environment
Typical Traffic Volumes (ADT)	5,000 to 30,000 vehicles per day	1,000 to 12,000 vehicles per day	Less than 3,000 vehicles per day
Typical Speed Limits	50 to 80 km/hr	50 to 60 km/hr	40 to 50 km/hr
Vehicle Types	All types	May restrict heavy trucks in specific cases	Passenger and service vehicles
Connects to	Freeway, highway, arterial collector, local	Highway, arterial, collector, local	Highway, arterial collector, local
Typical Right-of-way width	30 to 36 m	20 to 30 m Industrial Collector: 26 m	20 m Industrial Local: 20 m
Pavement Width	11.0 m	10.0 m Industrial Collector: 10 m	8.5 m Industrial Local: 10 m

The County is committed to developing and enhancing pedestrian and bicycle paths, which will include integrating sidewalks, pathways, and trails within the community. These paths will also link to recreational facilities as part of ongoing infrastructure projects. Priority will be given to routes that connect community amenities with major parks and open spaces or that showcase the County's natural and cultural scenic views. Routes that promote tourism will be favoured. Sidewalks will be used to connect urban trail systems whenever possible. New developments, revitalizations, or redevelopments will be planned with consideration for all travel modes to ensure safe pedestrian and vehicle movement.

According to Haldimand County's Design Criteria, sidewalks are required on both sides of all urban arterial roadways. Sidewalks are also required on at least one side of all urban collector and minor collector streets unless warranted on both sides. For local and collector roadways, the locations of schools, parks, churches, commercial establishments, street length, expected traffic volume, and the number of serviced dwelling units will be used as criteria in determining whether sidewalks are required on two sides of the street. Some recommendations have been proposed to develop a revised set of criteria for traffic-calmed roads within Haldimand County that would align with this Traffic Management Strategy. Draft markups that require this update are provided in Appendix D.

2.11 Other Policies

As part of the study, additional policies were examined to strengthen traffic safety efforts and address specific concerns raised by both the public and County staff. These concerns highlighted the need for more targeted and proactive approaches to managing safety in rural and residential areas. The study recommends the development of new policies that can provide additional guidance and tools to improve the safety of rural intersections and residential neighbourhoods. Rural Intersection Safety Review Policy (A draft of this policy is provided in Appendix F) is proposed to guide safety assessments and improvements at rural intersections, while the Neighbourhood Speed Policy (A draft of this policy is provided in Appendix G) aims to support the implementation of reduced area-wide speed limits in residential neighbourhood. These proposed policies will help establish a more consistent and effective framework for addressing safety concerns across the County.

3.0 Consultation

Burnside carried out consultation activities with the understanding of attributes, and interrelationships between Project advocates and opponents to assist in strategically planning the Project.

3.1 Consultation Strategy

Notification for the project was issued through media releases on the County's website which also linked to the dedicated project web page on the County's website (https://www.haldimandcounty.ca/trafficstrategy/). The County website also hosted a banner with information on the project.

Notification was also issued through the County's eNewsletter along with social media posts made on Facebook and X (formerly Twitter). Radio ads were aired on 92.9 the Grand FM and newspaper ads were placed in the Haldimand Press.

3.1.1 Engagement Round 1

The first round of engagement with the residents of the County and project stakeholders included the following.

3.1.1.1 Public Open House Round 1

The kick-off to the Round 1 of consultation was a workshop with County Council on June 24, 2024. Council shared their own observations as well as the typical concerns they receive from their constituents about traffic management. The generally theme of this feedback was with regards to speeding on local roads, pedestrian safety and truck traffic.

There were three formal opportunities for the public to participate in Round 1 of engagement. The first open house was held on Tuesday, July 16, 2024 (6:00 p.m. - 8:00 p.m.), at Haldimand County Caledonia Centre and was targeted for urban residents. The meeting was held in an open house format whereby attendees could review the display boards and ask questions of the study team; the open house was attended by 41 residents (per open house sign in form).

The second open house was held on Tuesday, July 23, 2024 (6:00 p.m. - 8:00 p.m.). This open house was targeted at rural residents and was held at the Cayuga Memorial Arena (55 Thorburn Street South, Cayuga). Like the urban open house, the meeting was held in an open house format. This open house was attended by 29 residents (per open house sign-in form).

The third open house was held virtually over Microsoft Teams on Tuesday, July 30, 2024 (5:00 p.m. - 7:00 p.m.). This virtual open house included a presentation of the display boards and featured interactive questions to gain feedback from participants. The virtual open house had eight participants.

3.1.1.2 Internal Stakeholder Advisory Group (SAG)

As part of Round 1 of engagement, a virtual meeting with the internal SAG group was held to collect feedback and information on traffic management in the County. County staff from teams with exposure to traffic management provided their insights on the project. Groups with representatives in attendance included:

- Haldimand County Fire Department
- Haldimand County Paramedic Services
- Haldimand County Accessibility Advisory Committee / Accessibility Coordinator
- Haldimand County Planning Department
- Hagersville Chamber of Commerce

Feedback Received

County staff discussed that installation of vertical measures (e.g., speed bumps, speed cushions, raised medians) and horizontal measures (e.g., curb extensions, chicanes) could pose challenges for Winter maintenance operations through potential damage to snow ploughs, risk of destroying the traffic calming measures, and the possibility of hindering snow clearing and removal in those areas.

Haldimand County Paramedic Services expressed concern that measures could reduce travel time and cause discomfort for patients in Ambulances and suggested structures be designed with a gradual height increase and decrease to have the least impact on emergency services. Paramedic Services certified that there would be no significant difference between a speed cushion and a speed hump and noted that there is no substantial difference in width between an Ambulance and a small truck.

Haldimand County Fire Department expressed concern that reducing the width of roads could negatively impact fire services, particularly with the increasing size of Fire Trucks Fire Trucks are typically 102 in. wide, with their total vehicle length varying between 35 ft. to 45 ft.

Accessibility Advisory Committee (AAC) expressed the need for more sidewalks to improve children's safety by providing safer routes to schools and better access to parks.

Paramedic Services agreed with AAC's concerns and noted that most traffic incidents involving pedestrians occurred at pedestrian crossings, either at intersections or Midblock Crosswalks. Paramedic Services agreed to review their data and share a list of areas of concern. The Fire Department committed to providing distracted driving or speeding incident data.

County staff noted the operations team currently lacks specialized equipment for snow clearing and road maintenance and advised the project team to contact the operations team if further information is needed.

3.1.1.3 External Stakeholder Advisory Group (SAG)

As part of Round 1 of engagement, a virtual meeting with the external SAG group was held to collect feedback and information on traffic management in the County. Organizations provided feedback on their priorities for traffic management and provided their insights on concerns in the County. Groups with representatives in attendance included:

- Hagersville Business Improvement Area
- Student Transportation Services Brant-Haldimand-Norfolk
- Health United Haldimand-Norfolk
- Hagersville Chamber of Commerce

Groups who were invited but unable to attend include:

- Caledonia Business Improvement Area
- Dunville Business Improvement Area
- Business Development and Planning Advisory Committee
- Cayuga Chamber of Commerce
- Caledonia Chamber of Commerce
- Selkirk Chamber of Commerce
- Grand Erie School Board
- Accessibility Advisory Committee

Feedback Received:

Health United Haldimand-Norfolk expressed their support for infrastructure improvements that provide safe transportation options, such as cycling and walking.

The Hagersville Business Improvement Area noted concerns about congestion downtown and highlighted issues with truck traffic and adherence to traffic signs and traffic lights. The Hagersville Chamber of Commerce echoed the Hagersville BIA's perspective and noted interest in a bypass in Hagersville for trucks and other vehicles negatively impacting business in Hagersville.

Grand Erie School Board expressed their interest in ensuring connectivity is considered with future developments and that improvements to existing conditions are planned to provide better access for students.

3.1.1.4 Ontario Provincial Police (OPP)

The study team met with the OPP to discuss enforcement and opportunities to align messaging and communication to residents. The OPP provided enforcement data to the study team to better understand patterns within the County.

3.1.2 Engagement Round 2

Round 2 of consultation with the public included two public open house opportunities. The first open house was held on Tuesday, February 4, 2025 (6:00 p.m. - 8:00 p.m.), at Dunville Lifespan Centre. The meeting was held in an open house format whereby attendees could review the display boards and ask questions of the study team.

The second open house was held on Thursday, February 6, 2025 (6:00 p.m. - 8:00 p.m.). This open house was held in the Haldimand County Caledonia Centre REMAX Room. Similar to the first open house, the meeting was held in an open house format.

This second round of open houses was attended by 42 residents (per open house sign-in form).

3.2 Social Media and County Website Form

The feedback provided by residents and businesses collected through various channels, including the County's Facebook page and web form have been reviewed. The analysis of these concerns concluded the primary concerns revolve around speeding, with pedestrian and cyclist safety closely followed, as well as issues related to truck traffic. While there were additional concerns raised, these three categories emerged as the most significant.

3.3 Resident Survey

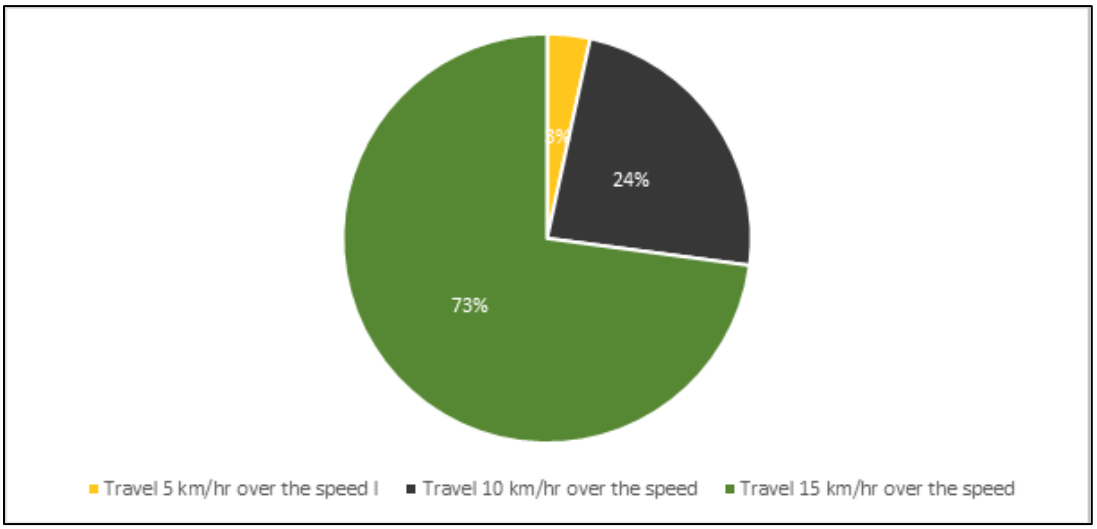
The survey was launched along with Round 1 of public engagement on July 16, 2024, and closed on August 30, 2024, receiving 1,001 responses. Of the respondents, 95% were full-time residents of the County. Most of the respondents live in Caledonia, Hagersville, Dunville and Jarvis.

3.3.1 Speeding

The survey found that 73% of the Haldimand County residents are concerned about speeding, while 27% think speeding is not a concern.

To understand the perspective of Haldimand residents, the survey asked them how they define speeding. 73% of the respondents indicated they defined travelling 15 km/h above the road speed limit as speeding, 24% think travelling 10 km/h above the road speed limit is considered speeding, while only 3% of the respondents indicated they defined travelling 5 km/h above the road speed limit as speeding.

Figure 3.1: Haldimand Residents' Perception of Speeding



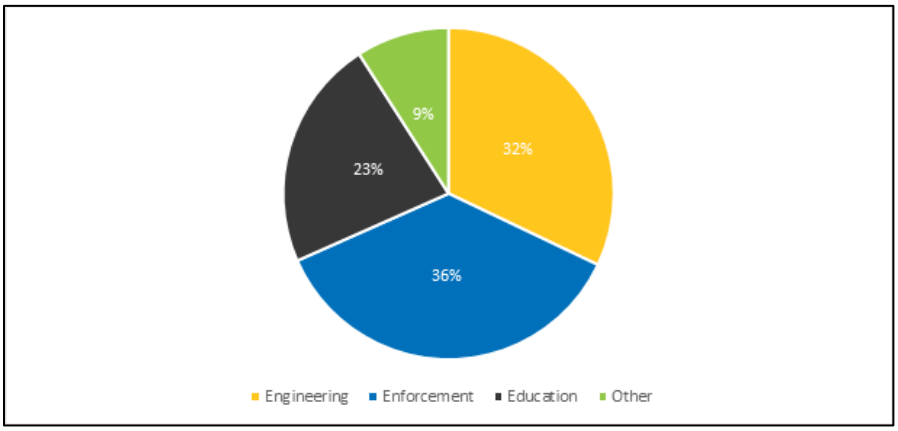
- Survey respondents believe that speeding and traffic-related issues are widespread in the County, posing serious risks to public safety, particularly around schools, residential areas, and highways. School zones consistently experience speeding and failure to stop at four-way intersections, which endangers both children and pedestrians. Some of the other concerns raised by residents included the following:
  - There is a lack of pedestrian crossings in key areas such as near the plaza and Tim Hortons in Jarvis, as well as an absence of sidewalks along Tuscarora and Oneida.
  - Main Street in Hagersville has limited pedestrian crossing points and the pedestrian signal heads near Tim Hortons are poorly installed, making them less visible to drivers and giving pedestrians a false sense of security.
  - Another safety concern is the crosswalk on Highway 6 near Jarvis Public posing a risk to pedestrians, particularly when crossing guards are not present. In residential areas without sidewalks, speeding vehicles further endanger pedestrians daily.
- Highway 6, especially the segments in Hagersville, Caledonia, and Jarvis, is an area of concern due to high volumes of truck traffic and commuter vehicles. These conditions contribute to unsafe passing maneuvers and excessive speeding, particularly in areas with limited visibility. The highway is referred to as a “racetrack”, creating dangerous conditions for all road users. However, it is important to recognize that Highway 6 is a provincial roadway, and the County has very limited jurisdiction over some of its operations and enforcement.

- Narrow rural roads with limited infrastructure, which are often used as shortcuts by speeding vehicles, become especially dangerous for non-motorized road users such as pedestrians and cyclists.
- Residents have reported that drivers frequently ignore stop signs, often performing only rolling stops before accelerating quickly. This behavior poses a safety risk. Specific locations cited include but are not limited to stop signs at Nanticoke Creek Parkway and Willow Glen Drive in Townsend, Munsee Street South and McKay Street East in Cayuga, Keith Richardson Parkway and County Lane in Dunnville, as well as Tamarac Street and various stop signs along Orkney Street in Caledonia.
- Trucks disregard traffic signals, stop signs, and other traffic signs, particularly in residential and commercial areas of Hagersville and Caledonia. Residential areas like River Road in Caledonia, Mains Street (Highway 6) in Hagersville, Chestnut and Broad in Dunnville are some of the areas where such behaviour has been observed.
- Off-road vehicles like dirt bikes and ATVs frequently ignore traffic rules as well, exacerbating the problem.
- The general lack of police presence across the county has led to calls for speed cameras, additional patrols, and more effective enforcement measures to address these ongoing traffic safety and speeding concerns.

3.3.2 Traffic Calming

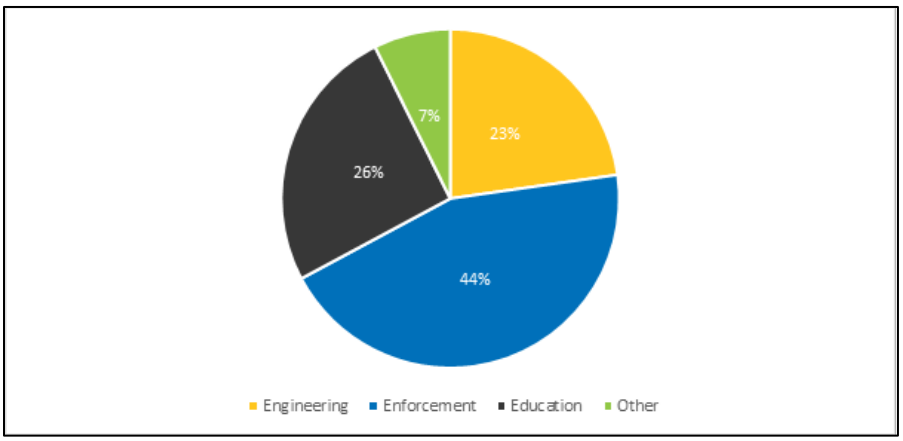
In response to concerns about speeding within Haldimand County, 67% of survey respondents expressed support for the implementation of traffic calming measures, while 20% opposed them. The remaining 13% indicated a neutral stance on the matter. Although traffic calming measures may cause some level of inconvenience in the form of slight delays, loss of on-street parking, and increased traffic noise, most of the residents remain in support of these measures. Most of the survey respondents (59%) were in favour of installing such measures despite these potential drawbacks, whereas 25% were opposed. The remaining 16% held a neutral position. For residential neighbourhoods, 36% of respondents believe increased enforcement is the most effective solution, while 32% support engineering measures, and 23% favour education initiatives.

Figure 3.2: Residents' Perception of Most Effective Calming Measures for Residential Neighbourhoods



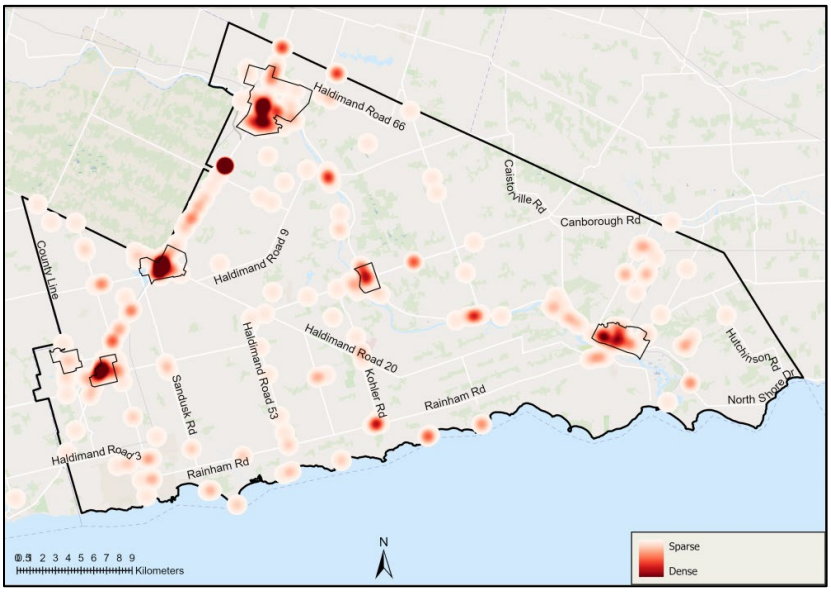
For rural areas, preferences shift, with 44% supporting increased enforcement, 26% in favour of education measures, and 23% preferring engineering solutions.

Figure 3.3: Residents' Perception of the Most Effective Traffic Calming Measures for Rural Settlements



Overall, survey respondents expressed significant concerns about pedestrian and cyclist safety. According to the results, 54% of participants reported feeling unsafe walking or biking on or near roadways, while only 26% felt safe, and 20% remained neutral. Additionally, two-thirds of residents acknowledged that although traffic calming measures may cause some inconvenience, they are supportive of such initiatives as they believe these measures can help reduce vehicle speeds and enhance overall safety.

Figure 3.4: Areas of Speeding and Traffic Safety Concern According to the Haldimand County Residents



Details of the resident survey findings are provided in Appendix E, offering further insight into community perspectives on road safety.

4.0 Traffic Safety Concerns

4.1 Problem and Opportunity Statement

A Problem and Opportunity statement has been prepared based on the review of the County's policies and practices, a scan of industry practices, and feedback from Round 1 of public consultation. The Problem and Opportunity Statement succinctly describes the existing and future problems and opportunities to be addressed by the Traffic Management Strategy:

> *"Haldimand County has established a vision for a transportation network that ensures equal treatment for pedestrians, cyclists, and all vehicles, including agricultural, allowing them to move together safely."*

Although there are differing opinions and views in the County about the key concern and means on how to address these concerns through the 3-E's, there is overall support for improving roadway safety for all roadways users. Consequently, the Problem and Opportunity Statement captures each of the following key themes:

- Speed Management: Through ongoing enforcement and proper planning and design of streets to encourage appropriate driving behaviour.
- Pedestrian Environment: Addressing existing gaps and deficiencies in the pedestrian / sidewalk infrastructure and providing connectivity and new opportunities for these users.
- Commercial Vehicles: Addressing transportation needs of area farmers and industries relying on trucks for transportation of their goods.

4.2 Speed Management

Speeding and aggressive driving is a major concern expressed by the community and confirmed by County speed measurement efforts. The Highway Traffic Act (HTA) requires that roads within a built-up area have a statutory speed of 50 km/h, unless otherwise designated. Outside of these areas (i.e., in rural areas), the statutory speed limit is 80 km/h, unless otherwise designated. The County is required to place signage where the speed limit varies from the statutory requirement. Section 128 of the HTA establishes the regulatory framework for setting speed limits in Ontario.

Consistency in the application of speed limits is imperative to roadway safety where there is a high variation between operating speeds and posted limits. The aim is to influence drivers to adopt operating speeds that offer mobility without compromising safety.

Establishing enforceable and appropriate speed limits is important in both urban and rural settings to provide drivers with a sense of what speed is safe for prevailing conditions. Any changes to posted speeds should also prioritize the safety of vulnerable road users such as pedestrians and cyclists, due to the exponential correlation between vehicular speed and the severity of collision impact.

4.3 Pedestrian Safety

The community expressed concerns about pedestrian safety, with the major concerns heard being the use of newly installed pedestrian crossings and as pedestrians on rural roadways. Pedestrian crossings (PXO or IPS) were identified as areas of concern for pedestrians, because notwithstanding the protected crossing being offered by the device, motorists tend to either ignore the right of way of the pedestrian or not acknowledge the device due to visibility limitations. On rural roadways, pedestrians felt unsafe due to the lack of infrastructure for pedestrians and the speed of vehicles travelling on the roadway, which these pedestrians must share with vehicles.

4.4 Cycling Safety

The 2021 update to Ontario Traffic Manual (OTM) Book 18 – Cycling Facilities recommends that a preliminary assessment of bicycle facility requirements be conducted using Book 18 guides for urban / suburban and rural conditions. Book 18 provides guidance on selecting the level of protection required for a bicycle facility, which is contingent on the Average Annual Daily Traffic (AADT) and posted speed limit along the road.

The OTM references three overarching categories for bicycle facilities:

- Physically separated bikeways, which include elements such as curbs, planters or bollards to provide physical separation between people riding bikes and motor vehicle traffic.
- Bicycle lanes, which include designated space for cyclists (through painted lanes) but no physical separation.
- Shared cycling facilities, which provide no distinct operating space for cyclists but can provide other supporting features such as traffic calming and wayfinding.

The requirement for physically separated bicycle lanes in urban / suburban areas or buffered paved shoulders in rural areas are a function of both high posted speed limits and / or high daily traffic volumes. While these measures can act as acceptable preliminary guidance, the surveyed 85th percentile operating speeds reflect the actual speeds along the corridor and should be used instead to define the facility type. Further, the facility type should be designed to consider future anticipated volumes.

Any updates to the County's future Trails and Active Transportation Master Plan should consider coordination with active transportation facilities in the roadway system, per the guidelines in OTM Book 18.

4.5 Truck Traffic

Efficient and reliable goods movement can support the local economy by ensuring businesses receive the goods and materials they need to operate. Freight activity throughout the County also supports businesses in adjacent municipalities. Goods movement planning helps ensure traffic congestion and environmental impacts such as noise and pollution are minimized while supporting economic growth.

"Freight-Supportive Guidelines" (2016)[1] are a set of recommendations developed by MTO to assist in developing freight-supportive communities. These recommendations aim to balance the needs of the freight industry with other municipal objectives. Key policies from these guidelines include in part *Collaboration and communication between municipalities and the private sector are encouraged* and *Develop strategies to minimize the impact of freight movement on sensitive land uses and address freight movement needs in both urban and rural areas*.

Feedback from study participants expressed concern, particularly in Hagersville, for the need to look at the volume and functionality of truck movements through this settlement area. More discussion with MTO and haulage companies routing trucks through Hagersville must take place to find alternate routes or other solutions.

4.6 Agricultural Vehicles

Farming operations and new farm equipment often conflict with the daily traffic commute. Regardless, both users have a right to access public roadways. Farm equipment and farm operators are exempt from many of Ontario's highway transportation regulations.[2] Farms are increasing in size, often by the acquisition of non-contiguous land. There is a trend towards greater management of farms by renters and leasers with custom operators performing many field operations.

The conflict most encountered due to the speed at which farm vehicles travel and the size of these vehicles is that commuters or other roadway users may end up behind these vehicles without the ability to pass. The slow trek at times causes congestion and auto drivers tend to make less than desirable manoeuvres on the road to pass the farm vehicles.

There is no clearcut solution to the conflict between these roadway users other than courtesy and patience on both sides.

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[1] https://www.ontario.ca/files/2022-03/mto-freight-supportive-guidelines-en-2022-03-31.pdf
[2] https://www.ontario.ca/files/2024-02/mto-farm-guide-en-2024-02-26.pdf

4.7 Others

There were a number of other opportunities presented by the community that did not specifically relate to the scope of this assignment. These opportunities were directed to the appropriate department or agency for their consideration and action.

Some of the suggestions related to the topics listed below. Additional comment is provided with regards to the suggestion and suitability within the Traffic Management Strategy:

- School drop-off zones: Comments were made about traffic management specifically around schools and the drop-off / pick-up of students. Generally, it is best that this happens on school grounds but due to traffic congestion sometimes this overflows onto the street. The County could consider a School Streets program whereby car-free zones are implemented in front of schools at the start and end of the school day. These have been successfully piloted in cities of Markham, Mississauga, Hamilton, and Kingston.
- Traffic backups in urban areas forcing drivers to use alternate shortcut routes. Congestion at a major intersection often causes traffic to seek alternate bypass routes, often through existing residential areas. Ensuring optimal intersection operations and placing time of day restrictions to access certain adjacent roadways could help the practice of short-cuts. This is a very specific issue that needs to be studied in depth at the location of concern.
- Speeding in subdivisions: Concerns were expressed about the speed of vehicles in subdivision roads. This is a very specific issue that needs to be studied in depth at the location of concern. The Traffic Calming policy suggested in the Traffic Management Strategy could provide some guidance on addressing this concern.
- Transition Zones: Haldimand County has numerous rural to urban transition zones where the roadway character changes from a rural road to a roadway serving commercial and / or residential uses, at times for a short length of roadway. These transitions have a change in speed limits usually from 80 km/hr. to 60 or 50 km/hr. Often motorists do not adjust their speed going through the built-up areas resulting in concerns from adjacent residents and / or businesses. Measures are available to attempt to address the lack of adherence to speeds limit changes in these transition zones, as presented in the traffic calming policy, on a case-by-case basis.
- Use of stop signs as traffic deterrents: Often communities turn to stop signs to control vehicle speeds and volumes of traffic. The purpose of the stop sign is to *"assign right-of-way between vehicles approaching an intersection from different directions when traffic signals are not warranted or not yet installed, and it has been determined that a yield sign is inadequate.*" The practice in the industry is to not use these signs for anything else than right-of-way control. *"STOP signs are not to be used as speed control devices. Their usage should be limited to the control of right-of-way conflicts."*

- Infrastructure Condition – Comments were made with regards to the state of infrastructure (i.e., roadway surface conditions, bridge repairs). These were forwarded to the appropriate County department.

5.0 Recommendations

Based on the findings from the desktop review, public consultation, and traffic safety concerns, a series of 16 recommendations have been identified to enhance traffic safety across the County. These recommendations are categorized into short-term (1-2 years quick wins) and, medium longer-term actions**,** allowing for a phased -and strategic approach to implementation.

5.1 Traffic Management Strategy Recommendations - Short Term

Short-term recommendations are defined as actions that can be implemented within a one to two-year timeframe. These opportunities are discussed below.

1. **Adoption of the Traffic Calming Implementation Framework:** Adopting the Traffic Calming Implementation framework presented in Section 6.0 of this report. The framework provide Haldimand County with a process to review traffic calming strategies, evaluate when and where they are appropriate, and guidelines on how to implement them.

2. **Develop a Centralized Roadway Safety and Traffic Calming Reporting Tool and Database:** Streamline the management of roadway safety concerns, enforcement, traffic calming initiatives, and completed projects. Enhance coordination across departments and stakeholders.

3. **Establish a Road Safety Committee:** Create a forum for collaboration to review road safety concerns with Haldimand County staff, Council, Ontario Provincial Police (OPP), and potentially public representatives.

4. **Strengthen the Haldimand County's role in the Agricultural Advisory Committee:** Establish a permanent engineering role in the Committee to ensure timely acknowledgment of issues and mitigative measures.

5. **Update Haldimand County policies, practices, and criteria:** Review and develop new policies that align with the traffic management strategy, allowing for future traffic calming measures.

6. **Implement a comprehensive education strategy:** Foster greater public awareness, support, and participation in traffic safety and calming efforts. Engage the community with promotional materials such as brochures, flyers, lawn signs, billboards, and digital content.

7. **Invest in Temporary Traffic Calming Measures:** Investigate temporary measures as a preliminary stage in any traffic calming plan to confirm effectiveness and community support prior to full implementation.

5.2 Traffic Management Recommendations - Medium to Long Term

Medium to long-term recommendations are discussed below.

1. **Assess third-party automated enforcement program:** Engage in discussions with adjacent municipalities on opportunities for a coordinated third-party automated enforcement program for speeding issues.

2. **Update County Design Specifications:** Review roadway design criteria to incorporate traffic calming devices and active transportation facilities for urban and rural roadways.

3. **MTO – Truck Traffic Review (Hwy 3/Hwy 6):** Continue to advocate for by-pass/highway extensions to manage truck traffic through built-up areas.

4. **Expand and Develop In-School Safety Programs:** Engage with school boards to introduce in-school road safety programs such as the CAA School Patroller or Walking Bus programs, Safe School Streets, and Safe School Routes.

5. **Corporate Engagement Programs:** Engage corporate citizens to promote roadway safety.

6. **County-Wide Review of Posted Speed Limits:** Conduct a review of posted speed limits on all County roads to ensure they align with the traffic management strategy.

7. **Establish Consistent Funding:** Establish a capital budget/reserve for traffic management initiatives, starting with an annual budget of $50,000 in 2025 and building out to align with the demands/success of the program.

8. **Automated Data Collection – Speed:** Adopt an automated data collection and monitoring system for the County’s existing speed sign program to share data with stakeholders and the Road Safety Committee in real-time.

9. **Traffic Signal Upgrades:** Improve the safety and efficiency of signalized intersections by modernizing the traffic signal management software.

6.0 Traffic Calming Policy

6.1 Purpose

This policy is intended to address the concerns of residents and motorists relating to speeding and the need for traffic calming on Haldimand County roads. It outlines effective processes and procedures / guidelines for the County to implement traffic calming measures and manage and address the concerns of the public regarding speeding issues. This policy provides step-by-step guidelines for traffic calming and improving road safety in Haldimand County through the systematic provision and implementation of applicable traffic calming measures. The overall objectives of the policy are outlined below:

- Providing the County with tools and procedures to effectively process public requests regarding the installation of traffic calming measures.
- Providing a list of approved traffic calming measures applicable to the environment, infrastructure, and conditions of Haldimand County.
- Identifying an effective process that would help with planning, design, budgeting, and implementation of traffic calming measures.
- Encourage adherence to speed limits on County roads by installing traffic calming measures.
- Educating the County residents about traffic calming and its positive impact on the safety of the roads.
- Encouraging the residents' involvement in traffic calming activities.

6.2 Definitions of Terms

Active Transportation (AT): AT is using human power to get from one place to another. AT includes but is not limited to walking, biking, skateboarding, jogging, running, and a non-mechanized wheelchair.

- **Collision:** A collision denotes a failure in the interaction between the driver, the vehicle, and the road environment.
- **Collision Data:** Collision data is obtained from the Ministry of Transportation's database, referred to as the Authorized Requester Information Services (ARIS).
- **Community Safety Zones:** A designated area, typically near schools, parks, or other pedestrian-heavy locations, with enhanced safety measures and stricter enforcement of traffic laws.
- **County:** The Corporation of the Haldimand County.

- **Education Measure:** These measures aim to change driver's behaviour by raising awareness about road safety, and the consequences of speeding, and promoting responsible driving practices. Changing the driver's behaviour can help to comply with the posted speed and prevent people from speeding.
- **Enforcement Measure:** These involve using measures to hold drivers accountable for their driving behaviour through the enforcement of applicable laws and regulations. Enforcement measures do not modify the physical road environment.
- **Engineering Measure:** Engineering traffic calming measures are physical changes to the road environment with the aim of reducing traffic speed by changing the alignment, features, width, and surface of the road.
- **Horizontal Deflection:** This is a type of engineering measure that alters the horizontal alignment of the road.
- **Internal Review Committee:** The makeup of this committee is at the discretion of the County, and it may include the staff, stakeholders, members of the public and / or enforcement / EMS personnel.
- **OPP:** Ontario Provincial Police.
- **Pavement Marking:** This is paint and other similar materials to visually guide and regulate traffic flow, and to alert drivers of potential hazards or changes in road conditions.
- **Pedestrian Generating Facility:** A development which realizes high facility usage by people arriving on foot.
- **Serious Collision:** A collision that results in fatality.
- **Speeding:** Highway Traffic Act Section 128 defines speeding as the act of driving a vehicle at a speed greater than the posted speed limit.
- **Toolkit:** It is a collection of resources, procedures, and templates designed to help process requests, and select and implement traffic calming measures.
- **Traffic Calming:** It is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver's behaviour, and improve conditions for non-motorized street users.
- **Vertical Deflection:** This is a type of engineering measure that uses a raised section of pavement to physically slow down vehicles.
- **Warrant:** It is a set of criteria or guidelines used to determine the need for specific traffic calming measures.

6.3 Traffic Calming

Traffic calming involves using engineering, enforcement, and education measures to slow down traffic and improve the safety of pedestrians, cyclists, motorists, and other road users.

- **Engineering Measures:** Engineering measures include but are not limited to raised crosswalks, speed humps, speed cushions, speed tables, vertical centreline treatment, curb radius reduction, chicane, lateral shift, traffic circles and mini

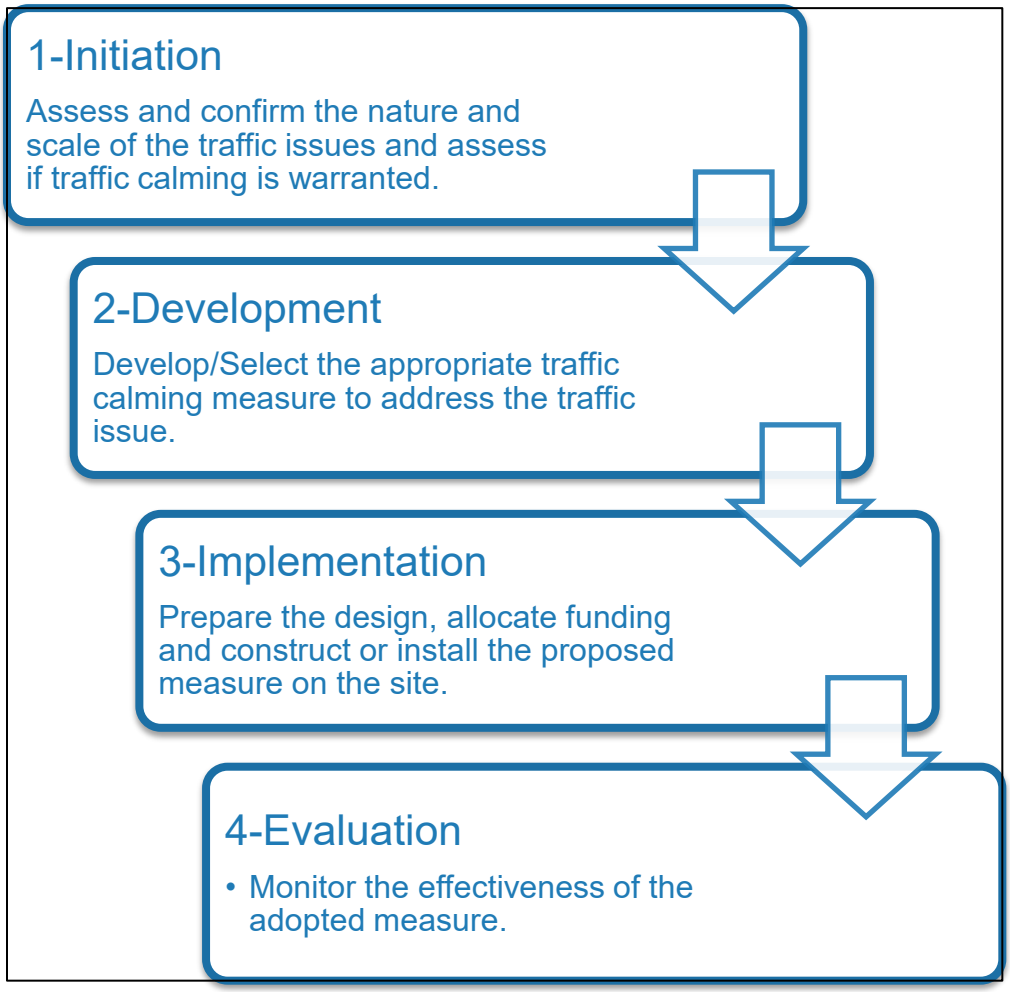
roundabouts, on-street parking, raised median, and pavement marking. Details of the engineering measures are included in Appendix H of this report.

- **Enforcement Measures**: Enforcement measures include but are not limited to traditional methods like police presence, fixed speed enforcement, mobile speed enforcement, red-light cameras, and outsourced automated speed enforcement. Details of the enforcement measures are included in Appendix I of this report.
- **Education Measures**: Education measures include but are not limited to speed display devices (SDD) and vehicle-activated signs, park and stride, active and safe routes to school programs, and targeted education campaigns. Details of the Education Measures are included in Appendix J of this report.

6.4 Traffic Calming Process

The traffic calming process conforms to the Canadian Guide for Traffic Calming and is divided into four phases, including initiation, development, implementation, and evaluation. This phased approach ensures that the traffic calming measure selection meets the needs of the community, adheres to County and Provincial standards, and can adapt over time based on its performance. Figure 6.1 illustrates the four phases of the traffic calming process.

Figure 6.1: Traffic Calming Process



6.5 Initiation

Initiation is the first stage in the process of traffic calming. Residents and staff can submit their request for traffic calming measures to address a speeding issue in an area or a neighbourhood. It is important to understand that some requests might meet the criteria for further investigation, while others do not.

Depending on who submitted the request for traffic calming, the County will conduct a screening process at the initial stage to confirm the expressed concerns and the need for traffic calming measure(s). The County will follow the steps below to conduct an initial assessment of the request.

Step 1: Pre-screening

- Confirm receipt of the request and record it in a searchable and filterable database.
- Verify that the County has not screened the requested area in the past two years.

- Ensure the location falls within the County's jurisdiction.
- Confirm the posted speed limit is higher than 40 km/h (unless it is designated a Neighbourhood Speed Area).
- Ensure the road segment under review is longer than 250 m and without any traffic control.
- Ensure the AADT along the corridor meets the minimum requirement of 100 vehicles per day for urban areas, and 200 vehicles per day for rural areas.
- Verify that the location meets the minimum required points provided in Appendix K of this report.

Step 2: Appropriateness of Traffic Calming

Ensure that traffic calming is an appropriate way to address the concern and does not conflict with the following situations:

- School Zones and Community Safety Zones
- Areas adjacent to parks or children's playgrounds
- High pedestrian traffic generators
- Active transportation networks
- Planned road reconstruction or improvement projects

Step 3: Evaluating Community Support

- Ensure the request is supported by at least 70% of property owners directly (identified by the county staff) affected by the requested traffic calming measures.
- Ensure the request is supported by at least 25% of the residents indirectly (identified by the county staff) affected by the requested traffic calming measures.
- The ward councillor is made aware of the request and contacted for input / comments.
- Notify the applicant of the screening decision.

Step 4: Warrant

Haldimand County uses a point-based system to assess whether a traffic calming measure is warranted for a request and to identify its priority. The point-based warrant assigns points for various criteria to quantify the need for traffic calming measures. By adding these points, this warrant system provides a standardized approach to determine whether the requested area requires traffic calming measures or not. Appendix K details the specific point values assigned to each criterion for decision-making purposes.

6.5.1 Traffic Calming Request Initiated by Residents

A traffic calming request can be submitted by residents using the "Traffic Calming Request Form" provided in Appendix L of this report or an equivalent method deemed acceptable by the County.

At the initial stage, the County will conduct and assess the request by following the guidelines of Step 1, Step 2, Step 3, and Step 4 of the Initiation phase to confirm the expressed concerns and the need for traffic calming measure(s). The process map for addressing a traffic calming request by residents is provided in Figure 6.2.

6.5.2 Traffic Calming Identification Through Capital Planning

County staff can identify locations requiring traffic calming measures based on their professional judgment to be included in the Capital Budget Plans of the County. The draft checklist provided in Appendix M is available to assist staff in the decision-making process. Staff-initiated requests are at the discretion of staff notwithstanding the process outlined in this policy. However, it is recommended that in such cases stakeholder support from directly and indirectly affected property owners, as well as the ward councillor, ensures community alignment and effectiveness of the proposed measures. The process map for addressing traffic calming through capital budget planning by staff is provided in Figure 6.3.

6.5.3 New Development

Appendix N provides a draft checklist for traffic calming opportunities during the development approval stages. If traffic calming is warranted, the developer will be responsible for implementing the required traffic calming measures prior to the transfer of the roads' responsibility to the County.

6.6 Development

The selection and development of a traffic calming measure to address the issue requires a detailed understanding of the problem, road characteristics, and area characteristics. By following a series of steps, the process identifies the most suitable traffic calming solutions, ensuring that they not only address the identified issues but also maintain safety across the roadway network. The following steps outline the methodology for selecting the most appropriate traffic calming measure:

1. **Step 1:** Evaluate the area's road classification, pavement width, cross-section type, and existing infrastructure (e.g., sidewalks, bike lanes, street lighting, parking). Simultaneously, collect traffic data such as operating speeds, traffic volumes, truck volumes, collision history and others as required to identify issues that traffic calming measures need to address.

2. **Step 2:** Engage the internal review committee (internal stakeholders) to evaluate the proposed measure's potential impact on operations, including emergency services, snow clearance, and police enforcement. The committee will also assess the feasibility of enforcement or educational measures and, if not applicable, review suitable engineering solutions.

3. **Step 3:** If education and enforcement measures cannot resolve the issue, determine the appropriate engineering measures using the Traffic Calming Toolkit. The toolkit employs various criteria based on the information collected in Step 1 and Step 2 of the development phase to shortlist the applicable measures to address the request for traffic calming in an area or a neighbourhood.

4. **Step 4:** Ensure the proposed measure avoids diverting traffic, particularly the truck traffic to adjacent areas and inform the ward councillor of any potential traffic diversion.

5. **Step 5:** Add the approved measure to the Centralized Traffic Calming Database, prioritize implementation based on the warrant scoring system and budget availability, and proceed with execution according to these priorities.

6.7 Implementation

Once a traffic calming measure is approved, the next phase is its implementation. The process involves the following steps:

1. **Step 1**: The design and implementation must ensure compliance with policies on accessibility, emergency services, pedestrians, and cyclists. Legal measures like speed or red-light cameras require proper authorization, privacy protection, and warning signs for drivers.

2. **Step 2:** If the approved measure requires updates to existing bylaws or the introduction of new ones (e.g., parking regulations, red-light cameras, automated enforcement cameras), prepare a council report detailing the necessary bylaw amendments.

3. **Step 3:** Project estimates should be prepared and incorporated into the relevant capital or operating budgets to account for installation, as well as ongoing operation and maintenance.

4. **Step 4:** After the design has been finalized and approved, appropriate arrangements should be made in accordance with the County's standard procedures to install or construct the approved measures.

6.8 Evaluation

The effectiveness of the implemented traffic calming measures should be evaluated to ensure they are achieving their intended outcomes. This process involves monitoring and evaluation, which should be conducted based on the following criteria after a period of **12 months** after implementation:

1. **Speed Reduction:** Speed data should be collected and compared to the baseline data gathered during the initial phase of the study (development and approval). The evaluation will assess whether the speeding issue has been resolved and whether the 85th percentile speed falls within the acceptable tolerance range.

2. **Traffic Volume Reduction:** Traffic volume data should be collected and compared to the baseline. Traffic data for parallel streets should be collected when implementing measures like speed tables, humps, chicanes, or traffic circles that may potentially divert traffic to these streets. The evaluation will determine if the traffic volumes are within acceptable or desired levels.

3. **Truck Traffic:** Data on truck traffic should be collected to evaluate whether truck volumes have decreased to acceptable levels, particularly during peak hours, and if fewer trucks are using the area to avoid traffic.

4. **Stakeholder Feedback:** A survey should be conducted to gather feedback from key stakeholders, including the internal review committee (internal stakeholders), councillor, residents, and other community members who originally raised concerns. This feedback will provide insights into the perceived effectiveness of the measures.

Based on the results of evaluation and feedback, and a re-run of the warrant analysis, decisions can be made either to:

- Maintain the current measure
- Improve it through additional or alternate measures
- Implement stricter measures
- Remove the implemented measure if it is deemed ineffective

Removal of Traffic Calming Measure: A traffic calming measure may be removed if it is not serving its purpose. The following factors should be considered.

- When the physical changes to the road structure show that the measure is no longer applicable.
- When the traffic flows have changed significantly, resolving the original concerns.
- When the issue is resolved, the measure is causing more concern for the public and / or the stakeholders.

Proposals for measure removals should be presented to the Internal Review Committee for approval, followed by public notification.

Figure 6.2: Traffic Calming Process – Resident Request

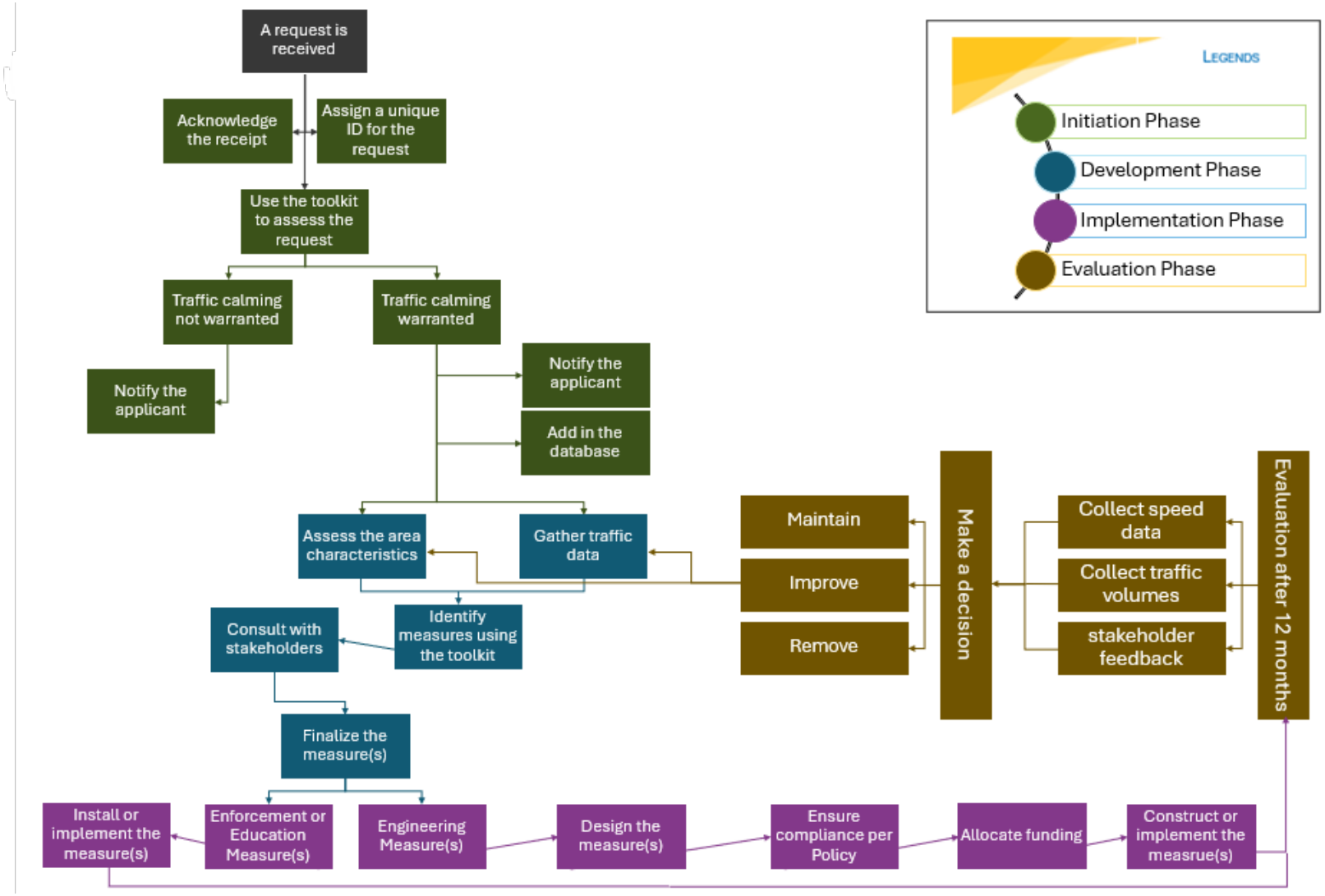
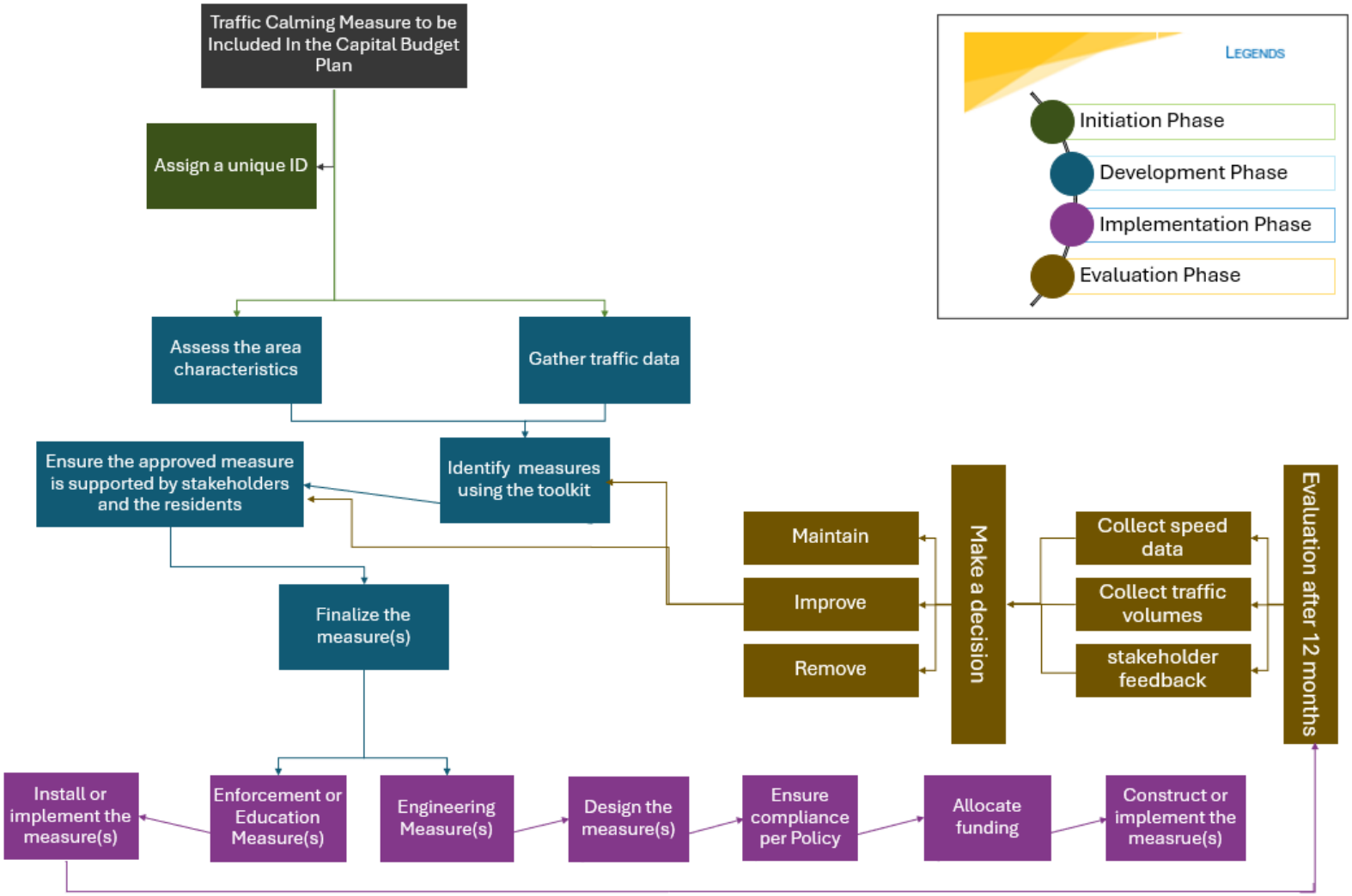


Figure 6.3: Traffic Calming Process – Capital Budget Planning



7.0 Cost

Traffic calming measures whether engineering, enforcement or education have varying costs, depending on the nature of the overall program. Some measures have low cost and are easy to implement, while some have high cost and take more time and resources to implement.

Following we provide a discussion on order of magnitude costs for the various measures recommended in the Haldimand County Traffic Management Strategy.

7.1 Engineering Measures

The costs associated with the traffic calming engineering measures recommended in this study are divided into the following three categories:

- Capital or Installation Cost: This is a fixed cost that the County bears to design and implement / install a traffic calming measure.
- Operation Cost: This is a variable cost that the County will bear to operate traffic calming measures such as relocation of mobile speed signs.
- Maintenance: This is a variable cost that the County bears to maintain various traffic calming measures such as pavement marking, changing batteries, and repairing damaged equipment.

Traffic calming engineering measure costing is generally classified into three groups: low cost, medium cost and high cost. These costs include primarily installation cost, as follows:

- Low cost - considered to be in the range of $5,000 to $20,000.
- Medium cost - considered to be in the range of $20,000 to $100,000.
- High cost - considered more than $100,000.

Figure 7.1 illustrates the cost distribution of various traffic calming measures, represented by different colour ranges. The cost categories are depicted as low, low to medium, medium, medium to high, and high. It is important to note that a specific cost for a specific project cannot be defined, as projects vary in length and complexity, and often include a combination of measures. Hence costs as only provided on a piecemeal basis.

It is important to note that while some traffic calming measures may have low initial installation costs, such as vertical centerline treatments, they may incur ongoing operational and maintenance expenses over their lifespan. In contrast, some measures with higher upfront costs, such as mini-roundabouts or chicanes, typically involve no operational costs and require minimal maintenance. In some cases, the cumulative operational and maintenance costs can exceed the initial capital / installation cost. For instance, pavement marking measures require regular upkeep that can result in higher long-term expenditures compared to the implementation cost.

Table 7.1 summarizes the capital (average of the ranges shown above), operational and maintenance costs associated with each engineering measure. It is important to note the costs associated with each measure is unique to its location, traffic composition, maintenance practices. In other words, no one cost is exact for a given implementation.

Figure 7.1: Cost of Traffic Calming Measures

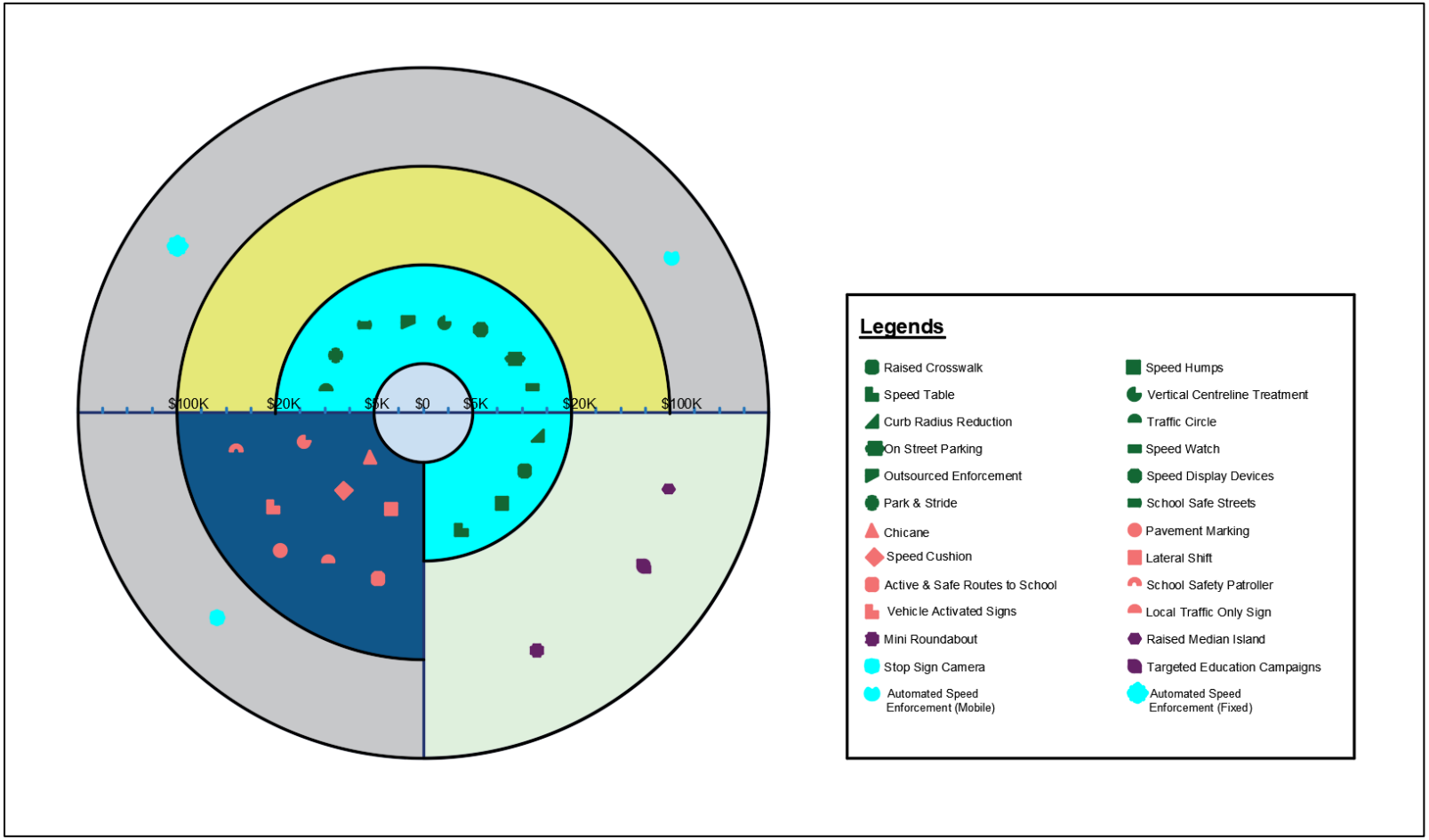


Table 7.1: Summary of Costs – Engineering Measures

Measure	Average Initial Capital / Start-Up Cost	Annual Operating Cost (Typical)	Annual Maintenance Cost (Typical)
Speed Cushion	$12,500	None	$1,500 per location for general repairs
Chicane / Lateral Shift	$12,500	None	$1,000 (i.e. landscaping)
Pavement Marking	$2,500	$2,500	$2,500
Raised Crosswalk	$52,500	None	None
Speed Humps	$52,500	None	None
Speed Table	$52,500	None	None
Vertical Centreline Treatment	$52,500	None	$5,250 (10% replacement)
Curb Radius Reduction	$52,500	None	None
Traffic Circle	$52,500	None	$2,000 (i.e. landscaping)
On-street Parking	$52,500	None	$2,500 per km for stall marking
Mini Roundabout	$100,000	None	$2,000 (i.e. landscaping)
Raised Median Island	$100,000	None	$2,000 (i.e. landscaping)

7.2 Traffic Calming Enforcement Measures

Table 7.2 summarizes the capital (average of the ranges shown above), operational and maintenance costs associated with each enforcement measure recommended in this study. It is important to note the costs associated with each measure is unique to its location, traffic composition, maintenance practices. In other words, no one cost is exact for a given implementation. The measures below are those that would be under the control and jurisdiction of the County.

Table 7.2: Summary of Costs – Enforcement Measures

Measure	Average Initial Capital / Start-Up Cost	Annual Operating Cost (Typical)	Annual Maintenance Cost (Typical)
Automated Speed Enforcement (Fixed)	$100,000	Offset by revenue	Offset by revenue
Automated Speed Enforcement (Mobile)	$100,000	Offset by revenue	Offset by revenue
Red Light Camera	$100,000	Offset by revenue	Offset by revenue
Outsourcing ASE	Negligible	Negligible	Negligible

7.2.1 Policing initiatives

The other enforcement initiative discussed in the study is the use of enforcement of the Highway Traffic Act through the Ontario Provincial Police. The OPP was a stakeholder in this study and through consultation there is a mutual agreement to have a coordinated approach to the management of enforcement complaints and opportunities.

At this stage, it is difficult specify a direct financial impact that may result from policing initiatives, as the immediate approach would be one of resource reallocation / prioritization, that would occur through County / OPP coordination.

As a worst case, and if resources are available, enforcement could be treated as “paid duty” with costs charged back to the County, however, this scenario is unlikely.

7.3 Traffic calming education measures

Table 7.3 summarizes the capital (average of the ranges shown above), operational and maintenance costs associated with each education measure recommended in this study. It is important to note the costs associated with each measure is unique to its location, traffic composition, maintenance practices. In other words, no one cost is exact for a

given implementation. It is recommended to continue reviewing and investigating new coordinated or targeted educational programs as they develop.

Table 7.3: Summary of Costs – Education Measures

Measure	Average Initial Capital / Start-Up Cost	Annual Operating Cost (Typical)	Annual Maintenance Cost (Typical)
Active and Safe Routes to School Program	$12,500	$2,500 (staff time per program)	None
Vehicle Activated Signs / Message Boards / Speed Display Devices	$12,500	$1,000 per relocation	None
Targeted Education Campaigns	$52,500	$1,500 (Staff time)	None
Park and Stride Program	$52,500	Negligible	Negligible
Local Traffic Only Signs	$12,500	None	None

7.4 10-year capital budget

There may be opportunities to incorporate the suggested engineering, education and enforcement measures in the Traffic Management Strategy in upcoming capital works, specifically those projects undergoing road reconstruction and rehabilitation. The opportunity will be subject to the type of work to be undertaken, review of current traffic data, public complaints and feedback from operational staff and the OPP.

All future projects should conduct a quick “traffic calming” check, from pavement marking opportunities to physical changes to the roadway.

7.5 Policy Review and Updates

Several policies were reviewed as part of the Traffic Management Strategy and in some cases, updates were recommended. None of the recommendations have any new net costs associated, such that any work stemming from these changes would form part of the current resource workflow and prioritization.

8.0 Traffic Calming Toolkit

This toolkit is developed as part of Haldimand County's Traffic Calming Strategy. The toolkit will enable the county staff to plan, design, implement and evaluate traffic calming measures. It consists of policies, strategies, measures, design criteria, budgeting info, and templates that can be used to implement traffic calming measures. The components of the toolkit are summarized in Table 8.1.

Table 8.1: Components of the toolkit

No.	Description	Included	Not Included
1	Policies and By-Laws and Guidelines		
1.1	All-way Stop Policy	☐	☐
1.2	Speed Limit Policy	☐	☐
1.3	Community Safety	☐	☐
1.4	Traffic Warrant Signs Policy for Agricultural Equipment on County Roads	☐	☐
1.5	Parking By-Law	☐	☐
2	Traffic Calming Request Form	☐	☐
3	Screening Form (Ms. Excel Spreadsheet)	☐	☐
4	Traffic Calming Selection Form (Ms. Excel Spreadsheet)	☐	☐
5	Traffic Calming Measures		
5.1	Enforcement Measures	☐	☐
5.2	Education Measures	☐	☐
5.3	Engineering Measures	☐	☐
6	Design Criteria		
6.1	TAC Canadian Guide for Traffic Calming	☐	☐
6.2	TAC Geometric Design Guide for Canadian Roads	☐	☐
6.3	OTM for Pavement Marking (Book 11)	☐	☐
6.4	OTM for Regulatory Sings (Book 5)	☐	☐
6.5	OTM for Warning Sings (Book 6)	☐	☐
6.6	OTM for Information Sings (Book 8)	☐	☐
6.7	OTM for Pedestrian Crossing Treatment (Book 15)	☐	☐
7	Evaluation Form	☐	☐
8	Traffic Calming Costing Table	☐	☐

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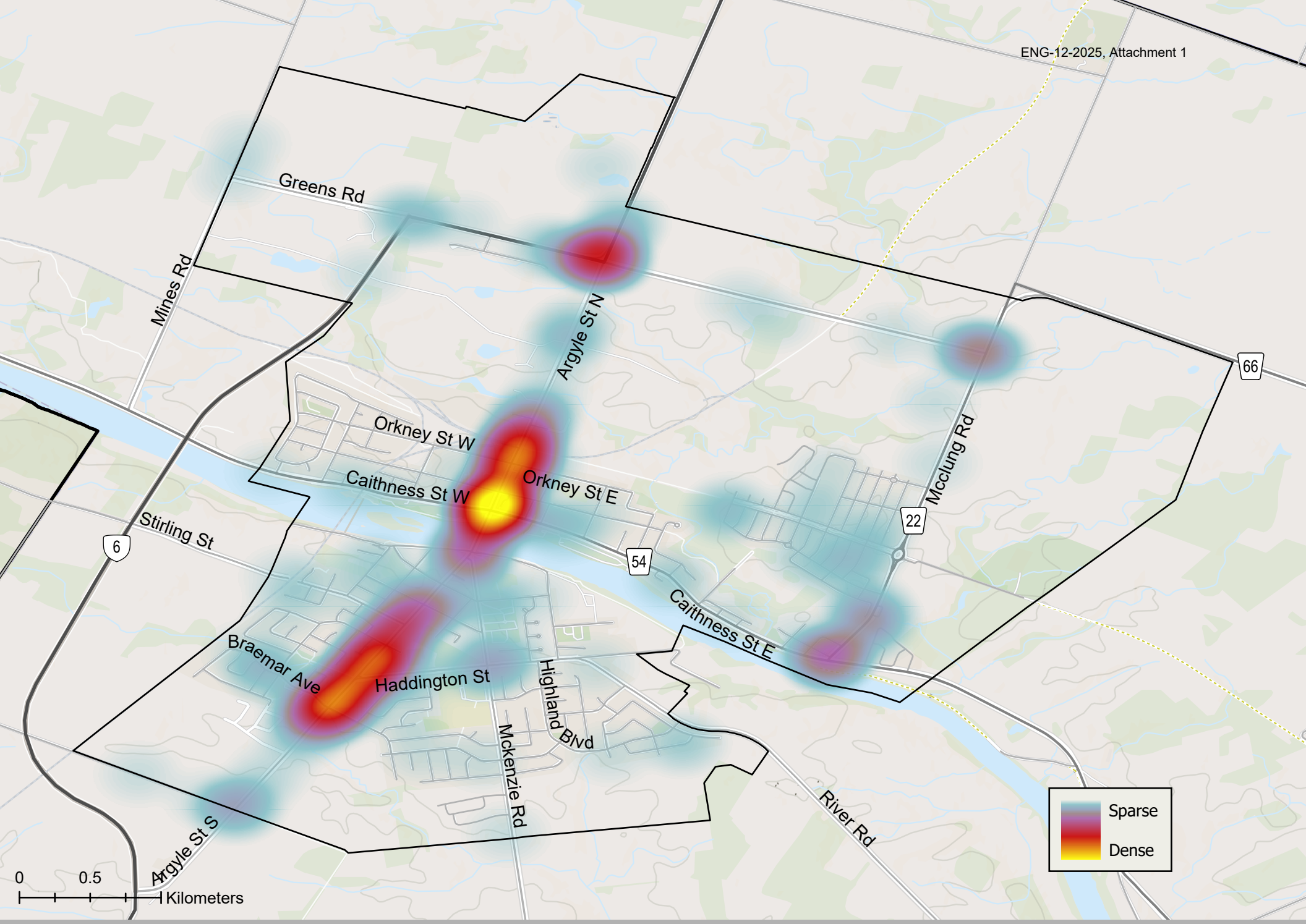
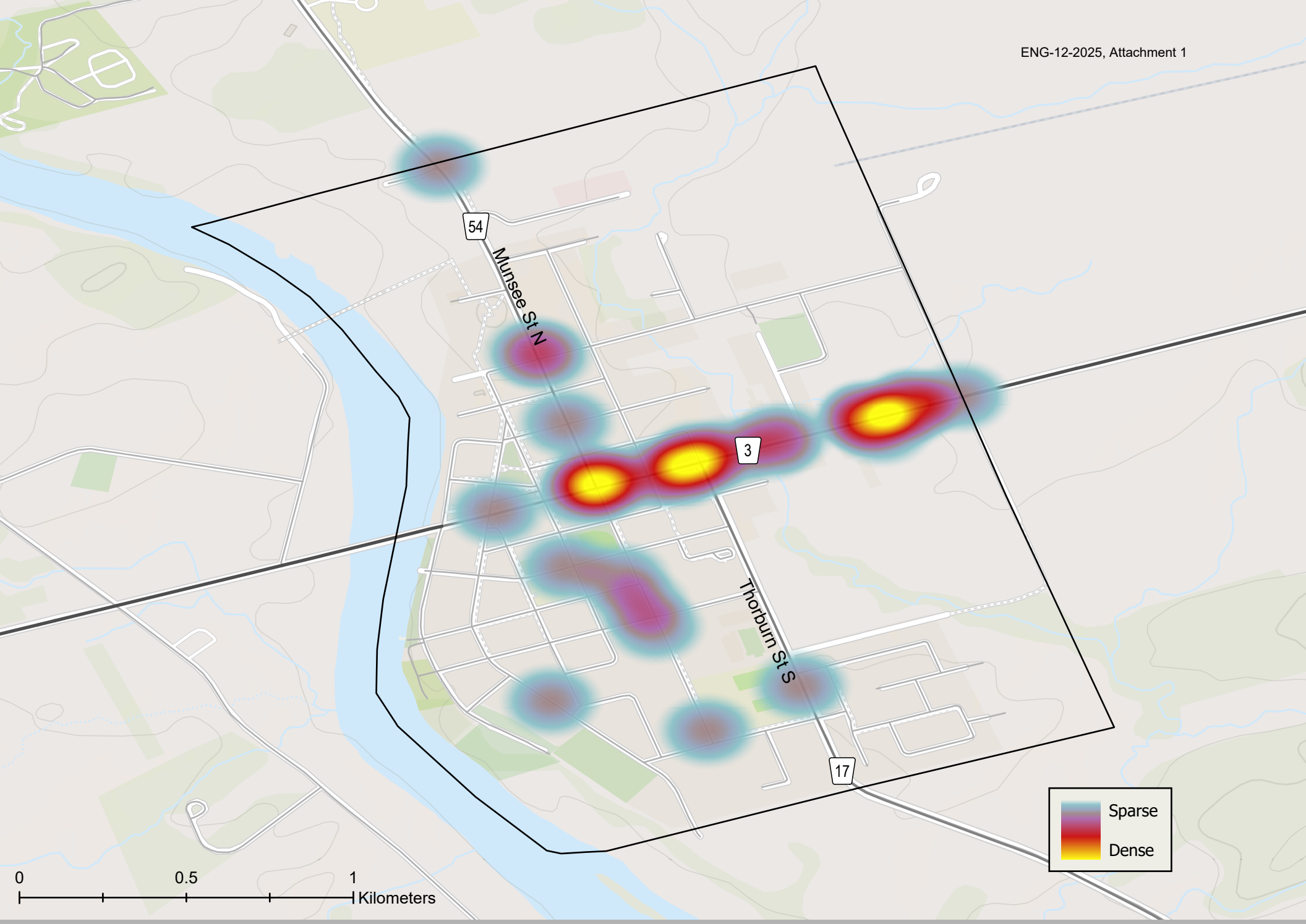
Appendix A

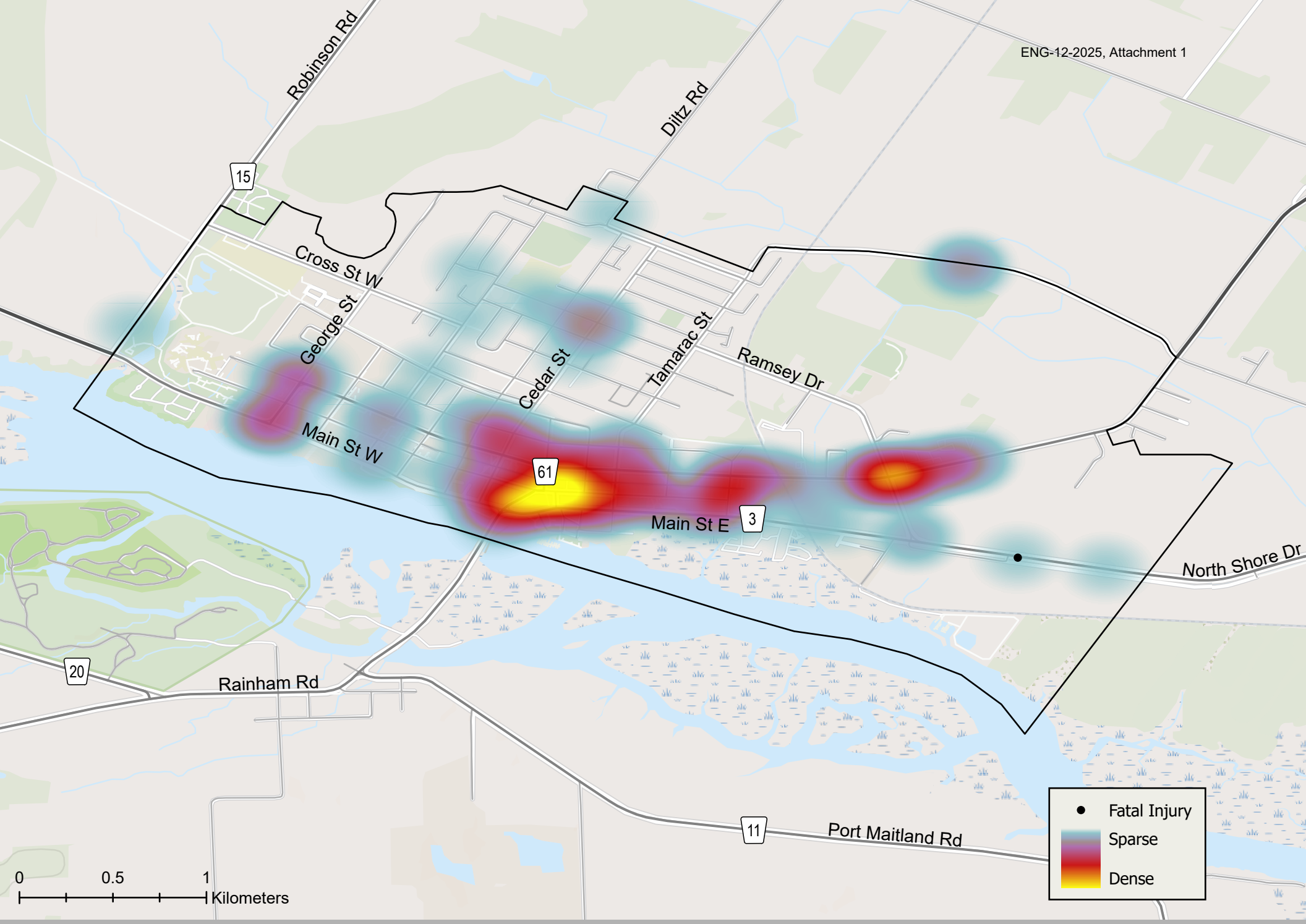
Detailed Collision Maps



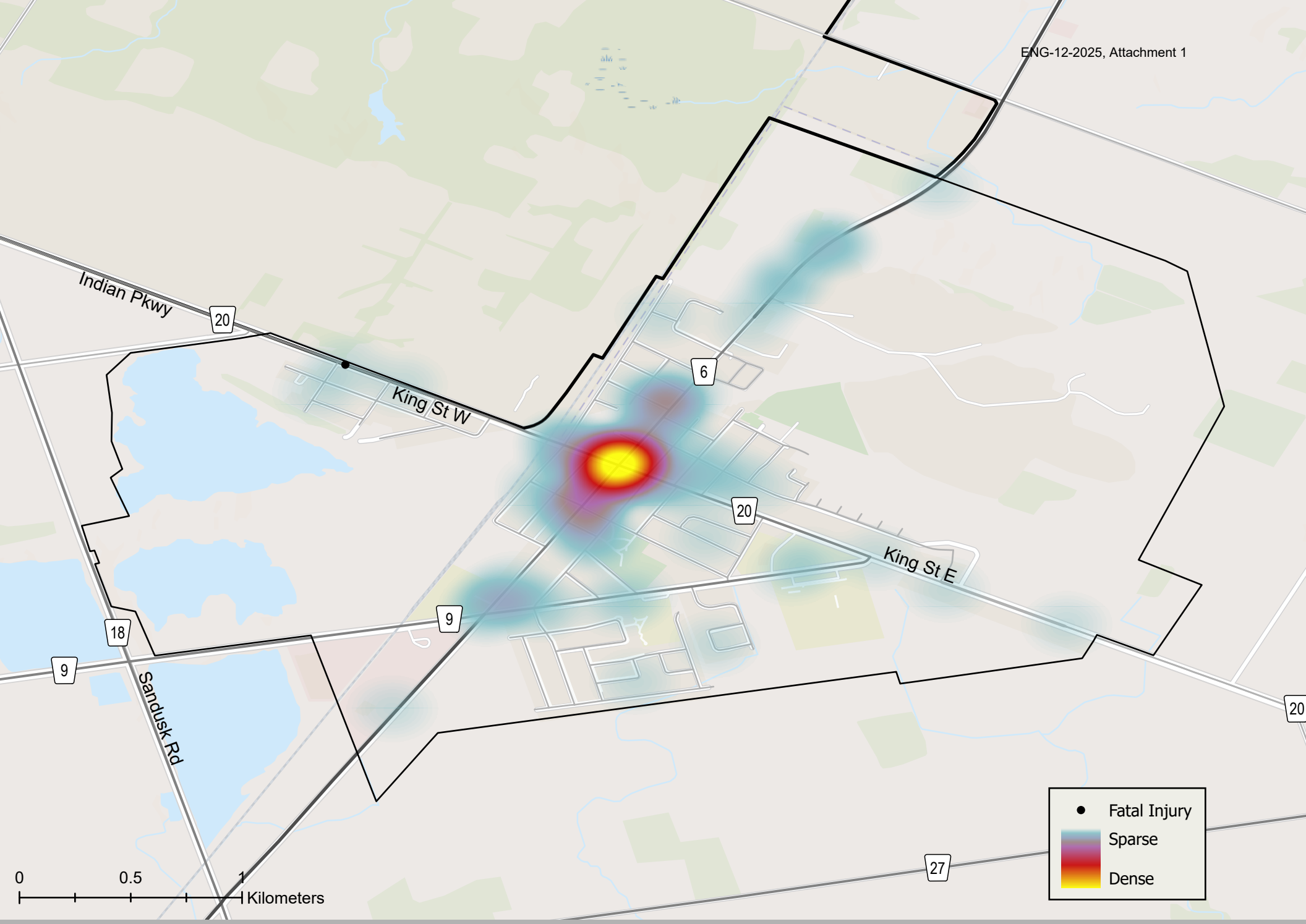
Collision heatmap - Caledonia



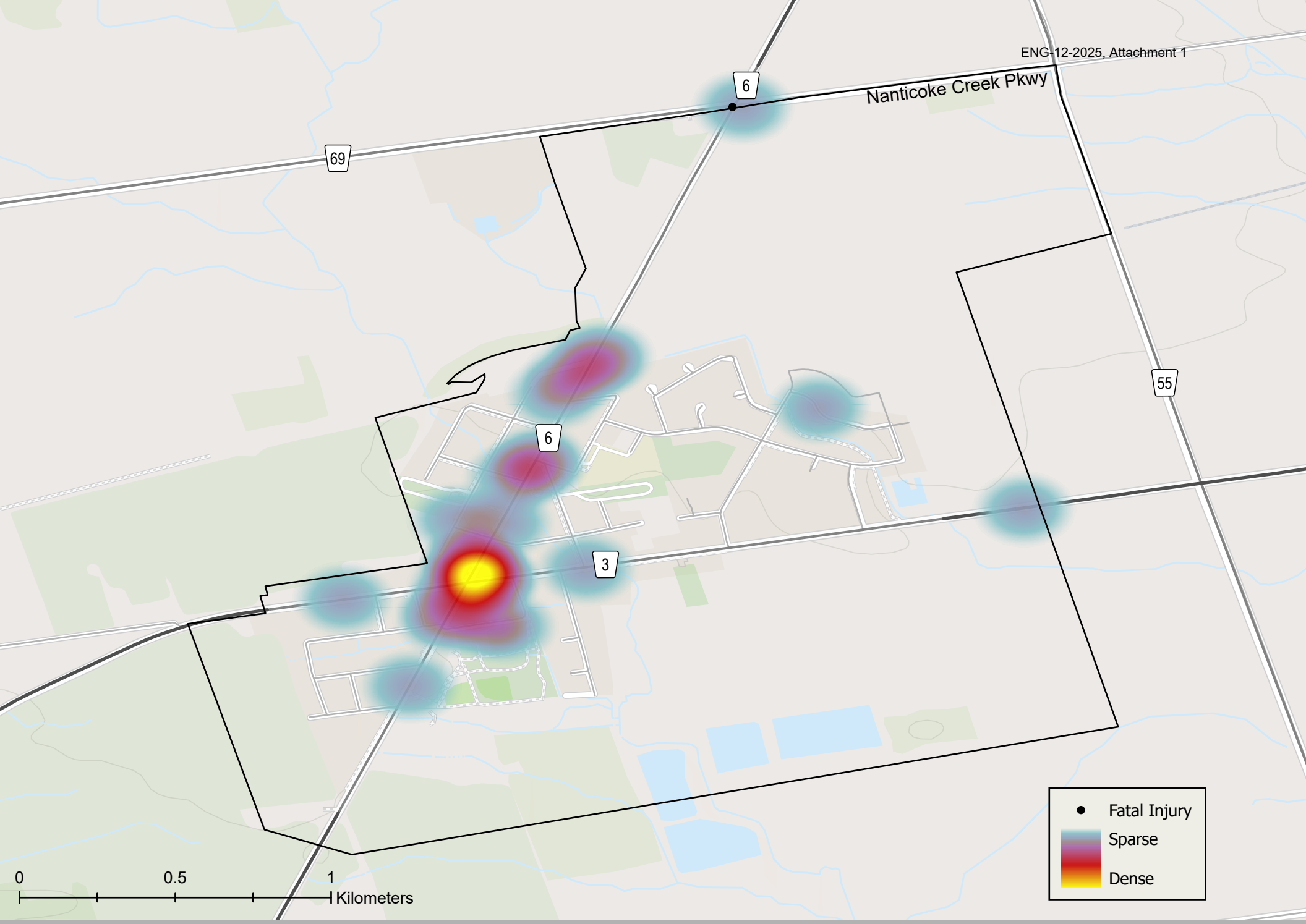
Collision heatmap - Cayuga



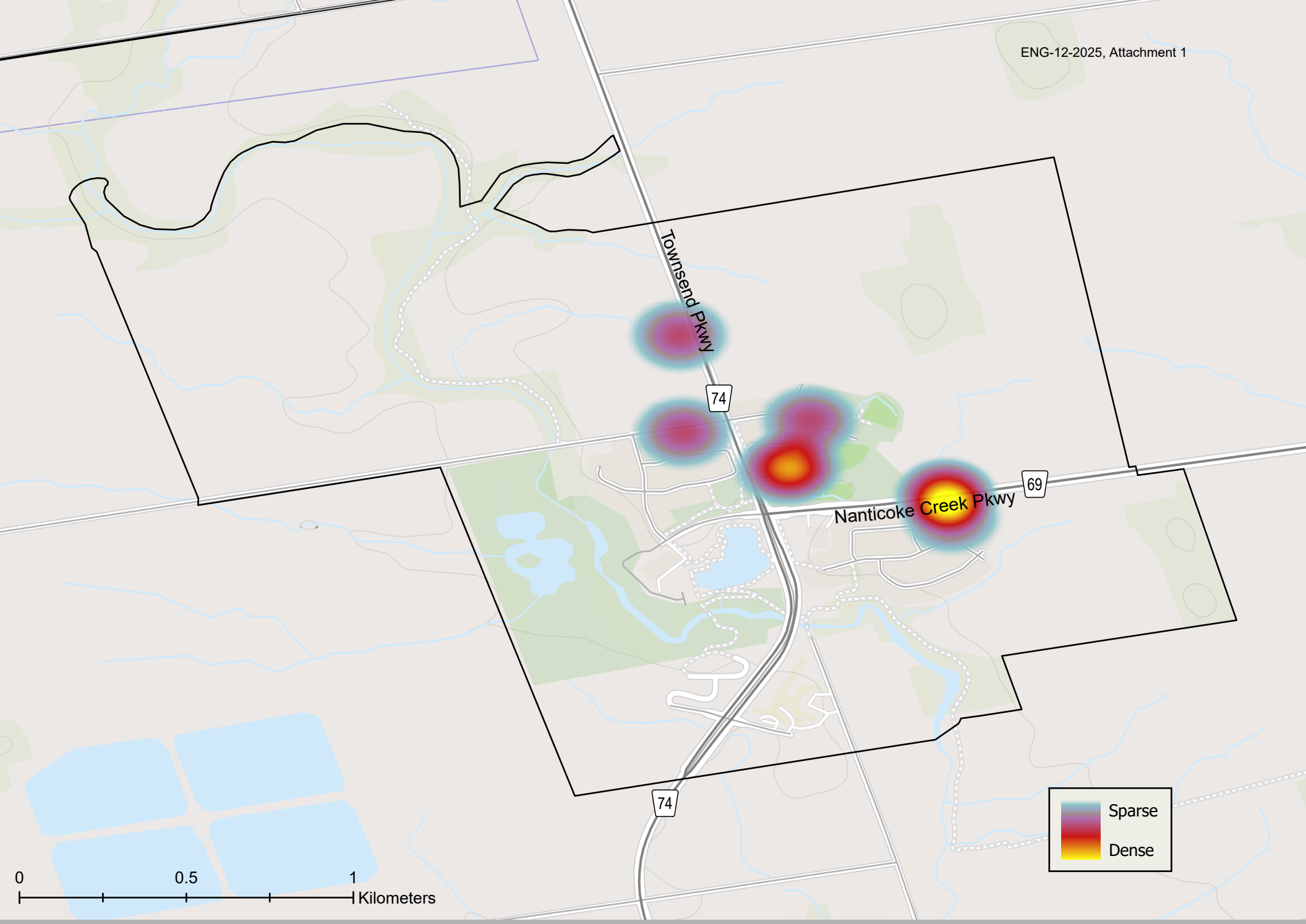
Collision heatmap - Dunnville



Collision heatmap - Hagersville



Collision heatmap - Jarvis



Collision heatmap - Townsend

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Appendix B

Best Practices Memo

R.J. Burnside & Associates Limited 1266 South Service Road, Suite C2-1 Stoney Creek ON L8E 5R9 CANADA
telephone (289) 246-7400 **fax** (226) 526-9660 **web** www.rjburnside.com

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Memorandum

Date: May 15, 2025 **Project No.:** 300058527.0000

Project Name: Haldimand County TMP

Client Name: The Corporation of Haldimand County

To: Danielle Fletcher

From: Sameem Raheemi; Soha Saiyed

This memorandum provides a summary of traffic calming best practices in other jurisdictions in the Province of Ontario, focusing on policies and plans implemented by municipalities such as Norfolk County, Brant County, the Town of Oakville, King Township, the City of Hamilton, the Town of Fort Erie, and the City of Guelph.

1.0 Traffic Calming Policy- Norfolk County

The Traffic Calming Policy is designed to establish a comprehensive set of objectives and procedures that will guide the process of conducting traffic calming studies. The goal of traffic calming measures is to reduce traffic speed and volume, enhancing safety for all road users. In addition to improving safety, these measures help reduce excessive speeding, noise, vibration, air pollution, and collisions, while creating a more pedestrian-friendly environment. This policy adheres to the guidelines set out in the "Canadian Guide to Traffic Calming".

To initiate a traffic calming request, residents must submit an application form to Norfolk County. The request applies only to streets that are not classified as emergency response, bus, or truck routes, and where the posted speed limit does not exceed 50 km/h (i.e., non-arterial roads). Only one signature per property is considered valid. The County's Capital Construction Project staff will review the request and may recommend incorporating traffic calming measures into the design and construction plans.

For a traffic calming study to be conducted, the street must meet the following criteria:

- The street must be classified as either a local or collector road.
- The posted speed limit must be 50 km/h or less.
- The street segment under consideration must be at least 300 m in length.
- The street must provide adequate sight distance for the proposed design speed.

- Traffic calming measures will only be considered after less intrusive measures (such as public education, police enforcement, or digital signing) have been implemented and found to be ineffective.

Once the application is approved, the County's engineering staff will initiate a traffic calming study. This may include:

- Traffic counts
- Speed studies
- Collision analysis
- Pedestrian counts
- Parking studies
- Documentation of geometric data
- A review of the surrounding street network

To qualify for traffic calming measures, a minimum score of 35 points is required for local roads and 55 points for collector roads. Norfolk County has identified a variety of traffic calming measures suited to its road network. There are generally two main approaches to calming traffic within a neighbourhood:

- Vertical deflection measures (e.g., speed humps, raised crosswalks)
- Horizontal deflection measures (e.g., chicanes, curb extensions)

These measures are implemented based on the findings of the traffic calming study and the needs of the community.

Figure 1: Norfolk County- Traffic Calming Score Card

SECTION 1 – LOCATION			
Road Name			Road Section ID
Roadway Type	Local	Minor Collector	Major Collector
Initial Evaluation Completed by			Date of Evaluation

SECTION 2 – TRAFFIC DATA CRITERIA				
Item No.	**Metric**	**Point Range**	**Evaluation Criteria**	**Score**
1	Speed	0 to 35	• 5 points for every 2 km/h that the 85th percentile is greater than 10 km/h over the speed limit	
2	High Speeds	0 to 5	• 5 points if minimum of 5% of daily traffic exceeds posted speed by 15-20 km/h	
3	Volume	0 to 20	• Local Roadways: 5 points for every 1,000 ADT • Minor Collector Roadway: 5 points for every 3,000 ADT • Major Collector Roadway: 5 points for every 5,000 ADT	
4	Cut-Through Traffic	0 to 5	• 5 points for 20% cut-through traffic volume	
5	Collision Data	0 to 10	• 1 point for every 2 collisions over a 3-year period	

SECTION 3 – ROAD DESIGN CRITERIA				
Item No.	Characteristic	Point Range	Evaluation Criteria	Score
6	Sidewalks	0 to 10	• 10 points for sidewalk on both sides, 5 points for sidewalk on one side and 0 points for no sidewalks present. • AT/Mutli-use trails count as sidewalk when adjacent to the roadway or create connecting links.	
7	Pedestrian Hubs	0 to 15	• 5 points for every pedestrian hub nearby. Hubs are represented by schools, playgrounds, sportsplex, library, arena, retail spaces, etc. • Nearby is within a 300 m radius of the roadway section being reviewed. reviews.	

2.0 County of Brant Traffic Calming Policy

The primary goal of the traffic calming policy is to establish an impartial guideline for conducting studies on traffic calming measures, addressing concerns raised by residents, political leaders, and staff. The key objectives are:

- Establish a warrant procedure to assess the applicability of traffic calming measures based on various operating conditions.
- Provide a standardized approach for handling traffic calming requests.
- Enhance the safety of neighborhoods.
- Improve neighborhood livability.
- Ensure the continued access of emergency services, public transit, and maintenance routes.
- Encourage public participation and community support.
- Balance the needs of pedestrians and motorists, ensuring a safe and efficient road environment.

2.1 Traffic Calming Screening Criteria

Upon receiving a request, an investigation will be conducted to determine whether the area meets the traffic calming screening criteria, which are as follows:

- The road must be a local or minor collector road maintained by the County of Brant.
- It should not be a dead-end road or cul-de-sac, with a minimum uncontrolled (no stop signs / signals) length of 200 m.
- The road grade must not exceed 6%.
- The sight distance should be adequate for the proposed design speed.
- The 85th percentile speed should be ±10 km/h over the posted speed limit.
- Traffic infiltration (cut-through traffic) should exceed 30%.

2.2 Implementation of Traffic Calming Measures

Physical traffic calming measures will only be considered after less intrusive passive strategies (such as public education, enforcement, and signage) have been tried and proven ineffective. Traffic calming requests may be made by the council, residents, staff, stakeholders, or community associations.

Upon receiving a request, the following steps will be taken:

1. The intersection or road segment will be evaluated against the above criteria.
2. If current speed / volume data is unavailable (older than three years), traffic counts will be collected.
3. The data will be applied to a severity scoring system to determine a priority ranking for the project. If the area scores below 30, the requester will be notified that it does not meet the County's criteria, but it may be considered for future reviews.

4. Staff will review relevant data and public input to propose traffic calming measures that align with this policy.
5. Consultations will take place with relevant county, transit, and emergency services to gather feedback and obtain endorsement for the proposed measures.
6. Once a decision is made to proceed with traffic calming, affected residents will be notified of the proposed changes.
7. If there is a majority support from the neighbourhood, staff will implement the approved measures.
8. The effectiveness of implemented measures will be monitored and reviewed throughout the program.

2.3 Revaluation and Prioritization

If, at any point, the affected area no longer requires traffic calming, the original requester will be notified, and the area can be reevaluated in three years. Depending on the volume of requests and available budget, a priority ranking system will be used to determine which projects and measures are implemented each year.

Figure 2: Brant County- Traffic Calming Score Card

Brant Safe Streets Prioritization ranking

Road Section:	Prepared on:
Road Class:	Prepared by:

Traffic Data		
Feature	Criteria	Score
1. Speed	1.5 point for every 1 km/h the combined 85th is greater then the posted speed, max 40 pts	
2. Volume	ADT divided by 100, max 20 pts	
3. Collision	1 point for every collision over 3 year period, max 15 pts	
4. Collision Injury/Fatality	5 points for every collisions resulting in critical injury/fatality, max 5 pts	
Total Score upper	total upper score out of 80 pts	0

Road Characteristics		
Feature	Criteria	Score
Pedestrian generators (within 450m of roadway under review) max 20 pts	1 point other (transit stops, trail heads)	
	2 points Commercial plaza	
	3 points Community centre/ public library	
	4 points Community park/ hospital	
	5 points Elementary/ high school, Senior centre	
Total Score Lower	total lower score out of 20 points	0
Total Score	total score out of 100	0

3.0 Town of Oakville Traffic Claiming Implementation Process

The traffic calming implementation process in Oakville involves four key steps:

1. Intake (Petition Submission): To proceed, a minimum of 60% of households within the petition boundaries must support traffic calming. After submission, the Town will review the petition's eligibility and provide further instructions within two weeks.
2. Analysis (Speed & Volume Study): A speed and volume study are conducted to determine if the street meets the necessary criteria for traffic calming. For speed, the 85th percentile speed must exceed specific thresholds (e.g., 5 km/h over the posted speed limit for 40 km/h zones). For volume, local streets must have over 1,500 vehicles per day, and minor collector streets over 5,000. Results are provided to the petition representative within two weeks. If the criteria are met, the process moves to the next step.
3. Design & Public Consultation: Town staff develop a traffic calming design and consult with residents for feedback. If less than 30% of households respond, the request is halted. If more than 30% respond and 50% are in favor, the petition representative is informed of the next steps.
4. Construction (Tender & Implementation): Once approved, construction notices are sent to affected residents. Traffic calming measures are typically built between May and November. If the process reaches this stage in December, construction will begin the following spring or summer.

4.0 Traffic Calming Strategy King Township

Three streams for the implementation of traffic calming measures have been included to address concerns and feedback from residents and travellers within King Township. These are:

1. **Community Approach:** This includes setting default speed limits and installing pilot projects permanently. The posted speed limit is crucial for traffic calming because it sends a message to motorists about expected behaviors on the road. Speed is a significant factor related to the frequency and severity of collisions. As of 2018, the Ontario Highway Traffic Act (Section 128 (2.1)) allows municipalities to set a posted speed limit of less than 50 km/h for roads under their jurisdiction in residential areas. Many locations are initially implemented with temporary or minor adjustment treatments. This approach provides the Township with the flexibility to select and adjust the final traffic calming solution based on the data collected and residents' feedback. The annual budget determines the number of locations that can be permanently installed.
2. **Programmed Approach:** The Public Works Department includes a list of infrastructure projects to be approved and implemented as part of the budget process (every year). Capital projects typically include but are not limited to, road resurfacing, road widening, drainage, sewer maintenance, and signage maintenance. As part of these capital projects, the need for traffic calming elements will be included in the review process. This proactive approach is considered beneficial and cost-effective by reducing resources both in the office and in the field.
    a) Two questions are answered: 1) confirm whether the location meets warrants for traffic calming, and 2) if there are elements for traffic calming that can be implemented based on the scope of the project.
    b) New Development: As the township is growing, it is important to incorporate speed control as a design objective in road design guidelines.
3. **Requests:** Done in four stages:
    a) Initiation (traffic calming request and screening criteria)
    b) Selection (evaluation warrant criteria and treatment selection and design)
    c) Implementation (letter to residents and construction & installation)
    d) Evaluation (monitoring plan)

4.1 Process

4.1.1 Initiation

Traffic calming requests can be submitted through phone calls, emails, or letters from residents, councilors, and Township staff.

Neighbourhood petitions must include a statement of concern and support from 20% of affected households along the identified area of concern. The study area for the petition should encompass the road segment within the block of the area of concern. Township staff can confirm the petition area based on the surrounding road characteristics with similar operating

features to the location of the request. The requestor is responsible for gathering signatures on the petition form. This petition process demonstrates some buy-in from the neighborhood and confirms the problem statement. Once neighborhood support is confirmed, staff should ensure that they have the basic information of the requested location.

The following are the minimum required information:

- Name and contact information of the requestor
- Date of the request received
- Street name (from / to), segment length
- Identified issues and concerns
- Desired traffic calming treatment

Requests can also be initiated by staff or council recommendations, which do not require signatures from residents.

4.1.2 Screening Criteria:

The screening process filters locations based on geometry, classification and qualifications. This is important since data collection is essential to determine the severity of the issue, and the Township has limited resources to conduct data collection within a given year. If the response is 'No' for any of the criteria, the location is considered ineligible for traffic calming.

Figure 3: King Township Screening Criteria

SCREENING CRITERIA	YES	NO
Road Classification Is the location within the Township's jurisdictions and classified as either an urban local, urban collector or rural road?		
Posted Speed Urban: Is the posted speed 40 km/h or lower? Rural: Is the posted speed 60 km/h or lower?		
Street Length Is the road longer than 250 m between traffic controls?		
Grade Is the vertical grade less than 8%?		
Previous Evaluation Has not been evaluated within the last 24 months?		

4.1.3 Selection

Once the location passes screening criteria, the township checks the last 2 years' data for the study location. If more data is required, data collection is scheduled (traffic volume and speed readings). Locations with a total point less than the required minimum points are considered a

lesser priority for traffic calming. The Township will continue to seek for solutions to mitigate the initial concern through passive and educational measures. The minimum required points are:

- Urban local roads: 30 points
- Urban collector roads: 40 points
- Rural roads: 50 points

Figure 4: King Township- Max Score Points

CRITERIA	WARRANT CRITERIA & POINTS	MAX POINTS
Operating Speed	1 point for each km/h the 85th percentile operating speed is above the posted speed limit	30
Traffic Volume	1 point for every 50 vehicles above the local threshold of **500** vehicles/day 1 point for every 100 vehicles above the collector/rural threshold of **1000** vehicles/day	20
Collision History	5 points for each collision within the **last 3 years**	20
Pedestrian Generator	5 points for each **school** or **park** or other pedestrian generator within the study area (the frontage of the road segment or within 300m)	10
Pedestrian Facilities	10 points if there are **no sidewalks** in the study area, 5 points if only on one side	10
Bicycle Facilities	5 points if the road has bicycle lanes, sharrows, or signed routes	5
Land Use	5 points if fully residential area, 1 point decreasing for every 20% non-residential	5

4.1.4 Treatment selection and design

Based on the available annual budget, the Township prioritizes and determines the approximate number of locations that can be implemented. The residents will be notified of the proposed plan including the objective, rationale for the selected device and the intended outcome of the installation. It will also be posted on the Township's website. In addition, the mayor and members of the Council will be advised.

4.1.5 Evaluation

The monitoring plan includes speed and volume data collection over two days (before and after installation), and a summary of public input and feedback received. This information will help determine whether design and / or location adjustments and any additional efforts are required. When conducting traffic volume data collection, it should be noted that adjacent roadways may have increased volume from traffic diversion. This should be considered to ensure that installing traffic calming in one place does not create an issue somewhere elsewhere.

5.0 City of Hamilton Traffic Calming Strategy

The City of Hamilton follows the following steps for Traffic calming:

- Step 1: Request for traffic calming received by staff, notify Councilor
- Step 2: Pre-screen the requested location
- Step 3: Conduct a community support survey (majority vote of 50% plus one required to continue the process)
- Step 4: Detailed investigation and point assessment
- Step 5: If the location meets the minimum point threshold for traffic calming consideration, add the location to the Traffic Calming Priority List
- Step 6: Public consultation
- Step 7: Draft Plan
- Step 8: Notify residents and Councilor for consideration of alternatives
- Step 9: Add to the construction schedule for permanent installation

5.1 Pre-screening Process

Figure 5: City of Hamiton Pre-screening Process

1. Is the road a local or collector road with no more than two travel lanes?	**PASS**	**FAIL**
2. Is the average daily traffic volume estimated to be more than 500 vehicles per day? (>500 = PASS, <500 = FAIL)	**PASS**	**FAIL**
3. Is the posted speed limit equal to or lower than 50 km/h?	**PASS**	**FAIL**
4. Is the adjacent land uses primarily residential?	**PASS**	**FAIL**
5. Does the street provide an obvious bypass to a major intersection?	**PASS**	**FAIL**
6. Is the road longer than 300 metres?	**PASS**	**FAIL**
7. Have no previous assessments occurred within the past 36 months?	**PASS**	**FAIL**
8. The road is not scheduled for a capital project within the next 36 months through which traffic issues can be addressed?	**PASS**	**FAIL**

If the road in question fails any of the eight areas listed in the pre-screening it does not qualify for traffic calming, and the process does not continue forward.

5.2 Passive Traffic Calming Measure

For areas that do not meet these initial criteria, the staff will consider implementing passive traffic calming measures. These may include the use of tools such as driver feedback boards,

targeted police enforcement, sign installation, and pavement marking modifications. Public involvement, such as surveys and public meetings, may also be required.

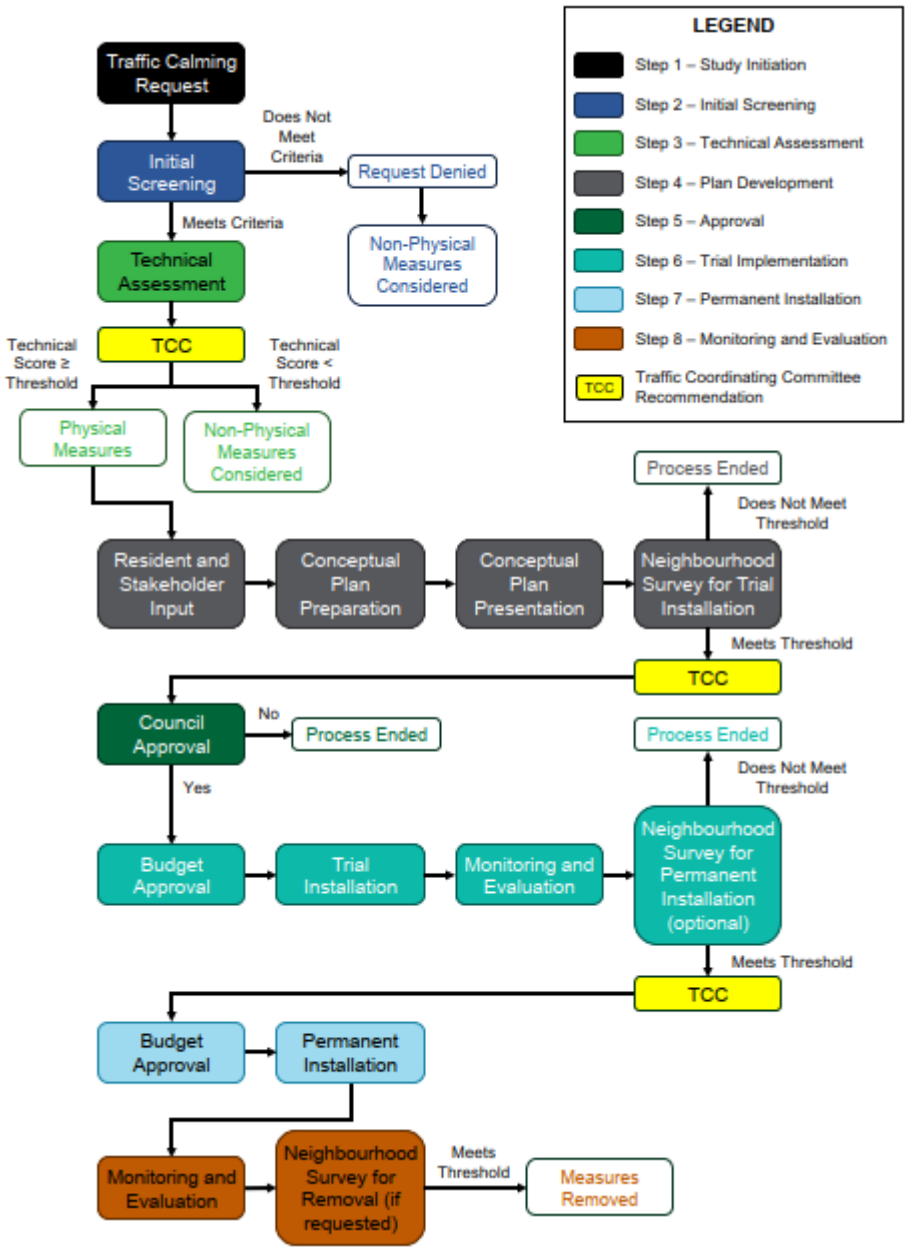
- Survey: To proceed with the process, a majority (at least 50% + one) of total surveys distributed must be returned to the City, indicating support for traffic calming on their street.
- If more than 50% of the community agrees, the next step involves data collection (24-hour volume count, speed data, collision data, vehicle classification, existing roadway condition, study to quantify cut-through traffic, pedestrian activity, presence of sidewalks on both sides, presence of special pedestrian generators like schools or senior homes, and history of traffic operations for the area in the last five years).
- Point Assessment Calculation: Minimum point values for each road type - Local roads minimum: 35 points; Collector roads minimum: 52 points.
- If a location fails to meet these requirements, residents will be informed in writing, and the investigation for traffic calming measures will be discontinued.
- The proposed traffic calming measures will adhere to the design guidelines found in the City of Hamilton Standards Document, The Canadian Guide to Neighbourhood Traffic Calming, Ontario Traffic Manuals, Manual of Uniform Traffic Control Devices, and engineering judgment.
- The steps involved in this process include Public consultation (Step 6), Draft Plan (Step 7), Notification of residents and Councillor for consideration of alternatives (Step 8), and addition to the construction schedule for permanent installation (Step 9).

Figure 6: City of Hamilton- Traffic Calming Score Card

TRAFFIC CALMING POINT ASSESSMENT				
Location:			**Date Compiled:**	
Roadway Type:	☐ Local		☐ Collector	
Traffic Data				
	Feature	**Range**	**Criteria**	**Total**
1a	**Speed**	0 to 35	5 points for every 2 km/h that the 85th percentile speed is greater than 7 km/h above the speed limit	
1b	**High Speed**	0 to 5	5 points if minimum of 5% of daily traffic exceeds posted speed by 15-20 km/hr	
2	**Volume**	0 to 20	Local Roadways: 5 points for every 750 ADT Collector Roadways: 5 points for every 2,500 ADT	
3	**Short-Cutting Traffic**	0 to 15	5 points if there is a presence of 25% or more short-cutting traffic, additional 5 points for every 10% increment above 25%	
4	**Collisions**	0 to 10	1 point for every collision resulting in an injury/year over a three-year period 2 points for every collision involving a pedestrian or cyclist	
Road Characteristics				
5	**Sidewalks**	0 to 10	10 points for no sidewalks with evidence of pedestrian activity, 5 points for sidewalks on only one side, 0 points for sidewalks on both sides	
6	**Pedestrian Generators**	0 to 15	5 points for each pedestrian generator such as a school, playground, community centre, libraries, retail centres, etc. on street segment	
Total				
Note: In Section 1a, points are awarded beginning at 48 km/h on a 40 km/h roadway, and at 58 km/h on a 50 km/h roadway				
Does the location meet the minimum requirements?				
• **Local roadway = minimum 35 points** • **Collector roadway = minimum 52 points**			**☐ YES**	**☐ NO**

6.0 Town of Fort Erie

Figure 7: Town of Fort Erie - Traffic Calming Process



The Neighbourhood Traffic Calming Study process involves eight steps:

1. Study Initiation: Residents with traffic-related concerns initiate the Neighbourhood Traffic Calming Study process by submitting a request to the Town's Infrastructure Services Department. Ward Councillors can also request a study on behalf of their constituents.
2. Initial Screening: Screening is done according to the table below. If the site does not meet the requirements set in the table below, the subject's origination will be informed

that street(s) does not qualify for physical traffic calming but may be a candidate for non-physical measures, such as education and enforcement, subject to funding and resource availability.

Figure 8: Town of Fort Erie- Traffic Calming Criteria

Criteria	Threshold	Traffic calming may be considered if:	Satisfied
Previously Requested or Permanent Installation Removed	Within Last Three Years	A prior request has not been received or permanent traffic calming measures have not been removed from the subject street(s) in the last three years.	
Roadway Classification	Local Road or Collector Road	The subject street(s) is designated a Local Road or Collector Road in the Town of Fort Erie Official Plan.	
Land Use Designation	Within an Urban Area	The subject street(s) is located within one of the four Urban Areas designated on Schedule A of the Town of Fort Erie Official Plan.	
Location	Not on a Truck Route or Primary Emergency Vehicle Route (Ambulance, Fire, Police)	The subject street(s) does not serve as a truck route and/or primary emergency vehicle route (ambulance, fire, police services) unless exempted by the Town.	
Speed Limit	≤ 50 km/h	The posted speed limit on the subject street(s) is 50 km/h or less.	
Grade	< 8%	The average grade of the subject street(s) is less than 8%.	
Segment Length	≥ 150 metres	The average distance between stop-controlled intersections along the subject street(s) is 150 metres or more.	
Are All Criteria Met?			**Yes/No**

The screening process will evaluate the technical merit of the request based on seven traffic and land use criteria outlined in the table below. Each location will receive a point score out of 100. Locations that score more than 40 points for Local Roads or 60 points for Collector Roads will be recommended to proceed to plan development.

Figure 9: Town of Fort Erie- Traffic Calming Score Card

Criteria	Point Assignment	Maximum Points (100)	Score
Pedestrian/ Cycling Activity	5 points for each adjacent pedestrian and/or cycling generator within the study area (i.e., school, park, playground, recreation centre, senior's home, library, shopping centre, place of worship, etc.)	20	
Residential Frontage	5 points for primarily residential frontage on subject street(s)	5	
Cut-Through Traffic[1]	5 points if: ▸ 25% for Local Road **or** ▸ 40% for Collector Road plus 5 points for each 10% increment thereafter	15	
Total Traffic Volume[2]	1 point for every: ▸ 100 vehicles per day for Local Road **or** ▸ 250 vehicles per day for Collector Road	15	
Speed[3]	1 point for every: ▸ 1 km/h over the posted speed limit **and** ▸ 1% of vehicles observed 10 km/h or more over the posted speed limit	30	
Collision History[4]	1 point for each qualifying collision over the last three years	5	
Pedestrian/ Cycling Facilities	5 points if: ▸ No sidewalks on either side of the subject street(s) for Local Road **or** ▸ Sidewalk on only one side of the subject street(s) for Collector Road plus 5 points for designated cycling facilities on the subject street(s)	10	
Total Score (Minimum for Local Road/Collector Road)		**40/60**	

Notes:

1. See Section 4.1.9 to estimate the percentage of cut-through (non-local) traffic.
2. Traffic volumes used in the evaluation are two-way average daily volumes over a 24-hour period.
3. The 85th percentile speed is calculated from data collected using automated traffic recorders (or similar units) over a 24-hour period.
4. Includes all collisions along the subject street(s) except for collisions occurring at intersections with arterial roads and collisions involving animals.

- Plan Development: Town staff will consult with residents and stakeholders, including town departments and external agencies, to identify neighbourhood traffic issues and potential traffic calming measures. A conceptual Neighbourhoods Traffic Calming Plan will be prepared based on the input received and forwarded to stakeholders for comment. Community meetings will also be held to present the plan to residents and gather feedback.
- After considering input from the public and stakeholders, town staff will poll neighbourhood residents to gauge support for the proposed plan, with implementation initially on a trial basis. Proposed plans for not receiving broad-based neighbourhood support may need to be modified or re-evaluated.

- Approval: Town staff will present the recommended Neighbourhood Traffic Calming Plan, its priority ranking, potential funding sources, and survey findings to the Transportation Coordination Committee (TCC) for recommendation and to Town Council for approval. Any changes to the recommended plan may be suggested by the TCC or Council. If the plan is not approved, the Town will not entertain new requests for a Neighbourhood Traffic Calming Study on the subject street(s) for at least three years.
- Trial Implementation: The recommended plan will be implemented for a 12- to 18-month trial period using temporary / seasonal materials. The Town will monitor the effectiveness of the installation and make minor refinements, if needed, during the trial period.
- Permanent Installation: If approved, the final Neighbourhood Traffic Calming Plan will be installed with permanent materials, subject to available resources and other priorities. Further budget approval may be required to finance the installation cost. Town staff will notify study area households of the intention to install the traffic calming measures permanently before implementation.
- Monitoring and Evaluation: Town staff will continue to monitor the street and evaluate the effectiveness of the traffic calming plan and its impact on the surrounding road network. Permanent traffic calming measures may be removed at the request of the neighbourhood if a majority of residents directly fronting the street support the removal. The Town may also remove traffic calming measures that it deems ineffective, pose a safety risk, or cause unintended consequences.

7.0 Traffic Calming Policy- City of Guelph

The process for addressing neighbourhood traffic concerns involves seven steps:

1. Initiation of Request: Residents submit a request for a traffic review to the Transportation Engineering department using a web form. This request can be initiated by an individual or group and may involve one or multiple residential local or collector roadways within a neighbourhood. Historical traffic data will be reviewed, and if it is older than three years, new data will be collected. Requests must pertain to local or collector roadways.
2. Defining Affected Streets: The streets under review for traffic calming measures are identified. Staff may suggest including nearby residential roadways in the review if they are likely to be impacted by changes on the main streets in question.
3. Traffic Analysis:
    a) Data Collection: Transportation Engineering staff will analyze traffic patterns on the affected streets, collecting data on traffic volumes, vehicle speeds, and vehicle classifications over a seven-day period using established engineering practices.
    b) Quantifying the Problem: To be prioritized, certain eligibility criteria must be met, such as the road type, number of travel lanes, posted speed limit, and traffic volume. Roads that don't meet these criteria will not proceed to further review, and the residents and ward Councillors will be notified. If a street doesn't qualify for traffic calming, it won't be reconsidered for 24 months unless significant changes occur in traffic patterns or development. However, non-qualifying roads may still be eligible for other safety measures.
4. Identify Applicable Traffic Calming Measures: Suitable traffic calming measures are identified based on the analysis.
5. Develop Plan Alternatives: Staff will create plans that align with the policy's goals, objectives, and principles. These plans will be drafted as potential solutions to address the identified traffic concerns, and internal stakeholders, such as Emergency Services, Transit, Police, and others, will be consulted.
6. Implement the Plan: Staff will design, schedule, and implement the approved traffic calming measures. Temporary measures may be installed if funding is limited, with information signs posted at neighborhood gateways at least two weeks before implementation. Temporary installations may be used to test the measures before considering permanent solutions.
7. Evaluation & Follow-up: Two years after implementation, data will be collected to assess the impact of the traffic calming measures. This data will include traffic volumes, vehicle classifications, speeds, and collision rates. Staff will evaluate the effectiveness of the measures and make adjustments if necessary. Recommendations may include terminating the project, converting temporary measures into permanent ones, removing ineffective measures, or installing additional measures.

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Appendix C

Existing Policy Review

R.J. Burnside & Associates Limited 6990 Creditview Road, Unit 2 Mississauga ON L5N 8R9 CANADA
telephone (905) 821-1800 **fax** (226) 526-9660 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Memorandum

Date: May 15, 2025 **Project No.:** 300058527.0000

Project Name: Traffic Management Strategy

Client Name: The Corporation of Haldimand County

To: Danielle Fletcher

From: Soha Saiyed

1.0 All- Way Stop Policy (2007-03)

The purpose of the All-Way Stop policy is to establish an evaluation process to consider the installation of an All Way Stop at an intersection to provide a process by which all the requests received are considered and evaluated for the implementation of an all-way stop. The policy applies to all the roads under the jurisdiction of the County. The Highway Traffic Act authorizes municipalities to pass bylaws to amend traffic conditions.

There are two processes to evaluate the justification of an all-way stop depending on who initiated the request:

1. Technical Justification Warrant Process
2. Community Justification Process.

1.1 Technical Justification Warrant Process

Requests for all-way stops initiated through a Council motion or as a staff initiative shall use the Technical Justification Warrant Process. The warrant process has two parts and must meet all conditions of the first part to continue with the second part. Part one of the process is "Consideration". For the warrant to be considered all of the following requirements must be met:

- A minimum posted speed of 50km/h.
- The closest traffic control device is located at least 700 m away from arterial intersections and 250 m away from secondary intersections.
- The intersection has three or four legs with no more than two lanes on each leg. Each leg must be a minimum of 150 m in length.
- For arterial intersections the combined volume of vehicles and pedestrians entering from the minor street over eight hours must be at least 40% of the total volume.

- For secondary intersections, the combined volume of vehicles and pedestrians entering the minor street over eight hours must be at least 25% of the total volume for a 3-way intersection or at least 35% of the total volume for a 4-way intersection.

Part two of the process is warrants which include the following:

- Visibility Conditions: The minimum sight distance of the minor street driver to the major street is less than 95 m when the major street is 50 km/h or less than 115 m when the major street speed limit is 60 km/h or higher, and the removal of the sight obstruction is not feasible.
- Collision History Warrant: Based on the latest three-year period the intersection has met one of (a) or (b): a) 12 or more correctable collisions for an arterial intersection or b) 5 or more correctable collisions for all other intersections. In general, a correctable collision would include turning movement or angle type collisions as described in the collision reports.
- Traffic Volume Warrant: An arterial intersection has minimum vehicular traffic of 500 entering the intersection from all legs for each of any eight hours of the day and a combined vehicle and pedestrian traffic volume of 200 entering from the minor street for each of any eight hours of the day; or a secondary intersection has minimum vehicular traffic of 200 entering the intersection from all legs for each of any eight hours of the day, and a combined vehicle and pedestrians traffic volume of 50 entering from the minor street for each of any eight hours of the day.
- Pedestrian Exposure Warrant: An intersection is within 150 m of a pedestrian generator such as a park, library, community facility, etc., and 50 pedestrians cross the major street in each hour: a) For any three hours of the day if the intersection is secondary, or b) For any six hours of the day if the intersection is on an arterial road.
- Combination Warrant: The intersection satisfies any combination of the warrants mentioned above to the extent that 80% of the stated values are met.

Both components of the technical warrants align with Canadian guidelines, such as the Transportation Association of Canada (TAC) Geometric Design Guidelines (GDG) and the Ontario Traffic Manual (OTM) Book 5 and 9. However, these guidelines do not specify any minimum posted speed limit requirements.

1.2 Community Justification Warrant Process

Requests received through the public and/or local councillor that demonstrate significant public support shall use the Community Justification Process. This process requires significant support from the public, as 75% of the residents within 250 m of the intersection should be in agreement with the all-way stop and involve a petition. This process also requires the support of the local councillor through discussions with staff regarding the rationale for the all-way stop installation. Once these two conditions are met the staff's technical review of the all-way stop request will be reduced to a safety review of the location. Examples of safety reasons that an

all-way stop will not be recommended include urban areas with speeds posted higher than 60 km/h, offset intersections, locations where traffic will be required to stop on a grade, and locations with sign visibility issues.

All those intersections that warrant an all-way stop condition will require a report to the Council for approval. For those intersections that have been considered and do not meet the warrant, a letter will be sent out to the requesting parties.

In Brampton, an all-way stop will only be considered if more than 51% of the responses support its installation. In Mississauga, a minimum of 66% of residents within a 250 m radius of the intersection must vote in favour, and if a school is located within that radius, the school principal will also be included in the survey. In Norfolk County, a similar approach to Haldimand County is used, requiring 75% approval from residents within 250 m of the intersection, in addition to support from the local councillor. The procedure followed by Haldimand is in line with what the neighbouring and other municipalities follow.

Recommendation:

1. The policy is amended to include the purpose of a stop sign per OTM Book 6 (i.e., not to be used as a speed control device) and only to be used for right-of-way conflict.
2. Generally, most jurisdictions recommend or require that all-way stop control not be used on roads with speed limits higher than 50 km/h. It is recommended to remove the minimum speed requirement of 50 km/h, consistent with OTM book 5 and general municipal practice in Ontario.
3. The stopping sight distance for passenger cars is 130 m when the speed limit is 60 km/h. It is recommended to update the stopping sight distance in the all-way stop warrant policy.
4. It is recommended that the community justification warrant align with the Traffic Calming Policy by utilizing the prescribed form and petition process outlined in the policy.

2.0 Speed Limit Policy (2007-02)

The policy aims to establish a reasonable speed limit that ensures the efficient and safe operation of the road network. It provides guidelines for requesting changes to the speed limit on Haldimand County roads. Municipalities have the authority to amend traffic conditions under the Highway Traffic Act. As per the policy, the speed limit should be set between 50 km/h and 80 km/h in increments of 10 km/h. Ideally, the speed limit should align with the 85th percentile speed based on actual measurements of the operating speed.

The recommended posted speed limits for different classes of County roads are included in Table 1

Table 1: Speed Limit by Road Class

Road Classification	Urban Sections (km/h)	Rural Sections (km/h)
Major Arterial	60-70	80
Minor Arterial	50-60	70-80
Collectors	50	70-80
Local	50	50-60

The posted speed limits can be higher than the speeds shown in Table 1, but this should be justified through a review of factors such as 85th percentile speed, collisions, and inferred design. The speed should not exceed 80 km/h. Posted speeds other than those recommended in Table 1 should be considered when:

- Constrained by physical characteristics
- Constrained by adjacent land uses and associated activities
- Required for increased safety in sensitive areas such as a school zone
- Required for safe operation temporarily in a construction zone
- Evidenced by a significantly higher than normal frequency or severity of accidents attributable to excessive speeds.
- The recommended level in Table 1 is shown to be higher than the inferred design speed.

According to the Highway Traffic Act (HTA), Transportation Association of Canada Geometric Design Guidelines and the TAC's Canadian Guide for Establishing Posted Speed Limits, there is no specific requirement for the speed limit to be set between 50 km/hr and 80 km per hr. However, the municipal by-laws can set the speed limit. The speed limit by road class differs from TAC. According to Section 2.3.6.5 of Operating Speed of TAC geometric design guideline, 2017 speed limits are as shown in Table 2.

Table 2: Speed Limit by Road Class-TAC GDG (2017)

Road Classification	Urban Sections (km/h)	Rural Sections (km/h)
Arterial	60-90	70-100
Collectors	40-70	60-90

Road Classification	Urban Sections (km/h)	Rural Sections (km/h)
Local	40-60	50-80

2.1 Annual speed limit review of the posted speed limits

Haldimand County reviews the operating speeds at selected locations throughout the county annually. Any area with a significant difference between the posted speed and the speed at which 85% of drivers are currently driving will be identified for further examination. During this review, the physical characteristics of the roads, such as adjacent land use, collision history, and design speed, will be taken into account. Additionally, input from the OPP regarding speed enforcement will be requested. The review may lead to three possible outcomes: no action required, the operating speed being too high (resulting in measures such as enforcement, community education programs, or design changes aimed at reducing speed), or the posted speed being too low and requiring an increase. Findings and recommendations from these reviews will be provided annually to the Council for review.

Recommendation:

1. Arbitrary, unrealistic and non-uniform limits have created a socially acceptable disregard for speed limits. Unrealistic limits increase collision risk for persons who attempt to comply with the speed limit by driving faster or slower than the majority of road users. Unreasonably low limits significantly decrease driver compliance and give road users such as people not familiar with the roadway, as well as pedestrians, a false indication of actual traffic speeds.
2. According to the Canadian Guidelines for Establishing Posted Speed Limits, a regular county-wide review of posted speed limits every three to five years as a part of a comprehensive speed management procedure is recommended. Factors to consider during these reviews include changes in traffic operation, changes in geometric characteristics, speed-related collisions, and input from enforcement personnel. When lowering the speed limit, the recommended size for both STOP signs and STOP AHEAD signs is related to the posted speed limit. However, if it is felt that the recommended minimum size is too small, and / or greater emphasis is needed, a larger sign size may be used.
3. It is recommended to update the speed limits to conform with Section 2.3.6.5 of Operating Speed of TAC Geometric Design Guideline, 2017.

2.2 Requests by Members of the Public

The public's requests regarding speed limits are considered during the annual review. Members of the public should submit a written request along with supporting documents to the Public Works Department. The department will then pass on the request to the ward councillor. In cases where immediate action is required or when the Council gives direction, a speed study may be conducted before the annual review. The findings of the study will be reviewed as part

of the annual speed limit review process. The review results will be presented in a public forum, and residents and the general public will be notified before staff make recommendations to the Council. A final report with results and staff recommendations will be provided to those who requested it and other interested parties.

In Quinte West**,** a petition requesting a speed limit change must be signed by at least 85% of the residents living in the subject section of the street. In Essex County**,** the threshold for initiating a speed limit review is set at 65% of residents in the specified area. In contrast, Norfolk County allows any member of the public to submit a request to change the posted speed limit. This request is then considered as part of the Annual Speed Limit Review. A written request**,** along with supporting documentation, must be submitted, and a copy will be forwarded to the ward councilor for review.

Recommendation:

1. It is recommended that the County set a specific percentage requirement for speed limit review petitions, mandating a minimum of two-thirds (67%) support.
2. It is also recommended to monitor traffic conditions and consider implementing traffic calming measures in areas where speed limits are reduced below typical standards.

3.0 Community Safety Zone Policy (2003-09)

The purpose of the Community Safety Zone Policy (CSZ) is to establish warrants or criteria that must be met to establish a CSZ on a Haldimand County Road. The establishment of a CSZ is a commitment to increase enforcement and as such, there is a functional limit to the number of CSZs that can be in effect and enforced at any given time. The goal is to modify the driver's behaviour and to improve the safety of the concerned roads of the county. This policy applies to all county roads. According to the Province of Ontario's Bill 26, Municipalities have the authority to pass by-laws and initiate measures to ensure the health and safety of residents.

There are four warrants that must be satisfied in order for a section of road to be designated a CSZ. All of the warrants must be satisfied. They are as follows:

1. Warrant 1 - Designated Areas of Special Concern: CSZs must be implemented only at the location of special concerns. The locations included are: adjacent to elementary schools, adjacent to seniors centers and residences, adjacent to community playgrounds, in areas of high pedestrian traffic volumes or areas where pedestrian traffic is forced to walk or shoulder of less than 1.5 m width, and adjacent to hospitals. For the purposes of this warrant, a high pedestrian location is defined as a location experiencing an average of 100 pedestrians per hour or more for any 8 hours of the day.
2. Warrant 2 - Safety Warrant: For the safety warrant to be met, either a crash component or risk component must be satisfied.
    a) Crash Component: A CSZ should be implemented if the crash ratio is less than 1:900 (crashes per year: AADT) averaged over 36 consecutive months. Only crashes with a causal factor related to one of the HTA violations identified in the CSZ legislation should be included in the crash ratio.
    b) Risk Component: It is recognized that a significant safety concern may exist even though it is manifested in the crash record, therefore this second warrant is based upon the elements of risk that may exist at a potential CSZ site. Prior to using the Risk Warrant, field observations or the Ontario Provincial Police must verify that there is an unusually high violation rate in the subject location.

Table 3: Risk Factor Score Card

Risk Factor	High (Score 3)	Moderate (Score 2)	Low Score (Score 1)	Score
Posted Speed Limit	70 or over	60	50 or under	
85th percentile over Posted Speed	15 km/hr+	5 to 15 km/hr	1 to 5 km/hr	
Average Daily Traffic	Over 20,000	10,000 to 20,000	Under 10,000	
Number of Lanes	6	4	2	
Sidewalks	<25% of length	25 to 75% of length	> 75% of length	
Truck Route	>100 per hour	50 to 100 per hour	<50 per hour	
Average Number of Pedestrians in any 8 hrs. of the day	>100 per hour	50 to 100 per hour	<50 per hour	
Number of intersections and commercial driveways	> 10 per kilometer	4 to 10 per kilometer	< 4 per kilometer	
			Total Score	

The minimum score of 15 establishes a risk component. A prevalence of traffic violations that are not in areas that do not satisfy Warrant #1: Designated Areas of Special Consideration should be addressed through regular enforcement or some other type of countermeasure.

3. Warrant 3 - Other Applicable Measures / Devices: All other warranted countermeasures were tried and found to be unsuccessful prior to implementing a CSZ. Unsuccessful in this case means failing to reduce the crash ratio to less than 1:900 (Crashes per year / AADT). The potential alternative countermeasures will depend on the nature of the type of crash and the contributing circumstances. However, enforcement without the implementation of a CSZ is a potential countermeasure and may be attempted before enacting a CSZ.
4. Warrant #4 - Ability to Enforce: Haldimand County's current Community Safety Zone Policy discusses that maximum of two CSZs should be implemented in the County at any one time, one in the westerly end of the County and one in the easterly end of the County. This will ensure that sufficient resources are available to provide the necessary enforcement. However, there is no minimum or maximum limit on the number of CSZs that can be established. Six months after implementation, CSZ's may be relocated to

another warranted location. Haldimand County's current Community Safety Zone Policy considers six months as an adequate time to have provided a lasting effect. It is not the intention that there would be daily enforcement for the entire six months, only at the initial designation of a CSZ and periodically thereafter. If after six months, under increased fines, driver behavior has not been modified, then other countermeasures are likely required.

Each time a Community Safety Zone is implemented, Haldimand County will issue notices / information brochures distributed at least one week in advance of implementation to places of public gathering within or immediately adjacent to the newly designated CSZ and prepare a media release explaining the size and location of the CSZ and the consequences associated with committing a violation in the CSZ.

According to OTM Book 5, municipalities establish CSZ on municipal roads through local bylaws, while regulations govern the creation of zones on provincial highways. As part of this process, the CSZ warrants for several municipalities were reviewed.

Most municipalities focus primarily on Warrant 1 (designated areas of special concern) and Warrant 2 (safety warrant). However, Haldimand County also considers additional factors, such as the feasibility of enforcement, when determining CSZs. Overall, the warrant criteria used by these municipalities are largely consistent, with the exception of the Risk Factor Score Card. Based on a CSZ warrant of City of Vaughan (dated 2023), some elements of the warrants are different, as shown in Table 4. The risk factor score card for York Region (2023) and Oxford County (dated 2021) are similar but for higher AADT.

Table 4: Risk Factor Score Card- City of Vaughan Region (2023)

Risk Factor	High (Score 3)	Moderate (Score 2)	Low Score (Score 1)	Score
Average Daily Traffic	>6000	3000-6000	<3000	
Number of Lanes	>4	3 to 4	2	
Presence of Sidewalks	None	One side	Both Sides	
Truck volume (% of traffic)	>5%	3% to 5%	<3%	
Number of bus stops per km	>4	2 to 4	<2	
Intersection and entrances per km	>10	4 to 10	<4	
85th percentile Speed-posted speed (km/h)	>10	0 to 10	<0	
Vulnerable Road User Collisions per year (5 years)	>2	1 to 2	0	
			Total Score	/24

The City of Vaughan uses a minimum score of 14 on the Risk Factor Score Card as a threshold to implement a CSZ, whereas York Region and Oxford County use a minimum score of 15. Hence, the minimum score of 15 as used by Haldimand County is deemed to be satisfactory.

Additionally, most municipalities adhere to specific requirements regarding the length of the CSZ and the placement of signage.

In many jurisdictions, speed enforcement cameras, such as red-light or speed cameras, can only be installed in designated CSZs. If the number of CSZs is limited to just two, the number of areas eligible for speed enforcement cameras would be significantly reduced. This restriction could limit the effectiveness of the cameras in addressing speeding across the broader city or region, as fewer locations would qualify for installation. Step 4 of the warrant guidelines specifies that no more than two CSZs can be implemented at one time within a specific area. However, it may be beneficial to allow for more CSZs in order to improve overall safety in communities. Currently, there is no minimum or maximum limit on the number of CSZs that can be established.

Recommendation:

1. Update the risk factor score card as per Table 4.
2. It is recommended to implement more CSZ in order to improve overall safety in communities. Currently, there is no minimum or maximum limit on the number of CSZs that can be established.
3. A designated Community Safety Zone remains in effect until the governing by-law is amended or repealed. There is no requirement to replace the signage every six months, provided it remains visible and in good condition.

4.0 Traffic Warrant Sign Policy for Agricultural Equipment on County Roads (07-2008)

The purpose of this policy is to establish warrants or criteria for installing caution / warning signs for Agricultural Equipment (slow-moving vehicles) on roads managed by Haldimand County. According to the Highway Traffic Act, municipalities are authorized to post such signs to alert drivers that agricultural equipment frequently travels on their roads.

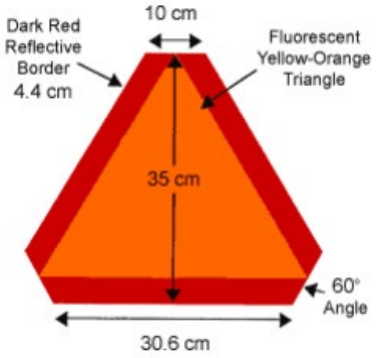
To request the installation of these signs, a written application with supporting details (such as location and activity) must be submitted to the Transportation Engineering Technologist in the Engineering Services division. Each request will be evaluated based on the criteria outlined in this policy.

Criteria for Installation:

1. The road in question must be used by vehicles that fall under the slow-moving vehicle regulations specified in the Highway Traffic Act, Section 76, and Ontario Regulation 616.
2. The policy only applies to roads under Haldimand County jurisdiction.
3. The road must have an average annual daily traffic (AADT) volume of at least 2,000 vehicles per day and / or see a minimum of 20 agricultural vehicle trips per week.

Sign Requirements: The Highway Traffic Act mandates that a slow-moving vehicle (SMV) sign be displayed when such a vehicle operates on a highway (see Figure 1 (1-1)). This sign indicates that the vehicle travels at 40 km/h or less. The Act prohibits placing this sign on or near fixed objects where it can be easily seen from the road. Property owners or tenants who display the SMV sign on fixed objects may face fines. However, municipalities may use the orange triangle symbol on caution signs to inform motorists about the presence of slow-moving vehicles. These informational signs are not enforceable under the HTA. Although there is no official provincial standard, the Ministry of Transportation, in collaboration with the Farm Safety Association, has developed a caution / warning sign for slow-moving vehicles to be used on Ontario roads (Figure 1 (1-2)). The orange triangle symbol was added to help motorists recognize slow-moving vehicles, and some areas have modified this sign to include "active farming area" (Figure 1 (1-3)).

Figure 1: Slow Moving Vehicle Sign

1-1	1-2	1-3
		

The implementation of these signs aims to improve safety awareness for the travelling public and a demonstration of continuous support to the Haldimand County Agricultural Communities in a fiscally responsible manner.

There is no explicit threshold for a minimum of 2000 AADT or a minimum of 20 agricultural vehicle trips to have an SMV sign installed. The AADT can be a factor considered, but the road's suitability for heavy vehicles, its ability to handle large trucks, and the presence of key destinations for truck traffic (e.g., warehouses, industrial areas) are more important criteria. Also, the frequency of slow-moving vehicles on the road, and the safety risks they pose to other traffic, will determine whether SMV signs are necessary.

Though local municipalities determine specific rules regarding the placement of SMVs, according to OTM book 1, residents would likely need permission from the road authority to place any type of sign, including SMV signs, on fixed objects within the highway right-of-way.

Recommendation:

1. Haldimand County conforms to the guidelines and is up-to-date.

5.0 Non-Standard Warning Sign Request Form

The request form outlines three non-standard warning signs:

- Pedestrian Ahead Sign
- Horse Warning Sign
- Child with Disability Warning Sign

The policy details the requirements necessary for requesting and implementing these signs on the road, as well as the restrictions regarding their placement.

The Road Operations Division will review the need for each sign every five years. If the need continues after five years, the sign will remain and be maintained; if not, it will be removed.

Overall, the signs comply with the guidelines outlined in the Ontario Traffic Manual (OTM). Neighbouring municipalities such as Brant County and Norfolk County offer online service portals where residents can submit requests for new signage. Similarly, cities like Toronto, Mississauga, Burlington, and Kitchener also provide online platforms for residents to request new traffic signs or report existing signs that need replacement**.**

Recommendation:

1. Haldimand County should explore implementing online service portals to streamline processes, making it easier for residents to report issues, and enable the County to address them more efficiently.
2. It is recommended that Haldimand County considers using non-standard signage in cases where it provides clear benefits to a specific group or addresses an urgent safety concern.
3. The decision to use a non-standard warning sign must be justified based on a demonstrated need and supported by sound engineering judgment. This typically involves a traffic engineering study that considers factors such as:
    a) Roadway Conditions: The specific hazard or condition that requires a warning sign, its nature, and its severity. For example, sharp curves, steep downgrades, or unexpected changes in roadway alignment might warrant a warning sign.
    b) Traffic Volumes: The number and types of vehicles using the roadway, as well as pedestrian activity. Higher traffic volumes and speeds might necessitate more prominent warning signs.
    c) Sight Distance: The visibility of the hazard or condition to approaching drivers, considering factors such as curves, grades, vegetation, and other obstructions. If sight distance is limited, advance warning signs or other measures may be necessary.
    d) Collision History: A history of collisions or near-misses at or near the location in question, particularly those related to the hazard or condition that the sign is intended to address.

e) Effectiveness of Alternative Measures: The feasibility and effectiveness of alternative countermeasures to address the hazard, such as sight line improvements, street lighting, parking prohibitions, enforcement, or geometric revisions. If these alternatives are deemed more effective or can be implemented sooner, a non-standard warning sign might not be warranted. (OTM books 1,2, and 15).

6.0 Slow Down and Share the Road Campaign (Sept 2024)

To highlight the importance of road safety during planting and harvest seasons, Haldimand County's Agriculture Advisory Committee (AAC) distributed "Share the Road" car magnets as a reminder to respect and responsibly share the road with farm vehicles. As part of this campaign, the County has also provided tips for road safety. The initiative will be promoted through social media, radio, and roadside signage.

Recommendation:

1. No changes are required for the campaign.

7.0 Official Plan (June 2009)

Haldimand County's Official Plan was approved in 2009 with a vision for the next 20 years, leading up to the horizon year of 2026. The County includes six fully serviced urban areas and 25 hamlets. Haldimand County is served by an extensive road network, which includes Provincial Highways, County Roads, and local Municipal roads. Road Classification according to the official Plan is as follows:

Provincial Highways are primary transportation routes under the control of the Ministry of Transportation. Connecting links linking provincial highways are controlled by Haldimand County. Direct access to a Provincial highway will be limited. Access will be restricted to roads that are not Provincial Highways, where applicable, for all new developments. Permits must be obtained from the Ministry of Transportation for all developments located within their permit control area.

Arterial Roads are generally recognized as the principal traffic thoroughfares within Haldimand County. Direct access to arterial roads should be limited and means of alternative access should be investigated for all new development or redevelopment adjacent to an arterial road. In some instances, the flow of traffic on an arterial road may take precedence over parking.

Collector Roads are identified as those roads that distribute traffic from the arterial road network to local roads. Direct access to a collector road is permitted.

Local Roads are intended to distribute traffic from collector roads to individual properties. The design of local roads should discourage high speed traffic through the incorporation of appropriate design measures.

Private Roads are roads that are not owned or maintained by Haldimand County but are under private ownership and provide vehicular access to more than one property. The County encourages the upgrading of private roads to municipal standards; however, the improvement of private roads will not obligate the County to assume such roads. The County cannot guarantee the provision of emergency services on private roads.

The Haldimand County Official Plan Update Phase 1 Growth Strategy Report (June 2021) was reviewed which discusses the transportation components of Servicing Master Plans for each of the six urban areas as discussed in Section 8.0

In addition, the Growth Strategy anticipates no major transportation improvement is required to handle the growth needs of Townsend over the planning horizon of 2046. The growths are expected to be accommodated by extensions to the local network.

7.1.1 Haldimand County Design Criteria-Roadway (2015)

Haldimand County's roadway design standards include classifications based on their transportation service function, as detailed in Table 5.

Table 5: Haldimand County's Roadway Classification

Criteria	Arterial Road	Collector Road	Local Street
Traffic Service Function	Priority to traffic mobility	Traffic mobility and land access of equal importance	Priority to land access and urban environment
Typical Traffic Volumes (ADT)	5,000 to 30,000 vehicles per day	1,000 to 12,000 vehicles per day	Less than 3,000 vehicles per day
Typical Speed Limits	50 to 80 km/hr.	50 to 60 km/hr.	40 to 50 km/hr.
Vehicle Types	All types	May restrict heavy trucks in specific cases	Passenger and service vehicles
Connects to	Freeway, highway, arterial collector, local	Highway, arterial, collector, local	Highway, arterial collector, local
Typical Right-of-way width	30 to 36 m	20 to 30 m Industrial Collector: 26 m	20 m Industrial Local: 20 m
Pavement Width	11.0 m	10.0 m Industrial Collector: 10 m	8.5 m Industrial Local: 10 m

Haldimand County is committed to developing and enhancing pedestrian and bicycle paths, which will include integrating sidewalks, pathways, and trails within the community. These paths will also link to recreational facilities as part of ongoing infrastructure projects. Priority will be given to routes that connect community amenities with major parks and open spaces or that showcase the county's natural and cultural scenic views. Routes that promote tourism will be favored. Sidewalks will be used to connect urban trail systems whenever possible. New developments, revitalizations, or redevelopments will be planned with consideration for all travel modes to ensure safe pedestrian and vehicle movement.

According to Haldimand County's Design Criteria, sidewalks are required on both sides of all urban arterial roadways. Sidewalks are also required on at least one side of all urban collector and minor collector streets unless warranted on both sides. For local and collector roadways, the locations of schools, parks, churches, commercial establishments, street length, expected traffic volume, and the number of serviced dwelling units will be used as criteria in determining whether sidewalks are required on two sides of the street.

Recommendation:

1. The Haldimand County Design Criteria's Section G with the mark-ups that require an update is attached with the project files.

8.0 Master Servicing Plans

Haldimand County completes Master Servicing Plans (MSPs) for water, wastewater, stormwater, and transportation for five different communities or service areas within the County. These areas include Caledonia, Hagersville, Jarvis, Cayuga, and Dunnville. Each of these MSPs is updated approximately every five years. The purpose of these studies is to update the water, wastewater, stormwater, and transportation components of the MSP to identify existing servicing conditions and future servicing needs based on the growth that has occurred.

8.1 Caledonia

The 2020 Caledonia MSP has been reviewed. Caledonia is situated on the Grand River in the northern part of the County at the crossroads of Argyle Street and Haldimand Highway 54.

The previous MSP was completed in 2006, with some updates in 2015-2018 that were not finalized. The transportation component of the MSP was updated in 2019 and used for the 2020 update. Recommendations from the MSP related to the Traffic Management Strategy are:

- Argyle Street at Sutherland Street: Upgrade intersection to full signalization. (Development)
- Wigton St at Haddington Street: Upgrade All-Way Stop control to full signalization. Auxiliary left-turn lane with 15 m of storage for all approaches; and removed existing auxiliary right-turn lanes. (2021-2026)
- Caithness Street at McClung Road: Upgrade intersection to full signalization; Eastbound protected / permissive left-turn signal phase; and Auxiliary southbound left-turn lane with 30 m of storage. (Completed).

Based on the Haldimand County Growth Strategy Report (June 2021), the build-out of urban expansion lands will require the following additional improvements to the transportation in Caledonia:

- Argyle Street at Wigton Street – upgrade intersection to full signalization and provide permissive southbound left turn signal and phasing
- McClung Road and County Road 66 – south intersection, upgrade intersection to full signalization or roundabout, improve lanes for northbound, eastbound and southbound turns
- McClung Road and County Road 66 – north intersection – upgrade to full signalization of roundabout and improvements for westbound traffic
- Caithness Street and Mines Road – upgrade intersection to full signalization

8.2 Cayuga

The Cayuga SeMSP is currently being updated and is expected to be completed by 2025. The community of Cayuga is located east of the Grand River between Caledonia and Dunnville. The

area encompasses a mix of residential, industrial, institutional, and commercial land uses. Cayuga's roadway classification is as follows:

- Highway 3 – Connecting Link (Provincial Highway)
- Munsee Street (Haldimand Road 54) – Arterial Road
- Thorburn Street (Haldimand Road 17) – Arterial Road
- All other roads in the study area are designated as local roads.

Current urban arterial and collector roads, which feature existing sidewalks, include:

- Highway 3
- Munsee Street (Haldimand Road 54)
- Thorburn Street (Haldimand Road 17)

An analysis of collision data from 2002 to 2007 revealed approximately 140 incidents, with 24 resulting in injuries, but no fatalities. Several intersections were identified as problematic:

- Talbot Street at Cayuga Street
- Talbot Street at Thorburn Street
- Munsee Street between Echo Street and Indian Street

To meet the Haldimand County's design criteria, the following roadways required the addition of sidewalks on one or both sides:

- Highway 54 north of Ouse Street
- Highway 3 east of Haldimand Road 17 to town limits
- Haldimand Road 17 south of Highway 3

The 2009 Trails Master Plan suggested potential future bikeways, highlighting an opportunity to restripe Highway 3 to create bike lanes, enhancing connectivity throughout the town.

Recommendations from the MSP related to the Traffic Management Strategy are:

- Thorburn Street – Talbot Street Intersection Improvement – PXO is implemented at the intersection.
- Talbot Street East – Martin Street Intersection Improvement – conditions to be monitored (Development)
- Thorburn Street, Talbot Street to Joseph Street Upgrade arterial road – urban streetscaping, bike lanes (Development).
- Talbot Street, Ouse Street to Martin Street Upgrade arterial road – add sidewalk, urban cross-section (Completed)
- Highway 54 to Hill Street – Add sidewalk to one side (Completed).

8.3 Dunnville

The Dunnville MSP is currently being updated and is expected to be completed by 2025. At the time the MSP was prepared, land uses in the area included residential, industrial, institutional, and commercial.

The roadway classification in Dunnville is as follows:

- Highway 3 – Provincial Highway; the section from Robinson Road to Logan Road is a connecting link under Haldimand County's jurisdiction.
- Main Street / North Shore Drive (Haldimand Road 3) (from George Street easterly) – Arterial Road
- Robinson Road (Haldimand Road 15) – Arterial Road
- Taylor Road (from North Shore Drive to the abandoned railway) – Arterial Road
- Dover Road / Rainham Road (Haldimand Road 3) (from Main Street south-west) – Arterial Road
- Cross Street (from Robinson Road to John Street) – Collector Road
- George Street (from Broad Street north) – Collector Road
- John Street (from Broad Street to Cross Street) – Collector Road
- Cedar Street – Collector Road
- Tamarac Street (from Main Street to Concession Road) – Collector Road
- Concession Road (from Diltz Road to Tamarac Street) – Collector Road
- Ramsey Drive – Collector Road
- Proposed roadway from Ramsey Drive to Broad Street (north of Ramsey Drive) – Proposed Collector Road
- All other roads are designated as Local roads.

At the time the MSP was prepared, the following urban arterials and collectors had existing sidewalks:

- Highway 3 – Connecting link with sidewalks on both sides
- Main Street / North Shore Drive (Haldimand Road 3) – Arterial with a sidewalk on one side from George Street to Queen Street
- Robinson Road (Haldimand Road 15) – Arterial with no sidewalks
- Taylor Road (from North Shore Drive to the abandoned railway) – Arterial with no sidewalks
- Dover Road / Rainham Road (Haldimand Road 3) (from Main Street south-west) – Arterial with a sidewalk only on the Grand River bridge
- Cross Street (from Robinson Road to John Street) – Collector with a sidewalk on one side only
- George Street (from Broad Street north) – Collector with a sidewalk on one side south of Cross Street and none north of Cross Street
- John Street (from Broad Street to Cross Street) – Collector with a sidewalk on one side only

- Cedar Street – Collector with sidewalks on one side south of Broad Street, both sides from Broad Street to Gardiner Avenue, and one side north of Gardiner Avenue
- Tamarac Street (from Main Street to Concession Road) – Collector with sidewalks on both sides
- Concession Road (from Diltz Road to Tamarac Street) – Collector with no sidewalks
- Ramsey Drive – Collector with no sidewalks.

Recommendations from the MSP related to the Traffic Management Strategy are:

- A sidewalk was added on Cross Street between Robinson Road and John Street.
- Intersection and Streetscape Upgrades for Queen Street and Lock Street Intersection. (Completed)
- A sidewalk was added on Fairview Avenue between John Street and Cedar Street.
- Added sidewalk to alternate side (George to Queen) and both sides (Queen to Taylor)
- Taylor Road between Main Street and Broad Street - Add sidewalk on both sides. (10-20 years)
- George Street between Broad Street and South Cayuga Street - Add sidewalk to alternate side. (10-20 years)
- John Street between Broad Street and Cross Street - Add sidewalk to alternate side. (10-20 years)
- Cedar Street between Main Street and Broad Street and Gardiner Avenue to Concession Road) - Add sidewalk to alternate side. (10-20 years)
- Concession Road between Diltz Road and Tamarac Street – Add sidewalk on one side. (10-20 years)
- Ramsey Drive between Tamarac Street and Broad Street - Add sidewalk on both sides (10-20 years).

8.4 Hagersville

The 2024 MSP for Hagersville has been reviewed. Hagersville is a community located in the western part of the County at the intersection of Highway 6 and County Road 20 (King Street). According to the MSP, all new developments are mainly residential.

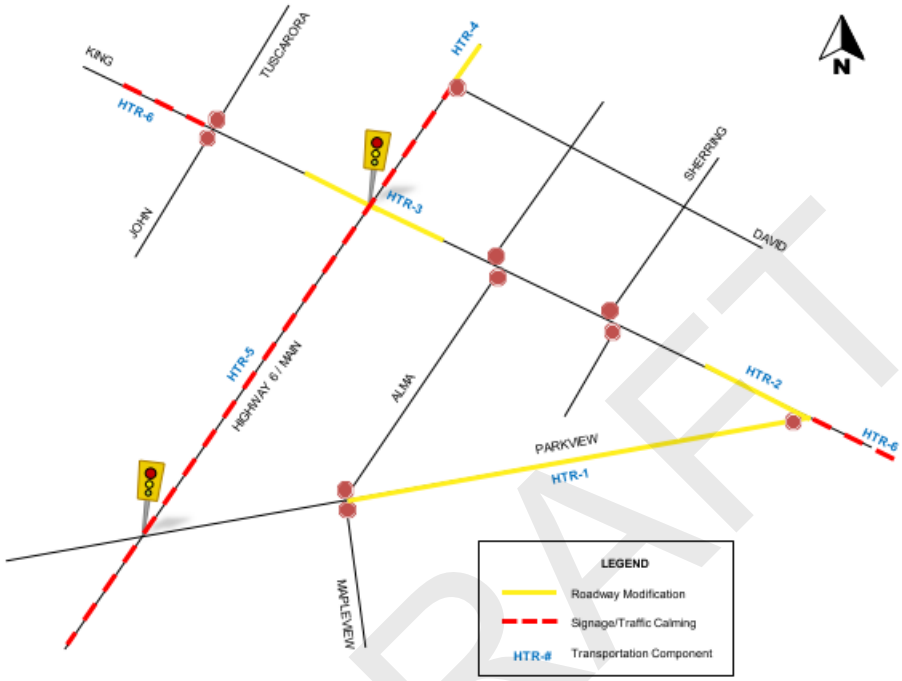
The previous MSP was completed in 2009, and the study estimated population and household growth up to 2026. The study's recommendations included three new two-lane collector roadways with traffic-calming features and a new traffic circle. The recent MSP included a review of future growth conditions, confirmation of transportation servicing alternatives, selection of the preferred servicing alternative, and the creation of an implementation plan for the preferred transportation servicing alternative. A summary of the preferred roadway improvements included:

- Improving the Main Street / Highway 6 intersection by implementing traffic calming measures.

- Implementing traffic calming measures on King Street.

Figure 2 shows Preferred Roadway improvements

Figure 2: Transportation Improvement (Hagersville MSP, 2024)



8.5 Jarvis

The 2010 MSP for Jarvis was reviewed. The community of Jarvis is located at the intersection of Highway 3 and Highway 6. Land uses in the area include residential, industrial, institutional, and commercial.

The roadway classification for Jarvis at the time of the MSP is as follows:

- Highway 6 – Connecting Link (Provincial Highway)
- Highway 3 – Connecting Link (Provincial Highway)
- All other roads within the study area are designated as Local roads.

The urban arterial and collector roadways with existing sidewalks include:

- Highway 6
- Highway 3

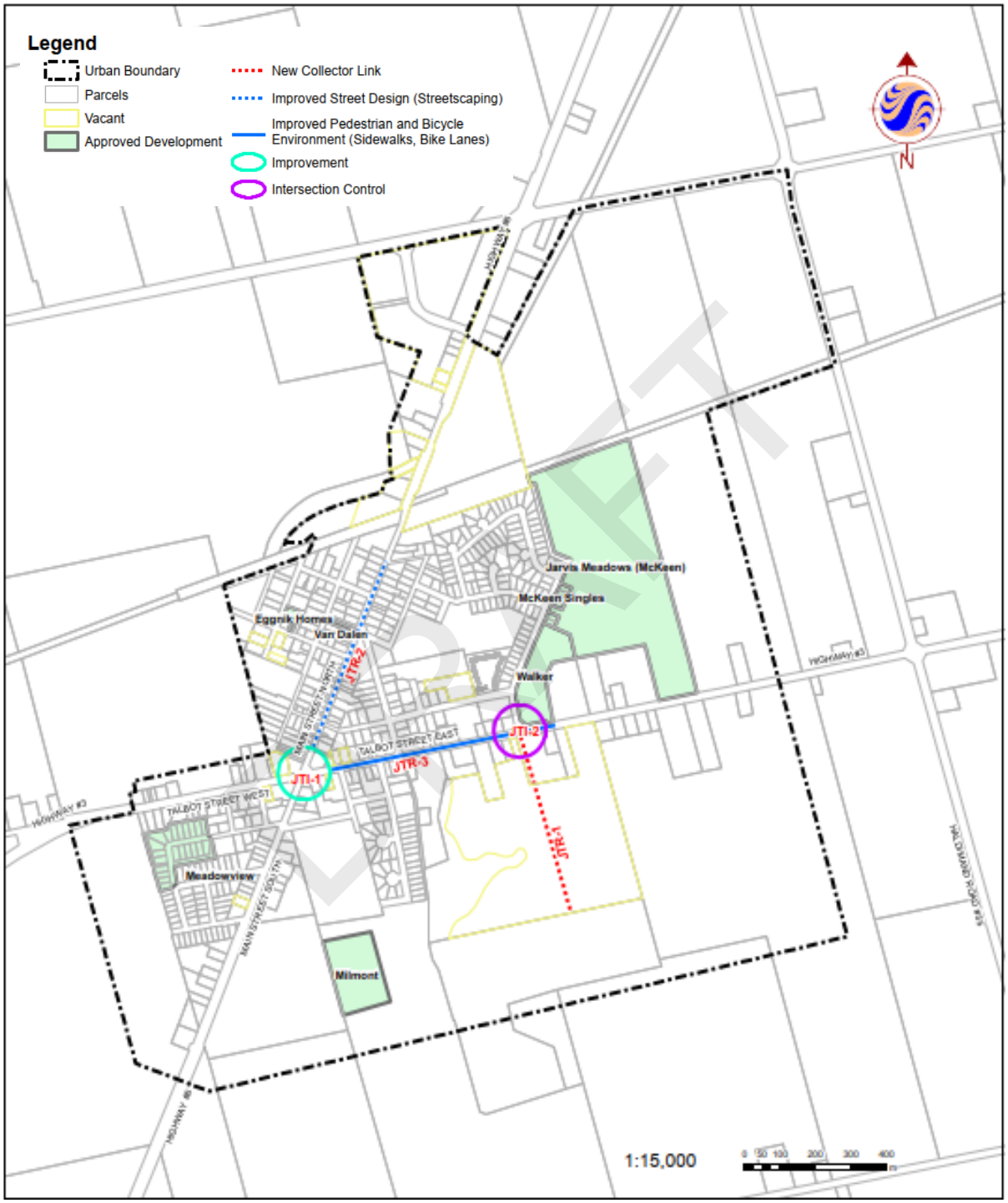
Collision data from 2002 to 2007 indicates some key areas for safety improvements:

- Main Street at Talbot Street: Several sideswipe collisions were noted at this intersection, along with rear-end and angle collisions involving turning vehicles. While collision rates are low, there is an opportunity to enhance traffic operations. It is recommended that lane markings and permitted movements be clearly defined to reduce ambiguity for drivers. This would help prevent sudden lane changes, particularly when vehicles are turning without signaling. Additionally, it is advised to meet minimum sight distance requirements for commercial driveways north of Talbot Street on Main Street. Removing some on-street parking adjacent to these driveways may be necessary to ensure safe operations.
- Main Street at Nanticoke Road: Of the thirteen collisions recorded at this intersection, six (46%) involved vehicles losing control. Contributing factors likely include excessive vehicle speeds relative to weather and road conditions. The County should consider investigating potential safety improvements, such as enhancing the road surface and/or lighting at this intersection.

For future transportation needs (2026), the MSP recommends:

- A new collector road will be needed to connect southwest Jarvis to Highway 3. This access point should be planned in coordination with Craddock Boulevard to allow for future signalization while minimizing impacts on Highway 3.
- Sidewalks should be added on one or both sides of Highway 3, from Highway 6 to the town's eastern limits, to meet current design criteria. (Completed)
- Talbot Street West – Main Street South intersection Improvement – provide auxiliary lanes. (5-10 Years)
- Talbot Street improved bicycle and pedestrian environment. (development)

Figure 3: Transportation Improvements Jarvis



9.0 Parking By-Law (307/02)

The Parking Bylaw 307/02, consolidated in November 2023, provides comprehensive regulatory guidance for the regulation and prohibition of parking, standing, and stopping of vehicles on roads and streets within Haldimand County. This bylaw aligns with the Highway Traffic Act and other relevant regulatory frameworks, ensuring consistent enforcement throughout the county. Key provisions of the bylaw include the following:

- Stopping: Defined as halting a vehicle, even momentarily. The bylaw designates specific locations and streets where stopping is prohibited to ensure safety and traffic flow.
- Parking: Refers to the standing of a vehicle, whether occupied or not, except when loading or unloading passengers or merchandise. The bylaw identifies specific locations and conditions where parking is prohibited.

The bylaw provides a detailed list of streets within Haldimand County where parking is either prohibited or restricted:

- Schedule C outlines streets where parking is prohibited.
- Schedule D lists streets where parking is restricted under certain conditions.

Additionally, the bylaw stipulates penalties and fines for violations of its provisions, ensuring compliance and the effective management of parking within the county.

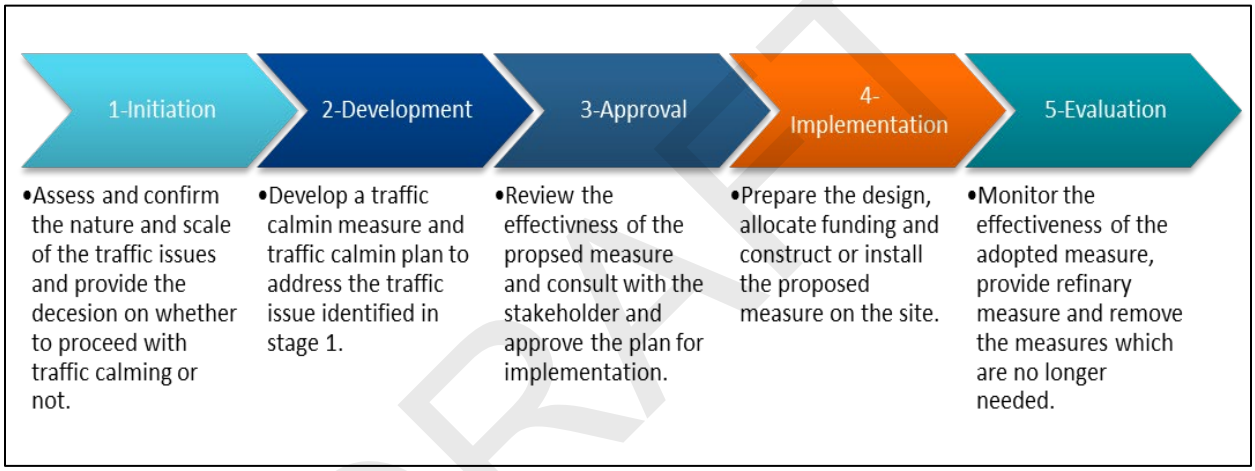
Recommendation

It is recommended that Haldimand County updates Schedule C and Schedule D if on-street parking is adopted as a traffic calming measure in any of the streets where parking is prohibited or restricted under specific circumstances.

10.0 Canadian Guide for Traffic Calming

The publication Canadian Guide to Traffic Calming, Second Edition (CGTC) (TAC, February 2018) provides guidance for the application of traffic calming measures on neighbourhood local / collectors, and urban and rural arterials. The CGTC identifies the purpose of traffic calming as the restoration of streets to their desired function. This function is to provide both mobility and access, but in differing combinations, depending on the specific location, role, and classification of the street. The CGTC also establishes model procedures for developing and implementing a traffic calming plan in response to community traffic concerns through a 5-stage process. This process is schematically presented in Figure 4.

Figure 4: CGTC Traffic Calming Process and Procedures



The process shown in Figure 4, creates a country wide guideline for the consistent planning, implementation, and evaluation of traffic calming. The guide also provides a list of traffic calming measures which are divided into Engineering, Enforcement, and Education sections.

Engineering traffic calming measures are physical changes on the road that slow down the traffic speed by changing the alignment, features, width and surface of the road. Engineering measures can be in the form of vertical deflection, horizontal deflection, road narrowing, access restriction, and pavement marking.

Enforcement measures do not change the physical aspects of the road but rather focus on modifying the driver's behaviour. Enforcement measures can be in the form of police presence, technology driven enforcement such as speed cameras, redlight cameras, drones, and community driven measures such as community speed watch programs.

Education measures are also put in place to make long lasting behavior in the driver's behaviour. Education measures are mainly community driven and community-oriented initiatives that discourage speeding and promote the use of active transportation for daily trips. Education measures can be in the form of community programs such as Active and Safe

Routes to School, Pace Car Program, speed display devices, and targeted education campaigns.

CGTC also provides general design considerations for traffic calming. The design criteria are considerations such as road/lane widths, grades, presence of long vehicles, pedestrians, cyclins, and persons with disability. It also takes into account other considerations such as surface drainage, utilities, maintenance, construction material, and streetscaping. Based on the criteria mentioned CGTC provides design requirement for the traffic calming measures.

11.0 Heavy Truck By-law (By-law No. 2079/19)

Haldimand County designates truck routes and requires truck traffic to use these routes. These truck routes are intended to reduce truck traffic impact on urban and hamlet areas. Truck Routes are listed in Table 6and presented in Figure 5.

Figure 5: Designated Truck Route

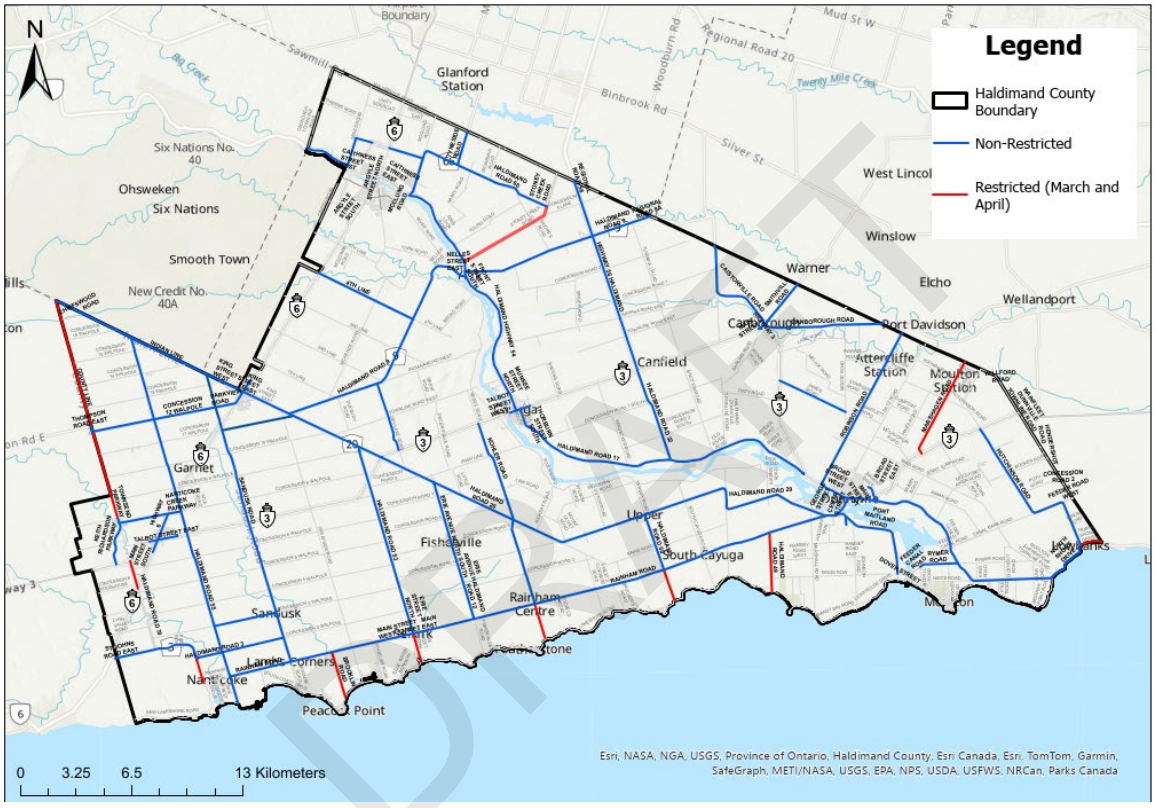


Table 6: Heavy Truck Routes

Road Number / Name	From	To
Concession 2 Walpole	Haldimand Road 55 / Nanticoke Rd	Haldimand Road 18 / Sandusk Rd
Concession 3 Walpole	Haldimand Road 55 / Nanticoke Rd	Haldimand Road 18 / Sandusk Rd
Dry Lake Rd	Haldimand Road 9	Hwy 3
Greens Rd	Mines Rd	Hwy 6
Haldimand Road 2 / Caistorville Rd	Haldimand Road Roads 14 and 63	Region of Niagara Boundary
Haldimand Road 3 / Rainham Rd	Haldimand Road 3 / Concession 2 Walpole	Norfolk Boundary

Road Number / Name	From	To
Haldimand Road 3 / Concession 2 Walpole	Haldimand Road 55 / Nanticoke Rd	Haldimand Road 3 / Rainham Rd
Haldimand Road 3 / Rainham Rd	Haldimand Road 55 / Nanticoke Rd	Riverside Dr
Haldimand Road 3 / Rainham Rd	Haldimand Road 55 / Nanticoke Townline	Haldimand Road 3 / Main St Dunnville
Haldimand Road 3 / Northshore Dr	Haldimand Road 61 / Taylor Rd Dunnville	Haldimand Road 65 / Hutchinson Rd
Haldimand Road 3 / Northshore Dr	Haldimand Road 65 / Hutchinson Rd	Wainfleet Townline
Haldimand Road 7 / Marshagan Rd	Hwy 3	Wainfleet Townline
Haldimand Road 8 / Kohler Rd	Haldimand Road 3 / Rainham Rd	Lakeshore Rd
Haldimand Road 8 / Kohler Rd	Hwy 3	Haldimand Road 3 / Rainham Rd
Haldimand Road 9	Haldimand Road 54	Region of Niagara Boundary
Haldimand Road 9	Haldimand Road 20 / Indian Line	Haldimand Road 54
Haldimand Road 9	Haldimand Road 74 / County Line	Hwy 6
Haldimand Road 11 / Port Maitland Rd	Haldimand Road 3 / Rainham Rd	Kings Row
Haldimand Road 12 / Fisherville Rd	Haldimand Road 20	Haldimand Road 3 / Rainham Rd
Haldimand Road 14 / Smithville Rd	Haldimand Road 2 and 63	Region of Niagara Boundary
Haldimand Road 15 / Robinson Rd	Hwy 3	Region of Niagara Boundary
Haldimand Road 17	Hwy 3 Cayuga	Hwy 3 Dunnville
Haldimand Road 18 / Sandusk Rd	Hwy 6	Haldimand Road 20 / Indian Line
Haldimand Road 18 / Sandusk Rd	Hwy 6	Haldimand Road 3 / Rainham Rd
Haldimand Road 20	Haldimand Road 3 / Rainham Rd	Hwy 3
Haldimand Road 20 / Indian Line	Haldimand Road 74	Hwy 3
Haldimand Road 22 / McClung Rd	Haldimand Road 54	Haldimand Road 66

Road Number / Name	From	To
Haldimand Road 27 / Concession 11 W	Haldimand Road 18	Haldimand Road 20 / Indian Line
Haldimand Road 29 / 4th Line	Haldimand Road 9	Hwy 6
Haldimand Road 32 / Dairy Side Rd	Hwy 3	Haldimand Road 17
Haldimand Road 33 / Tyneside Rd	Haldimand Road 66	Haldibrook Rd
Haldimand Road 48	Haldimand Road 11 / Port Maitland Rd	End
Haldimand Road 49 / Aikens Rd	Haldimand Road 3 / Rainham Rd	Lakeview Line
Haldimand Road 50	Haldimand Road 3 / Rainham Rd	Lakeshore Rd
Haldimand Road 50	Haldimand Road 20	Haldimand Road 3 / Rainham Rd
Haldimand Road 53 / Selkirk Townline Rd	Haldimand Road 3 / Rainham Rd	Lakeshore Rd
Haldimand Road 53 / Selkirk Townline Rd	Haldimand Road 20	Haldimand Road 3 / Rainham
Haldimand Road 54	Brant Haldimand Boundary	Mines Rd
Haldimand Road 54	Hwy 3 Cayuga	Haldimand Road 22 / McClung Rd
Haldimand Road 55 / Nanticoke Rd	Haldimand Road 20 / Indian Line	Hickory Beach Lane
Haldimand Road 56	Hwy 3	Haldibrook Road
Haldimand Road 61 / Taylor Rd	Hwy 3 / Broad St	Haldimand Road 3 / Northshore Dr
Haldimand Road 62 / Brooklin Rd	Haldimand Road 3 / Rainham Rd	Southcoast Dr
Haldimand Road 63 / Canborough Rd	Hwy 3	Region of Niagara Boundary
Haldimand Road 64 / Rymer Rd	Haldimand Road 3 / Northshore Dr	Siddall Rd
Haldimand Road 65 / Hutchinson Rd	Haldimand Road 3 / Northshore Rd	Hwy 3
Haldimand Road 66	Hwy 6	Stoney Creek Road
Haldimand Road 69 / Nanticoke Creek Parkway	Haldimand Road 55	Haldimand Road 74 / Townsend Parkway
Haldimand Road 70	Hwy 6	Hwy 3
Haldimand Road 70	Haldimand Road 3 / Rainham Rd	Hwy 6
Haldimand Road 74 / County Line Rd	Stone Quarry Rd	Haldimand Road 9

Road Number / Name	From	To
Haldimand Road 74 / County Line Rd	Norfolk Road 9 / Thompson Rd	Haldimand Road 20 / Indian Line
Haldimand Road 74 / County Line Rd	Haldimand Road 69	Hwy 3
Haldimand Road 74 / County Line Rd	Haldimand Road 9	Norfolk Road 9 / Thompson Rd
Haldimand Road 74 / Townsend Parkway	Haldimand Road 69 / Nanticoke Creek Parkway	Stone Quarry Rd
James Rd	Hwy 3	Moote Rd
Main St Dunnville	Hwy 3 / George St	Haldimand Road 61 / Taylor Rd
Main St Hagersville / Hwy 6	North Connecting Link	Parkview Rd
Main S Jarvis / Hwy 6	North Connecting Link	South Connecting Link
Mines Rd	Haldimand Road 54	Greens Rd
Ramsey Rd	Broad St	Industrial Crt
Riverside Dr	Concession 2 Walpole	Rainham Rd
Stoney Creek Rd	Haldimand Road 66	Haldimand Rd 54
Talbot St, Cayuga / Hwy 3	Cayuga Bridge	Monture St
Talbot Street, Jarvis / Hwy 3	East Connecting Link	West Connecting Link

Recommendation:

1. No changes are recommended for the Truck Routes.

SS:rk

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Design Criteria Markups

HALDIMAND COUNTY

DESIGN CRITERIA

SECTION G

ROADWAYS

Revised 2015

Roundabouts
Residential Areas - Mini i.e., central island fully mountable width <27m ICD
Transition Area - Single Lane Roundabout with ICD >28m and <40m

G 1.00 CLASSIFICATIONS

G 1.01 STREET CLASSIFICATION

All roadways in new developments shall be classified according to the traffic volume expected and the intended use of the roadway. For predominantly residential areas three classifications shall be noted as follows: Local, Minor Collector or Major Collector. For industrial areas the streets shall be classified Local or Collector dependent upon length of street, traffic volume expected and percentage of truck traffic. Arterial roadways shall be classified as divided or undivided. The proposed classification of all streets in the development shall be confirmed with Haldimand County prior to the commencement of the design.

The following table is presented as a guide to the determination of the street classification:

Roadway Classification Guidelines

Does not apply

	Arterial Road	Collector Road	Local Street
Traffic Service Function	Priority to traffic mobility	Traffic mobility and land access of equal importance	Priority to land access and urban environment
Typical Traffic Volumes (ADT)	5,000 to 30,000 vehicles per day	1,000 to 12,000 vehicles per day	Less than 3,000 vehicle per day
Typical Speed Limits	50 to 80 kph	50 to 60 kph	40 to 50 kph
Vehicle types	All types	May restrict heavy trucks in specific cases	Passenger and service vehicles
Connects to	Freeway, highway, arterial, collector, local	Highway, arterial, collector, local	Highway, arterial, collector, local
Typical Right-of-way width	30 to 36 metres	20 to 30 metres	18 to 20 metres

G 1.02 ROADWAY CROSS-SECTIONS:

Type	Uses
Local Rural Subdivision Road 20.0 metre road allowance (open ditch)	To be used in the Rural Residential Areas only if lot frontages are greater than 30 metres
Local Subdivision Road, 20.0 metre road allowance (Curb & Gutter) Where deemed appropriate, 18.0 metre rad allowance (Curb & Gutter) may be considered for urban developments.	To be used in all Urban, Semi-urban and Hamlet Residential areas (9 metre road width minimum)
Collector Urban Subdivision Road, 20.0 to 30.0 metre road allowance (Curb & Gutter)	To be used in all Urban Areas (10 metre road width minimum)
Arterial 30-36m metre road allowance (Curb & Gutter)	To be used in all Urban Areas (11.5 metre road width minimum)

G 2.00 GEOMETRIC DESIGN ELEMENTS

G 2.01 RESIDENTIAL STREETS

Lower design speed. Will also affect SSD, Sag, Crest values

Geometric Detail	Rural Open Ditch	Rural Residential / Local	Collector	Arterial
Minimum Right-of-way Width (metres)	20	18 - 20	20-30	30-36
Posted Speed/Design Speed (km per hour)	50/50	50/50 30/30	50/70 40/40	60/80
Minimum Safe Stopping Sight Distance on Wet Pavements (metres)	65	65 35	65/110 50	85/135
Minimum Sag Curve Parameter k (m)	8	8 6	12/25 9	18
Minimum Crest Curve Parameter k (m)	12	12 2	12/25 4	18/30

Geometric Detail	**Rural Open Ditch**	**Residential and Local**	**Collector**	**Arterial**
*Minimum Sag Parameter in Illuminated Areas k (m)	5	5 2	5 4	8
Minimum Curve Radius (m)	90	90 20	90 45	130
**** Based on comfort criteria - Use in illuminated areas only when stopping sight distance requirements are met.***				
Pavement Width in metres (Urban - Face to Face of Curbs / Rural - E.P. to E.P.)	7.0 1.5m shoulders	8.5 3.0 to 3.3 metres	10.0	
Pavement Crossfall	2.0	2.0	2.0	
Minimum Grade (per cent)	0.0	0.5	0.5	0.5
Maximum Grade (per cent)	6.0	6.0	6.0	6.0
Intersection Angle (degrees)	70-90	70-90	80-90	85-90
Minimum Tangent Length of Intersections (metres)	30	30	50	60
Minimum Tangent Length between Reverse Curves (metres)	10	10	50	60
Daylight/Visibility Triangles	9m x 9m	4.5m x 4.5m	9m x 9m	12m x 12m

Tighter radius

Reduced widths including
-lane narrowing
-curb extensions
-on-street parking
-lateral shift
-medians

G 2.02 INDUSTRIAL STREETS

Geometric Detail(for 50km speed zone)	Local	Collector
Minimum right of way width (metres)	20	26
Posted/Design Speed (km per hour)	50/50	60/80
Minimum Safe Stopping Sight Distance (metres)	65	85
Minimum Sag Curve Parameter k (m)	8	18
Minimum Crest Curve Parameter k (m)	8	15
Minimum Curve Radius (m)	90	130
Pavement Width (Face to Face of Curbs in metres)	10.0	10.0
Pavement Crossfall (percent)	2	2
Minimum Grade (percent)	0.5	0.5
Maximum Grade (percent)	6	6
Intersection Angle (degrees)	70-90	80-90
Minimum Tangent Length at Intersections (m)	30	60
Minimum Tangent Length Curves (m)between Reverse	30	60

G 2.03 ARTERIAL STREETS

Arterial streets, except for those roads under Provincial Jurisdiction, are a Haldimand County responsibility, and all geometric design elements should correspond to this criteria or the Provincial Geometric Design Criteria, whichever is more conservative.

G 3.00 DESIGN ELEMENTS

G 3.01 VERTICAL CURVES

All point of grade changes in excess of 1.5% shall be designed with vertical curves as outlined in the current Ministry of Transportation publications. The minimum visibility curves to be used are outlined in the geometric details for each roadway classification. The minimum tangent length of any road grade shall be 9 metres.

G 3.02 BACKFALL AT INTERSECTING STREETS

At all street intersections, the crown line of the minor street shall not interrupt the normal crossfall of the major street. A 1 to 2 percent backfall shall be

provided on the minor street at all street intersections. For the intersection of two equivalent roads, the backfall for both roadways shall be 0.5 percent. This backfall shall continue to the end of the curb return radii to facilitate proper drainage of the intersection.

Tighter radius
3.5m for passenger car
12m single-axle delivery trucks/city buses
15m large tractor semi-trailer

Depends on receiving lane widths

G 3.03 CURB RETURN RADII AT INTERSECTIONS

The curb return radii at residential street intersections shall c following minimum dimensions:

Pavement Width Street A	**Pavement Width Street B**	**Curb Return Radii**
8.5m	8.5m	8.0m
8.5m	10.0m	10.0m
8.5m	11.0m	10.0m
8.5m	14.0m	12.0m
10.0m	10.0m	12.0m
10.0m	11.0m	12.0m
10.0m	14.0m	15.0m
11.0m	11.0m	12.0m
11.0m	14.0m	15.0m
14.0m	14.0m	15.0m

see attached excerpt from TAC in the Next page

G 3.04 DEAD ENDS, CUL-DE-SACS, AND BULBS

All dead ends shall be constructed as a cul-de-sac, complete with turning basin ("bulb" or "spatula" end). Subdivision street pattern designs should try to avoid the use of dead ends / cul-de-sacs.

Permanent cul-de-sacs shall be constructed in accordance with the details provided in the standard drawings. Any cul-de-sac greater than 106 m in length requires a secondary access. For urban cul-de-sacs, minimum gutter grades of 1% shall be maintained along the flow line of all gutters around the cul-de-sacs, the design road grade on the cul-de-sac and at the beginning of the bulb area where catchbasins are to be located. All cul-de-sacs, bulbs and intersections shall be detailed at a scale larger than the road plan. The details shall show gutter, crown and other grades sufficient to determine that the road will properly drain and shall be used as a basis for layout.

Islands in the center of Cul De Sacs / Bulbs shall be prohibited.

An area in between entrances within the cul de sac should be identified for a snow storage location. Snow storage areas require 10.0m between residential entrances, and must be upstream of a catch basin.

Urban roadside environments shall conform to Haldimand County Drawing G

Table 2.4.4: Minimum Design Turning Radii for Representative Trucks for 90° and 180° Turns

	Minimum Turning Radius (m)		
Truck Type	**Wheelbase**	**Centre of Axle**	**Outside Front Wheel**
Light SU	3.4	5.3	6.3
Medium SU	6.5	10.1	11.1
Heavy SU	8.4	13.1	14.1
Tractor Unit	6.2	9.6	10.7
	Minimum Turning Radius (m)		
Truck Type	**Degree of Turn**	**Centre of Axle**	**Outside Front Wheel**
WB-19	90	9.6	10.7
	180	12.8	14.0
WB-20	90	9.6	10.7
	180	13.1	14.3
A-train	90	11.2	10.7
	180	9.6	12.3
B-train	90	12.5	10.7
	180	9.6	13.6

Notes : Data from this table should be used to develop the swept path for the design vehicle, for use in geometric design.

10. Rural roadside environments shall conform to OPSD-500.01 Type "A" or "B" may be considered.

G 3.05 EMERGENCY ACCESS REQUIREMENTS

Emergency access roads shall be constructed of Granular 'B' material within a minimum 8.0 m wide easement, registered in favour of Haldimand County, and shall be passable and maintained, including snow and ice control, on a year-round basis.

Emergency access roads shall be a minimum 4.6 m wide, with 0.5 m shoulders along both sides. Any bends along the road shall have a minimum turning radius of 10.7 m. Crossfall shall be 2.0% for the driving surface, and 6.0 % for the shoulders. Subgrade crossfall shall be 3.0 %. Foreslope and backslope of ditches shall conform to standard grading cross-sections.

Emergency access roads shall be signed / identified as being for "Emergency Use Only", and have "knock-down" bollards placed at both ends to prevent casual usage. Bollard configuration shall be 3 bollards spaced at 1.2 m, with the centre bollard placed at centreline of the access road. Please refer to drawing G 12 at the end of this section for bollard details.

G 3.06 TEMPORARY TURNING CIRCLES

Temporary turning circles are to be built to the geometric standards of permanent cul-de-sac standards. And will only be considered whenever a road is to be continued in the future to an approved Plan of Subdivision. Details for the requirements of temporary turning circles are to be adequately detailed on the engineering drawings and are subject to the approval of the Engineering Manager. Temporary turning circles are to be considered only as a last option.

G 3.07 LOCATION OF UTILITIES

The location of all utilities within the road allowance shall be as detailed on the typical cross-section. Utility drawings shall be submitted to the Engineering Manager for approval. All utility wiring is to be constructed underground. Hydro transformers are to be housed in suitable enclosures and mounted on transformer pads installed at the final ground elevation. Bell telephone junction boxes may be mounted at the surface in approved standard enclosures.

G 4.00 PAVEMENT DESIGN

G 4.01 The **minimum** pavement design for all **local residential** roads in new subdivisions shall be 50mm of HL3, 50mm of HL8, 150mm of Granular 'A' and

300mm Granular 'B'. All urban road cross-sections shall have sub-drains located below the lowest elevation of granular material in the road base.

The **minimum** pavement design for **collector roads** shall be 50mm of HL3, 100mm of HL8, 150mm of Granular 'A' and 300mm Granular 'B'. All urban road cross-sections shall have sub-drains located below the lowest elevation of granular material in the road base.

The **minimum** pavement design for **arterial roads** shall be 60mm of HL3, 120mm of HL8, 150mm of Granular 'A' and 300mm Granular 'B'. All urban road cross-sections shall have sub-drains located below the lowest elevation of granular material in the road base.

The Developer shall engage a qualified Soils Consultant, to design a suitable pavement structure. Soil sampling shall be carried out in the presence of the Soils Consultant at intervals not exceeding 60 metres along the centreline of the subdivision road, to a minimum depth of 1.5 m, If an existing road is to be reconstructed as part of the development, the borehole should extend a minimum of 0.5 m into native subgrade.

The composition and design thickness of the pavement section shall be determined from:

1. Sub-grade soil classification with gradation analyses including hydrometer testing of material with more than 10% passing the 75um sieve;
2. Subgrade soil frost susceptibility;
3. Subgrade soil drainage; and
4. Traffic Volumes including the percentage of trucks based on a 20 year life cycle.

Pavement structure design shall be undertaken using empirical or mechanistic methodologies.

Copies of all test results and proposed road designs and supporting calculations shall be submitted with the Engineering Drawings. Pavement design not meeting the minimum standards, as indicated above for the particular road classification, will not be acceptable.

G 4.02 MATERIAL REQUIREMENTS

The source of supply and quality of all materials and supplies is subject to the approval of the County and by the Developer's Engineer. The

Consulting Engineer shall perform testing and approval of all granular materials at the designated pits and subsequent in-situ verification tests.

All granular materials shall meet the Haldimand and OPS specifications. OPSS aggregate specifications are modified through a Haldimand County special

provision that requires 100% crushed material. The Developer's Engineer shall submit physical testing results to the County for approval of each source.

Prior to the placement of asphalt pavement, the Consulting Engineer must submit the asphalt pavement mix designs to the Manager of Engineering for approval. The asphalt mix design shall meet the appropriate OPS specification.

G 5.00 CONCRETE CURB AND GUTTER

Concrete curb and gutter conforming to the O.P.S.D. 600.60 (semi-mountable) or 600.40 (barrier) are generally used as a standard on all new subdivision roadways. Alternates may be considered on a site by site basis. Where boulevard areas are less than 1.0 m in width, barrier style curb shall be used.

Adjustment and final setting of catchbasins frames shall be completed by pouring concrete, or using adjustable concrete riser units, immediately prior to the placement of the top lift of asphalt. Riser units shall be parged on the outside of the catchbasins only. Catchbasins shall be initially set to base asphalt elevation. Temporary asphalt curb shall be placed at catchbasins between the preliminary acceptance and final acceptance stages of the development. Rear yard Catch basins shall be avoided at all costs for new developments.

Driveway depressions, where barrier type curb is used, shall be formed in the curb according to the details and locations as shown on the engineering drawings. Should any driveway depressions be improperly located, then repairs shall be made by removing those sections and replacing them. The concrete capping of a depressed curb shall not be permitted. For private road entrances, multiple unit, commercial and industrial entrances, the existing curb and gutter shall be completely removed and replaced with a steel reinforced depressed curb section

In cases where the curb has been constructed prior to the establishment of an entrance, the curb shall be removed and replaced to a minimum of 0.5m beyond the depressed curb for the driveway. Exceptions may be made for single family residences on a site by site basis, allowing the curb to be formed by cutting down the back of the curb with a curb cutting machine, provided the existing section is free from cracks and other defects.

G 6.00 SIDEWALKS

The location requirements for sidewalks in new subdivision shall be as per the most current revision of the standard location cross-section drawing. This shall be confirmed with the Manager of Engineering prior to commencing the detailed design. In general, sidewalks are required on both sides of all urban arterial roadways and at least one side of all collector and minor collector streets, unless warranted on both sides. For local and collector roadways, the

locations of schools, parks, churches, commercial establishments, etc., the street length, expected traffic volume and the number of serviced dwelling units will be used as criteria in determining whether sidewalks are required on two sides of the street.

The sidewalk shall conform, in details and dimensions, to the current Ontario Provincial Standards and shall be installed at locations as shown on the typical road cross-sections. The minimum width of sidewalk for streets is 1.5 metres except on arterial roads where the minimum width will be1.8 metres or as per the latest Ontario Provincial Standards

The sidewalks shall be increased in thickness at all driveway locations as shown on the Standard Drawings. In cases where the sidewalk has been constructed prior to the establishment of an entrance , the existing sidewalk shall be removed and replaced with a thickened sidewalk section. Exceptions may be made for single family residences on a site specific basis; providing the sidewalk is free of cracks and other defects, and the grading is within the limits of the design criteria. Sidewalk depth shall be transitioned at a slope of 10:1.

At street intersections the curb and the sidewalk shall be depressed to meet the roadway elevations as shown on the Ontario Provincial Standards drawings. Wheelchair ramps as per OPSD to be provided.

Sidewalk construction immediately adjacent to a curb will be generally avoided. If approved – sidewalk width must be 1.8m minimum, and curb must be barrier style OPSD 600.40

Multi residential post office box areas shall be identified on plans, and should be adjacent to a sidewalk – and a minimum of 1.5m from the curb.

G 7.00 DRIVEWAY APPROACHES

All driveway approaches shall be graded, gravelled and paved (asphalt, concrete or interlocking stone) from back of the curb to the property line.

Residential driveway approaches that are less than 0.5m in width shall be concrete when adjacent to Sidewalk.
Commercial or Industrial Driveway approaches that are less than 1.0m in width shall be concrete when adjacent to a sidewalk.

Concrete Approaches shall be the same depth as sidewalk.

G 7.01 MINIMUM DRIVEWAY DESIGN

The minimum consolidated depth requirements for driveways shall be as follows:

a) SINGLE FAMILY RESIDENTIAL

Asphalt – 50 mm HL3
Granular base – 150 mm Granular 'A'

b) COMMERCIAL, LIGHT INDUSTRIAL AND APARTMENTS

Asphalt - 50 mm HL3 surface course
- 50 mm HL8 base course
Granular base -150 mm Granular 'A'
-300 mm Granular 'B'

c) HEAVY INDUSTRIAL DRIVEWAYS

Asphalt - 50 mm HL3 surface course
- 100 mm HL8 base course

Granular Base - 150 mm Granular 'A'
- 300 mm Granular 'B'

d) AGRICULTURAL

Granular Base - 150 mm Granular 'A'
- 200 mm Granular 'B'

G 7.02 DRIVEWAY GRADES

The minimum grade for any driveway shall be 2%. The maximum permissible design grade for any driveway shall be 8%. This maximum grade is not recommended and should be employed only in exceptional cases where physical conditions prohibit the use of lesser grades.

The specified grades for driveways shall be directed away from the houses. The use of reverse fall driveways is not encouraged.

For industrial and commercial sites requiring site plan approval, a break in grade for driveways shall occur at the property line.

G 7.03 DRIVEWAY WIDTHS / CURB DEPRESSIONS

The width and location of the driveway depressions for apartment, commercial and industrial driveways shall be detailed on the engineering drawings. These driveways shall be designed to accommodate the anticipated vehicular traffic without causing undue interference with the traffic flow on the street.

Table: Driveway Requirements

Criteria	Access Classification		
	Single Family Residential	Commercial or Industrial	Agricultural
Number of Accesses Allowed (Note 1)	1	2	2
Min. Setback from signalized intersection (Note 2)	33	65	65
Min. Setback from non-signalized intersection (Note 2)	16	33	33

Criteria	Access Classification		
	Single Family Residential	**Commercial or Industrial**	**Agricultural**
Min. Setback from Adjacent Commercial Access (Note 3)	13	20	20
Min. Setback from Adjacent non-commercial Access (Note 3)	7	13	20
Min. Setback from Adjacent Agricultural Access (Note 3)	20	20	33
Driveway Width (Note 4)	Single 3.0 max Double 6.0 max	6.7 min 9.0 max	9.0 min 15.0 max

Notes:
1. Need must be demonstrated when additional accesses are requested, and may be approved on a site specific basis
2. Minimum dimension shall be measured from centreline of access to property line abutting an intersection roadway.
3. Minimum dimension shall be measured from centreline of access to centreline of adjacent access
4. Dimension shall be measured from throat of property.

Minimum driveway radii shall be determined by the appropriate design vehicle turning template. Haldimand County requires the use of the following design vehicles;

-commercial / industrial driveway - WB15 (16.7m overall length)
- apartment / condominium complex – B10 (10.6m overall length)

Driveway widths (throats at property line) shall be 6.7 m (min) to 9.0 m (max) unless divided by an appropriate concrete median for Commercial/ Industrial developments. *The width of any driveway depression for commercial, apartment or industrial driveways shall be width + 2R (Example: 6.7 + 2(4.5) = 15.7 metres).* Alternative widths may be considered on a site specific basis.

All apartment, commercial and industrial driveways shall be provided with barrier curbs constructed to blend into the roadway curb and gutter as per OPSD 350.010.

Driveway widths (throats at property line) shall be 3.0m for single and 6.0m for double (max) for residential (singles, semis, towns) developments. The width of any driveway depression for residential driveways shall be throat width + 0.5m.

Roadway curb & gutter shall be continuous across the entire width of any entrance.

G 7.04 DRIVEWAY APPROACHES WITH OPEN DITCHES

The Developer is responsible for the grading, gravelling and paving of all driveways (except agricultural) from the edge of the pavement of the roadway to the property line. The minimum consolidated depth requirements for the granular base in driveways shall be 250mm Granular A.

The minimum length of each HDPE or C.S.P. driveway culvert shall be 9.0 metres (for a single width entrance) and the minimum diameter shall be 400mm

providing minimum coverage can be placed as per OPS Specifications. All Pipe must be new. The maintenance and repair of such culverts shall remain the responsibility of the Developer until such time as the County has assumed the works.

The construction of driveway headwalls at each end of the driveway culvert will not be permitted.

Driveway shall be designed and installed in accordance with OPSD-301.010, 301.020, 301.030.

G 8.00 BOULEVARDS

All boulevard areas are to be graded between 2% and 8% to the satisfaction of the County. In order to minimize construction problems for the other utility companies, the grade of the boulevard shall be constant from the back of the curb to the property line. Terracing or embankments within the road allowance on new subdivision streets shall not be permitted.

All debris and construction materials shall be removed from the boulevard area upon completion of the initial stage of road construction and the boulevards shall be maintained in a clean state until the roadway section is completed.

Clean, weed free topsoil shall be placed on all boulevard areas prior to sodding. The minimum depth of topsoil shall be 150mm.

All boulevards shall be sodded to the right-of-way limit.

G 9.00 STAGING OF CONSTRUCTION

The construction of all roads in new subdivisions shall be staged in order that the completion of the roadway coincides with the completion of the development of the surrounding lands. The initial stage of construction shall provide roadways of adequate quality for building construction, traffic movement and land access. Dust control measures shall be maintained during all phases/stages of construction. All roadway catchbasins shall be protected as to prevent the accumulation of deleterious materials. Roads shall be periodically cleaned and maintained by the developer in such a way that no debris shall accumulate on the road. The second stage of construction shall complete the roadway to the final design cross-section.

The second stage of roadway construction shall not commence in any area until all of the following conditions are met:

(1) A minimum period of two years, from Preliminary Acceptance of the underground works and roadway, including base asphalt, has expired;

(2) 50% of the dwellings with frontage or flankage on the street are

completed to the fine grading and topsoil stage (or three-year period);

(3) All undeveloped lots are rough graded in accordance with the approved lot grading plan;

(4) All service connections for multiple family, commercial, institutional or other blocks are installed;

(5) Written approval of the Manager of Engineering is obtained; and

(6) All conditions of the subdivision pre-servicing agreement are met for Final Acceptance.

G 9.01 RURAL RESIDENTIAL ROADWAYS WITH OPEN DITCHES

For rural residential roadways with open ditches, the initial stage of road construction shall consist of the grading (to the full cross sectional width as shown on the Standard Detail Drawings), the complete granular base, the base course of asphalt, topsoiling and sodding/seeding of all boulevards and ditches. Ditches shall have a minimum of three rows of sod lining the ditch bottom and the remainder of the slopes may be seeded.

The second stage of road construction shall comprise the surface course of asphalt, final adjustment to grade of all utilities and all other work necessary to complete the roadway to the final design cross section.

G 9.02 RURAL RESIDENTIAL, LOCAL RESIDENTIAL AND MINOR COLLECTOR ROADWAYS

For rural residential, local residential and minor collector roadways, the initial stage of construction shall consist of the grading to the full cross sectional width as shown on the Standard Detail Drawing, the complete granular base, curb and gutter and the base course of asphalt. Manholes, valves, and catchbasins are to be set to base asphalt elevation. Standard Cross sections are shown at the back of this section.

The second stage of road construction shall comprise the sidewalk, the grading, topsoiling and seeding/sodding of all boulevards, the grading and gravelling of all driveway approaches, the completion of the surface courses of asphalt, the final adjustment to grade of all utilities, the installation of pavement marking as per OTM Book 11 and all other work necessary to complete the roadway to the final design cross section, including boulevard tree plantings. Ditches in open ditch cross-sections shall be cleaned to design grades and re-sodded/reseeded as per Section G 9.01.

G 9.03 COLLECTOR, AND ARTERIAL ROADWAYS

For these roadways, the initial stage of construction shall comprise all work necessary to complete the roadway to the final design cross section with the exception of the surface asphalt, the boulevard sodding and the driveway approach paving. The curb and gutter and sidewalk are to be completed as part of the Stage 1 construction for these roadway classifications. Manholes, valves, and catchbasins are to be set to base asphalt elevation.

The second stage of construction shall include the surface asphalt, the boulevard seeding/sodding, the driveway approach paving, the final adjustment to grade of all utilities and all other work necessary to complete the roadway to the final design cross section, including boulevard tree plantings. Ditches in open ditch cross-sections shall be cleaned to design grades and re-sodded/reseeded as per Section G 9.01.

G 10.00 CONSTRUCTION REQUIREMENTS

G 10.01 CLEARING AND GRUBBING AND AREA ROUGH GRADING

The road allowance shall be cleared of all trees and shrubs not to be included in final landscaping, and of all other obstructions for such widths as are required for the proper installation of roads, services, and other works.

Rough grading shall be done to bring the travelled portion of the road to the necessary grade, in conformity with the cross-section shown on the drawings. Rough grading of all lots and easements must be performed prior to the placement of granular materials in the roadways.

In all cases, topsoil shall be stripped for the complete width of the road allowance and stockpiled at locations approved by the Consulting Engineer. For any excess fill removed to a disposal site classified as swamp, ravine, floodplain or lake, the Developer must receive prior written permission from the local Conservation Authority.

The sub-grade for all roads shall be properly shaped and compacted to 95% Standard Proctor Maximum Dry Density (SPMDD), prior to any application of granular base course materials. The finished sub-grade shall be proof rolled in the presence of the geotechnical consultant and certified as being acceptable.

G 10.02 ROAD SUB-DRAINS

Sub-drains are required on all urban cross-section roads, and will be installed after subgrade cross-section is established.

All sub-drains are to be a minimum of 150mm refer to OPSD

G 10.04 OTHER REQUIREMENTS

Whenever it is necessary to cut through an existing County road, the Developer's Contractor will be responsible for properly restoring the surface pavement to its original conditions **or better** immediately upon completion of backfilling operations. All such road cuts require a road cut permit and shall be restored as per the requirements of the permit. Subdrains under the curbs must be restored to ensure their operation. The placement of unshrinkable fill should not extend above subgrade level.

At the time that the initial stage of construction is given Preliminary Acceptance and the warranty period has commenced, the developer shall place signs at all entry points to the development indicating "Unassumed Road".

Prior approval is required from the County for any proposed detours. A detailed Traffic Control Plan to the Ontario Traffic Manual Book 7 standard shall be submitted for review. Where the proposed route utilizes roads that are not part of the County road system, approval from the appropriate road authority will also be necessary. Haldimand County shall be notified of any proposed road closures a minimum of 48 hours in advance of the closure. Haldimand County shall supply a Road Closure Notification to the Developer. The Developer shall be responsible to provide notification to the contacts on the Road Closure Notification a minimum of 24 hours in advance of the closure.

Note: For proposed road closures, the standard Road Closure Form shall be submitted to the Road Authority. The following information is to be supplied to Emergency Management Services (EMS):

- Location of closure
- 911 house numbers located on either side of the closure
- period of closure

All work will be done in accordance with ordinances and by-laws of Haldimand County.

G 10.05 Multi-Residential Developments on Existing Roadways

Where developers are planning to construct residential developments on existing County Roadways and site plans are required, the following design requirements are expected:

1. **Sidewalks**
    a. Where existing sidewalks are over 15 years old, full replacement of the sidewalks to the extent of the plan shall be included to ensure proper drainage.
    b. Where existing sidewalks are under 15 years old, replacement

of all sidewalks within the driveways, and any cracked or otherwise defective sidewalks within the plan area shall be included.

c. Where no sidewalks exist – the County may require the installation of new sidewalks as part of the plan.

2. Curbs

a. Where existing curbs are over 15 years old, full replacement of the curbs to the extent of the plan shall be included to ensure proper drainage.

b. Where existing curbs are under 15 years old, replacement of all curbs within the driveways, and any cracked or otherwise defective curbs within the plan area shall be included.

c. Where no curb exists – the County may require the installation of new curbs as part of the plan.

3. Roadway

a. Where multiple road cuts are required on a roadway with less than 10.0 meters in between, the road cuts shall be repaired as per the road cut permit with the exception of the final grade pavement (50mm HL3), which shall be one single full road width cut – the entire length of the development.

4. Illumination

a. Where existing illumination does not meet current RP-8 standards full replacement of the illumination to the extent of the plan shall be included.

b. Where no illumination exists – the County may require the installation of new streetlights as part of the plan.

5. Storm

a. New Catch basins may be required to ensure proper drainage.

6. Permits

a. Entrance

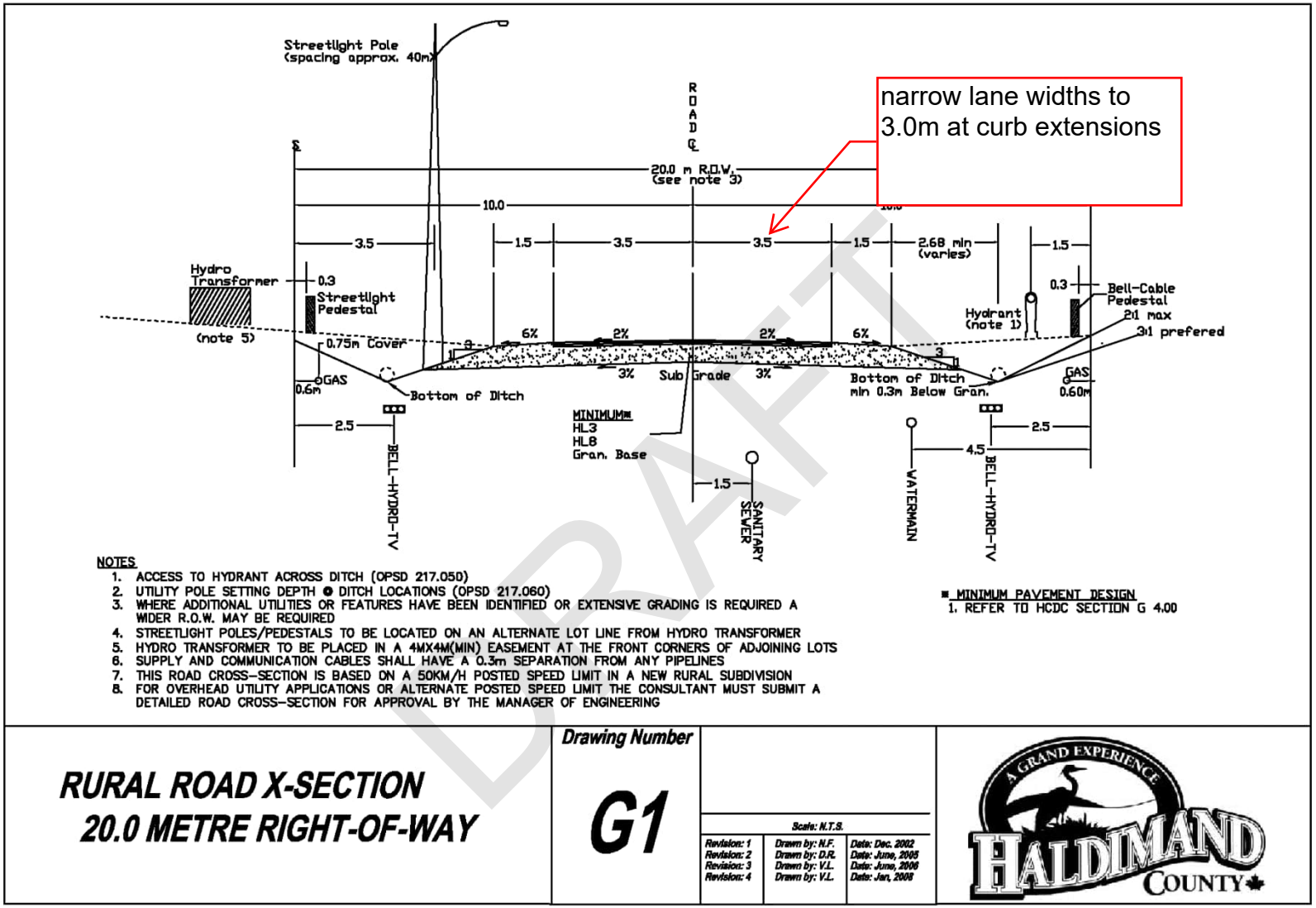
i. Each Entrance requires a separate entrance permit

ii. Each entrance is subject to the requirements in the design criteria

b. **Excavation**

i. Each servicing to the each property requires an excavation permit

ii. All work within the Right of Way requires an excavation permit



NOTES

1. ACCESS TO HYDRANT ACROSS DITCH (OPSD 217.050)
2. UTILITY POLE SETTING DEPTH ● DITCH LOCATIONS (OPSD 217.060)
3. WHERE ADDITIONAL UTILITIES OR FEATURES HAVE BEEN IDENTIFIED OR EXTENSIVE GRADING IS REQUIRED A WIDER R.O.W. MAY BE REQUIRED
4. STREETLIGHT POLES/PEDESTALS TO BE LOCATED ON AN ALTERNATE LOT LINE FROM HYDRO TRANSFORMER
5. HYDRO TRANSFORMER TO BE PLACED IN A 4MX4M(MIN) EASEMENT AT THE FRONT CORNERS OF ADJOINING LOTS
6. SUPPLY AND COMMUNICATION CABLES SHALL HAVE A 0.3m SEPARATION FROM ANY PIPELINES
7. THIS ROAD CROSS-SECTION IS BASED ON A 50KM/H POSTED SPEED LIMIT IN A NEW RURAL SUBDIVISION
8. FOR OVERHEAD UTILITY APPLICATIONS OR ALTERNATE POSTED SPEED LIMIT THE CONSULTANT MUST SUBMIT A DETAILED ROAD CROSS-SECTION FOR APPROVAL BY THE MANAGER OF ENGINEERING

■ MINIMUM PAVEMENT DESIGN
1. REFER TO HCDC SECTION G 4.00

RURAL ROAD X-SECTION
20.0 METRE RIGHT-OF-WAY

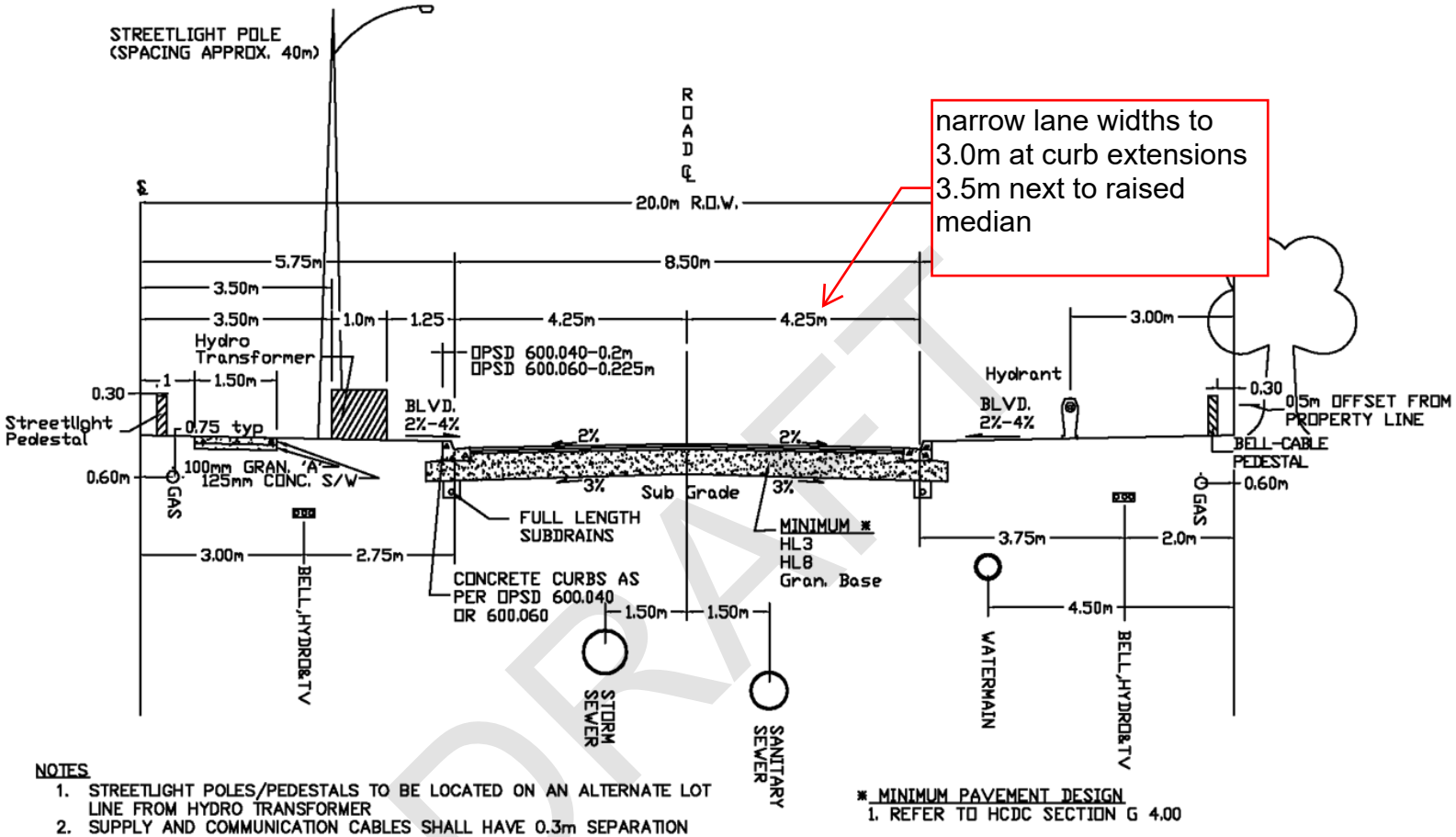
Drawing Number

G1

Scale: N.T.S.

Revision: 1	Drawn by: N.F.	Date: Dec. 2002
Revision: 2	Drawn by: D.R.	Date: June, 2005
Revision: 3	Drawn by: V.L.	Date: June, 2006
Revision: 4	Drawn by: V.L.	Date: Jan, 2008

A GRAND EXPERIENCE
HALDIMAND COUNTY



narrow lane widths to
3.0m at curb extensions
3.5m next to raised
median

NOTES
1. STREETLIGHT POLES/PEDESTALS TO BE LOCATED ON AN ALTERNATE LOT LINE FROM HYDRO TRANSFORMER
2. SUPPLY AND COMMUNICATION CABLES SHALL HAVE 0.3m SEPARATION FROM ANY PIPELINES

* MINIMUM PAVEMENT DESIGN
1. REFER TO HCDC SECTION G 4.00

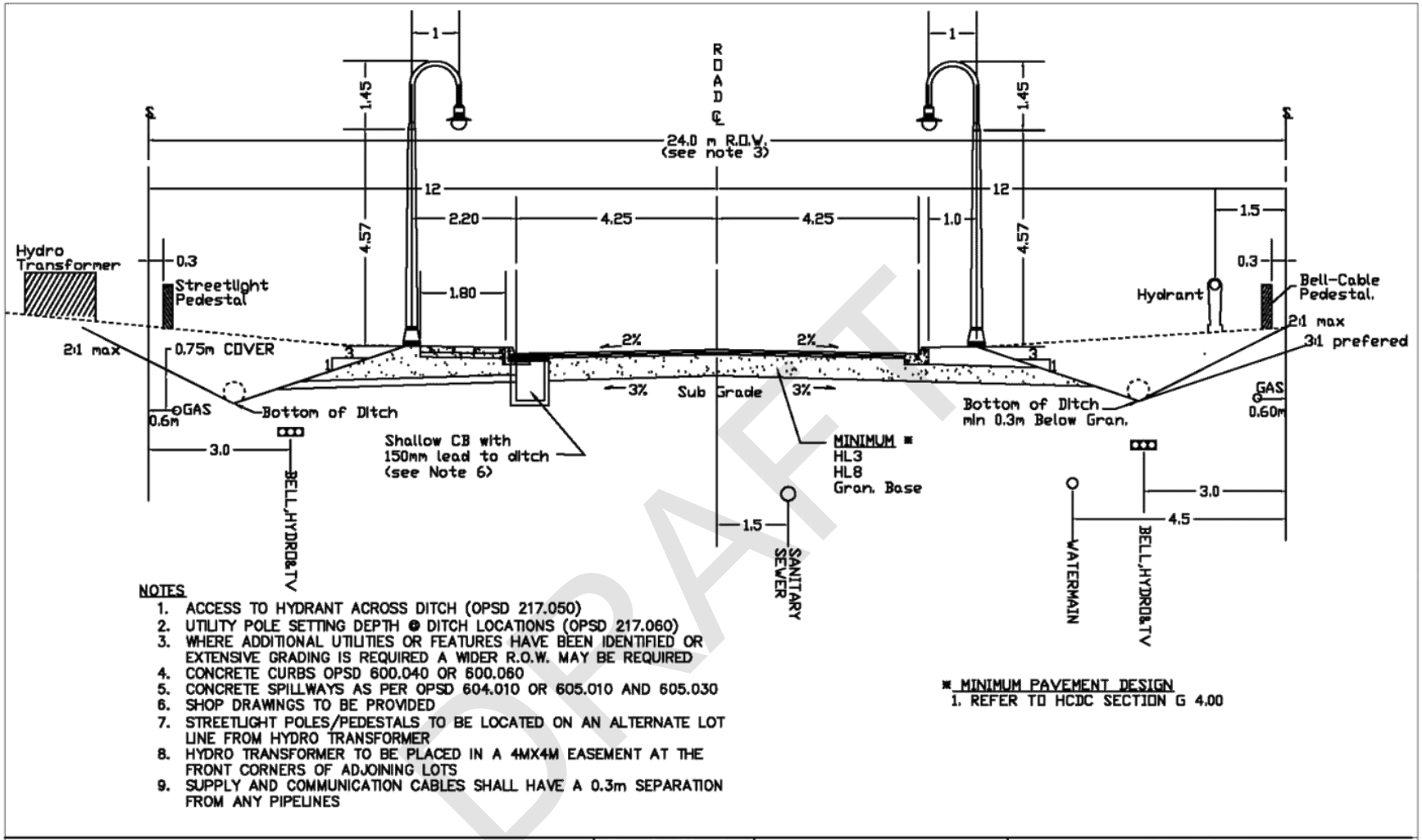
URBAN ROAD X-SECTION
20.0 METRE RIGHT-OF-WAY

Drawing Number
G2

Scale: N.T.S.

Revision: 1	Drawn by: N.F.	Date: Dec. 2002
Revision: 2	Drawn by: D.R.	Date: June, 2005
Revision: 3	Drawn by: V.L.	Date: June, 2006
Revision: 4	Drawn by: V.L.	Date: Jan, 2008

A GRAND EXPERIENCE
HALDIMAND COUNTY



NOTES

1. ACCESS TO HYDRANT ACROSS DITCH (OPSD 217.050)
2. UTILITY POLE SETTING DEPTH @ DITCH LOCATIONS (OPSD 217.060)
3. WHERE ADDITIONAL UTILITIES OR FEATURES HAVE BEEN IDENTIFIED OR EXTENSIVE GRADING IS REQUIRED A WIDER R.O.W. MAY BE REQUIRED
4. CONCRETE CURBS OPSD 600.040 OR 600.060
5. CONCRETE SPILLWAYS AS PER OPSD 604.010 OR 605.010 AND 605.030
6. SHOP DRAWINGS TO BE PROVIDED
7. STREETLIGHT POLES/PEDESTALS TO BE LOCATED ON AN ALTERNATE LOT LINE FROM HYDRO TRANSFORMER
8. HYDRO TRANSFORMER TO BE PLACED IN A 4MX4M EASEMENT AT THE FRONT CORNERS OF ADJOINING LOTS
9. SUPPLY AND COMMUNICATION CABLES SHALL HAVE A 0.3m SEPARATION FROM ANY PIPELINES

✖ MINIMUM PAVEMENT DESIGN
1. REFER TO HCDC SECTION G 4.00

PARTIALLY URBANIZED X-SECTION
24.0 METRE RIGHT-OF-WAY

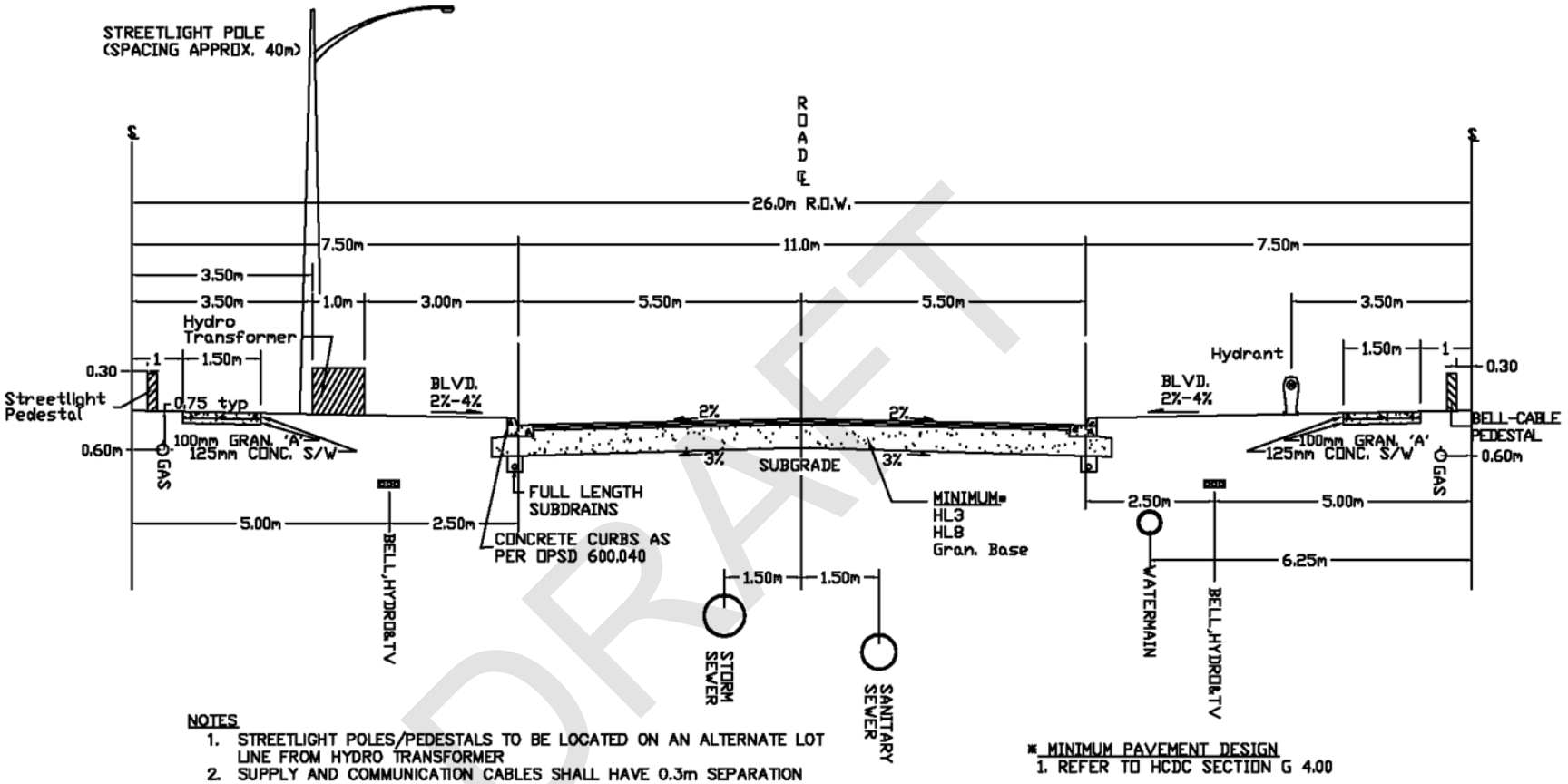
Drawing Number

G3

Scale: N.T.S.

Revision: 1	Drawn by: V.L.	Date: June, 2006
	Drawn by: V.L.	Date: Jan, 2008

A GRAND EXPERIENCE
HALDIMAND COUNTY



NOTES
1. STREETLIGHT POLES/PEDESTALS TO BE LOCATED ON AN ALTERNATE LOT LINE FROM HYDRO TRANSFORMER
2. SUPPLY AND COMMUNICATION CABLES SHALL HAVE 0.3m SEPARATION FROM ANY PIPELINES.

* MINIMUM PAVEMENT DESIGN
1. REFER TO HCDC SECTION G 4.00

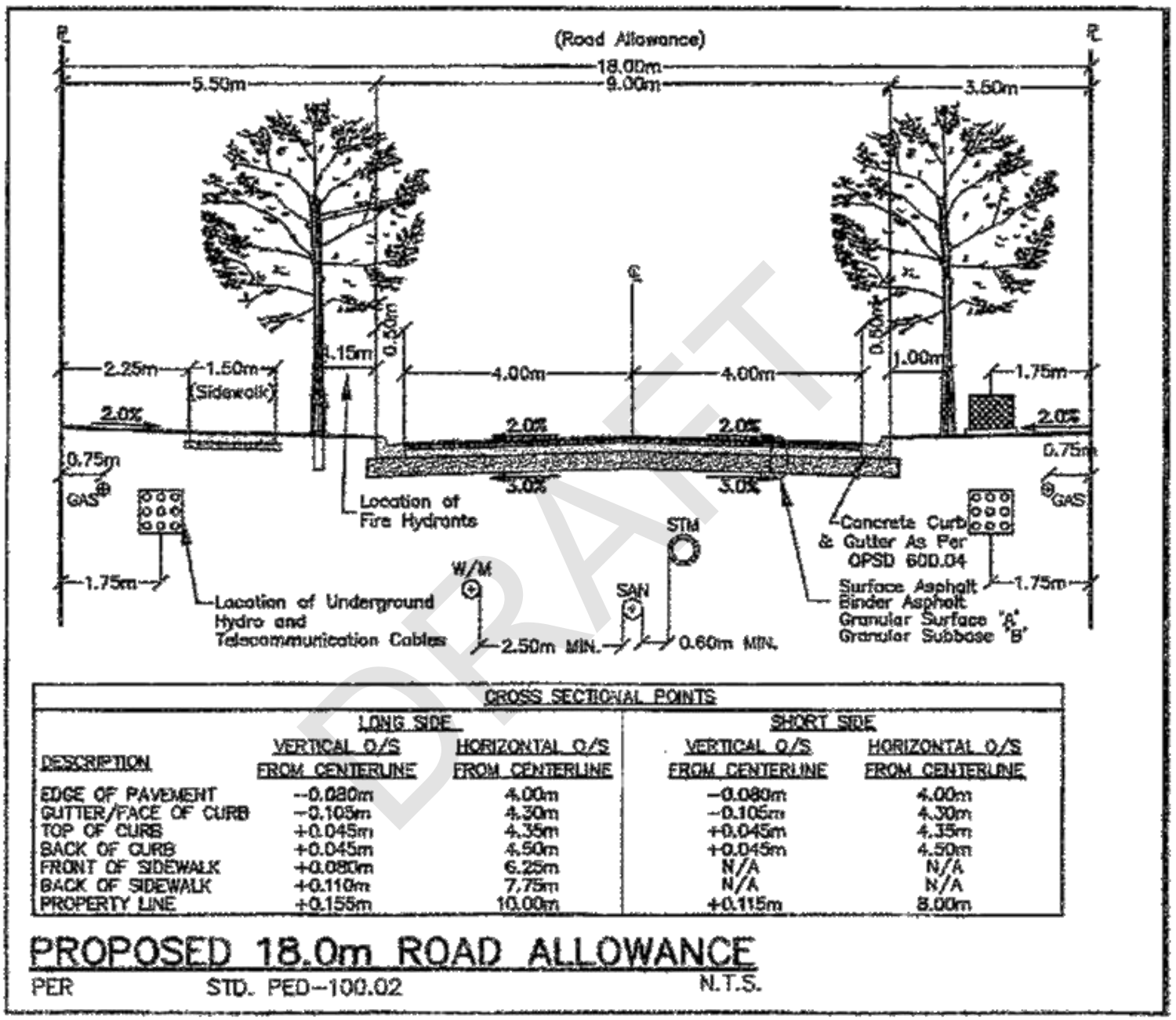
COLLECTOR ROAD X-SECTION
26.0 METRE RIGHT-OF-WAY

Drawing Number
G4

Scale: N.T.S.

Revision: 1	Drawn by: V.L. Drawn by: V.L.	Date: June, 2006 Date: Jan, 2008

HALDIMAND COUNTY
A GRAND EXPERIENCE

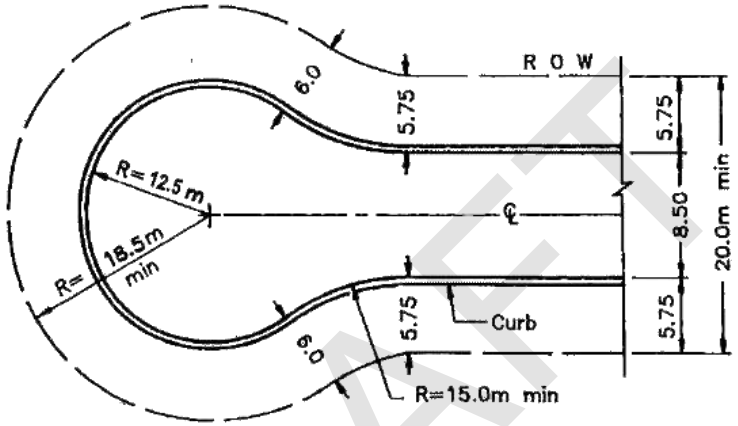


CROSS SECTIONAL POINTS

DESCRIPTION	LONG SIDE VERTICAL O/S FROM CENTERLINE	LONG SIDE HORIZONTAL O/S FROM CENTERLINE	SHORT SIDE VERTICAL O/S FROM CENTERLINE	SHORT SIDE HORIZONTAL O/S FROM CENTERLINE
EDGE OF PAVEMENT	-0.080m	4.00m	-0.080m	4.00m
GUTTER/FACE OF CURB	-0.105m	4.30m	-0.105m	4.30m
TOP OF CURB	+0.045m	4.35m	+0.045m	4.35m
BACK OF CURB	+0.045m	4.50m	+0.045m	4.50m
FRONT OF SIDEWALK	+0.080m	6.25m	N/A	N/A
BACK OF SIDEWALK	+0.110m	7.75m	N/A	N/A
PROPERTY LINE	+0.155m	10.00m	+0.115m	8.00m

PROPOSED 18.0m ROAD ALLOWANCE

PER STD. PED-100.02 N.T.S.



NOTES:
1 All dimensions are in metres unless otherwise shown.

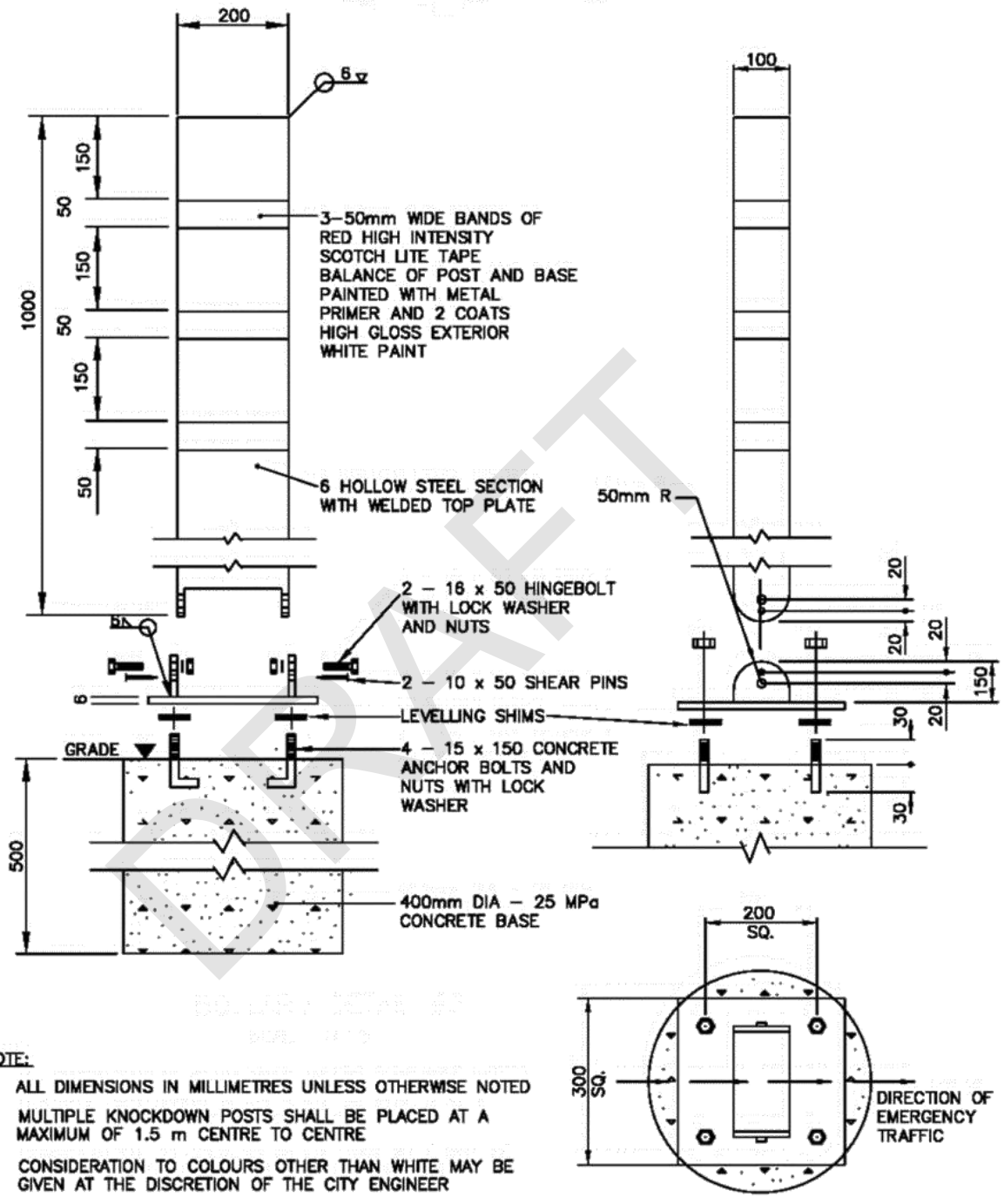
2 This drawing is a modified version of OPSD 500.02

TURNING BASINS
FOR TERMINATED URBAN RESIDENTIAL ROADWAYS

Drawing Number
G10

Scale: N.T.S.

Revision: 1 Revision: 2	Drawn by: DR Drawn by: DR	Date: June 2005 Date: Jan 2008



NOTE:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED
2. MULTIPLE KNOCKDOWN POSTS SHALL BE PLACED AT A MAXIMUM OF 1.5 m CENTRE TO CENTRE
3. CONSIDERATION TO COLOURS OTHER THAN WHITE MAY BE GIVEN AT THE DISCRETION OF THE CITY ENGINEER

BOLLARD DETAIL

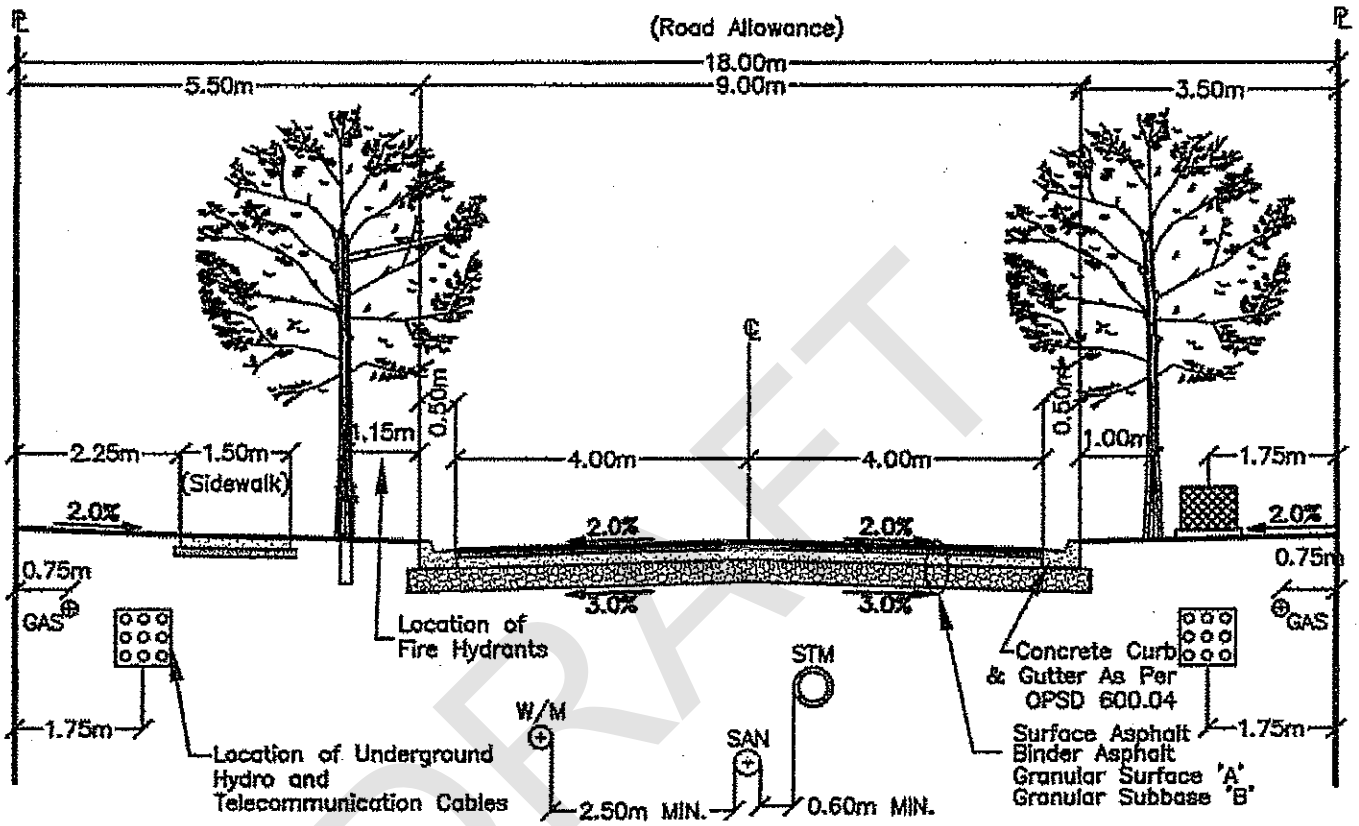
Drawing Number

G12

HALDIMAND COUNTY

Scale: N.T.S.

Revision: 1	Drawn by: D.R.	Date: Jan, 2008



CROSS SECTIONAL POINTS				
	LONG SIDE		SHORT SIDE	
DESCRIPTION	VERTICAL O/S FROM CENTERLINE	HORIZONTAL O/S FROM CENTERLINE	VERTICAL O/S FROM CENTERLINE	HORIZONTAL O/S FROM CENTERLINE
EDGE OF PAVEMENT	-0.080m	4.00m	-0.080m	4.00m
GUTTER/FACE OF CURB	-0.105m	4.30m	-0.105m	4.30m
TOP OF CURB	+0.045m	4.35m	+0.045m	4.35m
BACK OF CURB	+0.045m	4.50m	+0.045m	4.50m
FRONT OF SIDEWALK	+0.080m	6.25m	N/A	N/A
BACK OF SIDEWALK	+0.110m	7.75m	N/A	N/A
PROPERTY LINE	+0.155m	10.00m	+0.115m	8.00m

PROPOSED 18.0m ROAD ALLOWANCE

PER STD. PED-100.02 N.T.S.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Resident Survey Report

R.J. Burnside & Associates Limited 6990 Creditview Road, Unit 2 Mississauga ON L5N 8R9 CANADA
telephone (905) 821-1800 **fax** (519) 941-8120 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Resident Survey Summary Memorandum

Date: May 15, 2025 **Project No.:** 300058527.0000

Project Name: Haldimand County Traffic Management Strategy

Client Name: Haldimand County

To: Danielle Fletcher

From: Sameem Raheemi

1.0 Overview

The purpose of this memorandum is to present the findings of an online resident survey conducted from July 16, 2024, to August 30, 2024. The survey consisted of 18 questions, and it was built on Survey123.arcgis.com and shared with the residents of Haldimand County through various platforms such as Facebook, X, Project Website, Local Newspaper, Media Release, Radio Ads and Posters. The survey questionnaire is provided in Attachment 1 of this memo. The purpose of this survey was to collect opinions and concerns of Haldimand County regarding speeding issues and how they should be addressed. The survey received 1001 responses, and its findings are presented below.

2.0 Demographic Findings

95% of the respondents were full-time residents of the County. The majority of the respondents live in Caledonia, Hagersville, Dunville and Jarvis. Figure 1 and Figure 2 shows where the respondents live.

Figure 1: Where the Respondent Live

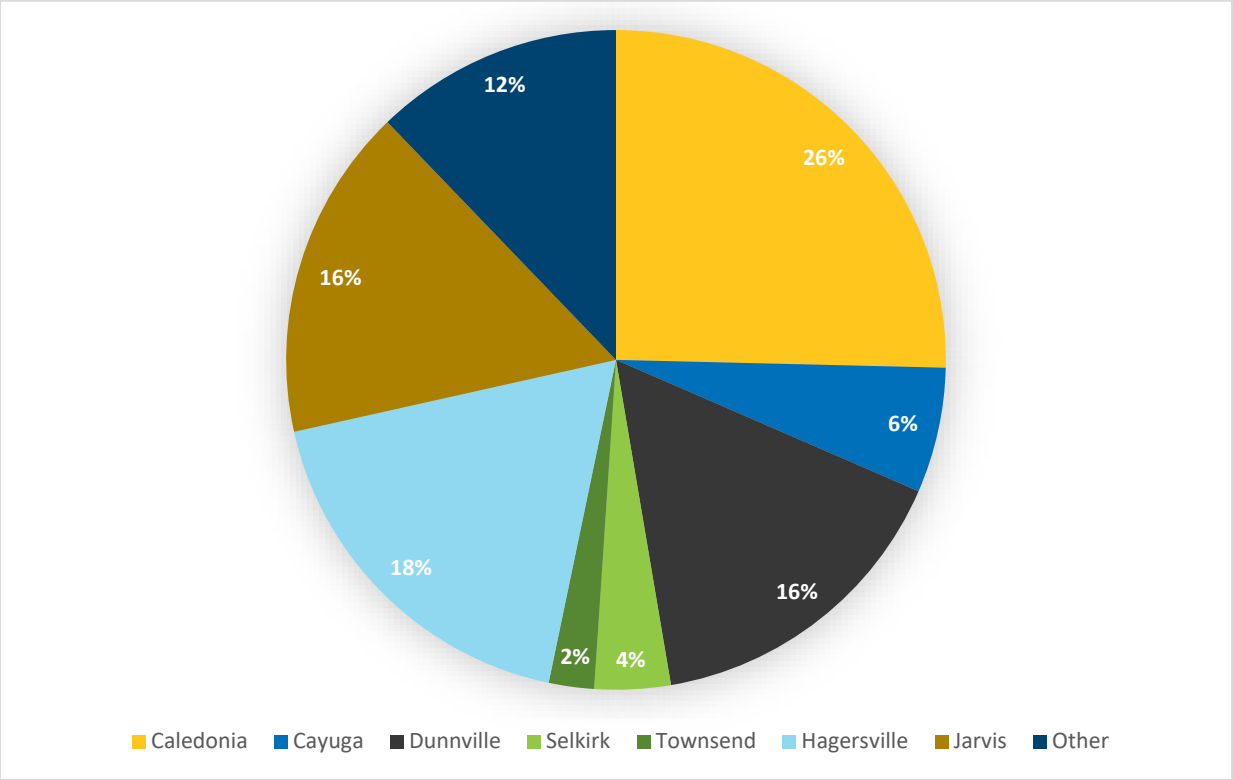
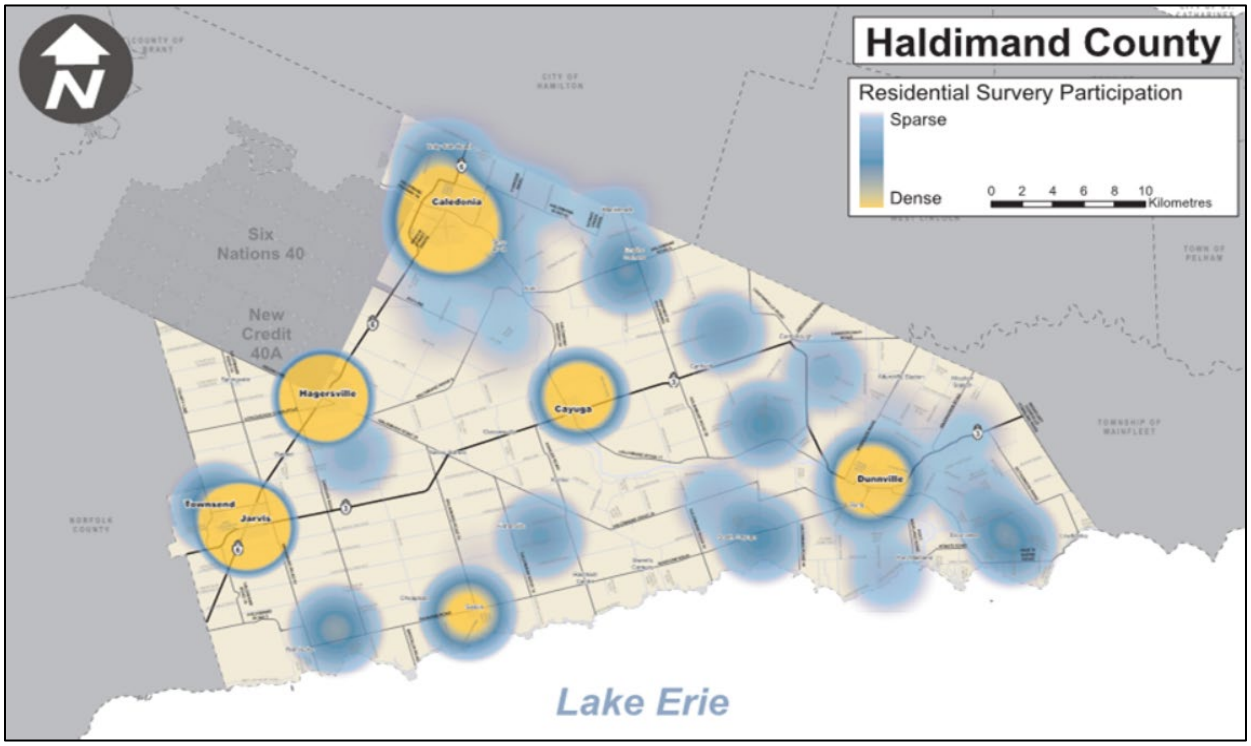


Figure 2: The Respondent's Postal Code

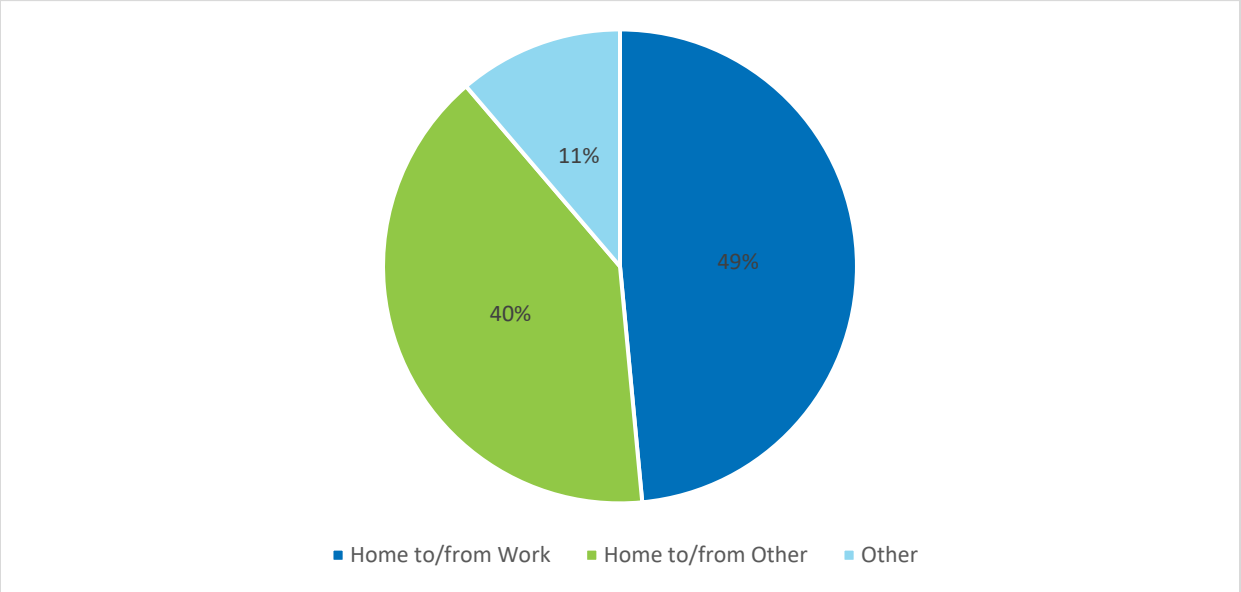


Note: There are some outliers which are not depicted in this figure.

3.0 Purpose of Trips

Home Based Work (HBW) trips make up 60% of the trips in the county. HBW trips are trips between residence and place of work and vice versa. Home Based Other (HBO) trips make up 49% of the trips in the county. HBO trips are trips between home and any other places such as school, shopping etc. (except for place of work) and vice versa. Almost 15% of the trips are designated as other. Other trips include non-Home-based (NHB) which are trips that do not involve a place of residence. Figure 3 illustrates the purpose of trips made by the residents of the County.

Figure 3: Purpose of Trip

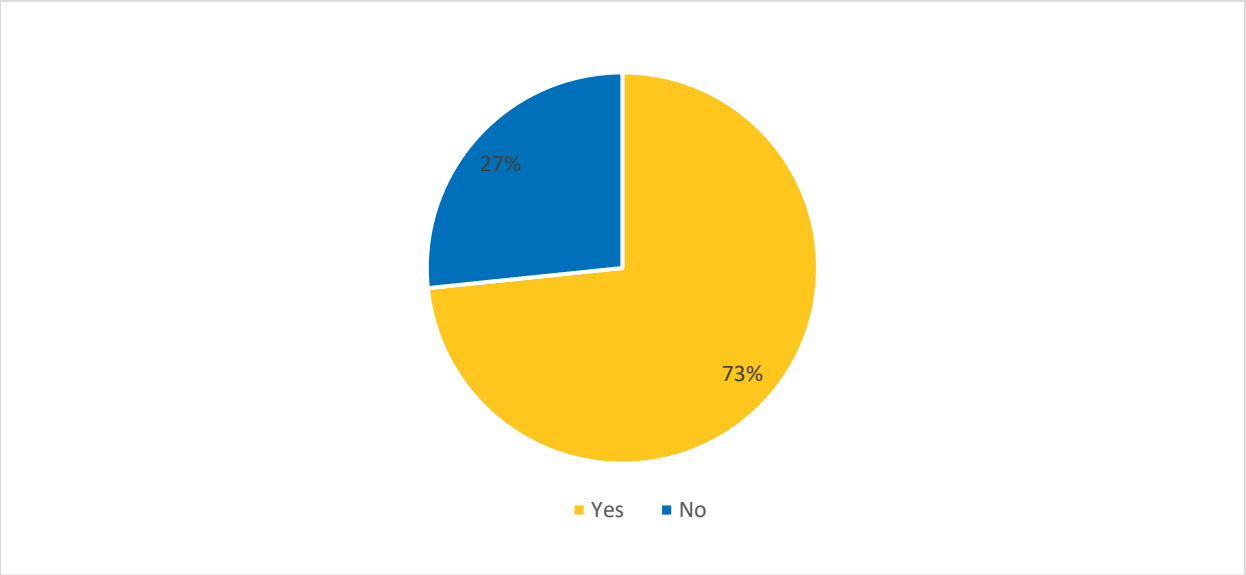


4.0 Speeding

Speed is one of the most widely recognized factors which has a direct relation with the severity of road traffic accidents. The risk of fatality in accident increases between 3.5 and 5.5 times when the speed grows from 50 km/h to 65 km/h. Higher speeds reduce the driver reaction time, increase the vehicle stopping distance, and inflict greater force on victims upon impact.

The survey collected data regarding speeding issues in the county. As illustrated in the survey it found that 73% of the Haldimand County residents are concerned about speeding, while 27% think that speeding is not a concern.

Figure 4: Is Speeding an Issue in Haldimand County



The residents of Haldimand believe that speeding and traffic-related issues are widespread in the County, posing serious risks to public safety, particularly around schools, residential areas, and highways. School zones consistently experience speeding and failure to stop at four-way intersections, which endangers both children and pedestrians. The main concerns of residents include the following:

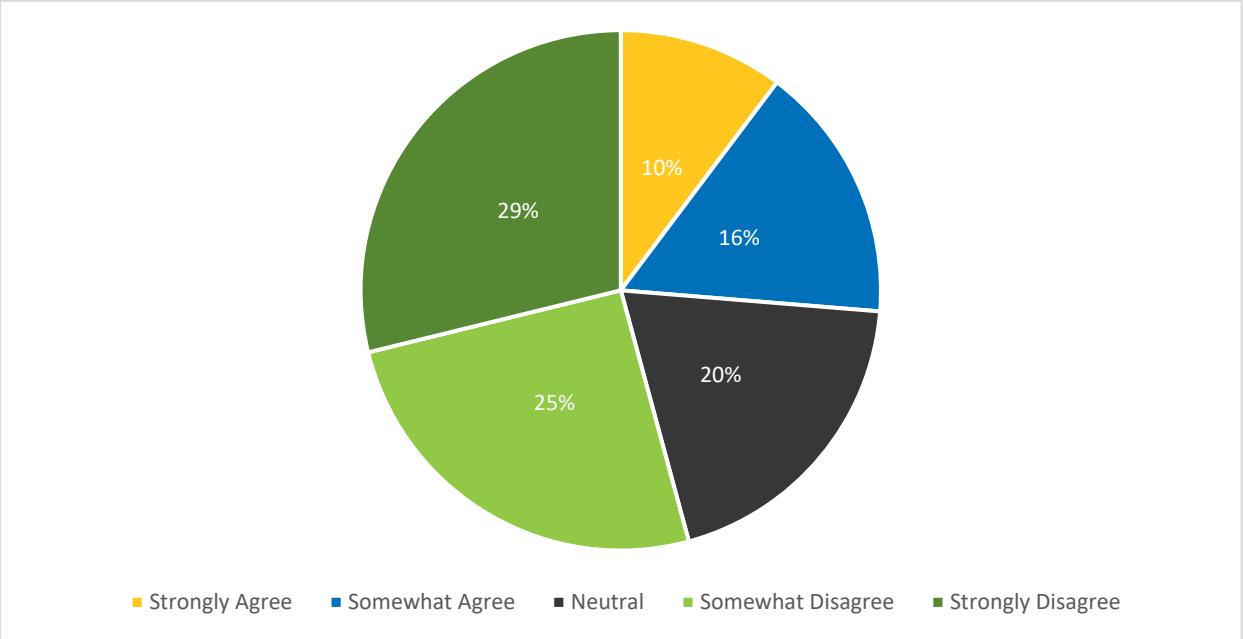
- There is a lack of pedestrian crossings in key areas such as near the plaza and Tim Hortons in Jarvis, as well as an absence of sidewalks along Tuscarora and Oneida. Main Street in Hagersville has limited pedestrian crossing points and the pedestrian signal heads near Tim Hortons are poorly installed, making them less visible to drivers and giving pedestrians a false sense of security. Another safety concern is the crosswalk on Highway 6 near Jarvis Public posing a risk to pedestrians, particularly when crossing guards are not present. In residential areas without sidewalks, speeding vehicles further endanger pedestrians daily.
- Highway 6, especially the segments in Hagersville, Caledonia, and Jarvis, is an area of concern due to high volumes of truck traffic and commuter vehicles. These conditions contribute to unsafe passing maneuvers and excessive speeding, particularly in areas with limited visibility. The highway is referred to as a "racetrack," creating dangerous conditions for all road users. However, it is important to recognize that Highway 6 is a provincial roadway, and the County has very limited jurisdiction over some of its operations and enforcement.
- Narrow rural roads with limited infrastructure, which are often used as shortcuts by speeding vehicles, become especially dangerous for non-motorized road users such as pedestrians and cyclists.
- Residents have reported that drivers frequently ignore stop signs, often performing only rolling stops before accelerating quickly. This behavior poses a safety risk. Specific locations cited include but are not limited to stop signs at Nanticoke Creek Parkway and Willow Glen Drive in Townsend, Munsee Street South and McKay Street East in Cayuga,

Keith Richardson Parkway and County Lane in Dunnville, as well as Tamarac Street and various stop signs along Orkney Street in Caledonia.

- Trucks disregard traffic signals, stop signs, and other traffic signs, particularly in residential and commercial areas of Hagersville and Caledonia. Residential areas like River Road in Caledonia, Mains Street (Highway 6) in Hagersville, and Chestnut and Broad in Dunnville are some of the areas where such behaviour has been observed.
- Off-road vehicles like dirt bikes and ATVs frequently ignore traffic rules as well, exacerbating the problem.
- The general lack of police presence across the county has led to calls for speed cameras, additional patrols, and more effective enforcement measures to address these ongoing traffic safety and speeding concerns.

In general, residents of Haldimand County do not feel safe walking or cycling on or near roadways. According to the survey, 54% of participants expressed that they do not feel safe walking or biking on or near the roadways, while 26% indicated that they do feel safe. The remaining 20% reported a neutral stance on the issue. Figure 5 illustrates the residents' responses to the statement, *"I feel safe from traffic when walking or cycling on/near roadways within Haldimand County."*

Figure 5: I Feel Safe from Traffic When Walking or Cycling On / Near Roadways Within Haldimand County



4.1 Major Concern Areas

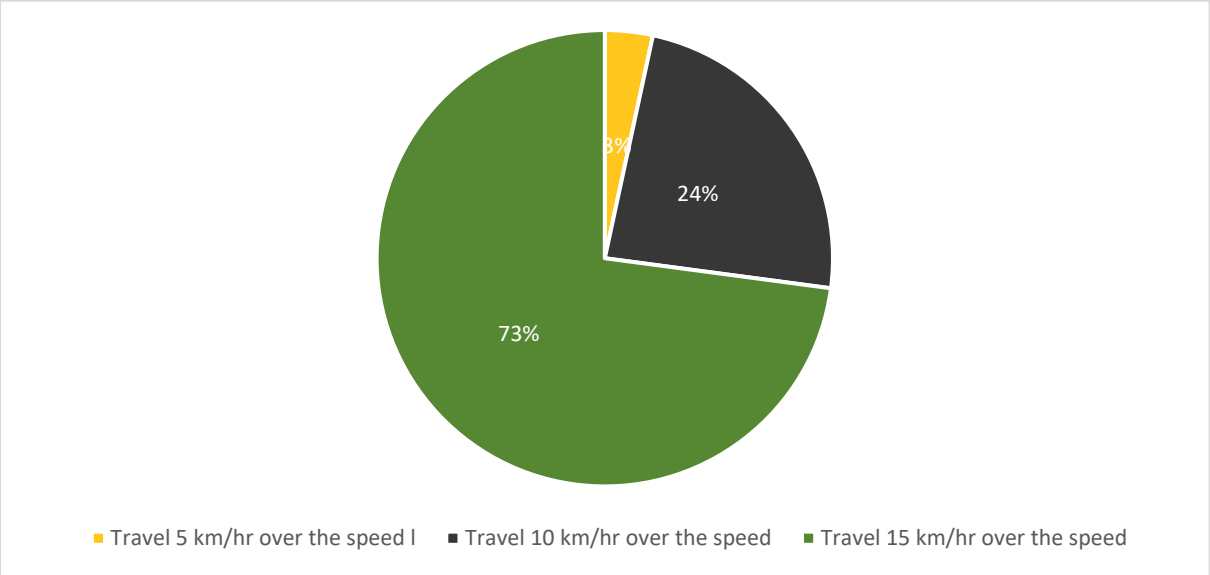
The residents of Haldimand identified several critical areas of concern, focusing primarily on Highway 6, Highway 3, and Main Street in urban areas such as Caledonia, Hagersville, Jarvis, and Dunnville. The locations for which residents are concerned the most are described below:

- The highest volume of traffic-related complaints centers along Highway 6 with repeated concerns regarding the lack of traffic lights, highlighting significant safety and congestion issues that need addressing. The most critical area of concern is the intersection at Highway 6 & Haldibrook Road and Highway 6 & Highway 3 which has been identified as hotspots for frequent accidents, congestion, and unsafe conditions due to speeding. The residents believe that these areas would benefit from improved traffic controls, such as traffic lights, advanced turn lanes, and enhanced signage.
- In Caledonia, Argyle Street experiences significant congestion and delays, particularly near Argyle & Haddington and Argyle & Caithness, where residents have proposed the introduction of roundabouts and better-timed traffic signals to reduce backups and improve safety.
- Main Street in Hagersville and Jarvis faces heavy truck traffic, illegal turns, and pedestrian safety concerns, with recommendations for truck bypasses, improved pedestrian crossings, and signal upgrades.
- The section of Highway 3 between Jarvis, Cayuga, and Dunnville presents widespread speeding issues as well, particularly around residential intersections like Highway 3 & Thorburn and Highway 3 & Kohler Road and Tim Hortons Driveway in Cayuga, where dangerous turns and speeding are noted at these intersections with disregard for crosswalks and traffic rules.

4.2 Definition of Speeding

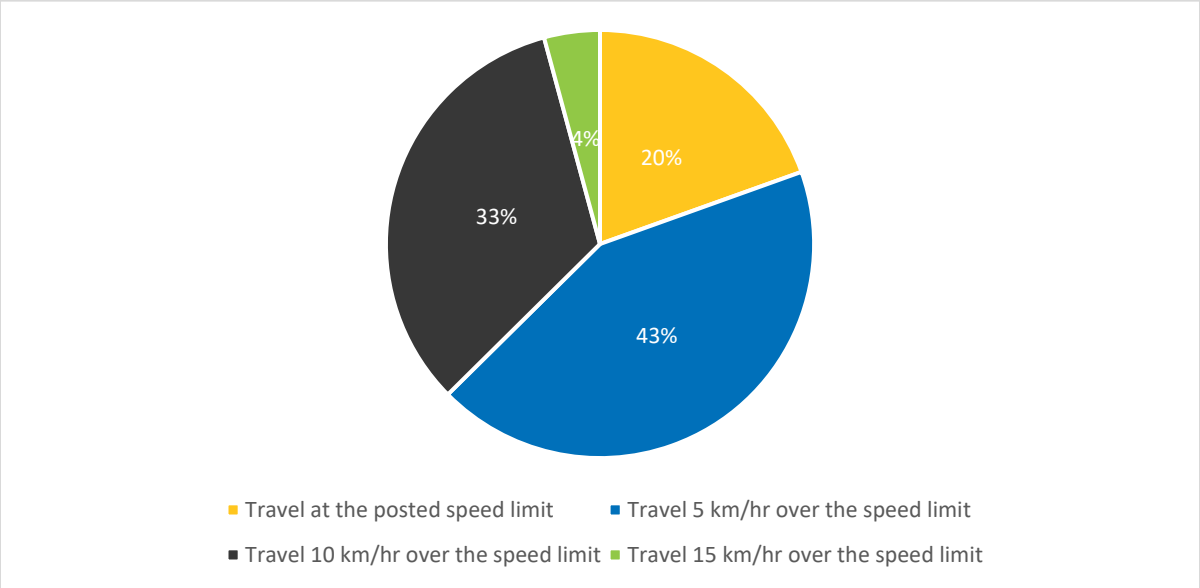
Every individual has a different opinion of speeding. In a general sense, a person travelling even 1 km/h above the posted speed limit is speeding. In the meantime, some people believe that there is a tolerance range of 10-15 km/h to reach a point where it will be considered speeding. To understand the perspective of Haldimand residents, the survey asked them how they define speeding. As illustrated in Figure 6, 73% of the respondents think that travelling 15 km/h above the road speed limit is considered speeding, 24% think travelling 10 km/h above the road speed limit is considered speeding, while only 3% of the respondents think travelling 5 km/h above the road speed limit is considered speeding.

Figure 6: Definition of Speeding from Haldimand Residents' Perspective



Understanding the typical speed at which respondents travel also helps to evaluate the speeding issues in the County. As illustrated in Figure 7, 20% of the residents travel at the road speed limit, 43% travel 5 km/h above the road speed limit, 33% travel 10 km/h above the road speed limit and only 4% travel 15/h over the road speed limit.

Figure 7: Residents' Typical Speed



5.0 Traffic Calming

Traffic calming involves using engineering, enforcement, and education measures or a combination of those measures to slow down the traffic and improve the safety of pedestrians, cyclists, motorists and other road users. As illustrated in Figure 8, in response to concerns about speeding within Haldimand County, 67% of survey participants expressed support for the implementation of traffic calming measures, while 20% opposed them. The remaining 13% indicated a neutral stance on the matter.

Although traffic calming measures may cause some level of inconvenience in the form of slight delays, loss of on-street parking, increased traffic noise, etc. majority of the residents remain in support of these measures. As illustrated in Figure 9, 59% of respondents are in favour of installing such measures despite these potential drawbacks, whereas 25% opposed. The remaining 16% hold a neutral position.

Figure 8: Support for Provision of Traffic Calming Measures in Haldimand County

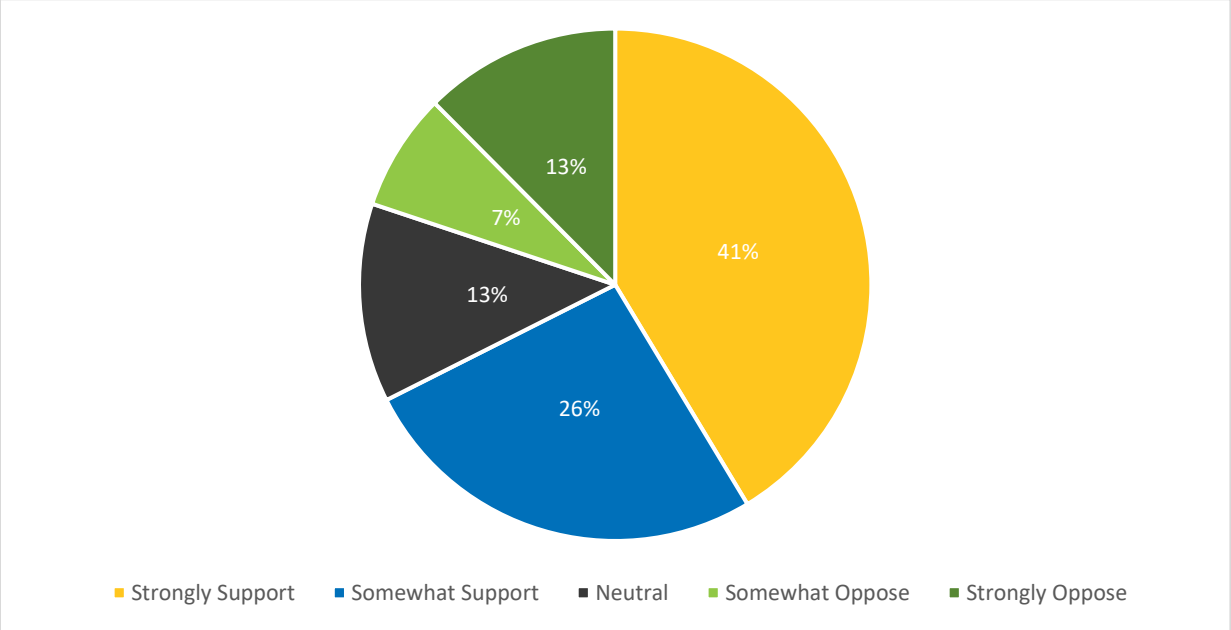
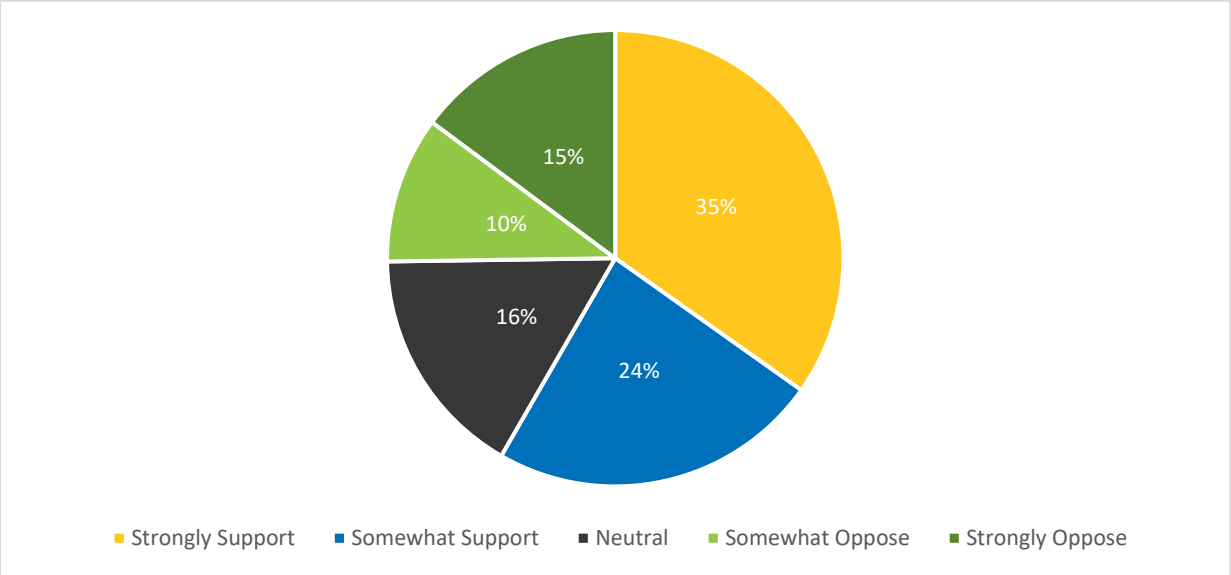


Figure 9: Public Support for Traffic Calming Measures vs Personal Inconvenience



5.1 Traffic Calming Measures

There are three primary categories of measures used to calm traffic and address speeding concerns: engineering, enforcement, and education.

Engineering measures involve physical modifications to the roadway that reduce vehicle speeds by altering the alignment, width, features, or surface of the road. These measures are tailored based on factors such as the geographic context (urban or rural), road width and grade, traffic volume and type, and the presence of other infrastructure like hydro, water, and sewer.

Enforcement measures focus on influencing driver behaviour rather than modifying the physical road environment. These can include traditional methods like police presence, technology-driven solutions such as speed cameras, red-light cameras, and drones, as well as community-driven initiatives like speed watch programs.

Education measures aim to foster long-term behavioural changes among drivers. These community-oriented initiatives encourage safe driving practices and promote the use of active transportation. Examples include programs like Active and Safe Routes to School, the Pace Car Program, speed display devices, and targeted educational campaigns.

The selection of engineering measures depends on several factors, including the area's geographic setting (urban vs rural), road characteristics, traffic conditions, and existing infrastructure.

Figure 10 and Figure 11 present Haldimand County residents' preferences for traffic calming measures in urban and rural areas, respectively. In urban areas, 36% of respondents believe increased enforcement is the most effective solution, while 32% support engineering measures,

and 23% favour education initiatives. In rural areas, preferences shift, with 44% supporting increased enforcement, 26% in favour of education measures, and 23% preferring engineering solutions.

The survey findings indicate that residents generally favour increased enforcement to address speeding concerns. In urban areas, residents prefer engineering solutions over education initiatives, while in rural areas, education measures are more favored than engineering solutions.

Figure 10: Most Effective Traffic Calming Measures for Residential Neighbourhoods

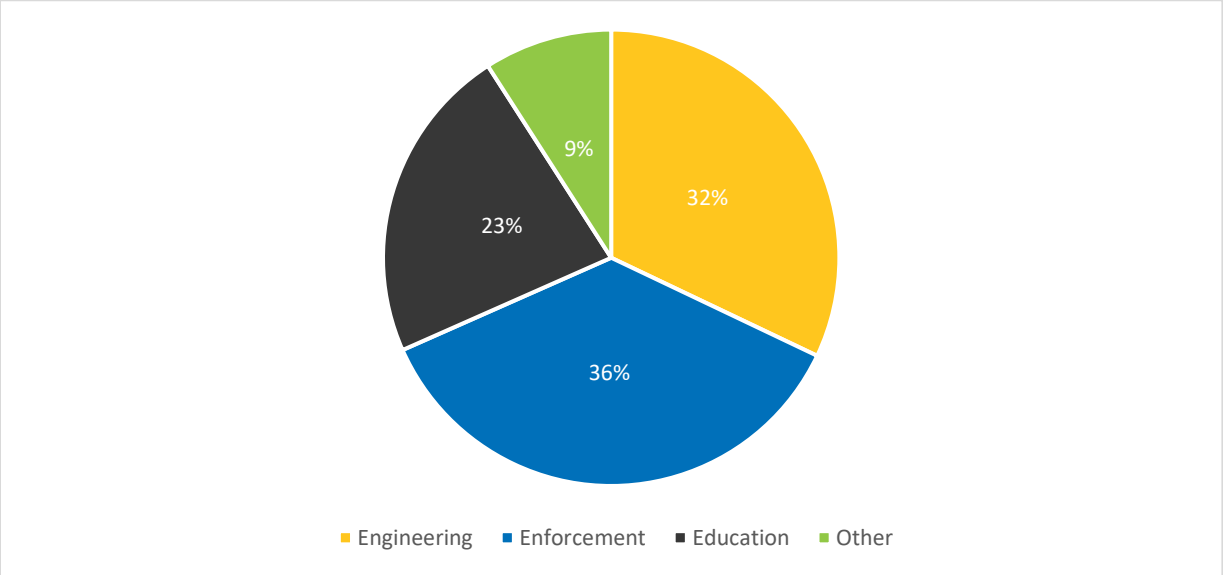
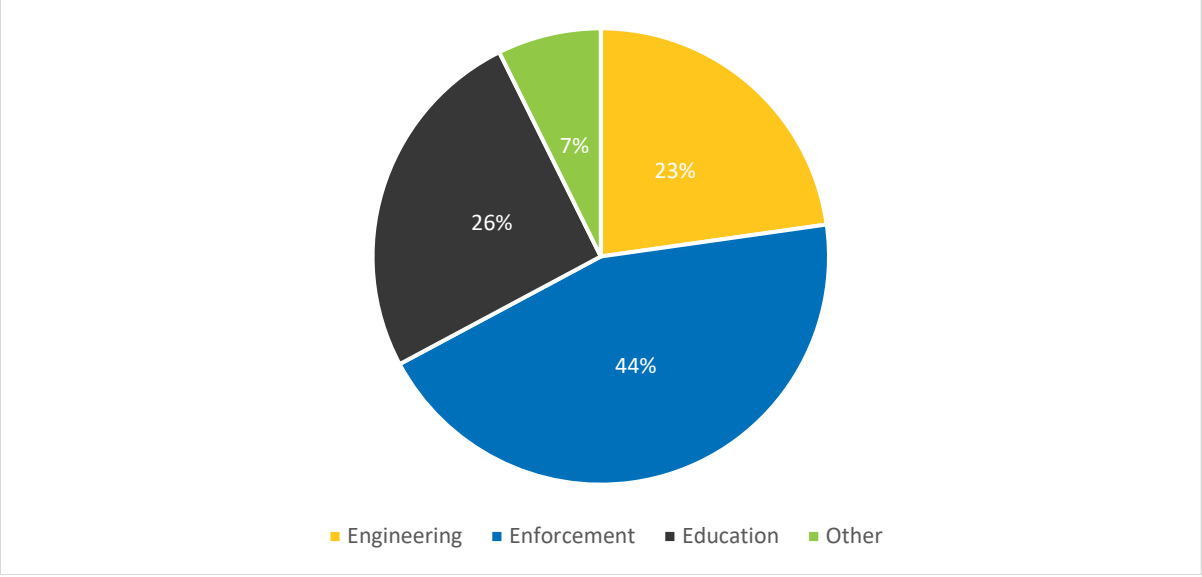


Figure 11: Most Effective Traffic Calming Measures for Rural Settlements



Among the various engineering measures proposed in the survey, residents expressed a strong preference for vertical deflections—such as raised crosswalks, speed cushions, speed humps, and speed tables—across both urban and rural areas. Specifically, 555 respondents identified vertical deflections as effective traffic calming solutions in urban residential neighbourhoods, while 346 respondents supported their use in rural settlements.

Horizontal deflections ranked as the second most favoured option in urban areas, while they were placed third in rural areas. In contrast, pavement markings were nearly as popular as vertical deflections in rural areas, indicating their perceived effectiveness in addressing rural traffic concerns.

Conversely, roadway narrowing, and access restrictions received relatively lower support from respondents in either urban or rural contexts. Figure 12 and Figure 13 illustrate Haldimand County residents' preferences for the most effective engineering measures in both urban and rural areas, respectively.

Figure 12: Most Effective Engineering Measures for Residential Neighbourhoods

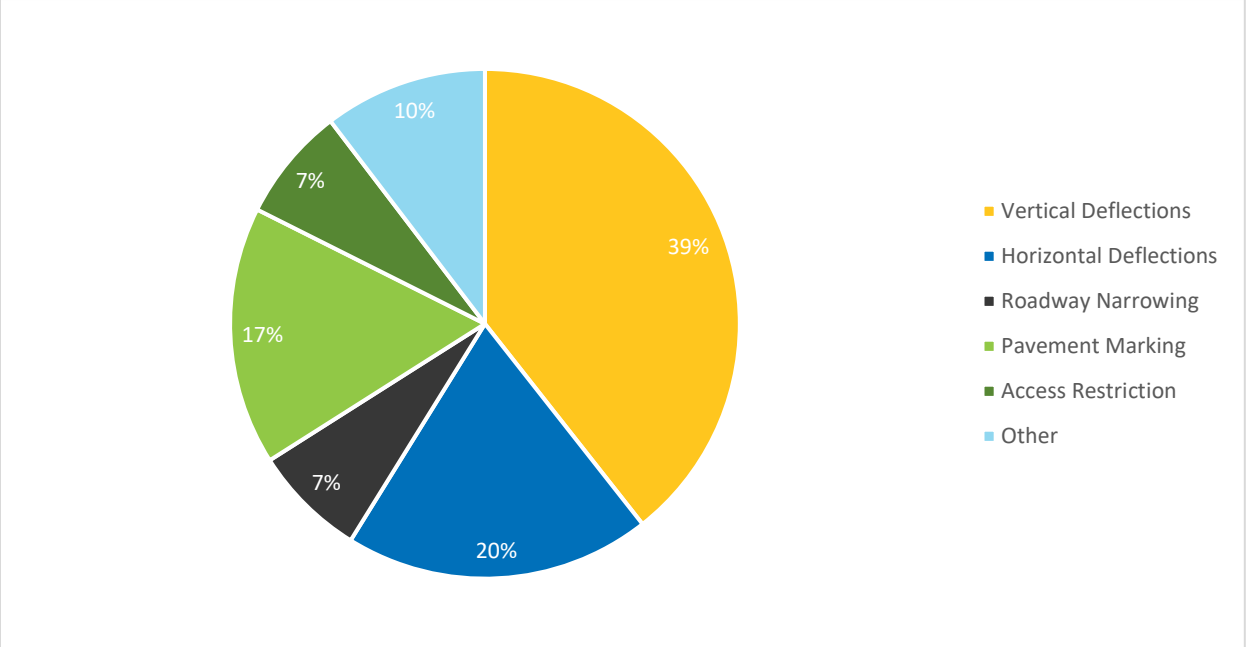
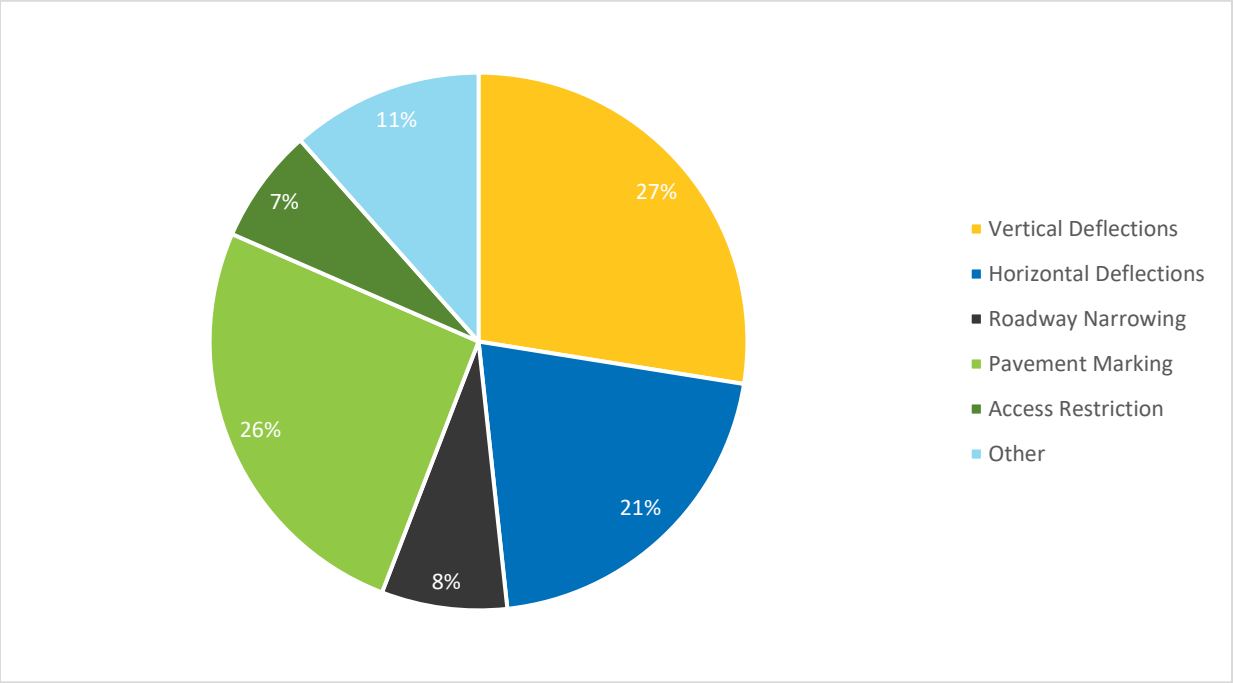


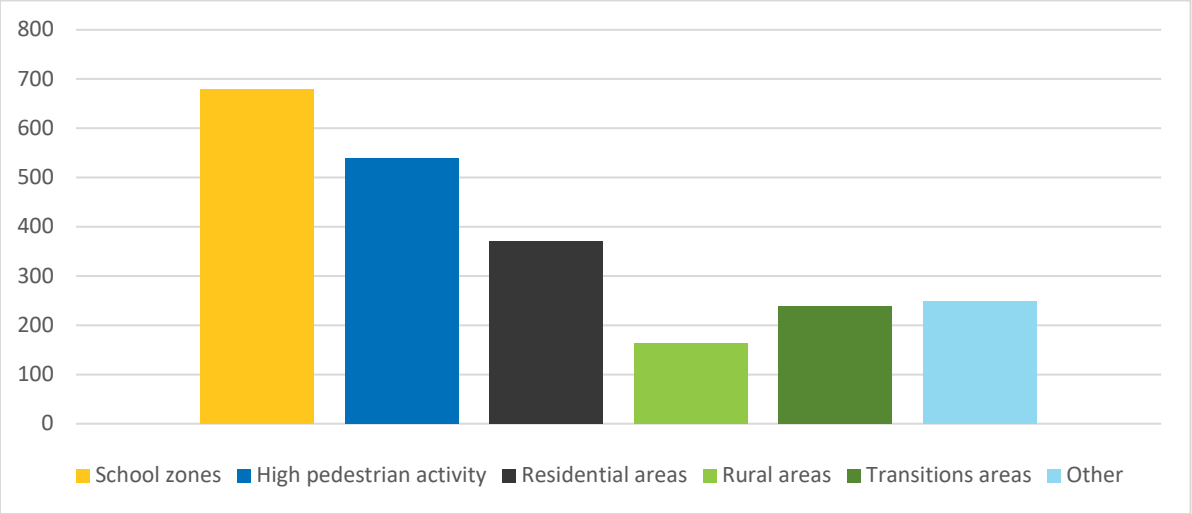
Figure 13: Most Effective Engineering Measures for Rural Settlements



Automated devices, such as red-light cameras, fixed speed cameras, and mobile speed cameras, are commonly used to enforce traffic regulations and enhance road safety. **Red light** cameras, in particular, can be strategically placed in high-risk areas, including school zones, areas with high pedestrian activity such as community centers, residential neighbourhoods, rural areas, and transition zones, to improve safety for all road users.

The survey asked residents of Haldimand about their support for installing automated traffic control devices in these mentioned areas. As shown in Figure 14, most residents expressed strong support for their installation in school zones, areas with high pedestrian activity, and residential neighbourhoods. In the meantime, there was lower support for automated traffic control devices in rural and transition areas, as well as other locations.

Figure 14: Areas with the Highest Support for Installation of Automated Traffic Control Devices



In Haldimand County, resident feedback highlights their concerns regarding road safety and traffic management. In addition to issues related to speeding and traffic calming, several other concerns have been raised, which are summarized as follows:

- **Road Conditions**: Some residents are dissatisfied with the state of the roadways and recommend using high-quality tar and chip treatments to repair potholes.
- **Traffic Flow**: While residents appreciate efforts to manage traffic speeds, there is demand for better traffic flow, especially in urban areas. There is a strong demand for better coordination of traffic signals and the addition of advanced green lights to improve traffic movement.
- **Congestion**: Traffic congestion is another concern, particularly in towns like Hagersville and Caledonia. Residents are in favour of improved traffic management and the development of additional access routes or bypasses to alleviate congestion.
- **Pedestrian Safety**: Insufficient sidewalks and dangerous pedestrian crossings are a source of concern, with many residents expressing the need for safer pedestrian infrastructure.
- **Cycling Safety**: Narrow shoulders and heavy truck traffic pose risks to cyclists, particularly along roads such as River Road and Highway 6.
- **Road Maintenance and Enforcement**: Residents are advocating for improved road maintenance and stricter enforcement of traffic rules, particularly regarding truck traffic and parking regulations, to ensure overall road safety and more effective traffic management.
- **Truck Traffic**: The issue of truck traffic, particularly in urban areas like Hagersville, remains a significant concern. Many residents are requesting the construction of a bypass for Highway 6 in Hagersville to divert heavy trucks away from residential areas.

SR:rk

Enclosure(s) Attachment 1: Survey Questionnaire

Haldimand County

Traffic Management Strategy
Resident Survey

1. Do you consent to participate in this survey? (Your responses will remain confidential.)
    a. Yes
    b. No

2. Where do you live?
    a. Caledonia
    b. Cayuga
    c. Dunnville
    d. Selkirk
    e. Townsend
    f. Hagersville
    g. Jarvis
    h. Other: _____

3. Please provide your postal code. _____

4. What is the primary purpose of **your typical daily** trips?
    a. Home to/from Work
    b. Home to/from Other (i.e. School, Shopping)
    c. Other: _____

5. Are you a full-time or seasonal resident of the County?
    a. Full-time
    b. Seasonal
    c. Other (please describe):_____

6. Do you think speeding is a concern in your neighbourhood or in your daily travels within the County roadway system?
    a. Yes
    b. No
    c. If so, please tell us about your concerns: _____
    _____
    _____
    _____

    d. Do you have a specific location you are most concerned about? Please list the location(s): _____

e. How do you define speeding:
    i. Travel at the posted speed limit or less
    ii. Travel 5 km/hr over the speed limit
    iii. Travel 10 km/hr over the speed limit
    iv. Travel 15 km/hr or more over the speed limit

7. How would you describe your typical speed?
    a. Travel at the posted speed limit of less
    b. Travel 5 km/hr over the speed limit
    c. Travel 10 km/hr over the speed limit
    d. Travel 15 km/hr or more over the speed limit

8. Do you support the provision of traffic calming measures (i.e. speed cushions, bump outs, medians) in neighbourhoods to address speeding or other roadway safety concerns?
    a. Strongly support
    b. Somewhat support
    c. Neutral
    d. Somewhat oppose
    e. Strongly oppose

9. Would you support being inconvenienced (i.e. slight delay to your travel time, loss of parking spaces on-street) from the implementation of measures to control speeding or other measures to improve roadway safety?
    a. Strongly supportive
    b. Somewhat supportive
    c. Neutral
    d. Somewhat opposed
    e. Strongly opposed

10. What type of measures do you believe would be most effective to address traffic concerns in residential neighbourhoods? Please select all that apply.
    a. Engineering (e.g., speed cushions, pavement marking, curb radius reduction)
    b. Enforcement (e.g., police enforcement, aircraft/drone radar, speed cameras)
    c. Education (e.g., speed display devices, community awareness programs, targeted education campaigns, etc.)
    d. Other (Please specify):_____

11. What type of engineering measures do you feel would be most effective in residential neighbourhoods?
    a. Vertical Deflections (e.g., raised crosswalks, speed cushions, speed humps, speed tables)
    b. Horizontal Deflections (e.g., curb radius reduction, lane shift, traffic circles, mini roundabouts, etc.)
    c. Roadway Narrowing (e.g., lane narrowing, on-street parking, raised median islands, etc.)

d. Pavement Marking (e.g., Dragon teeth, on road signs, converging chevrons)
e. Access Restriction (e.g., directional closure, full closure, intersection channelization, right-in/right-out islands)
f. Other (Please specify):_____

12. What type of measures do you believe would be most effective to address traffic concerns in rural areas?
    a. Engineering (e.g., speed cushions, pavement marking, curb radius reduction)
    b. Enforcement (e.g., police enforcement, aircraft/drone radar, speed cameras)
    c. Education (e.g., speed display devices, community awareness programs, targeted education campaigns, etc.)
    d. Other (Please specify):_____

13. What type of engineering measures do you feel would be most effective in rural areas ("Settlement Areas")?
    a. Vertical Deflections (e.g., raised crosswalks, speed cushions, speed humps, speed tables)
    b. Horizontal Deflections (e.g., curb radius reduction, lane shift, traffic circles, mini roundabouts, etc.)
    c. Roadway Narrowing (e.g., lane narrowing, on-street parking, raised median islands, etc.)
    d. Pavement Marking (e.g., Dragon teeth, on road signs, converging chevrons)
    e. Access Restriction (e.g., directional closure, full closure, intersection channelization, right-in/right-out islands)
    f. Other (Please specify):_____

14. Do you support the use of red light or speed enforcement cameras in the following areas. Please select all that apply.
    a. School zones
    b. Areas with high pedestrian activity
    c. Residential areas
    d. Rural areas
    e. Rural to urban transition areas
    f. None of the above

15. I feel safe from traffic when walking or cycling on/near roadways within Haldimand County?
    a. Strongly agree
    b. Somewhat agree
    c. Neutral
    d. Somewhat disagree
    e. Strongly disagree

    If so, please tell us about your concerns: _____

    _____

    _____

16. If you have any other traffic safety concerns not covered in the questionnaire, please provide your comments here:

17. Please provide your name and email if you would like to join the mailing list to learn about public open houses and other public notices for the Traffic Management Strategy.

Name: _____

Email: _____

Telephone (Optional):_____

18. How did you hear about this survey? Please select all that apply.
    a. Media release
    b. Newspaper advertisement
    c. Project website
    d. Facebook
    e. X (Formerly Twitter)
    f. Posters
    g. Radio ads
    h. eNewsletter
    i. Friends/family/colleagues

If you have any questions or concerns, please join us at our one of the Open Houses or submit additional comments via the project webpage

https://www.haldimandcounty.ca/trafficstrategy/

Or by calling 905-318-5932

Engineering Measures

Speed Cushion	Mini-Roundabout	Chicane
These are two or more raised areas placed laterally across a roadway with gaps between them to facilitate emergency vehicles. Their application is primarily on local and collector streets at mid-block locations.  **Pros:** Have been shown to be effective in reducing speeds and traffic volumes in residential areas. **Cons:** Emergency response, transit service. Negative effects on winter maintenance operations **Cost Category:** Low cost.	A traffic circle/mini-roundabout is an island located at the centre of an intersection, requiring vehicles to travel through the intersection in a counter-clockwise direction around the island.  **Pros:** Speed, traffic, conflict, traffic noise reduction, and has no effect on resident access and roadway operations. **Cons:** Could reduce on-street parking, may restrict trucks and longer Vehicles. **Cost Category:** Medium to high cost.	A chicane is a series of curb extensions on alternating sides of a roadway, which narrows the roadway and requires drivers to steer from one side of the roadway to the other to travel through the chicane  **Pros:** Speeds and traffic volumes reduction. Noise and air quality improvements. No effect on resident access and enforcement. **Cons:** Effects on-street parking and has some risk of head-on collision. **Cost Category:** Medium cost.
On-Street Parking	**Raised Median Island**	**Flexible Bollard**
On-street parking is the reduction of roadway width available for vehicle movement by allowing motor vehicles to park adjacent and parallel to the curb.  **Pros:** Creates a buffer between the road and sidewalk. Reduced noise due to lowered traffic volumes. Has minimal impact on access. **Cons:** Reduced visibility for cyclists, potential for driveway obstructions, and potential risk of rear-end and sideswipe collisions. **Cost Category:** Low to medium cost.	A raised median island is an elevated median constructed on the centreline of a two-way roadway to reduce the overall width of the adjacent travel lanes.  **Pros:** Speed and conflict reduction can act as a pedestrian refuge. There is minimal effect on maintenances operations. **Cons:** May restrict access, reduce on-street parking, and affect cyclists due to narrowed paths. **Cost Category:** Medium to high cost.	Flexible post mounted delineators are used to create the effect of a median, thus giving a sense of constriction for drivers.  **Pros:** Effective in reducing speeds and some potential for head-on conflict reduction. **Cons:** May require high maintenance if hit often by vehicles. Affects snow removal and conflict with large vehicles. **Cost Category:** Low cost.

Traffic Calming Measures

Dragon's Teeth	Curb Extension	Sidewalk Extension
These are a series of triangle pavement markings along the edge of the travelled lanes. They may be painted with increasing size to give the impression of roadway narrowing. They provide a visual change of the roadway.  **Pros:** Easy to implement. Provides a buffer between road and sidewalk. Does not impact access or winter maintenance activities. **Cons:** Regular maintenance of the paint is required. Limited data on its effectiveness. **Cost Category:** Low cost.	A curb extension is a horizontal intrusion of the curb onto the roadway resulting in a narrow section of roadway. The curb is extended on one of both sides of the roadway to reduce its width.  **Pros:** Effective speed reduction and reduces conflicts with pedestrians due to reduced crossing distance. **Cons:** Incompatible with cycling and on-street parking. Affects winter maintenance operations. **Cost Category:** Medium to high cost.	A sidewalk extension is a sidewalk continued across a local street intersection at the level of the roadway. Textured/patterned elements that contrast the roadway can be incorporated into it.  **Pros:** Improves pedestrian visibility and may reduce conflicts with vehicles. Positive guidance for visually impaired pedestrians. **Cons:** Could provide a false sense of security. Requires ongoing maintenance. Limited data on its effectiveness in speed reduction. **Cost Category:** Low to medium cost.

Education Measures

Programs and Initiatives	Speed Display Device	Vehicle Activated Signs
The CAA School Safety Patrol program runs in partnership with police services, school boards, teachers, bus consortiums and student volunteers since 1929 to protect and educate elementary school children on safe road-crossing practices.  **Pros:** Increases active transportation awareness and safety. **Cons:** Requires community commitment. **Cost Category:** Low to medium cost.	A speed display device is an interactive sign that displays vehicle speeds as oncoming motorists approach. Vehicle speed is captured using radar and can trigger the display board to show when vehicle approach at predetermined unsafe speed.  **Pros:** Effective in alerting drivers and reducing vehicle speeds. Potential for reduction of speed-related collisions. **Cons:** The devices may be less effective without complementary enforcement. **Cost Category:** Low to medium cost.	Vehicle activated signs are electronic roadside warning signs equipped with radar speed detectors and an illuminated display. Their purpose is to alert drivers to reduce speed as they approach specific conditions or hazards ahead.  **Pros:** Effective in alerting drivers and reducing vehicle speeds. Potential for reduction of speed-related collisions. **Cons:** Excessive use may lead to reduced effectiveness. **Cost Category:** Low cost.

Enforcement Measures

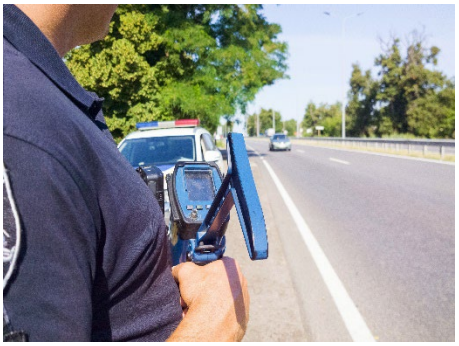
Police Enforcement	Red Light Cameras	Automated Speed Enforcement
Police enforcement involves officers positioning themselves in known speeding hotspots, using speed measuring devices to detect speeders, and then pursuing the offenders.	A Red Light Camera (RLC) is a camera that captures an image of a vehicle which has entered an intersection despite the traffic signal indicating red.	Automated Speed Enforcement (ASE) uses a camera and a speed measuring device to detect vehicles travelling more than the posted speed limit and capture its image as proof for conviction.
		
Pros: Effective speed reduction measure. Requires sustained enforcement campaign. **Cons:** Limited police resources. **Cost Category:** High cost.	**Pros:** Decreased front-into-side collisions and overall injury crashes. **Cons:** Vehicles abruptly stop to avoid crossing red lights. **Cost Category:** High cost but does produce an off-setting revenue.	**Pros**: Long-term effectiveness in speed reductions. **Cons**: Motorists might seek alternative routes and move the issue to other areas. Vehicles accelerate after passing the camera. **Cost Category:** High cost but does produce an off-setting revenue.

Image Sources: Haldimand County, R.J. Burnside and Associates Ltd, City of Toronto, Town of Oakville, ITE Canada, Town of Innisfil, City of Mississauga, Freepik.com, CAA.com

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Appendix F

Rural Intersection Review Policy

POLICY No. (Provided by Clerks) Rural Intersection Safety Review Policy

Originating Department		
SMT Approval:	Click here to enter a date.	
Council in Committee:	Click here to enter a date.	**Recommendation #:**
Council Approval:	Click here to enter a date.	**Resolution #:**
Revision History:	Click here for revision history	

1.0 Purpose

To enhance safety at rural intersections, the County has developed this policy which establishes a systematic approach for identifying locations with safety concerns and implementing improvements. This policy lays out the process for addressing and prioritizing safety concerns at rural intersections using traffic data and professional engineering assessments. By implementing this policy, the County will establish a consistent, evidence-based, and transparent approach to identifying, assessing, and resolving safety concerns at rural intersections. A draft of the policy is provided below.

2.0 Policy Objectives

This policy reflects that rural intersection safety improvements are:

- Data-driven and evidence-based.
- Aligned with County and provincial transportation and safety standards.
- Focused on measurable outcomes to enhance community safety and quality of life.
- Responsive to public input and local concerns.
- Financially sustainable, with provisions for ongoing operation and maintenance.

3.0 Identification and Prioritization

It is assumed the need for a rural intersection safety assessment is derived from external sources such as concerns expressed by the community, Council, other departments, or an engineering study. This policy does not identify problematic rural intersections, it provides a process to address such problematic intersections once they are brought to the County's attention.

An engineering safety study should be conducted at problematic intersections to assess safety and operational issues. The study should include a collision analysis, geometric analysis, operational analysis, traffic conflict analysis, and human factor analysis. This assessment helps to identify the safety concerns and the appropriate safety measures which can range from full reconstruction to the application of a single traffic control device. A system of signs, lane markings and other devices can be used to treat a range of safety and operational conditions at stop-controlled intersections. The type of solution would consider traffic volumes, collision history, minimum or substandard intersection geometry, environmental factors, and the presence of other traffic control devices.

4.0 Process for Rural Intersection Safety Improvement

The following steps outline the structured process for assessing and implementing safety improvements at rural intersections:

1. **Step 1 - Pre-screening:** A request for rural intersection safety improvement should follow the step below for pre-screening:

    a) Confirm receipt of the request and record it in a searchable and filterable database. The request can be made by residents, council and staff.

    b) Confirm that the intersection is within the County's jurisdiction

    c) Verify that the County has not been previously screened the intersection in the past three years.

    d) Ensure that the request warrants a review by assessing whether there were more than 2 accidents in the past two years at the requested intersection.

    e) Inform the applicant (if it is a resident or council) whether the request warrants further screening.

2. **Step 2 - Desktop Screening:** If the request warrants further investigation, collect relevant traffic and collision data, including operating speeds, traffic volumes, truck percentages, and collision history. Using this data, conduct a safety review in accordance with the TAC Canadian Guide to In-service Road Safety Reviews. The safety review may consider the following steps:

    a) Collision Analysis: Identifies patterns in historical collision data by time, type, severity, and conditions.

    b) Geometric & Operational Analysis: Reviews road geometry and traffic operations to evaluate how design and control elements contribute to safety risks.

    c) Site Visit: Recommended to observe real-world conditions, document deficiencies, and assess risks not evident in data

3. **Step 3 – Solution Identification:** Identify appropriate safety solutions based on the findings from the safety review in Step 1. Ensure that proposed solutions meet the warrant criteria outlined in Appendix A of the Rural Intersection Safety Review Policy.

4. **Step 4 – Design Compliance:** Ensure that the design of the approved solution aligns with County policies on accessibility, emergency services, and the needs of pedestrians and cyclists

5. **Step 5 – Public Engagement:** Conduct public and/or stakeholder engagement, as deemed necessary by County staff, to gather feedback and gauge support for proposed improvements.

6. **Step 6 – Cost Estimation:** Prepare project cost estimates and integrate these into the relevant capital or operating budgets to account for the installation, operation, and maintenance of the approved solution.

7. **Step 7 – Approval and Implementation:** Finalize the design of the approved solution and proceed with its installation or construction following the County's standard procedures.

8. **Step 8 - Evaluation:** Evaluate the effectiveness of the implemented solution by reassessing critical factors such as collisions after a 24-month period or based on further input from stakeholders.

9. **Step 9 – Iterative Improvement:** If the evaluation indicates that the crash reduction goal has not been met, identify and implement additional solutions as necessary to achieve the desired outcomes.

The process map for rural intersection safety improvement is provided in Figure 1.

Figure 1: Rural Intersection Safety Improvement Process

REVISION HISTORY					
REPORT	CIC		COUNCIL		DETAILS
	Date	Rec#	Date	Res#	
	Date	Rec#	Date	Res#	
	Date	Rec#	Date	Res#	
	Date	Rec#	Date	Res#	
	Date	Rec#	Date	Res#	
	Date	Rec#	Date	Res#	

Appendix A

1.0 Typical Safety Measures for Stop Controlled Rural Intersections

1.1 Traffic Signs and Devices

Traffic signs and devices play a crucial role in enhancing road safety by providing clear, consistent, and timely information to road users. These tools help regulate, warn, and guide drivers, cyclists, and pedestrians reducing the likelihood of collisions and improving overall traffic flow. The following traffic control devices are available to enhance safety at rural intersections.

1.1.1 Oversize Stop Signs

Oversize signs are traffic signs with dimensions larger than the minimum specifications required by provincial guides. These signs are typically used on high-speed highways or in special cases on roadways where enhanced visibility is necessary. They are available in the following sizes: 750 mm x 750 mm, 900 mm x 900 mm, and 1200 mm x 1200 mm.

(750 mm x 750 mm) Stop Sign: This sign can be used when the posted speed is 70 km/h or greater, reduced visibility along a stop-controlled approach, a complex visual environment, or complex and frequent turning manoeuvres (OTM Book 5).

(900 mm x 900 mm) Stop Sign: This sign can be used when there is a history of three or more collisions or reported incidents involving stop sign violations over five years (Government of Alberta, Safety Measures At Rural Stop-Controlled Intersections), reduced visibility along a stop-controlled approach, a complex visual environment, or complex and frequent turning manoeuvres or installing a 750 mm x 750 mm sign have proven ineffective

(1200 mm x 1200 mm) Stop Sign: This should be considered at major problematic intersections of high-volume, high-speed provincial highways. (OTM Book 5)

1.1.2 Stop Ahead Sign

A Stop Ahead sign is a warning sign that is placed in advance of a stop sign to alert drivers of an upcoming intersection, enhancing awareness and safety. This sign is particularly warranted in situations where visibility of the intersection is limited due to curves, hills, or obstructions, where the visual environment is complex and may distract drivers, or where an oversized stop sign has been implemented but has not effectively improved compliance. By providing an additional layer of warning, the Stop Ahead sign helps reduce the likelihood of sudden stops or missed traffic control, ensuring a smoother and safer approach to rural intersections.

1.1.3 Pavement Markings

Where applicable on hard surfaced rural intersections, supplementary pavement markings, such as "Stop" and "Stop Ahead" text markings, can serve as enhancements to existing regulatory or warning devices, particularly at locations with elevated collision risks resulting from challenging

roadway geometric or operational conditions. The Government of Alberta implements "Stop" markings if all the following conditions are present:

- A documented history of three or more collisions involving stop sign violations over a five-year period.
- Approach roadways with posted speeds of 80 km/h or higher.
- Traffic volumes exceed 500 vehicles per day.
- The intersection exhibits non-typical traffic operations (e.g., a through road operates as a right turn).
- Other safety measures have proven ineffective.

Similarly, "Stop Ahead" text markings may be utilized as a complement to "Stop" markings when a "Stop Ahead" sign is already in place and where visibility is limited due to roadway features such as curves or grades. These measures aim to enhance driver awareness, improve compliance, and mitigate collision risks at critical locations.

1.1.4 Flashing Red Lights

Flashing red lights are the highest level of safety enhancement at stop-controlled intersections. They can be installed if certain conditions are met. For instance, The Government of Alberta implements "Stop" markings if all of the following conditions are present (Government of Alberta, Safety Measures at Rural Stop-Controlled Intersections).

- A documented history of three or more collisions involving stop sign violations over a five-year period.
- Approach roadways with posted speeds of 80 km/h or higher.
- Traffic volumes exceed 500 vehicles per day.
- There is an upstream curve or grade difference obstructing the visibility of the intersection.
- Other safety measures have proven ineffective.

1.1.5 Active Transportation Signs and Pavement Marking

Rural intersections along the County’s trail network could be enhanced with regulatory and warning signs and pavement markings to improve safety for pedestrians and cyclists. Pedestrian and cycling regulatory and warning signs include "Turning Vehicles Yield to Bikes and Pedestrians" (R-19), "Turning Vehicles Yield to Bicycles" (Ra-18), "Bicycles Yield to Vehicles" (Ra-17), "Pedestrian Ahead," and "Bicycle Crossing Ahead."

To further improve safety, pavement markings should be added, such as sharrows spaced 8-10 meters apart to guide cyclists through the intersection and green pavement markings in conflict zones. One common conflict area at rural intersections occurs between in-boulevard cyclists and right-turning vehicles. A potential solution is providing a green marking path through the intersection, positioned to the left of right-turning vehicles, to define the cyclist's route and minimize conflicts. Pavement markings are warranted under the following conditions:

- A documented history of one or more collisions involving cyclists.
- Approach roadways with posted speeds of 80 km/h or higher.
- Traffic volumes exceed 500 vehicles per day.

1.2 Geometric Improvement

Intersection safety or operational problems related to geometry may require modifications such as increasing sight distances, flattening curves, improving shoulder widths, and/or reconfiguring intersection layouts. Features like channelization for turning vehicles, properly designed acceleration and deceleration lanes, and the addition of auxiliary lanes could also help improve traffic flow and minimize conflict points. The following measures could be used to address safety issues related to roadway/intersection geometry.

1.2.1 Sightline Improvement

Enhancing sightlines is critical for improving safety at rural intersections, as clear visibility is essential for drivers to make informed decisions and avoid potential conflicts. This can be achieved through the following methods:

- **Removing Obstructions:** Clearing vegetation, embankments, signage, and other physical barriers that impede a driver's line of sight ensures unobstructed visibility of approaching traffic, pedestrians, and cyclists.
- **Addressing Vertical and Horizontal Curves**: Modifications to road geometry, such as flattening sharp curves or adjusting gradients, can improve visibility significantly. In cases where geometric changes are not feasible, implementing advanced warning signs, reducing speed limits, and selectively clearing vegetation to enhance lateral sightlines can provide a practical solution.
- **Relocating Stop Bars**: Moving stop bars closer to the intersection allows drivers to achieve a better vantage point for observing cross-traffic. This adjustment can be effective in intersections with complex geometries or where existing sightlines are naturally limited.

1.2.2 Intersection Configuration

The following changes to the rural intersection configurations can be made to improve the safety of the rural intersections.

- **Add left-turn lanes:** Provide exclusive left-turn lanes, particularly on high-volume and high-speed approaches, to remove turning vehicles from the through traffic stream.
- **Provide right-turn lanes:** Provide right-turn lanes to remove slow-moving, right-turning vehicles from the through traffic stream. Increase the entrance taper and deceleration lengths to improve the geometry of right-turn lanes.
- **Intersection Design:** Review the intersection's design configuration to determine if it suits the location and type of traffic. If needed, explore alternative configurations including roundabouts.
- **Corner Radius:** The corner radius could be adjusted based on the type of traffic and the surrounding context. For intersections with high (more than 5%) volumes of heavy vehicles, increasing the corner radius can enhance safety by accommodating larger turning movements and reducing conflicts. Conversely, for intersections located along pedestrian-priority routes or trails, reducing the corner radius shortens crossing distances, thereby improving safety for vulnerable road users such as children and seniors.
- **Providing Proper Lighting:** Adequate and well-maintained lighting plays a crucial role in ensuring intersection safety by enhancing visibility for all road users. Proper lighting improves the visibility of traffic signs, pedestrian crossings, and critical road infrastructure. If

the safety review reveals a higher number of nighttime collisions, a warrant assessment should be conducted following the County's Streetlight Warrant Process. If warranted, the installation or improvement of lighting should be prioritized as a key remedial measure. Additionally, advance warning flashers should be considered in areas with limited sight distance to provide drivers with timely alerts about upcoming intersections. For intersections located along the County's Trail Network, it may be appropriate to provide illumination at crossings.

- **Provide J-turns:** J-turn intersections are a specific type of median treatment designed to improve safety at rural highway intersections. Instead of allowing drivers on a minor road to directly cross a median, J-turns require them to make a right turn followed by a U-turn at a designated point. This design reduces the risk of right-angle collisions, which are common on median-separated highways, by minimizing exposure to oncoming traffic and eliminating the need to judge difficult gaps in opposing traffic. Figure 2 Illustrates a J-Turn intersection and how traffic flows through it. These intersections are not common in jurisdictions with snow maintenance requirements.

Figure 2: J-Turn Intersection

Minnesota Department of Transportation

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Appendix G

Neighbourhood Area-Wide Speed Policy

Haldimand County	**POLICY No. (Provided by Clerks)** **Neighbourhood Area-Wide Speed Policy**

Originating Department		
SMT Approval:	Click here to enter a date.	
Council in Committee:	Click here to enter a date.	**Recommendation #:**
Council Approval:	Click here to enter a date.	**Resolution #:**
Revision History:	Click here for revision history	

1.0 Purpose

The Neighbourhood[1] Area-Wide Speed Policy is a tool to improve the safety and livability of residential areas in Haldimand County. Speeding poses significant risks to pedestrians, cyclists, and motorists, especially in neighbourhoods where vulnerable road users such as children and seniors are more likely to be present. By lowering/regulating speed limits in neighborhoods this policy seeks to reduce the severity and frequency of accidents, enhance traffic flow, and create safer environments for all residents. A reduced speed limit can foster better community engagement and ensure that road safety is prioritized.

2.0 Policy Objectives

The primary objectives of this policy are to:

- Enhance road safety for pedestrians, cyclists, and residents.
- Reduce the frequency and severity of speed-related accidents in residential areas.

[1] A neighborhood consists of residential streets (MMS Class 5-6) that primarily serve local residents and are designed to provide access to limited number of residents and properties.

3.0 Safety Issues Associated with Speeding

Speeding in residential areas is a critical concern in Haldimand County. Studies have shown that vehicle collisions at higher speeds are more likely to result in severe or fatal injuries. Excessive speeds also reduce drivers' ability to react to unforeseen hazards. The relation between posted speed limits and actual vehicle speed is significant; many drivers tend to drive faster than the posted limits, especially if the environment does not visibly indicate that reduced speeds are necessary. Therefore, a reduction in speed limits, coupled with appropriate signage and traffic calming measures, is essential to mitigate these risks.

4.0 Neighbourhood Area-Wide Speed Limits

In Haldimand County, the speed limit in all residential neighbourhoods, including school zones, park areas, and zones with high pedestrian traffic, will be reduced to 40 km/h. This reduction will be implemented across entire neighbourhoods rather than on a street-by-street basis to simplify enforcement and ensure consistency. The implementation of the policy will follow a systematic, data-driven approach outlined below:

1. **Step 1 - Pre-screening:** A request for establishing an area-wide speed limit for a neighbourhood can be submitted by the residents or council. A neighbourhood qualifies as a candidate if it satisfies all of the following conditions:

    a) Every road within the boundaries of the neighborhood is classified as MMS class 5-6

    b) The posted speed limit is 50 km/h or higher.

    c) There is support from the community for adopting an area-wide speed limit.

2. **Step 2 - Desktop Screening:** If the request warrants further investigation, Traffic data will be collected to conduct a warrant assessment. The data will consider factors such as pedestrian activity, collision history, active transportation use, and neighbourhood roadway characteristics.

3. **Step 3 – Warrant Assessment:** A neighbourhood qualifies for a reduced area-wide speed limit if it meets the minimum point threshold outlined in Appendix A of this Policy.

4. **Step 4 – Design Compliance:** Ensure that the design of the approved solution aligns with County policies on accessibility, emergency services, and the needs of pedestrians and cyclists

5. **Step 5 – Community Engagement:** The County will engage with residents and the ward councillor to assess support for the speed limit changes through public consultations. The County will ensure that the request for a reduced area-wide speed limit is supported by at least 70% of directly affected property owners and at least 25% of indirectly affected residents, as identified by County staff.

6. **Step 6 – Signage Installation:** If supported by the residents and ward councillor, speed reduction signage will be installed at the entry and exit points of the neighbourhood. This ensures that residents and drivers are made aware of the reduced speed zones without the need for excessive signage on every street.

7. **Step 7 – Enforcement:** The OPP will be notified of neighbourhoods designated with area-wide speed limits. To support effective implementation, the County may also install Speed Display Devices (SSDs) periodically. Data collected from the SSDs will be shared with the OPP.

8. **Step 8 – Monitoring and Evaluation:** The effectiveness of the policy will be continuously monitored. Speed data and accident statistics will be analyzed to assess whether the targeted areas show improvements in safety. If the reasonable targets are not met, the County may consider implementing traffic calming measures as per the County's traffic calming policy. Should further adjustments be necessary, the policy will be reviewed and modified to address new challenges and opportunities for improvement.

REVISION HISTORY				
REPORT	CIC		COUNCIL	DETAILS
	Date Rec#		Date Res#	
	Date Rec#		Date Res#	
	Date Rec#		Date Res#	
	Date Rec#		Date Res#	
	Date Rec#		Date Res#	
	Date Rec#		Date Res#	

Appendix A

Neighbourhood Area-wide Speed Policy Warrant Rating System

Haldimand County uses a point-based system to assess whether a neighbourhood is warranted to be identified for reduced area-wide speed limit. The point-based warrant assigns points for various criteria including collision history, pedestrian generating facility within 250 m of the area, and availability of AT facility. If a request scores 15 or higher, the warrant is met. Table 1 details the specific point values assigned to each criterion for decision-making purposes.

Table 1: Neighbourhood Area-wide Speed Warrant Criteria and Point-Based System

No.	Criteria	Warrant Criteria and Points	Max Points
3	Collision History	2 points for every collision recorded in the past 3 years.	10
6	Pedestrian Generating Facility	2.5 points for every pedestrian generating facility within 250 m of the area.	5
7	Share the Road	5 points if the roadway is on a county-designated cycling route - shared with the roadway (sharrow / paved shoulders). Signed or Mapped	5
8	Pedestrian Facilities	5 points if the roadway has no designated off-road sidewalks / multi-use pathways 2.5 points if the roadway has designated off-road sidewalks / multi-use pathways on one side of the roadway 0 points if the roadway has designated off-road sidewalks / multi-use pathways on both sides of the roadway	5

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Appendix H

Engineering Measures

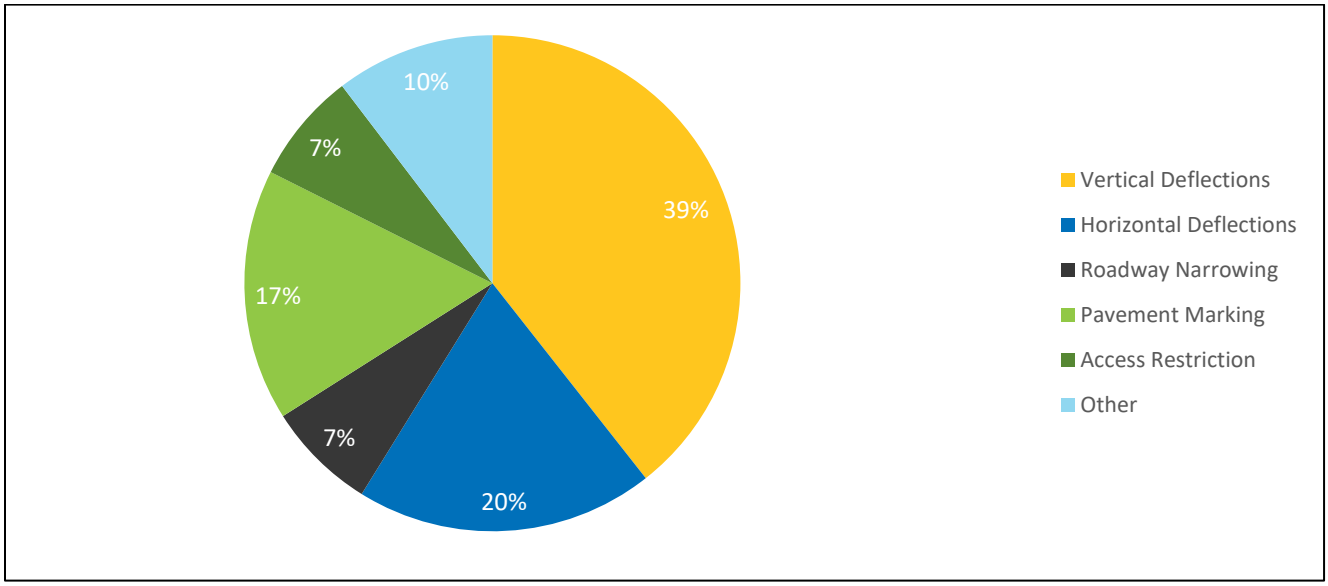
Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Appendix H – Engineering Traffic Calming Measures

1.0 Engineering Measures

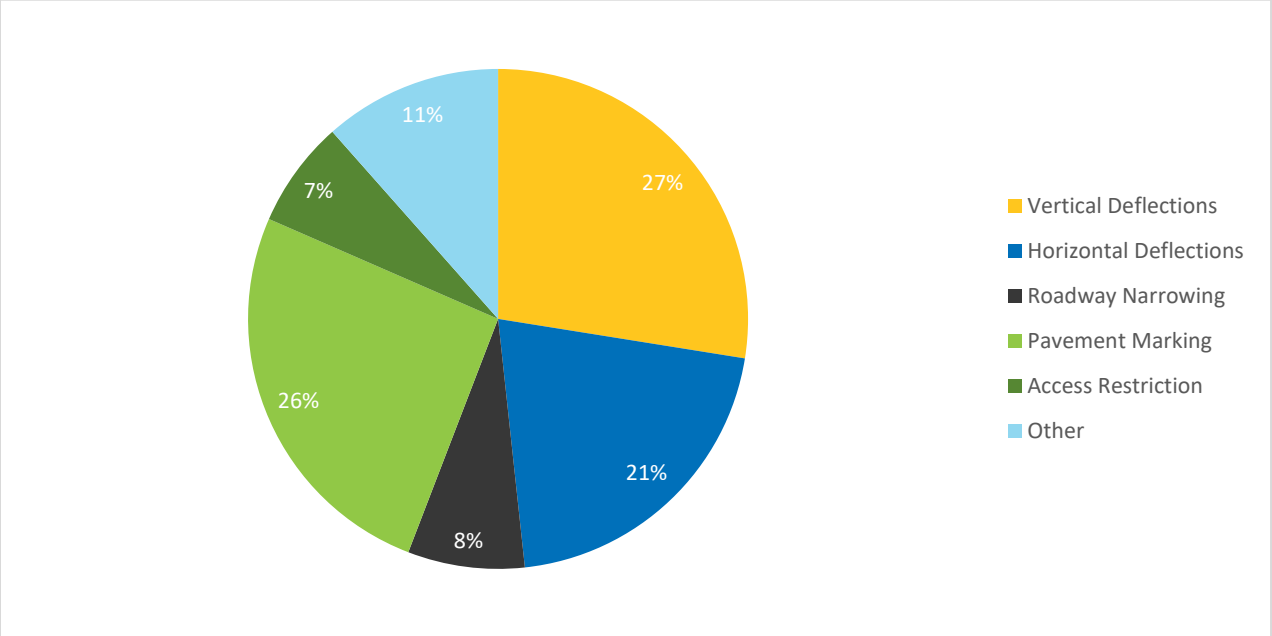
Engineering traffic calming measures are physical changes on the road that slow down the traffic speed by changing the alignment, features, width and surface of the road. Engineering measures can be in the form of vertical deflection, horizontal deflection, road narrowing, access restriction and pavement marking. R.J. Burnside & Associates Limited (Burnside) conducted a survey and asked the Haldimand County residents about the engineering measures they felt would be most effective in urban residential areas and rural settlement / hamlet areas. The residents' preference for engineering measures for urban residential areas and rural settlement / hamlet areas is illustrated in Figure 1 and Figure 2 respectively.

Figure 1: Preferred Engineering Measures for Urban Residential Areas



As illustrated in Figure 1, 39% of the residents feel that vertical deflections would be a better engineering solution for speeding in residential neighbourhoods. In the meantime, 30% think that horizontal deflections would be a better solution for residential neighbourhoods. Pavement marking is a desired solution for the residential neighbourhoods by 25% of the residents. Road narrowing and access restrictions are not very popular among the residents to manage speeding issues in the residential neighbourhoods as they are not chosen as preferred solutions by most of the residents.

Figure 2: Preferred Engineering Measures for Rural Settlement / Hamlet Areas



As illustrated in Figure 2, 40% of the residents feel that vertical deflections would be a better engineering solution for speeding in the rural settlements / hamlets. In the meantime, 37% think that pavement marking would be a better solution for rural settlements / hamlets. Horizontal deflections are a desired solution for the rural settlement / hamlets by 30% of the residents. Road narrowing and access restrictions are not very popular among the residents to manage speeding issues in the rural settlements / hamlets as they are not chosen as preferred solutions by most of the residents.

The following section will provide detailed description of the traffic calming measure that received the highest levels of support, primarily Vertical Deflections, Horizontal Deflections, and Pavement Marking, which together accounted for over 75% of the total responses. These three measures are likely to form the core of any proposed traffic safety plan, as they reflect the primary concerns and preferences of the community. Further analysis will involve exploring the specific attributes and advantages of these measures, as well as how they can be implemented to maximize their effectiveness in resolving the traffic safety issues in Haldimand County.

The study will also consider the preferences of those who selected “Other” measures, as these may provide innovative or alternative solutions worth considering. Although Access Restriction and Roadway Narrowing were less popular, they will not be overlooked and may still be integrated into a comprehensive traffic calming strategy if they complement the more widely supported options.

1.1 Vertical Deflections

1.1.1 Raised crosswalk

A raised crosswalk is a marked pedestrian crosswalk at an intersection or midblock location constructed at a higher elevation than the adjacent roadway. A raised crosswalk helps reduce vehicle speed, improve pedestrian visibility and reduce vehicle-pedestrian conflict.

Advantages: Reduces 85th percentile speed from 5 km/h to 13 km/h and reduces traffic volumes by up to 26%.

Disadvantages: Causes delays to emergency vehicles (3.8 sec/crossing) and snow-clearing vehicles. Creates a false sense of security for pedestrians. Cyclists may experience a loss of control at higher speeds. Traffic may be diverted to parallel streets. In locating raised crosswalks, effects on roadway drainage must also be addressed following TAC design guidelines provided in Section 4.2.1 of the Canadian Guide to Traffic Calming (CGTC).

Applicability: A raised crosswalk is desirable under the conditions summarized in Table 1.

Table 1: Raised Crosswalk Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Designated emergency routes Areas with limited sightlines Traffic signals Grades over 8%	Collector Local Commercial collector Urban cross-section	School Zones	Existing Marked Crosswalk Wide ROW Sidewalk at least on the side of the road	Speeds up to 50 km/h Flush leading edges and gentle approaches

Cost: Depending on the geometry, location and width of the road, the cost for installation of a raised crosswalk ranges from low to medium.

Figure 3: Raised Crosswalk – City of Toronto

Source: City of Toronto

Drawings and Specifications: The detailed specifications and typical drawings of raised crosswalks can be found in Section 4.2.1 and Figures 4.1 and 4.2 of CGTC respectively.

1.1.2 Speed Humps

A raised area of a roadway causes the vertical upward movement of a traversing vehicle. The purpose of a speed hump is to cause discomfort for drivers travelling at higher speeds and to reduce vehicle speed. If a vehicle travels at a higher speed through the hump, it will give the occupants an uncomfortable sensation. The design speed depends on the dimensions of the hump and the spacing between them. The humps extend across the width of the road with drainage gaps at the curbs. The visibility of a speed hump should be improved with the installation of a WA-50 sign.

Advantages: Reduces speed between 6 km/h and 13 km/h and traffic volume between 15% and 27%. Significantly reduces conflicts.

Disadvantage: Causes delays to emergency vehicles (between 2.3 and 15 seconds), snow clearing vehicles and transit vehicles. Cyclists may experience a loss of control at higher speeds. Traffic may be diverted to parallel streets.

Applicability: A speed hump is desirable under the conditions summarized in Table 2.

Table 2: Speed Hump Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Designated emergency routes Areas with limited sightlines Traffic signals Grades over 8%	Local Urban cross-section	Installation in a seriesand under street lighting Part of a larger traffic calming system	None	Up to 50 km/h Spacing between 60 to 250 m in a series.

Cost: Depending on the geometry, location and width of the road, the cost for installation of a raised crosswalk ranges from low to medium.

Figure 4: Speed Hump - City of Mississauga

Source: R.J. Burnside & Associates Limited Photo Archive

Drawings and Specifications: The detailed specifications and typical drawings of speed humps can be found in Section 4.2.4 and Figures 4.6 and 4.7 of CGTC respectively.

1.1.3 Speed Cushions

It is a raised area on a road, like a speed hump, but does not cover the entire width of the road. The width is designed to allow a large vehicle such as a bus to straddle the cushion, while light vehicles will have at least one side of the vehicle deflected upward. Speed cushions are intended to produce sufficient discomfort to limit passenger vehicle travel speeds yet allow the driver to maintain vehicle control while allowing larger vehicles such as buses and emergency

vehicles to pass without difficulty. If a vehicle travels at a higher speed through the speed cushions, it will give the occupants an uncomfortable sensation while emergency vehicles and transit vehicles are minimally affected. The design speed depends on the dimensions of the cushions and the spacing between them. The visibility of a speed hump should be improved with the installation of a WA-50 sign.

Advantages: Reduces speed by up to 8 km/h and traffic volume by up to 30%.

Disadvantage: Causes minimal delays to emergency vehicles, and transit vehicles. The negative effect on snow-clearing operations required more attention from the snowplow operators. Traffic may be diverted to parallel streets.

Applicability: A speed cushion is desirable under the conditions summarized in Table 3.

Table 3: Speed Cushion Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Small turning radius curves Areas with limited sightlines Traffic signals Grades over 8%	Collector Local Urban cross-section	Installation in a series Installation under street lighting	None	Up to 50 km/h Spacing between 60 to 250 m in a series.

Cost: Low.

Figure 5: Speed Cushion - City of Mississauga

Source: R.J. Burnside & Associates Limited Photo Archive

Drawings and Specifications: The detailed specifications and typical drawings of speed cushions can be found in Section 4.2.3 and Figures 4.4 and 4.5 of CGTC respectively.

1.1.4 Speed Tables

A speed table is an elongated raised speed hump with a flat-topped section that is long enough to raise the entire wheelbase of a vehicle. They may be constructed with brick or other textured materials on the flat section.

Advantages: Reduces speed between 6 km/h and 13 km/h and traffic volume between 15% and 27%. Significantly reduces conflicts.

Disadvantage: Causes slight delays to emergency vehicles, snow clearing vehicles and transit vehicles. Cyclists may experience loss of control at higher speeds. Traffic may be diverted to parallel streets.

Applicability: A speed table is desirable under the conditions summarized in Table 4.

Table 4: Speed Table Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Designated emergency routes Areas with limited sightlines Traffic signals Grades over 8%	Collector Local Urban cross-section	Installation under street lighting Part of a larger traffic calming system	None	Up to 50 km/h Spacing between 60 to 250 m in a series.

Cost: Depending on the geometry, location and width of the road, the cost for installation of a raised crosswalk ranges from low to medium.

Figure 6: Speed Table – Town of Ajax

Source: R.J. Burnside & Associates Limited Photo Archive

Drawings and Specifications: The detailed specifications and typical drawings of speed table can be found in Section 4.2.4 and Figures 4.6 and 4.7 of CGTC respectively.

1.2 Horizontal Deflections

1.2.1 Vertical Centreline Treatment

The use of vertical centerline treatment such as flexible post-mounted delineators or raised paved markers to create a centre median. This could be used to give drivers a perception of lane narrowing and create a sense of constriction. Flexible post-mounted delineators are similar in appearance to bollards. They are commonly used in work zones with high occupancy vehicles lanes and ramps exist to direct vehicles or prevent movements.

Advantages: Reduces speed up to 5 km/h. Potentially reduces conflicts. Easy to install and can withstand impact from traffic.

Disadvantage: May require regular maintenance, hinders snow removal operations, and may cause difficulty for large farm vehicles in rural areas.

Applicability: A vertical centerline treatment is desirable under the conditions summarized in Table 5.

Table 5: Vertical Centreline Treatment Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Where it may limit turning into driveways or crossing streets	Collector Local Urban and Rural	Installation under street lighting Part of a larger traffic calming system	None	None

Figure 7: Vertical Centreline Treatment – Haldimand County

Source: Haldimand County

Cost: Low

Drawings and Specifications: The detailed specifications and typical drawings of vertical centreline treatment can be found in Section 3.4.6 of CGTC.

1.2.2 Curb Radius Reduction

A curb radius reduction is the reconstruction or modification of an intersection corner with a smaller radius, usually between 3 m to 5 m. The purpose is to slow down right-turning vehicles, reduce crossing distances for pedestrians and improve the visibility of pedestrians.

Advantages: Reduces speed of right-turning vehicles, reduces pedestrian crossing distance, improves visibility.

Disadvantage: Large vehicles may mount the curb or cross into adjacent or oncoming lanes. It may require extra investment in designing waiting and crossing areas for pedestrians.

Applicability: A curb radius reduction is desirable under the conditions summarized in Table 6.

Table 6: Curb Radius Reduction Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Driveways Over 8% grade Not suitable for intersections with turning trucks and buses.	Low volume arterial Collector Local Urban cross-section	AADT<10,000 Roads with less bicycle volumes	Warning signs May be combined with other calming measures	

Cost: Low to Medium

Drawings and Specifications: The detailed specifications and typical drawings for curb radius reduction can be found in Section 4.3.2 and Figure 4.9 of CGTC respectively.

Figure 8: Curb Radius Reduction – City of Toronto

Source: R.J. Burnside & Associates Limited Photo Archive

1.2.3 Chicane

A chicane is a series of curb extensions on alternating sides of a roadway, which narrow the roadway and require drivers to steer from one side of the roadway to the other to travel through the chicane. Multiple series of curb extensions can be used. The purpose of this measure is to discourage shortcutting or traffic and reduce overall speed by forcing the lateral shifting of vehicles.

Advantages: Depending on the number of lanes, reduces speed between 6 and 11 km/h and volumes between 22% and 47%. reduces conflicts and traffic noise. Improves air quality and street appearance.

Disadvantage: May affect emergency vehicle response time, loss of on-street parking, and may cause difficulty for large farm vehicles in rural areas. Negative effects on snow clearing and street sweeping operations may require specialized vehicles. The drainage gutter must be swept manually. May introduce head-on collision and divert traffic to parallel streets.

Applicability: A Chicane is desirable under the conditions summarized in Table 7.

Table 7: Chicane Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Driveways Over 8% grade Designated emergency access routes and designated truck routes.	Collector (two-way only) Local Urban cross-section	AADT>750 Roads with less bicycle volumes	Warning signs May be combined with other calming measures	Speeds up to 50 km/h.

Cost: Low

Figure 9: Chicane – Town of Ajax

Source: R.J. Burnside & Associates Limited Photo Archive

Drawings and Specifications: The detailed specifications and typical drawings of chicanes can be found in Section 4.3.1 and Figure 4.8 respectively.

1.2.4 Lateral Shift

A lateral shift in a roadway occurs where an otherwise straight section is redesigned using pavement markings or curb extensions to create a curvilinear alignment in the roadway similar to a chicane. This effect can also be achieved with the use of a central island. A lateral shift causes drivers to negotiate the alignment and increases awareness in attempt to reduce vehicle speeds.

Applicability: Lateral shift is desirable under the conditions summarized in Table 8.

Table 8: Lateral Shift Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Over 8% grade	Collector Local Urban cross-section	None	Warning signs Should be located near streetlights	Speeds up to 50 km/h. Provide space for bicycles on narrow roads

Cost: Low

Figure 10: Lateral Shift – City of Toronto

Source: Federal Highway Administration

Drawings and Specifications: Lateral Shift should be applied one-lane one-way and two-lane two-way streets, with or without bike lanes. It is suitable for mid-block locations only and for visibility, it should be implemented near streetlights.

Reference for more details: U.S. Department of Transportation – Federal Highway Administration; Toolbox of Individual Traffic Calming Measure

https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer
https://innisfil.ca/en/my-government/resources/Documents/Traffic-Calming-Strategy/Appendix-D---Table-design-guide.pdf

1.2.5 Traffic Circles and Mini Roundabouts

Traffic Circle / Mini-Roundabout is an island located at the centre of an intersection which requires vehicles to travel through the intersection in counterclockwise direction around the island. Yield traffic control is recommended for these measures.

Figure 11: Traffic Circle – City of Surrey

Source: City of Surrey

Figure 12: Mini Roundabout

Source: City of Surrey

Mini roundabouts are designed in accordance with a full-size roundabout design principle. Mini roundabouts have smaller diameters than full-size roundabouts and larger than traffic circles

and traffic buttons. The turning radius for left-turning trucks, buses or emergency vehicles may require a diameter which would be larger than the intersection spaces commonly available.

Advantages: Reduces 85th percentile speed up to 14 km/h and traffic volumes up to 20%. Reduces conflicts 30% in comparison with the signalized intersection. Improves air quality and street appearance.

Disadvantage: Affects emergency vehicle response time between 1.3 and 10.7 seconds. Minimal negative effects on snow clearing operations. Traffic may be diverted to parallel streets. Might require extra property at the intersection with a minimum ROW of 28 m x 28 m. It will further extend parking restrictions.

Applicability: A circle/mini roundabout is desirable under the conditions summarized Table 9.

Table 9: Traffic Circle / Mini Roundabout Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Intersection with high traffic volume ratio of intersecting roads High Pedestrian Activity Designated emergency access routes and transit routes.	Local and collector street intersection	AADT<1500 Caution for collectors with AADT of 1500 to 5000.	Textured crosswalks Respect sightlines	Speeds up to 50 km/h.

Cost: Traffic circle cost between low and medium and mini roundabouts range between medium to high.

Drawings and Specifications: The detailed specifications and typical drawings of traffic circles / mini roundabouts can be found in Section 4.3.4 and Figures 4.11 and 4.12 of CGTC respectively.

1.3 Roadway Narrowing

1.3.1 On-street Parking

On-street parking is the reduction of the roadway width available for the vehicles movement by allowing motor vehicles to park parallel to the curb. It narrows the width of the street and reduces vehicle speed.

Advantages: Parked vehicles provided a buffer between traffic and pedestrian on the sidewalk. May reduce traffic noise.

Disadvantage: May reduce visibility for pedestrians. Require a minimum width for the safe passage of cyclists. May negatively impact snow removal operations. Could increase rear-end and sideswipe collision.

Applicability: On street parking is desirable under the conditions summarized in Table 10.

Table 10: On Street Parking Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Driveways Areas with limited sightline Bus, school, and playground zones Unilluminated streets	Local Collector Urban Commercial Streets Urban Cross Section	Parking restrictions in winter can be applied. Can be used in combination with other measures	Respect sightlines Roads should have enough pavement width (7.3m each direction).	Speeds up to 50 km/h.

Cost: Low to Medium

Figure 13: On Street Parking – Town of Ajax

Source: R.J. Burnside & Associates Limited Photo Archive

Drawings and Specifications: The detailed specifications and typical drawings of on-street parking can be found in Section 4.4.2 and Figure 4.14 of CGTC respectively.

1.3.2 Raised Median Island

A raised median island is an elevated median constructed on the centerline of a two-way road to reduce the overall width of the adjacent travel lanes. The purpose of a raised median island is to reduce vehicle speeds and to reduce pedestrian vehicle conflict.

Advantages: Reduces speed between 3 and 8 km/h. Reduces conflicts with pedestrians. Improves street appearance.

Disadvantage: May restrict access to driveways. Cyclist may feel discomfort specially with high volume of heavy vehicles. May require additional ROW. Speeds may increase if mid-block left turn are not possible.

Figure 14: Raised Median Island – Town of Oakville

Source: R.J. Burnside & Associates Limited Photo Archive

Applicability: A raised median island is desirable under the conditions summarized in Table 11.

Table 11: Raised Median Island Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	Local Collector Urban Arterials	Can be combined with other traffic calming measures	Bicycle lanes can be added to improve its functionality. Land scaping should not reduce visibility	Most effective on roads with one lane per direction

Cost: Medium to High

Drawings and Specifications: The detailed specifications and typical drawings of raised median islands can be found in Section 4.4.3 and Figure 4.15 of CGTC respectively.

1.4 Pavement Marking

1.4.1 Dragon's Teeth

Dragon's teeth are a series of triangular pavement markings along the edge of the travelled lanes. They may be painted with increasing size to give the impression of roadway narrowing. Pavement markings provide a visual change of the roadway and alert drivers that they are entering a rural community.

Advantages: Rapid implementation, no adverse effect on emergency, snow plowing, sweeping and police vehicles.

Disadvantage: Requires regular maintenance, less effective in winter due to snow.

Applicability: Dragon's Teeth are desirable under the conditions summarized in Table 12.

Table 12: Dragon's Teeth Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	All roads and all traffic volumes Primarily rural cross-sections	Transition areas when entering a rural settlement/hamlet or urban area.	None	Most effective on roads with one lane per direction

Cost: Low Cost

Figure 15 Dragon's Teeth – Haldimand County

Source: Haldimand County

Drawings and Specifications: Each triangular pavement marking is typically 2 ft. wide, 2 ft. tall, and spaced 5 ft. apart from the adjacent pair, with no specific requirement for the number of teeth, though 9 to 17 pairs are commonly used. These markings require regular maintenance and reapplication. Reference for more details: Town of Innisfil – Traffic Calming Design Guide

https://innisfil.ca/en/my-government/resources/Documents/Traffic-Calming-Strategy/Appendix-D---Table-design-guide.pdf

1.4.2 On Road Signs

On-road signs provide information that would typically be shown to drivers through signage but are painted on the roadway to provide a larger image and one that is directly in the drivers' line of sight. Some examples could be speed limit slow, stopping ahead etc.

Advantages: Rapid implementation, no adverse effect on emergencies, snow plowing, sweeping and police vehicles.

Disadvantage: Requires regular maintenance, less effective in winter due to snow cover.

Applicability: On Road Signs are desirable under the conditions summarized in Table 13.

Table 13: On Road Signs Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	Local, collector and arterial with any traffic volume Urban and rural cross sections	Transition areas when entering a rural settlement/hamlet or urban area.	Ensure standards for traffic control devices and traffic signs are met.	None

Cost: Low Cost

Figure 16: On Road Signs (Yield)

Source: ITE.org

Figure 17: On Road Signs (Stop Ahead)

Source: ITE.org

Figure 18 On Road Signs (Slow School Zone)

Source: ITE.org

Drawings and Specifications: The County should follow the general guidelines of OTM Book 11 (Pavement Hazar and Delineation Markings) regarding size, colours, limitations, reflectorizations, and type of paint of the On Road Sings. For more details refer to Figure 49 to Figure 52 of OTM Book 11.

1.5 Gateways

Gateways are a combination of traffic calming devices, that help to provide an entry or gateway which identifies transitional zones such as between commercial rural areas and urban-rural residential zones villages or hamlets.

Advantages: Reduce 85th percentile speed up to 10 km/h (up to 15 km/hr. if accompanied by other measures). May improve the aesthetics, by incorporating colour / texture of pavement and landscaping. Creates visibility for transitional zones.

Disadvantage: Requires frequent maintenance particularly when aesthetic features are incorporated. Not effective in slowing down the frequent commuters.

Applicability: Gateways are desirable under the conditions summarized in Table 14.

Table 14: Gateways Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	All road classes Urban and rural cross-sections	Transition areas when entering a rural settlement/hamlet or urban area. Approaching intersections Built-up areas	Should be large enough to attract the attention of drivers	Helps gradual speed-changing areas

Cost: Medium

Figure 19: Gateway

Source: Canadian Guide to Traffic Calming

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Appendix I

Enforcement Measures

Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Appendix I – Enforcement Traffic Calming Measures

1.0 Enforcement Measures

Speed is one of the most widely recognized factors that directly relate to the severity of road traffic accidents. Speeding is a major concern in Haldimand County. A resident survey conducted by R.J. Burnside & Associates Limited (Burnside) found that 73% of the Haldimand County residents are concerned about speeding. The results of the resident survey are provided in Figure 1 and Figure 2. The residents of Haldimand believe that increased enforcement measures can effectively address their concerns regarding speeding in both rural settlements and urban neighbourhood areas. Enforcement measures focus on influencing driver behaviour rather than modifying the physical road environment. These can include traditional methods like police presence, technology-driven solutions such as speed cameras, red-light cameras and drones and community-driven initiatives like speed watch programs.

Figure 1: Most Effective Traffic Calming Measures for Residential Neighbourhoods According to Residents of Haldimand County

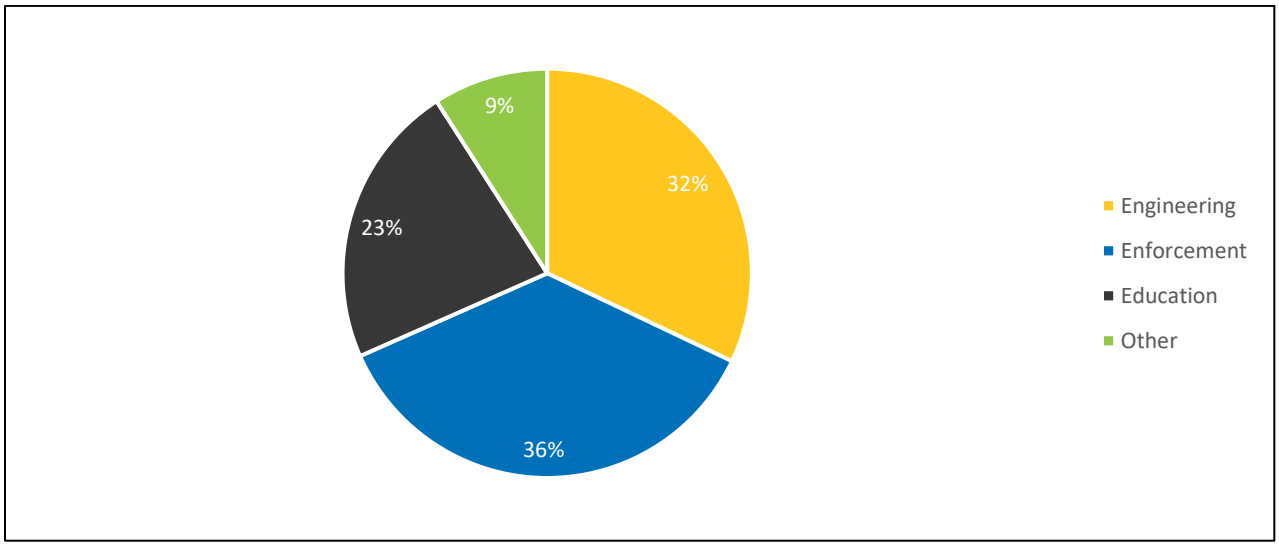
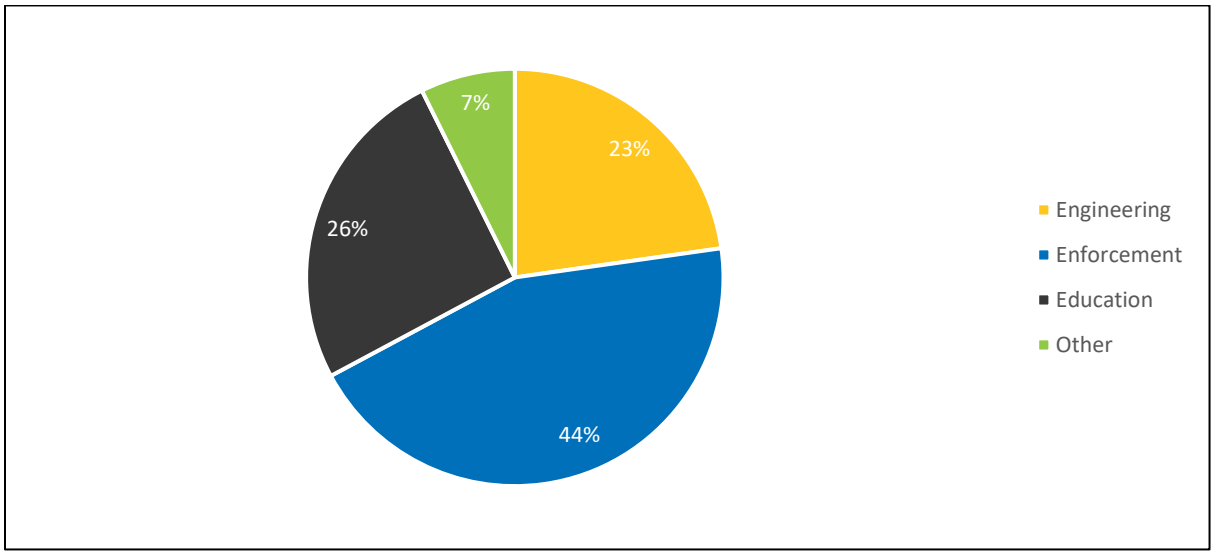


Figure 2: Most Effective Traffic Calming Measures for Rural Settlements According to Residents of Haldimand County



The following enforcement measures have the potential to calm the traffic in Haldimand County.

1.1 Fixed Speed Enforcement (Automated Enforcement)

Fixed speed enforcement involves permanently installed radar cameras that photograph vehicles operating exceeding the speed limit without the presence of police officers.

Advantages: Depending on the visibility, location, threshold and penalties, it reduces speed from 8 km/h to 14 km/h. Reduces speed-related and injury-related collisions from 20 to 48%.

Disadvantages: Motorists may adapt by taking alternate routes or speeding up after passing cameras. Possible disfavour from local residents / community.

Applicability: A fixed speed enforcement is desirable under the conditions summarized in Table 1.

Table 1: Fixed Speed Enforcement Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	All classes of roads and cross-sections	Areas with a history of speed-related collisions	Engineering solutions should be tested before installing a camera	Legal provisions are required.

Cost: High includes capital, operational and maintenance costs.

Figure 3: Fixed Speed Enforcement – Greater Sudbury

Source: City of Greater Sudbury

1.2 Mobile Speed Enforcement

Mobile speed enforcement involves radar photography units that are mounted in a mobile vehicle or trailer that can be moved depending on the need for speed enforcement. Marked or unmarked inconspicuous vehicles can be used for mobile speed enforcement. Legal provision is required.

Figure 4: Mobile Speed Camera

Source: Traffic Supply

Advantages: Reduces speed from 2 km/hr. to 6 km/hr. Reduces the proportion of drivers travelling more than 10 km/hr. from 16% to 70%. Additionally, it reduces speed related collisions from 9% to 44%. If unmarked, reduces speed along a corridor.

Disadvantages: Possible disfavour from residents / community.

Applicability: Mobile speed enforcement is desirable under the conditions summarized in Table 2.

Table 2: Mobile Speed Camera Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Bottom of hills or corners or 200 m upstream of speed limit ahead sign	All classes of roads and cross-sections	Areas with a history of speed-related collisions Preferred in school zones and construction zones.	Capability to accommodate operator vehicle.	Legal provisions are required.

Cost: High includes capital, operational and maintenance costs.

1.3 Outsourced Automated Speed Enforcement (ASE) Camera

Outsourcing Automated Speed Enforcement (ASE) services involve agreeing with the municipality and a service provider for the installation, operation, maintenance, decommissioning, and management of ASE cameras. The service provider will assume responsibility for the operation and security of the ASE systems, ensuring data integrity and providing offence processing services. This turn-key solution is designed to be revenue-neutral and includes a mechanism for the joint operation and cost-sharing of a processing centre responsible for issuing offence certificates.

The following services can be outsourced to the service provider:

- Installation of ASE cameras, including all associated infrastructure such as electrical connections, camera poles, and bases.
- Operation, calibration, and accuracy testing of the ASE cameras, as required by provincial legislation, including the preparation of supporting documentation.
- Regular maintenance and monitoring to ensure the proper functioning of the cameras.
- Installation and upkeep of traffic signage.
- Relocation of ASE cameras and associated traffic signs as needed.

This approach ensures that all aspects of the ASE program are managed efficiently, and in full compliance with applicable regulations.

Advantages: This is a new approach with insufficient data to quantify the advantages. However, the advantages will be similar to other automated speed devices such as reducing speed from 8 km/hr. to 14 km/hr. and speed-related collisions between 20% to 48%.

Disadvantages: This is a new approach with insufficient data to quantify the advantages. However, the disadvantages will be like other automated speed devices such as possible disfavour from residents / community and motorists may speed up after passing cameras.

Applicability: Outsourced ASE cameras are desirable under the conditions summarized in Table 3.

Table 3: Outsourced ASE Camera Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	All classes of roads and cross-sections	Community Safety Zones School Zones	Engineering solutions should be tested before installing a camera	Legal provisions are required.

Cost: High includes capital, operational and maintenance costs.

1.4 Red Light Cameras

Intersections are one of the hotspots of traffic incidents, many of which could be prevented if drivers fully stopped at red lights. To ensure safety, drivers are required to come to a complete stop before the stop line at intersections controlled by signals.

Red light cameras are photo-enforced traffic signals used as a countermeasure to address red light running and slowing the traffic. They capture images of vehicles that enter an intersection after the red signal interval has begun and usually it is reviewed by an offence officer. If a violation is detected, a fine is sent to the vehicle owner. A standard citation typically includes four images: one before entering the intersection, one while in the intersection, a full view of the vehicle, and an enlarged image of the license plate, along with the date, time, and location of the infraction.

Red light cameras are one of the standard industry practices to improve the safety of roads and calm the traffic. Many jurisdictions such as Toronto, Mississauga, Hamilton and others have installed red light cameras at intersections which operate with a signal.

Advantages: Reduces red light running, and reduces frequency and severity of collisions, reduces speed near the intersections, and promotes safe driving behaviour.

Disadvantages: May increase rear-end collisions, installation at unsuitable location will not be cost effective, higher administrative cost particularly for processing tickets for vehicles from other jurisdictions.

Applicability: Red light cameras are desirable under the conditions summarized in Table 4.

Cost: High includes capital, operational and maintenance costs.

Table 4: Red Light Camera Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
Bottom of the Hills	Collector and arterial roads and all cross-sections	Locations with higher incidents due to red light running	Engineering solutions should be tested before installing a camera	Legal provisions are required.

Figure 5: Red Light Camera – Town of Innisfil

Source: Town of Innisfil

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Appendix J

Education Strategy

Haldimand County Administration Building
53 Thorburn Street South
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Appendix J – Education Strategy

1.0 Education Strategy

Human behaviour affects people's driving which leads to incidents of speeding. Changing the driving behaviour can help to calm the traffic down and prevent people from speeding. Education measures are one of the essential traffic calming solutions for this purpose. Education measures can provide information on the consequences of speeding and causing an accident, proper and appropriate driving behaviour, road conditions, operational speed and information about the driving environment. The following education measures can be adopted to calm the traffic down.

1.1 Active and Safe Routes to School Program

The Active and Safe Routes to School (ASRS) is a program recommended by the Canadian Guide to Traffic Calming (CGTC). The program is a community-based initiative that promotes the use of active transport for daily trips to school while addressing traffic safety issues. Most of the focus of this initiative is on active transportation and there is relatively little effect on vehicular traffic.

Advantages: Increased active transportation awareness.

Disadvantages: Requires community commitment and support from the school board.

Applicability: Active and Safe Routes to School is desirable under the conditions summarized in Table 1.

Table 1: Active and Safe Routes to School Program Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	Local and collector urban and rural cross-sections	School locations and areas where children gather to ride school bus	None	Community support and commitment is required.

Cost: Low to medium depending on the scope of the program.

Figure 1: Active and Safe Routes to School Program

Source: http://activesaferoutes.ca/

To start this program Haldimand County may take the following steps.

1. Define the vision and the mission statements as well as the objectives of the program.
2. Create a steering committee consisting of community members, County staff, and relevant organizations such as school boards, health units, etc. to work together to promote ASRS programs and encourage families and children to choose active transportation to get to schools. The committee should have clear goals and objectives.
3. Create an active committee, resource committee and executive committee with clear roles and responsibilities and how their members are chosen.
4. Define the roles and responsibilities of the committee co-chairs and secretaries
5. Promote membership amongst potential community partners.
6. Identify procedures to seek and apply for funding and how the funding should be allocated for schools in the County.

The counties of Elgin, Middlesex, Oxford and the cities of London and St. Thomas have established an Active & Safe Routes to School Program. Further details regarding this program can be found in the following link.

http://activesaferoutes.ca/

1.2 Speed Display Devices and Vehicle Activate Signs

A Speed Display Device (SDD) is an interactive sign that displays vehicle speeds as oncoming motorists approach. Vehicle speed is captured using radar, which can trigger the display board to show when vehicles approach at predetermined unsafe speeds. It can be used upstream of manned speed enforcement.

Vehicle Activated Signs (VAS) are electronic warning signs with speed detectors and an illuminated display. A VAS is like an SDD but instead of showing the speed of vehicles it displays a different message such as “Slow Down”, “Sharp Curve Ahead”, “School Zone Ahead”, or it can display a symbol of a hazard ahead. The device will only show the message if the vehicle travels beyond the speed limit. SDD signs are put in place to alert drivers to reduce their travel speed as they approach specific conditions or hazards ahead.

Advantages: Reduces 85th percentile speed between 3 and 14 km/h. Reduces speed-related collisions by up to 35%. Increases driver awareness. They are portable and can be installed in other locations.

Disadvantages: Drivers will become immune to SDDs and VASs without further enforcement or if they are overused. Some motorists may speed up to see how fast they can go. It may be less effective on multi-lane roads. Requires frequent maintenance. Signposts may create a hazard for errant vehicles.

Applicability: SDD and VAS are desirable under the conditions summarized in Table 2.

Table 2: SDD and VAS Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	All roadway classes Any cross-section. Any Traffic Volume	Upstream of the high-speed signalized intersection Upstream of deficient horizontal curve. Locations with a history of speeding or collision School zones, work zones, shopping centres	Occasional police enforcement improves its effectiveness The line of sight from the sign to the vehicle path should be clear. Consistent sign designs should be used to reduce confusion	Can be used in weather-related conditions Move the device after six months. Placement of signs should allow adequate distance for drivers to adjust their speed.

Cost: Low to medium.

Installation Guidelines

SDD and VAS are most effective on local roads where speeding is a frequent issue and these devices can improve driver behaviour. They are not effective on multilane highways.

Consider roads with documented speeding issues (e.g., where the 85th percentile speed exceeds the posted limit) and areas with a history of speed-related incidents.

Location Consideration

- Areas with more vulnerable road users, such as school zones, parks, playgrounds, senior living facilities, and community centers.
- Transition areas between rural and urban areas where posted speed limits drop significantly, offering drivers a visual cue to adjust speed.
- Where residents or local organizations have submitted formal requests for SDD or VAS.

Visibility Requirements

- Ensure devices are visible to approaching traffic from at least 100 m, allowing adequate time for drivers to see and respond.
- Avoid obstructions like trees, parked vehicles, or other signage that could block visibility.

Device Type and Power Source

- Where possible, install solar-powered devices to reduce operational costs and ensure functionality in remote areas with limited power supply.
- Use devices equipped with data collection tools to enable traffic monitoring and analysis.

Operational Consideration

Devices with cloud-based data capture functionality to collect speed data are preferable. Ensure data is collected every 6 months and stored securely for future analysis. The data may be used to establish trends to identify times of day when speeding is most prevalent, determine the average speed of vehicles in the monitored area and assess the 85th percentile and average speed of the study area. The data may also be used to evaluate the effectiveness of SDD and VAS in reducing speeding and inform decisions about future traffic calming measures or strategies.

SSD and VAS should be relocated every 6 months to prevent drivers from becoming immune to their presence. Prioritize relocation to areas with emerging speeding concerns or based on the priority ranking of traffic calming requests.

Maintenance Guidelines

Perform maintenance every 6 months to ensure devices remain functional and accurate. Maintenance includes but is not limited to battery and solar panel checks, software updates and calibration to maintain proper operations and data accuracy.

1.3 Targeted Education Campaigns

Targeted education campaigns are initiatives to raise awareness of road safety issues. Education campaigns can address multiple types of driver awareness, including speeding (other types include impaired driving, distracted driving, seatbelt awareness, aggressive driving, etc.) In some cases, these will be an integral component of an overall strategic road safety program.

One example of a targeted education campaign is the installation of road safety lawn signs such as those illustrated in Figure 5 and Figure 6. These signs typically carry clear, community-friendly messages like “Slow Down” or “Share the Road,” aimed at reminding drivers to be mindful of their speed and attentive to other road users, including pedestrians, cyclists, and children. Placing these signs in residential neighborhoods or near schools and parks can help create a culture of safety and reinforce local values. When used in combination with enforcement and engineering measures, lawn signs serve as a visible, low-cost method to encourage safer driving habits.

The County currently uses a targeted education campaign in the form of Local Traffic Only signs during construction periods to restrict access and ensure smoother traffic flow. This practice should be expanded to discourage non-local and diverted traffic from using residential routes, particularly when traffic calming measures are implemented. These signs may play a better role in preventing traffic diversion into parallel streets that are not intended for traffic, helping to maintain the integrity and effectiveness of traffic calming initiatives. Local Traffic Only signs can minimize the impact of diverted traffic, reducing congestion and protecting the safety of affected neighbourhoods.

Local Traffic Only signs should be strategically installed alongside traffic calming measures such as chicanes, raised crosswalks, speed cushions, speed tables / humps, and traffic circles / mini roundabouts, which may encourage drivers to divert onto parallel streets. These signs should indicate their purpose and allow access only to residents, deliveries, and emergency services. To enhance visibility and consistency, the signs must feature the Traffic Calming Logo of Haldimand County and maintain a uniform design. They should also be positioned in locations where they are visible from at least 100 m, giving drivers ample time to adjust their route. Supplementary messaging such as “Residents Only” or “No Through Traffic” may be added to strengthen compliance.

Advantages: Depending on the type, scope and outreach level of the campaign, it may be effective at raising awareness and positively changing driving behaviour.

Disadvantages: They are not effective unless tied up with vigorous enforcement. It is not effective if used in isolation and not combined with enforcement measures.

Applicability: Targeted Campaigns are desirable under the conditions summarized in Table 3.

Table 3: Targeted Education Campaign Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	All road classes and cross-sections	Combined with other measures. Data-driven Roadside messages Personal communication	None	Can be implemented locally, community-wide and jurisdiction-wide.

Cost: Low to High.

The goal of a targeted education campaign is to educate, engage, and encourage behaviour change to support effective traffic calming. A successful traffic calming education campaign should consider the following.

1. Identify Key Stakeholders

Engage a diverse range of community stakeholders including but not limited to the County staff, OPP, councillors, health unit, business owners, advocacy groups for pedestrians and cyclists, local media and social media influencers, neighbourhood associations and youth organizations. Ensure stakeholders are consulted during the planning phase and kept informed throughout the campaign. To improve collaboration, involve stakeholders in identifying issues, developing campaign messages, and disseminating information.

2. Campaign Development

Collect and assess traffic data, including; speed trends (e.g., peak speeding hours, 85th percentile speed) and identify locations with high volumes of speeding complaints / cases. Evaluate the impact of past traffic calming initiatives to ensure data analysis identifies the most pressing traffic calming needs and relevant audiences.

Conduct community surveys and discussions to explore why drivers engage in behaviours such as speeding or ignoring traffic calming measures. For instance, drivers speed up due to lack of awareness of posted speed limits or inadequate visual cues.

3. Define Target Audience

The campaign may address specific groups, such as: commuters who regularly use the same routes where speeding is observed, residents of the neighbourhood impacted by speeding or commercial drivers. The campaign can also target a broader range of road users including cyclists and pedestrians to promote alternative ways of transportation.

4. Message Development

The campaign message should be clear, relatable, and motivating messages that resonate with the target audience. Approaches may include:

- Positive Messaging: Highlight the benefits of traffic calming, such as safer streets, quieter neighbourhoods, and better quality of life and its impact on the children's safety.
- Humour: Use light-hearted and engaging visuals or slogans to make the message memorable.
- Fact-Based Messaging: Educate drivers with data on how traffic calming reduces crashes and improves safety.

5. Dissemination Strategies

Use platforms most effective in the County to disseminate the campaign messages. Based on the Resident Survey Data, Facebook, media releases and word of mouth have been the most successful platforms for dissemination of messages to the County residents. It is important to incorporate visual tools such as signs, banners, and street art to reinforce the visibility of campaign messages.

6. Campaign Materials

Develop campaign-branded materials such as bumper stickers, t-shirts, and yard signs to extend visibility. Ensure materials align with the campaign's key messages and target audience.

7. Duration

For short-term campaigns, deliver messages intensively over one month to maximize immediate impact. For long-term campaigns, refresh the content periodically (e.g., every six months) while maintaining the core theme to reinforce behaviour change.

Strategic Guidelines

- Pair the campaign with other traffic calming measures (e.g., speed humps, chicanes, or roundabouts) to emphasize their purpose and importance.
- Encourage residents to take an active role in promoting traffic-calming behaviours by organizing neighbourhood watch programs or hosting traffic-calming events.
- Use the campaign to debunk myths about traffic calming (e.g., "speed humps damage vehicles") and promote its benefits for the community.
- Plan for follow-up campaigns or initiatives that build on initial successes, ensuring long-term commitment to traffic calming goals.

1.4 Park and Stride Program

In neighbourhoods with pedestrian-generating facilities such as schools, community centers, or playgrounds, a parking facility is typically provided within 500 m of the site. This allows visitors to park their vehicles and walk the remaining distance to the facility. Implementing this approach helps reduce traffic volume near the facility and minimizes pedestrian-vehicle conflicts.

Applicability: Park and Stride Program is desirable under the conditions summarized in Table 4.

Table 4: Park and Stride Programs Applicability Requirements

Locations to Avoid	Road Characteristics	Preferences	Facility Requirements	Comments
None	Local and collector roads Urban and Rural Cross Section Any Traffic Volume	School Zone where a municipal parking lot is available.	Availability of a parking lot within 500 m of schools. AT route between the parking lot and the school	None

Cost: Low to medium.

To establish a Park and Stride program, collaboration with school boards, community members, and neighbourhood stakeholders is essential. The following steps outline the process:

1. Identify Commonly Used Routes: Map the routes most frequently used by students to travel between home and school. Utilize tools such as postal code mapping to determine the shortest and most practical routes for students.
2. Locate Suitable Parking Areas: Identify parking lots located 400 to 800 m from the school that are less busy during school start and finish times. Potential parking locations may include town halls, churches, community centres, retail stores, or other facilities with available space. In certain cases, limited street parking (e.g., 30 minute allowances) within the same distance can be designated during the school drop-off and pick-up times.
3. Formalize Agreements: Establish agreements or memorandums of understanding (MOUs) with property owners or managers to secure their participation in the program.
4. Promote the Program: Raise awareness through newsletters, letters to parents, and school communications to encourage participation. Highlight the safety, social, and environmental benefits of the program, such as reduced traffic congestion, improved air quality, and safer school zones.
5. Plan for Safe Pedestrian Access: Ensure adequate pedestrian facilities (e.g., sidewalks, crossings, signage) are in place between the designated parking areas and the school to provide a safe and accessible walking route for students.

2.0 Haldimand County Traffic Calming Branding

To enhance public awareness a logo, a motto and other branding materials have been prepared to help create a consistent visual identity. The study branding could be used by the County, community groups, school boards and other stakeholders for educational campaigns, public engagement and outreach efforts to communicate about traffic calming initiatives. By incorporating the branding materials with the education measures, Haldimand County would be able to better implement its traffic calming objectives.

The traffic calming logo and other branding material may be used to highlight the importance of speed reduction, pedestrian safety, and safer roads. The branding could be incorporated into social media campaigns, brochures, billboards, and on-street signage such as “Local Traffic Only” signs, ensuring that the messaging remains clear and accessible to all residents. The study logo and some sample messaging are illustrated in Figure 2, Figure 3, Figure 4, Figure 5, and Figure 6.

Figure 2: Study Logo

Figure 3: Watch for Pedestrian

Figure 4: Farm Equipment

Figure 5: Slow Down

Figure 6: Share the Road

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Appendix K

Warrant

Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Point-Based System

Haldimand County uses a point-based system to assess whether a traffic calming measure is warranted for a request and to identify its priority. The point-based warrant assigns points for various criteria including speeding, traffic volume, collision history, pedestrian generating facility within 250 m of the area, land use, availability of AT facility and serious collision involving a pedestrian and / or a cyclist. Table 1 details the specific point values assigned to each criterion for decision-making purposes.

Table 1: Calming Warrant Criteria and Point-Based System

No.	Criteria	Warrant Criteria and Points	Max Points
1	85th Speed	2.5 points for each km/hr the 85th speed is above the posted speed on MMS class 5-6 roads. 2 points for each km/hr the 85th speed is above the posted speed on MMS class 1-4 roads.	30
2	Traffic Volume	1 point for every 50 vehicles above 500 for MMS class 5-6 roads 1 point for every 200 vehicles above 2000 for MMS class 3-4 roads 1 point for every 250 vehicles above 4000 for MMS class 1-2 roads	20
3	Collision1 History	4 points for every collision recorded in the past 3 years.	15
4	Serious Collision**Error! Bookmark not defined.**	15 points if a serious collision (fatality) has happened during the past 3 years - if road condition or speed was a defining factor	15

[1] This includes only collisions that are likely to be mitigated by traffic calming measures.

No.	Criteria	Warrant Criteria and Points	Max Points
5	Land Use	2 points if it is residential or commercial / retail	2
6	Pedestrian Generating Facility	2.5 points for every pedestrian generating facility within 250 m of the area.	5
7	Share the Road	4 points if the roadway is on a county-designated cycling route - shared with the roadway (sharrow / paved shoulders). Signed or Mapped	4
8	Pedestrian Facilities	4 points if the roadway has no designated off-road sidewalks / multi-use pathways 2 points if the roadway has designated off-road sidewalks / multi-use pathways on one side of the roadway 0 points if the roadway has designated off-road sidewalks / multi-use pathways on both sides of the roadway	4
9	Truck Volumes	5 points if truck traffic is above 5% on MMS class 5-6 roads. 5 points if truck traffic is above 10% on MMS class 1-4 roads.	5

Each criterion is assessed to quantify the need for traffic calming measures. By adding these points, this warrant system provides a standardized approach to determine if the area requires traffic calming measures. A traffic calming request is warranted if the location meets the minimum required points provided below:

- MMS class 5-6 roads: equal to or greater than 45
- MMS class 3-4 roads: equal to or greater than 60
  MMS class 1-2 roads: equal to or greater than 65

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Appendix L

Request Form

Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Traffic Calming Request Form

What is Traffic Calming?

Traffic calming involves using engineering, enforcement, and education measures or a combination of those measures to slow down the traffic and improve the safety of pedestrians, cyclists, motorists and other road users.

Traffic Calming Request Form Direction

Please complete this form and submit it to the Haldimand County, Engineering Department. Submission methods are listed on the last page. By filling out this form, you will help us better understand the issues or concerns you have with a street in your neighbourhood. We will collect additional data, such as collision data and speed studies. This information, along with any planned roadway work, will help us prioritize your request among others we have received. If you have any questions or concerns about traffic calming and speeding, Please contact us using the following email and number.

Email Address: Engineering@haldimandcounty.on.ca
Phone Number: 905-318-5932 ext. 6404

Contact Information

Please provide your contact information. The contact person will be informed of the status of the request and its results.

1. Name:
2. Phone Number:
3. Email Address:
4. Mailing Address:

Details of Concern

1. Street[1] Name:

   From:
   To:

[1] The County has no jurisdiction over provincial highways such as Highway 6 and Highway 3.

2. Have you filed a traffic calming request for this location in the past two years[2]?

   ☐ Yes ☐ No

3. What is your main concern? Check each that applies.

   ☐Traffic Volume ☐Traffic Collision
   ☐Bike Safety ☐Pedestrian Safety
   ☐Trucks ☐Speeding
   ☐Aggressive Driving ☐Lack of Infrastructure
   ☐Others:

4. Description of the problem:

5. What is the posted speed[3] of the road?

6. Are there sidewalks for pedestrians?

   ☐Yes ☐No

7. Are there pedestrian-generating facilities (e.g. school, playground, community centre, childcare, etc.) along this road or within 250 m of the requested area?

   ☐Yes ☐No

8. Are you and the petition supporters willing to participate in a community-based initiative (i.e. park and stride programs, active and safe routes to school programs, and targeted education campaigns) to help calm traffic in the requested location?

   ☐Yes ☐No

9. Are you requesting the removal of a traffic calming measure?

   ☐Yes ☐No

10. If your answer to the question above is Yes, please provide the reason for your request.

Acknowledgement: Applicant has read the traffic calming policy as well as the requirements that follow.

[2] The county will not re-assess requests in the same area that have been brought forward in the last 2 years.
[3] The posted speed should be 40 km/hr or higher for urban and 60 km/hr or higher for rural areas.

Signature

Date

Please send your application to:
Via Email: engineering@haldimandcounty.on.ca
Via Mail:
Haldimand County - Engineering
53 Thorburn Street South
Cayuga, ON N0A 1E0

Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Traffic Calming Petition

We, the undersigned hereby petition the Corporation of Haldimand County to conduct the necessary assessments of the concerns explained in the accompanying form and recommend the appropriate traffic calming measures on

Street: Click or tap here to enter text.

Request ID: Click or tap here to enter text.

By signing this petition:

- I agree to have appropriate traffic calming measures installed in front of my residence / business if deemed the most appropriate solutions by the assessment process for traffic calming.
- My signature counts as yes for the installation or placement of a traffic calming measure.

Name	Address	Email	Signature

Name	Address	Email	Signature

Name	Address	Email	Signature

Map of the Area

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Appendix M

Project Checklist

Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Project Checklist

This checklist is designed to assess whether traffic calming measures are required for road construction or rehabilitation projects. It provides a framework to evaluate factors such as traffic volume, speed, land use, and safety concerns. The checklist considers various criteria that indicate potential traffic-related issues and helps staff in assessing if traffic calming measures can/should be implemented to improve road safety.

If the answer to all of the following questions is "Yes," the Engineering Department should consider incorporating suitable traffic calming measures into the project design.

No	Checklist Item	Yes	No
1	Is the length of the road(s) being constructed / reconstructed more than 250 m and without any traffic control (e.g., stop signs, traffic signals)?	☐	☐
2	Does the AADT for the subject road exceed the following thresholds for its respective road classification? • MMS class 5-6 road: > 500 vehicles • MMS class 3-4 road: > 2,000 vehicles • MMS class 1-2 road: > 4,000 vehicles	☐	☐
3	Does the 85th percentile speed exceed the posted speed limit by more than 10 km/h?	☐	☐
4	Does the immediate / adjacent land use include residential or pedestrian-oriented commercial or recreational areas? (i.e. Community Centre / School / Sports field)	☐	☐
5	Is there a pedestrian-generating facility (e.g., school, park, shopping area) within 250 m of the road?	☐	☐
6	Is the percentage of heavy vehicles higher than 5% for local roads, or higher than 10% for collector or arterial roads?	☐	☐
7	Has there been more than 3 collisions (caused by speeding) in the past three years?	☐	☐
8	Other site-specific considerations that would warrant consideration for traffic calming features.	☐	☐

If the response to all of the eight questions is "Yes," follow the traffic calming policy's process map for addressing traffic calming through capital budget planning shown in Figure 6.3 and use the County's Traffic Calming Toolkit to identify appropriate measure(s) for incorporation into the design of the project.

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Appendix N

Planning Checklist

Haldimand County Administration Building
53 Thorburn Street South
Cayuga, ON N0A 1E0

Planning Checklist

This checklist is designed to evaluate whether a proposed development that has 10 or more units requires traffic calming consideration as part of the design process.

It provides a set of key criteria to estimate potential traffic impacts, pedestrian safety, and overall road conditions. This ensures that new developments align with the County's goals of promoting safety and accessibility for everyone.

If the response to five (5) of the eight (8) questions is "Yes," the County should consider requesting the applicant to provide for a traffic calming plan as part of the development application. County staff may utilize the Traffic Calming Toolkit to identify appropriate measure(s) for the proposed development or request design standards of this road segment to follow traffic calmed roadway design standards.

No	Checklist Item	Yes	No
1	Is the proposed development a residential or pedestrian-oriented commercial development (ex. Shopping Plaza, schools, etc)??	☐	☐
2	Are there roadway segments within the proposed development plan longer than 250 m and without any traffic control? If YES – the following questions only apply to these road sections.	☐	☐
3	Does the projected traffic (generated trips and passing-by trips) exceed 100 vehicles daily? If YES – the following questions only apply to these road sections	☐	☐
4	Is there a traffic-generating facility (e.g., school, shopping mall, public park, etc.) located within 250 m of the roadway?	☐	☐
5	Does the road connect to a county-designated cycling route or any trail systems (existing or proposed)? And / or Is the developer proposing road sections within the development have cycling facilities on them?	☐	☐
6	Does the neighbourhood road structure encourage cut-through traffic?	☐	☐
7	Will on-street parking be prohibited on streets? Seasonally?	☐	☐
8	Other development-specific considerations that would warrant consideration for traffic calming features:	☐	☐

R.J. Burnside & Associates Limited