
Subject: Community Safety Zone Policy and Warrant

Report to: Public Works Committee

Report date: Tuesday, August 8, 2023

Recommendations

1. That Regional Council **APPROVE** the adoption of Community Safety Zone Policy attached as Appendix 1 to report PW 34-2023;
2. That the designation of Community Safety Zones **BE APPROVED** for the list of zones in Appendix 3 to report PW 34-2023; and
3. That the necessary By-law **BE PREPARED** and **PRESENTED** to Regional Council for consideration.

Key Facts

- The purpose of this report is to seek Council approval for the implementation of a dedicated Community Safety Zone (CSZs) policy and associated warrant process.
- This report further recommends that 12 new community safety zones as outlined in Appendix 2 be implemented ahead of the start of the 2023 school year, consistent with the warrant process.
- A CSZ is a section of roadway where public safety is of a special concern, particularly for vulnerable road users like children and older adults, and where traffic offences are subject to double the fines.
- As CSZs are intended to address specific and localized community safety concerns, it is important to establish a clear policy and warrant criteria to guide staff in the development of recommendations for expansion.
- The 12 new CSZs recommended in this report will not be included in the rotation of the Region's 4 Automated Speed Enforcement (ASE) cameras, which will remain focused in the 13 existing CSZs. Any expansion of the ASE program will be subject to future reporting to Council (anticipated for late Q1/early Q2 2024) and to be based on the early results of the program within the initial 13 locations.

Financial Considerations

The cost to establish a Community Safety Zone (CSZ) is minimal in terms of signage installation within the limits of each zone. The costs will be covered under the approved 2023 Transportation Services Operating Budget.

Analysis

Niagara Region adopted Vision Zero in 2019 with the aim of reducing and ultimately eliminating traffic fatalities and injuries on the Regional road network.

The implementation of Community Safety Zones (CSZ) serves as an important component of the Region's Vision Zero initiative by highlighting to drivers sections of the road network where safety is a particular concern due to the increased presence of vulnerable road users such as children or older adults. The doubling of traffic offence fines within CSZs assists in reinforcing the importance of safety and is intended to modify driver behaviour. CSZs are further an important component of the Region's Automated Speed Enforcement program, which operates within designated CSZs.

Niagara currently has 13 CSZs, the majority of which were implemented based on screening criteria (PW4-2020) and which are primarily located in areas where schools have direct frontage on a Regional road.

Community Safety Zone Policy

As CSZs are intended to address specific and localized community safety concerns, it is important to establish a clear policy and warrant criteria to guide staff in the development of recommendations for expansion of CSZs in the future.

The policy (Appendix 1) and warrant process outlined in this report seeks to expand on the previous screening criteria in order to:

- Provide a warrant process based on the road environment, risk, and collision history;
- Expand the current practice of placement of CSZs exclusively in school areas to other areas of concern such as senior centres, playgrounds, and community centres;
- Reflect the placement of CSZs both with and without the implementation of Automated Speed Enforcement cameras; and
- Establish an annual review process for the implementation of additional CSZs.

The policy establishes that CSZ must be between 500 metres and 2.5 kilometres in length, and that they will not be implemented on roads with speeds posted 70 km/h or higher.

Subject to Council approval of the policy, the Director Transportation Services will be delegated authority to develop any required procedures necessary to implement the policy.

Community Safety Zone Warrant

Transportation Services retained a consultant (CIMA+) to review the draft CSZ Policy, assist in the development of a warrant for the implementation of new CSZ, and evaluate 25 candidate CSZ locations against the warrant for potential implementation. The full CIMA+ report is provided in Appendix 2.

CSZs are most effective when implemented at locations of special concern that are obvious to the road user. Human factors research has concluded that posted signs, such as "Community Safety Zone" signs, are most effective when the road itself and its adjacent land communicate to the driver that this section of road is different and that higher numbers of pedestrians, cyclists or other vulnerable road users may be present. Therefore, one of the most important considerations in implementing CSZs is that the need and use should be obvious to the road user.

To achieve this goal and ensure CSZs are recommended only in areas where they are most appropriate, the proposed warrant incorporates criteria such as the number of sensitive land uses (i.e. schools, community centres, and seniors homes) environmental risk factors such as average vehicle operating speeds, percentage of trucks and past collision history.

The establishment of a warrant and the recommended criteria follows the approach taken in peer Regions such as Halton, York, and Durham, all of which have established dedicated warrants for CSZs utilizing similar criteria.

The warrant process recommended for Niagara considers the following criteria:

- Number of fatal and injury collisions involving pedestrians and cyclists per year;
- Operating Speed vs. Posted Speed Limit;
- Average Daily Traffic Volume (AADT);
- Number of Lanes;

- Percent Coverage of Sidewalks;
- Truck Volumes;
- Pedestrian Volumes;
- Number of Intersections and Driveways (per kilometre); and
- Number and type of locations where there is anticipated to be a high amount of pedestrian or cyclist traffic such as schools, seniors centres, community centres, playgrounds, food banks or homeless shelters, or places of worship.

The full list of categories and associated scoring criteria is outlined in the consultant report in Appendix 2.

In order to satisfy this warrant, a minimum score of 25 points is required. This threshold has been recommended to reflect the policy objective of ensuring that CSZs are implemented in locations where the need and use is obvious to the road user, and to balance the number of new CSZs being immediately implemented. As outlined in the proposed policy, this threshold will be evaluated on an annual basis.

Recommended Community Safety Zone Locations

An initial 25 sections of the regional road network have been evaluated against the proposed CSZ warrant. Candidate locations were selected by staff based on anticipated ability to successfully satisfy the warrant given known land uses and past collision history.

However, the CSZ warrant is potentially applicable to any section of the regional road network with a posted speed limit of 60 km/hr or below, and staff will on an annual basis assess both additional candidate locations as well as previously evaluated locations based on factors such as updated traffic counts and speed studies in accordance with the policy.

Having passed the warrant, a total of 12 locations have been recommended for implementation. These locations are summarized below as well as in Appendix 3:

- Fort Erie - Garrison Road - RR3 - Rose Hill Road to Spears Road
- Grimsby – Main Street East – RR 81 – Lawrence Avenue to Durham Road
- Lincoln - Mountain Street - RR18 - Edelheim Road to Beam Street
- Niagara Falls - Lundy's Lane - RR20 - Brookfield Avenue to Main Street
- Niagara Falls - McLeod Road - RR49 - Oakwood Drive to Drummond Road
- Pelham - Highway 20 East - RR20 - Rice Road to Pinecrest Court

- Port Colborne - Killaly Street West - RR5 - West Side Road to King Street
- St. Catharines - Glendale Avenue - RR89 - Pelham Road to Caroline Street
- St. Catharines - Lakeshore Road - RR87 - Bradmon Drive to Read Road
- St. Catharines - Niagara Street - RR48 - Carlton Street to Scott Street
- Thorold - Collier Road South - RR56 - Highway 58 Ramp to St. David's Road
- Welland - Prince Charles Drive North - RR54 - Lacy Avenue to First Avenue

The list of recommended new CSZs has been shared with the Niagara Region Police Service (NRPS) for their awareness, subject to Council approval, with respect to enforcement.

Community Safety Zones and Automated Speed Enforcement

The ASE program is anticipated to launch in September 2023, with 4 ASE units rotating through the Region's 13 existing Community Safety Zones. The 12 new CSZs recommended in this report will not be included in the rotation of the Region's 4 ASE cameras.

The first implementation of ASE units in some existing CSZs will not occur until Summer 2024, based on the September 2023 launch and approximately 90-day period in which ASE units will remain in place for during each deployment. Adding the 12 new CSZs to the existing rotation schedule would push this timeline well into the 2024-2025 school year and limit the ability to undertake a second round of rotations within the existing CSZs.

Potential expansion of the ASE program to include the new 12 CSZs will be considered as part of future reporting to Council (anticipated for late Q1/early Q2 2024), at which time recommendations will be made based on the early results of the ASE program, including demonstration of realized safety benefits and an assessment of required resources for program expansion.

Other Vision Zero Program Updates

The implementation of additional CSZs forms a component of the overall Vision Zero initiative. The following is a brief update on other parallel Vision Zero programs underway:

- *5-Year Road Safety Strategic Plan* – staff have initiated a consulting assignment for development of a comprehensive strategic roadmap and plan for the Region's

implementation of Vision Zero. The plan will set out the targets, policies and actions to improve the level of roadway safety and reduce the number of fatal and injury collisions. Plan development will continue through 2023 in partnership with local area municipalities and other key advocacy groups with a report back to Council anticipated for late Q1 /early Q2 2024.

- *Red Light Cameras* – all operational agreements authorized in April 2023 by PW 11-2023 have been successfully executed, and staff are in the process of verifying with the vendor timelines for site works and camera installation. It is currently anticipated that program will launch in early Q4 2023.

Alternatives Reviewed

The alternative to approval of the recommendations in this report is to not adopt a policy and warrant process for the implementation of CSZs.

This would result in the inconsistent implementation of CSZs without clear and measurable criteria. Implementing CSZs in areas where they are not warranted will harm the overall effectiveness of the program if drivers are not able to clearly understand the rationale for why an area has been designated as a CSZ.

Relationship to Council Strategic Priorities

The proposed implementation of additional Community Safety Zones under the Vision Zero initiative directly aligns with the Council Strategic Priority: Facilitating the Movement of People and Goods (Objective 3.4) through supporting and advancing safe and healthy streets for the Region.

Other Pertinent Reports

| | |
|------------|--|
| PW 34-2022 | Implementation of ASE Across Niagara Region |
| PW 49-2021 | Designation of a Community Safety Zone on Regional Road 20 Lundy's Lane in the City of Niagara Falls |
| PW 4-2020 | Vision Zero Road Safety Program Designation of Community Safety Zones around Schools |
| PW 38-2019 | Community Safety Zones |

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Appendices

- | | |
|------------|--------------------------------------|
| Appendix 1 | Draft Community Safety Zone Policy |
| Appendix 2 | CIMA Report – CSZ Policy and Warrant |
| Appendix 3 | Proposed Community Safety Zones |

| | |
|-----------------|------------------------|
| Policy Category | Name of Policy |
| Public Works | Community Safety Zones |

| | |
|-----------------------|-------------------------|
| Policy Owner | Transportation Services |
| Approval Body | Council |
| Approval Date | August 17, 2023 |
| Effective Date | August 17, 2023 |
| Review by Date | August 17, 2024 |

1. Policy

Niagara Region adopted Vision Zero in 2019 with the aim of reducing and ultimately eliminating traffic fatalities and injuries on the Regional road network.

The implementation of Community Safety Zones (CSZ) serves as an important component of the Region’s overall Vision Zero initiative by highlighting to drivers sections of the road network where safety is a particular concern due to the increased presence of vulnerable road users such as children or older adults. The doubling of traffic offence fines within CSZs assists in reinforcing the importance of safety and to modify driver behaviour. CSZs are further an important component of the Region’s Automated Speed Enforcement program, which operates within designated CSZs.

Community Safety Zones are most effective when implemented at locations of special concern that are obvious to the road user. Human factors research has concluded that posted signs, such as "Community Safety Zone" signs, are most effective when the road itself and its adjacent land use communicates to the driver that this section of road is different. Therefore, one of the most important considerations in implementing CSZs is that the need and use should be obvious to the road user.

- Community Safety Zones will be installed adjacent to the following locations:
 - Elementary or secondary schools;
 - Seniors centres and residences;
 - Community centres; and
 - Other locations where there is anticipated to be a high amount of pedestrian or cyclist traffic such as playgrounds, food banks or homeless shelters, or places of worship.

| | |
|-----------------|------------------------|
| Policy Category | Name of Policy |
| Public Works | Community Safety Zones |

- The Director, Transportation Services will develop a warrant process for the implementation of Community Safety Zones with measurable criteria including, but not limited to, the following factors:
 - Traffic speeds and posted speed limits;
 - Collision history;
 - Annual traffic volumes;
 - Pedestrian crossing volumes;
 - Number of traffic lanes;
 - Availability of active transportation facilities;
 - Heavy truck traffic volumes; and
 - Number and frequency of access and driveways.
- The Community Safety Zone warrant will rank candidate locations against the above noted individual criteria, producing a total score. A minimum total score will be required to consider a candidate location for the implementation of a Community Safety Zones.
- Community Safety Zones will not be recommended in areas that do not satisfy the warrant process.
- The Community Safety Zones must start and finish within 500 metres of these locations and not exceed 2.5 kilometres in total length.
- Community Safety Zones will operate both with and without Automated Speed Enforcement.
- Community Safety Zones will not be implemented on roads with speeds posted 70 km/h or higher.

2. Purpose

- Promote the implementation of Community Safety Zones as a component of Niagara Region’s Vision Zero initiative.
- Provide clear criteria to guide the establishment of Community Safety Zones, including the development of a warrant process based on the road environment, risk, and collision history.
- Expand the current practice of placement of Community Safety Zones exclusively in school areas to other areas of concern such as senior centres, playgrounds, and community centres.

| | |
|-----------------|------------------------|
| Policy Category | Name of Policy |
| Public Works | Community Safety Zones |

- Reflect options for the placement of Community Safety Zones both with and without the implementation of Automated Speed Enforcement cameras.
- Establish an annual review process for the implementation of additional Community Safety Zones.

3. Scope

This policy applies to Transportation Services staff, providing guidance for making recommendations to Council for the creation of Community Safety Zones.

3.1. Roles and Responsibilities

Director, Transportation Services - develop a warrant process for the implementation of Community Safety Zones in accordance with the criteria outlined in this policy. The Director, Transportation Services will review the warrant process on an annual basis, and undertake updates and amendments as required to ensure the success of the Community Safety Zone program.

Transportation Road Safety Staff - undertake an annual review of candidate Community Safety Zone locations utilizing updated traffic and collision data. Candidate locations that are found to newly meet the warrant will be recommended to Council for implementation.

4. References and Related Documents.

4.1. Legislation, By-Laws and/or Directives

Highway Traffic Act, Section 214.1

Safer School Zones Act (Bill 65-2017)

4.2. Procedures

C-PW-XXX Community Safety Zone Procedure

5. Related Policies

N/A

Document Control

The electronic version of this document is recognized as the only valid version.

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|---------------------------------|--|
| Policy Category Public Works | Name of Policy Community Safety Zones |
|---------------------------------|--|

Approval History

| Approver(s) | Approved Date | Effective Date |
|-------------|---------------|----------------|
| | | |

Revision History

| Revision No. | Date | Summary of Change(s) | Changed by |
|--------------|------|----------------------|------------|
| | | | |



MEMO

TO : Region of Niagara
FROM : CIMA+
DATE : July 13, 2023
SUBJECT : CSZ Policy and Warrant

1. Introduction

The Region of Niagara has requested that CIMA+ provide them with assistance in developing their Community Safety Zone (CSZ) policy along with assessing 25 candidate roadway sections based on the warrant, prepare a report outlining the analysis, findings and recommendations and provide support to Regional staff at a future Regional Council presentation.

The first task was to conduct a review of the Region's draft community safety zone policy and warrant based on a review of industry and peer jurisdiction's best practice and provide recommendations for the refinement of the existing policy and warrant. The second task was to assess 25 candidate sections along Regional roads, prepare a set of cut sheets showing characteristics of each section and to provide recommendations for the implementation of additional CSZs. The findings of the tasks are presented in this memo.

2. Industry and Peer Jurisdiction Review

The following was noted based on a review of jurisdictions in Ontario. CIMA recently conducted a survey of jurisdictions in southern Ontario requesting that they indicate the criteria they consider for road sections to be candidates for community safety zones. The results are shown in **Figure 1**. According to the survey, location selection is primarily driven by:

- Land use (e.g., schools, hospitals, retirement residences, playgrounds, parks) and
- Historical collision data and speed data

In addition to the criteria listed above, some municipalities have additional considerations when selecting an CSZ location, such as neighbourhoods with cut-through traffic and roadways with bike facilities (e.g., bike lanes, multi-use paths). Some municipalities have developed warrants and/or policies for CSZ location selection.

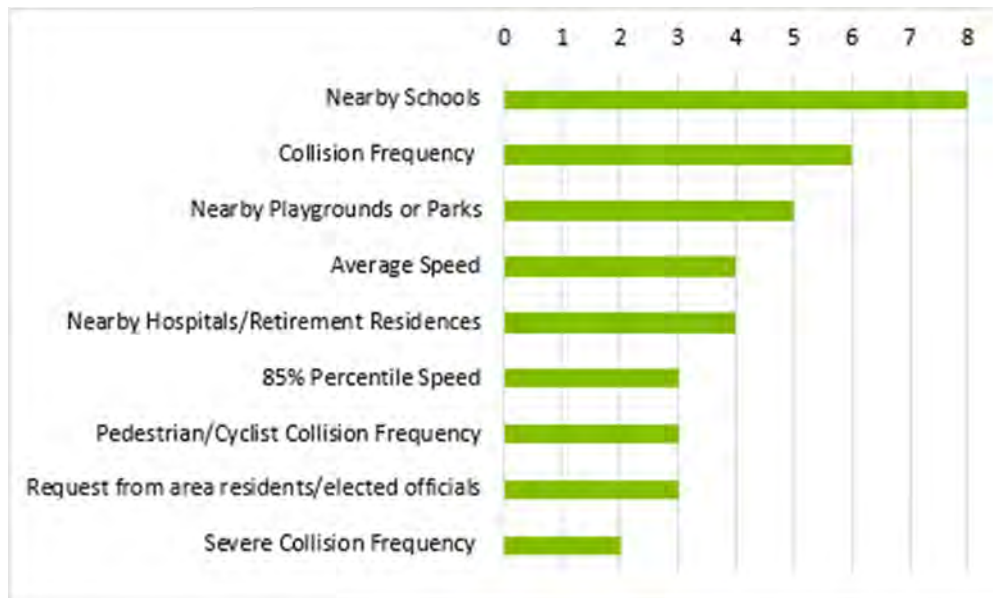


Figure 1 – Criteria Used for Community Safety Zones (Based on Recent Survey)

The following outlines approaches taken by other Regional municipalities comparable to the Region of Niagara.

2.1. Region of Halton

CIMA recently completed a project for the Region of Halton updating their policy for CSZs. In the Region of Halton, candidate locations for the implementation of CSZs were those road segments in proximity to sensitive land uses such as schools, community housing, long-term care, parks, and outdoor playgrounds. Generally, these land uses generate trips involving vulnerable road users who are required to be protected against vehicular traffic subject to the presence of certain risk factors. For this project, a shortlist of road segments adjacent to such land uses was created using GIS coding. The shortlisted road segments were further reviewed against additional risk factors, as discussed in the next steps.

CIMA then conducted a systemic road safety analysis, identifying risk factors that experienced a higher likelihood of fatal or injury collisions. The risk factors identified were:

- AADT \geq 20,000
- 5+ Lanes on the Road Segment
- Presence of Bus Stops
- Truck Volume \geq 250
- 85th Percentile Speed Compliance

2.2. Region of York

Similar to the Region of Halton, the Region of York has a two tiered approach to selecting candidate locations for CSZs. First, candidate locations are pre-screened based on the presence of elementary or secondary schools, community centres, high pedestrian volumes (defined as more than 100 pedestrians over a 8 hour period) and seniors' centres and residences. They also note that the proposed CSZ must be a minimum of 1 km to a maximum of 2.5 kilometres.

Amongst the pre-screened locations, the Region of York applies a second collision warrant or a risk warrant. The collision warrant consists of a collision ratio of less than 1:900 (collisions per year/AADT) averaged over 36 consecutive months. The risk warrant considers the following:

- Posted speed
- Average daily traffic volume
- Number of lanes
- Length of sidewalks
- Truck volume
- Pedestrians crossing in any 8 hours
- Intersections and entrances per kilometre

2.3. Region of Durham

Similar to the previous two Regional municipalities, the Region of Durham also has a two tiered approach to selecting candidate locations for CSZs. The Region of Durham has basically the same criteria and approach as the Region of York with some slight variations.

3. Identifying Candidate Locations

Suitable candidates for CSZs are locations based on land use which are anticipated to generate a high amount of pedestrian and cyclist traffic. These would be characterized as locations in urban areas with lower posted speeds (less than 70 km/h).

Candidate locations for evaluation were pre-screened by CIMA using available open-source GIS data layers such as schools, senior homes, and places of worship. GIS queries were run to examine the distance between the nearest Regional road and the centroid of the property to determine the number and proximity of land uses as an initial indication as to potential candidates for CSZs.

Regional staff reviewed the pre-screened locations and selected 25 locations for full evaluation by CIMA in consideration of the AADT, public complaints and inquiries, knowledge of historical conditions, and expected ability of locations to successfully meet the warrant criteria.

4. Development of Warrant Scoresheet

A copy of the warrant scoresheet is provided in **Appendix A**. The factors were identified based on current practice elsewhere in Ontario as noted in Section 2.0. Fatal and injury collisions involving pedestrians and cyclists are considered given that higher severity collisions indicate higher operating speeds and/or higher severity impact types (angle or collisions involving pedestrians or cyclists).

Separate risk factors were also identified. Each risk factor is discussed below:

- **Difference between operating speeds (85th percentile) and posted speeds** – As opposed to posted speed, operating speed was considered a more reliable indicator of a speeding concern on the road in question. The difference between the 85th percentile operating speed and the posted speed was taken to reduce bias against roadways with higher posted speeds. Where the posted speed changes within the section of road, the lowest posted speed was used as a basis for the evaluation.
- **Average daily traffic volume** – Used as an indicator of a more urbanized area likely having a greater need for a CSZ.

- **Number of lanes** – Roads with additional lanes tend to have a greater risk of collisions than two-lane roads and pose more difficulty for pedestrians wishing to cross at a midblock location.
- **Sidewalk coverage** – Roads with continuous sidewalk coverage are safer for pedestrians walking alongside the road than roads with discontinuous or absent sidewalk coverage
- **Truck volumes** – Used as an indicator of a more undesirable environment for pedestrians and cyclists.
- **Pedestrians movements (crossing or walking parallel to the roadway in any 8 hour period)** – Used as an indicator of pedestrian movements.
- **Intersection and driveways per kilometre** – Used as an indicator of an urban area with significant development (residential or commercial) directly fronting onto the roadway, generating access related conflicts.
- **Land use** – Used as an indicator of pedestrian volumes with higher weighting given to schools over other types of land use. Engineering judgement was used to determine whether to include or exclude different types of land use.

5. Scoring Results

Based on the risk factors discussed in the previous section, a warrant analysis for CSZ implementation was undertaken at 25 locations identified by the Region. A threshold of 25 points was used to determine whether a CSZ is warranted at any given location. **Table 1** summarizes the results of the warrant analysis. A complete copy of the scoring spreadsheet is provided in **Appendix B**. A copy of the cut sheets showing the individual road segments with their scoring is provided in **Appendix C**.

Table 1: CSZ Warrant Analysis Results

| Regional Road | Municipality | From | To | Score | CSZ Warranted? |
|--|---------------|--------------------------|-----------------------------------|-------|----------------|
| Regional Road 81 (Main Street East) | Grimsby | Lawrence Avenue | Durham Road | 25 | Yes |
| Regional Road 18 (Mountain Street) | Lincoln | Edelheim Road | Beam Street | 25 | Yes |
| Regional Road 20 (West Street) | West Lincoln | South Grimsby Road No. 6 | Regional Road 14 (Station Street) | 23 | No |
| Regional Road 3 (Lakeshore Road) | Wainfleet | Daley Ditch Road | 350m West of Station Road | 15 | No |
| Regional Road 5 (Killaly Street West) | Port Colborne | West Side Road | King Street | 25 | Yes |
| Regional Road 3 (Garrison Road) | Fort Erie | Rose Hill Road | Spears Road | 27 | Yes |
| Regional Road 25 (Netherby Road) | Fort Erie | Ott Road | 400m West of Winger Road | 18 | No |
| Regional Road 36 (Pelham Road) | Welland | Thorold Road | Webber Road | 17 | No |

| Regional Road | Municipality | From | To | Score | CSZ Warranted? |
|--|---------------------|---------------------------------------|------------------------------------|-------|----------------|
| Regional Road 54 (Prince Charles Drive North / Rice Road) | Welland | Lacy Avenue | First Avenue | 27 | Yes |
| Regional Road 50 (Niagara Street) | Welland | Thorold Road | Riverbank Street | 23 | No |
| Regional Road 20 (Highway 20 East) | Pelham | Rice Road | Pinecrest Court | 28 | Yes |
| Regional Road 100 (Four Mile Creek Road) | Niagara-on-the-Lake | Regional Road 61 (Niagara Town Line) | Regional Road 81 (York Road) | 19 | No |
| Regional Road 55 (Niagara Stone Road) | Niagara-on-the-Lake | Niven Road | Mary Street | 18 | No |
| Regional Road 116 (Sodom Road) | Niagara Falls | Willick Road | Regional Road 47 (Main Street) | 16 | No |
| Regional Road 49 (McLeod Road) | Niagara Falls | Oakwood Drive | Drummond Road | 29 | Yes |
| Regional Road 20 (Lundy's Lane) | Niagara Falls | Brookfield Avenue | Main Street | 40 | Yes |
| Regional Road 98 (Montrose Road) | Niagara Falls | Regional Road 57 (Thorold Stone Road) | 550m North of Matthews Drive | 19 | No |
| Regional Road 56 (Collier Road South) | Thorold | Highway 58 Ramp | St. David's Road | 25 | Yes |
| Regional Road 56 (Burleigh Hill Drive) | St. Catharines | St. David's Road | Regional Road 89 (Glendale Avenue) | 24 | No |
| Regional Road 69 (Pelham Road) | St. Catharines | Regional Road 89 (Glendale Avenue) | First Street Louth | 21 | No |
| Regional Road 48 (Niagara Street) | St. Catharines | Regional Road 83 (Carlton Street) | Scott Street | 29 | Yes |
| Regional Road 34 (Seventh Street Louth) | St. Catharines | South Service Road | Second Avenue Louth | 20 | No |
| Regional Road 48 (Niagara Street) | St. Catharines | Cherrylane Drive | Regional Road 87 (Lakeshore Road) | 22 | No |
| Regional Road 87 (Lakeshore Road) | St. Catharines | Bradmon Drive | Read Road | 29 | Yes |
| Regional Road 89 (Glendale Avenue) | St. Catharines | Pelham Road | Caroline Street | 25 | Yes |



Appendix A – CSZ Warrant Scoresheet



Warrant Scoresheet

Candidate road segments for a CSZ must have a minimum length of between 1.0 – 2.5 km and have a posted speed of 60 km/h or less.

Candidate road segments are selected based on the collision experience along the segment and risk factors relating to operating speeds, traffic volume, number of lanes, length of sidewalks, truck volumes, pedestrian volumes and number of intersections and entrances per kilometre and land use.

Candidate road segments will be considered for CSZ implementation if they score 25 points or higher in the warrant analysis.

Warrant Scoring

| Risk Factor | Score |
|--|--|
| Fatal and injury collisions per year along road segment (including intersections) | Score 5 points per fatal or injury collision involving a pedestrian or cyclist <u>per</u> year (rounded up) |
| Operating speed (85th percentile) vs. posted speed | 3 points: >15 km/hr 2 points: 5 – 15 km/hr 1 point: <5 km/hr |
| Average daily traffic volume | 3 points: >20,000 AADT 2 points: 10,000 – 20,000 AADT 1 point: <10,000 AADT |
| Number of lanes | 3 points: >4 lanes 2 points: 3 or 4 lanes 1 point: 2 lanes |
| Length of sidewalks | 3 points: <25% sidewalk coverage 2 points: 25 – 75% sidewalk coverage 1 point: >75% sidewalk coverage |
| Truck volume | 3 points: >5% truck volumes 2 points: 3 – 5% truck volumes 1 point: <3% truck volumes |
| Pedestrians crossing or walking parallel to road section in any 8 hour period (1) | 3 points: >100 pedestrians 2 points: 50 – 100 pedestrians 1 point: <50 pedestrians |
| Intersection and driveways per kilometre | 3 points: >30 intersections/driveways per km 2 points: 10 – 30 intersections/driveways per km 1 point: <10 intersections/driveways per km |
| Land Use | 3 points: for every school 2 points: for every senior residence 1 point: for every other location with high anticipated pedestrian /cyclist traffic |

(1) If counts available at multiple locations, use the highest recorded pedestrian volume. A score of 0 should be assigned to locations without available pedestrian counts.



Appendix B – CSZ Scoring Spreadsheet

| No | Municipality | Road Name | RR | From | To | Approx. Length (m) | Adjacent Uses |
|----|---------------------|--|-----|---------------------------------------|------------------------------------|--------------------|---|
| 1 | Grimbsy | Main Street East | 81 | Lawrence Avenue | Durham Road | 1150 | West Niagara Secondary School Saint John Catholic Elementary School |
| 2 | Lincoln | Mountain Street | 18 | Edelheim Road | Beam Street | 1710 | Saint Mark Catholic Elementary School Saint Helen Roman Catholic Church Albright Manor First Baptist Church |
| 3 | West Lincoln | West Street | 20 | South Grimbsy Road No. 6 | Station Street (Regional Road 14) | 1870 | Smithville United Church Saint Martin of Tours Roman Catholic Church West Lincoln Arena & Community Centre St. Martin Catholic Elementary School |
| 4 | Wainfleet | Lakeshore Road | 3 | Daley Ditch Road | 350 west of Station Road | 2170 | Long Beach Conservation Area and Campground Wainfleet Lions Community Centre Wainfleet Lake Erie Public Beach |
| 5 | Port Colborne | Killaly Street West | 5 | West Side Road | King Street | 1090 | McKay Public School Lions Field Park |
| 6 | Fort Erie | Garrison Road | 3 | Rose Hill Road | Spears Road | 2340 | Greater Fort Erie Secondary School The Willows Retirement Fort Erie Leisureplex Garrison Road Public School Boys and Girls Club of Niagara |
| 7 | Fort Erie | Netherby Road | 25 | Ott Road | 400 m west of Winger Road | 1760 | St. Joseph Catholic Elementary School St. Johns Lutheran Church St. Joseph's Catholic Church |
| 8 | Welland | Pelham Road | 36 | Thorold Road | Webber Road | 1740 | Wellspring Community Church Faith Welland Maple Park Wellspring Community Church |
| 9 | Welland | Prince Charles Drive North / Rice Road | 54 | Lacy Avenue | First Avenue | 1680 | Fitch Street Public School Royal Rose Place First Baptist Church Welland Centennial Secondary School |
| 10 | Welland | Niagara Street | 50 | Thorold Road | Riverbank Street | 1080 | Ross Public School Parish Community of St. Kevin |
| 11 | Pelham | Highway 20 East | 20 | Rice Road | Pinecrest Court | 1830 | Marlene Stewart Streit Park Fonthill United Church Shorthills Retirement Community St. Alexander Catholic Elementary School Gordan Klanger Park |
| 12 | Niagara-on-the-Lake | Four Mile Creek Road | 100 | Niagara Town Line (Regional Road 61) | York Road (Regional Road 81) | 1360 | Creekside Senior Estates |
| 13 | Niagara-on-the-Lake | Niagara Stone Road | 55 | Niven Road | Mary Street | 1500 | Niagara-on-the-Lake Community Centre |
| 14 | Niagara Falls | Sodom Road | 116 | Willick Road | Main Street (Regional Road 47) | 1170 | Patrick Cummings Memorial Sports Complex Lighthouse Niagara |
| 15 | Niagara Falls | McLeod Road | 49 | Oakwood Drive | Drummond Road | 1710 | Our Saviour Lutheran Church Falls View Church |
| 16 | Niagara Falls | Lundy's Lane | 20 | Brookfield Avenue | Main Street | 2080 | Stamford Collegiate Drummond Hill Presbyterian Church Iglesia Ni Cristo |
| 17 | Niagara Falls | Montrose Road | 98 | Thorold Stone Road (Regional Road 57) | 550m north of Matthews Drive | 1730 | Redeemer Bible Church |
| 18 | Thorold | Collier Road South | 56 | Highway 58 Ramp | St. David's Road | 1280 | Monsignor Clancy Catholic Richmond Street Public School |
| 19 | St. Catharines | Burleigh Hill Drive | 56 | St. David's Road | Glendale Avenue (Regional Road 89) | 980 | Burleigh Hill Public School Elementary School Catholic Sainte-Marguerite-Bourgeoys |
| 20 | St. Catharines | Pelham Road | 69 | Glendale Avenue (Regional Road 89) | First Street Louth | 2500 | Rotary Park Extendicare St. Catharines Brockview Bible Church |
| 21 | St. Catharines | Niagara Street | 48 | Carlton Street (Regional Road 83) | Scott Street | 1320 | St. Alfred Catholic Elementary Laura Secord High School Lester B. Pearson Park Ukrainian Evangelical Baptist Church |
| 22 | St. Catharines | Seventh Street Louth | 34 | South Service Road | Second Ave Louth | 475 | Woodland Public School |

| Raw Data | | | | | | | |
|--|------------------------------|------------------------------|-----------------|-------------------------|--------------|---|--|
| # Fatal and Serious Injury Collisions and Cyclists (per Year Rounded Up) | Operating Speed Posted Speed | Average daily traffic volume | Number of lanes | % Coverage of sidewalks | Truck volume | Pedestrians crossing or walking parallel in any 8 hour period | Intersection and driveways per kilometre |
| 1 | 18 | 9600 | 3 | 34% | 8% | 21 | 24.1 |
| 1 | 10.5 | 6300 | 2 | 47% | 14% | 35 | 55.0 |
| 1 | No data | 9700 | 3 | 46% | 12% | 32 | 40.0 |
| 0 | 20 | 1100 | 2 | 0% | 6% | No data | 29.3 |
| 1 | 18.5 | 4800 | 3 | 67% | 6% | 54 | 41.0 |
| 0 | 11.5 | 14300 | 5 | 64% | 9% | 162 | 27.2 |
| 0 | 8 | 3600 | 2 | 5% | 14% | 3 | 18.3 |
| 0 | 15 | 9700 | 2 | 0% | 5% | 38 | 37.0 |
| 1 | 0 | 16800 | 5 | 88% | 4% | 234 | 8.3 |
| 1 | 5.5 | 14400 | 3 | 100% | 5% | 95 | 58.5 |
| 1 | 6 | 19000 | 5 | 100% | 7% | 58 | 27.3 |
| 1 | 15 | 9200 | 2 | 79% | 6% | 5 | 38.2 |
| 1 | 6.5 | 8300 | 3 | 72% | 3% | 33 | 18.0 |
| 0 | 14.5 | 4600 | 2 | 18% | 9% | 22 | 31.9 |
| 2 | 14 | 27100 | 5 | 100% | 4% | 143 | 64.4 |
| 4 | 3.5 | 20400 | 5 | 100% | 2% | 266 | 47.9 |
| 1 | 30.5 | 3100 | 2 | 67% | 3% | 51 | 16.0 |
| 1 | -10 | 8600 | 3 | 47% | 3% | 211 | 67.7 |
| 1 | 10.5 | 9000 | 3 | 17% | 3% | 60 | 9.0 |
| 1 | 13 | 5400 | 3 | 90% | 5% | 31 | 57.1 |
| 1 | 14 | 11500 | 3 | 100% | 6% | 111 | 47.8 |
| 1 | No data | 6600 | 3 | 0% | 7% | 0 | 16.7 |

| Risk Score | | | | | | | | | |
|-----------------|-----------------|------------------------------|-----------------|-------------------------|--------------|---|--|----------|------------------|
| Collision Score | Operating Speed | Average daily traffic volume | Number of lanes | % Coverage of sidewalks | Truck volume | Pedestrians crossing in any 8 hour period | Intersection and driveways per kilometre | Land Use | Total Risk Score |
| 5 | 3 | 1 | 2 | 2 | 3 | 1 | 2 | 6 | 25 |
| 5 | 2 | 1 | 1 | 2 | 3 | 1 | 3 | 7 | 25 |
| 5 | 0 | 1 | 2 | 2 | 3 | 1 | 3 | 6 | 23 |
| 0 | 3 | 1 | 1 | 3 | 3 | 0 | 2 | 2 | 15 |
| 5 | 3 | 1 | 2 | 2 | 3 | 2 | 3 | 4 | 25 |
| 0 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | 10 | 27 |
| 0 | 2 | 1 | 1 | 3 | 3 | 1 | 2 | 5 | 18 |
| 0 | 2 | 1 | 1 | 3 | 2 | 1 | 3 | 4 | 17 |
| 5 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 9 | 27 |
| 5 | 2 | 2 | 2 | 1 | 2 | 2 | 3 | 4 | 23 |
| 5 | 2 | 2 | 3 | 1 | 3 | 2 | 2 | 8 | 28 |
| 5 | 2 | 1 | 1 | 1 | 3 | 1 | 3 | 2 | 19 |
| 5 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 1 | 18 |
| 0 | 2 | 1 | 1 | 3 | 3 | 1 | 3 | 2 | 16 |
| 10 | 2 | 3 | 3 | 1 | 2 | 3 | 3 | 2 | 29 |
| 20 | 1 | 3 | 3 | 1 | 1 | 3 | 3 | 5 | 40 |
| 5 | 3 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 19 |
| 5 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 6 | 25 |
| 5 | 2 | 1 | 2 | 3 | 2 | 2 | 1 | 6 | 24 |
| 5 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 4 | 21 |
| 5 | 2 | 2 | 2 | 1 | 3 | 3 | 3 | 8 | 29 |
| 5 | 0 | 1 | 2 | 3 | 3 | 1 | 2 | 3 | 20 |

| No | Municipality | Road Name | RR | From | To | Approx. Length (m) | Adjacent Uses |
|----|----------------|-----------------|----|------------------|-----------------------------------|--------------------|---|
| 23 | St. Catharines | Niagara Street | 48 | Cherrylane Drive | Lakeshore Road (Regional Road 87) | 675 | Port Weller Public School Grantham Lions Park Assumption Catholic Elementary School Malcolmson Eco Park |
| 24 | St. Catharines | Lakeshore Road | 87 | Bradmon Drive | Read Road | 2150 | Port Weller Public School Grantham Lions Park Charles Ansell Park Assumption Catholic Elementary School Malcolmson Eco Park |
| 25 | St. Catharines | Glendale Avenue | 89 | Pelham Road | Caroline Street | 1810 | Oakridge Public School Church of the Transfiguration |

| Raw Data | | | | | | | |
|--|------------------------------|------------------------------|-----------------|-------------------------|--------------|---|--|
| # Fatal and Serious Injury Collisions Pedestrians and Cyclists (per Year Rounded Up) | Operating Speed Posted Speed | Average daily traffic volume | Number of lanes | % Coverage of sidewalks | Truck volume | Pedestrians crossing or walking parallel in any 8 hour period | Intersection and driveways per kilometre |
| 0 | 11 | 7200 | 3 | 66% | 7% | 17 | 51.4 |
| 1 | 6.5 | 11600 | 3 | 53% | 5% | 68 | 33.0 |
| 1 | 11 | 15800 | 3 | 100% | 9% | 180 | 35.9 |

| Risk Score | | | | | | | | | |
|-----------------|-----------------|------------------------------|-----------------|-------------------------|--------------|---|--|----------|------------------|
| Collision Score | Operating Speed | Average daily traffic volume | Number of lanes | % Coverage of sidewalks | Truck volume | Pedestrians crossing in any 8 hour period | Intersection and driveways per kilometre | Land Use | Total Risk Score |
| 0 | 2 | 1 | 2 | 2 | 3 | 1 | 3 | 8 | 22 |
| 5 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 9 | 29 |
| 5 | 2 | 2 | 2 | 1 | 3 | 3 | 3 | 4 | 25 |



Appendix C – CSZ Scoring Cutsheets

Regional Road 81 (Main Street East)
between Lawrence Avenue and Durham Road

Posted Speed: 50 km/h

Distance: 1.15 km

Municipality: Town of Grimsby

Adjacent Land Use: Saint John Catholic Elementary School, new high school



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|--|--|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year (Result rounded up to next whole number) | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 18 km/h | 3 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 9,600 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 34% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% (Highest % of truck traffic along road segment at any intersection) | 8% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 (Highest number of pedestrians crossing or walking parallel at any intersection) | 21 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 24 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (2) | 6 |
| Total Score | | | 25 |

Regional Road 18 (Mountain Street)
between Edelheim Road and Beam Street

Posted Speed: 50 km/h

Distance: 1.71 km

Municipality: Town of Lincoln

Adjacent Land Use: Saint Mark Catholic Elementary School, Saint Helen Roman Catholic Church, Albright Manor, First Baptist Church



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|---|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 11 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 6,300 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 47% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 14% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 35 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 55 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Church (2), Retirement home (1) | 7 |
| Total Score | | | 25 |

Regional Road 20 (West Street)

between South Grimsby Road No. 6 and Regional Road 14 (Station Street)

Posted Speed: 50 km/h

Distance: 1.87 km

Municipality: Town of West Lincoln

Adjacent Land Use: Smithville United Church, Saint Martin of Tours Roman Catholic Church, West Lincoln Arena & Community Centre, Saint Martin Catholic Elementary School



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | No data | 0 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 9,700 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 46% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 12% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 32 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 40 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Church (2), Community centre (1) | 6 |
| Total Score | | | 23 |

Regional Road 3 (Lakeshore Road)

between Daley Ditch Road and 350m West of Regional Road 3 (Station Road)

Posted Speed: 50 km/h

Distance: 2.17 km

Municipality: Town of Wainfleet

Adjacent Land Use: Wainfleet Lions Community Centre, Wainfleet Lake Erie Public Beach



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|---|----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 0 fatal or injury collision/year | 0 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 20 km/h | 3 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 1,100 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 0% coverage | 3 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 6% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | No data | 0 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 29 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Campground (1), Beach (1), Community centre (1) | 2 |

Total Score

15

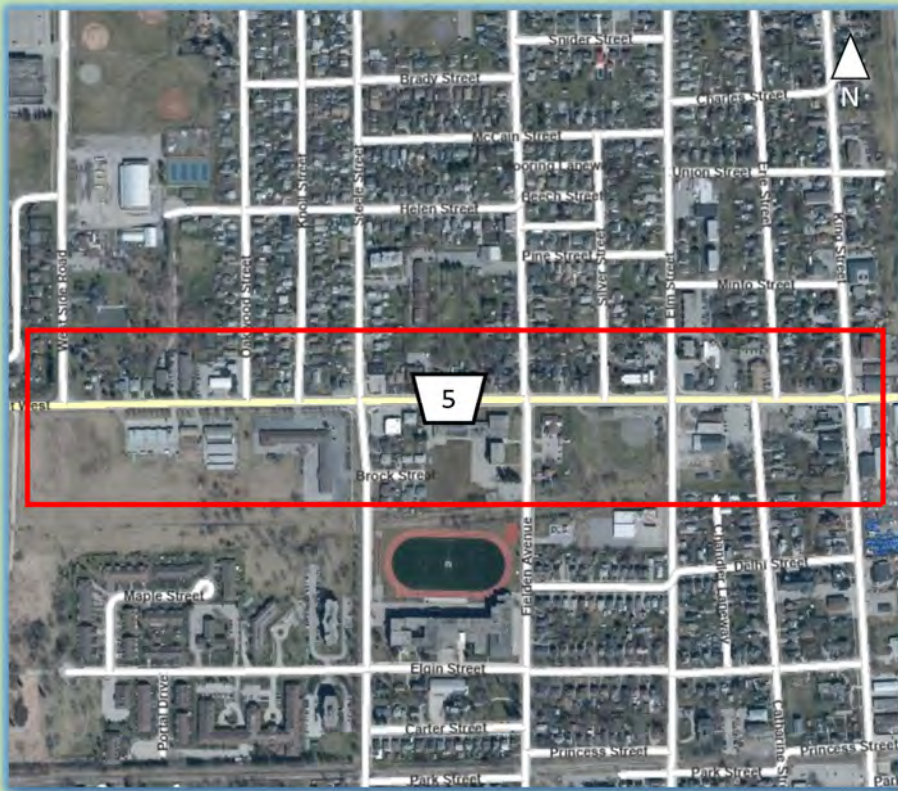
Regional Road 5 (Killaly Street West)
between West Side Road and King Street

Posted Speed: 40 km/h

Distance: 1.09 km

Municipality: City of Port Colborne

Adjacent Land Use: McKay Public School, Lions Field Park



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 19 km/h | 3 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 4,800 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 67% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 6% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 54 pedestrians crossing | 2 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 41 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Park (1) | 4 |
| Total Score | | | 25 |

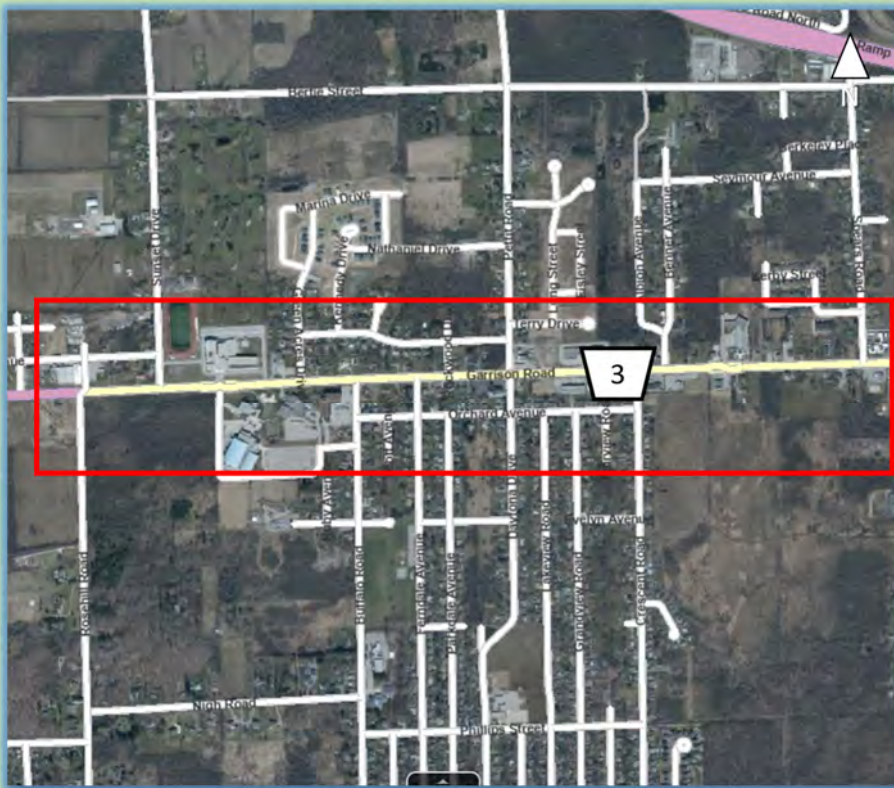
Regional Road 3 (Garrison Road)
between Rose Hill Road and Spears Road

Posted Speed: 60 km/h

Distance: 2.34 km

Municipality: Town of Fort Erie

Adjacent Land Use: Greater Fort Erie Secondary School, The Willows Retirement, Fort Erie Leisureplex, Garrison Road Public School, Boys and Girls Club of Niagara



Location

Typical Cross Section

Warrant Scoresheet

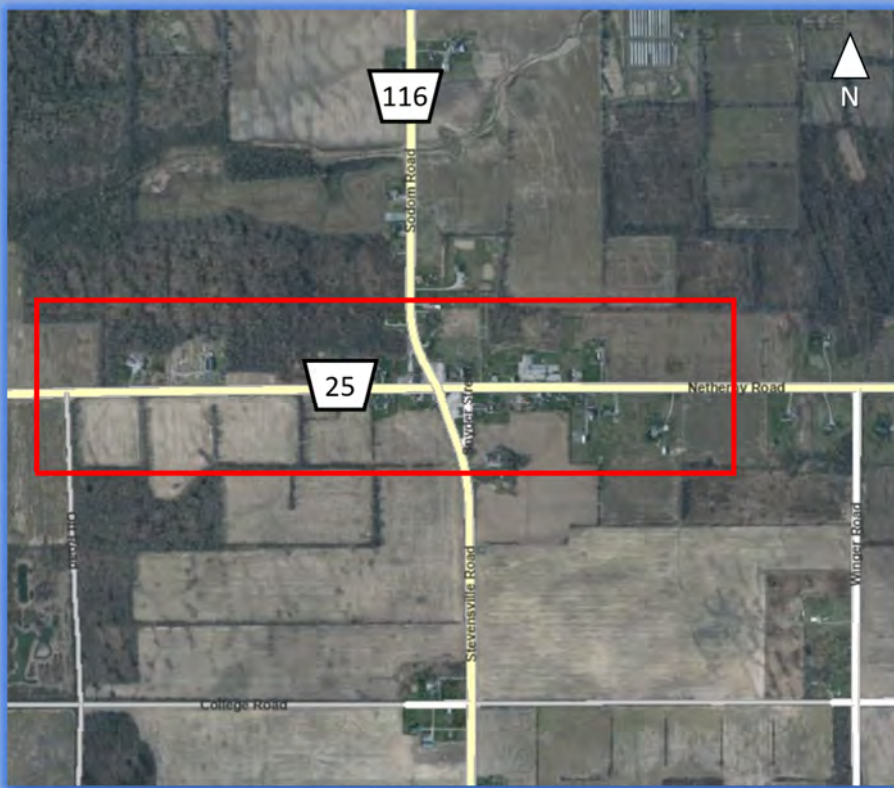
| Category | Criteria | Result | Score |
|---|---|---|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 0 fatal or injury collision/year | 0 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 12 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 14,300 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 5 lanes | 3 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 64% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 9% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 162 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 27 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Schools (2), Retirement home (1), Other (2) | 10 |
| Total Score | | | 27 |

Regional Road 25 (Netherby Road)
between Ott Road and 400m West of Winger Road

Posted Speed: 60 km/h **Distance:** 1.76 km

Municipality: Town of Fort Erie

Adjacent Land Use: Saint Joseph Catholic Elementary School, Saint John’s Lutheran Church, Saint Joseph’s Catholic Church



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 0 fatal or injury collision/year | 0 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 8 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 3,600 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 5% coverage | 3 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 14% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 3 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 18 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Churches (2) | 5 |
| Total Score | | | 18 |

Regional Road 36 (Pelham Road)

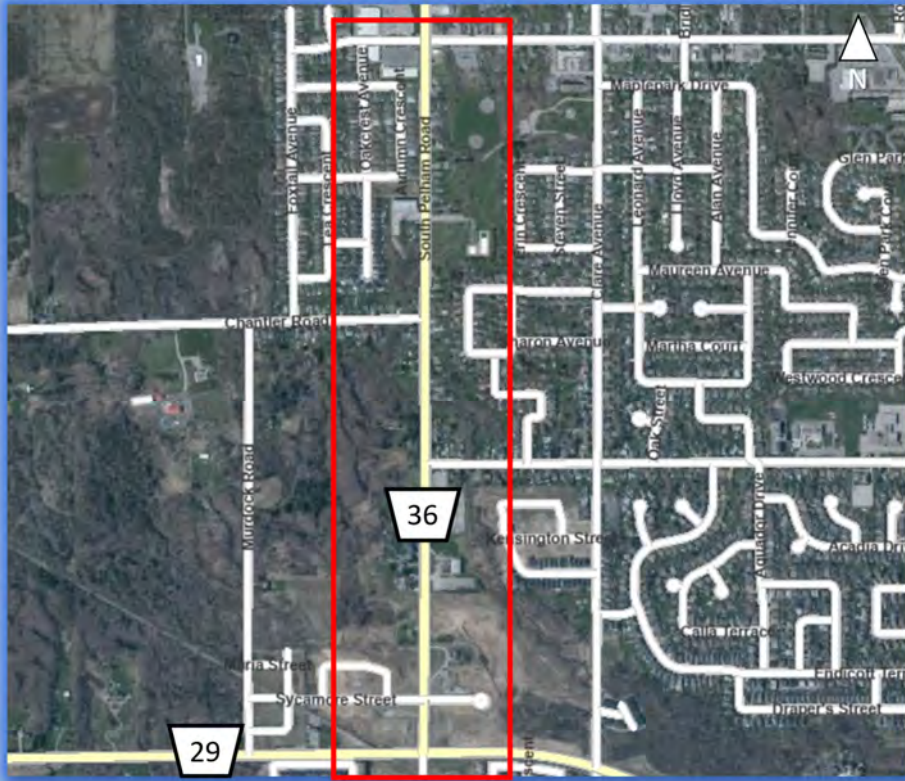
between Thorold Road and Regional Road 29 (Webber Road)

Posted Speed: 50 km/h

Distance: 1.74 km

Municipality: City of Welland

Adjacent Land Use: Wellspring Community Church, Faith Welland, Maple Park



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 0 fatal or injury collisions/year | 0 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 15 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 9,700 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 0% coverage | 3 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 5% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 38 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 37 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Park (1), Churches (3) | 4 |
| Total Score | | | 17 |

Regional Road 54 (Prince Charles Drive North / Rice Road)
between Lacy Avenue and First Avenue

Posted Speed: 60 km/h

Distance: 1.47 km

Municipality: City of Welland

Adjacent Land Use: Fitch Street Public School, Royal Rose Place, First Baptist Church, Welland Centennial Secondary School



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 0 km/h | 1 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 16,800 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 5 lanes | 3 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 88% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 4% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 234 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 8 intersections or driveways per km | 1 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (2), Nursing home (1), Church (1) | 9 |
| Total Score | | | 27 |

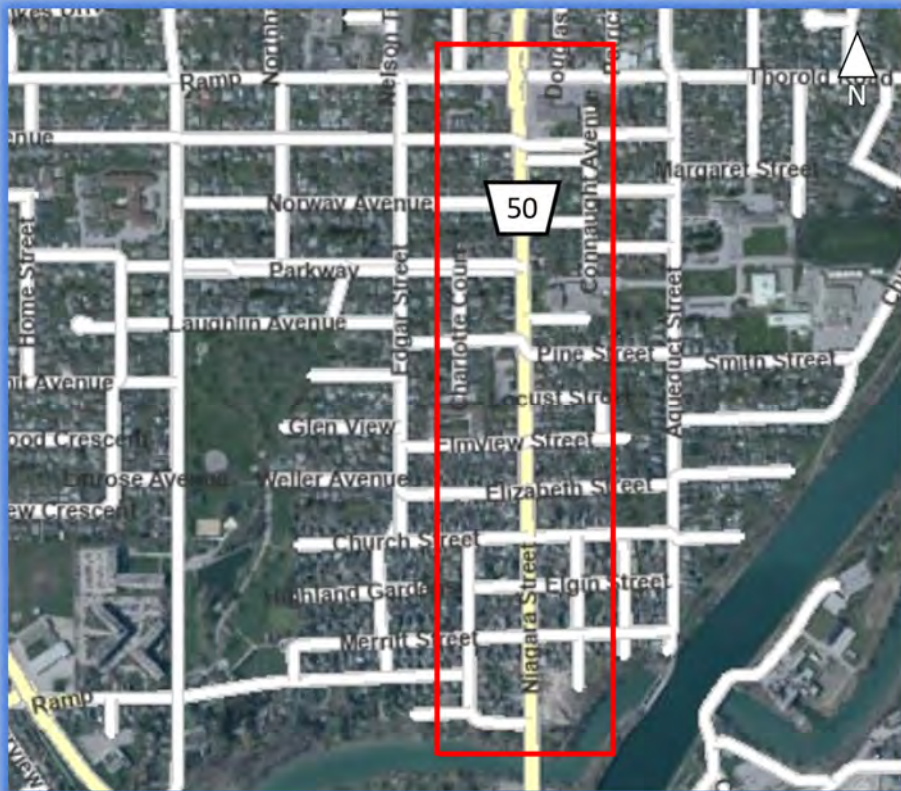
Regional Road 50 (Niagara Street)
between Thorold Road and Riverbank Street

Posted Speed: 50 km/h

Distance: 1.08 km

Municipality: City of Welland

Adjacent Land Use: Ross Public School, Parish Community of Saint Kevin



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 6 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 14,400 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 100% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 5% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 95 pedestrians crossing | 2 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 58 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Church (1) | 4 |
| Total Score | | | 23 |

Regional Road 20 (Highway 20 East)

between Regional Road 54 (Rice Road) and Pinecrest Court

Posted Speed: 50 km/h

Distance: 1.83 km

Municipality: Town of Pelham

Adjacent Land Use: Marlene Stewart Streit Park, Fonthill United Church, Shorthills Retirement Community, Saint Alexander Catholic Elementary School, Gordan Klanger Park



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|---|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 6 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 19,000 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 5 lanes | 3 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 100% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 7% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 58 pedestrians crossing | 2 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 27 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Church (1), Retirement home (1), Park (2) | 8 |
| Total Score | | | 28 |

Regional Road 100 (Four Mile Creek Road)
between Regional Road 61 (Niagara Townline Road) and
Regional Road 81 (York Road)

Posted Speed: 50 km/h

Distance: 1.36 km

Municipality: Town of Niagara on the Lake

Adjacent Land Use: Creekside Senior Estates



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|--|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year (Result rounded up to next whole number) | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 15 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 9,200 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 79% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% (Highest % of truck traffic along road segment at any intersection) | 6% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 (Highest number of pedestrians crossing or walking parallel at any intersection) | 5 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 38 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Retirement home (1) | 2 |
| Total Score | | | 19 |

Regional Road 55 (Niagara Stone Road)

between Niven Road and Regional Road 87 (Mary Street)

Posted Speed: 50 km/h

Distance: 1.50 km

Municipality: Town of Niagara-on-the-Lake

Adjacent Land Use: Niagara-on-the-Lake Community Centre



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 7 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 8,300 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 72% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 3% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 33 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 18 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Community centre (1) | 1 |
| Total Score | | | 18 |

Regional Road 116 (Sodom Road)
between Willick Road and Regional Road 47 (Main Street)
Posted Speed: 50 km/h **Distance: 1.17 km**
Municipality: City of Niagara Falls
Adjacent Land Use: Patrick Cummings Memorial Sports Complex, Lighthouse Niagara



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 0 fatal or injury collision/year | 0 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 15 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 4,600 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 18% coverage | 3 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 0% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 22 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 32 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Sports complex (1), Church (1) | 2 |
| Total Score | | | 16 |

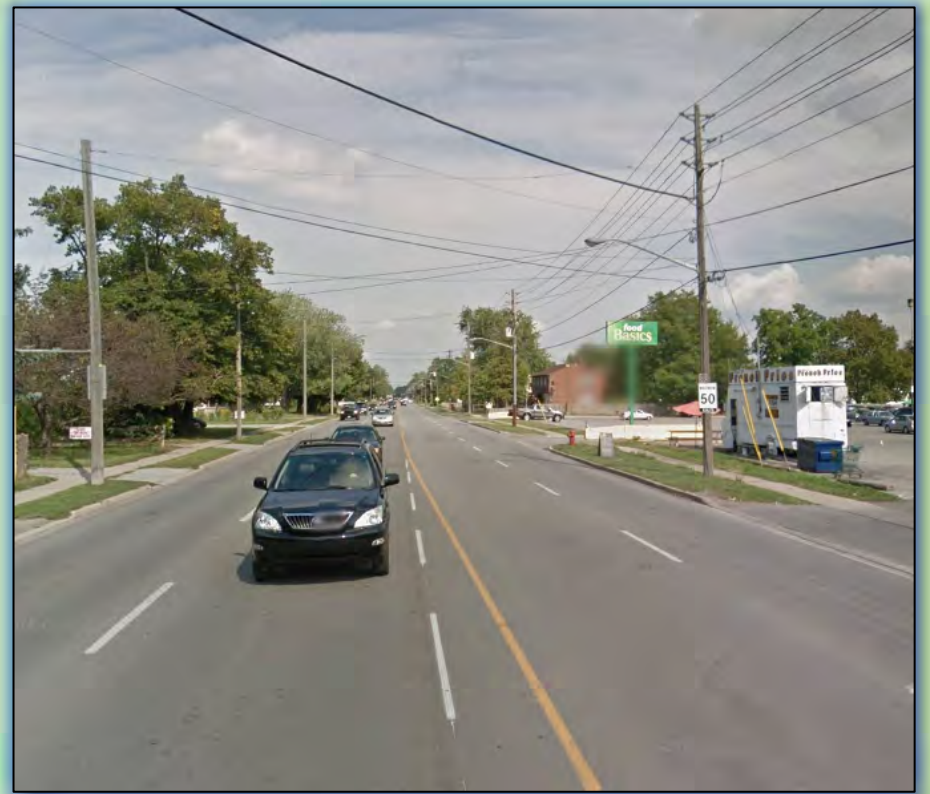
Regional Road 49 (McLeod Road)
between Oakwood Drive and Drummond Road

Posted Speed: 50 km/h

Distance: 1.71 km

Municipality: City of Niagara Falls

Adjacent Land Use: Our Saviour Lutheran Church, Falls View Church



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 2 fatal or injury collision/year | 10 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 14 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 27,100 AADT | 3 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 5 lanes | 3 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 100% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 4% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 143 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 64 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Church (2) | 2 |
| Total Score | | | 29 |

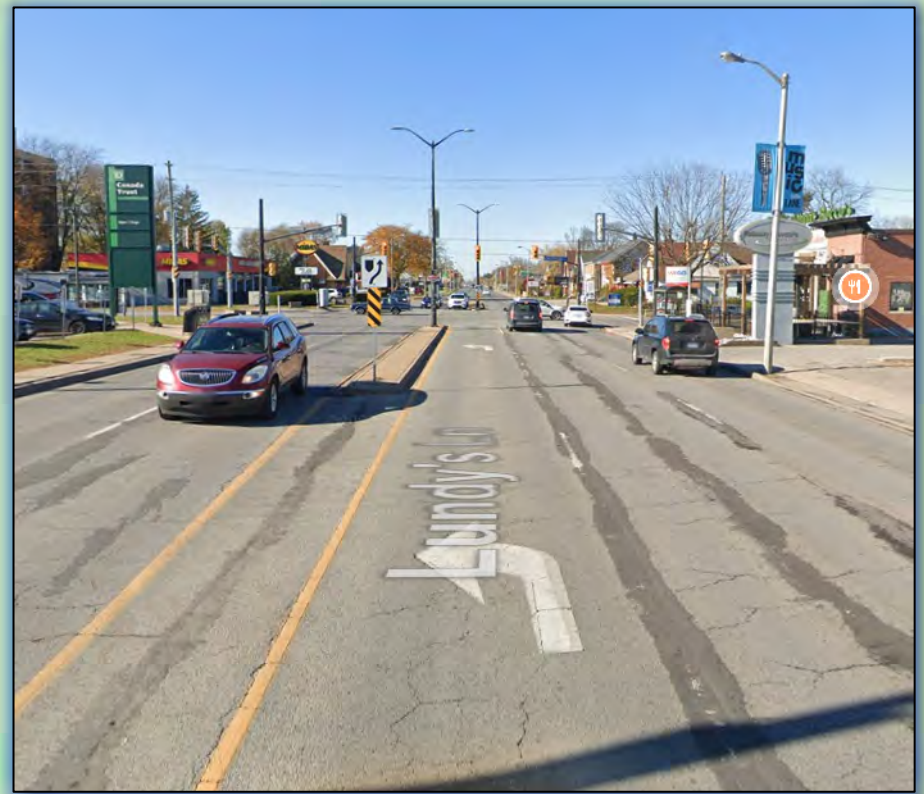
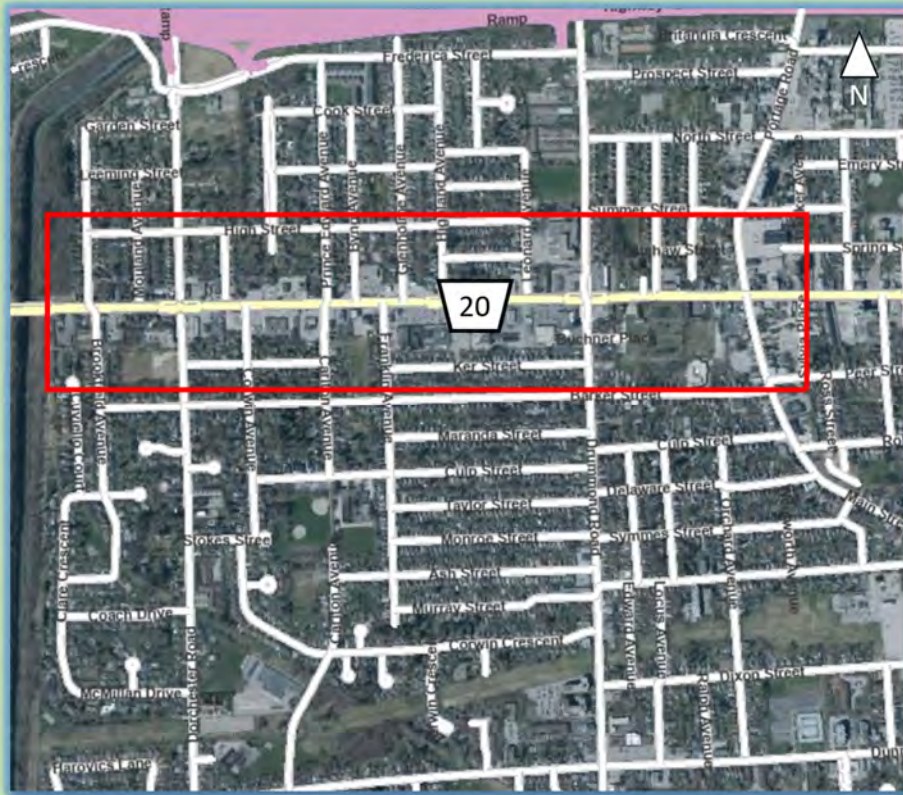
Regional Road 20 (Lundy's Lane)
between Brookfield Avenue and Main Street

Posted Speed: 50 km/h

Distance: 2.08 km

Municipality: City of Niagara Falls

Adjacent Land Use: Stamford Collegiate, Drummond Hill Presbyterian Church, Iglesia Ni Cristo



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 4 fatal or injury collision/year | 20 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 4 km/h | 1 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 20,400 AADT | 3 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 5 lanes | 3 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 100% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 2% truck volume | 1 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 266 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 48 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Church (2), School (1) | 5 |
| Total Score | | | 40 |

Regional Road 98 (Montrose Road)

between Regional Road 57 (Thorold Stone Road) and 550m North of Matthews Drive

Posted Speed: 50 km/h

Distance: 1.73 km

Municipality: City of Niagara Falls

Adjacent Land Use: Redeemer Bible Church



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 31 km/h | 3 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 3,100 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 2 lanes | 1 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 67% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 3% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 51 pedestrians crossing | 2 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 16 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Church (1) | 1 |
| Total Score | | | 19 |

Regional Road 56 (Collier Road South)

between Highway 58 and Regional Road 71 (St. David's Road)

Posted Speed: 50 km/h

Distance: 1.28 km

Municipality: City of Thorold

Adjacent Land Use: Monsignor Clancy Catholic Elementary School, Richmond Street Public School



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | -10 km/h | 1 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 8,600 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 47% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 3% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 211 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 68 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (2) | 6 |
| Total Score | | | 25 |

Regional Road 56 (Burleigh Hill Drive)

between Regional Road 71 (St. David's Road) and Regional Road 89 (Glendale Avenue)

Posted Speed: 50 km/h

Distance: 0.98 km

Municipality: City of St. Catharines

Adjacent Land Use: Burleigh Hill Public School, Elementary School Catholic Sainte-Marguerite-Bourgeoys



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|-------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 11 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 9,000 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 17% coverage | 3 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 3% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 60 pedestrians crossing | 2 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 9 intersections or driveways per km | 1 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (2) | 6 |
| Total Score | | | 24 |

Regional Road 69 (Pelham Road)

between Regional Road 89 (Glendale Avenue) and First Street Louth

Posted Speed: 50 km/h

Distance: 2.5 km

Municipality: City of St. Catharines

Adjacent Land Use: Rotary Park, Extendicare St. Catharines, Brockview Bible Church



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 13 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 5,400 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 90% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 5% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 31 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 57 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Park (1), Church (1), Nursing home (1) | 4 |
| Total Score | | | 21 |

Regional Road 48 (Niagara Street)
between Regional Road 83 (Carlton Street) and Scott Street
Posted Speed: 50 km/h | **Distance: 1.32 km**
Municipality: City of St. Catharines
Adjacent Land Use: Saint Alfred Catholic Elementary School, Laura Secord High School, Lester B. Pearson Park, Ukrainian Evangelical Baptist Church



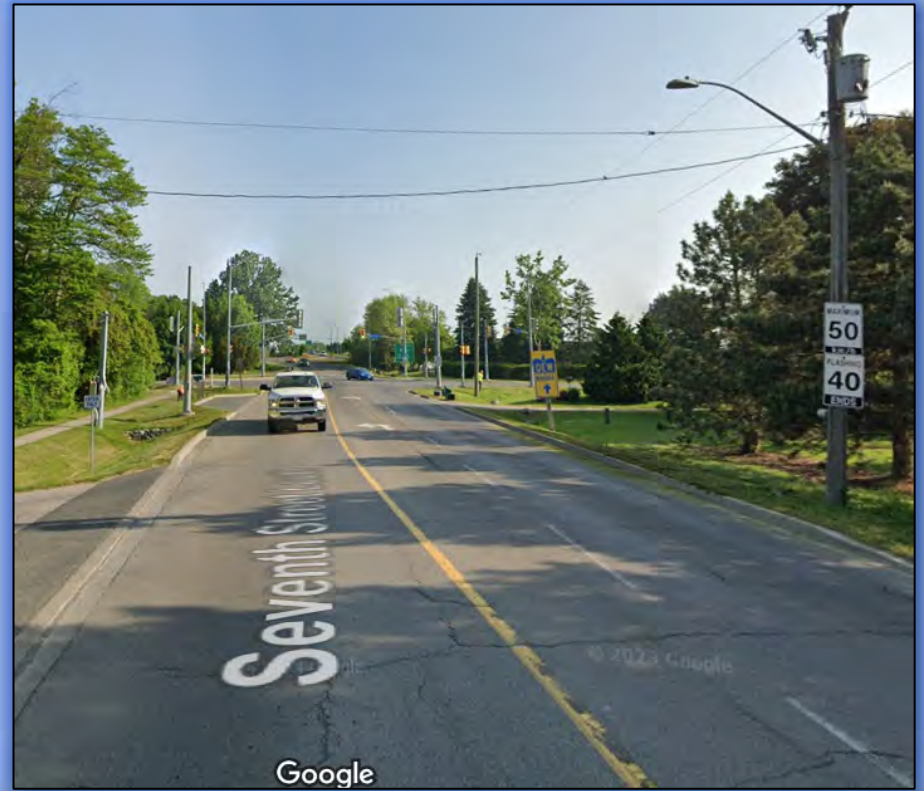
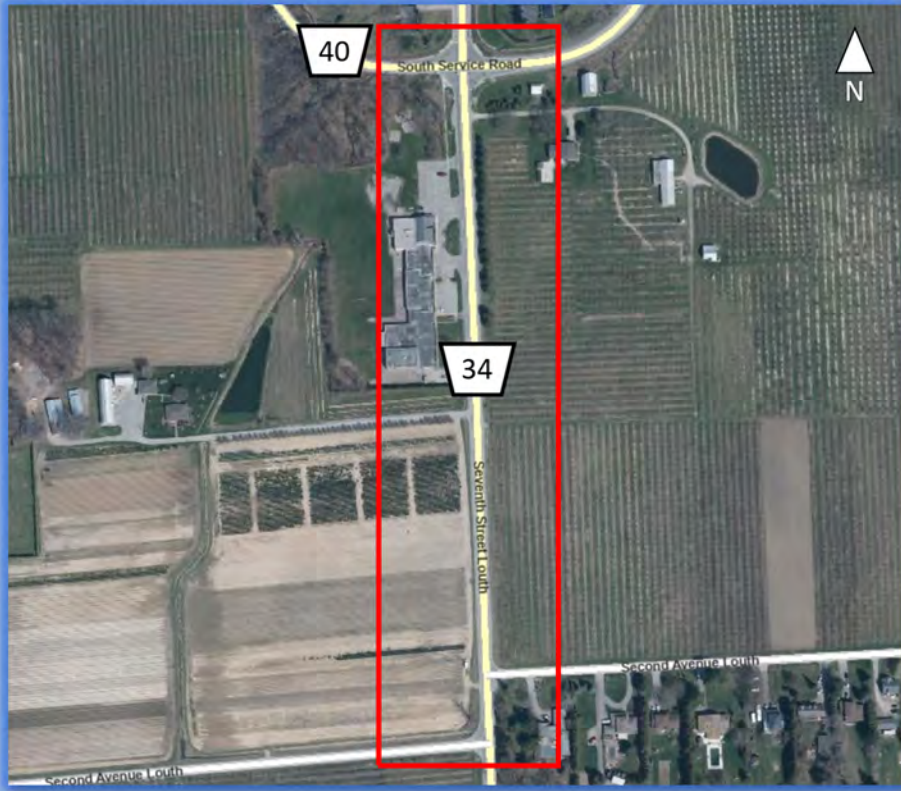
Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 14 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 11,500 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 100% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 6% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 111 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 48 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | Park (1), Church (1), School (2) | 8 |
| Total Score | | | 29 |

Regional Road 34 (Seventh Street Louth)
between South Service Road and Second Avenue Louth
Posted Speed: 50 km/h **Distance: 0.48 km**
Municipality: City of St. Catharines
Adjacent Land Use: Woodland Public School



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | No data | 0 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 6,600 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 0% coverage | 3 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 7% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 0 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 17 intersections or driveways per km | 2 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1) | 3 |
| Total Score | | | 20 |

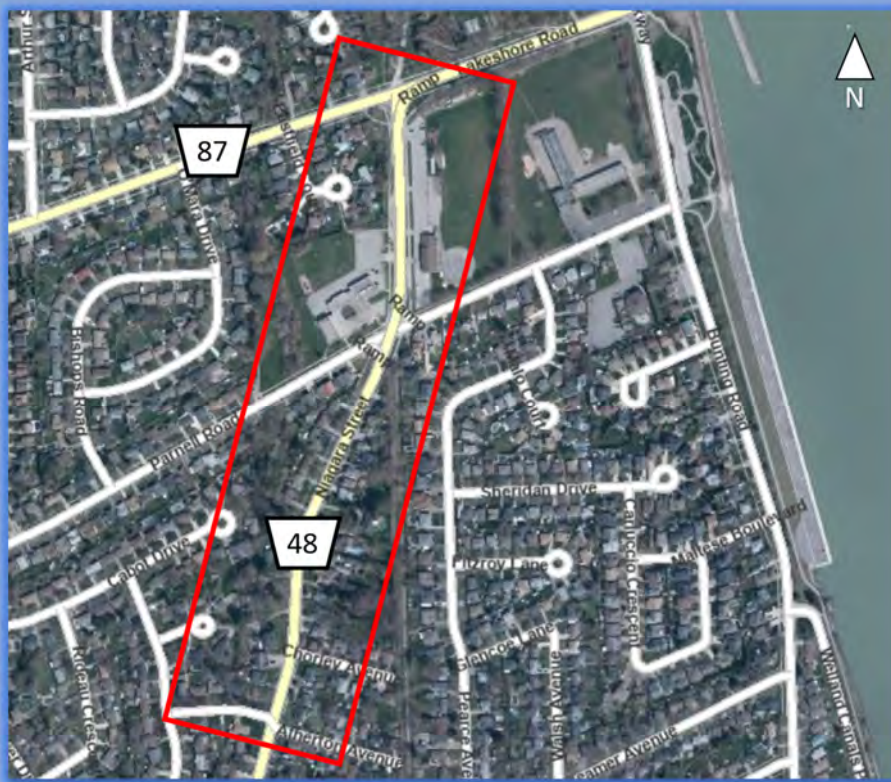
Regional Road 48 (Niagara Street)
between Cherrylane Drive and Regional Road 87 (Lakeshore Road)

Posted Speed: 50 km/h

Distance: 0.68 km

Municipality: City of St. Catharines

Adjacent Land Use: Port Weller Public School, Grantham Lions Park, Assumption Catholic Elementary School, Malcolmson Eco Park



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|--|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year (Result rounded up to next whole number) | 0 fatal or injury collision/year | 0 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 11 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 7,200 AADT | 1 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 66% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% (Highest % of truck traffic along road segment at any intersection) | 7% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 (Highest number of pedestrians crossing or walking parallel at any intersection) | 17 pedestrians crossing | 1 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 51 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (2), Park (2) | 8 |
| Total Score | | | 22 |

Regional Road 87 (Lakeshore Road)
between Bradmon Drive and Read Road

Posted Speed: 50 km/h

Distance: 2.15 km

Municipality: City of St. Catharines

Adjacent Land Use: Port Weller Public School, Grantham Lions Park, Charles Ansell Park, Assumption Catholic Elementary School, Malcolmson Eco Park



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|---|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 7 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 11,600 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 53% coverage | 2 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 5% truck volume | 2 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 68 pedestrians crossing | 2 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 33 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (2), Park (3) | 9 |
| Total Score | | | 29 |

Regional Road 89 (Glendale Avenue)
between Regional Road 69 (Pelham Road) and Caroline Street
 Posted Speed: 50 km/h | Distance: 1.81 km
 Municipality: City of St. Catharines
 Adjacent Land Use: Oakridge Public School, Church of the Transfiguration



Location

Typical Cross Section

Warrant Scoresheet

| Category | Criteria | Result | Score |
|--|---|--------------------------------------|-----------|
| # of Fatal and Injury Collisions | 5 points per fatal or injury pedestrian or cyclist collisions per year <i>(Result rounded up to next whole number)</i> | 1 fatal or injury collision/year | 5 |
| Operating Speed vs. Posted Speed | 3 points for > 15 km/hr above, 2 points for 5 – 15 km/hr above, and 1 point for < 5 km/hr above | 11 km/h | 2 |
| Average Daily Traffic Volume | 3 points for > 20, 000 AADT, 2 points for 10, 000 – 20, 000 AADT, and 1 point for < 10, 000 AADT | 15,800 AADT | 2 |
| # of Lanes | 3 points for > 4 lanes, 2 points for 3 or 4 lanes, and 1 point for 2 lanes | 3 lanes | 2 |
| % Coverage of Sidewalks | 3 points for < 25%, 2 points for 25 – 75%, and 1 point for > 75% | 100% coverage | 1 |
| Truck Volume | 3 points for > 5%, 2 points for 3 – 5%, and 1 point for < 3% <i>(Highest % of truck traffic along road segment at any intersection)</i> | 9% truck volume | 3 |
| Pedestrians Crossing or Parallel (8-hour period) | 3 points for > 100, 2 points for 50 – 100, and 1 point for < 50 <i>(Highest number of pedestrians crossing or walking parallel at any intersection)</i> | 180 pedestrians crossing | 3 |
| Intersections and Driveways (per km) | 3 points for > 30, 2 points for 10 to 30, and 1 point for < 10 | 36 intersections or driveways per km | 3 |
| Land Use | 3 points for schools, 2 points for retirement homes, and 1 point for other sensitive land uses | School (1), Church (1) | 4 |
| Total Score | | | 25 |

Appendix 3 - Proposed Community Safety Zones

| Municipality | Road Name | Regional Road | From | To | Warrant Score |
|---------------------|--|----------------------|-----------------------------------|-----------------|----------------------|
| Niagara Falls | Lundy's Lane | 20 | Brookfield Avenue | Main Street | 40 |
| St. Catharines | Niagara Street | 48 | Carlton Street (Regional Road 83) | Scott Street | 29 |
| St. Catharines | Lakeshore Road | 87 | Bradmon Drive | Read Road | 29 |
| Niagara Falls | McLeod Road | 49 | Oakwood Drive | Drummond Road | 29 |
| Pelham | Highway 20 East | 20 | Rice Road | Pinecrest Court | 28 |
| Fort Erie | Garrison Road | 3 | Rose Hill Road | Spears Road | 27 |
| Welland | Prince Charles Drive North / Rice Road | 54 | Lacy Avenue | First Avenue | 27 |
| Grimsby | Main Street East | 81 | Lawrence Avenue | Durham Road | 25 |

| Municipality | Road Name | Regional Road | From | To | Warrant Score |
|---------------------|---------------------|----------------------|--------------------------------|------------------|----------------------|
| Lincoln | Mountain Street | 18 | Edelheim Road | Beam Street | 25 |
| Port Colborne | Killaly Street West | 5 | West Side Road | King Street | 25 |
| St. Catharines | Glendale Avenue | 89 | Pelham Road (Regional Road 69) | Caroline Street | 25 |
| Thorold | Collier Road South | 56 | Highway 58 Ramp | St. David's Road | 25 |