



Committee Report

To:	Warden Hicks and Members of Grey County Council
Committee Date:	February 11, 2021
Subject / Report No:	TR-CW-06-21
Title:	Speed Limit Evaluation Policy Update
Prepared by:	Matt Marck, Engineering Manager
Reviewed by:	Pat Hoy, Director of Transportation Services
Lower Tier(s) Affected:	Member Municipalities
Status:	Recommendation adopted by Committee as presented per Resolution CW39-21; Endorsed by County Council February 25, 2021 per Resolution CC24-21

Recommendation

1. That Report TR-CW-06-21 be received and that Speed Limit Policy MS-TS-008 be rescinded; and
2. That the updated Speed Limit Evaluation Policy 12-4 be endorsed.

Executive Summary

The speed limit evaluation policy was drafted and endorsed by County Council on November 22, 2016 through Resolution CC148-16.

The policy was scheduled for review in 2020.

Background and Discussion

The speed limit evaluation policy was drafted to address evaluation criteria for County rural roads only and did not address urban roads within member Municipality civic borders.

The proposed update to the policy adds criteria to address regulatory posted speed revisions for urban roads within Municipal urban boundaries, as these were not addressed in the original policy.

Specifically addresses a process to revise speed limits on County Roads in lower tier urban areas if so desired by the lower tier. The additions are highlighted in the attached revised policy.

Legal and Legislated Requirements

For regulatory posted speed limits to be enforceable, a by-law must be passed to implement any revision to posted speed limits.

Financial and Resource Implications

Labour, material and equipment to manufacture and install/change signage would variable dependent upon the number of signs required at specific locations. Typically, a new sign, installed, would incur a cost of approximately \$250.00/each.

Relevant Consultation

- Internal
Clerks Department
- External

Appendices and Attachments

Speed Limit Evaluation Policy_– revisions highlighted

Corporate Policy

[Title]

Approved by:

By-law: N/A

Replaces: MS-TS-008

Section: Transportation

Policy: 12-4

Date Approved:

Last Revision Date: February 11, 2021

Scheduled for Review by: 2026

Policy Statement

In accordance with the Highway Traffic Act, the County of Grey is responsible for posting speed limits on Grey County roads that will meet the function of a county road, driver expectations and engineering principals.

Purpose

The purpose of this procedure is to provide the County of Grey with criteria to evaluate posted speed limits. Posted speed limits must consider safety criteria as well as match the expectations of drivers for a given roadway and surrounding area. This policy provides evaluation criteria to assess appropriate speed limits based on a variety of factors.

Scope

The determination of an appropriate speed limit is not an exact science; there are a variety of components that must be considered and evaluated with regard to risk.

The major function of a **rural** county road is to provide the efficient movement of people and goods; therefore, the speed limit on **rural** county roads should be maintained as high as possible considering public safety and risk management.

Speed limits that are set too low on rural county roads will result in a greater speed variance which may contribute to accident frequency.

Urban County roads that run through urban centres are typically posted the same as the associated municipal roads which are typically 50 km/h. If the member municipality passes a by-law to change the posted speed on associated municipal roads, the County will follow suit, if requested by the member municipality, and change the posted speed limit on the County road within the municipal boundary to that of the adjacent municipal roads.

Local municipalities are responsible for the movement of pedestrians on County right-of-ways.

1.0 Urban County Roads

1.1 Evaluation Criteria

- a) County roads that reside within member Municipality urban areas fall under the Urban Local Undivided functional classification of the Ontario Ministry of Transportation Geometric Design Standards Manual (GDM), and as such have design speeds ranging from 40 km/h to 60 km/h.
- b) In a constrained urban setting geometric criteria and non-geometric criteria as applied to Rural County Roads does not play a decisive role in posted speeds, as the urban setting typically consist of a curbed cross section with parking lanes, closely spaced entrances and intersections with pedestrian movements, possible signalization and high commercial development.
- c) The typical posted speed of most urban County roads is 50 km/h.
- d) For setting speed limits in urban areas, If the member Municipality passes a by-law to lower the posted speed limit of all streets within the boundaries of the member Municipality urban area, the County, at the request of the member Municipality, through the passing of a resolution to Grey County Council, will follow suit, and pass a by-law to set the regulatory speed limit on the urban County road to match the regulatory posted speed limit as passed into by-law by the member Municipality.

2.0 Rural County Roads

2.1 Evaluation Criteria

- a) County roads fall under the Rural Collector Undivided functional classification of the Ontario Ministry of Transportation Geometric Design Standards Manual (GDM), and as such have design speeds ranging from 60 km/h to 100 km/h. Geometric design parameters, which determine road design speed, are selected based on functional classification.
- b) Road geometry is typically designed to 20 km/h faster than the final posted speed limit, i.e. a road with an 80 km/h posted speed limit will be designed to 100km/h. However, on county roads, it is an acceptable municipal practice for the design speed to equal the posted speed limit.
- c) When determining an appropriate speed limit, consistency is important; therefore, it is not recommended to frequently alter the posted speed limit along a roadway. Where

such adjustment is required, the change in speed should be no greater than 20 km/h. To maintain a posted speed where medium to high risk hazards are present, warning signs may be placed to inform the motorist.

- d) Speed limits should also be set with consideration given to what reasonable drivers feel should be the running speed limit of the roadway, the speed at which the eighty-fifth percentile of drivers feel comfortable driving. If speed limits are set unreasonably low, drivers will tend to disregard the posted limits.
- e) To determine a speed limit, the following criteria must be considered collectively. A single variable is insufficient to arrive at a final speed limit. Geometric criteria should be applied first, followed by consideration of non-geometric criteria. Geometric criteria will directly and consistently influence the level of risk applied to a vehicle and driver, while non-geometric criteria will intermittently influence the actual and perceived risk to the driver.
- f) Geometric Criteria
 - i) Horizontal Alignment
 - ii) Vertical Alignment
 - iii) Stopping Site Distance
 - iv) Lane Width
 - v) Shoulder Width
- g) Non-Geometric Criteria
 - i) Road Side Entrances
 - ii) Intersecting Roads
 - iii) Road Side Hazards
 - iv) Operating Speed
 - v) Accident history

3.0 Geometric Criteria

3.1 *Horizontal Alignment*

- a) The radius, superelevation and the occurrence density of horizontal curves have an effect on driver comfort and safety, and influence driving risk. The analysis of existing horizontal geometry may justify a lower posted speed limit.
- b) The risk assessment criteria for implementing a speed limit change based on horizontal geometry are as follows:
 - i) High Risk - Curves fail to meet the recommendation by more than 10 km/h.
 - ii) Medium Risk - Curves fail to meet the recommendation by 10 km/h or less.
 - iii) Low Risk - Curves meet or exceed the recommendation.
- c) An increase in the occurrence of horizontal curves within a 1.0 km length of road will increase driver workload possibly justifying a speed limit reduction. This is known as the curve density (curvature change rate).
- d) The risk assessment criteria for implementing a speed limit change based on curve density are as follows:

- i) High Risk - More than 6 curves per km.
 - ii) Medium Risk - 3 to 6 curves per km.
 - iii) Low Risk - Less than 3 curves per km.
- e) In an effort to maintain an existing speed limit through horizontal curves, signage may be installed to mitigate risk, as per the Ontario Traffic Manual.

3.2 *Vertical Alignment*

- a) Steepness of grade, and sharpness and frequency of vertical curves (crest and sag) will increase driver workload. Navigating a road that exhibits significant grade changes presents a greater driving risk.
- b) Depending on the traffic volume, the recommended maximum road grade decreases as the design speed increases.
- c) The vertical geometry of a road is designed with consideration given to stopping sight distance and driver comfort. The rate of change of grade through a crest or a sag relates to the chosen design speed; as vertical curves lengthen and flatten, design speed increases.
- d) The risk assessment criteria for implementing a speed limit change based on vertical curve geometry is as follows:
 - i) High Risk - Curves exceed the recommendation by more than 10 km/h.
 - ii) Medium Risk - Curves exceed the recommendation by 10 km/h or less.
 - iii) Low Risk - Curves meet or exceed the recommendation.

3.3 *Stopping Sight Distance*

- a) A minimum sight distance must be available to a driver to stop before reaching an object in their path. Stopping sight distance must be maintained through both horizontal and vertical curve sections of road.
- b) The risk assessment criteria for implementing a speed limit change based on stopping sight distance is as follows:
 - i) High Risk - Curves exceed the recommendation by more than 10 km/h.
 - ii) Medium Risk - Curves exceed the recommendation by 10 km/h or less.
 - iii) Low Risk - Curves meet or exceed the recommendation.

3.4 *Lane Width*

- a) Narrow lanes provide less room for maneuverability and, as a result, driver comfort and safety is reduced. Lane width, together with traffic volume and vehicle type can be used to assist in the selection of a speed limit. Generally, the wider the travelled way, and the lesser the traffic volume, the greater the design speed.
- b) The risk assessment criteria for implementing a speed limit change based on lane width is as follows:
 - i) High Risk - Average lane width less than 0.25 m less than recommendation.
 - ii) Medium Risk - Average lane width between 0 m and 0.25 m less than recommendation.

- iii) Low Risk - Average lane width equal to or greater than recommendation.

3.5 *Shoulder Width*

- a) Narrow shoulders create an illusion of narrower traffic lanes which result in reduced driver comfort. Shoulder width, together with traffic volume and vehicle type, can be used to assist in the selection of a speed limit.
- b) The risk assessment criteria for implementing a speed limit change based on shoulder width is as follows:
 - i) High Risk - Average shoulder width less than 0.5 m less than recommendation.
 - ii) Medium Risk - Average shoulder width between 0 m and 0.5 m less than recommendation.
 - iii) Low Risk - Average shoulder width equal to or greater than recommendation.

4.0 Non-Geometric Criteria

4.1 *Road Side Entrances*

- a) The number and density of entrances may increase the number of vehicles encountering conflicts and justify a reduction to the posted speed limit.
- b) Given that a roadway conforms to minimum geometric design standards, the risk assessment criteria for implementing a speed limit change are as follows:
 - i) High Risk - More than 50 residential or 20 commercial entrances per side per km.
 - ii) Medium Risk - Between 30 and 50 residential, or 10 to 20 commercial entrances per side per km.
 - iii) Low Risk - Less than 30 residential or 10 commercial entrances per side per km.

4.2 *Intersecting Roads*

- a) A change in the number, spacing and traffic volume of intersecting roads may affect the number of vehicles encountering conflicts which may justify a modification to the posted speed limit.
- b) Given that a roadway conforms to the established minimum geometric design standards, the risk assessment criteria for implementing a speed limit change are as follows:
 - i) High Risk - More than 3 intersections with AADT greater than 1000, or more than 5 intersections with AADT greater than 200.
 - ii) Medium Risk - 3 intersections with AADT greater than 1000, or more than 5 intersections with AADT greater than 200.
 - iii) Low Risk - Less than 3 intersections with AADT greater than 1000, or less than 4 intersections with AADT greater than 200.

4.3 *Road Side Hazards*

- a) Road side hazards create an illusion of a narrower roadway resulting in reduced driver comfort. A hazard free clear zone along the roadway should be maintained wherever

possible. It is always preferable to remove road side hazards, or install suitable shielding, rather than to reduce speed limits; however, where removal or shielding is impossible, or clear zone areas are not available, speed limit reductions may be justified.

- b) Given that a roadway conforms to the established minimum geometric design standards, the risk assessment criteria for implementing a speed limit change are as follows:
 - i) High Risk - 10 or more hazards per km per side, or continuous hazards on more than 50% of the road segment length. This does not include curb and gutter signage.
 - ii) Medium Risk - 5 to 9 hazards per km per side or continuous hazards from 25%-50% of the road segment length. This does not include curb and gutter signage.
 - iii) Low Risk - Less than 5 hazards per km per side or continuous hazards on less than 25% of the road segment length. This does not include curb and gutter signage.
- c) Site Specific conditions must be taken into consideration when assessing road side hazards to determine if a speed limit reduction will sufficiently reduce risk.

4.4 *Operating Speed*

- a) The operating speed of a vehicle will generally be less than the desired speed of the driver since driving conditions are not usually ideal; however, operating speed may become excessive when the design speed is less than the desired speed as may occur on long flat sections of roadway.
- b) Given that a roadway conforms to established minimum geometric design standards, the risk assessment criteria for implementing a speed limit change are as follows:
 - i) High Risk - Operating speed appears to be greater than the posted speed.
 - ii) Medium Risk - Operating speed is equal to the posted speed.
 - iii) Low Risk - Operating speed is less than the posted speed.

4.5 *Accident History*

- a) Accident history can be used to justify a speed limit adjustment using the criteria below:
 - i) High Risk - There has been an average of 4 or more accidents per year for the previous 3 years as a direct result of speed in excess of the posted speed limit.
 - ii) Medium Risk - There has been an average of 2 to 4 accidents per year for the previous 3 years as a direct result of speed in excess of the posted speed limit.
 - iii) Low Risk - There has been an average of 2 or less accidents per year for the previous 3 years as a direct result of speed in excess of the posted speed limit.

5.0 Proximity of Development

- 5.1 The density and the closeness of development to the property line increases the amount of activity that a driver must observe. As a result, the location and the

activities from the development play a factor in identifying an appropriate speed limit.

6.0 Assessment

- 6.1 Once all of the above criteria are rated, the Director of Transportation Services will make a recommendation in a report to County Council through an amendment to by-law 4788-13 that regulates traffic and parking on Grey County roads.

7.0 Legislated Requirements

Highway Traffic Act

Forms

N/A