TECHNICAL GUIDELINES & PRACTICES

SUBJECT:	**SPEED LIMITS**		**A-2b**
CATEGORY:	Speed Limit Reviews	**Revision Date:**	April 2020

PURPOSE:

Recognizing that vehicle speeds have considerable influence on road safety and mobility for all road users this technical guideline provides a systematic, consistent, and repeatable framework to evaluate and recommend posted speed limits.

REFERENCE:

Highway Traffic Act, Section 94
Manitoba Infrastructure Guide for Setting Posted Speed Limits on Manitoba Roadways
Transportation Association of Canada Guidelines for Establishing Posted Speed Limits
Traffic Authority Speed Limits Regulation 30/2019
City of Winnipeg Speed Limit By-Law 63/2019 and amendments
Technical Guideline A-2a

GUIDELINES/PROCEDURES:

Speed limits on all roadways within Manitoba are defined in The Highway Traffic Act and are always in effect, even when not posted. Section 94 of The Highway Traffic Act defines the City of Winnipeg as a restricted speed area and states that the speed limit on any portion of highway is 50 km/h within a restricted speed area. However, this default speed limit of 50 km/h may not always reflect the reasonable safe maximum speed of a specific roadway section. Due to the prevailing roadway function, physical characteristics, traffic mix, or land use conditions a higher or lower speed limit may be more appropriate.

The Highway Traffic Act designates that as the responsible Traffic Authority, the City of Winnipeg is able to modify the speed limits on any geographic area, highway, or portion of a highway within City of Winnipeg by fixing a by-law (Speed Limit By-law 63/2019). The Standing Policy Committee on Infrastructure Renewal and Public Works (SPCIRPW) is the City's Traffic Authority pursuant to Section 13. (d) of the City Organization By-law 7100/97.

The City of Winnipeg has adopted the Manitoba Infrastructure *Guide for Setting Posted Speed Limits on Manitoba Roadways* (2019) engineering speed limit study as the framework, with minor modifications, to evaluate and recommend posted speed limits.

Guiding Principles for Setting Speed Limits

Appropriate speed limits encourage speeds that are compatible with the roadway function and surrounding environment, while considering the safety of all road users. The following guiding principles can help provide safe, credible speed limits:

- ***Reduce speeds while maintaining reasonable mobility.*** Maximizing safety is the most important objective, and all things being equal, a slower speed environment is safer for all road users.
- ***Permit the right speed on the right road.*** Motor vehicle speeds and the safety of all road users must be carefully considered in network planning, so operating speeds are not unnecessarily restricted.

- ***Promote consistency in speed between road users.*** As differences in speed increase between motorists, more lane changing, overtaking and rear-end conflicts are created. Greater differences in speed increase the probability of a serious injury or fatality for both motorized and non-motorized road users.
- ***Minimize changes in speed limits.*** As best as possible, roadway systems should permit the motorist to travel at a consistent speed. Abrupt and unexpected changes in speed limit should be avoided.

Simplified Speed Limit Study

A simplified speed limit study may be prepared under some circumstances identified by Public Works where there are substantial changes in the level of roadside development and/or the function of the roadway resulting in inappropriate modified speed limits that had previously been in effect. The typical outcome of these studies is recommending that the modified speed limit be removed from the by-law and the default 50 km/h speed limit is applicable.

Engineering Speed Limit Study

An engineering speed limit study can help identify, review, and propose solutions for roadways where the traffic authority has concerns with the current speeds. The engineering speed limit study should provide a speed limit recommendation based on the following:

- the operating speed based on the observed vehicle speeds on the roadway,
- the target speed based on the function and physical characteristics of the roadway ,
- collision history, and
- engineering countermeasures, if appropriate, that may be implemented to better align the operating speed with the target speed

Operating Speed

The operating speed is the speed at which motorists choose to travel on a given roadway. Speed choice by drivers is based on a variety of factors, including roadway and roadside characteristics, weather, traffic characteristics, vehicle characteristics and the purpose of the trip. The operating speed for a particular road section can be estimated by measuring individual speeds through a spot speed study. The following describes operating speed characteristics:

- ***85th Percentile Speed***. The 85th percentile speed is the speed at or below 85 percent of the measured speeds in a spot speed study.
- ***15 km/h pace.*** The 15 km/h pace is the 15 km/h range of speeds that encompasses the greatest percentage of measured speeds in a spot speed study.
- ***Percent in pace.*** The percent in pace is the percentage of measured speeds that fall within the 15 km/h pace.

Target Speed

The target speed is the speed at which vehicles should operate on a facility in order to promote the safety and appropriate level of mobility for all road users. The following factors can influence

target speed:

- pedestrian exposure
- cyclist exposure
- stakeholder input
- roadside environment
- roadside hazards
- average lane width
- presence of a median
- horizontal and vertical alignment
- roadway surface type
- number of intersections with public roads
- number of private access driveways
- on-street parking

The target speed is determined using two approaches, (1) the Transportation Association of Canada *Guidelines for Establishing Posted Speed Limits*, and (2) comparison with similar classification roadways to promote city-wide consistency and driver expectation.

Collision History

A collision history review can identify sections of roadway that are performing more poorly from a road safety perspective. A high collision frequency or rate at a location may indicate any number of operational or geometric issues and does not necessarily indicate speed as a primary contributing factor. A closer analysis of the collision types, locations, time of day, weather conditions and other factors is useful for understanding the role of speed, if any, in the collisions. NCHRP Report 613 describes the following collision patterns where inappropriate speed is more likely to be a contributing factor:

- rear-end collisions – drivers not anticipating the location of the back of a queue
- run-off-road collisions – drivers avoiding conflicts in the roadway proper
- angle collisions – drivers accepting gaps that are too small

Analysis of the collision data is necessary to determine if these patterns could also be attributed to other factors, such as driver inattention or impairment, geometric conditions (alignment or sight distance) or other conditions that do not meet a driver's expectations.

Engineering Countermeasures

Ideally the target speed and operating speed are relatively consistent. A significant divergence between the operating speed and the target speed is usually a result of a road where the risks are not apparent to the driver. The engineering study should identify potential issues causing the divergence and propose potential solutions. Typical causes of significant differences in operating speeds and target speeds include:

- The road is being used for a different function than its original intention (e.g., a local road used by through traffic, resulting in higher speeds).
- The road has been over-designed, compared to its function and surrounding land use.
- The function of the road and the surrounding land use are inconsistent.
- The risks that are present along the road have been overstated in the target speed evaluation.

Traffic calming is the broad term used to describe the process and measures to address concerns about the behaviour and speeds of motorists. When traffic volumes, vehicle speeds or

driver behaviour are considered inappropriate for the type of adjacent land uses and the pedestrian, cyclist and other activities that occur along the roadway, traffic calming may be considered. The engineering study should identify appropriate traffic calming measures and their expected benefits.

Traffic authorities can help motorists to perceive the speed limit as credible if they provide engineering countermeasures that support the speed limit and match the level of activity, conflict and risk in the roadway setting.

DATE OF ISSUE:	**SUPERSEDES ISSUE OF:**

APPROVED:

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