



Grade Crossing Regulations

An Overview of Municipal Roles and Responsibilities at Federally Legislated Grade Crossings

March 21, 2017 presentation to Alberta Municipal Supervisor Association, Edmonton, Alberta



Grade Crossing Regulations and Standards

Applicable Federal Legislation

- **Canadian Transportation Act (CTA)** administered by the Canadian Transportation Agency
 - Legal right to cross a railway
 - Suitable crossing
 - Dispute resolution and apportionment of \$\$
- **Railway safety Act (RSA)** administered by Transport Canada
 - Safe operations of railways
 - Responsibility to maintain
 - Safe crossing design and operation
- **Canadian Transportation Accident Investigation and Safety Board Act** administered by Transportation Safety Board
 - Accident investigation

Grade Crossing Regulations and Standards

Pre 1990

- Railway Act administered by the Canadian Transportation Commission (CTC or previously Railway Transportation Commission), responsible for:
 - Railway Act, all things transportation

1990 - 2014

- Railway Safety Act replaces Railway Act
- Grade Crossing Regulation development
 - Needs evaluation,
 - Evaluation of options
 - Development of standards
 - Consultation on Draft Regulations and Standards (1990)
 - Rewrite of regulations and standards
 - Consultation on Draft (RTD-10, 1993, 1995, 2002, 2011-12)
 - Gazette I (February 2014)
 - Consideration and evaluation of gazette comments, rewrite of regulations and standards
 - Regulatory Impact Analysis
 - Gazette II - Registered (CIF) November 27, 2014

Grade Crossing Regulations and Standards

There are about 14,000 public and 9,000 private grade crossings along more than 40,000 kilometres of federally regulated railway track in Canada.

A regulation was needed to improve safety at crossings by:

- clearly defining the roles and responsibilities of railway companies and road authorities;
- ensuring that railway companies and road authorities share key safety information with each other; and
- establishing comprehensive and enforceable safety standards for both new and existing crossings in Canada.



Grade Crossing Regulations (GCR)

- Gazette II
 - Registered (CIF) November 27, 2014
- Interpretation
- Application
- Compliance
- Information Sharing
- Sightlines
- New Grade Crossings
- Existing Grade Crossings
- Changes to Grade Crossings
- Audible Warnings
- Records

NB - What and when things apply!

CANADA

CONSOLIDATION CODIFICATION

Grade Crossings Regulations Règlement sur les passages à niveau

SOR/2014-275 DORS/2014-275

Current to April 12, 2016 À jour au 12 avril 2016

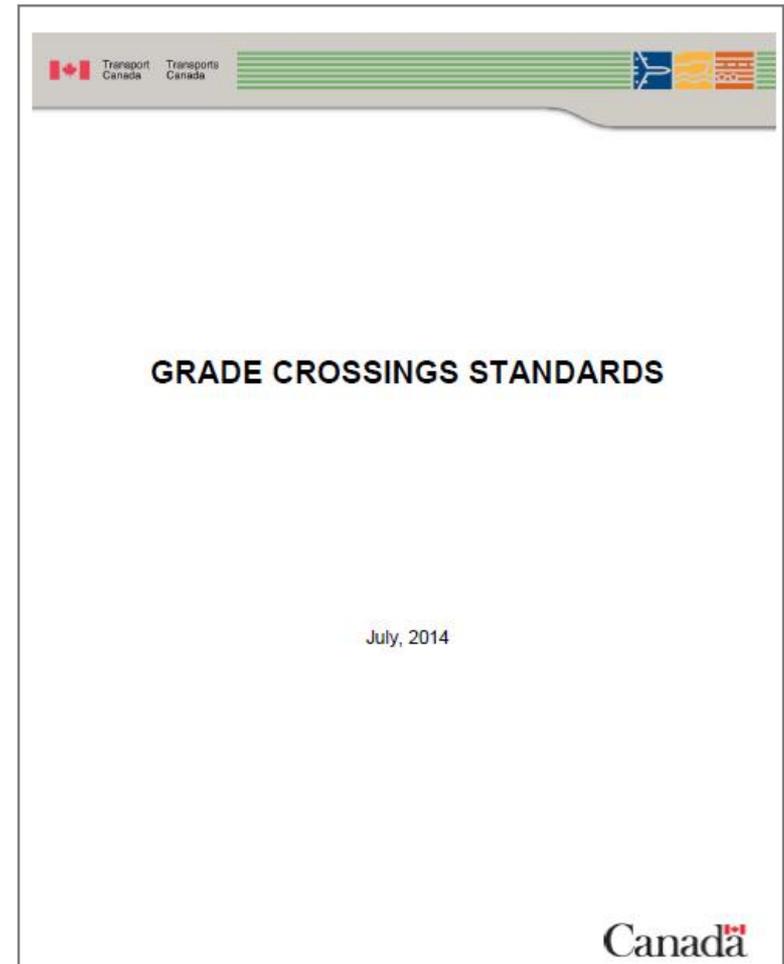
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Grade Crossing Standards (GCS)

- Minimum safety requirements for the general design, construction and maintenance of grade crossings.
- Phased-In approach regarding effective compliance dates, **detailed in the GCR.**
- Includes the following :
 - Part A - Introduction
 - Part B - Existing Grade Crossings
 - Part C - New Standards
 - Part D - Design Calculations
 - Part E - Warning System Design
 - Part F - Interconnected Devices
 - Appendices



Grade Crossing Regulations (GCR)

Effective on November 28, 2014:

- **Maintenance responsibilities specified for Road Authority and Railway.**
- **Standards for existing crossings** are the same or similar to those that existed prior to the regulation (pre November 28, 2014).
 - **NB - Requirements for safety critical elements at existing crossings to be in place by November 28, 2021.**
- Standards for new or significantly altered crossings.
- Requirements for whistle cessation specified.
- Collaborative process for railways and road authorities to resolve safety concerns at blocked crossings created (GCR s. 98).
- **Mandatory communication requirements between railway and road authority when automatic warning systems fail.**
- **Testing requirements for automatic warning systems and interconnected signals.**

Grade Crossing Regulations (GCR)

Effective on November 28, 2014:

GCR Section 3 – (Road authority responsibility for) **Compliance**

3 (1) Unless otherwise specified in an order of the Agency or in an agreement filed with the Agency under subsection 101(1) of the [Canada Transportation Act](#), in the case of a public grade crossing,

(b) a road authority must ensure compliance with the requirements of these Regulations respecting

- (i) the design, construction and **maintenance of a road approach**,
- (ii) **traffic control devices**, except for the maintenance of a Stop sign that is installed on the same post as a Railway Crossing sign,
- (iii) **the design of a crossing surface**, and
- (iv) **sightlines within the land on which the road is situated and over land in the vicinity of the grade crossing**, including the removal of trees and brush that obstruct the sightlines.*

* The railway also has responsibility for sightlines over land adjoining the railway right-of-way.

Grade Crossing Regulations (GCR)

Effective on November 28, 2014:

GCR Sections 22 and 24 to 28 – Sightline Requirements

Existing Grade Crossings

Standards from the GCR can be considered as best-practice **until Year 7** *.

- Minimum Railway/Road Crossing Sightline Requirements for All Grade Crossings Without Automatic Warning Devices G4-A
- Draft RTD 10 Road/Railway Grade Crossings, 2002

*** NB – unless changes as described in GCR section 28 occur.**

22 Warning system with a gate - the requirements respecting sightlines do not apply to a grade crossing with a warning system with a gate.

Obstruction of Sightlines

24-27 Sightlines at crossings must not be obstructed.

Grade Crossing Regulations (GCR)

Effective on November 28, 2014:

GCR Sections 96– Interconnected Systems

- 96 (1) Before a traffic control device that is interconnected with a warning system is placed in service, a road authority must inspect and test the traffic control device to ensure that the standards set out in articles 18 and 19 of the Grade Crossings Standards are met.

- (2) The inspection and testing of interconnected traffic control devices must be done annually. Existing Grade Crossings

Grade Crossing Regulations (GCR)

Effective on November 28, 2014

GCR Sections 98 – Safety Concern

98 (1) If railway equipment is operated in a manner that regularly causes the obstruction of a public grade crossing ... and the municipality ... declares in a resolution that obstruction of the grade crossing creates a safety concern, the railway company and the road authority must collaborate to resolve the safety concern.

(2) The road authority must notify the Minister and the railway company in writing that the resolution has been passed and must provide them with the information used in support of the resolution, including

- (a) a detailed description of the safety concern;
- (b) the details of specific occurrences involving the obstruction of the grade crossing, including the date and time of the obstruction; and
- (c) the details of the traffic congestion that resulted from each specific occurrence referred to in paragraph (b).

(4) The road authority must notify the Minister if the railway company and the road authority are not able to resolve the safety concern.

Grade Crossing Regulations (GCR)

Effective on November 28, 2014:

GCR Sections 102 - Temporary Protection Measures

Threat or interference

102 (1) When a railway company or a road authority undertakes an activity that could constitute a threat to, or that interferes with, the safety of railway operations, the railway company and the road authority must put in place the necessary protection measures to address the threat or the interference.

(2) Within a reasonable period of time before the activity begins ...the railway company or the road authority... must provide the other with sufficient details about the activity to determine the necessary protection measures to be put in place.



Grade Crossing Regulations (GCR)

Effective on November 28, 2014:

GCR Sections 103 - Temporary Protection Measures

Malfunction, failure or condition

103 When a railway company or a road authority becomes aware that a warning system, or a traffic control device that is interconnected with a warning system, has malfunctioned or failed, or that a condition exists that may cause a malfunction or failure, the authority must:

- (a) notify the other of the malfunction, failure or condition, even if the existence of the malfunction, failure or condition is not confirmed;
- (b) immediately put in place the necessary protection measures to address any threat to, or interference with, the safety of railway operations;
- (c) immediately after putting in place the protection measures, notify the other of those measures; and
- (d) within a reasonable period of time, take the necessary measures to restore the use of the grade crossing or remedy the malfunction, failure or condition.

Grade Crossing Regulations (GCR)

Effective on November 28, 2014

Changes to Existing Grade Crossings

28 The sightlines at a grade crossing must meet new requirements if:

(a) a line of railway is added within the sightlines of the grade crossing;

(b) the class of track increases (i.e. based on railway speed)

(c) the design vehicle changes; or

(d) the roadway classification increases (i.e. based on roadway speed).

86 Signs – Railway Crossing sign must meet new standards when replaced.



Grade Crossing Regulations (GCR)

Effective on November 28, 2014

Changes to Existing Grade Crossings (continued)

87 Warning Systems

(1, 2) Installation or Modification of warning system – new component must meet new standards.

(3) Increase in railway design speed – if a warning system needs to be installed or modified due to an increase in railway design speed the affected component must meet new standards before the increase in the railway speed takes effect.

88 (1) **Change to road geometry** - If the location, gradient or crossing angle of a grade crossing changes the new Standards must be applied **in a manner that improves the overall safety of the grade crossing.**

(2) **Change to gradient** - It is prohibited to increase **the absolute gradient of a road approach** to an existing grade crossing if the gradient does not meet the standards set out in article 6.3 of the Grade Crossings Standards.

Grade Crossing Regulations (GCR)

Effective on November 28, 2014

Changes to Existing Grade Crossings (continued)

- 89 **Change to road approach** - If a portion of a road approaching to a crossing is widened, the entire crossing approach and crossing surface must be widened.

- 90 **Interconnected traffic signals** - If a traffic signal is installed within 30m of at a grade crossing with a warning system, they must be interconnected.

- 91 **Change in design vehicle** - If the design vehicle is to be changed, the warning system timing must meet the new requirements before the change takes place.

Grade Crossing Regulations (GCR)

Effective on November 28, 2014

Changes to Existing Grade Crossings (continued)

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Grade Crossing Regulations and Standards

Year two requirements (November 28, 2016):

- Sections 4 – 12 of the Regulations
 - The Regulations require that railway companies and road authorities share safety-related information on their grade crossings. Sharing this information with each other will allow them to determine what they need to do to make their crossings safer.
 - Railways and Road Authorities must share basic information (design vehicle, design speed, etc...) so that the minimum sightlines of trains; minimum light distribution and warning times of automatic warning systems can be determined.



Grade Crossing Regulations (GCR)

GCR Section 12 – Information Sharing

Information

12 (1) A road authority must provide a railway company, in writing, with the following information in respect of a public grade crossing:

- (a) the precise location of the grade crossing;
- (b) the number of traffic lanes that cross the crossing surface;
- (c) the average annual daily traffic;
- (d) the road crossing design speed;
- (e) the roadway classification (i.e. rural, collector, not divided)
- (f) the width of each traffic lane and shoulder on the road approach;
- (g) the design vehicle;
- (h) the stopping sight distance;
- (i) the average gradient of the road approach;
- (j) the crossing angle

Grade Crossing Regulations (GCR)

GCR Section 12 – Information Sharing (continued):

Information

12 (1) A road authority must provide a railway company, in writing, with the following information in respect of a public grade crossing:

- (k) the applicable departure time
- (l) the advance activation time for Active Advance signs;
- (m) the advance time for interconnected signal systems; and
- (n) an indication of whether the grade crossing includes a sidewalk, path or trail, and if so, whether the sidewalk, path or trail has been designated for persons using assistive devices.



Grade Crossing Regulations (GCR)

Year seven requirements (November 28, 2021) – Sightlines

Existing Grade Crossings

- 21 1) Existing grade crossing **without a warning system** must be in accordance with the applicable standards set out in article 7 of the GCS but are not required to take account of any railway equipment that is moving or attended.
- (2) Existing grade crossing **with a warning system**– must be in accordance with the applicable standards set out in article 7 of the GCS but are not required to take account of:
- (a) any railway equipment;
 - (b) any permanent visual obstructions that exist on the day on which these Regulations come into force; or
 - (c) any areas beyond the visual limits of a curve.

Grade Crossing Regulations (GCR)

Year seven requirements (November 28, 2021) – Surface and Approaches

Existing Grade Crossings

Crossing surface

60 A crossing surface must meet the standards set out in article 5 of the Grade Crossings Standards (i.e. new standards for crossings designated for persons using assistive devices).

Road approach

61 A road approach must meet the standards set out in article 6.1 of the Grade Crossings Standards. (i.e. smooth and continuous).

Grade Crossing Regulations (GCR)

Year seven requirements (November 28, 2021) – Signs

Existing Grade Crossings

Stop sign

64 (1) A Stop sign must be installed at a grade crossing without a warning system if the road crossing design speed is less than 15 km/h and its installation must meet the standards set out in article 8.4 (MUTCD) of the Grade Crossings Standards.

Stop Ahead sign

65 A Stop Ahead sign must be installed if the Stop sign is not clearly visible within the stopping sight distance, and must meet the standards set out in article 8.3 (MUTCD) of the Grade Crossings Standards.

Grade Crossing Regulations (GCR)

Year seven requirements (November 28, 2021) – Signs (continued)

Existing Grade Crossings

Railway Crossing Ahead sign and Advisory Speed Tab sign

66 (1) A Railway Crossing Ahead sign with an Advisory Speed Tab sign must be installed and must meet the standards set out in article 8.2 (MUTCD) of the Grade Crossings Standards if

- (a) the Railway Crossing sign is not clearly visible within the stopping sight distance; or
- (b) the speed of a motor vehicle on the road approach needs to be reduced in order to correspond to the road crossing design speed.

Grade Crossing Regulations (GCR)

Year seven requirements (November 28, 2021) – Signs (continued)

Existing Grade Crossings

Prepare to Stop at Railway Crossing sign

67 (1) A Prepare to Stop at Railway Crossing sign must be installed and must meet the standards set out in articles 18.1 and 18.2 (MUTCD) of the Grade Crossings Standards if:

- (a) the road approach is an expressway,
- (b) at least one set of front light units on the warning system is not clearly visible within the stopping sight distance of at least one of the lanes of the road approach; or
- (c) the weather conditions at the grade crossing repeatedly obscure the visibility of the warning system.

Grade Crossing Regulations (GCR)

Year seven requirements (November 28, 2021) – Warning Systems

Existing Grade Crossings

Light distribution and intensity

68 (1) The distribution and intensity of the light from a warning system must meet the standards set out in article 13 (visibility and conspicuity) of the Grade Crossings Standards.

Alignment of light units

(2) The alignment of each set of light units must meet the standards set out in articles 14.2 to 14.6 (alignment) of the Grade Crossings Standards.

Warning time

69 Before railway equipment reaches a crossing surface, the warning system must operate in accordance with articles 16.1.1(a) to (c) (**departure time**) and 16.2.2 (nuisance operation) of the Grade Crossings Standards.

QUESTIONS?

