

APPENDIX B. RAILROAD GRADE CROSSING INFORMATION SHARING TO COMPLY WITH THE NEW CANADIAN GRADE CROSSING REGULATIONS

- Report: Railroad Grade Crossing Information Sharing to Comply with the New Canadian Grade Crossing Regulations, March 7, 2017, Morr Transportation Consulting Ltd.
- Web-based Map



Report for

Railroad Grade Crossings Information Sharing and Prioritization to Comply with the Grade Crossings Regulations

Prepared for

City of Winnipeg



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Railroad Grade Crossing Information Sharing to Comply with the New Canadian Grade Crossings Regulations

Submitted by

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1 INTRODUCTION

MORR Transportation Consulting Ltd. (MORR) was retained by the City of Winnipeg to provide support for data collection, analysis and submittal of grade crossing information to comply with the first deadline of the new Canadian Grade Crossing Regulations (GCR). The first deadline of the Regulations is **November 27th, 2016**, at which point railroads and road authorities need to exchange information related to all public grade crossings. In addition, MORR prioritized all Class I railroad grade crossings to support the City of Winnipeg in ensuring all grade crossings meet the GCR safety requirements by **November 27th, 2021**.

1.1 Background

In the December 17th, 2014 Canadian Gazette (Vol. 148, No. 26), Transport Canada released the new Canadian Grade Crossings Regulations and Standards (referred to herein as the New Regulations) as part of the Railway Safety Act (RSA) which are enforceable for the first time. As a result of these new regulations, road authorities across Canada must comply with the information sharing requirements within two years of coming into force and ensure that the grade crossings in their jurisdiction meet the New Regulations within seven years of coming into force. The information sharing component of the New Regulations require road authorities to provide a railway company, in writing, with the information concerning a public grade crossing as listed in Table 1.

Table 1: Information Sharing Requirements for Road Authorities as per New Grade Crossing Regulations

<ul style="list-style-type: none">• Precise location of crossing• Number of traffic lanes at the crossing• Average annual daily traffic• Road design speed• Road classification• Traffic lane width on road approach• Design vehicle used for designing the crossing	<ul style="list-style-type: none">• Stopping sight distance• Average gradient of the road approach• Departure time• Advance activation time• Pre-emption time• Presence of sidewalks, paths, trails and if they are designated for persons with assistive devices
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Under the New Regulations a road authority, such as the City of Winnipeg, must ensure that the following requirements are met concerning: (1) the design, construction, and maintenance of a road approach, (2) traffic control devices, (3) the design of a crossing surface, and (4) 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.

1.2 Project Purpose and Objectives

The purpose of this project is to provide the City of Winnipeg with the information and knowledge necessary to fulfil their obligations under the New Regulations for the first deadline (information sharing) of November 27th, 2016 and to provide a guiding document to meet the second deadline of November 27th, 2021 for safety requirements of the New Regulations.

The objectives of this work are to help the City of Winnipeg comply with the New Regulations by:

1. Obtaining the necessary information required for the information sharing component of the regulations;
2. Analyze data obtained in Objective 1 to complete information sharing component and submit to the Class I railroads by November 27th, 2016;
3. Consolidate all information between road and rail data for federally regulated railroads crossings (summary sheet provided in Appendix A);
4. Create a visualization tool (interactive map) that provides prioritization of grade crossings to support the City of Winnipeg in future work to meet the November 27th, 2021 deadline;
5. Assess crossings with sightline obstructions using photo documentation and develop ongoing maintenance requirements (due to vegetation) or solutions required due to permanent obstructions; and
6. Provide ongoing support for Rail Safety Improvement Program applications to meet the August 1st, 2017 deadline to pursue federal funding for ongoing safety improvements (previous RSIP application from December, 2016 provided in Appendix B).

The New Regulations set out what the road authority and railroad are responsible, however, the improvements or work required between 2016 and 2021 should be coordinated between the road authority and railroads so they may work collaboratively toward improved safety. The intended purpose of this report is to ensure the City of Winnipeg can meet the information sharing requirements as well as provide insight into some of the work that will be required in the next five years such as management of sightlines and physical characteristics that must be maintained (or not allowed to degrade). The observations and information in this report are not a replacement for full detailed safety assessments (detailed safety assessments are not a direct requirement of the New Regulations).

1.3 Methodology

The MORR project team developed a series of customized assessment sheets for each grade crossing prior to conducting field visits. These sheets were provided to City of Winnipeg field staff who visited all crossings within the City of Winnipeg to perform measurements and conduct preliminary assessments of sightlines. This information was provided to MORR for review, calculate required variables that cannot be measured, and to aggregate data for submission to the Class I railroads. MORR worked with the City of Winnipeg traffic group to obtain short-term traffic counts to develop average daily traffic and identify where any data was missing. When data was missing, the City of Winnipeg included these locations in their spring traffic count program of 2016.

All data and information gathered by the City of Winnipeg and MORR was summarized by Class I railroad and submitted prior to November 27th, 2016. Following acquisition of the railroad information, MORR developed varying prioritization lists including sightlines, geometric characteristics, and a total priority list. These prioritization lists use weighted values to score each crossing and include information on obstructed sightlines, geometric features that exceed allowable standards, route type (whether the crossing is on a truck route or bus route), and crossings where users with assistive devices are likely to travel.

1.4 Report Organization

The first chapter of this report provides an overview and background of the project, the project purpose and objectives, and general methodology.

Chapter two provides an overview of the location of Class I railroad crossings, definitions for the information collected, and sample templates detailing what information was collected when City of Winnipeg field staff visited each crossing.

Chapter three provides a summary of the grade crossing prioritization based on varying metrics. These include crossings with sightlines obstructed that must be addressed as well as a list of crossings for each geometric characteristic that must be maintained. Each subsection provides details on how issues can be resolved and the on-going responsibility of the City of Winnipeg under the New Regulations.

Chapter four is a user walkthrough of the web-based mapping tool that visualizes the findings from chapter three.

2 CITY OF WINNIPEG FEDERAL GRADE CROSSINGS

2.1 Location of Crossings

Information was gathered and summarized for a total of 207 grade crossings belonging to Class I railroads. Figure 1 is a map showing the location of all Canadian Pacific and Canadian National grade crossings included as part of this work plan.

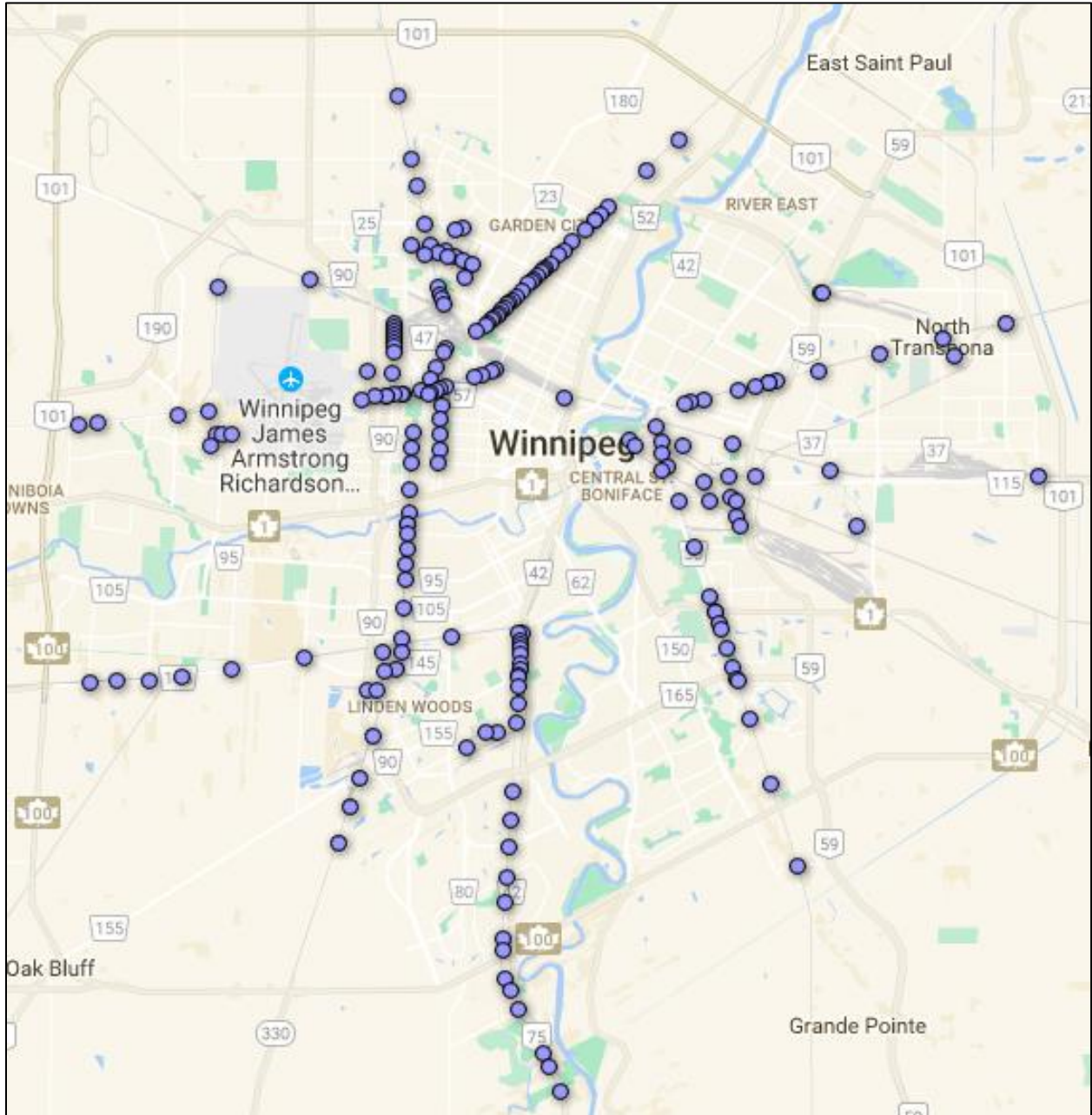


Figure 1: Location of all 207 Class I railroad grade crossings

2.2 Definition of Information Collected

Table 2 provides a definition of the information collected as part of this work. After the table are a series of notes that provide additional details specific to this project for select attributes.

Table 2: Attributes and their descriptions for the Information Sharing requirement

	Attribute	Description
1	Location (latitude, longitude)	Precise location of the crossing presented as decimal degree coordinates
2	Lanes	Number of traffic lanes travelling through the crossing
3	Average Daily Traffic ¹	Average daily traffic developed from short term traffic counts or permanent traffic counts
4	Design Speed (kph)	The design speed for traffic vehicles approaching/travelling through the crossing
5	Road Classification	Classification of roadways based on road characteristics as defined by the <i>Geometric Design Guide for Canadian Roads</i>
6	Road Width (m)	Width of the road, in metres, and may be broken up by lane width when road is delineated
7	Shoulder Width ²	Width of left and right shoulders when applicable
8	Design Vehicle ³	The design vehicle influences departure time, stopping sight distances, sightlines, and clearance distance
9	Stopping Sight Distance (West/North) (m)	The minimum sight distance along the road approach to allow a road user to react to approaching vehicles
10	Stopping Sight Distance (East/South) (m)	The minimum sight distance along the road approach to allow a road user to react to approaching vehicles
11	Gradient within 8m (West/North)	Gradient of road approach within 8 metres of the crossing, also referred to as the stopped gradient
12	Gradient within 8m (East/South)	Gradient of road approach within 8 metres of the crossing, also referred to as the stopped gradient
13	Gradient beyond 10m (West/North)	Gradient of road approach beyond 10 metres of the crossing, also referred to as the SSD gradient
14	Gradient beyond 10m (East/South)	Gradient of road approach beyond 10 metres of the crossing, also referred to as the SSD gradient
15	Crossing Angle	Angle at which the road and railroad intersect
16	Departure Time (West/North) (seconds)	The greater of the time required for either the design vehicle or pedestrians to pass through the clearance distance from a stopped position
17	Departure Time (East/South) (seconds)	The greater of the time required for either the design vehicle or pedestrians to pass through the clearance distance from a stopped position
18	Prepare to Stop Advanced Activation ⁴	The time for a vehicle travelling at the road crossing design speed to pass a deactivated "Prepare to Stop" flashing light and clear the grade crossing
19	Signal Interconnect Advanced Activation	The advanced warning time given by an interconnected signal to clear a grade crossing prior to railway equipment arriving at the crossing
20	Sidewalk or Path	The presence of a path or sidewalk for active transportation adjacent to the road and passing through the grade crossing
21	Date Updated	Date that information was last updated

NOTES:

1. Average daily traffic was obtained from the City of Winnipeg traffic group and includes a combination of 48-hour and 8-hour traffic counts as provided by the traffic group.
2. Most grade crossings reviewed for the City of Winnipeg did not have shoulders.
3. The design vehicle used for the City of Winnipeg crossings were based on the route types. Geographic Information System (GIS) files were obtained that provided details on truck routes and bus routes. All crossings on a truck route were designated a design vehicle of WB-20 and all crossings on a bus route were designated a design vehicle of DLF-40 (Winnipeg Bus). The remaining crossings were provided a design vehicle of a heavy single unit (HSU) or pedestrian/cyclist for active transportation routes.
4. No crossings under the jurisdiction of the City of Winnipeg have activated prepare to stop signage.

2.3 Reference Site Plans for Data Collection

To maintain consistency in data collection for all crossings, a series of reference schematics were developed prior to conducting field visits and reviewed with City of Winnipeg field staff to ensure instructions and objectives of the sheets were clear. Figure 2 shows the schematic for collecting geometric data at each grade crossing.

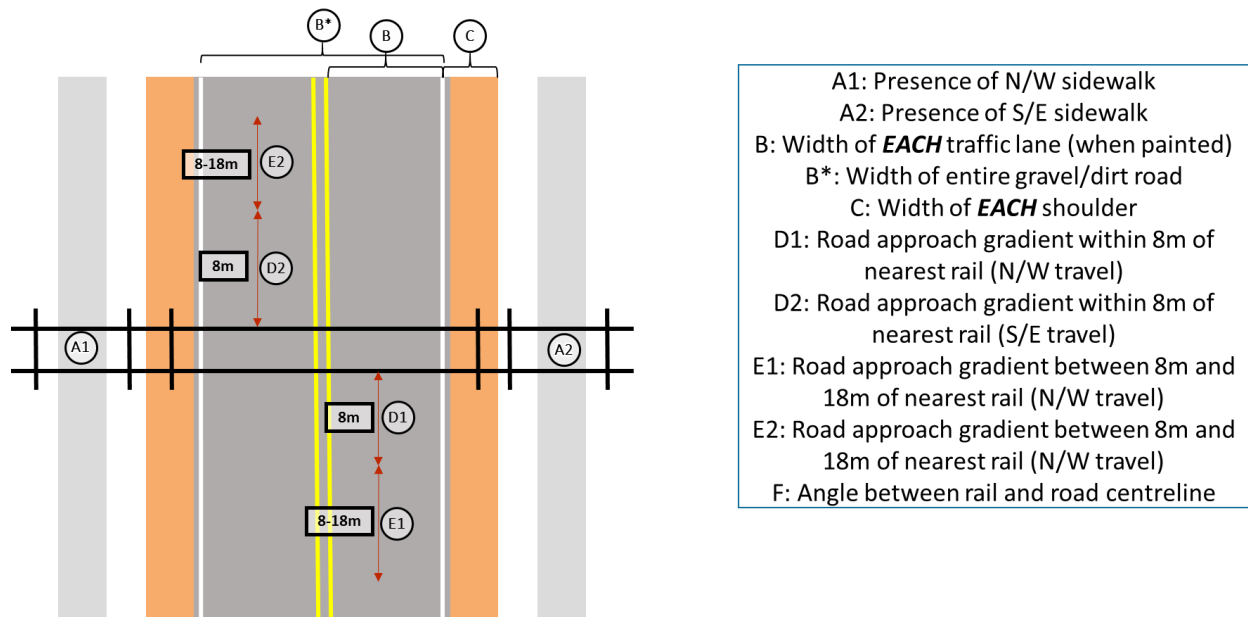


Figure 2: Measurement and observation locations for road geometry

As part of the New Regulations, sightlines are required to be maintained clear of obstructions. Passive grade crossings (with only crossbucks) require a clear sightline triangle as per both images in Figure 3. Crossings with a stop sign or flashing lights require clear sightline triangles as per the top image in Figure 3.

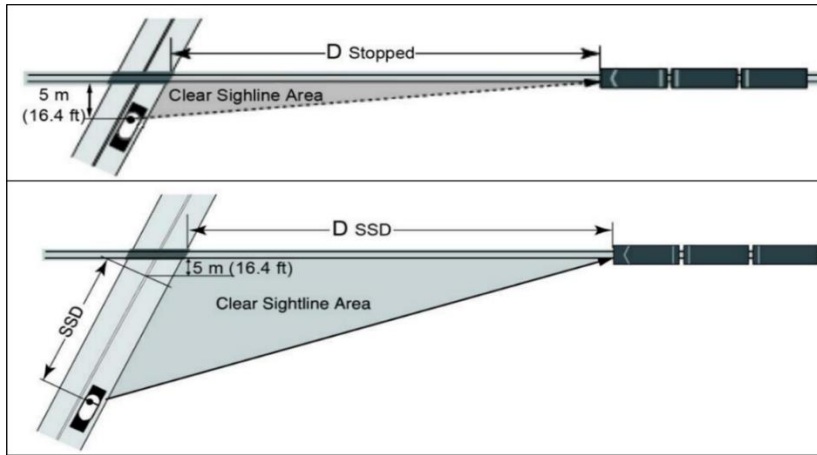


Figure 3: Sightline requirements for grade crossings as per Transport Canada’s New Regulations

The stopping sight distance (SSD) for vehicles are calculated based on vehicle type and road approach gradients. The value for D_{SSD} is calculated based on maximum allowable train operating speeds and $D_{Stopped}$ is the distance a train would need to travel before entering the crossing. Both of these distances provide an approaching or stopped design vehicle with the appropriate time to make a decision to stop or proceed through the crossing.

Figure 4 is used to determine initial estimates of obstructed sightlines for crossings with only crossbuck warning signs.

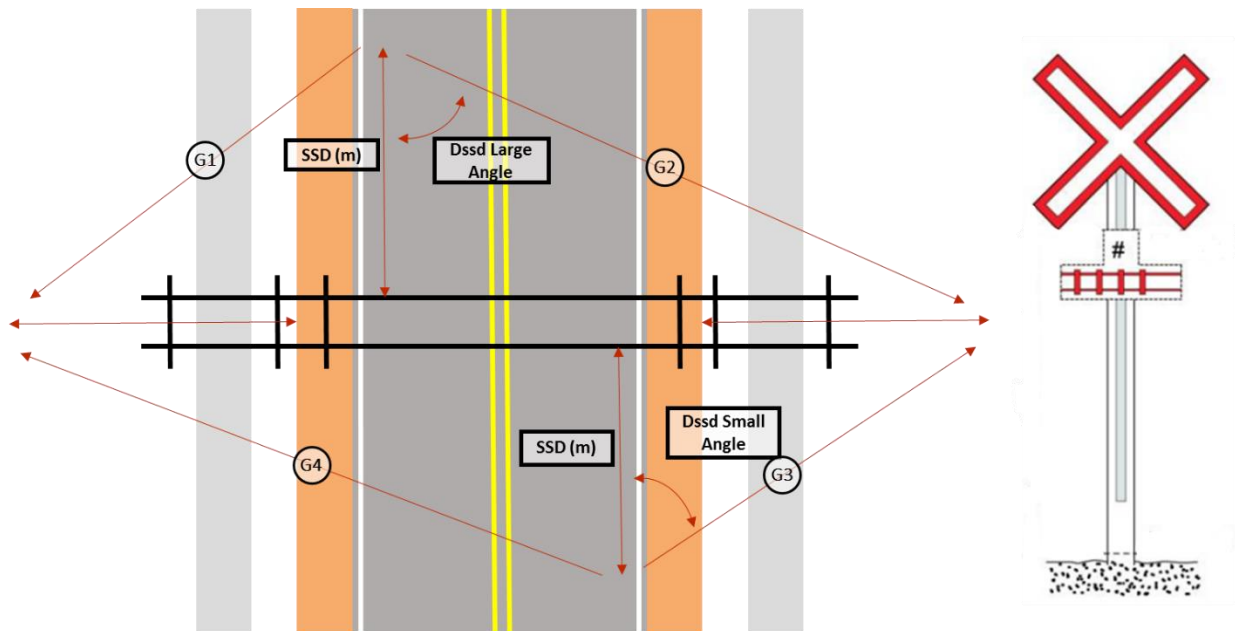


Figure 4: Site plan to estimate obstructed sightlines for grade crossings with crossbucks

Figure 5 is used to determine initial estimates of obstructed sightlines for crossings with crossbucks only, crossbucks equipped with stop signs and crossings with flashing lights.

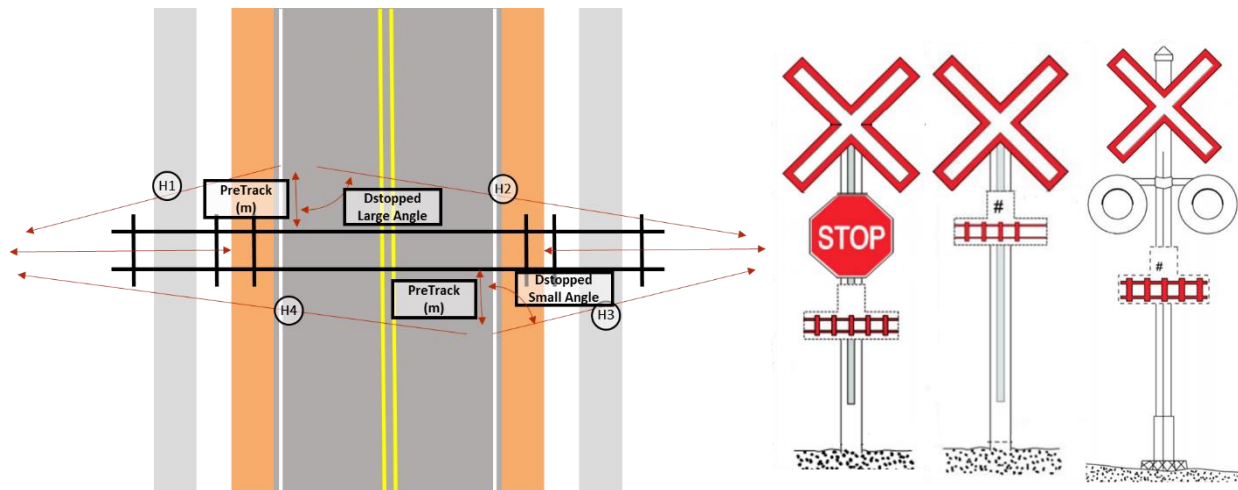


Figure 5: Sightlines from the stopped position for all grade crossings

The reference values (G1 through G4 and H1 through H4) are used for each crossing to indicate which sightlines are obstructed. Figure 4 and Figure 5 should be used for reference for each crossing. For example, if Sightline H1 and/or H2 are noted as being obstructed this will be the sightline for the North or West direction of travel looking left or right. H3 and H4 sightlines would be in reference to the South or East direction of travel looking left or right.

3 GRADE CROSSING PRIORITIZATION

The grade crossing prioritization for the City of Winnipeg includes three parts:

1. Sightlines – a mandatory criteria of the New Regulations,
2. Geometric characteristics – approach gradients and crossing angles, and
3. Overall conditions – includes all key attributes collected to score each crossing.

These prioritization lists can help guide the City of Winnipeg through to November 27th, 2021 to ensure crossings meet the requirements. Each prioritization list provides different insights into the conditions of the crossing and what needs to be done by the City to improve or maintain existing safety levels.

3.1 Sightlines

As per the New Regulations, establishing and maintaining clear sightlines is a mandatory requirement that must be met by the November 27th, 2021 deadline. Information related to the sightlines can be found in Section 19 to 28 of the GCR. Existing grade crossings have different requirements based on the warning system installed at that location. Grade crossings without a warning system (only crossbucks) must maintain clear sightlines as per Figure 6 and Figure 7. Grade crossings with a warning system (flashing lights and bells or a stop sign) must maintain sightlines as per Figure 6, however, if the warning system has gates it is exempt from the sightline requirements. Any new grade crossing would be required to meet the sightlines of both Figure 6 and Figure 7.

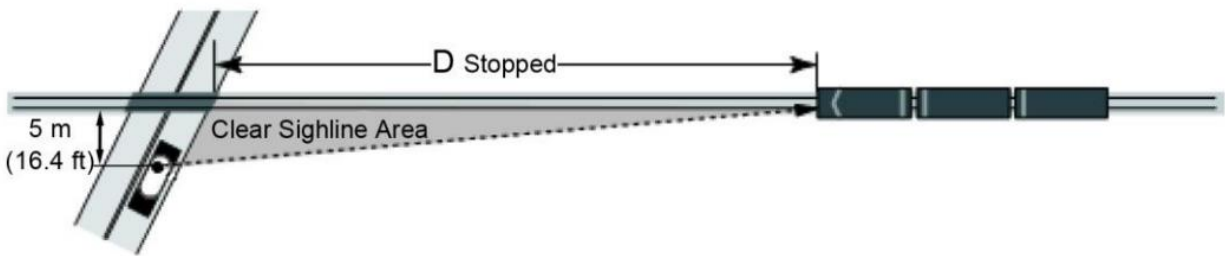


Figure 6: Sightlines for road users stopped at a crossing (Source: Transport Canada GCS)

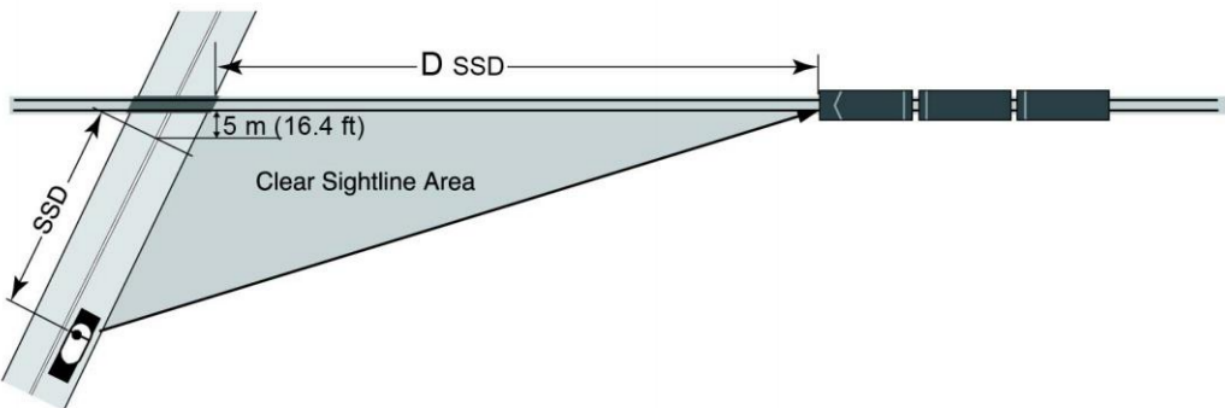


Figure 7: Sightlines for users approaching a grade crossing (Source: Transport Canada GCS)

The sightlines illustrated in previous two figures are applicable to all four quadrants and the City of Winnipeg is responsible for any obstructions outside the rail right-of-way. These obstructions could include vegetation or permanent structures like buildings. Generally, the sightlines shown in Figure 6 do not create an issue for the City of Winnipeg but could be obstructed by vegetation or structures on the rail right-of-way. The sightlines in Figure 7 are specific to passive crossings with only crossbucks and are more commonly obstructed.

Priority List

A priority list of grade crossings with sightlines was created using three metrics: number of sightlines obstructed, crossing exposure (cross-product), and route type. Each metric was scored based on the following:

1. **Sightlines:** 1 through 4 for number of sightlines obstructed
2. **Crossing Exposure:** 0 through 3 based on cross product value
3. **Route Type:** 1 through 3 for standard route, bus route, and truck route, respectively

In total, 57 crossings had some sort of obstruction of sightlines, eight of which had a warning system beyond crossbucks. Table 3 provides a list of the crossings with sightline obstructions, the score of each metric, and a normalized score (out of 10 maximum). The crossings in this list will need to be addressed prior to November 27th, 2021 with any improvements or changes to the warning system /signage done in conjunction with the Class I railroads.

Appendix C provides further details on the sightline obstructions from the prioritization list provided in this section. Photographs of the obstructed sightlines are provided along with details pertaining to the type of obstruction (vegetation or permanent structure). This appendix is intended to provide the City of Winnipeg with an approach to addressing sightlines in conjunction with the Class I railroads. Solutions can include removal or trimming of vegetation, use of higher level warning systems (such as a stop sign or flashing lights), or speed reductions.

The location and information regarding grade crossings with obstructed sightlines are provided in the web-based map tool detailed in Chapter 4. Crossings can be identified and information relating to the crossing viewed from within the map tool.

Table 3: Prioritization list of crossings with sightline obstructions

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Score	Cross-Product	Score	Route Type	Score	Sightline Priority Score
14906	Dawson Road North	Sprague	CN	0.09	SRCS	4	4	171780	3	Truck	2	9
14912	Marion Street	Sprague	CN	0.33	SRCS	4	4	83584	3	Truck	2	9
35777	Lowson Crescent	Rivers	CN	0.17	SRCS	4	4	2002	2	Bus	3	9
14916	Panet Road	Sprague	CN	0.74	SRCS	4	4	128800	3	Truck	2	9
21516	Plinguet Street	Emerson	CP	0.44	SRCS	4	4	9510	2	Truck	2	8
49746	Chevrier Boulevard	Letellier	CN	1.08	SRCS	4	4	20799	2	Truck	2	8
14913	Turenne Street	Sprague	CN	0.46	SRCS	4	4	5720	2	Car	1	7
18452	None	Arborg	CP	1.1	SRCS	4	4	0	0	Bus	3	7
18457	Church Avenue	Arborg	CP	0.11	SRCS	4	4	0	0	Bus	3	7
18458	Church Avenue	Arborg	CP	0.12	SRCS	4	4	0	0	Bus	3	7
20142	Dublin Avenue	La Riviere	CP	0.44	SRCS	4	4	0	0	Bus	3	7
34889	Church Avenue	Arborg	CP	0.46	SRCS	4	4	0	0	Bus	3	7
36726	Saulteaux Crescent	Glenboro	CP	0.35	SRCS	4	4	0	0	Bus	3	7
8769	Hamelin Street	Letellier	CN	0.65	SRCS	4	4	2986	2	Car	1	7
18454	Inkster Boulevard	Arborg	CP	0.49	SRCS	4	4	0	0	Truck	2	6
18461	Hutchings Street	Arborg	CP	0.2	SRCS	4	4	0	0	Truck	2	6
35324	Mountain Avenue	Arborg	CP	0.25	SRCS	4	4	0	0	Truck	2	6
18460	Church Avenue	Arborg	CP	0.12	SRCS	3	3	0	0	Bus	3	6
34894	Saulteaux Crescent	Glenboro	CP	0.1	SRCS	3	3	0	0	Bus	3	6
35323	Church Avenue	Arborg	CP	0.12	SRCS	3	3	0	0	Bus	3	6

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Score	Cross-Product	Score	Route Type	Score	Sightline Priority Score
11431	Notre Dame Avenue	Oak Point Spur	CN	4.84	FLB	4	4	50283	1	Car	1	6
47539	Pedestrian	Rivers	CN	0.32	SRCS	4	4	0	0	Ped	1	5
48946	Manitoba Avenue	Winnipeg Beach	CP	0.6	SRCS	4	4	0	0	Ped	1	5
48950	Lansdowne Avenue	Winnipeg Beach	CP	1.79	SRCS	4	4	0	0	Ped	1	5
20135	Higgins Avenue	Carberry	CP	0.36	SRCS	4	4	0	0	Car	1	5
48948	Boyd Avenue	Winnipeg Beach	CP	0.96	SRCS	4	4	0	0	Ped	1	5
48951	McAdam Avenue	Winnipeg Beach	CP	1.93	SRCS	4	4	0	0	Ped	1	5
18455	Plymouth Street	Arborg	CP	0.18	SRCS	4	4	0	0	Car	1	5
20179	St. Matthews Avenue	La Riviere	CP	1.25	SRCS	4	4	0	0	Car	1	5
48919	Spruce Street	La Riviere	CP	1.29	SRCS	4	4	0	0	Car	1	5
48920	Valour Road	La Riviere	CP	1.34	SRCS	4	4	0	0	Car	1	5
48947	Alfred Avenue	Winnipeg Beach	CP	0.75	SRCS	4	4	0	0	Ped	1	5
725040	Trinity Street	La Riviere	CP	0.16	SRCS	4	4	0	0	Car	1	5
725041	Pacific Avenue	La Riviere	CP	0.4	SRCS	4	4	0	0	Car	1	5
18451	Selkirk Avenue	Arborg	CP	0.98	SRCS	4	4	0	0	Car	1	5
34896	Moray Street	Glenboro	CP	0.2	SRCS	3	3	0	0	Truck	2	5
36828	Softley Road	Sprague	CN	0.19	SRCS	4	4	47	0	Car	1	5
725042	Richard Avenue	La Riviere	CP	0.31	SRCS	4	4	0	0	Car	1	5
14922	Rue Notre Dame	Sprague	CN	2.56	SRCS	3	3	1096	0	Car	1	4
48923	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	2	2	0	0	Truck	2	4
18462	Sheppard Street	Arborg	CP	0.38	SRCS	3	3	0	0	Car	1	4

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Score	Cross-Product	Score	Route Type	Score	Sightline Priority Score
48952	Enniskillen Avenue	Winnipeg Beach	CP	2.11	SRCS	2	2	0	0	Ped	1	3
50061	Pedestrian	Keewatin	CP	123.1	SRCS	2	2	0	0	Ped	1	3
21513	McTavish Street	Emerson	CP	0.55	SRCS	2	2	0	0	Car	1	3
20147	Clifton Street	La Riviere	CP	1.2	SRCS	2	2	0	0	Car	1	3
24205	Midland Street	La Riviere	CP	0.04	SRCS	1	1	0	0	Truck	2	3
34767	Murray Park Road	Glenboro	CP	0.92	SRCS	1	1	0	0	Truck	2	3
48925	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	1	1	0	0	Truck	2	3
30990	Church Avenue	Winnipeg Beach	CP	1.3	SRCS	2	2	0	0	Car	1	3
8768	Chevrier Boulevard	Letellier	CN	0.4	FLB	1	1	6933	0	Truck	2	3
21520	Messier Street	Emerson	CP	0.96	FLB	1	1	8916	0	Truck	2	3
24204	Notre Dame Avenue	La Riviere	CP	0.88	FLB	1	1	0	0	Truck	2	3
46057	McPhillips Street	La Riviere	CP	0.53	FLB	1	1	0	0	Truck	2	3
48931	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	1	1	0	0	Car	1	2
14908	Speers Road	Sprague	CN	0.11	FLB	1	1	49220	0	Car	1	2
24212	Wellington Crescent	La Riviere	CP	3.3	FLB	1	1	0	0	Car	1	2
24212	Wellington Crescent	La Riviere	CP	3.3	FLB	1	1	0	0	Car	1	2

3.2 Geometric Characteristics

The geometric characteristics include approach and stopped gradients and crossing angle. The characteristics could potentially be improved but are not a direct requirement of the New Regulations for existing crossings. Road gradients and crossing angles for existing grade crossings are exempt from meeting the GCS pursuant to Section 88 of the GCR. However, if any changes are made to the crossing the gradient or angle must be maintained or improved.

Gradients for road approaches are set out in article 6.3 of the Grade Crossings Standards:

The maximum gradients for road approaches must not exceed the following: (a) ratio of 1:50 (2 per cent) within 8 m of the nearest rail and 1:20 (5 per cent) for 10 m beyond, at public grade crossings for vehicular use; (b) ratio of 1:50 (2 per cent) within 8 m of the nearest rail and 1:10 (10 per cent) for 10 m beyond, at private grade crossings for vehicular use; (c) ratio of 1:50 (2 per cent) within 5 m of the nearest rail at a sidewalk, path or trail ; and (d) ratio of 1:100 (1 per cent) within 5 m of the nearest rail at a sidewalk, path or trail designated by the road authority for use by persons using assistive devices.

Crossing angles are set out in article 6.5 of the Grade Crossings Standards:

A grade crossing angle, measured from the tangent of the centreline of the road approach at the crossing surface, to the tangent of the centreline of the line of railway, shall, where the railway design speed is more than 25 km/h (15 mph) be: (a) not less than 70 and not greater than 110 degrees for grade crossings without a warning system; or (b) not less than 30 and not greater than 150 degrees for grade crossings with a warning system.

In total, 105 grade crossings in Winnipeg violate the requirements of the Grade Crossing Standards for either road gradients or crossing angle. The web-based map provides the ability to filter for these crossings to identify their location and visualize prioritization. In addition, the complete list is provided in Appendix D. On-going, the City should be aware of these crossings to ensure changes are not made due to street work that could lower the level of safety.

3.3 All Crossing Characteristics

The last prioritization list developed takes into account multiple crossing characteristics including:

- Obstructed sightlines
- Cross-product
- Gradient
- Low ground
- Crossing angle
- Route type
- Use of assistive devices (vulnerable road users)

The total possible score for a crossing is 17 across all characteristics. This score is normalized to a value out of 10. The complete ranked list of crossings is provided in Appendix D and can be used to determine an order of safety improvements, if desired, after the mandatory requirements of sightlines has been completed.

4 WEB-BASED MAP

A web-based map has been developed to assist the City of Winnipeg in addressing any issues with grade crossings and to quickly identify and locate those crossings. The web-based map has four main visualization categories:

1. Obstructed Sightlines – provides a color-coded map of all crossings according to their score on sightline obstructions as a means to prioritize crossings. These are crossings that require improvements to meet the new Grade Crossing Regulations.
2. Geometric Properties – provides a color-coded map of all crossings according to geometric properties to identify any crossings that, if street work is done, must maintain or improve their current values.
3. All Crossing Characteristics – provides a color-coded map of all crossings according to the attributes listed in Chapter 3.2. This map presents a very general perspective of grade crossings in Winnipeg.
4. Grade Crossing Information – provides a map of all crossings and all information that was part of the Information Sharing component of the grade crossing regulations.

In addition, each of the categories above can be filtered by railroad (either CN or CP). Figure 8 illustrates the map for obstructed sightlines for all Class I railroad grade crossings. In comparison, Figure 9 shows only those crossings that belong to CN.

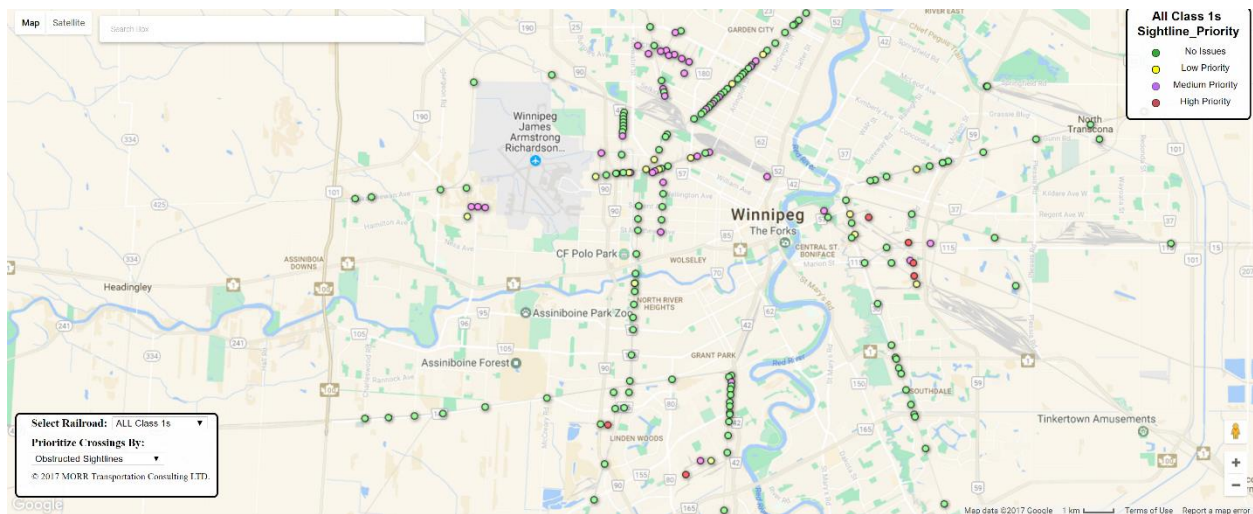


Figure 8: All Class 1 railroad grade crossings prioritized by obstructed sightlines.

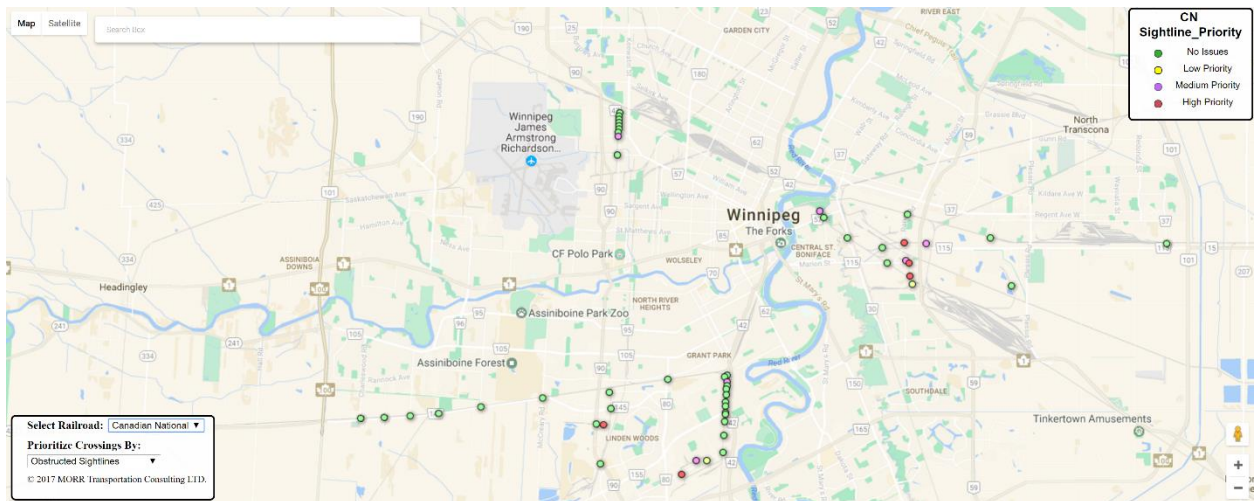


Figure 9: Canadian National grade crossings prioritized by obstructed sightlines.

The bottom left of the map has a query window that enables the user to sort the information according to railroads and attributes. Querying the data will automatically update the legend to reflect what is being shown on the map.

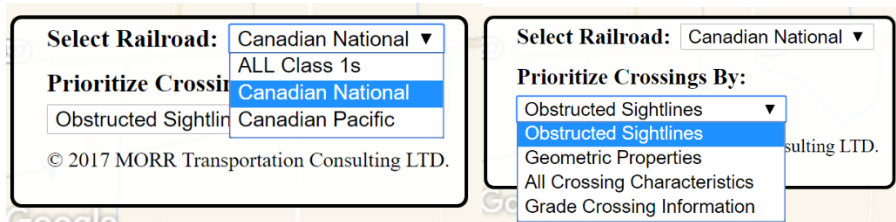


Figure 10: Map query window (left image: query by railroad, right image: query by attributes)

Using the map from Figure 9, the user can zoom into the “red dot” (indicating sightline obstructions) on Panet Road (see Figure 11).

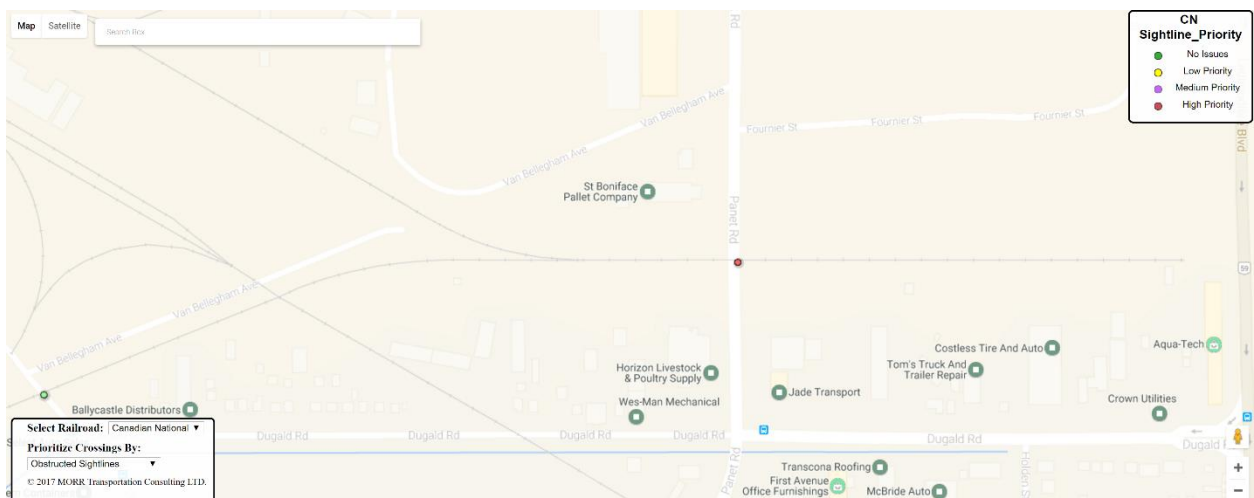


Figure 11: Grade crossing at Panet Road indicating sightline obstructions

Clicking the “red dot” for the grade crossing at Panet Road provides additional information on the crossing (shown in Figure 12).



Figure 12: Example pop-up window

In addition, the user can enter street view the same way as Google Maps by dragging the “yellow person” from the bottom right corner of the map to the crossing location. Figure 13 provides an example of using Google streetview to review obstructed sightlines. In this example, the sightline is obstructed by vegetation.



Figure 13: Example sightline obstruction review using Google Streetview

Appendix A
Grade Crossing Information Sharing

Transport Canada Crossing ID	General Information					Railroad Information										Roadway Information																													
	City of Winnipeg Street Name	Subdivision Name	Railroad	Railroad Milepost	Warning System	Subdivision	Mile	Crossing Location	Crossing Type	Stop Sign on Post?	# Tracks	Average Annual Daily Railway Movements	Railway Design Speed (mph)	Railway Design Speed (kph)	Whistling	# Traffic Lanes	AADT	AADT Year	Design Speed (kph)	Road Spec 1	Road Spec 2	Road Spec 3	Highway Classification	Road Design Classification	Average Lane Width (m)	Shoulder Width (m)	Average Shoulder Width (m)	Design Vehicle	SSD (m)	SSD (m)	Ahead Gradient (stopped)	Ahead Gradient (SSD)	Back Gradient (stopped)	Back Gradient (SSD)	Average Ahead Gradient	Average Back Gradient	Crossing Angle	Departure Time (s)	Prepare to Stop Advance Activation Time (s)	Signal Interlock Advance Activation Time (s)	Sidewalk or Path (Y/N)	Assistive Devices	Date Updated		
8758	Parker Avenue	Letellier	CN	0.18	-97.153687	49.851435	FLB	Letellier	0.15	PARKER AVE	Flashing Lights	No	1	3	20	32.1868	Y	1	0	2016	0	Urban	Pathway	Not Divide	Pathway	Pathway	1.5	0	0	AT	#VALUE!	#VALUE!	3.6	2.8	2.4	2.6	3.2	2.5	122	9.38	N/A	0	Y	N	
8759	Byng Place	Letellier	CN	0.38	-97.153935	49.8487131	FLB	Letellier	0.38	BYNG PLACE	Flashing Lights	No	1	3	20	32.1868	Y	2	3599	1999	50	Urban	Local	1	Local	1	7	0	0	HU	108	108	1.8	0.4	2.2	1.6	1.1	1.9	120	12.67	N/A	0	Y	N	8759
8760	Windermere Avenue	Letellier	CN	0.45	-97.154025	49.847254	FLB	Letellier	0.45	WINDERMERE AVE	Flashing Lights	No	1	3	20	32.1868	Y	2	3246	2006	50	Urban	Local	1	Local	1	7	0	0	DF-40	108	108	1.2	1.2	0.6	0.5	1.2	0.55	1.2	130.2	N/A	0	Y	N	8760
8761	Rockman Street	Letellier	CN	0.55	-97.154163	49.8462012	FLB	Letellier	0.55	ROCKMAN STREET	Flashing Lights	No	1	3	20	32.1868	Y	2	994	2016	50	Urban	Local	Not Divide	Local	Local	7.8	0	0	HU	109	108	0.5	1.2	1	1.2	0.85	1.1	87	10.60	N/A	0	N	N	8761
8762	Waterford Avenue	Letellier	CN	0.69	-97.154334	49.8442739	FLB	Letellier	0.69	WATERFORD AVE	Flashing Lights	No	1	3	20	32.1868	Y	2	403	2003	50	Urban	Local	Not Divide	Local	Local	7.2	0	0	HU	108	108	2.6	1.6	1.3	0.9	2.1	1.1	119	11.69	N/A	0	Y	N	
8763	Southwood Avenue	Letellier	CN	0.78	-97.154452	49.8429998	FLB	Letellier	0.78	SOUTHWOOD AVE	Flashing Lights	No	1	3	20	32.1868	Y	2	707	2016	50	Urban	Local	Not Divide	Local	Local	7.2	0	0	HU	108	108	1.1	1.3	3.1	1.9	1.2	2.5	120	11.71	N/A	0	Y	N	
8764	McGillivray Boulevard	Letellier	CN	0.89	-97.154597	49.8413659	FLB	Letellier	0.89	MCGILLIVRAY BLVD.	Flash. Lights with Auto. Gates	No	1	3	20	32.1868	Y	5	24518	2014	60	Urban	Arterial	Divided	Arterial	Arterial	18	0	0	WB-20	129	129	0.2	0.3	0.8	0.5	0.25	0.65	108	15.03	N/A	0	Y	N	
8765	Waller Avenue	Letellier	CN	1.07	-97.154833	49.8387835	FLB	Letellier	1.07	WALLER AVE	Flashing Lights	No	1	3	20	32.1868	Y	2	867	2004	50	Urban	Collector	Not Divide	Collector	Collector	7.2	0	0	HU	108	108	1.8	0.9	1	1.6	1.35	1.3	117	10.78	N/A	0	Y	N	
8766	Clarence Avenue	Letellier	CN	1.33	-97.155137	49.835051	FLB	Letellier	1.33	CLARENCE AVE	Flashing Lights	No	1	3	20	32.1868	Y	2	3561	2003	50	Urban	Collector	Not Divide	Collector	Collector	9.2	0	0	DF-40	108	108	1.4	2.4	1.3	2.1	1.9	1.7	119	11.00	N/A	0	Y	N	8767
8767	Chevrier Boulevard	Letellier	CN	1.65	-97.155385	49.8304288	FLB	Letellier	1.65	CHEVRIER BLVD.	Flashing Lights	No	1	3	20	32.1868	Y	2	5945	2000	50	Urban	Collector	Not Divide	Collector	Collector	9.6	0	0	WB-20	108	109	2.3	1.8	1.2	0.6	1.95	0.9	123	13.42	N/A	0	Y	N	
8768	Chevrier Boulevard	Letellier	CN	0.4	-97.162305	49.8281754	FLB	Letellier	0.4	CHEVRIER BLVD.	Flashing Lights	No	1	1	20	32.1868	Y	2	6933	2003	50	Urban	Collector	Not Divide	Collector	Collector	9.4	0	0	WB-20	109	109	0.5	0.6	1	0.8	0.55	0.9	89	13.14	N/A	0	Y	N	
8769	Hamelin Street	Letellier	CN	0.65	-97.166775	49.8281516	FLB	Letellier	0.64	HAMELIN ST	Stop Signs	Yes	1	1	20	32.1868	Y	2	2986	2003	50	Urban	Collector	Not Divide	Collector	Collector	9.2	0	0	HU	109	109	0.7	1.2	0.8	1.2	0.95	1	89	9.39	N/A	0	N	N	
8772	Markham Road	Letellier	CN	3.22	-97.157646	49.8077338	FLB	Letellier	3.22	MARKHAM ROAD	Flashing Lights	No	1	3	25	40.2335	Y	2	4317	2013	50	Urban	Local	Not Divide	Local	Local	9.8	0	0	DF-40	108	109	0.6	1.6	0.8	1	1.1	0.9	120	9.77	N/A	0	Y	N	
8773	Bison Drive	Letellier	CN	3.66	-97.15822	49.8015713	FLB	Letellier	3.66	BISON DRIVE	Flash. Lights with Auto. Gates	No	1	3	25	40.2335	Y	6	23134	2010	60	Urban	Arterial	Divided	Arterial	Arterial	21.6	0	0	DF-40	129	129	0.7	0.7	0.4	1.4	0.7	0.9	90	13.14	N/A	0	Y	N	
8775	Devos Road	Letellier	CN	5.3	-97.160367	49.777431	FLB	Letellier	5.3	DEVOS ROAD	Flashing Lights	No	1	3	25	40.2335	Y	2	47	1999	50	Urban	Local	Not Divide	Local	Local	8.8	0	0	HU	108	108	1.4	1.2	3.4	1.1	1.3	2.25	115	10.28	N/A	0	N	N	
8777	Ducharme Avenue	Letellier	CN	5.98	-97.157762	49.7682615	FLB	Letellier	5.98	DUCHARME AVENUE	Flashing Lights	No	1	3	25	40.2335	Y	2	3722	1999	50	Urban	Collector	Not Divide	Collector	Collector	7.8	0	0	DF-40	108	108	1.7	1.8	2.1	1.4	1.75	1.75	94	9.56	N/A	0	Y	N	
8778	des Trappistes Rue	Letellier	CN	6.31	-97.154746	49.7640831	FLB	Letellier	6.31	TRAPPISTES ROAD	Flashing Lights	No	1	3	25	40.2335	Y	2	1342	2012	50	Urban	Collector	Not Divide	Collector	Collector	10	0	0	DF-40	109	109	1.1	0.9	1.4	0.4	1	0.9	94	9.56	N/A	0	Y	N	
8779	Father Labonté Avenue	Letellier	CN	7.12	-97.145879	49.7538654	SRCS and Stop	Letellier	7.12	FATHER LABONTE AVEN	Stop Signs	No	1	3	25	40.2335	Y	2	47	1999	50	Urban	Local	Not Divide	Local	Local	5.8	0	0	HU	108	109	4	0.7	0.3	0.2	2.35	0.25	94	10.13	N/A	0	Y	N	
11426	Dublin Avenue	Oak Point Spur	CN	4.5	-97.200151	49.9114709	FLB	Rivers	4.5	DUBLIN AVENUE	Flashing Lights	No	2	3	10	56.3269	N	4	15196	2014	60	Urban	Arterial	Not Divide	Arterial	Arterial	14.4	0	0	HU	129	128	1	0.7	1.1	2	0.85	1.55	90	9.39	N/A	20	Y	N	
11431	Notre Dame Avenue	Oak Point Spur	CN	4.84	-97.199754	49.91651	FLB	Rivers	4.84	NOTRE DAME AVENUE	Flashing Lights	No	2	3	10	56.3269	N	4	16761	2014	60	Urban	Arterial	Divided	Arterial	Arterial	16	0	0	HU	129	129	0.5	1	0.7	1	0.75	0.85	95	9.39	N/A	20	Y	N	
11432	Bannatyne Avenue West	Oak Point Spur	CN	4.94	-97.199966	49.9172264	SRCS	Rivers	4.93	BANNATYNE AVENUE	Stop Signs	Yes	2	3	10	56.3269	N	2	598	2016	50	Urban	Local	Not Divide	Local	Local	8	0	0	HU	108	108	0.1	3	1.2	1.1	1.55	1.15	68	9.49	N/A	0	Y	N	
11433	William Avenue West	Oak Point Spur	CN	4.98	-97.199922	49.9185962	SRCS	Rivers	4.98	WILLIAM AVENUE	Stop Signs	Yes	2	3	10	56.3269	N	2	840	2016	50	Urban	Local	Not Divide	Local	Local	8	0	0	HU	108	108	1.6	3.4	1.8	1.7	2.5	1.75	67	10.25	N/A	0	Y	N	
11434	Elgin Avenue West	Oak Point Spur	CN	5.04	-97.199522	49.9193892	SRCS	Rivers	5.04	ELGIN AVENUE	Stop Signs	Yes	2	3	10	56.3269	N	2	428	2016	50	Urban	Local	Not Divide	Local	Local	8	0	0	HU	108	108	1.5	2.5	1.3	2.3	2	1.8	69	11.90	N/A	0	Y	N	11434
11435	Ross Avenue West	Oak Point Spur	CN	5.1	-97.199462	49.9202186	SRCS	Rivers	5.1	ROSS AVENUE	Stop Signs	Yes	2	3	10	56.3269	N	2	273	2013	50	Urban	Local	Not Divide	Local	Local	8	0	0	HU	108	108	2.3	1.7	2.3	2.5	1.9	2.4	67	12.04	N/A	0	Y	N	11435
11436	Pacific Avenue West	Oak Point Spur	CN	5.16	-97.199388	49.9210896	SRCS	Rivers	5.16	PACIFIC AVENUE	Stop Signs	Yes	2	3	10	56.3269	N	2	475	2016	50	Urban	Local	Not Divide	Local	Local	8	0	0	HU	108	109	1.2	1.1	0.8	0.1	1.15	0.45	67	12.04	N/A	0	Y	N	11436
11437	Alexander Avenue	Oak Point Spur	CN	5.23	-97.199308	49.9221089	SRCS and Stop	Rivers	5.23	ALEXANDER AVENUE	Stop Signs	Yes	2	3	10	56.3269	N	2	944	2016	50	Urban	Local	Not Divide	Local	Local	8	0	0	HU	108	108	1.6	1.8	1.3	1.2	1.7	1.25	66	12.11	N/A	0	Y	N	11437
11438	Logan Avenue	Oak Point Spur	CN	5.28	-97.199266	49.922824	SRCS	Rivers	5.28	LOGAN AVE & DEE STR	Flashing Lights	No	2	3	10	56.3269	N	4	12296	1999	50	Urban	Arterial	Not Divide	Arterial	Arterial	14.8	0	0	HU	108	109	1.2	1.1	0.5	0.5	1.15	0.5	67	9.50	N/A	0	Y	N	
12705	Ravenhurst Street	Redditt	CN	244.07	-96.968215	49.8874231	FLBG	Redditt	244.07	RAVENHURST ST	Flash. Lights with Auto. Gates	No	3	16	70	N	2	11020	2014	70	Urban	Arterial	Not Divide	Arterial	Arterial	7	2.2	1.4	WB-20	176	176	0.8	1.6	1.1	2.1	1.2	1.6	94	14.84	N/A	0	N	N		
13105	Parker Avenue	Letellier	CN	0.14	-97.154839	49.8510557	FLB	Letellier	0.14	PARKER AVE	Flashing Lights	No	1	3	20	32.1868	Y	2	47	1999	50	Urban	Local	Not Divide	Local	Local	7	0	0	HU	107	108	3.6	2.8	2.4	2.6	3.2	2.5	70	10.22	N/A	0	Y	N	
13111	Waverley Street	Rivers	CN	3.89	-97.17886	49.8502753	FLBG	Rivers	3.89	WAVERLEY ST	Flash. Lights with Auto. Gates	No																																	

General Information							Railroad Information										Roadway Information																													
Transport Canada Crossing ID	City of Winnipeg Street Name	Subdivision Name	Railroad	Railroad Milepost	Longitude	Latitude	Warning System	Subdivision	Mile	Crossing Location	Crossing Type	Stop Sign on Post?	# Tracks	Average Annual Daily Railway Movements	Railway Design Speed (mph)	Railway Design Speed (kph)	Whistling	# Traffic Lanes	AADT	AADT Year	Design Speed (kph)	Road Spec 1	Road Spec 2	Road Spec 3	Highway Classification	Road Design Classification	Average Lane Width (m)	Shoulder Width (m)	Average Shoulder Width (m)	Design Vehicle	SSD (m)	SSD (m)	Ahead Gradient (stopped)	Ahead Gradient (SSD)	Back Gradient (stopped)	Back Gradient (SSD)	Average Ahead Gradient	Average Back Gradient	Crossing Angle	Departure Time (s)	Prepare to Stop Advance Activation Time (s)	Signal Interlock Advance Activation Time (s)	Sidewalk or Path (Y/N)	Assistive Devices	Date Updated	
24212	Wellington Crescent	La Riviere	CP	3.3	-97.19451	49.8765286	FLB	La Riviere	3.3	Wellington Crescent	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	3	8368	2011	50	Urban	Collector	Not Divide	Collector	Collector	Collector	12.1	0	0	H5U	109	108	0.8	0.3	0.7	1.4	0.55	1.05	104	9.43	N/A	0	N	N	
24213	Wellington Crescent	La Riviere	CP	3.3	-97.19451	49.8765301	FLB	La Riviere	3.3	Wellington Crescent	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	3	8368	2011	50	Urban	Collector	Not Divide	Collector	Collector	12.1	0	0	H5U	109	108	0.8	0.3	0.7	1.4	0.55	1.05	104	9.43	N/A	0	N	N		
24214	Academy Road	La Riviere	CP	3.43	-97.194696	49.8741972	FLB	La Riviere	3.43	Academy Road	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	4	22349	2012	50	Urban	Arterial	Not Divide	Arterial	Arterial	14.4	0	0	H5U	108	108	1.1	2	1.2	0.8	1.55	1	90	13.14	N/A	0	Y	N		
24215	Kingsway	La Riviere	CP	3.65	-97.194974	49.8706956	FLBG	La Riviere	3.65	Kingsway Avenue	Flashing lights, bells, and gates	io Stop Sig	2	0	10	16.0934	No	2	2163	2013	50	Urban	Collector	Not Divide	Collector	Collector	7.5	0	0	H5U	108	108	3.5	2.3	1	2	2.9	1.5	90	29.45	N/A	0	Y	N		
24216	Grosvenor Avenue	La Riviere	CP	3.89	-97.195247	49.8672543	FLBG	La Riviere	3.89	Grosvenor Avenue	Flashing lights, bells, and gates	io Stop Sig	2	0	10	16.0934	No	2	2310	2011	50	Urban	Collector	Not Divide	Collector	Collector	6.6	1.7	1.8	DLF-40	108	108	0.8	3.3	1.5	0.8	2.05	1.15	89	29.45	N/A	0	Y	N		
24217	Croydon Avenue	La Riviere	CP	4.12	-97.195526	49.8638314	FLBG	La Riviere	4.15	Croydon Avenue	Flashing lights, bells, and gates	io Stop Sig	2	0	10	16.0934	No	4	14783	2013	50	Urban	Arterial	Divided	Arterial	Arterial	15.5	2.9	2.9	WB-20	108	108	3.3	1.9	2.4	1.4	2.6	1.9	91	29.45	N/A	0	Y	N		
24218	Grant Avenue	La Riviere	CP	4.6	-97.196075	49.8569189	FLBG	La Riviere	4.6	Grant Avenue	Flashing lights, bells, and gates	io Stop Sig	2	0	10	16.0934	No	4	29051	2012	50	Urban	Arterial	Divided	Arterial	Arterial	15.7	3.1	2.9	WB-20	108	108	2.8	1.4	2.6	1.7	1.8	2.15	89	29.45	N/A	0	Y	N		
24219	Taylor Avenue	La Riviere	CP	5.11	-97.196618	49.8499936	FLB	La Riviere	5.11	Taylor Avenue	Flashing lights and bells	io Stop Sig	1	0	25	40.2335	No	4	14657	2014	60	Urban	Arterial	Divided	Arterial	Arterial	14.4	0	0	WB-20	128	126	2	1.5	2.7	1.4	1.75	2.05	90	15.37	N/A	0	Y	N		
24220	Wilkes Avenue	La Riviere	CP	5.32	-97.197157	49.8468626	FLB	La Riviere	5.32	Wilkes Avenue	Flashing lights and bells	io Stop Sig	1	0	25	40.2335	No	2	2408	2011	70	Urban	Local	Not Divide	Local	Local	7.4	2.7	2.7	DLF-40	178	178	0.3	0.5	0.4	0.5	0.4	0.45	104	9.60	N/A	0	N	N		
24221	Kenston Boulevard	Rivers	CN	1.58	-97.207364	49.8279338	FLBG	#N/A	#N/A	#N/A	#N/A	1	1	10	#N/A	#N/A	#N/A	6	5830	2013	80	Urban	Arterial	Divided	Arterial	Arterial	22.8	2.4	2.5	WB-20	207	205	1.1	0.5	1.6	1.2	0.8	1.4	60	41.90	N/A	0	N	N		
24222	McGillivray Boulevard	La Riviere	CP	7.45	-97.211947	49.8175922	FLB	La Riviere	7.45	McGillivray Road	Flashing lights and bells	io Stop Sig	1	0	25	40.2335	Yes	2	13396	2013	70	Urban	Arterial	Not Divide	Arterial	Arterial	7.2	2.9	2.9	WB-20	178	178	0.2	0.2	0.3	0.2	0.2	0.25	136	13.79	N/A	0	Y	N		
24225	Brady Road	La Riviere	CP	8.57	-97.2196	49.8024	SRCS	La Riviere	8.57	Brady Road	No	io Stop Sig	1	0	25	40.2335	Yes	2	91	2009	70	Urban	Local	Not Divide	Local	Local	7.6	0	0	DLF-40	108	108	1.6	1.2	1	2.1	1.4	1.55	65	9.53	N/A	0	N	N		
30981	McPhillips Street	Winnipeg Beach	CP	0.32	-97.169651	49.9212087	FLBG	WINNIPEG BEACH	0.32	McPhillips Avenue	Flashing lights, bells, and gates	io Stop Sig	1	0	10	16.0934	Yes	6	44718	2014	60	Urban	Arterial	Divided	Arterial	Arterial	11.2	0	0	WB-20	128	129	1.2	1	0.4	0.4	1.1	0.4	50	13.59	N/A	0	Y	N		
30982	Selkirk Avenue	Winnipeg Beach	CP	0.5	-97.16666	49.9226022	FLB	WINNIPEG BEACH	0.5	Selkirk Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	4	9140	2001	50	Urban	Arterial	Divided	Arterial	Arterial	21.6	0	0	WB-20	106	107	5.1	3	2.6	4	4.05	3.3	117	21.24	N/A	0	Y	N		
30983	Pritchard Avenue	Winnipeg Beach	CP	0.56	-97.165517	49.9231555	SRCS and Stop	WINNIPEG BEACH	0.56	Pritchard Avenue	No	No	1	0	10	16.0934	No	2	443	2013	50	Urban	Local	Not Divide	Local	Local	8	0	0	H5U	108	108	3	2	2.2	2	2.5	2.1	117	10.31	N/A	0	Y	N		
30984	Magnus Avenue	Winnipeg Beach	CP	0.68	-97.163532	49.9243231	SRCS and Stop	WINNIPEG BEACH	0.68	Magnus Avenue	No	No	1	0	10	16.0934	No	2	558	1998	50	Urban	Local	Not Divide	Local	Local	8	0	0	H5U	108	108	2.3	2.4	3.2	2	2.35	2.6	110	10.22	N/A	0	Y	N		
30985	Burrows Avenue	Winnipeg Beach	CP	0.73	-97.162654	49.9248758	FLB	WINNIPEG BEACH	0.73	Burrows Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	4	7304	2001	50	Urban	Collector	Divided	Collector	Collector	13	0	0	H5U	107	107	4.1	3	2.6	4	3.55	3.3	109	10.21	N/A	0	Y	N		
30986	Aberdeen Avenue	Winnipeg Beach	CP	0.84	-97.160926	49.9259514	FLB	WINNIPEG BEACH	0.84	Aberdeen Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	Yes	2	669	2009	50	Urban	Local	Not Divide	Local	Local	7.4	0	0	DLF-40	108	108	2	2.7	3.2	2.7	2.35	2.95	108	10.39	N/A	0	Y	N		
30987	Redwood Avenue	Winnipeg Beach	CP	0.91	-97.15985	49.9266167	FLB	WINNIPEG BEACH	0.91	Redwood Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	2	3626	2000	50	Urban	Collector	Not Divide	Collector	Collector	8	0	0	H5U	108	108	1.2	2	1.8	1.8	1.6	1.8	108	9.46	N/A	0	Y	N		
30988	College Avenue	Winnipeg Beach	CP	1.02	-97.158124	49.9276998	SRCS and Stop	WINNIPEG BEACH	1.02	College Avenue	No	No	1	0	10	16.0934	No	2	668	2010	50	Urban	Local	Not Divide	Local	Local	7	0	0	H5U	108	108	2	2	1.7	1.9	2	1.8	1.8	108	10.20	N/A	0	Y	N	
30989	Mountain Avenue	Winnipeg Beach	CP	1.09	-97.156912	49.9284486	FLB	WINNIPEG BEACH	1.09	Mountain Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	4	11866	2005	50	Urban	Arterial	Not Divide	Arterial	Arterial	14.4	0	0	WB-20	108	108	2.1	0.9	2.8	3.1	1.5	2.95	110	15.48	N/A	0	Y	N		
30990	Church Avenue	Winnipeg Beach	CP	1.3	-97.153494	49.9305624	SRCS	WINNIPEG BEACH	1.3	Church Avenue	No	io Stop Sig	1	0	10	16.0934	No	2	1965	2009	50	Urban	Collector	Not Divide	Collector	Collector	8	0	0	WB-20	108	108	1.8	2.4	1.5	1.6	2.1	1.55	110	10.22	N/A	0	Y	N		
30991	Cathedral Avenue	Winnipeg Beach	CP	1.45	-97.151142	49.9320163	SRCS and Stop	WINNIPEG BEACH	1.45	Cathedral Avenue	No	Yes	1	0	10	16.0934	No	2	533	2010	50	Urban	Collector	Not Divide	Collector	Collector	8	0	0	DLF-40	109	108	0.7	0.9	1.8	2.3	0.8	2.05	110	10.41	N/A	0	Y	N		
30992	Bannerman Avenue	Winnipeg Beach	CP	1.52	-97.150021	49.9327182	FLB	WINNIPEG BEACH	1.52	Bannerman Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	No	2	486	2010	50	Urban	Collector	Not Divide	Collector	Collector	7.2	0	0	DLF-40	108	108	2.6	1.5	2	2.2	2.05	2.1	111	10.23	N/A	0	Y	N		
30993	Atlantic Avenue	Winnipeg Beach	CP	1.58	-97.149053	49.9331371	SRCS	WINNIPEG BEACH	1.58	Atlantic Avenue	No	Yes	1	0	10	16.0934	Yes	2	354	1998	50	Urban	Local	Not Divide	Local	Local	8	0	0	DLF-40	108	107	1.3	1.3	3.1	3.4	1.3	3.25	108	10.39	N/A	0	Y	N		
30994	Polson Avenue	Winnipeg Beach	CP	1.63	-97.148273	49.9337396	SRCS	WINNIPEG BEACH	1.63	Polson Avenue	No	Yes	1	0	10	16.0934	No	2	533	2006	50	Urban	Local	Not Divide	Local	Local	7.4	0	0	H5U	108	108	1.1	1.4	2	2	1.25	2	110	10.22	N/A	0	Y	N		
30995	Inkster Boulevard	Winnipeg Beach	CP	1.72	-97.14664	49.9348038	FLB	WINNIPEG BEACH	1.72	Inkster Boulevard	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	Yes	4	20755	2002	50	Urban	Arterial	Divided	Arterial	Arterial	15	0	0	DLF-40	107	106	3.6	2.9	4.1	4.6	3.25	4.35	110	11.94	N/A	27	Y	N		
30996	Carruthers Avenue	Winnipeg Beach	CP	1.83	-97.145094	49.9357619	SRCS and Stop	WINNIPEG BEACH	1.83	Carruthers Avenue	No	Yes	1	0	10	16.0934	Yes	2	572	2000	50	Urban	Local	Not Divide	Local	Local	5	0	0	H5U	108	108	2.1	2.6	2.8	2.8	2.35	2.8	110	10.27	N/A	0	N	N		
30997	Jaffurs Avenue	Winnipeg Beach	CP	2.23	-97.138555	49.9398174	FLB	WINNIPEG BEACH	2.22	Jaffurs Avenue	Flashing lights and bells	io Stop Sig	1	0	10	16.0934	Yes	2	8150	2008	50	Urban	Collector	Not Divide	Collector	Collector	10	0	0	DLF-40	108	108	0.7	1.7	1.9	1.9	1.2	1.9	110</							

Appendix B
RSIP Application December, 2016

Application Form for Safety-Related Research or Studies

APPLICANT IDENTIFICATION
Applicant Organization: City of Winnipeg
Name of the Applicant: Colleen Flather, P.Eng., M.Sc.
Position in the Organization: Community Traffic Engineer
Address: 1155 Pacific Avenue, Winnipeg, MB, R3E 3P1
Phone number: 204-986-5295
Email address: cflather@winnipeg.ca
Federal riding: City of Winnipeg includes 8 federal ridings: Kildonan-St. Paul, Winnipeg North, Elmwood-Transcona, Winnipeg Centre, Charleswood-St. James-Assiniboia-Headingley, Winnipeg South Centre, Saint Boniface – Saint Vital, and Winnipeg South
Project Description
Title of the Project: Evaluation and Prioritization of Grade Crossings for Safety Improvements to Meet the Needs of Vulnerable Road Users Requiring Assistive Devices
Project abstract (limit of 500 words) <p>The City of Winnipeg has over 200 grade crossings, each with their own specific set of challenges. Following the Information Sharing requirements of the new Canadian Grade Crossings Regulations (completed November, 2016), the City of Winnipeg identified 27 grade crossings designated for users with assistive devices. These crossings were identified by selecting crossings within a 400 metre buffer around senior living centres, as recommended in the Winnipeg Transit design manual “Designing for Sustainable Transportation and Transit in Winnipeg” for the maximum distance a user should be required to walk to a transit stop.</p> <p>Users with assistive devices are part of a larger set of vulnerable road users (VRUs) which include all types of non-motorized users. For this study, we are particularly concerned with VRUs in wheelchairs or scooters, pedestrians with assistive devices and limited mobility, and users with sight and hearing impairments that can face challenges navigating level crossings. These users can have limited accessibility when crossings have uneven surfaces, limited maneuvering space, insufficient warning times to complete a crossing and a lack of visual and aural warnings. Inadequate design and maintenance of level crossings can create safety concerns for VRUs by increasing the required travel time to clear the conflict zone (the area of increased risk of being struck by a train) and obstruction hazards within the conflict zone can</p>

trap or delay VRUs. These challenges can limit mobility, deter users from taking certain transportation routes or modes, and increase travel time to desired destinations.

The Canadian Grade Crossings Standards (GCS) identifies the following characteristics that have specific requirements for persons using assistive devices: (1) flangeway, (2) field side gap, (3) elevation of the top of the rail with respect to the crossing surface, (4) maximum gradient for pathway approaches, and (5) departure time. Additional factors that can impede VRUs not directly cited in the Standards include cross slope, condition of pathway surfaces, angle of crossing, design consistency, and seasonal maintenance practices. Due to the complexity of grade crossings with multiple road users, objectives like VRU accessibility are often not explicitly addressed.

With an initial 27 grade crossings identified as accommodating VRUs with assistive devices, the City of Winnipeg proposes the following tasks for this study to improve safety at grade crossings:

1. Conduct site visits of 27 crossings to identify deficiencies in operational and physical characteristics that are safety challenges for VRUs following best practices from the Winnipeg Accessibility Design Standards and the GCS,
2. Evaluate land use patterns around the remaining Winnipeg grade crossings with sidewalks/paths for consideration to be designated for VRUs with assistive devices and repeat task 1 for the updated list, as required,
3. Develop a comprehensive set of required infrastructure improvements to accommodate and improve accessibility for VRUs with assistive devices complete with a work plan and cost estimate to implement improvements, and
4. Communicate to the railroads where issues fall under their responsibility, such as crossing surface, sightlines on rail right-of-way, signs, or signals.

Describe how your project will contribute to enhancing the safety of rail lines (limit of 250 words)

This study will contribute to enhancing the safety of rail lines in Winnipeg by focusing on a specific subset of crossing users that have a unique set of mobility challenges. VRUs, particularly those users with mobility impairments, require special considerations in level crossing design and maintenance. The study will assist the City of Winnipeg in allocating resources towards grade crossing safety improvements over the next five years and set out a series of safety objectives that consider all types of crossing users. The safety benefits of this study include:

1. Increased awareness for the road authority and railroads of grade crossing design and maintenance considerations for VRUs,

2. Clarify safety and accessibility issues common to grade crossings accommodating VRUs with assistive devices within Winnipeg,
3. Accelerate the City of Winnipeg’s progress towards meeting the Grade Crossings Regulations (GCR) requirements by identifying current safety deficiencies and creating a prioritized list of required safety improvements, and
4. Provide the City and railroads with a list of physical and operating characteristics that create issues and solutions to these accessibility and safety issues for VRUs with assistive devices for current and future grade crossings including ongoing maintenance requirements.

Describe the project team and their experience working on similar projects (limit 250 words)

The City of Winnipeg will provide direct oversight of the study but proposes to procure the services of MORR Transportation Consulting. MORR is a Winnipeg-based company with expertise in grade crossing safety and the planning and evaluation of infrastructure for the safe and equitable accommodation of pedestrians and cyclists. Below are the proposed study team members:

Colleen Flather, P.Eng., M.Sc. (City of Winnipeg)

Colleen will be the City of Winnipeg representative and project manager for the proposed study. Colleen successfully oversaw the completion of the Information Sharing requirement of the Grade Crossings Regulations to ensure the November 27th, 2016 deadline was met. Colleen has worked on multiple projects with Canadian National and Canadian Pacific during her time with the City.

Jeannette Montufar, Ph.D., P.Eng., PTOE, FITE, FCAE (MORR Transportation Consulting)

Dr. Montufar is the founding partner and CEO of MORR and will provide technical oversight of the study on accommodating VRUs. Her expertise on pedestrian accommodation has earned her special invitations by professional organizations across North and Central America to design, develop, and deliver courses and workshops for industry and government.

Mark Reimer, M.Sc., EIT (MORR Transportation Consulting)

Mark specializes in freight transportation systems with expertise in railway engineering and grade crossing safety. Prior to joining MORR, he conducted research at the University of Manitoba on evaluating VRU accessibility and safety at grade crossings. The research resulted in multiple papers and has been presented at conferences across North America. Recently, Mark has provided technical support to road authorities across Manitoba to meet the Information Sharing requirements of the new Regulations for over 300 grade crossings.

Proposed project budget:

The proposed project budget is shown below. The City proposes to primarily use Professional Consulting Services to complete the project with oversight and management by the City of Winnipeg.

Item	Cost
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<i>Staff Salaries and Benefits (City of Winnipeg)</i> <i>Professional Services (MORR Consulting) \$54,000</i> <hr/> <p style="text-align: center;">Total</p>																			
<p>Requested federal funding amount: The City is requesting that Transport Canada provides 80% of the funding to complete this study in a timely manner. The total requested funding would be \$XX,XXX</p>																			
<p>If applicable, indicate and describe any other source(s) of funding</p>																			
<p>Project Schedule: The City of Winnipeg would like to complete this project on an expedited schedule once the snow clears to allocate future resources for grade crossing improvements.</p> <ul style="list-style-type: none"> - Expected start date: May 1st, 2017 - Expected end date: June 30th, 2017 																			
<p>Proposed cashflow (for multi-year project)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Contributors</th> <th style="width: 25%;">2016/2017</th> <th style="width: 25%;">2017/2018</th> <th style="width: 25%;">2018/19</th> </tr> </thead> <tbody> <tr> <td>Canada</td> <td>\$XX,XXX (TC funding)</td> <td></td> <td></td> </tr> <tr> <td>Other Contributors</td> <td>\$XX,XXX (City funding)</td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>\$XX,XXX</td> <td></td> <td></td> </tr> </tbody> </table>				Contributors	2016/2017	2017/2018	2018/19	Canada	\$XX,XXX (TC funding)			Other Contributors	\$XX,XXX (City funding)			Total	\$XX,XXX		
Contributors	2016/2017	2017/2018	2018/19																
Canada	\$XX,XXX (TC funding)																		
Other Contributors	\$XX,XXX (City funding)																		
Total	\$XX,XXX																		
<p>Describe how the federal funding be used (limit 250 words)</p> <p>Funding will be used to procure professional consulting services to complete the study and support human resources for the City of Winnipeg management staff.</p> <p>It's expected that assessment and recommendations for each grade crossing designated for VRUs with assistive devices will cost approximately \$2,000 in professional consulting services.</p>																			
<p>Describe the risk of not receiving federal funding</p> <p>Without federal funding this study risks being delayed or not completed at all. The safety objectives in this study expand on the GCS and GCR requirements while also expediting the City of Winnipeg's ability to meet the GCR requirements prior to the 2021 deadline. Identifying and addressing safety deficiencies before the deadline is in line with Transport Canada's objectives of reducing injuries and fatalities and increasing public confidence in Canada's rail system.</p>																			

Appendix C
Sightline Obstructions

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Reason for SSD obstruction				Reason for Stop Obstruction			
							Sightline 1	Sightline 2	Sightline 3	Sightline 4	Sightline 1	Sightline 2	Sightline 3	Sightline 4
48947	Alfred Avenue	Winnipeg Beach	CP	0.75	SRCS	4	-	-	House/Vegetation	-	-	-	-	-
14920	Archibald Street	Sprague	CN	1.83	FLBG	2	-	-	-	-	-	-	-	-
48948	Boyd Avenue	Winnipeg Beach	CP	0.96	SRCS	4	Vegetation	-	-	Vegetation	-	-	-	-
20192	Brookside Boulevard	Carberry	CP	4.74	FLBG	2	-	-	-	-	-	-	-	-
49746	Chevrier Boulevard	Letellier	CN	1.08	SRCS	4	Building	Industrial Yard	Large Equipment	Building/Vegetation	-	-	-	-
8768	Chevrier Boulevard	Letellier	CN	0.4	FLB	1	-	-	-	-	Building/Vegetation	-	-	-
18457	Church Avenue	Arborg	CP	0.11	SRCS	4	Building	Building	Building	Electrical Station	-	-	-	-
18458	Church Avenue	Arborg	CP	0.12	SRCS	4	Building	Building	Building	Storage Containers	-	-	-	-
34889	Church Avenue	Arborg	CP	0.46	SRCS	4	Building	Building	Building	Building	-	-	-	-
18460	Church Avenue	Arborg	CP	0.12	SRCS	3	Building	Building	Building	Building	Equipment	-	-	-
35323	Church Avenue	Arborg	CP	0.12	SRCS	3	-	Building	Building	Building	-	-	-	Building/vegetation
30990	Church Avenue	Winnipeg Beach	CP	1.3	SRCS	2	Vegetation/house	Vegetation/house	Vegetation/house	Vegetation	-	-	-	-
20147	Clifton Street	La Riviere	CP	1.2	SRCS	2	Building	Heavy Equipment	-	-	-	-	-	-
14906	Dawson Road North	Sprague	CN	0.09	SRCS	4	Storage containers	Vegetation	Vegetation	Storage Containers	-	-	Vegetation	-
20142	Dublin Avenue	La Riviere	CP	0.44	SRCS	4	Building	Building	Building	Bridge	-	-	Building	-
48952	Enniskillen Avenue	Winnipeg Beach	CP	2.11	SRCS	2	-	-	-	Vegetation/house	-	-	-	-
8769	Hamelin Street	Letellier	CN	0.65	SRCS	4	Building	Building	Heavy Equipment	Building	-	-	Heavy Equipment	-
20135	Higgins Avenue	Carberry	CP	0.36	SRCS	4	Building	Building	Building	Building	-	Building	-	Building
18461	Hutchings Street	Arborg	CP	0.2	SRCS	4	Building	Building	Building	Building	-	-	-	-
18454	Inkster Boulevard	Arborg	CP	0.49	SRCS	4	-	-	-	-	-	-	-	-
48950	Lansdowne Avenue	Winnipeg Beach	CP	1.79	SRCS	4	Vegetation	-	-	-	-	-	-	-
35777	Lowson Crescent	Rivers	CN	0.17	SRCS	4	Building	Vegetation	Building	Storage Containers	-	-	-	-
48946	Manitoba Avenue	Winnipeg Beach	CP	0.6	SRCS	4	Vegetation	-	Vegetation	-	-	-	-	-
14912	Marion Street	Sprague	CN	0.33	SRCS	4	Building	Vegetation	Building	Buildings	-	-	-	-
48951	McAdam Avenue	Winnipeg Beach	CP	1.93	SRCS	4	-	-	Vegetation	-	-	-	-	-
46057	McPhillips Street	La Riviere	CP	0.53	FLB	1	-	-	-	-	-	-	-	-
21513	McTavish Street	Emerson	CP	0.55	SRCS	2	-	Building	Building	-	-	-	Equipment	-
21520	Messier Street	Emerson	CP	0.96	FLB	1	-	-	-	-	-	-	-	Building
24205	Midland Street	La Riviere	CP	0.04	SRCS	1	-	-	-	Building	-	-	-	-
34896	Moray Street	Glenboro	CP	0.2	SRCS	3	Building	Building	Building	-	-	-	-	-
35324	Mountain Avenue	Arborg	CP	0.25	SRCS	4	Building/vegetation	Building	Building	Building	-	-	-	-
34767	Murray Park Road	Glenboro	CP	0.92	SRCS	2	Vegetation	-	-	Building	-	-	-	-
18452	None	Arborg	CP	1.1	SRCS	4	Houses	Houses	Vegetation/houses	Building/houses	-	-	-	-
11431	Notre Dame Avenue	Oak Point Spur	CN	4.84	FLB	4	-	-	-	-	-	-	-	-
24204	Notre Dame Avenue	La Riviere	CP	0.88	FLB	1	-	-	-	-	-	-	-	-
725041	Pacific Avenue	La Riviere	CP	0.4	SRCS	4	Building	Vegetation	Equipment	Building	-	-	-	-
14916	Panet Road	Sprague	CN	0.74	SRCS	4	Building	Building	Storage containers	Building	-	-	-	-
47539	Pedestrian	Rivers	CN	0.32	SRCS	4	Vegetation	Vegetation	N/A	N/A	-	-	-	-
50061	Pedestrian	Keewatin	CP	123.1	SRCS	2	-	-	Building/vegetation	Building/vegetation	-	-	-	-
21516	Plinguet Street	Emerson	CP	0.44	SRCS	4	Building	Vegetation/equipment	Vegetation	Building	Building	-	-	Building
18455	Plymouth Street	Arborg	CP	0.18	SRCS	4	Building	Vegetation/building	-	-	-	-	-	-
14921	Provencher Boulevard	Sprague	CN	2.42	FLBG	1	-	-	-	-	Vegetation	-	-	-
725042	Richard Avenue	La Riviere	CP	0.31	SRCS	4	Building	Building	Building	-	-	-	-	-
14922	Rue Notre Dame	Sprague	CN	2.56	SRCS	3	Vegetation	-	Vegetation	Vegetation	-	-	-	-
48923	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	2	-	Building	Building	-	-	-	-	-
48925	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	1	-	Building	-	-	-	-	-	-
48931	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	1	-	-	Building	-	-	-	-	-
36726	Saulteaux Crescent	Glenboro	CP	0.35	SRCS	4	-	Building	Building	Building	-	-	-	-
34894	Saulteaux Crescent	Glenboro	CP	0.1	SRCS	3	Building	Building	Building	Vegetation	-	Vegetation	-	-
18451	Selkirk Avenue	Arborg	CP	0.98	SRCS	4	Building	Vegetation/containers	Houses	Houses/vegetation	-	-	-	-
18462	Sheppard Street	Arborg	CP	0.38	SRCS	3	Building	-	Building	Building	-	-	-	-
36828	Softley Road	Sprague	CN	0.19	SRCS	4	Hill/vegetation	Vegetation/building	Vegetation/hill	Vegetation/equipment	-	-	-	-
14908	Speers Road	Sprague	CN	0.11	FLB	1	Building	Building	Equipment	Building	-	-	Vegetation	Vegetation
48919	Spruce Street	La Riviere	CP	1.29	SRCS	4	Building	Building	Building	Building	-	-	-	-

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Reason for SSD obstruction				Reason for Stop Obstruction			
							Sightline 1	Sightline 2	Sightline 3	Sightline 4	Sightline 1	Sightline 2	Sightline 3	Sightline 4
20179	St. Matthews Avenue	La Riviere	CP	1.25	SRCS	4	Building	Building	Building	Building	-	-	-	-
24209	St. Matthews Avenue	La Riviere	CP	2.3	FLBG	1	-	-	-	-	Vegetation	-	-	-
725040	Trinity Street	La Riviere	CP	0.16	SRCS	4	Equipment	Building	Building	Equipment	-	-	-	-
14913	Turenne Street	Sprague	CN	0.46	SRCS	4	Building	Building/equipment	Vegetation	Building	-	Equipment	-	-
48920	Valour Road	La Riviere	CP	1.34	SRCS	4	Vegetation	Building	Building	Building	-	-	Vegetation	-
24212	Wellington Crescent	La Riviere	CP	3.3	FLB	1	-	-	-	-	-	-	-	-
24212	Wellington Crescent	La Riviere	CP	3.3	FLB	1	Repeated?							

Crossing 001



TCID: 34767

Railroad CP

Milepost: 0.92

Street Name: Murray Park Road

Stopping Site Distance Obstructions

<p>1</p>  A photograph showing a road with a yellow center line. On the left side of the road, there is a diamond-shaped warning sign with a black silhouette of a person walking. The background shows trees with autumn foliage and a cloudy sky.	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p>  A photograph showing a road with a yellow center line. On the right side of the road, there is a brick building with a dark roof. The background shows trees with autumn foliage and a cloudy sky.

1. Eastbound, looking left, vegetation
2. N/A
3. N/A
4. Westbound, looking right, building

Crossing 002

TCID: 34894

Railroad CP

Milepost: 0.1


Street Name: Sauteaux Crescent

Stopping Site Distance Obstructions



1. Northbound, looking left, building
2. Northbound, looking right, building
3. Southbound, looking left, building
4. Southbound, looking right, vegetation

Stopped Site Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. N/A
2. Northbound, looking right, vegetation
3. N/A
4. N/A

Crossing 003




TCID: 36726

Railroad CP

Milepost: 0.35

Street Name: Sauteaux Crescent

Stopping Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> 	<p>4</p> 

1. N/A
2. Northbound, looking right, building
3. Southbound, looking left, building
4. Southbound, looking right, building

Crossing 004




TCID: 34896

Railroad CP

Milepost: 0.2

Street Name: Moray Street

Stopping Site Distance Obstructions

<p>1</p> 	<p>2</p> 
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. Northbound, looking left, building
2. Northbound, looking right, building
3. Southbound, looking left, building
4. N/A

Crossing 005

TCID: 35777

Railroad CN

Milepost: 0.17

Street Name: Lawson Crescent

Stopping Site Distance Obstructions



1. Northbound, looking left, building
2. Northbound, looking right, vegetation
3. Southbound, looking left, building
4. Southbound, looking right, containers

Crossing 006

TCID: 49746

Railroad CN

Milepost: 1.08

Street Name: Chevrier Boulevard

Stopping Site Distance Obstructions



1. Northbound, looking left, building
2. Northbound, looking right, industrial yard
3. Southbound, looking left, large equipment
4. Southbound, looking right, building/vegetation

Crossing 007

TCID: 8768
Railroad CN
Milepost: 0.4
Street Name: Chevrier Boulevard

Stopped Site Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. N/A
2. Eastbound direction, looking right, building/vegetation
3. N/A
4. N/A

Crossing 008

TCID: 8769

Railroad CN

Milepost: 0.65


Street Name: Hamelin Street

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, building
3. Southbound direction, looking left, heavy equipment
4. Southbound direction, looking right, building

Stopped Site Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. N/A
3. Heavy equipment
4. N/A

Crossing 009

TCID: 47539

Railroad CN

Milepost: 0.32

Street Name: Pedestrian

Pedestrian Site Distance Obstructions

<p>1</p> 	<p>2</p> 
<p>3</p> <p>Imagery Not Available</p>	<p>4</p> <p>Imagery Not Available</p>

1. Northbound direction, looking left, vegetation
2. Northbound direction, looking right, vegetation
3. Southbound direction, looking left, vegetation
4. Southbound direction, looking right, vegetation

Crossing 010

TCID: 24212

Railroad CP

Milepost: 3.3

Street Name: Wellington Crescent

Flashing Lights and Bell at this Crossing

Crossing 011


TCID: 24209

Railroad CP

Milepost: 2.3

Street Name: St. Matthews Avenue

Stopped Sight Line Obstructions

<p>1</p> 	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. Eastbound direction, looking left, vegetation

2. N/A

3. N/A

4. N/A

Crossing 012

TCID: 20179

Railroad CP

Milepost: 1.25

Street Name: St. Matthews Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, building

Crossing 013


TCID: 48931

Railroad CP

Milepost: 0.03

Street Name: Saskatchewan Avenue

Stopping Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A

2. N/A

3. Westbound direction, looking left, building

4. N/A

Crossing 014

TCID: 20142

Railroad CP

Milepost: 0.44

Street Name: Dublin Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, bridge

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. N/A
3. Westbound direction, looking left, building
4. N/A

Crossing 015

TCID: 11431

Railroad CN

Milepost: 4.84

Street Name: Notre Dame Avenue

Flashing Lights and Bell at this Crossing

Crossing 016


TCID: 48925

Railroad CP

Milepost: 0.03

Street Name: Saskatchewan Avenue

Stopping Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. N/A

2. Eastbound direction, looking right, building

3. N/A

4. N/A

Crossing 017



TCID: 48923

Railroad CP

Milepost: 0.03

Street Name: Saskatchewan Avenue

Stopping Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. N/A

Crossing 018


TCID: 48923

Railroad CP

Milepost: 0.04

Street Name: Midland Street

Stopping Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> 

1. N/A

2. N/A

3. N/A

4. Southbound direction, looking right, building

Crossing 019

TCID: 24204

Railroad CP

Milepost: 0.88

Street Name: Notre Dame Avenue

Flashing Lights and Bell at this Crossing

Crossing 020

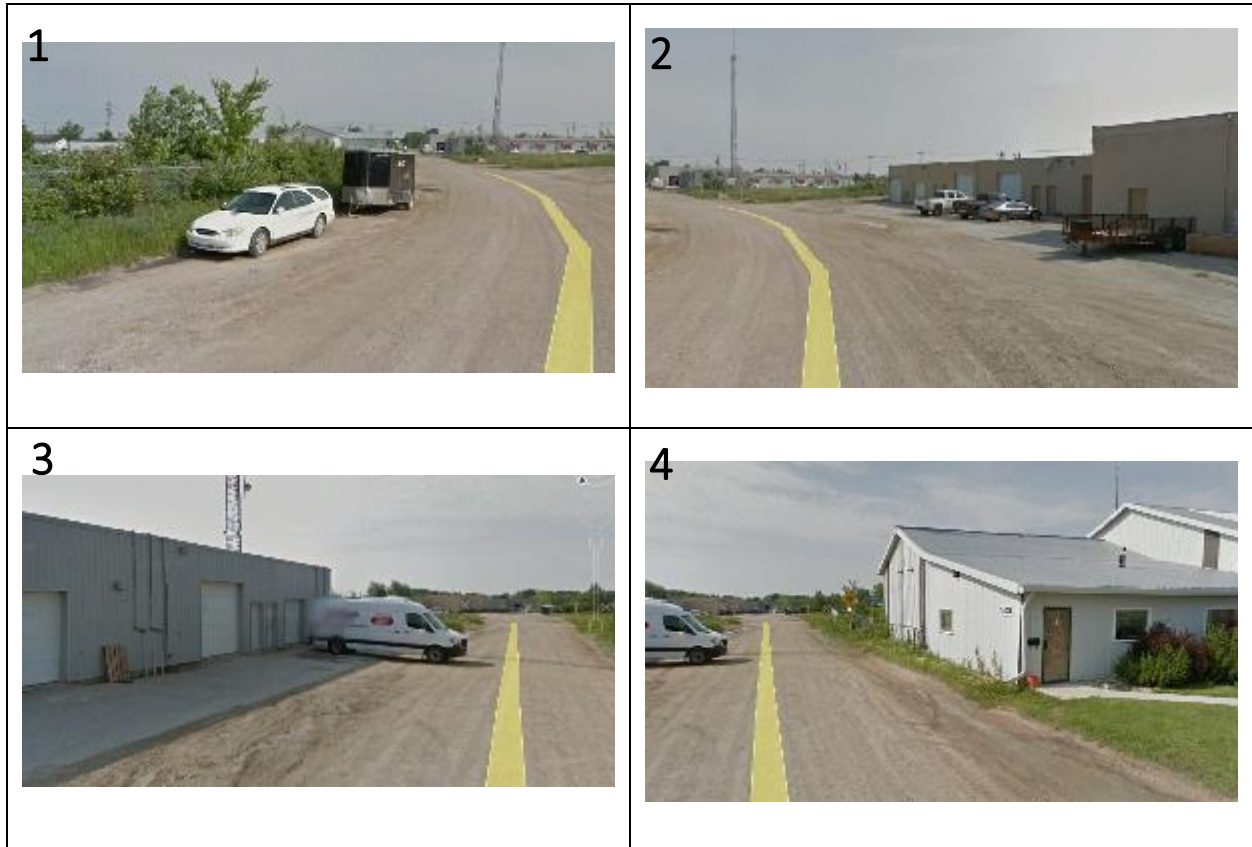
TCID: 48920

Railroad CP

Milepost: 1.34


Street Name: Valour Road

Stopping Site Distance Obstructions



1. Northbound direction, looking left, vegetation
2. Northbound direction, looking right, building
3. Southbound direction, looking left, building
4. Southbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. N/A
3. Southbound direction, looking left, vegetation
4. N/A

Crossing 021

TCID: 48919

Railroad CP

Milepost: 1.29

Street Name: Spruce Street

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, building
3. Southbound direction, looking left, building
4. Southbound direction, looking right, building

Crossing 022



TCID: 20147

Railroad CP

Milepost: 1.2

Street Name: Clifton Street

Stopping Site Distance Obstructions

<p>1</p> 	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. Northbound direction, looking left, building
2. Northbound direction, looking right, heavy equipment
3. N/A
4. N/A

Crossing 023




TCID: 725042

Railroad CP

Milepost: 0.31

Street Name: Richard Avenue

Stopping Site Distance Obstructions

<p>1</p> 	<p>2</p> 
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. N/A

Crossing 024

TCID: 46057

Railroad CP

Milepost: 0.53

Street Name: McPhillips Street

Flashing Lights and Bell at this Crossing

Crossing 025

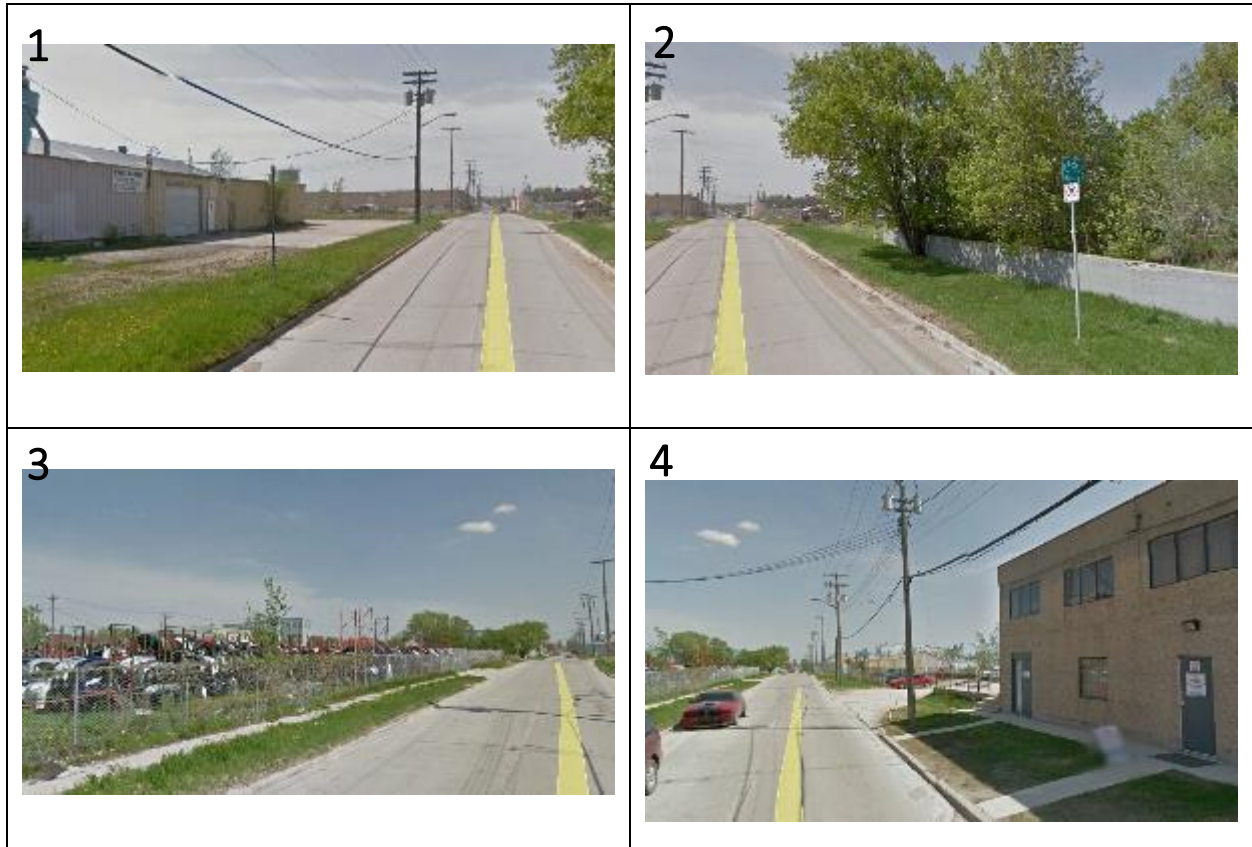
TCID: 725041

Railroad CP

Milepost: 0.4

Street Name: Pacific Avenue

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, vegetation
3. Southbound direction, looking left, equipment
4. Southbound direction, looking right, building

Crossing 026

TCID: 725040

Railroad CP

Milepost: 0.16

Street Name: Trinity Street

Stopping Site Distance Obstructions



1. Northbound direction, looking left, equipment
2. Northbound direction, looking right, building
3. Southbound direction, looking left, building
4. Southbound direction, looking right, equipment

Crossing 027

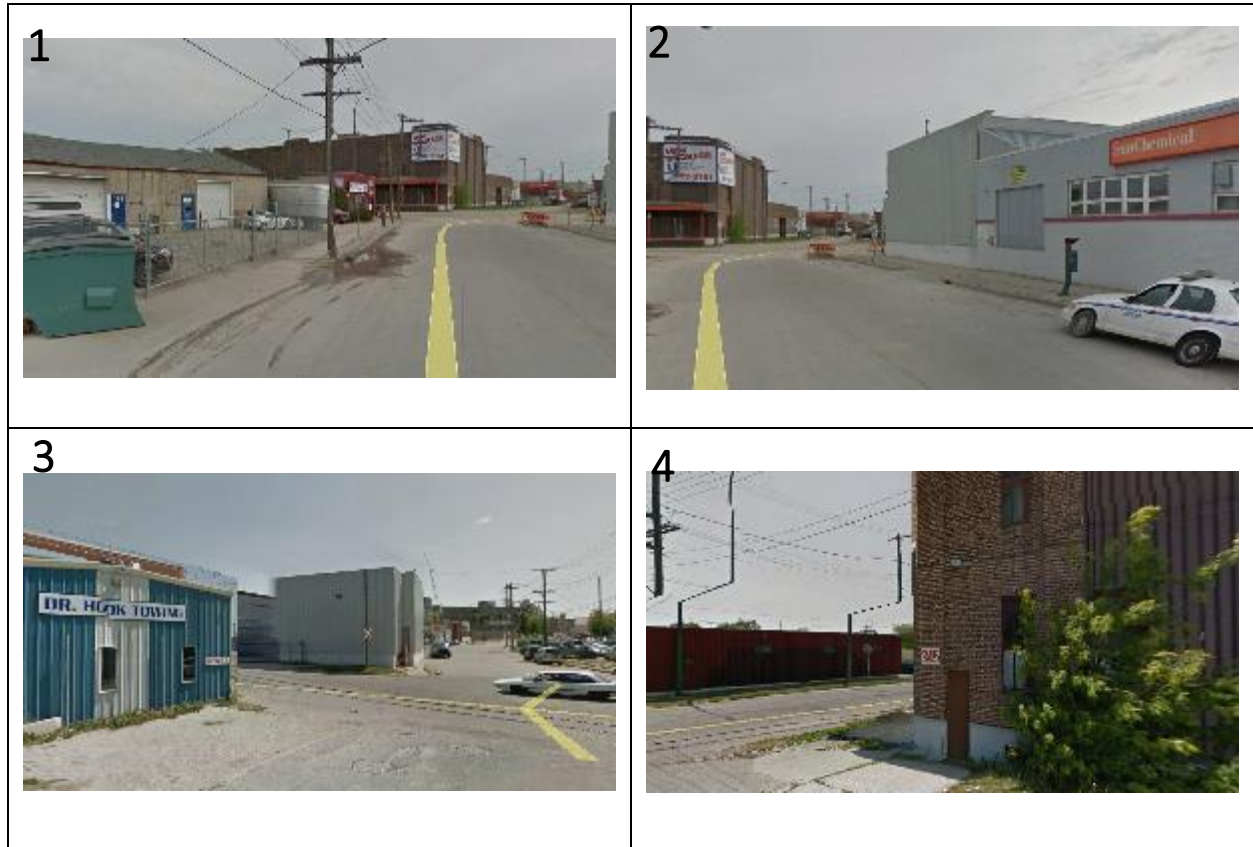
TCID: 20135

Railroad CP

Milepost: 0.36



Street Name: Higgins Avenue

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, building
3. Southbound direction, looking left, building
4. Southbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> 

1. N/A
2. Northbound direction, looking right, building
3. N/A
4. Southbound direction, looking right, building

Crossing 028

TCID: 20192

Railroad CP

Milepost: 4.74

Street Name: Brookside Boulevard

Flashing Lights, Bell and Gates at this Crossing

Crossing 029


TCID: 48946

Railroad CP

Milepost: 0.6

Street Name: Manitoba Avenue

Pedestrian Site Distance Obstructions

<p>1</p> 	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. Eastbound direction, looking left, vegetation

2. N/A

3. Westbound direction, looking left, vegetation

4. N/A

Crossing 030

TCID: 48947

Railroad CP

Milepost: 0.75

Street Name: Alfred Avenue

Pedestrian Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A

2. N/A

3. Westbound direction, looking left, house/vegetation

4. N/A

Crossing 031



TCID: 48948

Railroad CP

Milepost: 0.96

Street Name: Boyd Avenue

Pedestrian Site Distance Obstructions

	2 Not Applicable
3 Not Applicable	4 

1. Eastbound direction, looking left, vegetation
2. N/A
3. N/A
4. Westbound direction, looking right, vegetation

Crossing 032

TCID: 30990

Railroad CP

Milepost: 1.3

Street Name: Church Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, vegetation/house
2. Eastbound direction, looking right, vegetation/house
3. Westbound direction, looking left, vegetation/house
4. Westbound direction, looking right, vegetation

Crossing 033

TCID: 48950

Railroad CP

Milepost: 1.79

Street Name: Landsdowne Avenue

Pedestrian Site Distance Obstructions

<p>1</p> 	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. Eastbound direction, looking left, vegetation

2. N/A

3. N/A

4. N/A

Crossing 034

TCID: 48951

Railroad CP

Milepost: 1.93

Street Name: McAdam Avenue

Pedestrian Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A

2. N/A

3. Westbound direction, looking left, vegetation

4. N/A

Crossing 035

TCID: 48952

Railroad CP

Milepost: 2.11

Street Name: Enniskillen Avenue

Pedestrian Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> 

1. N/A

2. N/A

3. N/A

4. Westbound direction, looking right, vegetation/house

Crossing 036

TCID: 18451

Railroad CP

Milepost: 0.98

Street Name: Selkirk Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, vegetation/containers
3. Westbound direction, looking left, houses
4. Westbound direction, looking right, vegetation/houses

Crossing 037

TCID: 18452

Railroad CP

Milepost: 1.1

Street Name: Manitoba Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, houses

2. Eastbound direction, looking right, houses

3. Westbound direction, looking left, vegetation/houses

4. Westbound direction, looking right, building/houses

Crossing 038

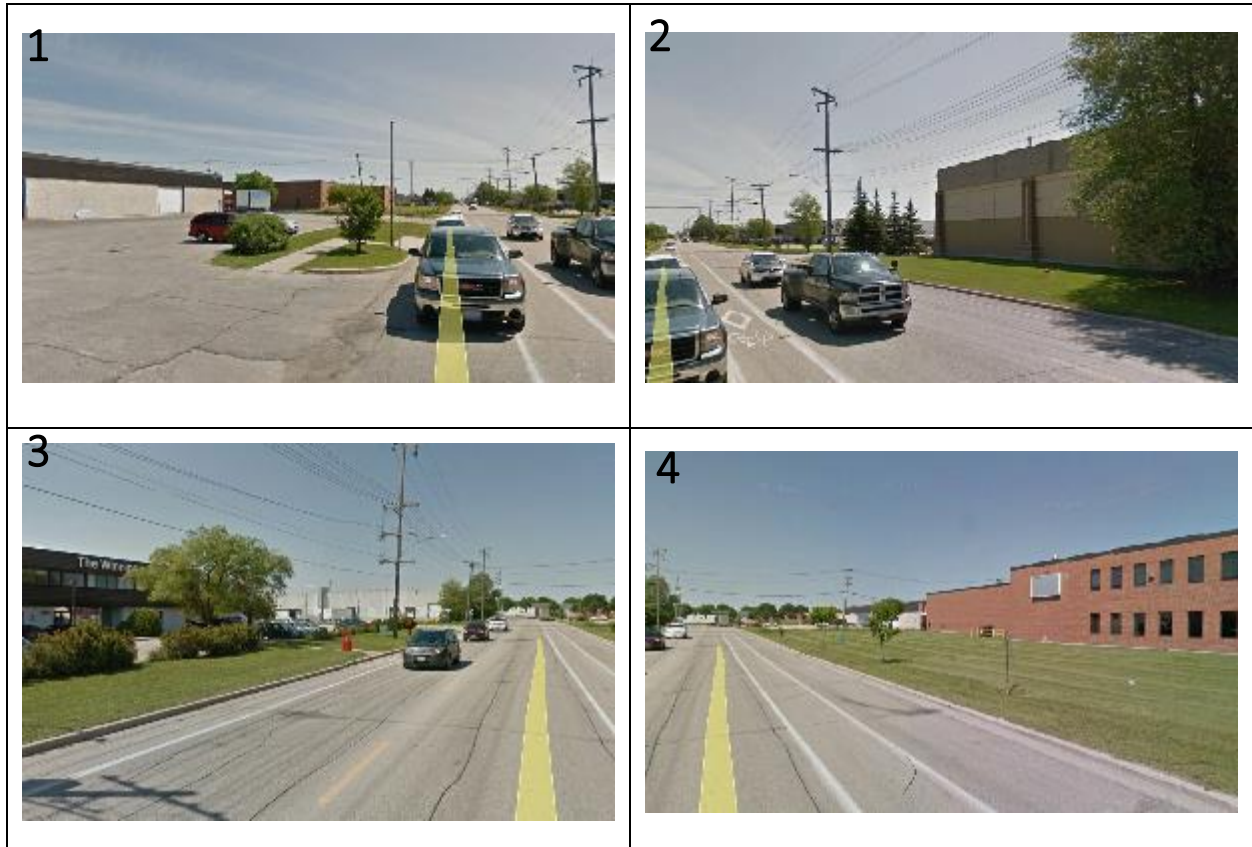
TCID: 34889

Railroad CP

Milepost: 0.46

Street Name: Manitoba Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, building

Crossing 039

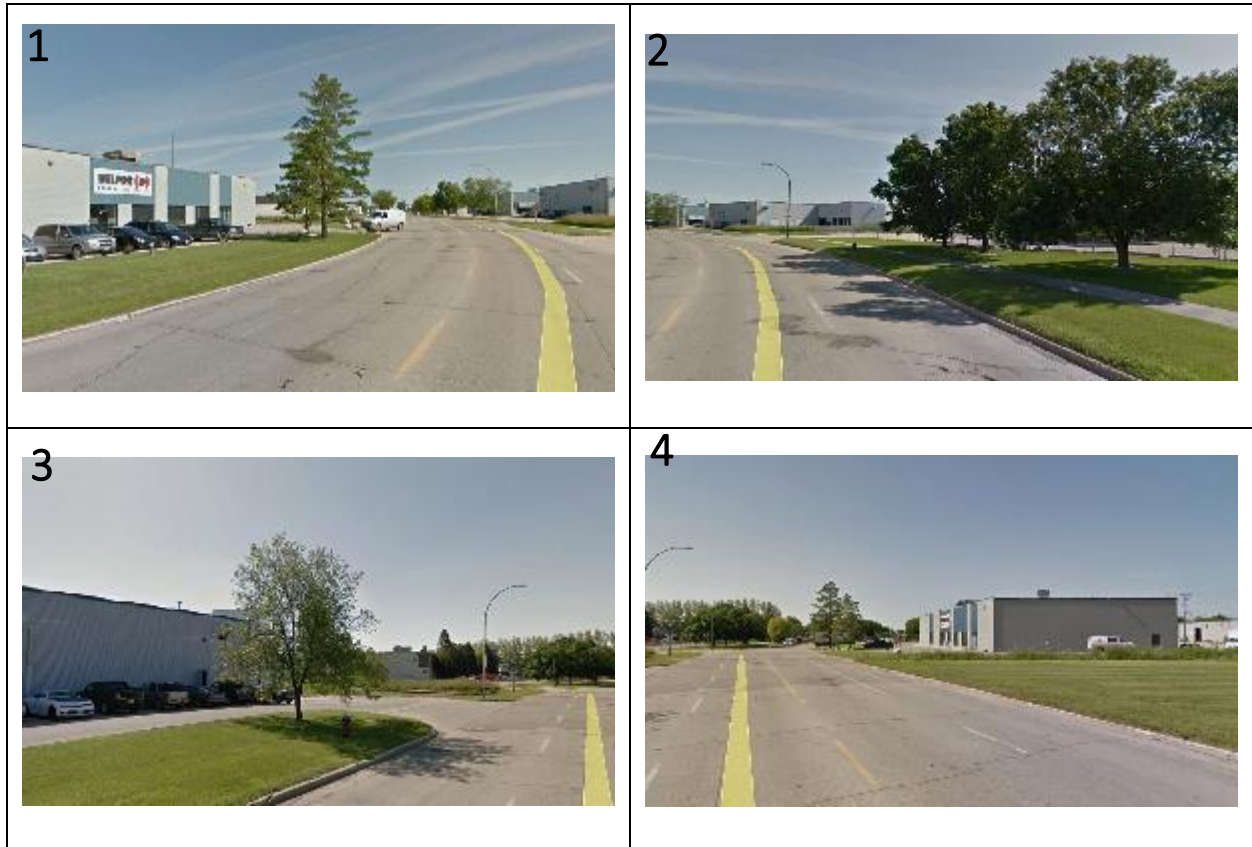
TCID: 18455

Railroad CP

Milepost: 0.18


Street Name: Plymouth Street

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, vegetation/building
3. Southbound direction, looking left, building
4. Southbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. N/A
3. Southbound direction, looking left, building
4. N/A

Crossing 040

TCID: 18461

Railroad CP

Milepost: 0.2

Street Name: Hutchings Street

Stopping Site Distance Obstructions



1. Southbound direction, looking left, building
2. Southbound direction, looking right, building
3. Eastbound direction, looking left, building
4. Eastbound direction, looking right, building

Crossing 041

TCID: 18457

Railroad CP

Milepost: 0.11

Street Name: Church Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, electric station

Crossing 042




TCID: 18462

Railroad CP

Milepost: 0.38

Street Name: Sheppard Street

Stopping Site Distance Obstructions

<p>1</p> 	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> 

1. Northbound direction, looking left, building

2. N/A

3. Southbound direction, looking left, building

4. Southbound direction, looking right, electric station

Crossing 043

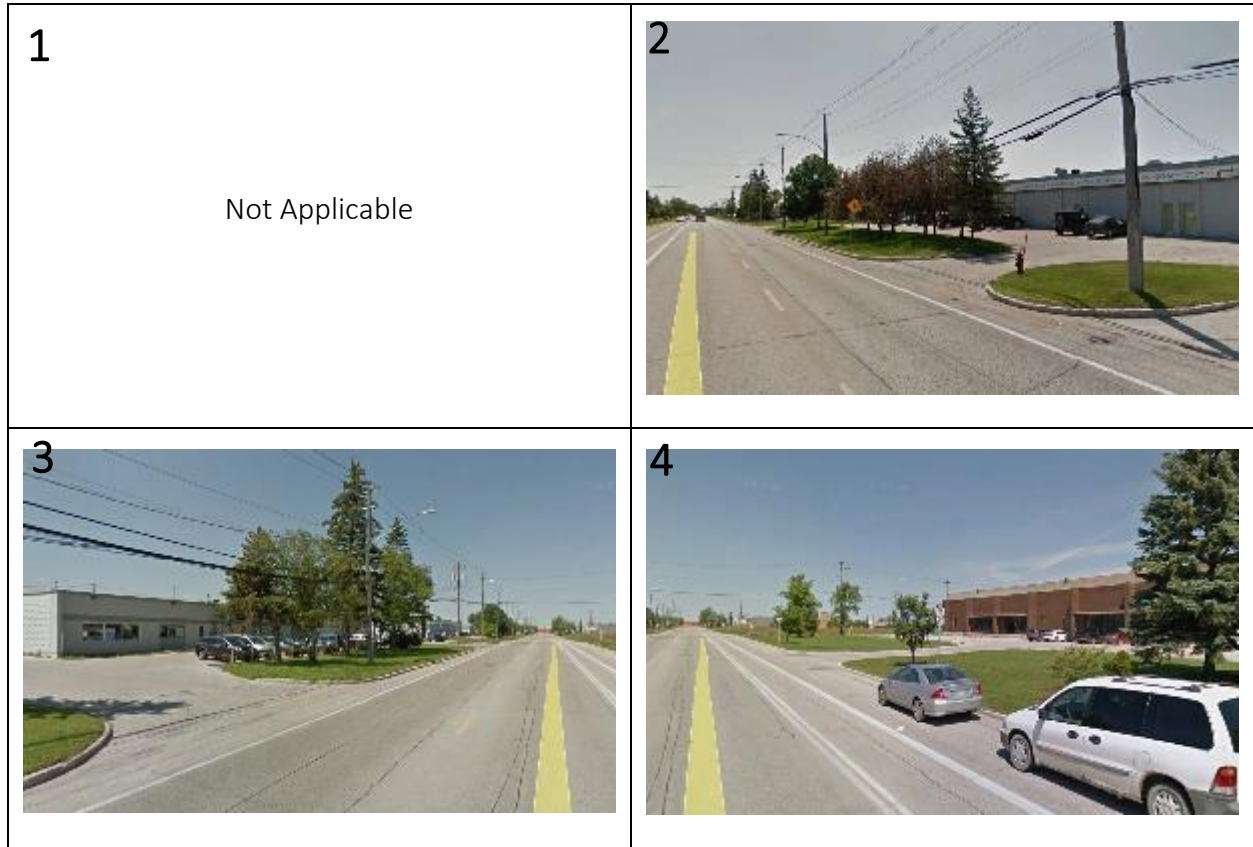
TCID: 35323

Railroad CP

Milepost: 0.12


Street Name: Churchill Avenue

Stopping Site Distance Obstructions



1. N/A
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> 

1. N/A
2. N/A
3. N/A
4. Westbound direction, looking right, building/vegetation

Crossing 044

TCID: 18460

Railroad CP

Milepost: 0.12


Street Name: Churchill Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. N/A
2. Eastbound direction, looking right, equipment
3. N/A
4. N/A

Crossing 045

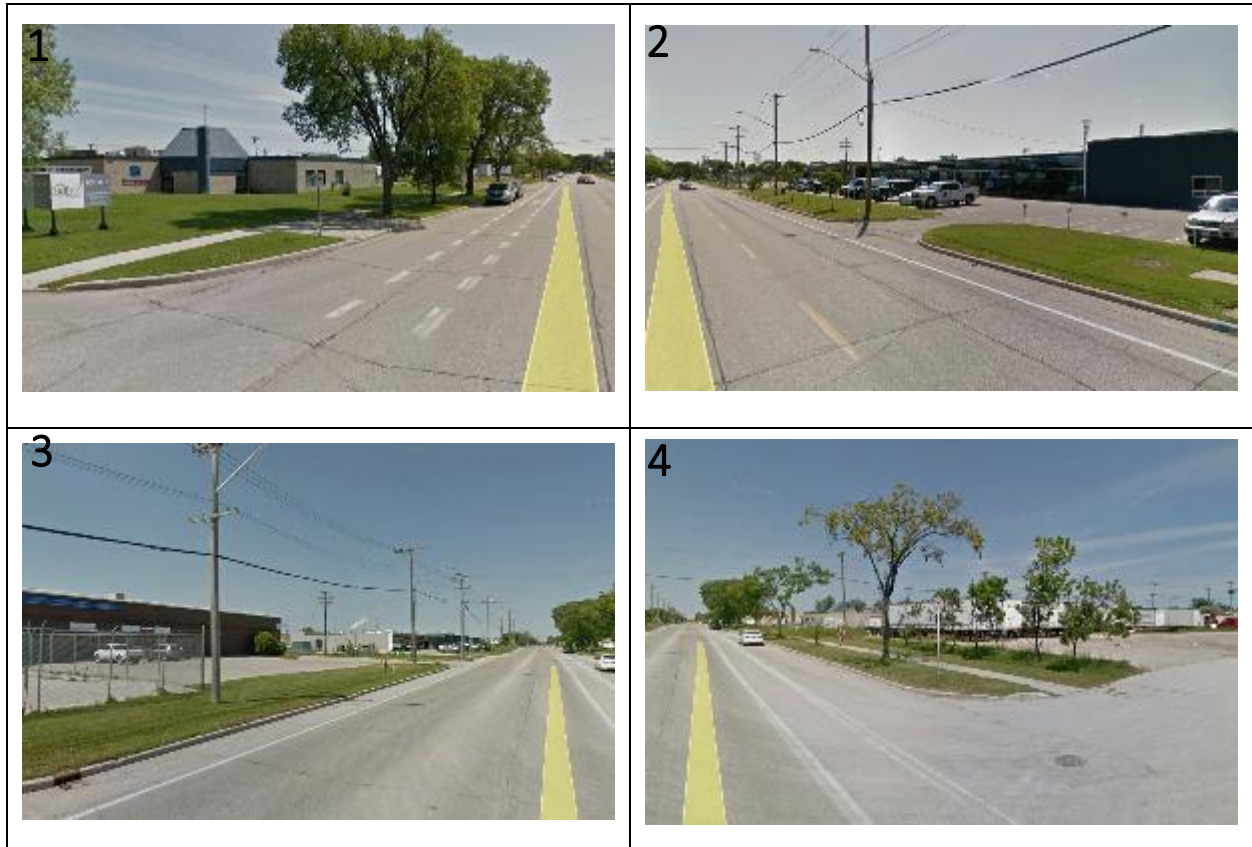
TCID: 18458

Railroad CP

Milepost: 0.12

Street Name: Churchill Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, storage containers

Crossing 046

TCID: 35324

Railroad CP

Milepost: 0.25

Street Name: Mountain Avenue

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building/vegetation
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, building

Crossing 047

TCID: 18454

Railroad CP

Milepost: 0.49

Street Name: Inkster Boulevard

Crossing No Longer Exists

Crossing 048

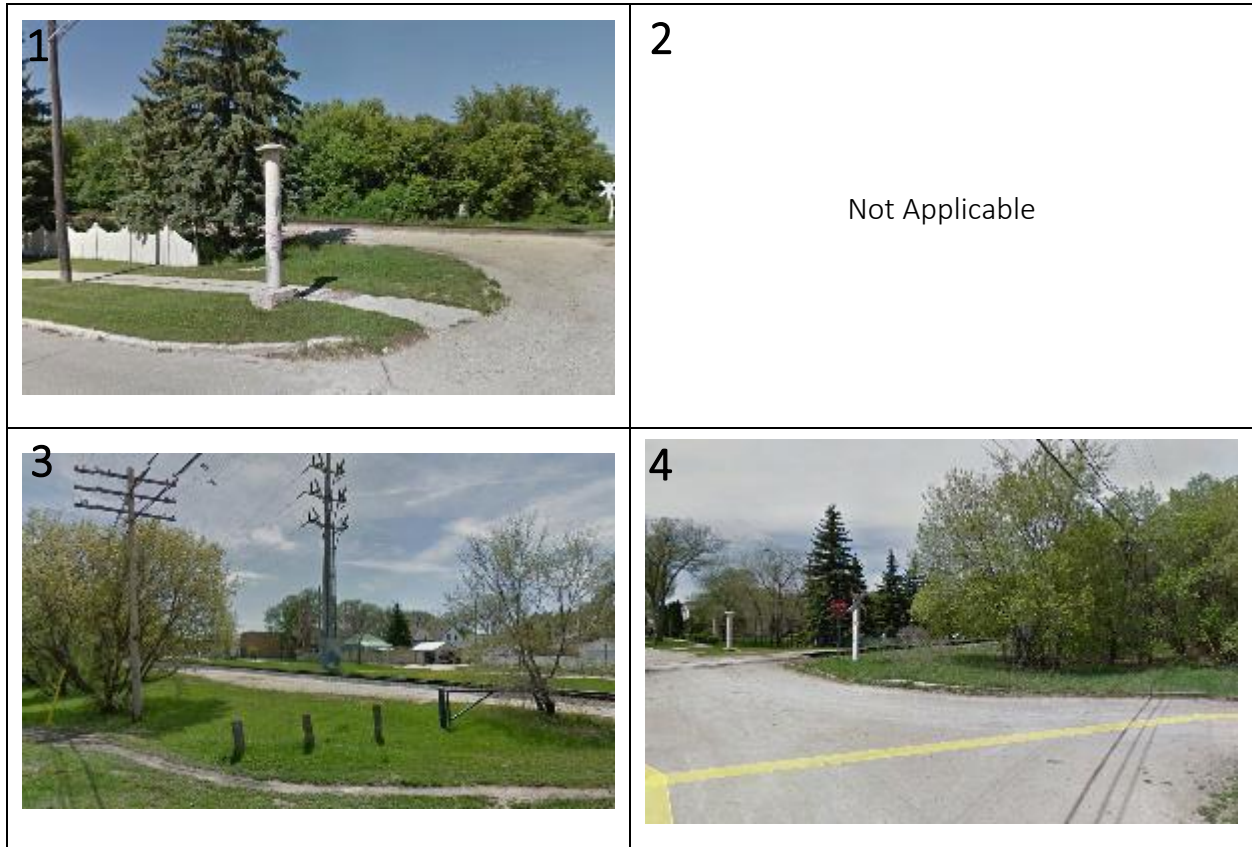
TCID: 14922

Railroad CN

Milepost: 2.56

Street Name: Rue Notre Dame

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, vegetation
2. N/A
3. Westbound direction, looking left, vegetation
4. Westbound direction, looking right, vegetation

Crossing 049


TCID: 14921

Railroad CN

Milepost: 2.42

Street Name: Provencher Boulevard

Stopped Site Line Obstructions

<p>1</p> 	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. Eastbound direction, looking left, vegetation

2. N/A

3. N/A

4. N/A

Crossing 050



TCID: 21513

Railroad CP

Milepost: 0.55


Street Name: Mctavish Street

Stopping Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. Northbound direction, looking right, building
3. Southbound direction, looking left, building
4. N/A

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. N/A
3. Southbound direction, looking left, equipment
4. N/A

Crossing 051

TCID: 14920

Railroad CN

Milepost: 1.83

Street Name: Archibald Street

Flashing Lights, Bell and Gates at this Crossing

Crossing 052


TCID: 21520

Railroad CP

Milepost: 0.96

Street Name: Messier Street

Stopped Site Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p> 

1. N/A

2. N/A

3. N/A

4. Westbound direction, looking right, building

Crossing 053

TCID: 21516

Railroad CP

Milepost: 0.44



Street Name: Plinguet Street

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, vegetation/equipment
3. Westbound direction, looking left, vegetation
4. Westbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p>  <p>A photograph showing a street intersection. On the left, a utility pole stands in front of a large, dark-colored industrial building with 'WORKS LTD.' written on its side. Several red cars are parked in a lot in front of the building. The sky is clear and blue.</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> <p>Not Applicable</p>	<p>4</p>  <p>A photograph showing a street intersection from a different angle. A large, dark-colored industrial building with 'SHOPOST IRON WORKS LTD.' written on its side is visible. Several red cars are parked in a lot in front of the building. The sky is clear and blue.</p>

1. Eastbound direction, looking left, building
2. N/A
3. N/A
4. Westbound direction, looking right, building

Crossing 054

TCID: 50061

Railroad CP

Milepost: 123.1

Street Name: Pedestrian

Pedestrian Site Distance Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> 

1. N/A

2. N/A

3. Westbound direction, looking left, vegetation/house

4. Westbound direction, looking right, vegetation/house

Crossing 055

TCID: 14916

Railroad CN

Milepost: 0.74

Street Name: Panet Road

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, building
3. Southbound direction, looking left, storage containers
4. Southbound direction, looking right, building

Crossing 056

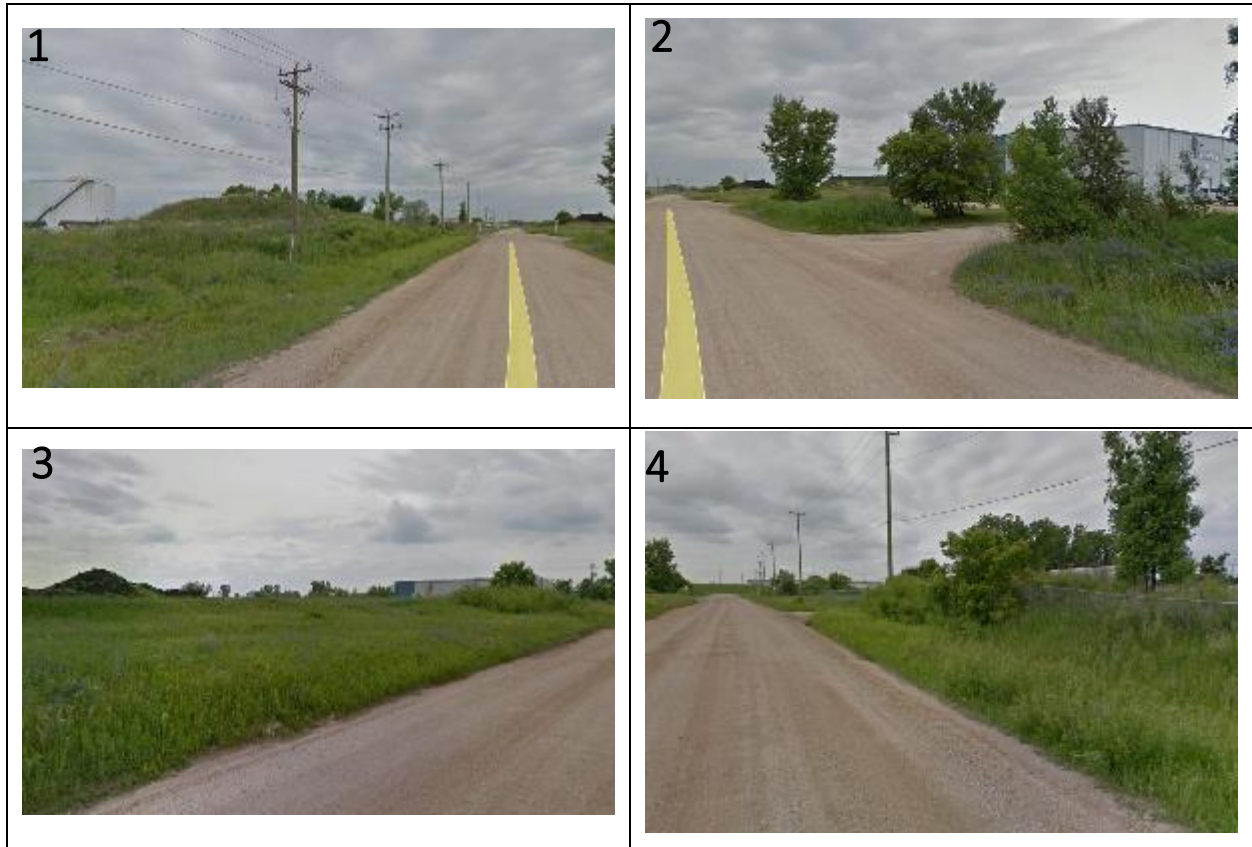
TCID: 36828

Railroad CN

Milepost: 0.19

Street Name: Softley Road

Stopping Site Distance Obstructions



1. Northbound direction, looking left, hill/vegetation
2. Northbound direction, looking right, vegetation/building
3. Southbound direction, looking left, vegetation/hill
4. Southbound direction, looking right, vegetation/equipment

Crossing 057

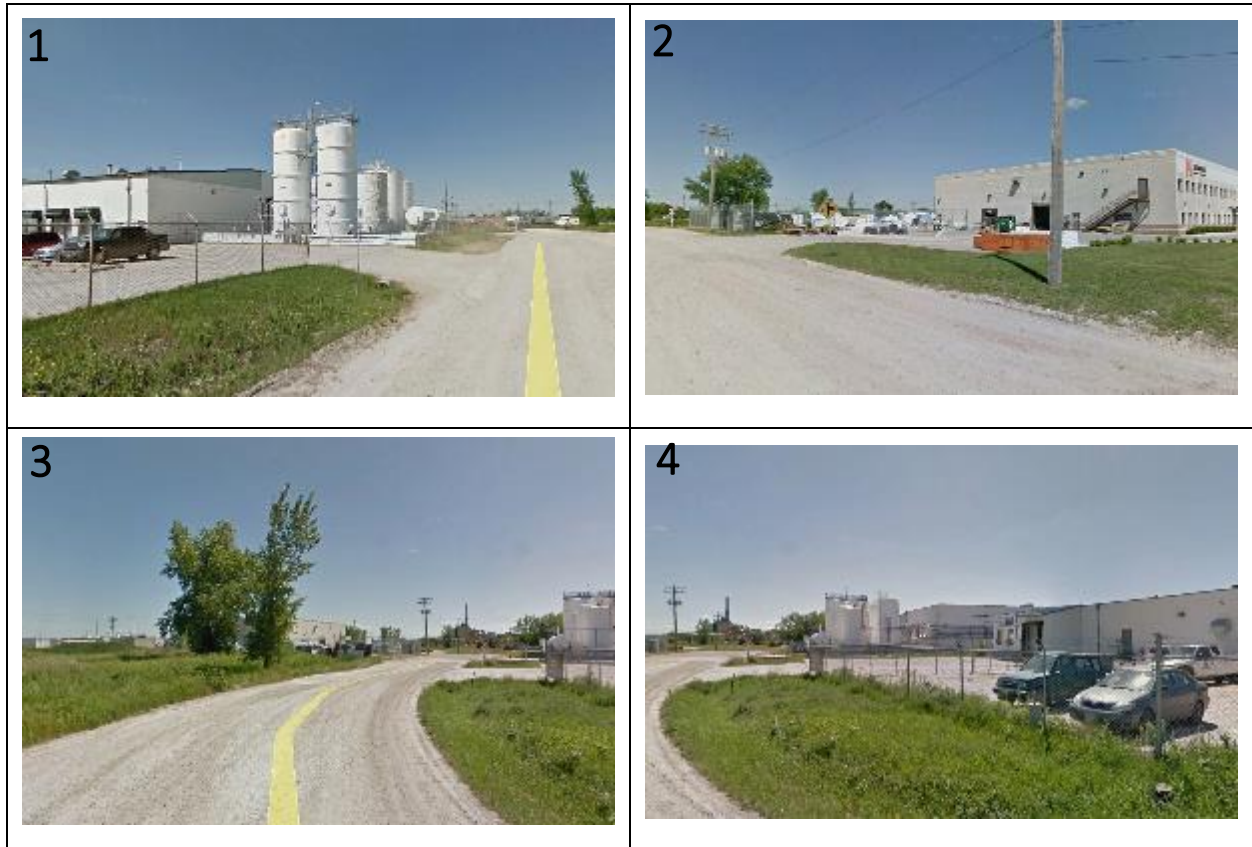
TCID: 14913

Railroad CN

Milepost: 0.46


Street Name: Turenne Street

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, building/equipment
3. Southbound direction, looking left, vegetation
4. Southbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> 
<p>3</p> <p>Not Applicable</p>	<p>4</p> <p>Not Applicable</p>

1. N/A
2. Northbound direction, looking right, equipment
3. N/A
4. N/A

Crossing 058

TCID: 14912

Railroad CN

Milepost: 0.33

Street Name: Marion Street

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, building
2. Eastbound direction, looking right, building
3. Westbound direction, looking left, building
4. Westbound direction, looking right, buildings

Crossing 059

TCID: 14906

Railroad CN

Milepost: 0.09


Street Name: Dawson Road North

Stopping Site Distance Obstructions



1. Eastbound direction, looking left, storage containers
2. Eastbound direction, looking right, vegetation
3. Westbound direction, looking left, vegetation
4. Westbound direction, looking right, storage containers

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> <p>Not Applicable</p>

1. N/A
2. N/A
3. Westbound direction, looking left, vegetation
4. N/A

Crossing 060

TCID: 14908

Railroad CN

Milepost: 0.11



Street Name: Speers Road

Stopping Site Distance Obstructions



1. Northbound direction, looking left, building
2. Northbound direction, looking right, building
3. Southbound direction, looking left, equipment
4. Southbound direction, looking right, building

Stopped Sight Line Obstructions

<p>1</p> <p>Not Applicable</p>	<p>2</p> <p>Not Applicable</p>
<p>3</p> 	<p>4</p> 

1. N/A
2. N/A
3. Southbound direction, looking left, vegetation
4. Southbound direction, looking right, vegetation

Appendix D
Grade Crossing Prioritization Lists

TCID	Street	Subdivision	Railroad	MP	Warning	Stopped	Score	Approach		Total Gradient	Crossing	Score	Geometric Score
					System	Gradient		Gradient	Score	Score	Angle		
14922	Rue Notre Dame	Sprague	CN	2.56	SRCS	2	2	1	1	3	72	0	6
47539	Pedestrian	Rivers	CN	0.32	SRCS	2	2	1	0	2	120	1	6
48946	Manitoba Avenue	Winnipeg Beach	CP	0.6	SRCS	2	2	0	0	2	113	1	6
23422	Manhattan Avenue	Keewatin	CP	123.71	FLBG	2	2	1	1	3	150	0	6
48952	Enniskillen Avenue	Winnipeg Beach	CP	2.11	SRCS	2	2	0	0	2	115	1	6
50061	Pedestrian	Keewatin	CP	123.1	SRCS	2	2	1	0	2	137	1	6
11435	Ross Avenue West	Oak Point Spur	CN	5.1	SRCS	2	2	0	0	2	67	1	6
30983	Pritchard Avenue	Winnipeg Beach	CP	0.56	RCS and Stc	2	2	0	0	2	117	1	6
48949	Penninghame Street	Winnipeg Beach	CP	1.2	SRCS	2	2	0	0	2	44	1	6
48950	Lansdowne Avenue	Winnipeg Beach	CP	1.79	SRCS	2	2	1	0	2	110	0	4
48948	Boyd Avenue	Winnipeg Beach	CP	0.96	SRCS	2	2	0	0	2	108	0	4
48951	McAdam Avenue	Winnipeg Beach	CP	1.93	SRCS	2	2	0	0	2	110	0	4
23423	Talbot Avenue	Keewatin	CP	123.92	FLBG	1	1	0	0	1	151	1	4
30982	Selkirk Avenue	Winnipeg Beach	CP	0.5	FLB	2	2	0	0	2	117	0	4
21513	McTavish Street	Emerson	CP	0.55	SRCS	1	1	0	0	1	30	1	4
30995	Inkster Boulevard	Winnipeg Beach	CP	1.72	FLB	2	2	0	0	2	110	0	4
21522	Elizabeth Road	Emerson	CP	2.34	FLBG	2	2	0	0	2	73	0	4
23421	Munroe Avenue	Keewatin	CP	122.86	FLBG	2	2	0	0	2	138	0	4
21529	Creek Bend Road	Emerson	CP	6.28	RCS and Stc	2	2	0	0	2	99	0	4
13119	Elmhurst Road	Rivers	CN	7.46	FLBG	2	2	0	0	2	76	0	4
23418	Peguis Street	Keewatin	CP	121.8	FLBG	2	2	0	0	2	75	0	4
30989	Mountain Avenue	Winnipeg Beach	CP	1.09	FLB	2	2	0	0	2	110	0	4
14917	Marion Street	Sprague	CN	0.92	FLBG	2	2	0	0	2	34	0	4
24216	Corydon Avenue	La Riviere	CP	4.12	FLBG	2	2	0	0	2	91	0	4
24217	Grant Avenue	La Riviere	CP	4.6	FLBG	2	2	0	0	2	89	0	4
PED2	Waverley Street Pedestrian	La Riviere	CP	3.05	SRCS	2	2	2	0	2	90	0	4
22283	Highwood Street	Glenboro	CP	4.88	SRCS	2	2	0	0	2	88	0	4
30984	Magnus Avenue	Winnipeg Beach	CP	0.68	RCS and Stc	2	2	0	0	2	110	0	4
30996	Carruthers Avenue	Winnipeg Beach	CP	1.83	RCS and Stc	2	2	0	0	2	110	0	4
8758	Parker Avenue	Letellier	CN	0.18	FLB	2	2	0	0	2	122	0	4
13105	Parker Avenue	Rivers	CN	0.14	FLB	2	2	0	0	2	70	0	4
21528	John Bruce Pedestrian	Emerson	CP	5.2	FLB	2	2	0	0	2	81	0	4
30985	Burrows Avenue	Winnipeg Beach	CP	0.73	FLB	2	2	0	0	2	109	0	4
405169	Pedestrian	Letellier	CN	0.93	FLB	2	2	0	0	2	122	0	4
13120	Fairmont Road	Rivers	CN	8.26	FLBG	2	2	0	0	2	88	0	4
13121	Harstone Road	Rivers	CN	8.8	FLBG	2	2	0	0	2	85	0	4
13122	Community Row	Rivers	CN	9.31	FLBG	2	2	0	0	2	85	0	4
13124	Charleswood Road	Rivers	CN	9.78	FLBG	2	2	0	0	2	86	0	4
14906	Dawson Road North	Sprague	CN	0.09	SRCS	0	0	0	0	0	47	1	2
14912	Marion Street	Sprague	CN	0.33	SRCS	1	1	0	0	1	92	0	2
14913	Turenne Street	Sprague	CN	0.46	SRCS	1	1	0	0	1	90	0	2
21516	Plinguet Street	Emerson	CP	0.44	SRCS	1	1	0	0	1	90	0	2

TCID	Street	Subdivision	Railroad	MP	Warning	Stopped	Approach		Total Gradient	Crossing	Score	Geometric Score	
					System	Gradient	Score	Gradient	Score	Score			Angle
20135	Higgins Avenue	Carberry	CP	0.36	SRCS	0	0	0	0	0	31	1	2
18455	Plymouth Street	Arborg	CP	0.18	SRCS	0	0	0	0	0	115	1	2
48919	Spruce Street	La Riviere	CP	1.29	SRCS	0	0	0	0	0	128	1	2
48920	Valour Road	La Riviere	CP	1.34	SRCS	0	0	0	0	0	130	1	2
48947	Alfred Avenue	Winnipeg Beach	CP	0.75	SRCS	1	1	0	0	1	107	0	2
725040	Trinity Street	La Riviere	CP	0.16	SRCS	0	0	0	0	0	45	1	2
725041	Pacific Avenue	La Riviere	CP	0.4	SRCS	0	0	0	0	0	137	1	2
11437	Alexander Avenue	Oak Point Spur	CN	5.23	RCS and Stc	0	0	0	0	0	66	1	2
21523	Cottonwood Road	Emerson	CP	3.18	FLBG	1	1	0	0	1	93	0	2
48923	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	0	0	0	0	0	154	1	2
11433	William Avenue West	Oak Point Spur	CN	4.98	SRCS	0	0	0	0	0	67	1	2
20147	Clifton Street	La Riviere	CP	1.2	SRCS	0	0	0	0	0	67	1	2
24205	Midland Street	La Riviere	CP	0.04	SRCS	0	0	0	0	0	60	1	2
34767	Murray Park Road	Glenboro	CP	0.92	SRCS	0	0	0	0	0	67	1	2
48925	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	0	0	0	0	0	137	1	2
48132	Camiel Sys St	Sprague	CN	0.93	RCS and Stc	1	1	0	0	1	90	0	2
30993	Atlantic Avenue	Winnipeg Beach	CP	1.58	SRCS	1	1	0	0	1	108	0	2
8777	Ducharme Avenue	Letellier	CN	5.98	FLB	1	1	0	0	1	94	0	2
30986	Aberdeen Avenue	Winnipeg Beach	CP	0.84	FLB	1	1	0	0	1	108	0	2
35007	Grandmont Boulevard	Letellier	CN	5.75	FLB	1	1	0	0	1	98	0	2
35050	Bournais Drive	Redditt	CN	247.42	FLBG	1	1	0	0	1	91	0	2
35534	Panet Road	Keewatin	CP	122.6	FLBG	1	1	0	0	1	53	0	2
14921	Provencher Boulevard	Sprague	CN	2.42	FLBG	1	1	0	0	1	77	0	2
8767	Chevrier Boulevard	Letellier	CN	1.65	FLB	1	1	0	0	1	123	0	2
725016	Sargent Avenue	La Riviere	CP	0.77	FLB	1	1	0	0	1	90	0	2
405113	Pedestrian	Emerson	CP	3.42	FLB	1	1	0	0	1	73	0	2
405112	Pedestrian	Emerson	CP	4.56	FLB	1	1	0	0	1	83	0	2
34049	Perreault Avenue	Letellier	CN	7.34	RCS and Stc	1	1	0	0	1	93	0	2
22282	Summit Road	Glenboro	CP	4.57	FLB	1	1	0	0	1	83	0	2
48931	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	0	0	0	0	0	156	1	2
20143	Logan Avenue	La Riviere	CP	0.24	FLB	1	1	0	0	1	135	0	2
20164	St. James Street	La Riviere	CP	0.64	FLB	1	1	0	0	1	79	0	2
21512	Mission Street	Emerson	CP	0.3	FLB	1	1	0	0	1	82	0	2
24198	Logan Avenue	La Riviere	CP	0.33	FLB	1	1	0	0	1	106	0	2
24218	Taylor Avenue	La Riviere	CP	5.11	FLB	1	1	0	0	1	90	0	2
21521	Marion Street	Emerson	CP	1.55	FLBG	1	1	0	0	1	70	0	2
24207	Ellice Avenue	La Riviere	CP	2.1	FLBG	1	1	0	0	1	91	0	2
11434	Elgin Avenue West	Oak Point Spur	CN	5.04	SRCS	0	0	0	0	0	69	1	2
11436	Pacific Avenue West	Oak Point Spur	CN	5.16	SRCS	0	0	0	0	0	67	1	2
8759	Byng Place	Letellier	CN	0.38	FLB	1	1	0	0	1	120	0	2
30998	Hartford Avenue	Winnipeg Beach	CP	2.42	FLB	1	1	0	0	1	111	0	2
23424	Grey Street	Keewatin	CP	124.02	FLBG	1	1	0	0	1	60	0	2

TCID	Street	Subdivision	Railroad	MP	Warning	Stopped	Score	Approach	Score	Total Gradient	Crossing	Score	Geometric Score
					System	Gradient		Gradient		Score	Angle		
PED1	Riddle Avenue Pedestrian	La Riviere	CP	2.65	SRCS	1	1	1	0	1	90	0	2
11432	Bannatyne Avenue West	Oak Point Spur	CN	4.94	SRCS	0	0	0	0	0	68	1	2
8779	Father Labonté Avenue	Letellier	CN	7.12	RCS and Stc	1	1	0	0	1	94	0	2
24225	Brady Road	La Riviere	CP	8.57	SRCS	0	0	0	0	0	65	1	2
34768	Saskatchewan Avenue	Glenboro	CP	0.4	SRCS	0	0	0	0	0	35	1	2
36100	Minerva Avenue	Letellier	CN	7.8	RCS and Stc	1	1	0	0	1	94	0	2
48938	Pritchard Avenue	Arborg	CP	1.04	SRCS	0	0	0	0	0	50	1	2
8762	Waterford Avenue	Letellier	CN	0.69	FLB	1	1	0	0	1	119	0	2
8763	Southwood Avenue	Letellier	CN	0.78	FLB	1	1	0	0	1	120	0	2
8775	Devos Road	Letellier	CN	5.3	FLB	1	1	0	0	1	115	0	2
23679	Molson Street	Keewatin	CP	2.49	FLB	1	1	0	0	1	75	0	2
24203	Lincoln Avenue	La Riviere	CP	0.67	FLB	1	1	0	0	1	87	0	2
30992	Bannerman Avenue	Winnipeg Beach	CP	1.52	FLB	1	1	0	0	1	111	0	2
30999	Kingsbury Avenue	Winnipeg Beach	CP	2.7	FLB	1	1	0	0	1	110	0	2
31004	Murray Avenue	Winnipeg Beach	CP	4.08	FLB	1	1	0	0	1	101	0	2
36348	North-South Royal Salinger Road	Emerson	CP	3.62	FLB	1	1	0	0	1	99	0	2
23412	Redonda Street	Keewatin	CP	118.69	FLBG	1	1	0	0	1	75	0	2
23420	Callsbeck Avenue	Keewatin	CP	122.51	FLBG	1	1	0	0	1	143	0	2
24214	Kingsway	La Riviere	CP	3.65	FLBG	1	1	0	0	1	90	0	2
42350	Fleetwood Road	La Riviere	CP	7.96	FLBG	1	1	0	0	1	89	0	2

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Score	Cross-Product	Score	Stopped Gradient	Score	Approach Gradient	Score	Gradient Score	Low Ground	Score	Crossing Angle	Score	Route Type	Score	Assistive Device	Score	Priority
14906	Dawson Road North	Sprague	CN	0.09	SRCS	4	4	171780	3	0	0	0	0	0	0	0	47	1	Truck	2	0	0	6
14912	Marion Street	Sprague	CN	0.33	SRCS	4	4	83584	3	1	1	0	0	1	0	0	92	0	Truck	2	0	0	6
14922	Rue Notre Dame	Sprague	CN	2.56	SRCS	3	3	1096	0	2	2	1	1	3	2	2	72	0	Car	1	0	0	5
47539	Pedestrian	Rivers	CN	0.32	SRCS	4	4	0	0	2	2	1	0	2	1	0	120	1	Ped	1	0	0	5
48946	Manitoba Avenue	Winnipeg Beach	CP	0.6	SRCS	4	4	0	0	2	2	0	0	2	0	0	113	1	Ped	1	0	0	5
14913	Turenne Street	Sprague	CN	0.46	SRCS	4	4	5720	2	1	1	0	0	1	1	1	90	0	Car	1	0	0	5
21516	Plinguet Street	Emerson	CP	0.44	SRCS	4	4	9510	2	1	1	0	0	1	0	0	90	0	Truck	2	0	0	5
14916	Panet Road	Sprague	CN	0.74	SRCS	4	4	128800	3	0	0	0	0	0	0	0	93	0	Truck	2	0	0	5
35777	Lowson Crescent	Rivers	CN	0.17	SRCS	4	4	2002	2	0	0	0	0	0	0	0	88	0	Bus	3	0	0	5
49746	Chevrier Boulevard	Letellier	CN	1.08	SRCS	4	4	20799	2	0	0	0	0	0	0	0	95	0	Truck	2	0	0	5
23422	Manhattan Avenue	Keewatin	CP	123.71	FLBG	0	0	19476	0	2	2	1	1	3	2	2	150	0	Car	1	0	0	4
48952	Enniskillen Avenue	Winnipeg Beach	CP	2.11	SRCS	2	2	0	0	2	2	0	0	2	1	0	115	1	Ped	1	1	1	4
50061	Pedestrian	Keewatin	CP	123.1	SRCS	2	2	0	0	2	2	1	0	2	1	0	137	1	Ped	1	0	0	4
48950	Lansdowne Avenue	Winnipeg Beach	CP	1.79	SRCS	4	4	0	0	2	2	1	0	2	0	0	110	0	Ped	1	0	0	4
48948	Boyd Avenue	Winnipeg Beach	CP	0.96	SRCS	4	4	0	0	2	2	0	0	2	0	0	108	0	Ped	1	0	0	4
48951	McAdam Avenue	Winnipeg Beach	CP	1.93	SRCS	4	4	0	0	2	2	0	0	2	0	0	110	0	Ped	1	0	0	4
23423	Talbot Avenue	Keewatin	CP	123.92	FLBG	0	0	82428	0	1	1	0	0	1	0	0	151	1	Bus	3	1	1	4
20135	Higgins Avenue	Carberry	CP	0.36	SRCS	4	4	0	0	0	0	0	0	0	0	0	31	1	Car	1	1	1	4
18455	Plymouth Street	Arborg	CP	0.18	SRCS	4	4	0	0	0	0	0	0	0	0	0	115	1	Car	1	0	0	4
48919	Spruce Street	La Riviere	CP	1.29	SRCS	4	4	0	0	0	0	0	0	0	0	0	128	1	Car	1	0	0	4
48920	Valour Road	La Riviere	CP	1.34	SRCS	4	4	0	0	0	0	0	0	0	0	0	130	1	Car	1	0	0	4
48947	Alfred Avenue	Winnipeg Beach	CP	0.75	SRCS	4	4	0	0	1	1	0	0	1	0	0	107	0	Ped	1	0	0	4
725040	Trinity Street	La Riviere	CP	0.16	SRCS	4	4	0	0	0	0	0	0	0	0	0	45	1	Car	1	0	0	4
725041	Pacific Avenue	La Riviere	CP	0.4	SRCS	4	4	0	0	0	0	0	0	0	0	0	137	1	Car	1	0	0	4
8769	Hamelin Street	Letellier	CN	0.65	SRCS	4	4	2986	2	0	0	0	0	0	0	0	89	0	Car	1	0	0	4
11431	Notre Dame Avenue	Oak Point Spur	CN	4.84	FLB	4	4	50283	1	0	0	0	0	0	0	0	95	0	Car	1	0	0	4
18452	None	Arborg	CP	1.1	SRCS	4	4	0	0	0	0	0	0	0	0	0	87	0	Bus	3	0	0	4
18457	Church Avenue	Arborg	CP	0.11	SRCS	4	4	0	0	0	0	0	0	0	0	0	100	0	Bus	3	0	0	4
18458	Church Avenue	Arborg	CP	0.12	SRCS	4	4	0	0	0	0	0	0	0	0	0	102	0	Bus	3	0	0	4
20142	Dublin Avenue	La Riviere	CP	0.44	SRCS	4	4	0	0	0	0	0	0	0	0	0	90	0	Bus	3	0	0	4
34889	Church Avenue	Arborg	CP	0.46	SRCS	4	4	0	0	0	0	0	0	0	0	0	88	0	Bus	3	0	0	4
36726	Saulteaux Crescent	Glenboro	CP	0.35	SRCS	4	4	0	0	0	0	0	0	0	0	0	90	0	Bus	3	0	0	4
18454	Inkster Boulevard	Arborg	CP	0.49	SRCS	4	4	0	0	0	0	0	0	0	0	0	91	0	Truck	2	0	0	4
18461	Hutchings Street	Arborg	CP	0.2	SRCS	4	4	0	0	0	0	0	0	0	0	0	91	0	Truck	2	0	0	4
35324	Mountain Avenue	Arborg	CP	0.25	SRCS	4	4	0	0	0	0	0	0	0	0	0	88	0	Truck	2	0	0	4
18460	Church Avenue	Arborg	CP	0.12	SRCS	3	3	0	0	0	0	0	0	0	0	0	91	0	Bus	3	0	0	4
34894	Saulteaux Crescent	Glenboro	CP	0.1	SRCS	3	3	0	0	0	0	0	0	0	0	0	80	0	Bus	3	0	0	4
35323	Church Avenue	Arborg	CP	0.12	SRCS	3	3	0	0	0	0	0	0	0	0	0	106	0	Bus	3	0	0	4
20179	St. Matthews Avenue	La Riviere	CP	1.25	SRCS	4	4	0	0	0	0	0	0	0	0	0	90	0	Car	1	1	1	4
11435	Ross Avenue West	Oak Point Spur	CN	5.1	SRCS	0	0	819	0	2	2	0	0	2	0	0	67	1	Car	1	1	1	3
30982	Selkirk Avenue	Winnipeg Beach	CP	0.5	FLB	0	0	0	0	2	2	0	0	2	1	1	117	0	Truck	2	0	0	3
21513	McTavish Street	Emerson	CP	0.55	SRCS	2	2	0	0	1	1	0	0	1	0	0	30	1	Car	1	0	0	3
30995	Inkster Boulevard	Winnipeg Beach	CP	1.72	FLB	0	0	0	0	2	2	0	0	2	0	0	110	0	Bus	3	0	0	3
21522	Elizabeth Road	Emerson	CP	2.34	FLBG	0	0	62004	0	2	2	0	0	2	0	0	73	0	Bus	3	0	0	3
23421	Munroe Avenue	Keewatin	CP	122.86	FLBG	0	0	138000	0	2	2	0	0	2	0	0	138	0	Bus	3	0	0	3
11437	Alexander Avenue	Oak Point Spur	CN	5.23	CS and Stc	0	0	2832	2	0	0	0	0	0	0	0	66	1	Car	1	1	1	3
21523	Cottonwood Road	Emerson	CP	3.18	FLBG	0	0	29392	0	1	1	0	0	1	1	1	93	0	Bus	3	0	0	3
48923	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	2	2	0	0	0	0	0	0	0	0	0	154	1	Truck	2	0	0	3
18451	Selkirk Avenue	Arborg	CP	0.98	SRCS	4	4	0	0	0	0	0	0	0	0	0	80	0	Car	1	0	0	3
34896	Moray Street	Glenboro	CP	0.2	SRCS	3	3	0	0	0	0	0	0	0	0	0	90	0	Truck	2	0	0	3
36828	Softley Road	Sprague	CN	0.19	SRCS	4	4	47	0	0	0	0	0	0	0	0	92	0	Car	1	0	0	3
725042	Richard Avenue	La Riviere	CP	0.31	SRCS	4	4	0	0	0	0	0	0	0	0	0	90	0	Car	1	0	0	3
30983	Pritchard Avenue	Winnipeg Beach	CP	0.56	CS and Stc	0	0	0	0	2	2	0	0	2	0	0	117	1	Car	1	0	0	2
48949	Penninghame Street	Winnipeg Beach	CP	1.2	SRCS	0	0	0	0	2	2	0	0	2	0	0	44	1	Ped	1	0	0	2
21529	Creek Bend Road	Emerson	CP	6.28	CS and Stc	0	0	188	0	2	2	0	0	2	1	1	99	0	Car	1	0	0	2
13119	Elmhurst Road	Rivers	CN	7.46	FLBG	0	0	149699	0	2	2	0	0	2	1	1	76	0	Car	1	0	0	2
23418	Peguis Street	Keewatin	CP	121.8	FLBG	0	0	39840	0	2	2	0	0	2	1	1	75	0	Car	1	0	0	2
30989	Mountain Avenue	Winnipeg Beach	CP	1.09	FLB	0	0	0	0	2	2	0	0	2	0	0	110	0	Truck	2	0	0	2
14917	Marion Street	Sprague	CN	0.92	FLBG	0	0	109228	0	2	2	0	0	2	0	0	34	0	Truck	2	0	0	2
24216	Corydon Avenue	La Riviere	CP	4.12	FLBG	0	0	0	0	2	2	0	0	2	0	0	91	0	Truck	2	0	0	2
24217	Grant Avenue	La Riviere	CP	4.6	FLBG	0	0	0	0	2	2	0	0	2	0	0	89	0	Truck	2	0	0	2
PED2	Waverley Street Pedestrian	La Riviere	CP	3.05	SRCS	0	0	0	0	2	2	2	0	2	2	0	90	0	Ped	1	0	0	2
22283	Highwood Street	Glenboro	CP	4.88	SRCS	0	0	0	0	2	2	0	0	2	0	0	88	0	Car	1	0	0	2
30984	Magnus Avenue	Winnipeg Beach	CP	0.68	CS and Stc	0	0	0	0	2	2	0	0	2	0	0	110	0	Car	1	0	0	2

TCID	Street	Subdivision	Railroad	MP	Warning		Sightlines		Cross-Product		Stopped		Approach		Gradient		Low Ground		Crossing		Route		Assistive		Priority
					System	Obstructed	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Angle	Score	Type	Score	Device	Score			
30996	Carruthers Avenue	Winnipeg Beach	CP	1.83	RCS and Stc	0	0	0	0	2	2	0	0	2	0	0	0	110	0	Car	1	0	0	2	
8758	Parker Avenue	Letellier	CN	0.18	FLB	0	0	0	0	2	2	0	0	2	0	0	0	122	0	Ped	1	0	0	2	
13105	Parker Avenue	Rivers	CN	0.14	FLB	0	0	141	0	2	2	0	0	2	0	0	0	70	0	Car	1	0	0	2	
21528	John Bruce Pedestrian	Emerson	CP	5.2	FLB	0	0	0	0	2	2	0	0	2	0	0	0	81	0	Ped	1	0	0	2	
30985	Burrows Avenue	Winnipeg Beach	CP	0.73	FLB	0	0	0	0	2	2	0	0	2	0	0	0	109	0	Car	1	0	0	2	
405169	Pedestrian	Letellier	CN	0.93	FLB	0	0	0	0	2	2	0	0	2	0	0	0	122	0	Ped	1	0	0	2	
13120	Fairmont Road	Rivers	CN	8.26	FLBG	0	0	42222	0	2	2	0	0	2	0	0	0	88	0	Car	1	0	0	2	
13121	Harstone Road	Rivers	CN	8.8	FLBG	0	0	11942	0	2	2	0	0	2	0	0	0	85	0	Car	1	0	0	2	
13122	Community Row	Rivers	CN	9.31	FLBG	0	0	32426	0	2	2	0	0	2	0	0	0	85	0	Car	1	0	0	2	
13124	Charleswood Road	Rivers	CN	9.78	FLBG	0	0	55180	0	2	2	0	0	2	0	0	0	86	0	Car	1	0	0	2	
11433	William Avenue West	Oak Point Spur	CN	4.98	SRCS	0	0	2520	2	0	0	0	0	0	0	0	0	67	1	Car	1	0	0	2	
20147	Clifton Street	La Riviere	CP	1.2	SRCS	2	2	0	0	0	0	0	0	0	0	0	0	67	1	Car	1	0	0	2	
24205	Midland Street	La Riviere	CP	0.04	SRCS	1	1	0	0	0	0	0	0	0	0	0	0	60	1	Truck	2	0	0	2	
34767	Murray Park Road	Glenboro	CP	0.92	SRCS	1	1	0	0	0	0	0	0	0	0	0	0	67	1	Truck	2	0	0	2	
48925	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	1	1	0	0	0	0	0	0	0	0	0	0	137	1	Truck	2	0	0	2	
48132	Camiel Sys St	Sprague	CN	0.93	RCS and Stc	0	0	1765	0	1	1	0	0	1	0	0	0	90	0	Bus	3	0	0	2	
30993	Atlantic Avenue	Winnipeg Beach	CP	1.58	SRCS	0	0	0	0	1	1	0	0	1	0	0	0	108	0	Bus	3	0	0	2	
8777	Ducharme Avenue	Letellier	CN	5.98	FLB	0	0	11166	0	1	1	0	0	1	0	0	0	94	0	Bus	3	0	0	2	
30986	Aberdeen Avenue	Winnipeg Beach	CP	0.84	FLB	0	0	0	0	1	1	0	0	1	0	0	0	108	0	Bus	3	0	0	2	
35007	Grandmont Boulevard	Letellier	CN	5.75	FLB	0	0	14013	0	1	1	0	0	1	0	0	0	98	0	Bus	3	0	0	2	
35050	Bournais Drive	Redditt	CN	247.42	FLBG	0	0	227392	0	1	1	0	0	1	0	0	0	91	0	Bus	3	0	0	2	
35534	Panet Road	Keewatin	CP	122.6	FLBG	0	0	179616	0	1	1	0	0	1	0	0	0	53	0	Bus	3	0	0	2	
14921	Provencher Boulevard	Sprague	CN	2.42	FLBG	1	0	127968	0	1	1	0	0	1	0	0	0	77	0	Truck	2	1	1	2	
8767	Chevrier Boulevard	Letellier	CN	1.65	FLB	0	0	17835	0	1	1	0	0	1	0	0	0	123	0	Truck	2	1	1	2	
725016	Sargent Avenue	La Riviere	CP	0.77	FLB	0	0	0	0	1	1	0	0	1	0	0	0	90	0	Truck	2	1	1	2	
405113	Pedestrian	Emerson	CP	3.42	FLB	0	0	131336	1	1	1	0	0	1	1	0	0	73	0	Ped	1	0	0	2	
405112	Pedestrian	Emerson	CP	4.56	FLB	0	0	169384	1	1	1	0	0	1	0	0	0	83	0	Ped	1	0	0	2	
34049	Perreault Avenue	Letellier	CN	7.34	RCS and Stc	0	0	141	0	1	1	0	0	1	1	1	1	93	0	Car	1	0	0	2	
22282	Summit Road	Glenboro	CP	4.57	FLB	0	0	0	0	1	1	0	0	1	1	1	1	83	0	Car	1	0	0	2	
48931	Saskatchewan Avenue	La Riviere	CP	0.03	SRCS	1	1	0	0	0	0	0	0	0	0	0	0	156	1	Car	1	0	0	2	
20143	Logan Avenue	La Riviere	CP	0.24	FLB	0	0	0	0	1	1	0	0	1	0	0	0	135	0	Truck	2	0	0	2	
20164	St. James Street	La Riviere	CP	0.64	FLB	0	0	0	0	1	1	0	0	1	0	0	0	79	0	Truck	2	0	0	2	
21512	Mission Street	Emerson	CP	0.3	FLB	0	0	33174	0	1	1	0	0	1	0	0	0	82	0	Truck	2	0	0	2	
24198	Logan Avenue	La Riviere	CP	0.33	FLB	0	0	0	0	1	1	0	0	1	0	0	0	106	0	Truck	2	0	0	2	
24218	Taylor Avenue	La Riviere	CP	5.11	FLB	0	0	0	0	1	1	0	0	1	0	0	0	90	0	Truck	2	0	0	2	
21521	Marion Street	Emerson	CP	1.55	FLBG	0	0	214734	0	1	1	0	0	1	0	0	0	70	0	Truck	2	0	0	2	
24207	Ellice Avenue	La Riviere	CP	2.1	FLBG	0	0	0	0	1	1	0	0	1	0	0	0	91	0	Truck	2	0	0	2	
11434	Elgin Avenue West	Oak Point Spur	CN	5.04	SRCS	0	0	1284	0	0	0	0	0	0	0	0	0	69	1	Car	1	1	1	2	
11436	Pacific Avenue West	Oak Point Spur	CN	5.16	SRCS	0	0	1425	0	0	0	0	0	0	0	0	0	67	1	Car	1	1	1	2	
8759	Byng Place	Letellier	CN	0.38	FLB	0	0	1077	0	1	1	0	0	1	0	0	0	120	0	Car	1	1	1	2	
30998	Hartford Avenue	Winnipeg Beach	CP	2.42	FLB	0	0	0	0	1	1	0	0	1	0	0	0	111	0	Car	1	1	1	2	
23424	Grey Street	Keewatin	CP	124.02	FLBG	0	0	42840	0	1	1	0	0	1	0	0	0	60	0	Car	1	1	1	2	
18462	Sheppard Street	Arborg	CP	0.38	SRCS	3	3	0	0	0	0	0	0	0	0	0	0	87	0	Car	1	0	0	2	
8760	Windermere Avenue	Letellier	CN	0.45	FLB	0	0	9738	0	0	0	0	0	0	0	0	0	123	0	Bus	3	1	1	2	
21526	Willowlake Crescent	Emerson	CP	4.05	FLB	0	0	11504	0	0	0	0	0	0	0	0	0	91	0	Bus	3	1	1	2	
30997	Jefferson Avenue	Winnipeg Beach	CP	2.23	FLB	0	0	0	0	0	0	0	0	0	0	0	0	110	0	Bus	3	1	1	2	
34310	Beaverhill Boulevard	Emerson	CP	4.35	FLB	0	0	10088	0	0	0	0	0	0	0	0	0	89	0	Bus	3	1	1	2	
34388	Chancellor Drive	Letellier	CN	2.73	FLB	0	0	20940	0	0	0	0	0	0	0	0	0	119	0	Bus	3	1	1	2	
34916	Kirkbridge Drive	Letellier	CN	4.55	FLB	0	0	17544	0	0	0	0	0	0	0	0	0	127	0	Bus	3	1	1	2	
405158	Wellington Avenue	La Riviere	CP	0.54	FLB	0	0	0	0	0	0	0	0	0	0	0	0	91	0	Bus	3	1	1	2	
8773	Bison Drive	Letellier	CN	3.66	FLB	0	0	69402	1	0	0	0	0	0	0	0	0	90	0	Truck	2	0	0	2	
13114	Kenaston Boulevard	Rivers	CN	0.31	FLB	0	0	58520	1	0	0	0	0	0	0	0	0	89	0	Truck	2	0	0	2	
14911	Dawson Road North	Sprague	CN	0.31	FLB	0	0	224880	1	0	0	0	0	0	0	0	0	110	0	Truck	2	0	0	2	
21519	Plinguet Street	Emerson	CP	0.75	FLB	0	0	60978	1	0	0	0	0	0	0	0	0	90	0	Truck	2	0	0	2	
21524	Fermor Avenue	Emerson	CP	3.44	FLB	0	0	131336	1	0	0	0	0	0	0	0	0	73	0	Truck	2	0	0	2	
35213	Bishop Grandin Boulevard	Emerson	CP	4.54	FLB	0	0	169384	1	0	0	0	0	0	0	0	0	72	0	Truck	2	0	0	2	
30990	Church Avenue	Winnipeg Beach	CP	1.3	SRCS	2	2	0	0	0	0	0	0	0	0	0	0	110	0	Car	1	0	0	2	
8768	Chevrier Boulevard	Letellier	CN	0.4	FLB	1	1	6933	0	0	0	0	0	0	0	0	0	89	0	Truck	2	0	0	2	
21520	Messier Street	Emerson	CP	0.96	FLB	1	1	8916	0	0	0	0	0	0	0	0	0	91	0	Truck	2	0	0	2	
24204	Notre Dame Avenue	La Riviere	CP	0.88	FLB	1	1	0	0	0	0	0	0	0	0	0	0	89	0	Truck	2	0	0	2	
46057	McPhillips Street	La Riviere	CP	0.53	FLB	1	1	0	0	0	0	0	0	0	0	0	0	68	0	Truck	2	0	0	2	
18464	Sheppard Street	Arborg	CP	0.62	SRCS	0	0	0	0	0	0	0	0	0	0	0	0	91	0	Bus	3	0	0	2	
30991	Cathedral Avenue	Winnipeg Beach	CP	1.45	RCS and Stc	0	0	0	0	0	0	0	0	0	0	0	0	110	0	Bus	3	0	0	2	
8766	Clarence Avenue	Letellier	CN	1.33	FLB	0	0	10683	0	0	0	0	0	0	0	0	0	119	0	Bus	3	0	0	2	

TCID	Street	Subdivision	Railroad	MP	Warning System	Sightlines Obstructed	Score	Cross-Product	Score	Stopped Gradient	Score	Approach Gradient	Score	Gradient Score	Low Ground	Score	Crossing Angle	Score	Route Type	Score	Assistive Device	Score	Priority
8772	Markham Road	Letellier	CN	3.22	FLB	0	0	12951	0	0	0	0	0	0	0	0	120	0	Bus	3	0	0	2
8778	des Trappistes Rue	Letellier	CN	6.31	FLB	0	0	4026	0	0	0	0	0	0	0	0	94	0	Bus	3	0	0	2
18453	Burrows Avenue	Arborg	CP	1.23	FLB	0	0	0	0	0	0	0	0	0	0	0	53	0	Bus	3	0	0	2
18456	Church Avenue	Arborg	CP	1.94	FLB	0	0	0	0	0	0	0	0	0	0	0	78	0	Bus	3	0	0	2
24219	Wilkes Avenue	La Riviere	CP	5.32	FLB	0	0	0	0	0	0	0	0	0	0	0	104	0	Bus	3	0	0	2
31002	Templeton Avenue	Winnipeg Beach	CP	3.23	FLB	0	0	0	0	0	0	0	0	0	0	0	107	0	Bus	3	0	0	2
405122	Bairdmore Boulevard	Letellier	CN	4.13	FLB	0	0	18633	0	0	0	0	0	0	0	0	122	0	Bus	3	0	0	2
24215	Grosvenor Avenue	La Riviere	CP	3.89	FLBG	0	0	0	0	0	0	0	0	0	0	0	89	0	Bus	3	0	0	2
20105	Ellice Avenue	La Riviere	CP	1.01	FLB	0	0	0	0	0	0	0	0	0	0	0	90	0	Truck	2	1	1	2
31000	Partridge Avenue	Winnipeg Beach	CP	2.92	FLB	0	0	0	0	0	0	0	0	0	0	0	90	0	Truck	2	1	1	2
31001	Leila Avenue	Winnipeg Beach	CP	2.93	FLB	0	0	0	0	0	0	0	0	0	0	0	102	0	Truck	2	1	1	2
13111	Waverley Street	Rivers	CN	3.89	FLBG	0	0	930558	0	0	0	0	0	0	0	0	79	0	Truck	2	1	1	2
13118	Shaftesbury Boulevard	Rivers	CN	6.27	FLBG	0	0	340225	0	0	0	0	0	0	0	0	80	0	Truck	2	1	1	2
PED1	Riddle Avenue Pedestrian	La Riviere	CP	2.65	SRCS	0	0	0	0	1	1	1	0	1	0	0	90	0	Ped	1	0	0	1
11432	Bannatyne Avenue West	Oak Point Spur	CN	4.94	SRCS	0	0	1794	0	0	0	0	0	0	0	0	68	1	Car	1	0	0	1
8779	Father Labonté 1/2 Avenue	Letellier	CN	7.12	SRCS and Stc	0	0	141	0	1	1	0	0	1	0	0	94	0	Car	1	0	0	1
24225	Brady Road	La Riviere	CP	8.57	SRCS	0	0	0	0	0	0	0	0	0	0	0	65	1	Car	1	0	0	1
34768	Saskatchewan Avenue	Glenboro	CP	0.4	SRCS	0	0	0	0	0	0	0	0	0	0	0	35	1	Car	1	0	0	1
36100	Minerva Avenue	Letellier	CN	7.8	SRCS and Stc	0	0	141	0	1	1	0	0	1	0	0	94	0	Car	1	0	0	1
48938	Pritchard Avenue	Arborg	CP	1.04	SRCS	0	0	0	0	0	0	0	0	0	0	0	50	1	Ped	1	0	0	1
8762	Waterford Avenue	Letellier	CN	0.69	FLB	0	0	1209	0	1	1	0	0	1	0	0	119	0	Car	1	0	0	1
8763	Southwood Avenue	Letellier	CN	0.78	FLB	0	0	2121	0	1	1	0	0	1	0	0	120	0	Car	1	0	0	1
8775	Devos Road	Letellier	CN	5.3	FLB	0	0	141	0	1	1	0	0	1	0	0	115	0	Car	1	0	0	1
23679	Molson Street	Keewatin	CP	2.49	FLB	0	0	0	0	1	1	0	0	1	0	0	75	0	Car	1	0	0	1
24203	Lincoln Avenue	La Riviere	CP	0.67	FLB	0	0	0	0	1	1	0	0	1	0	0	87	0	Car	1	0	0	1
30992	Bannerman Avenue	Winnipeg Beach	CP	1.52	FLB	0	0	0	0	1	1	0	0	1	0	0	111	0	Car	1	0	0	1
30999	Kingsbury Avenue	Winnipeg Beach	CP	2.7	FLB	0	0	0	0	1	1	0	0	1	0	0	110	0	Car	1	0	0	1
31004	Murray Avenue	Winnipeg Beach	CP	4.08	FLB	0	0	0	0	1	1	0	0	1	0	0	101	0	Car	1	0	0	1
36348	North-South Royal Salinger Road	Emerson	CP	3.62	FLB	0	0	0	0	1	1	0	0	1	0	0	99	0	Ped	1	0	0	1
23412	Redonda Street	Keewatin	CP	118.69	FLBG	0	0	62128	0	1	1	0	0	1	0	0	75	0	Car	1	0	0	1
23420	Callsbeck Avenue	Keewatin	CP	122.51	FLBG	0	0	564	0	1	1	0	0	1	0	0	143	0	Car	1	0	0	1
24214	Kingsway	La Riviere	CP	3.65	FLBG	0	0	0	0	1	1	0	0	1	0	0	90	0	Car	1	0	0	1
42350	Fleetwood Road	La Riviere	CP	7.96	FLBG	0	0	0	0	1	1	0	0	1	0	0	89	0	Car	1	0	0	1
14908	Speers Road	Sprague	CN	0.11	FLB	1	1	49220	0	0	0	0	0	0	0	0	91	0	Car	1	0	0	1
24212	Wellington Crescent	La Riviere	CP	3.3	FLB	1	1	0	0	0	0	0	0	0	0	0	104	0	Car	1	0	0	1
24212	Wellington Crescent	La Riviere	CP	3.3	FLB	1	1	0	0	0	0	0	0	0	0	0	104	0	Car	1	0	0	1
14920	Archibald Street	Sprague	CN	1.83	FLBG	2	0	57200	0	0	0	0	0	0	0	0	102	0	Truck	2	0	0	1
23414	Gunn Road	Keewatin	CP	0.32	SRCS	0	0	0	0	0	0	0	0	0	0	0	91	0	Truck	2	0	0	1
18465	Instker Boulevard	Arborg	CP	2.27	FLB	0	0	0	0	0	0	0	0	0	0	0	78	0	Truck	2	0	0	1
20156	Erin Street	La Riviere	CP	1.15	FLB	0	0	0	0	0	0	0	0	0	0	0	70	0	Truck	2	0	0	1
20174	King Edward Street	La Riviere	CP	0.95	FLB	0	0	0	0	0	0	0	0	0	0	0	80	0	Truck	2	0	0	1
20177	Notre Dame Avenue	La Riviere	CP	1.25	FLB	0	0	0	0	0	0	0	0	0	0	0	132	0	Truck	2	0	0	1
22279	Sturgeon Road	Glenboro	CP	3.28	FLB	0	0	0	0	0	0	0	0	0	0	0	81	0	Truck	2	0	0	1
24213	Academy Road	La Riviere	CP	3.43	FLB	0	0	0	0	0	0	0	0	0	0	0	90	0	Truck	2	0	0	1
24221	McGillivray Boulevard	La Riviere	CP	7.45	FLB	0	0	0	0	0	0	0	0	0	0	0	136	0	Truck	2	0	0	1
46027	Century Street	La Riviere	CP	0.76	FLB	0	0	0	0	0	0	0	0	0	0	0	112	0	Truck	2	0	0	1
405157	Lagimodiere Boulevard	Keewatin	CP	2.47	FLB	0	0	0	0	0	0	0	0	0	0	0	75	0	Truck	2	0	0	1
8764	McGillivray Boulevard	Letellier	CN	0.89	FLBG	0	0	73554	0	0	0	0	0	0	0	0	108	0	Truck	2	0	0	1
12705	Ravenhurst Street	Redditt	CN	244.07	FLBG	0	0	176320	0	0	0	0	0	0	0	0	94	0	Truck	2	0	0	1
24206	Sargent Avenue	La Riviere	CP	1.81	FLBG	0	0	0	0	0	0	0	0	0	0	0	91	0	Truck	2	0	0	1
24220	Kenaston Boulevard	Rivers	CN	1.58	FLBG	0	0	58520	0	0	0	0	0	0	0	0	60	0	Truck	2	0	0	1
30981	McPhillips Street	Winnipeg Beach	CP	0.32	FLBG	0	0	0	0	0	0	0	0	0	0	0	50	0	Truck	2	0	0	1
34938	Panet Street	Redditt	CN	249.04	FLBG	0	0	135440	0	0	0	0	0	0	0	0	57	0	Truck	2	0	0	1
48374	Sterling Lyon Parkway	Rivers	CN	0.49	FLBG	0	0	14437	0	0	0	0	0	0	0	0	106	0	Truck	2	0	0	1
725036	Sterling Lyon Parkway	La Riviere	CP	5.62	FLBG	0	0	0	0	0	0	0	0	0	0	0	107	0	Truck	2	0	0	1
405125	McGregor Street	Winnipeg Beach	CP	3.05	FLB	0	0	0	0	0	0	0	0	0	0	0	33	0	Car	1	1	1	1
20192	Brookside Boulevard	Carberry	CP	4.74	FLBG	2	0	29220	0	0	0	0	0	0	0	0	112	0	Car	1	0	0	1
24209	St. Matthews Avenue	La Riviere	CP	2.3	FLBG	1	0	0	0	0	0	0	0	0	0	0	90	0	Car	1	0	0	1
18469	Mollard Road	Arborg	CP	4.37	SRCS	0	0	0	0	0	0	0	0	0	0	0	76	0	Car	1	0	0	1
22278	Four Mile Road	Glenboro	CP	0.93	SRCS	0	0	0	0	0	0	0	0	0	0	0	88	0	Car	1	0	0	1
30988	College Avenue	Winnipeg Beach	CP	1.02	SRCS and Stc	0	0	0	0	0	0	0	0	0	0	0	108	0	Car	1	0	0	1
30994	Polson Avenue	Winnipeg Beach	CP	1.63	SRCS	0	0	0	0	0	0	0	0	0	0	0	110	0	Car	1	0	0	1
31005	Fernbank Avenue	Winnipeg Beach	CP	4.78	SRCS	0	0	0	0	0	0	0	0	0	0	0	101	0	Ped	1	0	0	1
36461	Jefferson Avenue	Arborg	CP	3.4	SRCS	0	0	0	0	0	0	0	0	0	0	0	79	0	Car	1	0	0	1

TCID	Street	Subdivision	Railroad	MP	Warning	Sightlines	Score	Cross-	Stopped		Approach		Gradient	Low	Score	Crossing	Score	Route	Assistive			Priority
					System	Obstructed		Product	Score	Score	Score	Score	Score	Angle		Type		Score	Device	Score		
8761	Rockman Street	Letellier	CN	0.55	FLB	0	0	2982	0	0	0	0	0	0	0	87	0	Car	1	0	0	1
8765	Waller Avenue	Letellier	CN	1.07	FLB	0	0	2601	0	0	0	0	0	0	0	117	0	Car	1	0	0	1
11426	Dublin Avenue	Oak Point Spur	CN	4.5	FLB	0	0	45588	0	0	0	0	0	0	0	90	0	Car	1	0	0	1
11438	Logan Avenue	Oak Point Spur	CN	5.28	FLB	0	0	36888	0	0	0	0	0	0	0	67	0	Car	1	0	0	1
13113	Wilkes Avenue	Rivers	CN	0.18	FLB	0	0	228	0	0	0	0	0	0	0	99	0	Car	1	0	0	1
21525	Meadowbrook Road	Emerson	CP	3.72	FLB	0	0	4452	0	0	0	0	0	0	0	81	0	Car	1	0	0	1
21531	Prairie Grove Road	Emerson	CP	7.67	FLB	0	0	4356	0	0	0	0	0	0	0	81	0	Car	1	0	0	1
24199	Alexander Avenue	La Riviere	CP	0.39	FLB	0	0	0	0	0	0	0	0	0	0	97	0	Car	1	0	0	1
30987	Redwood Avenue	Winnipeg Beach	CP	0.91	FLB	0	0	0	0	0	0	0	0	0	0	108	0	Car	1	0	0	1
35464	Bairdmore Boulevard	Letellier	CN	5.12	FLB	0	0	12858	0	0	0	0	0	0	0	120	0	Car	1	0	0	1
46026	Border Street	La Riviere	CP	0.75	FLB	0	0	0	0	0	0	0	0	0	0	61	0	Car	1	0	0	1
48121	Pedestrian	Keewatin	CP	122.62	FLB	0	0	0	0	0	0	0	0	0	0	53	0	Ped	1	0	0	1
725035	Adsum Road	Arborg	CP	2.94	FLB	0	0	0	0	0	0	0	0	0	0	76	0	Ped	1	0	0	1
23415	Day Street	Keewatin	CP	119.74	FLBG	0	0	62136	0	0	0	0	0	0	0	72	0	Car	1	0	0	1
23417	Plessis Road	Keewatin	CP	120.8	FLBG	0	0	147144	0	0	0	0	0	0	0	77	0	Car	1	0	0	1