

Summary Details of City Funded Improvements

Immediate Action

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
Interconnected Traffic Signals	Provide UPS Battery Backup	6	100%	0%	\$ 336,695	Convert to traffic control cabinets with UPS batteries and management systems.
Queue	Traffic Study	5	100%	0%	\$ 5,000	Conduct traffic operation studies to examine the underlying causal factors that are contributing to the queue at the crossing, in order to determine solutions to address this issue.
Sight Distances	Enforcement	23	100%	0%	\$ 11,000	According to Section 25 of the Grade Crossings Regulations, “a person must not place on land adjoining the land on which a line of railway is situated, anything that will obstruct the sightlines”. Therefore, the City should request the land owners to remove the dumpster and remove or lower the fence to clear the sightlines.
Warning System Visibility	Seasonal Maintenance	26	100%	0%	\$ 4,050	On the north approach, maintain the trees to clear the view to the Railway Crossing Ahead warning sign.
Warning System Visibility	Enforcement	3	100%	0%	\$ 1,250	On the south approach, prohibit the parking in the south west corner of the property.
Sign	various	39	100%	0%	\$ 11,500	On the south approach (at driver’s right), trim the tree branches and relocate the no parking/standing signs to clear the view to the light unit.
		102	100%		\$ 369,495	

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
Sight Distances	Coordinate with the railway company	29	50%	50%	\$ 57,500	According to Transport Canada guide for determining minimum sightlines at grade crossings[1], for a public grade crossing being operated under Manual Protection (where the road users are stopped by a flag person and the railway equipment must Stop and Proceed at the crossing), sightline requirements are only limited to visibility of the grade crossing within the Stopping Sight Distance (SSD). Therefore, the railway company is required to confirm the train procedure at the subject crossing.
Sight Distances	Seasonal Maintenance	44	50%	50%	\$ 6,600	On the north and south approaches, trim the vegetation back to a minimum distance of 215 m to provide a clear sightline to the oncoming train.
Switching Activity	Coordinate with the railway company	5	50%	50%	\$ 125,000	The obstruction of this grade crossing creates a safety concern. The railway company and the road authority should collaborate to resolve the safety concern.
Train Whistle	Coordinate with railway company	1	50%	50%	\$ 7,500	Coordinate with CP to whistle the train at the crossing.
Trespassing	Enforcement / Education	8	50%	50%	\$ 4,000	Trespassing on railway property is a serious problem that not only endangers the trespasser, but also the traveling public, railway property, adjoining property, and railway personnel. Discouraging trespassing requires an intense effort to mitigate potential opportunities and requires close cooperation between the railway and the road authority.

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
		87	50%	50%	\$ 200,600	
	Total	189			\$ 570,095	

For Action by November 2021

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
Hazard	Fixed object	1	100%	0%	\$ 1,000	Remove the fixed object - post
Pavement Marking	"X" Symbol	198	100%	0%	\$ 78,600	Apply the marking for the "X" symbol, install stop bar, install white edge line per MUTCDC (see Figure 4).
Sidewalk	Sidewalk Condition	28	100%	0%	\$ 140,000	Repair the sidewalk surface.
Sign	Bump Ahead Sign	16	100%	0%	\$ 5,750	On the north and south approaches, install the Bump Ahead warning sign as per the OTM Books at a minimum distance of 115 m (based on 20 km/h reduction of speed at the bump) from the stop bar.
Sign	Railway Crossing Ahead Sign	96	100%	0%	\$ 26,000	On the north and south approaches, install the Railway Crossing Ahead warning sign (WC-4) as per the OTM Books at a minimum distance of 140 m from the stop bar, at an offset of 0.5 m to

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
						2 m from the edge of the travel lane, and at a height of 2 m to 3 m from the crown of the road.
Warning System Visibility	Relocate Hydro Pole	3	100%	0%	\$ 120,000	On the north approach, relocate the hydro pole, relocate the no parking/standing signs, and trim the tree branches to clear the view to the light unit.
		342	100%		\$ 371,350	
Pedestrian Crossing	Coordinate with the railway company	2	50%	50%	\$ 100,000	Coordinate with the CP to design and reconstruct the pedestrian crossing. If this is not an authorized crossing, the City should close the crossing and provide fencing to eliminate trespassing to the rail line.
Warning System	Light unit	2	50%	50%	\$ 65,000	Install a light unit for pedestrians.
		4	50%	50%	\$ 165,000	
	Total	346			\$ 536,350	

For Future Action

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
Road Approach	Regrading	51	100%	0%	\$ 255,000	Repair the road surface.
Sidewalk	New Sidewalk	25	100%	0%	\$ 90,000	Consider provision of a sidewalk

Category	Sub-Category	# of Locations	Cost Split		Estimated City Cost	Example Improvement
			City Cost	Railway Cost		
Warning System	Upgrade Warning System	6	100%	0%	\$ 500,500	Install a warning system without a gate (FLB).
Warning System Visibility	Relocate pole	33	100%	0%	\$ 1,320,000	No action is needed regarding existing conditions at this time. However, consider relocating the hydro poles to clear the view to the light units in the future.
		115	100%		\$ 2,165,500	
Rail Line	Track Removal	3	50%	50%	\$ 150,000	If the track is not in use, consider removing the track.
	Total	118			\$ 2,315,500	
	Grand Total	653			\$ 3,421,945	