MANITOBA-MINNESOTA TRANSMISSION PROJECT: TRAFFIC IMPACT STUDY MONITORING REVIEW

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Manitoba Hydro

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Glossary

Average Daily Traffic (ADT)	The daily average number of vehicles that pass a point on a road or travel through a road segment.
Divided Highway	A highway where opposing direction lanes are separated by a median.
Manitoba Transportation and Infrastructure (MTI)	The government body responsible for overseeing the planning, design, construction, and maintenance of all provincial trunk highways (PTHs) and provincial roads (PRs) in Manitoba.
Provincial Road (PR)	Secondary routes on Manitoba's highway network. All Provincial Roads are built to Class "B1" standards or better.
Provincial Trunk Highway (PTH)	The main routes on Manitoba's highway network. Every Provincial Trunk Highway is built to RTAC or Class "A1" standards.
Transshipment	A shipping process where goods are shipped from origin to an intermediate point, then from the intermediate point to the destination.
Trip	Travel from an origin to a destination.
Undivided Highway	A highway where opposing direction lanes are not separated by a median.

1 Introduction

This study provides a review of the transportation and travel effects associated with the construction of the Manitoba-Minnesota Transmission Project (MMTP). Resultant traffic and travel effects were assessed for the following MMTP components:

- Southern Loop Transmission Corridor
- D604I 500 kV ac Transmission Line from Southern Loop Transmission Corridor to the Canada–United States Border
- Modifications at Dorsey Converter Station
- Modifications to Riel Converter Station
- Modifications to Glenboro South Station

The construction of each major component had distinct impacts on existing road networks. Each project component had unique traffic generation, vehicle mix, travel patterns and mode choices, and these were variable throughout the life of the project. Referencing the detailed descriptions for each project component found in the Manitoba-Minnesota Transmission Project – Project Description document (Referred to as the Project Description) and additional data from Manitoba Hydro, this document describes the workforce and traffic volumes for each component of the project based on the reported actual construction schedules. The impact of the increased traffic on the operation of the road networks that were used to move the workforce and materials for the project is assessed. The assessment is based on information provided to Stantec Consulting Limited (Stantec) by Manitoba Hydro from its contractors for each component of the project.

2 Existing Transportation Infrastructure

The Roadway portion of the existing transportation network along the MMTP is owned and maintained by two entities, Manitoba Transportation and Infrastructure (MTI, operating the Provincial Highway network), and municipal governments (operating the municipal road network). The major transportation components used during construction of the MMTP, including road, rail and air infrastructure are illustrated on Figure 2.1.

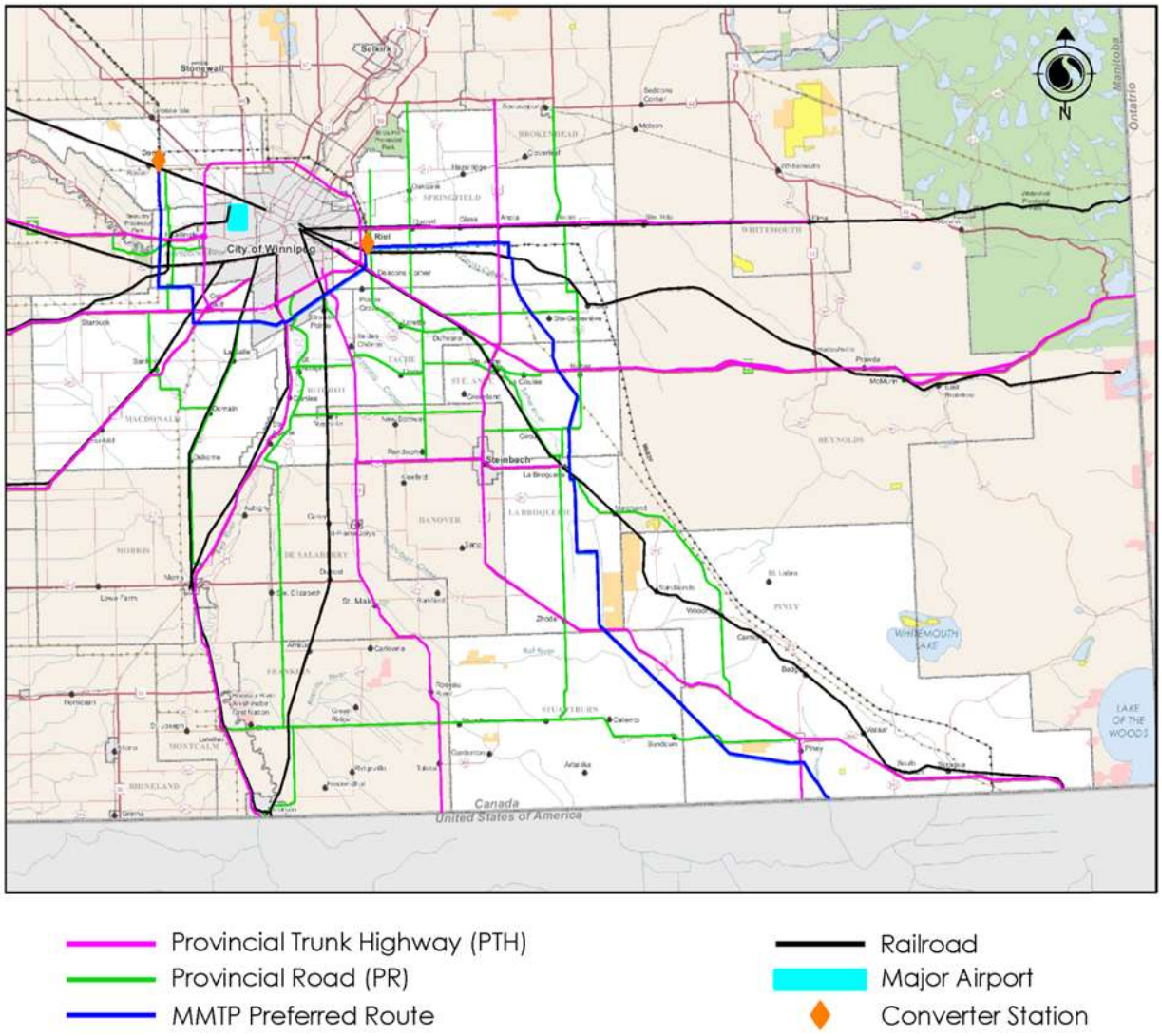

Figure 2.1 Existing Transportation Infrastructure

3 Existing Traffic Data

MTI provided pre-project traffic volumes for 2012 for roads potentially affected by Project traffic as summarized in the MMTP Traffic Impact Study. The data obtained from the counts, such as vehicle type, direction of travel and frequency, were used to assist in managing the movement of heavy vehicles on the road network and to better understand potential capacity and safety implications of increased traffic during peak construction and hauling periods associated with the Project.

As part of the Project monitoring, MTI also provided traffic data for the 2017, 2018, and 2019 reporting periods for same control sections (Appendix A). Separating the construction traffic from general background growth was not possible as the data did not differentiate the origin or purpose of the traffic.

The traffic growth rates between 2012 and 2019 were calculated for each control section based on the MTI-provided data. Those control sections that had the highest increases in traffic growth over the MMTP construction period are summarized in Table 3.1. Traffic on the section of PTH 100 and PTH 101 and other divided, high-volume roads was likely more influenced by general traffic growth around the City of Winnipeg than related to MMTP activity.

The control sections with a calculated 2.5% growth rate or higher are listed in Table 3.1. Of the sections highlighted, a larger portion of the growth would be attributable to the construction activity associated with the Project. The growth on the remaining sections would also include construction activity but would be more heavily affected by other influences (including residential and employment growth in the City of Winnipeg and surrounding municipalities).

The Covid-19 Pandemic has resulted in a general decline in activity and recovery to stable operations has been sporadic in nature as restrictions are changed to reflect public health orders.

Table 3.1 ADT Volumes by Control Section

Road No.	2017+ Control Section	2017+ Start (km)	2017+ End (km)	2012 ADT	2019 ADT	Average Change ADT
PR 210	01210030HU	15.0	21.0	890	2230	21.5%
PR 334	01334040HU	0.0	2.3	2330	5070	16.8%
PR 311	01311030HU	8.6	13.5	110	200	11.7%
PR 201	01201080HU	7.3	31.5	260	470	11.5%
PTH 100	01100040HA	9.0	11.0	17430	25810	6.9%
PTH 100	01100070HA	0.0	6.8	10940	15250	5.6%
PTH 101	01101080HA	0.0	1.2	9380	13050	5.6%
PTH 101	01101080HA	0.0	4.7	9380	13050	5.6%
PTH 100	01100040HA	0.0	5.4	12760	17680	5.5%

Table 3.1 ADT Volumes by Control Section

Road No.	2017+ Control Section	2017+ Start (km)	2017+ End (km)	2012 ADT	2019 ADT	Average Change ADT
PTH 100	01100060HA	4.0	5.6	20450	27340	4.8%
PR 302	01302040HU	5.0	9.9	210	280	4.8%
PTH 100	01100040HA	5.4	9.0	14670	19480	4.7%
PTH 59	01059060HA	0.0	1.3	14340	18990	4.6%
PTH 100	01100060HA	0.0	4.0	18980	24960	4.5%
PTH 59	01059055HA	0.0	3.7	11750	15200	4.2%
PR 311	01311030HU	4.0	8.6	830	1070	4.1%
PR 207	01207040HU	0.0	7.4	2120	2660	3.6%
PR 334	01334030HU	0.0	4.3	80	100	3.6%
PR 210	01210030HU	15.0	21.0	1450	1780	3.3%
PR 206	01206040HU	0.0	11.6	760	930	3.2%
PTH 59	01059053HA	0.0	6.4	10460	12390	2.6%
PR 334	01334040HU	0.0	1.0	4900	5800	2.6%
PTH 12	01012075HU	4.4	19.2	1500	1770	2.6%
PR 302	01302010HU	0.0	9.0	450	530	2.5%
PTH 12	01012060HA	17.0	19.8	9520	11210	2.5%
PTH 12	01012060HA	8.4	15.6	9520	11180	2.5%
PR 302	01302030HU	5.1	17.8	640	750	2.5%

4 Predicted and Actual Project-Related Traffic

4.1 Delivery of Materials

Depending on point of origin, materials, such as steel for transmission tower construction, were to have been shipped from sources overseas to the port of Vancouver, transferred to rail (CN or CP) for shipment from Vancouver to Winnipeg, before being transshipped by truck to the Riel Converter Station site and transferred to truck for shipment to their final destinations. The Riel Converter Station site was planned to be the primary marshalling yard for MMTP material sorting prior to transfer to construction sites as follows:

- Southern Loop Transmission Corridor: Materials were to be delivered by road from the Riel marshalling yard to the various marshalling yard locations along the MMTP southern loop right-of-way (ROW).

- D604I 500 kV AC Transmission Line from Southern Loop Transmission Corridor to the Canada – United States Border: Materials were to be delivered by road from the Riel marshalling yard to the various marshalling yard locations along the MMTP ROW
- Dorsey Converter Station: Materials were to be delivered by truck using the provincial road network.
- Glenboro South Station: Materials were to be delivered by truck using the provincial road network.

4.2 Predicted Workforce Travel

The expected workforce identified by Manitoba Hydro for each component of the project comprised of contractor staff and supervisors and Manitoba hydro staff and supervisors. The majority of the EIS-predicted workforce was to comprise workers living in southern Manitoba who would commute from home to work sites on a daily basis except for when the worksites were south of Steinbach. A portion of the workforce was then predicted to temporarily relocate to rental facilities in or near Steinbach and commute to the southern worksites from there.

A small percentage of workers (<10%) were predicted to come from out of province to temporarily reside in rental facilities near the work areas. These workers were expected to relocate to rental facilities proximate to the work areas and move as the work areas moved. Predicted workforce travel, by project component, is summarized below:

4.2.1 TRANSMISSION LINES

The construction of the MMTP transmission line was predicted to generate 175 two-way trips for workforce and materials movement over an extensive area of the southern provincial road network, generally as follows:

- Southern Loop Transmission Corridor: Daily workforce members were predicted to travel from residences to worksites by private automobiles utilizing the provincial and municipal road networks.
- D604I 500 kV AC Transmission Line from Southern Loop Transmission Corridor to the Canada – United States Border: Daily workforce members were predicted to travel from residences to worksites by private automobiles utilizing the provincial and municipal road networks. There was also some potential for temporary residences to be set up in local communities by some workers or contractors to reduce daily commutes. Work camps were not anticipated due to the proximity to communities along the route.

4.2.2 DORSEY CONVERTER STATION

- The estimated traffic to the site was about 80 two-way trips per day or 6% of average daily traffic for workforce and material movement on PR 221.
- Daily workforce members were predicted to travel from residences to the worksite by private automobiles utilizing the provincial and municipal road networks.

4.2.3 RIEL CONVERTER STATION

- The estimated traffic to the site was about 125 two-way trips per day or less than 6% of average daily traffic on PR 207, for workforce and material movement.
- Daily workforce members were predicted to travel from residences to the worksite by private automobiles utilizing the provincial and municipal road networks.

4.2.4 GLENBORO SOUTH STATION

- The estimated traffic to the site was about 62 two-way trips per day or about 4% of average daily traffic on PR PTH 3 for workforce and material movement.
- Daily workforce members were predicted to travel from residences to the worksite by private automobile utilizing the provincial and municipal road networks. Temporary residences could be established to reduce daily commutes.

4.3 Actual Project-Related Traffic

Traffic generated by the MMTP-related movement of materials and workforce including the construction of the transmission line and improvements at the Riel and Dorsey converter stations and the Glenboro South Station was conveyed by provincial highway and municipal road networks. Manitoba Hydro provided summary level employee numbers for each component of the Project. The cumulative project-related effect at each of the worksites is estimated based on limited carpooling or ride sharing, and two two-way trips generated per employee per day.

4.3.1 TRANSMISSION LINES

- Actual Peak Workforce – 1452 employees
- Estimated Actual Peak Workforce Trip Generation – 2800 two-way trips per day spread over multiple work sites

4.3.2 DORSEY CONVERTER STATION

- Actual Workforce – 182 employees
- Estimated Actual Peak Workforce Trip Generation – 360 two-way trips per day

4.3.3 RIEL CONVERTER STATION

- Actual Workforce – 128 employees
- Estimated Actual Peak Workforce Trip Generation – 256 two-way trips per day

4.3.4 GLENBORO SOUTH STATION

- Actual Workforce – 174 employees

- Estimated Actual Peak Workforce Trip Generation– 350 two-way trips per day

4.4 Project Traffic Impact Road Design Capacity

Monitoring of road conditions at access points off the provincial and local road network, including a base inventory of existing conditions, was completed to ensure that roadways were maintained to an acceptable level and to ensure that all damaged road pavement, where relevant, was restored to its original condition.

The anticipated project-related traffic volumes on the routes supporting the Project construction did not have a reported effect on the operation of the roads. Users of lower volume local roads likely experienced an increase in activity, relative to normal operation, but the activity was of short duration and would not have caused any capacity reduction or safety implications.

The major impact expected during construction was related to the installation of conductors passing over the roads where traffic would be required to stop while the conductors were positioned. This impact was considered a minor consequence on most roads but was a larger consideration for crossings of major roads such as PTH 1W/E. Coordination with MIT and review of construction methods was completed to reduce traffic disruption.

Based on the traffic volumes estimated in this report, the effect on the provincial road network providing access to MMTP work activity locations was not significant over the planned construction period. There were occasions, however, where increased truck traffic volumes were experienced on certain road segments during the peak construction periods when large quantities of material were required for various phases of the project.

4.4.1 CUMULATIVE TRANSPORTATION IMPACTS

The cumulative effect of the traffic generated by the construction of the Project was relatively small. All locations may have experienced short term traffic increases, but within normal variations of traffic flow, and there were no estimated localized effects higher than 360 two-way trips per day (at stations). On all but the lowest volume segments of the provincial highway network this would not be recognized as a noticeable increase in traffic. If all the trips for each project component were to occur in a four hour period during the day, 360 trips would translate into approximately 1.5 trips per minute during peak activity. On the lowest volume provincial road this increase would still result in volumes of less than 1,000 vehicles per day, far below the potential capacity of these roads.

4.5 Project Vehicle Collision Analysis

Monitoring and recording of collisions and/or near misses was undertaken throughout the construction period. Manitoba Hydro provided a summary of incidents associated with construction activity traffic. The majority of the incidents occurred on municipal roads and none resulted in physical injury to occupants or bystanders. The report on the collisions is included in Appendix B.

One collision involved a collision with a wild animal. One collision involved a train. Several involved poor road conditions and several involved geometric constraints where trailing trailers left the road surface. A total of 11 collisions were reported through the Manitoba Hydro process.

The results indicate that the movement of materials and workforce was done with a high degree of vigilance when traveling on provincial highways and municipal roads. The biggest risk predicted was collision with wildlife in low light conditions and this collision scenario was not reported through the recording process and assumed to have been avoided. The second most prevalent non-intersection collision risk was as identified as “run off the road” type. The majority of commercial trucking firms have safety programs that identify the inherent risks and train drivers to mitigate them. Adherence to these programs appears to have mitigated the risk of single vehicle collisions for the delivery vehicles used. The higher risks occur at signalized intersections where “rear end” and “other” types of collisions are most prevalent. Traffic volumes are also higher at controlled intersections, further increasing the likelihood of collision, based on volume alone. These types of collisions were not reported through the Manitoba Hydro reporting system and so do not appear to have occurred. Personal vehicle collisions may not have been recorded through the Manitoba Hydro process and current Manitoba Transportation and Infrastructure data is not available for this time period at the time of writing this report.

5 Summary of Findings

The impact of traffic generated by the construction of the MMTP was generally insignificant from an operational perspective. No unanticipated project-related disruptions to traffic operations or increased collision frequency were reported at any of the construction sites or along access routes. Table 5.1 summarizes the predicted vs. estimated actual traffic for the project work at the Dorsey, Riel, and Glenboro station components. The work force estimates and actuals varied depending on site due to contractor work plan approach. The impact of these variances did not result in any reported project-related transportation concerns. The maximum estimated increase during the transmission line construction was 2800 trips per day (by 1,452 employees), spread over several low volume roads. Material deliveries resulted in a maximum estimated increase of four truck trips per day on average, resulting in an insignificant effect on traffic.

Monitoring traffic at work sites and on access routes is a challenging process. The pre-project traffic flows at the sites were not regularly recorded, making it difficult to accurately establish base lines. However, with no documented incidents attributed to project-related increases in traffic flows, impacts were considered generally minor in nature, and short lived. Future monitoring projects should consider establishing a pre-project base line traffic flow using then-current traffic counts at sites that are anticipated to have high projected activity. Periodic monitoring through a traffic counting program could then confirm activity levels and identify and inform required mitigation measures.

Table 5.1 Comparison of Predicted to Actual Estimated Traffic – Station Components

Project Component	Predicted Peak Daily Traffic (two-way trips)			Actual Workforce Employees	Actual Peak Daily Traffic (Estimated)*	Difference
	Workforce	Materials	Total			
Dorsey Station	75	5	80	182	360	280
Riel Station	120	5	125	128	256	131
Glenboro Station	60	2	62	174	350	288
*Assumes each employee generated two two-way trips per day						

APPENDICES

Appendix A MTI Traffic Data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Road No.	2012 Control Section	2012 Start (km)	2012 End (km)	2017+ Control Section	2017+ Start (km)	2017+ End (km)	No. Lanes					Highest Hour	Estimate Year	2018 AADT	2018 ASDT %	2018 30th Highest Hour %	2018 ASDT	2018 30th Highest Hour	Estimate Year	2019 AADT	2019 ASDT %	2019 30th Highest Hour %	2019 ASDT	2019 30th Highest Hour	Estimate Year
2	PTH 1	01001240H	0.0	2.6	01001240H	0.0	2.6	4	20460	n/a	n/a	#VALUE!	#VALUE!	2015	20120	118.38	14.9	23818	2998	2018	20120	118.38	14.9	23818	2998	2018
3	PTH 1	01001250H	0.0	7.8	01001250H	0.0	7.8	4	17370	117.94	12.6	20487	2189	2017	17450	117.06	12.6	20426	2199	2018	17550	116.00	12.4	20358	2176	2019
4	PTH 1	01001250H	7.8	9.9	01001250H	7.8	9.9	4	15340	n/a	n/a	#VALUE!	#VALUE!	2015	14810	118.38	14.9	17532	2207	2018	14810	118.38	14.9	17532	2207	2018
5	PTH 1	01001250H	9.9	13.8	01001250H	9.9	13.8	4	13750	n/a	n/a	#VALUE!	#VALUE!	2015	13310	118.38	14.9	15756	1983	2018	13310	118.38	14.9	15756	1983	2018
6	PTH 1	01001250H	13.8	17.8	01001250H	13.8	17.8	4	13220	n/a	n/a	#VALUE!	#VALUE!	2015	12290	118.38	14.9	14549	1831	2018	12290	118.38	14.9	14549	1831	2018
7	PTH 1	01001250H	17.8	24.8	01001250H	17.8	24.8	4	13290	119.95	16.0	15942	2126	2016	13290	119.95	16.0	15942	2126	2016	13490	120.06	16.3	16196	2199	2019
8	PTH 1	01001260H	0.0	8.2	01001260H	0.0	8.2	4	7750	137.24	19.3	10636	1496	2017	7830	136.37	19.1	10678	1496	2018	7940	135.41	18.4	10751	1461	2019
9	PTH 1	01001260H	8.2	14.8	01001260H	8.2	14.8	4	7750	137.24	19.3	10636	1496	2017	7830	136.37	19.1	10678	1496	2018	7940	135.41	18.4	10751	1461	2019
10	PTH 2	02002150HU	8.2	11.5	02002150HU	8.2	11.5	2	3190	118.79	12.7	3789	405	2017	3190	118.79	12.7	3789	405	2017	3190	118.79	12.7	3789	405	2017
11	PTH 2	02002150HU	11.2	14.7	02002150HU	11.5 *typo*	14.7	2	3190	118.79	12.7	3789	405	2017	3190	118.79	12.7	3789	405	2017	3190	118.79	12.7	3789	405	2017
12	PTH 2	02002150HU	14.7	20.9	02002150HU	14.7	20.9	2	3260	n/a	n/a	#VALUE!	#VALUE!	2015	3640	105.64	11.2	3845	408	2018	3640	105.64	11.2	3845	408	2018
13	PTH 2	02002160HU	0.0	1.7	02002160HU	0.0	1.7	2	1780	n/a	n/a	#VALUE!	#VALUE!	2015	1780	n/a	n/a	#VALUE!	#VALUE!	2015	1780	n/a	n/a	#VALUE!	#VALUE!	2015
14	PTH 3	02003230HU	17.0	27.5	02003230HU	17.0	27.5	2	5460	106.72	11.5	5827	628	2017	5310	105.64	11.2	5610	595	2018	5280	109.25	11.5	5768	607	2019
15	PTH 12	01012075HU	4.4	19.2	01012075HU	4.4	19.2	2	1770	109.70	10.8	1942	191	2017	1770	109.70	10.8	1942	191	2017	1770	109.70	10.8	1942	191	2017
16	PTH 12	01012075HU	0.0	4.4	01012075HU	0.0	4.4	2	2120	109.70	10.8	2326	229	2017	2120	109.70	10.8	2326	229	2017	2120	109.70	10.8	2326	229	2017
17	PTH 12	01012070HU	0.0	1.4	01012070HU	0.0	1.4	2	2120	109.70	10.8	2326	229	2017	2120	109.70	10.8	2326	229	2017	2120	109.70	10.8	2326	229	2017
18	PTH 12	01012060H	17.0	19.8	01012060H	17.0	19.8	4	10260	109.22	11.0	11206	1129	2016	10260	109.22	11.0	11206	1129	2016	11210	108.76	10.6	12192	1188	2019
19	PTH 12	01012060H	15.6	17.0	01012060H	15.6	17.0	4	8720	109.22	11.0	9524	959	2016	8720	109.22	11.0	9524	959	2016	8890	108.76	10.6	9669	942	2019
20	PTH 12	01012060H	8.4	15.6	01012060H	8.4	15.6	4	9980	109.22	11.0	10900	1098	2016	9980	109.22	11.0	10900	1098	2016	11180	108.76	10.6	12159	1185	2019
21	PTH 12	01012060H	5.1	8.4	01012060H	5.1	8.4	4	14270	109.22	11.0	15586	1570	2016	14270	109.22	11.0	15586	1570	2016	15390	108.76	10.6	16738	1631	2019
22	PTH 12	01012060H	0.0	5.1	01012060H	0.0	5.1	4	14550	108.82	10.5	15833	1529	2015	14550	108.82	10.5	15833	1529	2015	14550	108.82	10.5	15833	1529	2015
23	PTH 12	01012055H	0.0	2.1	01012055H	0.0	2.1	2	6000	108.82	10.5	6529	631	2015	6080	108.90	10.5	6621	638	2018	6080	108.90	10.5	6621	638	2018
24	PTH 12	01012050HU	19.3	23.5	01012050HU	19.3	23.5	2	6000	108.82	10.5	6529	631	2015	6080	108.90	10.5	6621	638	2018	6080	108.90	10.5	6621	638	2018
25	PTH 12	01012050HU	11.1	19.3	01012050HU	11.1	19.3	2	4110	109.70	10.8	4509	444	2017	4110	108.90	10.5	4476	432	2018	4100	108.76	10.6	4459	435	2019
26	PTH 12	01012050HU	0.0	11.1	01012050HU	0.0	11.1	2	2150	108.82	10.5	2340	226	2015	2080	108.90	10.5	2265	218	2018	2080	108.90	10.5	2265	218	2018
27	PTH 12	01012040HU	10.9	19.3	01012040HU	10.9	19.3	2	870	118.43	14.9	1030	130	2017	860	117.09	14.3	1007	123	2018	890	117.84	14.5	1049	129	2019
28	PTH 12	01012040HU	0.0	10.9	01012040HU	0.0	10.9	2	870	118.43	14.9	1030	130	2017	860	117.09	14.3	1007	123	2018	890	117.84	14.5	1049	129	2019
29	PTH 12	01012030HU	13.8	36.0	01012030HU	13.8	36.0	2	700	115.32	15.0	807	105	2016	700	115.32	15.0	807	105	2016	730	117.84	14.5	860	106	2019
30	PTH 12	01012030HU	0.0	13.8	01012030HU	0.0	13.8	2	700	115.32	15.0	807	105	2016	700	115.32	15.0	807	105	2016	730	117.84	14.5	860	106	2019
31	PTH 15	01015010HU	0.0	2.0	01015010HU	0.0	2.0	2	11340	116.19	14.5	13176	1644	2017	11340	116.19	14.5	13176	1644	2017	11340	116.19	14.5	13176	1644	2017
32	PTH 15	01015020HU	0.0	4.0	01015020HU	0.0	4.0	2	8450	116.19	14.5	9818	1225	2017	8450	116.19	14.5	9818	1225	2017	8450	116.19	14.5	9818	1225	2017
33	PTH 15	01015020HU	4.0	6.5	01015020HU	4.0	6.5	2	7730	116.19	14.5	8982	1121	2017	7730	116.19	14.5	8982	1121	2017	7730	116.19	14.5	8982	1121	2017
34	PTH 15	01015020HU	6.5	14.0	01015020HU	6.5	14.0	2	3700	137.24	19.3	5078	714	2017	3700	137.24	19.3	5078	714	2017	3700	137.24	19.3	5078	714	2017
35	PTH 15	01015020HU	14.0	21.3	01015020HU	14.0	21.3	2	3700	137.24	19.3	5078	714	2017	3700	137.24	19.3	5078	714	2017	3700	137.24	19.3	5078	714	2017
36	PTH 52	01502025H	0.0	9.4	01052025HA *	0.0	9.4	2	4280	108.82	10.5	4657	450	2015	4040	108.90	10.5	4400	424	2018	4040	108.90	10.5	4400	424	2018
37	PTH 52	01052020H	2.0	4.1	01052020H	2.0	4.1	2	6050	108.82	10.5	6584	636	2015	4350	108.90	10.5	4737	457	2018	4350	108.90	10.5	4737	457	2018
38	PTH 52	01052020H	1.0	2.0	01052020H	1.0	2.0	4	8760	108.82	10.5	9533	921	2015	8930	108.90	10.5	9725	938	2018	8930	108.90	10.5	9725	938	2018
39	PTH 59	01059053H	0.0	6.4	01059053H	0.0	6.4	4	12230	n/a	n/a	#VALUE!	#VALUE!	2015	12390	n/a	n/a	#VALUE!	#VALUE!	2018	12390	n/a	n/a	#VALUE!	#VALUE!	2018
40	PTH 59	01059060H	0.0	1.3	01059060H	0.0	1.3	4	16610	n/a	n/a	#VALUE!	#VALUE!	2015	18990	118.38	14.9	22480	2830	2018	18990	118.38	14.9	22480	2830	2018
41	PTH 59	01059055H	0.0	3.7	01059055H	0.0	3.7	4	13930	n/a	n/a	#VALUE!	#VALUE!	2015	15200	n/a	n/a	#VALUE!	#VALUE!	2018	15200	n/a	n/a	#VALUE!	#VALUE!	2018
42	PTH 75	01075080OU	0.0	4.2	01075080OU	0.0	4.2	4	10390	108.47	11.5	11270	1195	2017	10730	107.38	11.3	11522	1212	2018	10900	n/a	n/a	#VALUE!	#VALUE!	2019
43	PTH 89	01089010HU	0.0	5.0	01089010HU	0.0	5.0	2	50	n/a	n/a	#VALUE!	#VALUE!	2016	50	n/a	n/a	#VALUE!	#VALUE!	2016	40	n/a	n/a	#VALUE!	#VALUE!	2019
44	PTH 89	01089010HU	5.0	9.9	01089010HU	5.0	9.9	2	270	n/a	n/a	#VALUE!	#VALUE!	2016	270	n/a	n/a	#VALUE!	#VALUE!	2016	200	n/a	n/a	#VALUE!	#VALUE!	2019
45	PTH 100	01100040H	0.0	5.4	01100040H	0.0	5.4	4	17680	106.72	11.5	18867	2033	2017	17680	106.72	11.5	18867	2033	2017	17680	106.72	11.5	18867	2033	2017
46	PTH 100	01100040H	5.4	9.0	01100040H	5.4	9.0	4	14670	120.84	15.7	17726	2303	2012	19480	118.38	14.9	23060	2903	2018	19480	118.38	14.9	23060	2903	2018
47	PTH 100	01100040H	9.0	11.0	01100040H	9.0	11.0	4	17430	120.84	15.7	21062	2737	2012	25810	118.38	14.9	30553	3846	2018	25810	118.38	14.9	30553	3846	2018
48	PTH 100	01100050H	0.0	3.4	01100050H	0.0	3.4	4	20690	113.71	12.2	23527	2514	2005	20690	113.71	12.2	23527	2514	2005	20690	113.71	12.2	23527	2514	2005
49	PTH 100	01100060H	0.0	4.0	01100060H	0.0	4.0	4	18980	120.84	15.7	22934	2980	2012	24960	118.38	14.9	29547	3719	2018	24960	118.38	14.9	29547	3719	2018
50	PTH 100	01100060H	4.0	5.6	01100060H	4.0	5.6	4	24150	n/a	n/a	#VALUE!	#VALUE!	2015	27340	118.38	14.9	32365	4074	2018	27340	118.38	14.9	32365	4074	2018
51	PTH 100	01100070H	0.0	6.8	01100070H	0.0	6.8	4	13710	119.18	14.8	16340	2029	2017	14060	118.38	14.9	16644	2095	2018	15250	120.06	16.3	18309	2486	2019
52	PTH 101	01101085H	0.0	1.2	01101080H	0.0	1.2	4	13050	116.19	14.5	15163	1892	2017	13050	116.19	14.5	15163	1892	2017	13050	116.19	14.5	15163	1892	2017
53	PTH 101	01101080H	0.0	4.7	01101080H	0.0	4.7	4	13050	116.19	14.5	15163	1892	2017	13050	116.19	14.5	15163	1892	2017	13050	116.19	14.5	15163	1892	2017
54	PR 200	01200060OU	0.0	3.9	01200060OU	0.0	3.9	2	6300	n/a	n/a	#VALUE!	#VALUE!	2015	6490	n/a	n/a	#VALUE!	#VALUE!	2018	6490	n/a	n/a	#VALUE!	#VALUE!	2018
55	PR 200	01200050HU	0.0	11.3	01200050HU	0.0	11.3	2	2390	n/a	n/a	#VALUE!	#VALUE!	2015	2030	107.38	11.3	2180	229	2018	2030	107.38	11.3	2180	229	2018
56	PR 201	01201090HU	0.0	11.5	01201090HU	0.0	11.5	2	220	115.32	15.0	254	33	2016	220	115.32	15.0	254	33	2016	200	117.84	14.5	236	29	2019
57	PR 201	01201080HU	0.0	7.3	01201080HU	0.0	7.3	2	410	109.22	11.0	448	45	2016	410	109.22	11.0	448	45	2016	470	108.76	10.6	511	50	2019
58	PR 201	01201080HU	7.3	31.5	01201080HU	7.3	31.5	2	300	115.32	15.0	346	45	2016	300	115.32	15.0	346	45	2016	330	117.84	14.5	389	48	2019
59	PR 206	01206040HU	0.0	11.6	01206040HU	0.0	11.6	2	930	119.18	14.8	1108	138	2017	930	119.18	14.8	1108	138	2017	930	119.18	14.8	1108	138	2017
60	PR 207	01207040HU	0.0	7.4	01207040HU	0.0	7.4	2	2560	n/a	n/a	#VALUE!	#VALUE!	2015	2660	118.38	14.9	3149	396	2018	2660	118.38	14.9	3149	396	2018
61	PR 210	01210030HU	8.0	15.0	01210030HU	8.0	15.0	2	1270	108.82	10.5	1382	133	2015	1180	108.90	10.5	1285	124	2018	1180	108.90	10.5	1285	124	2018
62	PR 210	01210030HU	15.0	21.0	01210030HU	15.0	21.0	2	1770	108.82	10.5	1926	186	2015	1780	108.90	10.5	1938	187	2018	1780	108.90	10.5	1938	187	2018
63	PR 210	01210040HU	0.0	1.6	01210040HU	0.0	1.6	2	2210	108.82	10.5	2405	232	2015	2230	108.90	10.5	2429	234	2018	2230	108.90	10.5	2429	234	2018
64	PR 221	01221020HU	2.5	9.5	01221020HU	2.5	9.5	2	1000	110.07	12.0	1101	120	2016	1000	110.07	12.0	1101	120	2016	1070	110.00	12.7	1177	136	2019
65	PR 241	01241010HU	4.0	7.8	Retired				n/a	n/a	n/a	#VALUE!	#VALUE!	n/a	n/a	n/a	n/a	#VALUE!	#VALUE!	n/a	n/a	n/a	n/a	#VALUE!	#VALUE!	n/a
66	PR 241	01241010HU	7.8	8.4	01334030HU	11.3	12.0	2	5800	111.17	13.0	6448	754	2017	5800	111.17	13.0	6448	754	2017	5800	111.17	13.0	6448	754	2017
67	PR 300	01300010HU	0.0	3.0	01300010HU	0.0	3.0	2	280	123.6	14.7	346	41	2002	280	123.6	14.7	346	41	2002	280	123.6	14.7	346	41	2002
68	PR 302	01302010HU	0.0	9.0	01302010HU	0.0	9.0	2	590	109.22	11.0	644	65	2016	590	109.22	11.0	644	65	2016	530	108.76	10.6	576	56	2019
69	PR 302	01302010HU	9.0	17.2	01302010HU	9.0	17.2	2	650	109.22	11.0	710	72	2016	650	109.22	11.0	710	72	2016	590	108.76	10.6	642	63	2019

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Road No.	2012 Control Section	2012 Start (km)	2012 End (km)	2017+ Control Section	2017+ Start (km)	2017+ End (km)	No. Lanes	2017 AADT	2017 ASDT %	2017 30th Highest Hour %	2017 ASDT	2017 30th Highest Hour	Estimate Year	2018 AADT	2018 ASDT %	2018 30th Highest Hour %	2018 ASDT	2018 30th Highest Hour	Estimate Year	2019 AADT	2019 ASDT %	2019 30th Highest Hour %	2019 ASDT	2019 30th Highest Hour	Estimate Year
70	PR 302	01302020HU	0.0	10.0	01302020HU	0.0	10.0	2	200	109.22	11.0	218	22	2016	200	109.22	11.0	218	22	2016	100	108.76	10.6	109	11	2019
71	PR 302	01302020HU	10.0	21.1	01302020HU	10.0	21.1	2	300	108.82	10.5	326	32	2015	200	108.90	10.5	218	21	2018	200	108.90	10.5	218	21	2018
72	PR 302	01302020HU	21.1	26.1	01302020HU	21.1	26.1	2	410	108.82	10.5	446	43	2015	300	108.90	10.5	327	32	2018	300	108.90	10.5	327	32	2018
73	PR 302	01302030HU	0.0	5.1	01302030HU	0.0	5.1	2	840	108.82	10.5	914	88	2015	760	108.90	10.5	828	80	2018	760	108.90	10.5	828	80	2018
74	PR 302	01302030HU	5.1	17.8	01302030HU	5.1	17.8	2	510	109.22	11.0	557	56	2016	510	109.22	11.0	557	56	2016	750	108.76	10.6	816	80	2019
75	PR 302	01302040HU	0.0	5.0	01302040HU	0.0	5.0	2	710	138.38	20.0	983	142	2013	710	138.38	20.0	983	142	2013	740	135.41	18.4	1002	136	2019
76	PR 302	01302040HU	5.0	9.9	01302040HU	5.0	9.9	2	280	137.24	19.3	384	54	2017	280	137.24	19.3	384	54	2017	280	137.24	19.3	384	54	2017
77	PR 311	01311030HU	8.6	13.5	01311030HU	8.6	13.5	2	160	109.22	11.0	175	18	2016	160	109.22	11.0	175	18	2016	200	108.76	10.6	218	21	2019
78	PR 311	01311030HU	4.0	8.6	01311030HU	4.0	8.6	2	1030	109.22	11.0	1125	113	2016	1030	109.22	11.0	1125	113	2016	1070	108.76	10.6	1164	113	2019
79	PR 330	02330030HU	0.0	5.0	02330030HU	0.0	5.0	2	3050	108.47	11.5	3308	351	2017	3050	108.47	11.5	3308	351	2017	3050	108.47	11.5	3308	351	2017
80	PR 330	02330030HU	5.0	8.9	02330030HU	5.0	8.9	2	4470	n/a	n/a	#VALUE!	#VALUE!	2015	5070	107.38	11.3	5444	573	2018	5070	107.38	11.3	5444	573	2018
81	PR 334	01334050HU	0.0	2.3	01334040HU	0.0	2.3	2	200	111.17	13.0	222	26	2017	200	111.17	13.0	222	26	2017	200	111.17	13.0	222	26	2017
82	PR 334	01334050HU	2.3	12.4	01334040HU	2.3	12.4	2	180	110.07	12.0	198	22	2016	180	110.07	12.0	198	22	2016	170	110.00	12.7	187	22	2019
83	PR 334	01334030HU	0.0	4.3	01334030HU	0.0	4.3	2	100	106.72	11.5	107	12	2017	100	106.72	11.5	107	12	2017	100	106.72	11.5	107	12	2017
84	PR 334	01334030HU	4.3	8.3	01334030HU	4.3	8.3	2	100	111.17	13.0	111	13	2017	100	111.17	13.0	111	13	2017	100	111.17	13.0	111	13	2017
85	PR 334	01334030HU	8.3	11.3	01334030HU	8.3	11.3	2	100	106.72	11.5	111	12	2017	100	106.72	11.5	107	12	2017	100	106.72	11.5	107	12	2017
86	PR 334	01334040HU	0.0	1.0	01334030HU	12.0	13.0	2	5800	111.17	13.0	6448	754	2017	5800	111.17	13.0	6448	754	2017	5800	111.17	13.0	6448	754	2017
87	PR 501	01501020HU	4.0	8.2	01501020HU	4.0	8.2	2	740	137.24	19.3	1016	143	2017	740	137.24	19.3	1016	143	2017	740	137.24	19.3	1016	143	2017
88	PR 501	01501020HU	8.2	13.1	01501020HU	8.2	13.1	2	330	137.24	19.3	453	64	2017	330	137.24	19.3	453	64	2017	330	137.24	19.3	453	64	2017
89	PR 501	01501020HU	0.0	4.0	01501020HU	0.0	4.0	2	1160	137.24	19.3	1592	224	2017	1160	137.24	19.3	1592	224	2017	1160	137.24	19.3	1592	224	2017

Appendix B Traffic Incident Data

D1910

MANITOBA HYDRO

INTEROFFICE MEMORANDUM

FROM Jim Keil
Station Construction Department Manager
Station Construction Department
Asset Planning & Delivery

TO James Matthewson
Manager
Licensing & Environmental Assessment
Project Management

DATE 2021 12 10

SUBJECT **MANITOBA-MINNESOTA TRANSMISSION PROJECT TRAFFIC ACCIDENTS AND NEAR MISSES IN THE PROJECT AREA**

In response to the requirements of the sections 4.6.2.1 and 7.5.1 of the Manitoba-Minnesota Transmission Project Environmental Monitoring plan, the Construction Services Department is able to provide the following information on traffic accidents and near misses in the project area on key roadways through Manitoba Hydro incident reports.

In total, eleven traffic incidents occurred over the course of the construction phase of the Project. Two incidents occurred with Manitoba Hydro vehicles, and the remainder with contractor vehicles. Minor injuries were sustained in two incidents. No major injuries or fatalities occurred.

Project safety protocols that contributed to minimize the rate traffic incidents can be attributed to:

- Mandatory safety training for all staff;
- Development and adherence to the approved MMTP Construction Access Management Plan;
- Employment of safety officers by Manitoba Hydro and contractors;
- Contractor safety management plans

Below is a summary table of all traffic incidents and near misses.

Sincerely,

[redacted]

Jim Keil, P. Eng
Station Construction Department Manager
Station Construction Department
Asset Planning & Delivery

INCIDENT DATE (yyyy-mm-dd)	WORKPLACE SAFETY INCIDENT FILE #	PROJECT	INCIDENT DETAIL									Include only generic (non-personal) information here. This column is intended to be shared and printed openly. Identify details such as: Incident report # (if internal) ● Specify if medical attention required (and identify facility attended) ● Describe return-to-work accommodation (modified / light duties) if applicable
			Near Miss	No Lost Time	Lost Time (LTI)	Days Lost (LTD)	Serious	Vehicle	Property/Equ ipt	CFA Reportable		DESCRIPTION
2019-11-24		MMTP Section 2						X				semi truck was turning at intersection of 54N and 37E (Richland Rd and Eastdale Rd) as trailer slide into ditch damaging municipal sign.
2019-11-25	3883	MMTP Section 1						X				employee driving MB Hydro vehicle had right of way and collided with MH personel vehicle that pulled through stop sign at Dorsey Station
2019-11-26		MMTP Section 2						X				Tractor Trailer unit hauling material to STR 278 turned at municipal road 42 E and 46 N intersection and slide into ditch.
2019-12-05		MMTP Section 2						X				Two contractor welding trucks driving east on Mun Rd. First truck slows down to turn on Dominic Rd. Second truck following tries to stop and is unable to come to a stop. Operator of second truck contacts first truck from behind. Road conditions were extremely icy. Driver of second truck operating too fast for road conditions. No injuries.
2019-12-18		MMTP Section 1						X				While travelling down a municiple road, The operator of a loader failed to yield at an uncontrolled intersection and made contact with a semi-truck and trailer resulting in damage to the semi-trailer. No injuries to either driver.
2020-01-13		MMTP Section 2						X				Fuel delivery worker driving south on HWY 12. Driver felt vibration, driver proceeded to slow down. Driver side rear duals separated from 550 truck. Driver stopped safely on shoulder of HWY. Driver secured the scene.
2020-01-24		MMTP Section 2						X				Crew was traveling East on HW 52 towards the contractor's camp in a Ford 350 1 Ton. With just a couple of KMs to go before they reached the camp the driver noticed something hit the windshield and then suddenly the front drivers side wheel came off causing the truck to swerve into the opposite lane and then back across the road before the driver could bring the truck to a stop on the shoulder.
2020-02-02		MMTP Section 1						X				Collision occurred at an uncontrolled intersection while contractor vehicle was travelling east on mission road at 37km/h according to the GPS while a third party vehicle was travelling North on Poplar road travelling approximately 80km/h. The driver of the third party vehicle stated that they saw the contractor vehicle but did not slow down because they thought the contractor driver would yield. The contractor did not see the third party vehicle and continued on their path of Travel, contacting the driver's door of the third party vehicle causing it to roll over as the contractor vehicle entered the ditch. Minor injuries were sustained as police and ambulance arrive on site due to vehicle On-Star collision notification.
2020-02-14		MMTP Section 2						X				A digger truck hauling tension fiber trailer heading North on Hwy 12 left the road at the intersection of Hwy 12 and Richland Rd ending up in the ditch on the opposite side of the rd.
2020-03-07		MMTP Section 2						X				Sub-Contractor hauling mats with a semi and loaded B train trailers contacted CN rail train on RD 34N. No worker injury. Front end damage occurred to the semi-truck. The semi and trailer was driven to the contractor yard site after incident. The semi driver was turning east off HWY 210 on to RD 34N. CN rail line parallels HWY 210. The semi driver was concerned with turning the 120-degree corner and as the unit was making the turn, the semi driver was looking in their mirror to make sure the trailers were going to stay on the road surface. Once the turn was completed the semi driver realized the east bound CN train was entering the uncontrolled intersection on RD 34N. The semi driver proceeded to stop the unit but failed to do so in time. The CN train contacted the driver side front bumper and fender of the semi-tractor unit. Scene secured and cleared.
2020-04-27	4288	MMTP Section 2						X				At approximately 1pm the employee was driving east down road 20N towards structure 376 doing about 50 km/h when a deer come out of steep ditch from their right side. The employee was able to slow down a bit, but deer made contact with front end drivers side bumper. The deer was pushed to ditch on left side of road where it died. Damage to truck was minimal. Black plastic covering was broken along with bracket with heater core extension cord.