MANITOBA HYDRO

Harrow Station to Bishop Grandin 115 kV Transmission Project

Environmental Assessment Report

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April 2015

Prepared for:

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EXECUTIVE SUMMARY

Kontzamanis Graumann Smith MacMillan Inc. was retained by Manitoba Hydro to conduct an environmental assessment and prepare an Environmental Assessment Report to acquire an Environment Act Licence for the Harrow Station to Bishop Grandin Boulevard Project (the Project).

The Project is required as Manitoba Hydro is proposing to upgrade two existing 115 kV transmission lines to address aging infrastructure and to accommodate Phase Two of the City of Winnipeg Bus Rapid Transit (BRT) project. The proposed Project is contained entirely within Manitoba Hydro's existing Harrow Station to Bishop Grandin Right-of-Way (ROW) and is considered a Class 2 Development under *The Environment Act* (Manitoba).

The Project is approximately 5 km in length between Harrow Station and Bishop Grandin Boulevard. Upgrading the system within the existing transmission line ROW would normally be considered maintenance; however, to accommodate the BRT corridor to the University of Manitoba, some of the conductors will be relocated onto new towers within the existing ROW. The proposed work will include rebuilding and relocating two 115 kV double circuit transmission lines (located along the eastern boundary of the ROW). These two transmission lines will be relocated to the west within the existing ROW. The transmission line on the most eastern edge of the right-of-way will remain to accommodate future needs.

A public engagement program and environmental assessment were undertaken to identify issues of concern, and Project-environment interactions were assessed to identify potential environmental effects associated with the construction and operation of the Project.

The main concerns raised during the public engagement program included:

- Loss of garden plots
- Project cost
- Additional miscellaneous hydro lines
- Disruption to environment and nearby residents during construction
- Environment & landowners' compensation
- BRT line impacts

Key issues that became apparent during the environmental assessment relate to the disruption of current land use activities along the ROW. Most of the potential Project effects, as described in the assessment, are located within the ROW and are short term impacts associated with construction activities which can be mitigated with standard mitigation measures.

Based on the available information for the Project and the environment, the assessment of environmental effects outlined in this environmental assessment report, the application of proposed mitigation measures and the conduct of required follow-up, the construction and operation of the proposed Project will not likely result in any significant residual environmental

effects. Similarly the cumulative environmental effects of the Project in combination with the effects of other projects adjacent to the ROW will also not likely result in significant environmental effects.

1.0 INTRODUCTION AND BACKGROUND

1.1 PROJECT OVERVIEW

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) was retained by Manitoba Hydro to conduct an Environmental Assessment in order to acquire an Environment Act Licence for the Harrow Station to Bishop Grandin Transmission Project.

The Project is part of the improvement to the Southwest Winnipeg 115 kV Transmission System to meet the load and performance criteria necessary for reliability. The Project will be constructed in southwest Winnipeg between Harrow Station at Harrow Street and Taylor Avenue and Bishop Grandin Blvd (Figure 1.2-1), entirely within an existing Manitoba Hydro ROW.

The Project consists of relocating and rebuilding two 115 kV double circuit transmission lines by upgrading the lines with new towers and conductors. Upgrading the conductors is required to support 115 kV transmission capacity in the Southwest Winnipeg transmission system. Relocating the lines onto new towers within the existing ROW is required to accommodate the BRT corridor to the University of Manitoba. Conductors from the YS33/XH46lines will be moved to newly constructed towers and the existing towers will be decommissioned. The VH1/VS27 lines will also be moved to newly constructed towers; however, the towers and existing conductors will not be decommissioned.

The section of the ROW that is the subject of this assessment and requires environmental licensing is approximately 5 km in length and located west of Pembina Highway between Harrow Street at Taylor Avenue and Bishop Grandin Blvd.

1.2 RATIONALE FOR THE DEVELOPMENT

1.2.1 Purpose

Upgrades are required in order to meet additional 115 kV transmission capacity in the south-west Winnipeg Area. The upgrades will alleviate potential overload and leave room for future load growth. The tower relocation will allow development of Phase II of the Bus Rapid Transit corridor.

The transmission line design and construction will meet or exceed the design standards as set out by the Canadian Standards Association as well as the planning, performance, and reliability standards of the North American Electric Reliability Corporation.

Harrow to Bishop Grandin Transmission Project

Project Infrastructure

- Proposed New Transmission Line
- Existing Transmission Line (Remain in Place)
- Decommissioned Transmission Line

Waverley St

Taylor Av

McGillivray Bv

Pembina Hw

Bishop Grandin Bv

Manitoba Hydro

Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB
Date Created: October 19, 2011

0 250 500 Meters

0 0.25 0.5 Miles

N

1:12,000

Harrow to Bishop Grandin Transmission Project

Draft: For Discussion Purposes Only

1.2.2 Alternatives

Alternatives considered for the relocation of the double circuit towers, to accommodate the proposed BRT, included various tower types (self-supporting steel lattice, single pole steel tower) and various alignments, within the existing ROW. In addition to accommodating the proposed BRT, the project needed to consider future transmission development within the ROW.

The two double circuit single pole towers shifted to the west side of the existing hydro ROW were selected as they meet the needs of the proposed BRT as well as allowing future transmission development.

1.3 PURPOSE OF THE DOCUMENT

The Project requires a licence for a Class 2 Development under *The Environment Act* (Manitoba) as described in the following section. As such, the purpose of this document is to satisfy the licensing requirements of *The Environment Act*. This Environmental Assessment Report was prepared in accordance with Manitoba Hydro's corporate and environmental policies and is submitted as part of the Environment Act Proposal (EAP) for the Project. The assessment is consistent with Canadian and international environmental assessment best practices and guidance [(1)].

1.4 REGULATORY FRAMEWORK

1.4.1 Provincial Environmental Assessment and Permitting

The preparation of an EAP is required to initiate the licensing process under the Province of Manitoba's *Environment Act* (C.C.M.S. c. E125). The proposed work is considered a Class 2 development under Manitoba Regulation 164/88 as it involves transmission lines of 115 kV or over but not exceeding 230 kV.

The construction and operation of the proposed Project is subject to all applicable provincial legislation, guidelines, codes and standards, including the following provincial acts and regulations:

- *The Contaminated Sites Remediation Act*
- *The Dangerous Goods Handling and Transportation Act*
    - □ Dangerous Goods Handling and Transportation Regulation
    - □ Environmental Accident Reporting Regulation
    - □ Generator Registration and Carrier Licensing Regulation
    - □ Storage and Handling of Petroleum Products and Allied Petroleum Products Regulation

- *The Endangered Species and Ecosystems Act*
  - Threatened, Endangered and Extirpated Species Regulation
- *The Environment Act* (Manitoba)
  - Classes of Development Regulation
  - Licensing Procedures Regulation
  - Litter Regulation
  - Pesticides Regulation
- *The Fisheries Act* (Manitoba)
- *The Forest Act*
- *The Forest Health Protection Act*
- *The Heritage Resources Act*
- *The Highways and Transportation Act*
- *The Manitoba Hydro Act*
- *The Noxious Weeds Act*
- *The Planning Act*
  - Provincial Planning Regulation
- *The Public Health Act*
- *The Water Protection Act*
- *The Wildlife Act*
- *The Workplace Safety and Health Act*
  - Workplace Safety and Heath Regulation

1.4.2 Municipal By-Laws

The City of Winnipeg has a number of by-laws that govern land use planning, zoning and approvals for lands under municipal control.

1.4.3 Federal Environmental Assessment and Permitting

The proposed Project will not require approval by the Canadian Environmental Assessment Agency as it is not a designated project under the *Canadian Environmental Assessment Act 2012* annexed regulation *SOR/2012-147A "Regulations Designating Physical Activities"* and it is

not on federal land. The construction and operation of the proposed Project is, however, subject to all applicable federal legislation, guidelines, codes and standards including:

- *Canadian Environmental Protection Act*
- *Fisheries Act*
- *Migratory Birds Convention Act*
- *Radio Communications Act*
- *Species at Risk Act*

2.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The transmission lines will be upgraded with new towers and conductors to deal with increased line sag and minimum ground clearances associated with increased loads. The project primarily consists of replacement of existing towers and conductors within the existing ROW (Appendix A: Photos 01 and 02). The technical details for the relocation of lines YS33/XH46 and VH1/VS27, described in this section, are based on preliminary designs, standard design criteria, and construction policies and practices. Final engineering design will be completed upon receipt of the Environment Act Licence and will incorporate any conditions included in the Licence.

2.1 PROJECT LOCATION

The project will be constructed in southwest Winnipeg between Harrow Station at Harrow Street and Taylor Avenue and Bishop Grandin Blvd (Figure 1.2-1). The project will take place within an existing Manitoba Hydro ROW on land owned by Manitoba Hydro.

2.2 PROJECT COMPONENTS

The Project consists of relocating and rebuilding two 115 kV double circuit transmission lines by upgrading the lines with new towers and conductors.

Structures

Specialized self-supporting double circuit steel towers will be used to support the Project's transmission lines (Figure 2.2-1). Typical suspension and angle towers will be tubular steel single pole structures, 30-40 m high. The span between the towers will be 150-160 m.

The existing towers holding circuits YS33/XH46 will be decommissioned and removed after the new line is energized. The towers and conductors holding the circuits VH1/VS27 will be left in place.

Conductors and Insulators

Lines YS33/XH46 and VH1/VS27 will be a double-circuit line configuration consisting of 954 MCM ACSR (Aluminum Conductors, Steel Reinforced) conductors. Each conductor consists of aluminum strands wrapped around a centre core of steel strands and will be suspended from each structure by insulator strings. The ground clearance will meet or exceed the requirements of Overhead Systems, C22.3 Standard No. 1-10 (CSA 2010). The minimum ground-to-conductor clearances for 115 kV power lines are:

- Road and Highways Crossings: 6.325 m
- Railways: 9.3 m

- Underground Pipelines: 6.1 m
- Ground: 5.5 m

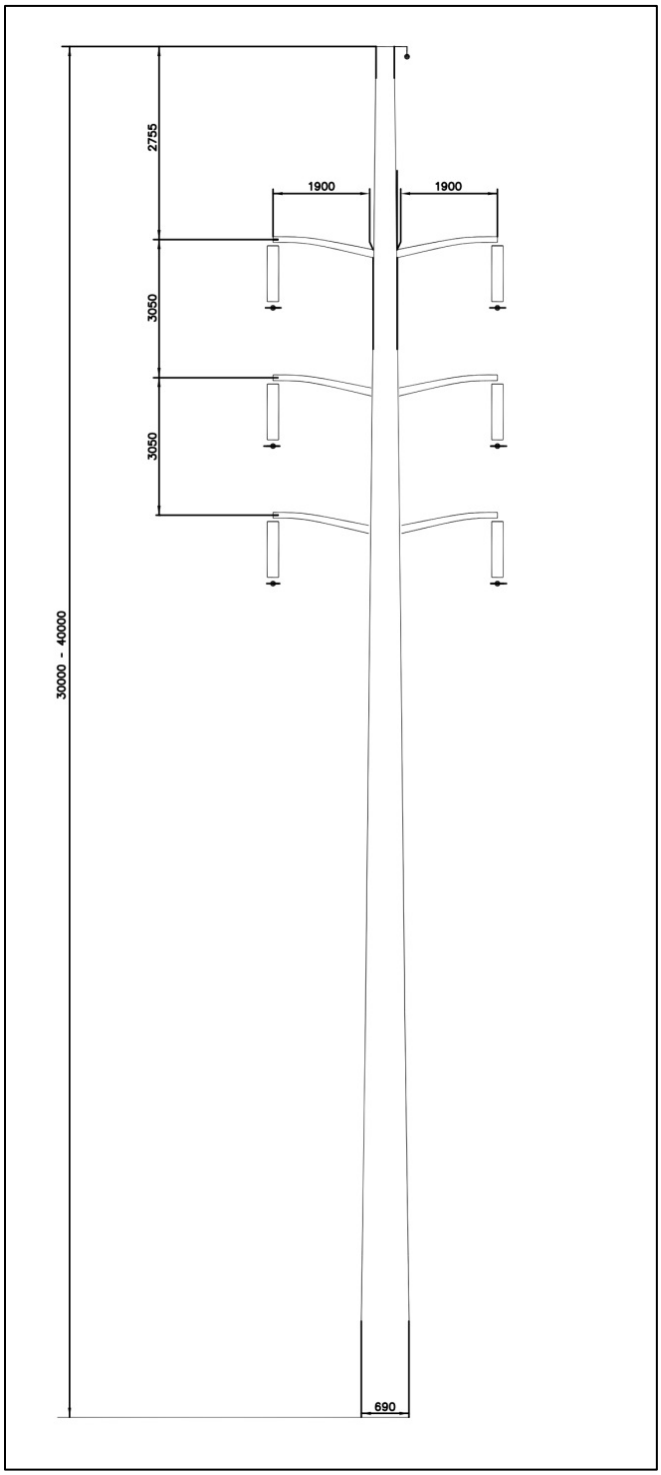


Figure 2.2-1: Single Pole Tower

2.3 PRE-CONSTRUCTION

The route will be surveyed to establish a centreline for the transmission lines. The edges of the ROW will also be surveyed and flagged to establish the limits for tree clearing (where required). It is during this survey the tower locations will be established.

2.4 CONSTRUCTION

Construction will be carried out by contractors under the supervision of Manitoba Hydro. Transmission line construction will begin following the receipt of the *Environment Act* licence and all conditions are met. Other work permits and/or authorizations will be obtained as required. Manitoba Hydro and its contractors will follow the Environmental Protection Plan provided in Appendix B and incorporate any license, permit or authorization conditions. The Environmental Protection Plan outline mitigation and on-ground procedures for preventing or minimizing environmental effects from construction activities. Manitoba Hydro field staff and the contractors will be provided with copies of the Environmental Protection Plan and licenses/permits/authorizations.

Several lessee's use the ROW for various reasons (parking lots, garden plots etc.). The lessees have been contacted and access to the ROW will be limited during construction for their safety.

The double circuit tower lines affected within the Harrow to Bishop Grandin ROW are:

- Tower line containing circuits VH1 and VS27 (Pink lines on east side in Figure 1.2-1)
- Tower line containing circuits YS33 and XH46 (Orange lines in Figure 1.2-1)

The two new 115 kV transmission lines (Green lines in Figure 1.2-1) will be constructed within the existing ROW. No new circuits are being created with this Project. Once the new 115 kV transmission lines are built the power will be switched to the new circuits. The existing tower line containing circuits YS33 and XH46 will be decommissioned with removal of conductors and towers (Figure 2.4-1). The existing tower line containing circuits VH1 and VS27 will remain in place on the ROW for provision made against future unforeseen events, but not operated (Figure 2.4-1).

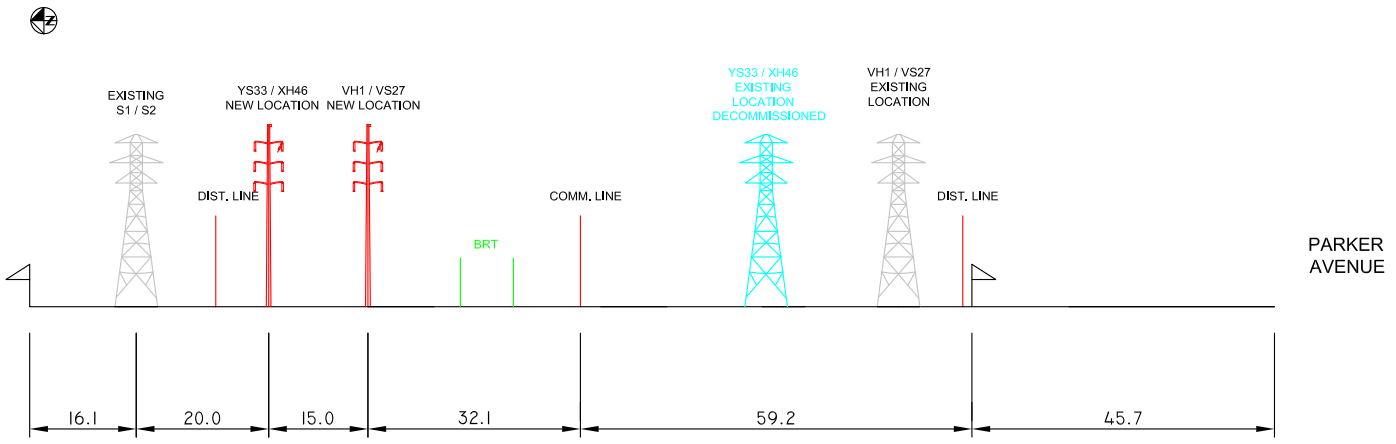
Transmission line construction will begin once the ROW is cleared. The basic construction steps involve foundations installation, framing and erection of structures, stringing of conductors, clean-up, and commissioning.

Typical construction equipment includes:

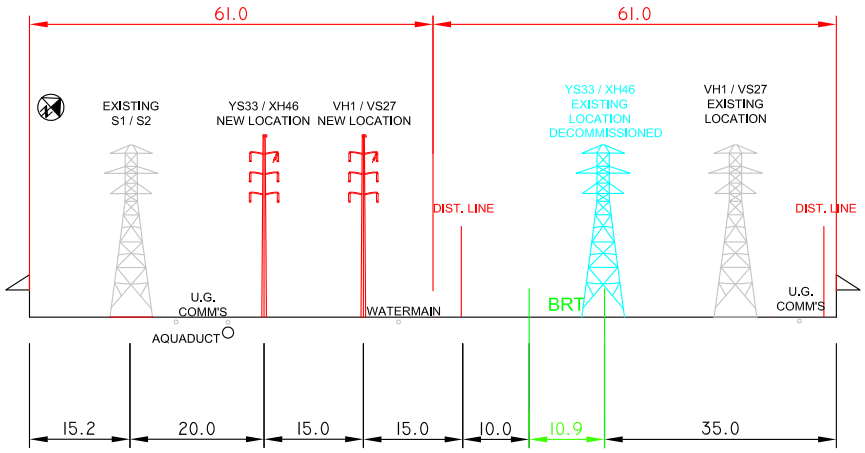
- Drill rigs for drilling piles;
- Backhoes with attachments for installing piles;
- Excavators and cranes for erecting towers;

- Bulldozers and stringing equipment such as tensioners and pullers for stringing conductors and skywires;
- Material delivery trucks and trailers;
- Concrete trucks; and
- Other smaller equipment for transportation and other minor tasks as required.

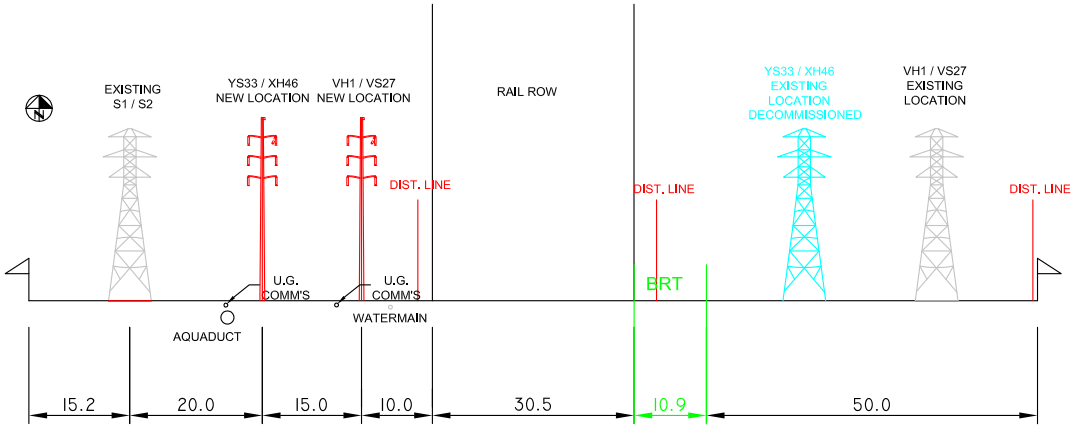
Access to construction sites will generally be from within the ROW. The ROW will be accessed at intersections with roadways or road allowances or from roadways adjacent to the transmission line in order to minimize the need for developing new access. Permission will be requested from landowners if access is across private property.



PARKER LANDS LOOKING EAST



CLARENCE AVE. LOOKING NORTH



PLAZA DRIVE LOOKING NORTH

Figure 2.4-1: Right -of-way Cross Sections Harrow Station to Bishop-Grandin Blvd.

2.4.1 Fuels and Hazardous Materials

Gasoline and associated products for construction equipment will not be stored at the site although equipment will be refueled on site from slip tanks on trucks. The types and quantities of all fuels and hazardous materials to be used in the construction Project have not been determined but are likely to include those listed in Table 2.4-1.

Any hazardous wastes will be stored separately and transported in accordance to applicable legislation (*Manitoba Provincial Dangerous Goods Handling and Transportation Act*) to a licensed disposal and/or treatment facility.

Table 2.4-1: Fuels and Hazardous Materials

Project Component	Fuel/Materials	Purpose
115 kV Transmission Line	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Heating if required
	CCA	Wood preservative
	Solvent	Cleaning conductors

2.4.2 Potable Water

Potable water for the proposed Project will be trucked to the construction site from existing sources as required.

2.4.3 Waste Disposal and Treatment

Trees and shrubs cleared along the ROW will be removed to a licensed or approved waste disposal ground. Non-hazardous solid waste (*e.g.*, construction materials and earth) will be collected at the construction sites and transported to a licensed waste disposal facility. Porta-potties will be provided for field construction crews and serviced by a licensed company.

2.4.4 Right-of-Way Clearing

Minimal ROW clearing will be required as the project is on existing Manitoba Hydro property and is situated in a developed urban area. Where required, the ROW will be cleared of trees and understory to allow for safe and reliable operation of the transmission line. There are a few small treed areas located in Brenda Leipsic Park (north of Parker Avenue) that may need to be cleared. Clearing will be modified in environmentally sensitive areas and will be subject to a variety of pre-determined but adaptable environmental protection measures. In forested areas,

shrubs and herbaceous vegetation ground cover will be maintained as much as possible to provide soil stability and prevent erosion and sediment transport.

Clearing methods include machine clearing by “V” and KG blades, mulching by rotary drums, selective clearing by feller bunchers, and hand clearing. Trees will be cut within 10 cm of the ground surface. Ground vegetation will only be grubbed at tower sites for foundation installation, access trails for equipment, or for worker safety. Danger trees identified beyond the ROW will also be removed. In environmentally sensitive areas clearing will be conducted by hand.

Disposal of cleared vegetation typically involves mulching. The final decision for disposal of vegetation will be determined by the method of clearing used and the environmental license conditions applied to the project.

2.4.5 Foundation Installation

Tower foundations for both lines will be cast in place concrete piles except in areas of special soil conditions determined during detailed design. Pile foundations for suspension towers will be constructed by auguring 1.8 m diameter holes to a depth of 9 m below the surface. Pile forms will be placed in the holes and filled with concrete. Foundations for heavy angle or dead end structures will be constructed using the same methods above except the piles will be 2.44 m in diameter and extend to 10 m below the surface. Pile dimensions will vary to accommodate differences in ground conditions among tower sites.

2.4.6 Structure Erection

Single pole tower structures (Figure 2.2-1) will be assembled either on-site or assembled as components in a designated marshaling yard, transported to the construction site by truck, and erected by crane. Prior to structure erection the insulators will be attached to the cross-arms.

2.4.7 Conductor Installation

Reels of conductor will be transported to site by truck, as required. The conductors will be lifted to the insulators by crane. Conductor lengths will be connected using either implosive sleeves or hydraulic crimping. Implodes would be conducted between 9 AM and 3 PM, and the number would depend on the number of dead-end towers within a section. There would be a dead end implode sleeve on each side of a dead end tower on each conductor (6 implodes per circuit), then implodes for the skywire as well (4 per tower if two skywires). Implodes are used to splice conductors on straight runs that are longer than 3 km. Conductor tensioning will be completed by machine to provide the pre-determined ground to conductor clearances. Roads (Parker Avenue, McGillivray Boulevard, Clarence Avenue, Chevrier Boulevard, and Manahan Avenue) and the CN Rail Line will need to be closed to traffic for 5 to 10 minutes during conductor stringing.

2.4.8 Marshaling Yards

Marshaling yards will be used to store construction materials and equipment. The yards will be established on the ROW, where possible, otherwise they will be near the transmission line route to minimize transportation requirements. Contractor specifications and agreements may influence the number and location of marshaling yards.

2.4.9 Granular Materials

Granular materials will be required during construction for granular back-fill and/or concrete batching for tower foundations. Granular materials will be purchased from local suppliers.

2.4.10 Waste Disposal and Cleanup

Waste materials will be disposed of through local contract services and will be subject to any licensing conditions. Temporary waste disposal will be undertaken in accordance with provincial and municipal regulations and bylaws. Once the transmission line has been completed, all materials, equipment, debris, and unused supplies will be dismantled, if required, removed from the site and disposed of according to provincial and municipal regulations. Reclamation of construction sites, including marshaling yards, will be undertaken as required.

2.4.11 Electric and Magnetic Fields and Corona

Operation of any transmission line involves the production of electric and magnetic fields (EMF) and corona discharges. The anticipated levels of exposure to EMF is safe based on guideline CSA limits.

Corona discharges may result in audible noise and low frequency electrical interference. The level of these will vary with time, subject to variations in the operating mode and loading conditions of the line and, as well, to final line design, conductor condition, and such external considerations as meteorological conditions.

Metal objects (fences, metal sheds, etc.) that run parallel to 115 kV transmission lines are subject to induced voltages. Induced voltages vary with proximity of the structure to the transmission line, material and construction, and the length of the parallel run. Standard grounding procedures will be defined for any structures running parallel to the transmission line.

2.5 OPERATION AND MAINTENANCE

2.5.1 Transmission Line

The transmission line will be designed to operate continuously although the actual flow of electricity will vary with load requirements. In order to maintain the transmission line in a safe and reliable operating condition, regular inspection and maintenance must occur. This will

include inspections of ROW vegetation as well as structures, hardware and station equipment. Regular inspections typically occur on an annual basis.

Manitoba Hydro maintains a corporate manual for transmission line construction and maintenance procedures which is continuously updated. The operations and maintenance phase of the Project will adhere to all procedures outlined in the manual.

Inspections of the transmission line within the city of Winnipeg are typically done by ground patrols and non-scheduled maintenance by ground in the event that unexpected repairs are required. Ground travel within the city is typically done using light truck or occasionally using snowmobile and all-terrain vehicle.

2.5.2 Line Maintenance Procedures

Transmission line maintenance could include anything from minor repairs to full replacement of any component of the transmission line.

Maintenance procedures are well established and subject to updates to keep them aligned with corporate guidelines for maintenance and construction activities. Maintenance activities include instances where crews are required to obtain access to specific areas to repair deficiencies on the transmission system.

2.5.3 Vegetation Management

Manitoba Hydro will follow the Transmission Line and Transmission Station Vegetation Management Practices document [(2)] for all vegetation management on the ROW.

A variety of vegetation management methods are available, including physical, chemical, and biological control techniques. The application of vegetation management is dependent on the location, costs, and the environmental sensitivity of the site.

Vegetation management methods include:

- Hand cutting: hand-cut trees using chainsaws, brushsaws, axes and brush hooks. Where local conditions permit, hand-cut deciduous trees might be stump treated with an approved herbicide to prevent re-growth. In areas were herbicide application is not an option more frequent follow-up maintenance will be required to address regrowth.
- Mechanical cutting: Mechanical cutting is generally used where dense tree growth reoccurs on the ROW and the site is not environmentally sensitive (*e.g.*, riparian zones). Follow-up maintenance is usually required within two to three years to manage suckering and re-growth.
- Winter shearing: This is used when the ground is frozen and is performed by a tracked vehicle equipped with “V” or “K-G” blades to clear trees with a trunk diameter greater than 2.5 cm. Trees are sheared approximately 6 cm above the ground surface to minimize damage to the ground cover and soil disturbance.

- Herbicide treatment: Herbicides are used to provide long-term control of tree growth problems and are generally applied in follow up to mechanical methods. All herbicide applications will be completed and supervised by licensed applicators and in accordance with a Pesticide Use Permit. Herbicide application rates will be determined by the Manitoba Hydro Chief Forester in accordance with product label instructions. The Chief Forester is responsible for obtaining the necessary Pesticide Use Permits and for submitting Post-season Control Reports as required by Manitoba Regulation 94/88R. In the case of herbicide application, Manitoba Hydro will contact landowners adjacent to the ROW.

  Herbicide application methods include:

  - Broadcast stem or foliar application equipment such as machine applicators and hose and handgun applicators are used for controlled droplet applicators for tree heights of 2.5 m or less.
  - Selective stem applicators such as hose and gun sprayers are the preferred method of application for trees less than 2.5 m in height.
  - Basal treatment applications are used for a direct spray onto the lower 20 cm of the tree stem or root collar. This can be completed in any season and is generally used for tree growth over 2.5 m.
  - Stump treatment is used following hand cutting, where practical, to provide selective control of suckering deciduous tree species and to minimize effects on desirable species.
  - Tree injection methods might also be used on trees over 2.5 m, subject to aesthetic impact considerations.
- Biological control is a method of encouraging competing plant species, planting and maintaining desirable plant species, encouraging wildlife use or encouraging secondary use of the ROW.

2.6 DECOMMISSIONING

The Project has been designed to remain in service for several decades and with regular maintenance could be operated indefinitely.

Manitoba Hydro has identified acceptable means for environmentally restoring project sites and the ROW. Established procedures are available for the decommissioning of temporary infrastructure or facilities (*e.g.*, marshalling areas). Refer to Section 2.4.10 for information on post-construction cleanup.

Current methods of transmission line decommissioning entail the dismantling of the structures and salvage or disposal of all steel structure components, as well as removal and salvage of insulators, conductors and ground wires. These will be used to fully decommission YS33/XH46 and partially decommission VH1/VS27, as noted in Section 1.1.

Decommissioning of the ROW, currently involves clean-up and/or remediation to a standard commensurate with local environmental conditions, including the existing land use and policy with respect to future development.

2.7 DESIGN MITIGATION

The design of the proposed Project will incorporate applicable environmental legislation, standards, guidelines and best practices including the following:

- Code of Practice for Storage and Handling of Petroleum Products and Allied Petroleum Products Storage Tank Systems (Manitoba Hydro 2003)
- Contractor/Non-Employee Safe Practice Guide (Manitoba Hydro 2005)
- Corporate Safety and Health Rules. Safety Policies, Publications and Training Department (Manitoba Hydro 2009a)
- Environmental Protection Guidelines, Construction, Operation and Decommissioning, Manitoba Hydro Work Sites and Operations (Manitoba Hydro 2006a)
- Fur, Feathers, Fins and Transmission Lines: How Transmission Lines and Rights of Way Affect Wildlife (Manitoba Hydro 2010)
- Guide to Environmental Legislation Applicable to Manitoba Hydro's Projects and Operations (Manitoba Hydro 2009b)
- Hazardous Materials Management Handbook (Manitoba Hydro 2007a)
- Overhead Transmission Line Construction Inspection Manual (Manitoba Hydro 2008)
- Transmission Line and Station Vegetation Management Guidelines (Manitoba Hydro 2007b)

2.8 PROJECT SCHEDULE

The anticipated in-service date for lines YS33/XH46 and VH1/VS27 is summer 2016. To meet these timelines, tasks are anticipated to be completed according to Table 2.8-1.

Table 2.8-1: Harrow Station to Bishop Grandin Boulevard 115kV Transmission Project Schedule

Project Task	Target Date
EA Report and EAPF Submission	April 2015
Regulatory Review	Spring/Summer 2015
Receipt of license under *The Environment Act* (Manitoba)	Winter 2015/2016
Transmission Line Construction (YS33/XH46 and VH1/VS27)	Spring 2016
In-Service Date (YS33/XH46 and VH1/VS27)	Summer 2016

2.9 FUNDING

Manitoba Hydro has funded the development and the preparation of this EAP and will be funding the Project.

3.0 EXISTING ENVIRONMENT

To assess the existing biological, physical and socio-economic environment within and adjacent to the ROW, KGS Group examined all readily available background data and reporting. This included the examination of topographic, bedrock, surficial geology, soil and land use maps, aerial photographs, existing biological studies and data sets and government records for the Project area and surrounding region. The Manitoba Conservation Data Centre (MCDC) was contacted to identify the potential for any provincially rare species and the Manitoba Historic Resources Branch was contacted to identify the potential for any archaeological or heritage resources within the ROW. A site visit was also completed in September 2014 in order to collect additional environmental data to supplement the existing studies and data sets and to obtain photographs of the ROW and surrounding areas.

The boundaries for this assessment were established based on the fact that the Project will be developed within an urban setting. The Project area is considered to be the ROW and those properties within 100 m of the ROW. Construction effects to air quality and those arising from vibration and noise are not expected to extend further than 100 m beyond the extent of the ROW. The regional area was defined as the area within a 1 km radius of the ROW. This regional area was selected as it is considered to encompass the communities surrounding the ROW that would be most affected by the Project in terms of traffic.

Temporal boundaries are established based on the potential recovery of the environment from Project effects and the lifetime of the infrastructure or until the Project is decommissioned. The Project has been designed to remain in service for several decades. The temporal boundary of the environmental assessment covers the normal life expectancy of the proposed Project, which is estimated to be approximately 50 years.

3.1 BIOPHYSICAL ENVIRONMENT

3.1.1 Soil

3.1.1.1 Regional Geology

The upper 60 m of the subsurface stratigraphy in the Winnipeg area generally consists of three distinct soil units: the Complex Zone; Glacio-lacustrine silty clay; and glacial till; underlain by carbonate bedrock. The Complex Zone is up to 4 m thick and consists of stratified silty clay and silt, with varying amounts of organic soils, alluvial silts and sands, and man-made fill. The glacio-lacustrine silty clay underlies the Complex Zone and consists of intermediate to high plasticity silty clays up to 21 m in thickness, generally firm to stiff but becoming softer with depth. The glacial till underlies the glacio-lacustrine silty clay and is made up of predominately silt sized particles with highly variable amounts of clay, sand and gravel. The upper portion of the glacial till is frequently loose / soft and water bearing, while the lower till is dense to very

dense. The upper carbonate bedrock unit underlies the glacial till and is underlain by a sequence of Paleozoic limestones and dolomites of the Red River Formation [3].

3.1.1.2 Local Geology

In early 2014, a geotechnical investigation was conducted along a portion of the project ROW as part of the City of Winnipeg Southwest Transitway. Subsurface conditions in the test holes were, for the most part, uniform and are typical of that found throughout the City of Winnipeg [4]. In descending order, the soil stratigraphy consists of: glacio-lacustrine clay and glacial till; followed by limestone bedrock, described as follows;

- **Glacio-Lacustrine Clay** - up to 12 m thick was encountered in all test holes. A thin topsoil layer about 150 mm thick overlays the clay in most test holes. The presence of a silt layer(s) about 1 m thick was observed in the top two metres of the clay unit. Typically, the clay is silty and brown changing in color to grey with depth, firm to stiff becoming soft with increasing depth, moist and of high plasticity.
- **Glacial Till (Silt)** - The glacio-lacustrine clay is underlain by glacial till (silt) that typically contains variable amounts of clay, sand and gravel. Boulders and cobbles are known to be present within the till unit and were encountered during the drilling. Where the drilling advanced into bedrock below the till unit at McGillivray Boulevard and Bishop Grandin Boulevard, the thickness of the till layer varies from 4 to 6 m. The till is brown to light grey, soft/loose in the upper zone and become denser with increasing depth. The till is moist and of low plasticity.
- **Limestone Bedrock** - The glacial till is underlain by limestone bedrock, which forms an aquifer. The depth to bedrock, measured during the geotechnical investigation at Bishop Grandin Boulevard, was approximately 19.5 m below surface [4].

3.1.2 Climate

The City of Winnipeg is located within the Winnipeg Ecodistrict which occupies most of the southeastern portion of the Lake Manitoba Plain Ecoregion in the Prairie Ecozone. The ecodistrict extends from the Canada-U.S. border to about 50° 30' N. The ecodistrict has a cool, subhumid to humid, Boreal to a moderately cold, subhumid, Cryoboreal soil climate. This ecodistrict is in the most humid subdivision of the Grassland Transition Ecoclimatic Region in southern Manitoba and is characterized by short, warm summers and long, cold winters [5].

Based on climate data for Winnipeg (at the airport) from 1981 to 2010 the mean daily temperature ranges from 19.7 °C in July to -16.4 °C in January with an annual mean of 3 °C and 252 days with the daily maximum temperature above 0 °C [6]. The mean annual precipitation is approximately 521 mm of which 418.9 mm falls as rain. Precipitation varies from year to year and is highest from late spring through summer. June has the highest average rainfall (90.0 mm) and January has the highest average snowfall (23.7 cm).

3.1.3 Surface Water

The nearest major water course is the Red River which is approximately 1 km to the east of the ROW in some areas. Spring floods of the Red River are controlled by the Red River Floodway which diverts water around the city. Run-off from the ROW is directed to and controlled by various ditches and storm water sewers along the roads and rail spurs that intersect and cross the ROW, which discharge to the Red River. A major drainage ditch known as Lot 16 Drain (Photo 03) runs beneath the southern portion of the ROW at Plaza Drive and carries water from storm water retention ponds in Whyte Ridge, Linden Ridge and the west Fort Garry Industrial Area to the Red River.

3.1.4 Groundwater

There are three significant bedrock aquifers beneath the City of Winnipeg, although groundwater is not used as a potable source of water in the city. The largest is known as the Upper Carbonate Aquifer which is generally found within the upper 7 m of the carbonate bedrock profile. This aquifer is contained in an extensive network of fractures and karstic solution cavities formed by the dissolution of the upper carbonate rocks. Other aquifers include the Lower Carbonate Aquifer at the base of the carbonate bedrock profile and the underlying Winnipeg Formation sandstones. A Middle Carbonate Aquifer has also been encountered locally.

3.1.5 Aquatic Biota and Habitat

Sampling to determine the presence of fish within certain upstream regions of Winnipeg creeks and streams was carried out by the City of Winnipeg, Naturalist Services Branch, in the spring and summer of 2006. Methods included the use of Minnow Traps, Gill Nets (3 ¼"), a Beach Seine Net, and a Fike Net. Fish species that were caught in the Lot 16 Drain (North of Bishop Grandin Blvd, west of Waverley St.) included Brook Stickleback, Common Carp, and Fathead Minnow [(7)].

The Red River is known to support habitat for approximately 70 species of fish. Some of the more common species include walleye, sauger, channel catfish, goldeye, freshwater drum, white bass, white sucker, carp, emerald shiner, spottail shiner, and troutperch [(8)].

3.1.6 Vegetation

The vegetation along the ROW (Photos 04 and 05) consists mostly of mowed grass with typical weedy species including Canada and sow thistle, silverweed and clovers. The ROW does however, contain small amounts of aspen and oak forest as well as some low lying wetland and ditch areas. Oak, aspen and birch are found in the vicinity of Brenda Leipsic Park and in some areas along the perimeter of the ROW. Various shrubs including red osier dogwood and willows

can be found in low lying areas and ditches. The low lying areas and ditches along the ROW tend to contain water and support cattail and various wetland grasses.

3.1.7 Wildlife

The ROW does not provide any substantial wildlife cover and it is unlikely that any wildlife sensitive to human disturbance are present. The ROW is currently developed land and is considered to be disturbed. Terrestrial and avian species potentially found in the project area would be limited to those found in an urban setting.

The Project area is not far from three of Winnipeg's largest green spaces: Assiniboine Park, the Assiniboine Forest and Fort Whyte Alive, which provides abundant quality habitat compared to the ROW. The Assiniboine Forest provides an ideal habitat for more than 39 species of mammals, including deer and fox. In the 1970s, Ducks Unlimited constructed a pond within the forest to supply a nesting habitat for waterfowl and water for wildlife [(9)].

3.1.7.1 Birds

Bird habitat in the Project area includes tree and shrub areas, open fields and ditches. Assiniboine Park and the Assiniboine Forest is less than 6 km west of Harrow Station and more than 200 bird species were previously observed there [(10)]. Although the Project area does not provide habitat suitable for long-term use by many bird species, some of those identified in Assiniboine Park and listed in Appendix C are migratory and may pass through the Project area during migration. A few species acclimatized to an urban setting may utilize the Project area during the breeding season. No Important Bird Areas are present within the Project area with the nearest located at Oak Hammock Marsh, approximately 30 km north of Winnipeg.

Waterfowl and other Waterbirds

Breeding and nesting habitat for waterfowl and other waterbirds is limited within the Project area as wetlands and other waterbodies are infrequent. Wetlands nearest to the Project area are found at Fort Whyte Alive. The wetlands at Fort Whyte Alive, located approximately 5 km west of the southern terminus of the proposed Project, are a waterfowl staging site frequented by Canada geese and other waterfowl during the migration seasons. When traveling to fields to forage the birds may pass through the Project area.

Raptors

According to the species listing for Assiniboine Park and Assiniboine Forest, there are approximately 12 raptor species utilizing habitats near the Project area including barred owl, broad-winged hawk, common nighthawk, Coopers hawk, great gray owl, great horned owl, long-eared owl, northern saw-whet owl, peregrine falcon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk. Although most of the raptors are tree nesting species many hunt in open areas.

Songbirds and Other Birds

Songbirds represent the majority of bird species potentially utilizing habitats within the Project area. Most songbird species are migratory and occupy habitats within the Project area during the breeding season (April to August), with peak breeding months being May through July for most species. Some bird species, such as black-capped chickadees, blue jays, American crow and nuthatches, are resident species and will remain in the local area year round, particularly in areas where wooded cover is present (woodlots, riparian areas).

The human-altered landscapes that dominate the Project area, would typically only support generalist bird species. Although grassland, forest and shrub habitats typically support a greater diversity and abundance of birds, buildings and other structures associated with developed areas may provide nesting habitats for certain species [(11)].

3.1.7.2 Mammals

The majority of mammals that may be found within the patches of forest along the ROW are small omnivores, white-tailed deer and the occasional fox [(12)]. Small mammals found in the Prairie Ecozone include the northern pocket gopher, muskrat, beaver, woodchuck, Richardson's ground squirrel, thirteen-lined ground squirrel, Franklin's ground squirrel, least chipmunk, porcupine, eastern cottontail, and snowshoe hare, although only a few of these adapted to human disturbance are likely to be found within the ROW.

3.1.8 Species of Conservation Concern

Mr. Chris Friesen [(13)], Biodiversity Information Manager, MCDC, completed a search of the MCDC rare species database and found no occurrences of federally or provincially listed species (*The Endangered Species Act* (Manitoba) and *Species at Risk Act* (Canada)) in the area (Appendix D).

3.2 SOCIO-ECONOMIC ENVIRONMENT

3.2.1 Land Use

The ROW is located within the City of Winnipeg. As one of the larger cities in Canada, with a current population of 663,617 people [(14)], Winnipeg contains numerous amenities and developed infrastructure. Greenspace, single family dwellings, high density residential, industrial, commercial, manufacturing and transportation infrastructure either border or cross the ROW in many areas.

Green space is found to the north of Bishop Grandin Blvd, east of the ROW at the cemetery on the north side of McGillivray Blvd and at the “Parker Lands” north of Parker Avenue. The Parker Lands (the vacant land between Hurst Way and Planet Street off Parker Avenue) is known as Brenda Leipsic Park and is used by dog owners who want to let their dogs run off-leash. Other

uses of green space within the ROW include bike paths (Photo 06) and Manitoba hydro leases portions of the ROW for small garden plots (Photo 07).

The southern-most extent of the ROW, from Bishop Grandin Blvd to Chevrier Blvd is bordered on the east by commercial and high density residential buildings (Photos 08 and 09). From Chevrier Blvd north to Parker Avenue the east side of the ROW is bordered by single family homes and high density residential buildings.

With the exception of the most southern and most northern portions of the ROW, it is bordered to the west by industrial (Photo 10) and manufacturing businesses. Along some sections of the ROW are areas used for employee parking and machinery storage (Photos 11 and 12).

Some of the formerly vacant lands that bordered the northern edge of the ROW to the south of Taylor Avenue are currently being developed into mixed land use with commercial, office and residential properties as part of the Grant Park Pavilions development.

3.2.1.1 Protected Areas

There are no protected areas that border the ROW.

3.2.2 Resource Use

Resource use along the ROW along the ROW consists small garden plots located adjacent to the Beaumont and Maybank communities.

3.2.3 Public Safety and Human Health

To the best of our knowledge, there are no public safety and human health issues currently existing along the ROW.

3.2.4 Heritage Resources

Ms. Heather McClean the Heritage Resources Registrar with the Manitoba Culture, Heritage, and Tourism, Historic Resources Branch [15] examined Branch records and confirmed that there are no archaeological or heritage resources known to exist in the Project area (Appendix D).

3.2.5 Heritage Sites

Historically, an urban Metis community known as Rooster Town was situated between what is now Grant Avenue and the Canadian National Railway line, which runs south of what is now Taylor Avenue. The community that existed until the late 1950s, was basically centered where the Grant Park Shopping Centre and Grant Park School are now located [16].

4.0 COMMUNITY ENGAGEMENT PROCESS

Manitoba Hydro conducted a Community Engagement Process from November 2014 to March 2015 for the Project. The Community Engagement Process includes both Public Engagement (PEP) and First Nation and Metis Engagement Processes.

4.1 PURPOSE AND OBJECTIVES

The purpose and objectives of the Community Engagement Process were to:

- Share project information;
- Gather and understand local interests;
- Integrate local interests and concerns into the Environmental Assessment process; and
- Discuss potential mitigation measures.

4.1.1 First Nation and Metis Engagement

On November 19, 2014, Manitoba Hydro sent a letter informing the Manitoba Metis Federation (MMF) of the transmission project. On March 3, 2015, the MMF responded to the letter requesting a meeting to discuss the Project. Manitoba Hydro provided an overview of the Project at a meeting with the MMF on March 11, 2015. The MMF representatives did not have any questions about the Project.

There are no First Nations communities along the ROW.

4.1.2 Public Engagement

MMM Group Limited (MMM) was retained by Manitoba Hydro to assist with the Public Engagement Program (PEP) for the proposed Project. A copy of the "Harrow Station – Bishop Grandin Transmission Project Public Engagement Program Report" prepared by MMM is provided in Appendix E. A brief summary is provided below.

4.2 METHODS

The PEP included discussions with key stakeholders, lessees, a newsletter mail-out, an open house, and the PEP report (Appendix E). In addition, Manitoba Hydro maintained a webpage with Project information.

4.3 ENGAGEMENT ACTIVITIES

In November 2014, the Project was announced to local residents through the distribution of a newsletter to 3,205 properties in the Project area, an announcement in the Winnipeg Free Press, by direct mail to the 17 lessees and phone calls to eight key stakeholders. The

newsletter provided a Project overview, an invitation to attend the open house and contact information (including the website address). Key stakeholders were contacted and provided with similar Project information.

Several businesses and individuals have leases for various uses of the ROW including parking lots, storage and garden plots. The lessees have been contacted and arrangements are being made regarding access to the ROW during and after construction.

Manitoba Hydro hosted an open house on December 2, 2014 at the Holiday Inn South on Pembina Highway. The open house was attended by approximately 50-60 people. The open house provided attendees with the opportunity to review information about the Project, ask questions, and share their comments with the Project team.

4.4 PUBLIC ENGAGEMENT FEEDBACK

The initial outreach elicited one phone call and one email response; both inquiries regarding the cost of the Project.

The open house attendees were mainly interested in understanding what was going to happen within the ROW and the majority of attendees indicated they were comfortable with the proposed work. A few attendees questioned the necessity of the Project. Some garden and parking lease holders attended the open house to get more specific information about the future of their leases. Open house attendees were provided with a comment sheet with seven areas of inquiry and 22 comment sheets were completed. A summary of the feedback from the comment sheets is provided in Appendix E.

5.0 EFFECTS ASSESSMENT AND MITIGATION

5.1 EFFECTS ASSESSMENT METHODS

The information obtained to describe the existing environment was used in combination with project description information provided by Manitoba Hydro and an understanding of effects typical of similar projects initiated in the past to assess potential environmental effects. The potential environmental effects of the proposed project on the environment in the ROW and surrounding areas were identified by examining the linkages between the construction, operation, maintenance and decommissioning activities for the project and the potential effects of these activities on the Valued Environmental Components (VECs) along the ROW. The environmental effects of the proposed Project were identified using an interaction matrix (Appendix F), stakeholder input and professional judgement. Advice from government representatives, concerns expressed by stakeholders, and professional judgment of the assessment team were also used to identify environmental issues and associated environmental effects. Mitigation measures were identified for potential adverse environmental effects. Follow-up measures, where applicable, have been proposed to confirm the effectiveness of mitigation measures and verify the accuracy of the environmental assessment. The cumulative effects of the proposed Project in combination with the effects of other projects and activities in the study region were also assessed.

5.1.1 Residual Environmental Effects

The significance of residual environmental effects, the effects remaining after the implementation of mitigation measures, was evaluated following procedures outlined in the Canadian Standards Association Draft environmental assessment standard [17]. Significance was evaluated based on the criteria below:

- Societal value of the affected environmental components – includes nature and degree of protection provided.
- Ecological value – Includes rarity and uniqueness, fragility, importance within ecosystem, importance to scientific studies.
- Duration – Length of time the project activity will last.
- Frequency – Rate of reoccurrence of the project activity causing the effect.
- Geographic extent – Area over which the effect will occur.
- Magnitude – Predicted disturbance compared to existing conditions.
- Reversibility – Time the environmental component will take to recover after the source of the effect ceases.

5.2 EFFECTS ASSESSMENT

An environmental effect includes any change that the project may cause to the environment (biological, physical, social and economic) [(1)]. Environmental effects were identified from interactions between project activities and environmental components. This assessment will focus on the biophysical and socio-economic effects potentially arising from the construction (including the decommissioning of the existing lines) and operation of the Project. The VECs selected for the assessment include air quality; terrain/soils; surface water; groundwater; aquatic biota and habitat; vegetation; wildlife; land use; human health and well-being; public and worker safety and heritage resources.

5.2.1 Air Quality

Increased fugitive dust will occur in the local area during site preparation and construction activities. Dust may be generated through activities such as topsoil stripping; excavating and drilling activities; transporting, backfilling, shaping and compacting of soils and aggregate; as well as general construction and road use. It is unlikely that this work will result in suspended particulate levels exceeding Manitoba's air quality guidelines. The potential adverse effect was assessed to be negligible to minor. Mitigation of fugitive dust includes use of approved dust suppressants, controlling vehicle speeds and limiting construction activities during high wind events.

Increased levels of NO_x, SO_2 and greenhouse gases from vehicle emissions may occur from transportation of materials to and from the site and from on-site construction equipment. Increased volatile organic carbon (VOC) levels may occur from fuels and other hazardous substances used during construction activities. Gasoline and associated products for construction equipment will not be stored at the site although equipment will be refueled on site from slip tanks on trucks. It is unlikely that Manitoba's air quality guidelines would be exceeded during any of the work associated with the proposed project. The potential adverse effects on air quality in the local area from NO_x, SO_2, greenhouse gases and VOCs were assessed to be negligible to minor. Mitigation includes use of low sulphur fuels, requiring a high standard of maintenance for equipment and vehicles, limiting unnecessary idling, use of appropriate fuel dispensing equipment and protection for spills and releases.

5.2.2 Soil

Soil in the project area will be disturbed and compacted due to excavation activities, drilling of tower foundations and operation of vehicles and equipment. The majority of the ROW is already developed and has been previously disturbed and the Project impacts will mostly be restricted to tower locations. As such, the potential adverse impacts of soil loss and disturbance were assessed to be minor. Mitigation to limit soil loss and minimize on-site disturbance is proposed by restricting construction activities to designated areas, stockpiling surface soils for later use in

landscaping, orienting stockpiles to minimize the area exposed to prevailing winds or stabilizing them using water sprays or an appropriate cover material.

5.2.3 Surface Water

Areas disturbed by construction activities such as excavation and drilling of tower foundations may cause alterations in drainage patterns. The ROW is relatively level with drainage directed toward ditches and storm water sewers along the roads and rail spurs that intersect and cross the ROW. As previously stated, potential Project impacts will be restricted primarily to tower locations. The potential adverse effects from excavation and drilling of tower foundations on surface water were assessed to be negligible to minor. Proposed mitigation measures to control changes in the surface water drainage pattern include limiting construction activities to the designated construction area, directing runoff towards existing drainage, providing erosion control as required along water drainage routes and visually monitoring surface water runoff.

5.2.4 Groundwater

Construction activities such as excavation and drilling of tower foundations may have local effects on groundwater quality. Excavation and drilling activities will be shallow relative to the groundwater table. The potential adverse effects from drilling and excavation on groundwater were assessed to be negligible to minor. No additional mitigation measures are proposed.

5.2.5 Aquatic Biota and Habitat

Aquatic biota and habitat in the Project area may be adversely affected from increased sediment loads in drainage or from surface water impacted during construction associated with leaks and accidental spills, or releases of fuels. Drainage from the ROW, as previously noted, flows through the city's storm water system (including the Lot 16 Drain) to the Red River. By employing the mitigation measures previously described to control drainage as described in Section 5.2.3 it is unlikely that impacts would reach the Lot 16 Drain or the Red River. Potential adverse effects on aquatic biota and environment were assessed to be minor. Beyond the best management practices adopted by Manitoba Hydro when working around water, no additional mitigation measures are proposed.

5.2.6 Vegetation

Damage and disturbance of vegetation is expected to occur during construction activities, in particular if any tree clearing is required. The Project area is already used as a ROW and the vegetation is predominately mowed grass interspersed with various weedy species. Due to the existing land use and types of vegetation present, potential Project effects on vegetation were assessed to be negligible to minor. Proposed mitigation measures include limiting the area cleared, restricting construction activities to designated and previously disturbed areas and re-vegetating disturbed areas after construction.

5.2.7 Wildlife

Construction activities, such as tree clearing, may disturb and impact some wildlife habitat, however the ROW and the habitat within is already a disturbed area. The ROW provides only marginal habitat for small and burrowing mammals and various bird species. Songbirds represent the majority of bird species potentially utilizing habitats within the Project area and breeding and nesting habitat for waterfowl and other waterbirds is limited. The quantity and quality of habitat that could be disturbed is very small relative to the amount of available surrounding habitat along the Red River and on other nearby properties. The potential adverse effects of the Project on wildlife habitat disturbance were assessed to be negligible to minor. Decommissioning some towers and re-vegetation of areas disturbed by construction activities is, however, expected to have a positive effect by increasing potential habitat. Mitigation measures proposed include minimizing the loss and disturbance of vegetation, limiting construction activities to designated and previously disturbed areas, and re-vegetating disturbed or reclaimed areas with vegetation after construction.

Construction activities such as clearing, excavating and drilling and the associated use of vehicles and equipment may have adverse effects on wildlife. These activities may result in direct mortality for some small mammals or birds, particularly those who reside in burrows in the soil, or those who nest in trees. The limited increase in vehicular traffic may also result in an increase in vehicle – wildlife interactions and associated wildlife mortality. Construction activities will also create noise and vibrations that may result in sensory disturbance and habitat avoidance. Maintenance of the Project during operation may potentially affect wildlife mortality through vehicle–wildlife interactions, in particular vegetation management, although the level of maintenance will not be changing from the present condition. The potential Project impacts on wildlife were assessed to be negligible to minor. Mitigation measures proposed include minimizing the area of disturbance by limiting construction activities to designated and previously disturbed areas, provide wildlife awareness information to equipment operators, following wildlife timing windows to avoid breeding bird season, and adhering to speed limits.

Operation and maintenance related activities have the potential to increase bird mortality risk of species utilizing habitats within the ROW. Bird mortalities may result from collisions with transmission wires and electrocutions. Collisions with transmission lines are among the top five causes of human-related bird mortality in Canada [(18)]. Risk of bird-transmission line collisions is influenced by several factors relating to physical characteristics of the bird (species, age, size, health), general flight activity of the bird (flocking, aerial courtship displays, nocturnal flight versus day flight, perching), characteristics of the transmission line and a variety of environmental factors (weather, habitat, location) [(19)].

Vegetation management activities may also result in the destruction of some nests, consequently increasing mortality risk of eggs and hatchlings. The proposed Project will not be increasing the number of live wires and it is located in an area with existing lines. As such, the

potential effects of operation and maintenance of the ROW on bird mortalities were assessed to be minor. There is no specific mitigation proposed to offset the effect of these activities.

5.2.8 Land Use

Temporary disturbance to land use along the ROW will occur during the construction period. Land uses that may be affected include recreational land use at the dog park north of Parker Avenue, garden plots leases along the ROW and those who use the ROW for commercial/industrial storage/parking, and public access (roads and recreation trails). As well as providing space for dog walkers, the ROW offers opportunities for recreational activities such as walking and biking. Because the Project will not change the location of the ROW and the current land use within the ROW will only be temporarily disturbed during construction, the effects were assessed to be negligible. No specific mitigation is required for the temporary effect on land use. While not directly attributable to the Project, due to the proposed BRT corridor, Manitoba Hydro has made a policy decision at this time that the garden plot leases will not be renewed. Manitoba Hydro will provide information to lease holders on the City of Winnipeg Garden Allotment Rentals program to find alternative garden plots.

5.2.9 Human Health and Well-Being

Construction and decommissioning activities for the Project will increase traffic on roads surrounding the Project area. Given that the Project is being developed within the City of Winnipeg, the small and temporary increase in traffic beyond baseline levels is not expected to be noticeable. The potential adverse effects of increased traffic on human health were assessed to be negligible and therefore no specific mitigation measures are proposed.

Noise and vibration levels will be temporarily increased in the local area associated with site preparation and construction activities and in particular implodes during conductor installation, the use of heavy equipment and from increased use of large vehicles during transportation of materials to and from the site. These increased noise and vibration levels will only be temporary; however, they can result in increased public concern. The adverse effects of construction activities on noise and vibration were assessed as minor. Proposed mitigation includes muffling vehicles and equipment, limiting unnecessary long-term idling, requiring a high standard of maintenance for heavy equipment and conducting work during normal daytime working hours to the extent possible, in particular restricting use of explosives (conductor splicing) to the time between 9 AM and 3 PM and providing notification to adjacent landowners.

Living near a construction site can increase residents' stress levels affecting their well-being and the public attitude towards a project. Temporary disturbance to recreational activities, the permanent loss of use of garden plots, the intrusion of the workers and equipment into peoples' daily schedules along with the increased noises and vibrations can result in short-term frustration, loss of sleep, and general reduction in the quality of life. The potential of these occurrences and the construction period will be very short in duration, construction should be

complete within two months. Additionally, there will be short term road closures for 5 to 10 minutes at a time during conductor stringing when crossing roadways. These traffic interruptions, while annoying for motorists, will be for very short periods. The potential adverse effects of the proposed Project on public attitudes and well-being were assessed to be minor. No additional mitigation measures are proposed beyond those previously described to mitigate increased noise and vibration.

Operation of any transmission line involves the production of electric and magnetic fields (EMF) and corona discharges. Corona discharges, in turn, may result in audible noise and low frequency electrical interference. The level of these will vary with time, subject to variations in the operating mode and loading conditions of the line and, as well, to final line design, conductor condition, and such external considerations as meteorological conditions. In the past 35 years, several thousand research studies have investigated the potential health effects of EMF in human populations, laboratory animals and cells. Numerous scientific and health agencies have evaluated this body of research including the World Health Organization, the International Agency for Research on Cancer and Public Health England and the Canadian Federal Provincial Territorial Radiation Protection Committee. The conclusion of these scientific agencies has been generally consistent. The research shows that electric fields and magnetic fields at extremely low frequencies - such as those produced by the Manitoba Hydro electric system - are not a known or likely cause of any disease, including cancer [(20)]. Therefore the potential adverse effects of the project on human health were assessed to be negligible and no specific mitigation measures or follow-up monitoring are proposed.

5.2.10 Public and Worker Safety

Site preparation and construction activities pose a risk to public and worker health and safety. Use and potential accidental spills and releases of fuels and hazardous material could impact public and worker health. The use of drill rigs, cranes, haul trucks and heavy equipment could impact public and worker safety. During construction, to protect public safety the public will need to be kept away from machinery and vehicles accessing the ROW in order to move the conductors, install and decommission the towers. The potential hazard to worker health and safety will be continuous while installing the new towers, moving the conductors and decommissioning the old towers. The adverse effects of these activities on public and worker health and safety were assessed as minor. Mitigation measures during all phases would include training and appropriate personal protective equipment (PPE) for workers, adherence to Manitoba Hydro safe construction guidelines, provide signs warning the public about temporary construction, road closures, or maintenance in the area, complying with *The Workplace Safety and Health Act* (Manitoba) and regulations and conducting safety briefings with workers.

5.2.11 Heritage Resources

Ms. Heather McClean of Manitoba Culture, Heritage, and Tourism, Historic Resources Branch examined Branch records and confirmed that there are no archaeological or heritage resources known to exist in the project area (Appendix D).

Potential effects could occur if a portion of an unknown intact archaeological site was exposed during the construction phase. Mitigation measures during construction will include work stoppage if a potential site is discovered during construction and the contractor will report potential heritage resource materials immediately to the Construction Supervisor. The Historic Resources Branch of Manitoba Culture, Heritage and Tourism will be notified immediately. If this occurs, construction will occur as directed by the Historic Resources Branch.

5.2.12 Summary

Based on the available information on the Project and the environment, the assessment of environmental effects outlined in this environmental assessment report, and the application of proposed mitigation measures and the conduct of required follow-up (described in Section 1.0), the construction and operation of the proposed Project will not likely result in any significant residual adverse environmental effects.

5.3 ACCIDENTS AND MALFUNCTIONS

During construction of the Project there are risks of accidents involving construction vehicles, machinery and equipment, releases of hazardous substances including fuels, fires and explosions due to the presence of fuel, flammable materials and explosives, electrocution of workers around high-voltage equipment, and vehicle accidents due to increased construction traffic. The following is a summary of the main concerns for accidents and malfunctions.

Fuels and hazardous substances: Spills and accidental releases of fuel could potentially occur from machinery used during construction activities and while transporting and refueling vehicles and machinery. Releases of hazardous substances such as lubricants as well as concrete wash water could also occur. The consequence of spills and accidental release would be direct impacts to soil, surface water, groundwater and indirect impacts to aquatic biota and habitat and human health.

Spills could impact soils and surface water since drainage from the ROW flows into the city's storm water system and into the Red River. Groundwater quality in the Project area has not been analyzed for hydrocarbons, however the low permeability clay cover on-site forms a very good barrier over the local bedrock aquifer. Any spills that may occur would be cleaned up in accordance with the environmental management practices for spills and it is unlikely that they would be able to penetrate the thick layer of low permeability clay on site that forms an aquiclude to the overburden or bedrock aquifers. The potential adverse effects on soil and

surface water were assessed to be moderate while the potential adverse effects on groundwater and aquatic biota and habitat were assessed to be minor.

Proposed mitigation includes preventing leaks, spills and releases by providing spill clean-up equipment and materials and adhering to environmental management practices in response to spills and periodic inspection for leaks, spills and releases.

Storage, handling and transport of fuels will be in accordance with the Storage and Handling of Petroleum Products and Allied Petroleum Products Regulation as well as Manitoba Hydro's Code of Practice for Storage and Handling of Petroleum Products and Allied Petroleum Products Storage Tank Systems (2003) and Environmental Protection Guidelines, Construction, Operation and Decommissioning, Manitoba Hydro Work Sites and Facilities (2006a).

Additional mitigation for surface water includes ensuring refueling activities are conducted at a minimum of 30 m from the Lot 16 Drain and additional proposed mitigation for groundwater includes ensuring that the pile foundations are properly sealed at ground level to prevent downward migration of any potential surface contaminants.

Fires and Explosions: Explosive devices (implodes) used to splice conductors will be stored and used in accordance with provincial and federal legislation. Only trained and licensed personnel are permitted to use explosives. An emergency response plan will be put in place for the construction phase of the Project and will be updated for the operation and maintenance phases. The scope of the plan will include fires and explosions.

The potential adverse effects from implodes was assessed to be negligible to minor.

Mitigation measures include preparing an emergency response plan that addresses all risks, providing the plan to local authorities, following electrical codes, complying with Manitoba Hydro safe work procedures, providing site security and warning signs, and regular maintenance of vegetation. Follow-up includes regular inspection of works sites and updating the emergency response plan.

5.4 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

The proposed transmission line will be subject to damage from extreme weather events (*e.g.*, tornado, intense lightening, wind shear, ice storm) and grass fires resulting in power outages. Climate change will increase the risk over time of extreme weather events and grass fires. Mitigation measures proposed include ensuring proper grounding of equipment; managing vegetation along transmission lines; coordinating emergency procedures with the City of Winnipeg; and preparing and maintaining an emergency response plan that includes extreme weather events and grass fires. Follow-up identified includes regular updates of the emergency response plan.

5.5 CUMULATIVE EFFECTS

Cumulative effects are the environmental effects that are likely to result from the Project in combination with the environmental effects of ongoing and future projects or activities see Table 5.5-1. For the purposes of this assessment past projects are considered to have contributed to the current condition of assessed VECs and are expressed as part of the existing landscape.

Ongoing and Proposed Projects

The areas within and adjacent to the ROW are considered to be in a disturbed state with several ongoing or proposed projects in addition to the existing land uses previously described in Section 3.2.1. Ongoing and proposed projects include the Grant Park Pavilions development currently underway on the south side of Taylor Avenue and west of Harrow Station, the proposed BRT corridor as well as the proposed development of the Parker Lands north of Parker Avenue.

A commercial development called the Grant Park Pavilions is currently under construction to the west of Harrow Station and south of Taylor Avenue. The development will include retail stores, office space, multi-family highrises, restaurants as well as parking. This development is centered on a Walmart Supercentre, of which construction is recently completed. The proposed Project will cross over the Grant Park Pavilions development area.

The BRT corridor to the University of Manitoba project (the Southwest Transitway) would include construction of separate, transit-only roadways that allow BRT vehicles to bypass congestion and travel at high speed to reduce travel time. The tower relocation associated with the Project is specifically being done to accommodate the BRT within the Manitoba Hydro ROW. Construction of the BRT corridor would include clearing in some areas and construction of the busways. Construction of the transit way is scheduled for 2016 to 2019.

The proposed development of the Parker Lands will likely be a mixed commercial/residential development located north of Parker Avenue and south of the railway. The development will begin with utility relocations and construction of a storm water retention pond which are currently in the early planning stages and anticipated to begin construction in 2016.

There are no other known projects and activities proposed adjacent to the ROW for the immediate future.

Table 5.5-1: Ongoing and Proposed Projects

Project Name	Location	Current Status
Grant Park Pavilions	South of Taylor Avenue and east of Nathaniel Street (spatial overlap with proposed project)	Under construction
Parker Lands	Between Canadian National Railway and	Planning

Table 5.5-1: Ongoing and Proposed Projects

Project Name	Location	Current Status
Development	Parker Avenue, east of Hurst Way (spatial overlap with proposed project)	
Southwest Transitway	Pembina & Jubilee south to the University of Manitoba (spatial overlap with proposed project)	Approved. Construction planned for 2016-2019.

Environmental Effects

Environmental effects of the proposed Project range from negligible to moderate as described in Section 5.2 and in the Interaction Matrix (Appendix F) of this report. Effects are identified for the site preparation, construction, operation and decommissioning stages of the Project. Adverse environmental effects from the proposed Project and adverse environmental effects of other projects and activities will occur within some parts of ROW. The adverse environmental effects used in the cumulative effects assessment include:

- Vegetation clearing;
- Excavating soils;
- Operating vehicles and equipment;
- Transporting and storage of fuel; and
- Fueling vehicles and equipment.

Most of the adverse effects identified are localized within the ROW and have the potential to overlap in space with the Grant Park Pavilions, BRT and Parker Lands developments. While the Grant Park Pavilions is currently being constructed it is anticipated that the BRT and Parker Lands Development would follow completion of the proposed Project schedule. Regardless, it is likely that the Project will overlap in time with some of the other projects. As such, there is some potential for the effects of the proposed Project to be cumulative with the effects of other projects in this area. Potential cumulative effects include the following:

- Impaired air quality (increased dust, greenhouse gases, NO_x, SO_2);
- Loss and disturbance of soil;
- Impacts to soil, surface water and groundwater from leaks, spills or releases;
- Increased wildlife mortalities;
- Increased noise and vibration;

- Public and worker safety;
- Impacts to human health; and
- Impaired aesthetic values.

No additional mitigation measures are required as a result of potential cumulative effects. The mitigation measured proposed already provides elimination, reduction and control of adverse environmental effects including any potential cumulative effects with the other projects.

5.6 CONCLUSIONS

This section of the environmental assessment report described the environmental assessment approach and discussed environmental issues relating to the proposed Project. Potential effects of the proposed Project on the biophysical and socio-economic environment were identified, described and assessed. Effects of accidents and malfunctions, effects of the environment on the Project and cumulative environmental effects were also addressed with appropriate measures to mitigate adverse effects identified.

Most of the potential adverse Project effects, as described in the assessment, are localized to the ROW and are short term impacts associated with construction activities which can be easily mitigated with standard mitigation measures. As such, the assessment of residual effects (Section 5.1.1) notes that the proposed Project will not likely result in any significant adverse environmental effects. Similarly the cumulative environmental effects of the Project in combination with the effects of other projects adjacent to the ROW will not likely result in significant adverse environmental effects.

6.0 ENVIRONMENTAL PROTECTION, FOLLOW-UP AND MONITORING

6.1 ENVIRONMENTAL PROTECTION

Environmental protection practices employed to prevent or mitigate environmental effects determined to be adverse, as described in Section 5.0, are summarized in the following sections. Mitigation is defined under the *Canadian Environmental Assessment Act* as the elimination, reduction and control of the adverse effects of a project and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means [(21)]. Mitigation measures must be technically and economically feasible, and implemented. Manitoba Hydro's commitment to responsible environmental stewardship is implemented through the environmental protection plan outlined in Appendix B. The purpose of the environmental protection plan is to ensure that Manitoba Hydro employees and contractors are aware of their responsibilities in protecting the environment at Manitoba Hydro work sites and facilities.

The following sections describe the environmental protection measures.

6.1.1 Air Quality

Use of approved dust suppressants, controlling vehicle speeds and limiting construction activities during high wind events can mitigate increased fugitive dust levels. Use of low sulphur fuels, requiring a high standard of maintenance for equipment and construction vehicles, limiting unnecessary idling of vehicles, use of appropriate fuel dispensing equipment and protection for spills and releases can mitigate increased levels of vehicle emissions, greenhouse gases and VOCs during construction activities.

6.1.2 Soil

Restricting construction activities to designated areas, stockpiling surface soils for later use in landscaping, orienting stockpiles to minimize the area exposed to prevailing winds or stabilizing them using water sprays or an appropriate cover material can mitigate potential loss and disturbance of soils.

Preventing leaks, spills and releases by providing spill clean-up equipment and materials, complying with provincial regulations for storing hazardous materials in approved containers, adhering to environmental management practices in response to spills and periodic inspection for leaks, spills and releases should mitigate potential soil contamination from leaks and accidental spills during operation. If a spill should occur the proponent would be responsible to notify MCWS Emergency Response Program (204 944 4888) and the appropriate clean-up would be determined according to the size of spill and quantity of contamination. A remediation

program would need to be developed to ensure that the site is cleaned to meet MCWS soil remediation criteria.

6.1.3 Surface Water

Directing runoff and providing erosion control as required along water drainage routes and visually monitoring surface water runoff can mitigate potential temporary modification to the surface water drainage pattern during construction activities. Limiting construction activities to the designated construction area and tying into the surrounding existing drainage patterns can mitigate any long-term change in drainage pattern.

The mitigation measures outlined in Section 6.1.2 above to prevent and clean up any leaks, spills and releases along with ensuring refueling activities are conducted at a minimum of 30 m from the Lot 16 Drain will mitigate potential impacts to surface water.

6.1.4 Groundwater

The mitigation measures outlined in Section 6.1.2 above to prevent and clean up any leaks, spills and releases along with ensuring that the pile foundations are properly sealed at ground level to prevent downward migration of any potential surface contaminants will mitigate potential impacts to groundwater.

6.1.5 Aquatic Biota and Habitat

The mitigation measures outlined in Section 6.1.2 above to prevent and clean up any leaks, spills and releases and in Section 6.1.3 to control drainage will also mitigate concerns associated with surface water impacted during construction affecting aquatic biota and habitat.

6.1.6 Vegetation

Limiting the area cleared, restricting construction activities to designated and previously disturbed areas and re-vegetating disturbed areas after construction can mitigate the potential damage and disturbance of vegetation.

6.1.7 Wildlife

Minimizing loss and disturbance of vegetation, limiting construction activities to designated and previously disturbed areas, and re-vegetating disturbed or reclaimed areas with vegetation after construction can mitigate the potential damage and disturbance to wildlife and their habitat. Additionally, providing wildlife awareness information to equipment operators and adhering to speed limits can mitigate impacts to wildlife associated with vehicle–wildlife interactions.

6.1.8 Land Use

No specific mitigation is required for the temporary effect on land use; however, Manitoba Hydro will follow up with lease holders regarding the future of their leases.

6.1.9 Human Health and Well-being

Muffling vehicles and equipment, limiting unnecessary long-term idling, requiring a high standard of maintenance for heavy equipment and conducting work during normal daytime working hours to the extent possible, in particular restricting use of explosives (conductor splicing) to only between 9 AM and 3 PM can mitigate the temporary increase in noise and vibrations. Controlling noise and vibration will help to mitigate adverse effects on public well-being and their attitude towards the Project.

6.1.10 Public and Worker Safety

Providing hazardous materials training and appropriate PPE for workers, adhering to the Manitoba Hydro safe construction guidelines, providing signs warning the public about temporary construction, road closures, or maintenance in the area, complying with *The Workplace Safety and Health Act* (Manitoba) and Regulations, conducting safety briefings with workers and providing employee training can mitigate the threats to public and worker health and safety during construction.

6.1.11 Heritage Resources

Potential effects could occur if a portion of an unknown intact archaeological site was exposed during the construction phase. In the event that cultural or heritage resources are discovered, construction will cease and the contractor will report potential heritage resource materials immediately to the Construction Supervisor. The Historic Resources Branch of Manitoba Culture, Heritage and Tourism will be notified immediately. If this occurs, construction will occur as directed by the Historic Resources Branch.

Manitoba Hydro will meet all requirements under the *Heritage Resources Act* and its Regulations.

6.2 FOLLOW-UP ACTIVITIES

Follow-up is defined under the *Canadian Environmental Assessment Act* as a program to verify the accuracy of the environmental assessment of a project and determine the effectiveness of measures taken to mitigate the adverse environmental effects of the project. Follow-up activities include monitoring, surveillance, inspection, and may include data collection, analysis, evaluation, and reporting. Monitoring of implementation of the standard mitigation measures

identified for environmental effects determined in Section 5.0 to be adverse are described in the following sections.

6.2.1 Air Quality

Proposed follow-up during construction involves periodic observations for fugitive dust levels, inspections of the local area for accumulated dust, requiring submission of Material Safety Data Sheets for all products used and monitoring of complaints.

6.2.2 Soil

Follow-up proposed during construction includes periodic inspections of equipment and storage containers for leaks, spills and releases, periodic observation for potential soil contamination, in particular at the marshalling areas, record and remediate and spills or releases, ensuring adherence to the Manitoba Hydro environmental protection plan and monitoring of soil quality as required.

6.2.3 Surface Water

Follow-up proposed during construction includes those activities outlined in 6.2.2 above as well as periodic inspections for erosion and sediment runoff.

6.2.4 Groundwater

Follow-up proposed during construction includes those activities outlined in 6.2.2 above.

6.2.5 Aquatic Biota and Habitat

No specific follow-up measures are required to monitor affects to aquatic biota and habitat because the mitigation measures outlined in Section 6.1.2 to prevent and clean up any leaks, spills and releases and in Section 6.1.3 to control drainage will mitigate concerns associated with surface water impacted during construction.

6.2.6 Vegetation

Follow-up monitoring proposed includes periodic inspections of vegetation condition during and after construction and maintaining the disturbed areas that were re-vegetated as part of the routine operational maintenance of the ROW (which is not changing as part of this Project).

6.2.7 Wildlife

Follow-up proposed includes those activities outlined in Section 6.2.2 above as well as recording any wildlife mortality as a result of construction activities.

6.2.8 Land Use

Manitoba Hydro has contacted lease holders regarding the future of their leases within the ROW and indicated to those with garden plots that their leases will not be renewed.

6.2.9 Human Health and Well-Being

Follow-up proposed during construction includes monitoring any public complaints related to dust, noise, vibration and traffic interruptions and responding accordingly.

6.2.10 Public and Worker Safety

Follow-up proposed includes recording any occurrence of construction accidents, ensuring proper PPE is being used by workers, maintaining records of hazardous materials used on site, confirming compliance with provincial hazardous waste handling and disposal regulations, maintaining public warning signs (or barricades), recording any issues associated with the public and updating health and safety training and the environmental protection plan as required.

6.2.11 Heritage Resources

If unknown intact archaeological resources are discovered during the course of construction an appropriate Heritage Resources Protection Plan will be developed. There is no follow-up or monitoring planned for Heritage Resources beyond required follow-up and/or monitoring under the conditions outlined in the Culture and Heritage Resources Protection Plan noted in Section 6.1.11 above.

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STATEMENT OF LIMITATIONS

THIRD PARTY USE OF REPORT

This report has been prepared for Manitoba Hydro and any use a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions undertaken based on this report.

ENVIRONMENTAL STATEMENT OF LIMITATIONS

KGS Group prepared the environmental conclusions and recommendations for this report in a professional manner using the degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. The information contained in this report is based on the information that was made available to KGS Group during the investigation and upon the services described which were performed within the time and budgetary requirements of Manitoba Hydro. As the report is based on the available information, some of its conclusions could be different if the information upon which it is based is determined to be false, inaccurate or contradicted by additional information. KGS Group makes no representation concerning the legal significance of its findings or the value of the property investigated.

APPENDIX A

SITE PHOTOGRAPHS

Photo 01: Looking east at the Brenda Leipsic off-leash dog park north of Parker Avenue.

Photo 02: Looking north from Parker Avenue at Daniel Street.

Photo 03. West view showing Lot 16 drain near Plaza Drive.

Photo 04. Southwest view showing cut grass along ROW and existing transmission lines.

Photo 05. East view showing vegetation growing in ditch along side of railroad spur.

Photo 06: Bicycle path going through ROW .Looking east at Seel Avenue.

Photo 07: Garden plot within ROW.

Photo 08. Southeast view showing apartment buildings and *typha* (spp) growing in wet area along ROW.

Photo 09. Southeast view showing rail spur, commercial development and high density residential buildings.

Photo 10. West view showing railroad spur and sugar storage silos.

Photo 11. Looking north at Chevrier Boulevard showing manufacturing use of ROW for storage.

Photo 12: ROW looking north from Clarence Avenue.

APPENDIX B

MANITOBA HYDRO ENVIRONMENTAL PROTECTION PLAN

ENVIRONMENTAL PROTECTION PLAN

A Construction Environmental Protection Plan (CEnvPP) will be developed subsequent to licensing and prior to construction. The CEnvPP will document the environmental protection measures to provide for compliance with regulatory and other requirements, and to achieve environmental protection goals consistent with corporate environmental policies.

Manitoba Hydro's environmental protection plans are designed as "user-friendly" reference documents that provide project managers, construction supervisors and contractors with detailed lists of environmental protection measures and other requirements to be implemented in the design, construction and operation phases of a project. Environmental protection measures are organized by construction component and activity, and environmental component and issue to assist project personnel in implementing measures for specific work sites and activities.

The CEnvPP is a key element in implementing effective environmental protection and minimizing the potential adverse environmental effects identified in the Environmental Assessment (EA) Report. It also outlines actions to identify unforeseen environmental effects and to implement adaptive management strategies to address them. An important component of an CEnvPP is monitoring and updating which serves to ensure that environmental protection measures remain current and to provide for continual improvement of environmental performance.

GENERAL ENVIRONMENTAL PROTECTION MEASURES

General environmental protection measures for the Project include mitigation measures and follow-up actions identified in the EA Report including design mitigation, provincial and federal regulatory requirements, best practice guidelines, Manitoba Hydro environmental policies and commitments, and input from stakeholders, Aboriginal communities and the general public.

TIMING WINDOWS

General

Construction will be carried out during winter months (November to March) under frozen and snow-covered conditions where required, and under conditions during other times of the year that minimize excessive soil disturbance.

Wildlife Reduced Risk Work Windows

Table 1 outlines wildlife reduced risk work windows applicable to the Project. These windows are based on federal and provincial regulatory requirements as well as best management practices. Timing periods may be expanded or refined based on further data collection, transmission line final design and regulatory license and work permits to be issued for the project.

Table 1: Wildlife Reduced Risk Timing Windows

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Amphibians / Reptiles												
Birds												

Reduced Risk to Wildlife

Sensitive Time Periods

Where construction activities occur during sensitive time periods, mitigation measures will be prescribed on a site by site basis.

The recommended reduced risk work windows are considerate of periods of the year when wildlife species are sensitive to disruptive operations because of a sensitive lifecycle activity such as calving, nesting, and hibernation, etc. Table 8-1 is intended to assist in scheduling construction activities for the time of year when risks of adverse construction impacts are negligible. Where conflicting timing restraints with construction activities exist in a particular area, appropriate mitigation will be implemented to reduce effects. These timing windows have been appended to environmental sensitive sites in the Construction EnvPP.

Table 2: Timing windows for no in water work to occur

Region	Spring Spawning Fish	Summer Spawning Fish	Fall Spawning Fish
Study Area	April 1 – June 15	May 1 – June 30	September 15 – April 30

*Department of Fisheries and Oceans, Manitoba Operational Statement Timing Windows (2007).

BUFFERS AND SETBACKS

Setbacks and Buffers for Wildlife and Anthropogenic Features

Recommended setbacks and buffer distances from sensitive environmental features are provided in Table 3. These will be applied to Environmental Sites in the appropriate EnvPP. These setback and buffers are preliminary and may be expanded or refined based on further data collection, transmission line final design, regulatory license and work permits to be issued for the project.

Setbacks are areas to be maintained from a given environmental feature where no work shall occur. Buffers are work areas where restricted activities such as low disturbance clearing are permitted. Where applicable, site specific setback and buffers are prescribed in specific mitigation measures for each feature.

Table 3: Setbacks and Buffers

Feature	Activity	Setback Distance	Rationale
Recreational and Commercial Lots	All	50-200m	Visual and aesthetic screening
Active Migratory Bird Nest	All	50m	Protect from sensory disturbance during breeding season.

GENERAL MITIGATION TABLES

Blasting and Exploding (PA-1)

ID	Mitigation
PA-1.01	A communication protocol will be developed to notify affected parties of blasting operations and conductor splicing. Affected parties may include Manitoba Conservation and Water Stewardship, RCMP, municipalities, landowners, and resource users.
PA-1.02	Blasting will not be permitted during timing windows established for sensitive bird breeding, nesting and brood rearing months.
PA-1.03	Explosives will be stored, transported and handled in accordance with federal requirements through the Explosives Act and Transportation of Dangerous Goods Act and provincial regulations stated in The Workplace Safety and Health Act.
PA-1.04	Implode Compression conductor splicing will be minimized to extent possible on weekends and after normal working hours in residential areas
PA-1.05	Conductor splicing will be scheduled to minimize disturbance to area residents, and to ensure the safety of workers.
PA-1.06	The Blasting Contractor will be in possession of valid licenses, permits and certificates required for blasting in Manitoba.
PA-1.07	The Blasting Contractor will submit a Blasting Plan to the Construction Supervisor for review and approval prior to commencement of blasting operations.
PA-1.8	Use of ammonium nitrate and fuel oil will not be permitted in or near waterways.
PA-1.9	Warning signals will be used to warn all project personnel and the public of safety hazards associated with blasting.
PA-1.10	Written and/or oral notification will be outlined in the Communication Plan prior to each blasting period.

Built-up and Populated Areas (EC-2)

ID	Mitigation
EC-2.01	Construction activities and equipment will be managed to avoid damage and disturbance to adjacent properties, structures and operations.
EC-2.02	Mud, dust and vehicle emissions will be managed in a manner that ensures safe and continuous public activities near construction sites where applicable.
EC-2.03	Noisy construction activities where noise and vibration may cause disturbance and stress in built-up areas will be limited to daylight hours.

Clearing (PA-3)

ID	Mitigation
PA-3.01	All clearing and construction equipment is to remain within the bounds of access routes and the Project footprint identified.
PA-3.02	Areas identified for selective clearing (e.g., buffer zones, sensitive sites) will be flagged prior to clearing.
PA-3.03	Chipped or mulched material may be collected for use in construction areas and sediment/erosion control.
PA-3.04	Cleared trees and woody debris will not be pushed into or adjacent to wetlands, waterbodies or adjacent properties.
PA-3.05	Clearing activities will be carried out in accordance with contract specifications
PA-3.06	Clearing and disturbance and equipment use will be limited to the project footprint and associated access routes.
PA-3.7	Clearing will not be permitted within established setbacks for bird nesting and rearing during established timing windows.
PA-3.8	Danger trees will be flagged/marked for removal using methods that do not damage soils and adjacent vegetation.
PA-3.9	In locations where grubbing and vegetation stripping is not required, existing low growth vegetation such as grasses, forbs and shrubs will be maintained to the extent possible; disturbance to roots and adjacent soils will be minimized.
PA-3.10	Machine clearing will remove trees and brush with minimal disturbance to existing organic soil layer using only "V" or "K-G" type blades, feller-bunchers and other means approved by the Construction Supervisor.
PA-3.11	Property limits, right-of-way boundaries and buffers will be clearly marked with stakes and/or flagging tape prior to clearing.
PA-3.12	The Construction Supervisor will issue a stop work order if extreme wet weather or insufficient frost conditions results in soil damage from rutting, and soil erosion is resulting in sedimentation of adjacent waterbodies.
PA-3.13	Trees containing active nests and areas where active animal dens or burrows are encountered will be left undisturbed until unoccupied.
PA-3.14	Trees will be felled toward the middle of rights-of-way or cleared area to avoid damage to adjacent properties. Trees will not be felled into waterbodies.

Demobilizing and Cleaning Up (PA-4)

ID	Mitigation
PA-4.01	Buildings, structures, trailers, equipment, utilities, waste materials, etc will be removed from construction areas and sites when work is completed.
PA-4.02	Construction areas and sites will be rehabilitated and re-vegetated as appropriate immediately after demobilizing and clean-up.
PA-4.03	Petroleum product and other hazardous substances storage areas will be cleaned up, assessed and, if necessary, remediated in accordance with provincial guidelines and Manitoba Hydro guidelines.
PA-4.04	Stream crossings and drainages will be left free of obstructions so as not to impede natural runoff.

Draining (PA-5)

ID	Mitigation
PA-5.01	Blockage of natural drainage patterns by construction activities will be avoided.
PA-5.02	Dewatering discharges will be directed into vegetated areas, existing drainage ditch(s) or a means of sediment control at such a rate and will have adequate flow dissipation at the outlet to ensure it does not cause erosion at the discharge point or at any point downstream
PA-5.03	Drainage water from construction areas will be diverted through vegetated areas, existing drainage ditch(s) or a means of sediment control prior to entering a waterbody.
PA-5.05	Erosion protection and sediment control will be provided in accordance with the Erosion Protection and Sediment Control Plan.
PA-5.06	Existing, natural drainage patterns and flows will be maintained to the extent possible.
PA-5.07	No debris or slash is allowed to be placed in drainage channels/ditches

Drilling (PA-6)

ID	Mitigation
PA-6.01	Abandoned drill holes will be sealed with bentonite or other effective sealers to prevent interconnection and cross-contamination of ground and surface waters.
PA-6.02	Drilling equipment and machinery will not be serviced within 100 m of waterbodies or riparian areas.
PA-6.03	Drilling fluids and waste materials will not be allowed to drain into waterbodies, riparian areas or wetlands.
PA-6.04	Drilling will not be permitted within established buffer zones and setback distances from waterbodies.
PA-6.05	Spill control and clean-up equipment will be provided at all drilling locations.
PA-6.06	The drilling contractor will ensure that equipment and materials are available on site for sealing drill holes.
PA-6.7	The drilling contractor will inspect drilling equipment and machinery for fuel and oil leaks prior to arrival at the project site, and will inspect for fuel and oil leaks and spills regularly.
PA-6.8	Where there is potential for mixing of surface and ground water, precautions will be taken to prevent the interconnection of these waters.

Emergency Response (EI-2)

ID	Mitigation
EI-2.01	All fires will be reported in accordance with fire reporting procedures in the Emergency Preparedness and Response Plan.
EI-2.02	All spills at construction sites will be reported in accordance with provincial legislation and guidelines , and Manitoba Hydro Guidelines.
EI-2.03	All vehicles hauling petroleum products will carry spill containment and clean-up equipment.
EI-2.04	Clean-up and the disposal of contaminated materials will be managed in accordance with provincial guidelines and Manitoba Hydro guidelines.
EI-2.05	Emergency Preparedness and Response Plans and procedures will be communicated to all project staff and a copy will be made available at the project site.
EI-2.06	Emergency spill response and clean-up materials and equipment will be available at construction sites, marshalling yards, fuel storage facilities and standby locations.
EI-2.07	Fire extinguishers will be mounted on buildings at locations where they will be most readily accessible. Safety Officers will conduct annual inspections of fire extinguishers.
EI-2.08	Orientation for Contractor and Manitoba Hydro employees working in construction areas will include emergency response awareness.
EI-2.09	Post audit assessments will be carried out for all major spills and fires reported to ensure that procedures are followed and plans remain effective.
EI-2.10	Project emergency response and evacuation procedures in the Emergency Preparedness and Response Plan will be adhered to in the event of forest fires.
EI-2.11	Reasonable precautions will be taken to prevent fuel, lubricant, fluids or other products from being spilled during equipment operation, fuelling and servicing.
EI-2.12	Spill response and clean-up equipment will be capable of containing and recovering the largest release possible and be suitable for the site location.
EI-2.13	Temporary construction camps will have a designated fire marshall in accordance with the Emergency Preparedness and Response Plan.
EI-2.14	The Emergency Preparedness and Response Plan will be prepared by the Contractor, approved by the Construction Supervisor/Site Manager prior to construction and updated annually.
EI-2.15	The Manitoba Hydro hazardous materials incident report form will be completed when reporting a spill.
EI-2.16	The on-site Emergency Spill Response Coordinator will be notified of hazardous substance releases immediately in accordance with the Emergency Preparedness and Response Plan.

Erosion Protection and Sediment Control (EI-3)

ID	Mitigation
EI-3.01	Accumulated sediment will be removed from silt fences and other barriers in accordance with the Erosion Protection and Sediment Control Plan to ensure proper functioning.
EI-3.02	Construction activities will be suspended during extreme wet weather events where erosion protection and sediment control measures are compromised.
EI-3.03	Contractor specific Erosion Protection and Sediment Control Plans will be prepared by the Contractor, accepted by Manitoba Hydro prior to construction and updated annually.
EI-3.04	Erosion protection and sediment control installations will only be removed after disturbed areas are protected and sediments are disposed of in accordance with Erosion Protection and Sediment Control Plan.
EI-3.05	Erosion protection and sediment control measures will be left in place and maintained until either natural vegetation or permanent measures are established.
EI-3.06	Erosion protection and sediment control measures will be put in place prior to commencement of construction activities and will remain intact for the duration of the project.
EI-3.07	Orientation for Contractor and Manitoba Hydro employees working in construction areas will include erosion protection and sediment control techniques and procedures.
EI-3.08	The Contractor will be responsible for developing. implementing and maintaining Erosion Protection and Sediment Control Plans and procedures be put in place prior to commencement of construction activities.
EI-3.09	The Contractor will be responsible for modifying erosion protection and sediment control installations to ensure continued effectiveness.
EI-3.10	The Contractor will communicate erosion protection and sediment control information to all project staff and a copy will be made available at the project site.
EI-3.11	The Environmental Inspector will make regular inspections of erosion protection and sediment control measures to confirm implementation and continued effectiveness.

Grading (PA-7)

ID	Mitigation
PA-7.01	Grading for gravel pads for construction areas will be limited to areas where it is needed for the safe and efficient operation of vehicles, machinery and construction equipment.
PA-7.02	Grading will not be permitted within established buffer zones and setback distances from waterbodies.
PA-7.03	Grading will only be permitted within rights-of-ways and construction areas.
PA-7.04	Gravel pads will be graded so the surface runoff is directed away from waterbodies, riparian areas and wetlands.
PA-7.05	Required erosion protection and sediment control measures will be put in place prior to grading in accordance with the Erosion Protection and Sediment Control Plan.

Groundwater (EC-4)

ID	Mitigation
EC-4.01	Potable water samples will be collected every two weeks and submitted for analysis according to provincial sampling and analysis protocol.
EC-4.02	Well location will be marked with flagging tape prior to construction.
EC-4.03	Where there is potential for mixing of surface and ground water, precautions will be taken to prevent the interconnection of these waters.

Grubbing (PA-8)

ID	Mitigation
PA-8.01	Construction areas containing soil with high silt content, artesian springs or areas of previous erosion will receive special erosion protection and sediment control techniques.
PA-8.02	Construction areas requiring extensive grubbing will be stabilized as soon as possible to minimize erosion.
PA-8.03	Grubbing will be halted during heavy precipitation events when working in areas of finely textured soils.
PA-8.04	Grubbing will not be permitted within established buffer zones and setback distances from waterbodies.
PA-8.05	Stockpiled materials from grubbing will not block natural drainage patterns.
PA-8.06	Unless required for the work, the extent of grubbing will be minimized to the extent possible.
PA-8.07	When not under frozen conditions, erosion protection and sediment control measures will be put in place prior to grubbing in accordance with the Erosion Protection and Sediment Control Plan.
PA-8.08	Windrows of grubbed materials will be piled at least 15 m from standing timber.

Hazardous Materials (EI-4)

ID	Mitigation
EI-4.01	A Contractor specific Hazardous Substances Management Plan will be prepared by the Contractor, approved by the Construction Supervisor/Site Manager prior to construction and updated annually.
EI-4.02	Access to hazardous materials storage areas will be restricted to authorized and trained Contractor and Manitoba Hydro personnel.
EI-4.03	An inventory of WHMIS controlled substances will be prepared by the Contractor and maintained at each project site and updated as required by provincial legislation.
EI-4.04	Bulk waste oil will be stored in approved aboveground tanks provided with secondary containment in accordance with provincial legislation.
EI-4.05	Containers of hazardous substances stored outside will be labeled, weatherproof, placed on spill containment pallets and covered by a weatherproof tarp.
EI-4.06	Contractor personnel will be trained and certified in the handling of hazardous materials including emergency response procedures in accordance with provincial legislation.
EI-4.07	Contractor personnel will receive WHMIS training in accordance with provincial legislation.
EI-4.08	Controlled substances will be labeled in accordance with WHMIS requirements, required documentation will be displayed and current Materials Safety Data Sheets will be available at each project site in accordance with the Hazardous Substances Management Plan
EI-4.09	Empty hazardous waste containers will be removed to a licensed or approved disposal site.
EI-4.10	Hazardous materials storage sites will be secured, and signs will be posted that include hazard warnings, contacts in case of a release, access restrictions and under whose authority the access is restricted.
EI-4.11	Hazardous materials will be adequately contained and will be protected from wind and rain to prevent entry of fine particles into streams through runoff of dust deposition.
EI-4.12	Hazardous substance and WHMIS inventories will be completed prior to construction. Inventories will be updated in accordance with regulatory requirements and Manitoba Hydro policies.
EI-4.13	Hazardous substances management procedures will be communicated to all project staff and a copy will be made available at the project site.
EI-4.14	Hazardous substances storage areas including coke materials for ground electrode facilities will be located a minimum of 100 m from the ordinary high water mark of a waterway and above the 100-year flood level.
EI-4.15	Hazardous substances will be transported, stored and handled according to the procedures prescribed by provincial legislation and at a minimum follow Manitoba Hydro policies.
EI-4.16	Hazardous waste substances will be segregated and stored by type.
EI-4.17	Indoor storage of flammable and combustible substances will be in fire resistant and vented enclosed storage area or building in accordance with national codes and standards.
EI-4.18	Manitoba Hydro will approve all hazardous materials that are used on the project prior to their arrival on-site.
EI-4.19	Non-hazardous products will be used in place of hazardous substances to the extent possible.
EI-4.20	Orientation for Contractor and Manitoba Hydro employees working in construction areas will include hazardous substance awareness.
EI-4.21	Pesticide storage will be in accordance with provincial legislation and Manitoba Hydro guidelines.
EI-4.22	The Contractor will be responsible for the safe use, handling, storage and disposal of hazardous substances including waste as well as procedures for emergency conditions in accordance with provincial and federal legislation and standards.
EI-4.23	The Contractor will monitor containers of hazardous substance containers regularly for leaks and to ensure that labels are displayed.
EI-4.24	The Environmental Inspector will make routine inspections of hazardous substance storage sites to ensure that environmental protection measures are implemented and effective.
EI-4.25	Waste oil will be transported by licensed carriers to licensed or approved waste oil recycling facilities.
EI-4.26	Wet batteries will be stored and transported to licensed or approved waste recycling facilities.

Management Measures (MM)

ID	Mitigation
MM-01	All licenses, permits, contracts, project specifications, guidelines and other applicable documents will be in the possession of both the Contractor and Manitoba Hydro prior to commencement of work.
MM-02	All project participants will ensure that project activities are carried out in compliance with applicable legislation, guidelines contractual obligations and environmental protection plan provisions.
MM-03	Environmental concerns will be identified and discussed at planning meetings on an as required basis.
MM-04	Manitoba Hydro will contact local municipal authorities prior to project start-up.
MM-05	Manitoba Hydro will contact lessees prior to project start-up.
MM-06	Manitoba Hydro will meet the Contractor at the beginning of each new contract to review environmental protection requirements including mitigation measures, inspections and reporting.
MM-7	Manitoba Hydro will provide the contractor with a stakeholders list with names, organizations and contact information for the purpose of contacting stakeholders as necessary.
MM-8	Project construction update meetings will be held weekly for the ongoing review of environmental and safety issues.
MM-9	Relevant documents including licenses, permits, approvals, legislation, guidelines, environmental protection plans, orthophotos maps, etc will be made available to all project participants.
MM-10	Response to enforcement actions by regulatory authorities will be in accordance with Manitoba Hydro policy P602.
MM-11	The Contractor will obtain all licenses, permits, contracts and approvals other than those that are Manitoba Hydro's responsibility prior to project start-up.
MM-12	The Contractor will review terms and conditions of all authorizations, contract specifications, agreements, etc prior to project start-up and will discuss any questions or concerns with Manitoba Hydro.

Marshalling Yards (PC-5)

ID	Mitigation
PC-5.01	Contractor employees responsible for receipt and distribution of hazardous substances will be trained in handling and transportation of dangerous goods, and WHMIS.
PC-5.02	Emergency Preparedness and Response Plan and procedures for marshalling yards will be developed.
PC-5.03	Erosion protection, sediment control and drainage management measures will be put in place prior to construction.
PC-5.04	Fire breaks will be established around marshalling yards in areas where there is a risk of fire.
PC-5.05	Garbage and debris will be stored in approved containers, sorted for recycling and disposed of at a licensed or approved waste disposal site.
PC-5.06	Hazardous substances entering and leaving the marshalling yards will be inventoried and accounted for.
PC-5.07	Hazardous substances will be stored in accordance with provincial legislation, and provincial and national codes and standards.
PC-5.08	Marshalling yards will be located based on criteria that consider soils, topography, land form type, permafrost, wildlife habitat and other environmental factors.
PC-5.09	Marshalling yards will be located in existing clearings or natural openings.
PC-5.10	Marshalling yards will be located, constructed, operated and decommissioned in accordance with contact specifications.
PC-5.11	Once marshalling yards are no longer required, structures, equipment, materials, fences, etc. will be dismantled and moved to storage or a new location.
PC-5.12	Organic material, topsoil and sub-soil stripped during site preparation will be stockpiled separately for later use in site rehabilitation.
PC-5.13	Petroleum products will only be stored, handled and dispensed in designated areas within marshalling yards in accordance with provincial legislation and guidelines.
PC-5.14	Spill control and clean-up equipment to be located at designated areas within marshalling yards.

Marshalling Yards (PC-5)

PC-5.15	Staging and work storage areas no longer required will be decommissioned and rehabilitated.
PC-5.16	Vehicle, machinery and equipment maintenance and repairs will be carried out in designated areas within marshalling yards.
PC-5.17	Waste hazardous substances, fuel containers and other materials will be stored in approved containers and transported to licensed or approved waste disposal facilities by a licensed carrier.
PC-5.18	Welding mats will be used to minimize the risk of fire.

Petroleum Products (EI-5)

ID	Mitigation
EI-5.01	Aboveground tanks will be equipped with overfill protection and spill containment consisting of perimeter dykes or secondary containment in the tank design.
EI-5.02	All aboveground petroleum product tanks with a capacity greater than 5,000 L will be registered with Manitoba Conservation and Water Stewardship and have a valid operating permit.
EI-5.03	Construction, installation or removal of petroleum product storage tank systems will only occur under the supervision of a registered licensed petroleum technician.
EI-5.04	Containment measures, such as secondary containment (i.e., berms) will be used at all locations where stationary oil-filled equipment is used.
EI-5.05	Contractors will inspect all mobile and stationary equipment using petroleum products on a regular basis to ensure that measures are taken immediately to stop any leakage discovered.
EI-5.06	Fuelling of equipment or portable storage tanks will be a minimum of 100 m from the ordinary high water mark of any waterbody.
EI-5.07	Fuelling operations require the operator to be visually observing the process 100% of the time.
EI-5.08	If dykes are used, the containment areas will be dewatered after rainfall events and the containment water disposed of as specified in contract specifications.
EI-5.09	Once petroleum product storage areas are no longer required, a Phase I and II Environmental Site Assessment will be carried out to determine if remediation is required in accordance with national standards.
EI-5.10	Only approved aboveground petroleum storage tanks will be used during the construction phase of the project. No underground tanks will be permitted.
EI-5.11	Orientation for Contractor and Manitoba Hydro employees working in construction areas will include petroleum product storage and handling awareness.
EI-5.12	Petroleum product dispensing systems will be secured and locked when not in use by authorized personnel.
EI-5.13	Petroleum product inventories will be taken weekly by the owner/operator on all aboveground tanks greater than 5,000 L and retained for inspection by Manitoba Hydro or Manitoba Conservation upon request.
EI-5.14	Petroleum product storage containers in excess of 230 L will be located on level ground and will incorporate secondary containment with a capacity of 110% of the largest container volume.
EI-5.15	Petroleum product storage sites and mobile transportation units will be equipped with fire suppressant equipment and products.
EI-5.16	Petroleum product storage tanks will be protected from vehicle collisions by concrete filled bollards.
EI-5.17	Petroleum product storage will be located a minimum of 100 m from the ordinary high water mark of waterbodies, riparian areas or wetlands.
EI-5.18	Petroleum products stored outside will be in waterproof and labelled containers, placed on spill containment pallets.
EI-5.19	Petroleum products will be transported and handled according to the procedures prescribed by provincial legislation.
EI-5.20	Petroleum products will display required signage, placards and labelling, and will be stored and handled in accordance with provincial legislation.
EI-5.21	Petroleum products will only be stored and handled within designated areas at construction camps and marshalling yards.
EI-5.22	Portable petroleum product storage containers will be placed on spill trays with a capacity of 110% of the largest container when not in use.

Petroleum Products (EI-5)

EI-5.23	Slip tanks and barrels will be securely fastened to the vehicle during transport and fuelling operations.
EI-5.24	Spill control and clean-up equipment and materials will be available at all petroleum product storage and dispensing locations.
EI-5.25	Spill trays will remain impervious at very low temperatures (-45 °C) and have accumulated precipitation removed regularly.
EI-5.26	The Contractor will be responsible for the safe use, handling, storage and disposal of petroleum products including waste as well as procedures for emergency conditions in accordance with provincial and federal legislation and standards.
EI-5.27	The Contractor will inspect all petroleum product storage tanks and containers regularly for leaks, and product inventories will be recorded and retained for inspection by Manitoba Hydro and Manitoba Conservation and Water Stewardship.
EI-5.28	There will be no ignition sources in and adjacent to petroleum product storage areas.
EI-5.29	Transfer of petroleum products between storage areas and work sites not exceed daily requirements and will be in accordance with provincial legislation and guidelines.
EI-5.30	Used petroleum products (including empty containers) will be collected and transported to a licensed oil recycling facility in approved storage containers.
EI-5.31	Vehicles hauling petroleum products will carry equipment and materials for emergency spill containment and clean-up.
EI-5.32	Warning signs will be posted in visible locations around petroleum product storage areas. Signs will indicate hazard warning, contact in case of a spill, access restrictions and authority.

Rehabilitating and Re-vegetation (PA-9)

ID	Mitigation
PA-9.01	Construction areas no longer required will be re-contoured, stabilized, re-vegetated and restored to preconstruction conditions.
PA-9.02	Natural re-vegetation will be allowed to occur although active rehabilitation programs may be required at specific sites where erosion warrants seeding or planting
PA-9.03	Organic material, topsoil and subsoil stripped from construction areas will be stockpiled and protected to be used for future site rehabilitation.
PA-9.04	Rehabilitation of construction areas will incorporate erosion protection and sediment control measures in accordance with the Erosion and Sediment Control Plan as required.
PA-9.05	Where appropriate, regional native grass mixtures will be used to assist re-vegetation of disturbed areas to control erosion or prevent invasion of non-native species. The mixtures will not contain non-native or invasive species.

Rights-of-Way (PC-8)

ID	Mitigation
PC-8.01	Access to transmission line rights-of-way for clearing and construction will utilize existing roads.
PC-8.02	Access to transmission line rights-of-way will be closed, signed and/or controlled.
PC-8.03	Additional clearing outside established rights-of-way will be approved by the Construction Supervisor/Site Manager prior to clearing and may require an amendment to contract specifications.
PC-8.04	Clearing and disturbance will be limited to defined rights-of-way and associated access routes to the extent possible.
PC-8.05	Clearing of rights-of-way will occur under frozen or dry ground conditions during established timing windows to minimize rutting and erosion where applicable.
PC-8.06	Construction vehicles will be wide-tracked or equipped with high floatation tires to minimize rutting and limit damage and compaction to surface soils.
PC-8.07	Disturbed areas along transmission line rights-of-way will be rehabilitated in accordance with site Rehabilitation and Vegetation Management Plan.
PC-8.08	Environmentally sensitive sites, features and areas will be identified and mapped prior to clearing.
PC-8.09	In situations where the ROW doesn't have completely frozen or have dry ground conditions alternate products such as construction mats will be used.

Safety and Health (EI-6)

ID	Mitigation
EI-6.01	Orientation for Contractor and Manitoba Hydro employees working in construction areas will include safety and health awareness.
EI-6.02	Safety and health information will be posted at each project location and made available to all project personnel.
EI-6.03	Workplace safety and health committees will be established and safety meetings will be held as required by provincial legislation and Manitoba Hydro guidelines at all project locations.

Soil Contamination (EI-7)

ID	Mitigation
EI-7.01	A closure report will be prepared for completed remediation projects in accordance with provincial and Manitoba Hydro guidelines.
EI-7.02	A Remediation Plan will be prepared by the Contractor for sites contaminated by project activities and will remediate soils according to provincial standards.
EI-7.03	All spills and releases reported will be responded to in accordance with provincial legislation and guidelines and Manitoba Hydro guidelines.
EI-7.04	Any contaminated soil treatment areas must be designed and constructed to contain surface runoff and prevent leaching to soil and groundwater.
EI-7.05	Contractor personnel will take all reasonable steps to prevent soil, groundwater and surface water contamination.
EI-7.06	If contamination is suspected or evident, a Phase II Environmental Site Assessment will be carried out on previously used construction sites following Manitoba Hydro procedures.
EI-7.07	If laboratory results show that the soil is contaminated the soil must be treated on-site or transported to an approved landfill or land farm for remediation in accordance with a Remediation Plan.
EI-7.08	If laboratory results show that the soil is not contaminated then the soils may be used in accordance with contact specifications.
EI-7.09	Remediation Plans will be prepared by the Contractor and approved by the Construction Supervisor/Site Manager prior to implementation if remediation of contaminated soils is determined to be required.

Soil Contamination (EI-7)

EI-7.10	The Contractor will assess previously used construction sites for potential contamination following Canadian Standards Association Environmental Site Assessment (CSA Z768- 01 and Z769-00) procedures.
EI-7.11	The Contractor will carry out a CSA Phase II Environmental Site Assessment (CSA Z769-00) at abandoned construction camps, marshalling yards, petroleum product storage and dispensing areas and hazardous substance storage areas if contamination is suspected
EI-7.12	The Environmental Inspector will inspect contaminated site assessment and remediation work regularly to ensure that environmental protection measures are implemented and effective.

Stripping (PA-10)

ID	Mitigation
PA-10.01	Construction areas containing soil with high silt content, artesian springs or areas of previous erosion will receive special erosion protection and sediment control techniques.
PA-10.02	Erosion protection and sediment control measures will put be in place prior to stripping in accordance with the Erosion and Sediment Control Plan as required.
PA-10.03	In areas of known salinity, excavated or stripped soil will be stored on liners or in designated areas were possible.
PA-10.04	Mineral topsoils and surficial organic materials should be stripped separately from subsoils, segregated, and stockpiled for later use in backfilling, contouring and rehabilitation. Soils should be replaced in the reverse order to which they were removed.
PA-10.05	Stockpiled materials from stripping will not block natural drainage patterns.
PA-10.06	Stripping will not be permitted within established buffer zones and setback distances from waterbodies except where approved in work permits, authorizations or contract specifications.
PA-10.07	The Contractor will stabilize construction areas requiring extensive stripping as soon as possible to minimize erosion.

Transmission Towers and Conductors (PC-10)

ID	Mitigation
PC-10.01	Areas where soil was disturbed will be stabilized and re-vegetated with low growth vegetation as soon as practical.
PC-10.02	During tower foundation excavation the duff layer and A horizon soils shall be stripped and stored separately from other soils. When back filling, these soils are to be replaced as the surface soils to encourage site re-vegetation.
PC-10.03	Excavations required for tower installations will be restricted to the minimum required footprint.
PC-10.04	The Construction Supervisor will issue a stop work order if extreme wet weather conditions result in soil damage from rutting and erosion is resulting in sedimentation of adjacent waterbodies.

Treated Wood (EI-8)

ID	Mitigation
EC-8.01	Salvage and disposal of treated wood products will be in accordance with Manitoba Hydro guidelines.
EC-8.02	Small quantities of surplus or unwanted treated wood products may be disposed of as domestic waste products at licensed or approved waste disposal sites.
EC-8.03	Treated wood products will not be used indoors and will not be burned.
EC-8.04	Treated wood will be delivered to project locations or construction sites on an as required basis to reduce storage time in the field.

Vehicle and Equipment Maintenance (EI-9)

ID	Mitigation
EI-9.01	An Emergency Preparedness and Response Plan and spill control and clean-up equipment will be provided at all designated vehicle, equipment and machinery maintenance areas.
EI-9.02	Emergency vehicle, equipment and machinery maintenance repairs will contain waste fluids and will use drip trays and tarps.
EI-9.03	Unnecessary idling of vehicles, equipment and machinery will be avoided to the extent practical.
EI-9.04	Vehicle, equipment and machinery maintenance and repairs will be carried out in designated areas located at least 100 m from the ordinary high water mark of a waterbody, riparian area or wetland.
EI-9.05	Vehicle, equipment and machinery operators will perform a daily inspection for fuel, oil and fluid leaks and will immediately shutdown and repair any leaks found. All machinery working near watercourses will be kept clean and free of leaks.
EI-9.06	Vehicles transporting dangerous goods or hazardous products will display required placards and labelling in accordance with provincial legislation and Manitoba Hydro guidelines.
EI-9.07	Vehicles, equipment and machinery must arrive on site in clean condition free of fluid leaks and weed seeds.
EI-9.08	Vehicles, equipment and machinery that carry fuel, hydraulic oil and other petroleum products will also carry spill control and clean-up equipment and materials.

Waste Management (EI-10)

ID	Mitigation
EI-10.01	A Contract specific Waste and Recycling Management Plan will be prepared by the Contractor, reviewed by the Construction Supervisor and Environmental Specialist prior to construction and updated annually.
EI-10.02	Construction sites will be kept tidy at all times and bins will be provided wherever solid wastes are generated.
EI-10.03	Indiscriminate burning, dumping, littering or abandonment will not be permitted.
EI-10.04	Kitchen wastes will be stored in closed containers to minimize wildlife interactions.
EI-10.05	Solid waste materials will be collected and transported to a licensed or approved waste disposal facility in accordance with the Solid Waste/Recycling Management Plan.
EI-10.06	Waste materials remaining at snow disposal sites after melting will be disposed of at a licensed or approved landfill.

Wetlands (EC-8)

ID	Mitigation
EC-8.01	Clearing wastes and other construction debris or waste will not be placed in wetland areas. Existing logs, snags and wood debris will be left in place.
EC-8.02	Environmental protection measures for working in and around wetlands will be reviewed with the Contractor and employees prior to commencement of any construction activities.
EC-8.03	Natural vegetated buffer areas of 30 m will be established around wetlands and riparian zones will be maintained to the extent possible.
EC-8.04	Project activities will avoid wetland areas to the extent possible. If avoidance is not practical, the extent of disturbance will be minimized. Disturbance of wetlands will only be carried out under frozen ground conditions.

Wildlife Protection (EC-9)

ID	Mitigation
EC-9.01	Any wildlife killed or injured by vehicles will be reported to Manitoba Conservation.
EC-9.02	Clearing will occur during late fall and winter to the extent possible to avoid the spring/summer nesting season for birds and parturition times for mammal species and breeding windows for frog species
EC-9.03	Trees containing large nests of sticks and areas where active animal dens or burrows are encountered will be left undisturbed until unoccupied. Artificial structures for nesting may be provided if unoccupied nests must be removed.
EC-9.04	Vehicles will not exceed posted speed limits.
EC-9.05	Wildlife and wildlife habitat will be protected in accordance with provincial and federal legislation and provincial and federal guidelines.
EC-9.06	Wildlife will not be fed, befriended or harassed at construction areas.

SPECIFIC ENVIRONMENTAL PROTECTION MEASURES

Specific environmental protection measures will be provided for environmentally sensitive sites where general measures do not provide adequate mitigation of potential effects. Environmentally sensitive sites are locations, features, areas, activities or facilities along or immediately adjacent to the transmission line right of way and other project components that are determined to be ecologically, socially, economically or culturally important and sensitive to disturbance by the Project and, as a result, require site-specific mitigation measures. The sites may include sensitive or unique terrain features, waterbodies and wetlands, important mammal, bird, and amphibian habitats, protected species and areas, and heritage resources.

For the Construction and Operation Phase EnvPPs, orthophoto map sheets will provide Manitoba Hydro project managers, construction supervisors and employees, and contractors and contract employees detailed site-specific environmental protection information that can be implemented, managed, evaluated and reported on in the field. The orthophoto map sheets will be provided in paper and electronic formats which will be used by Manitoba Hydro, contractor and regulatory staff on laptop computers in field offices, vehicles and aircraft.

FOLLOW-UP ACTIVITIES

Follow-up is an activity carried out to verify the accuracy of the environmental assessment of a project, assess the effectiveness of measures taken to mitigate adverse effects and determine compliance with regulatory requirements.

Inspection

Inspection is the organized and routine examination or evaluation, including observations, measurements and sometimes tests, of a construction project or activity. Inspection results are compared to pre-defined requirements or standards to determine whether an activity conforms to these requirements. Inspection provides an essential function in environmental protection and implementation of mitigation measures. Much of the success in environmental protection will be attributable to how well environmental inspection is carried out during the construction phase of a project.

Manitoba Hydro has established a comprehensive and integrated environmental inspection program to ensure effective implementation of environmental protection measures, compliance with regulatory approvals and fulfillment of corporate environmental objectives.

Trained inspectors visit work sites and inspect for compliance with license terms and conditions, and adherence to environmental protection measures. Inspection activities are recorded in journals and inspection forms that are submitted to the Construction Supervisor. Weekly and monthly summary reports are also submitted to the Manitoba Hydro Project Manager and senior management as required or requested.

Management

Management is the control of pre-defined environmental effects, issues and concerns through the implementation of reasoned and approved courses of action. Management plans will be prepared to address important management issues, regulatory requirements and corporate commitments identified in the EA Report. The management plans will describe the management actions, roles and responsibilities, evaluation mechanisms, updating requirements and reporting schedules. The following management plans will be prepared for the construction of the Project:

- Erosion Protection and Sediment Control Plans;
- Emergency Preparedness and Response Plans; and
- Solid Waste/Recycling Management Plans.

The above plans will be prepared by Manitoba Hydro or its Contractor's and may be contracted to environmental consultants that possess the necessary expertise and experience.

REVIEW AND UPDATING

The Construction EnvPP will be reviewed annually or at the end of each construction season. Reviews will be conducted by Manitoba Hydro personnel in consultation with the Contractor, and regulators. Checklists will be used to ensure that reviews address all required information in a consistent manner. The results of each review will be summarized in a report that documents the issues addressed and provides recommended updates to the CEnvPP.

APPENDIX C

BIRD SPECIES IN WINNIPEG

City of Winnipeg, Naturalist Services

Species Report - Birds in Winnipeg

Birds found in Assiniboine Park and Assiniboine Forest

Site ID: 2

Key to Codes:

A = Abundant. Can be observed on all visits often in large numbers.

C = Common. Can be observed on majority of visits, numbers vary considerably.

U = Uncommon. Is less frequently observed, usually in low numbers.

R = Rare. Is seldom observed but can be expected to occur annually.

I = Irregular. Is not expected to occur every year.

Comments:

Compiled by G. E. Holland, R. F. Koes and K. G. Krieger. This is a list of birds known to have occurred in Assiniboine Park and Assiniboine Forest since 1945.

Location: Assiniboine Forest and Assiniboine Park

Common Name	Abundance	Spring	Summer	Fall	Winter	Location
Alder Flycatcher		C	U	R		
American Bittern		R	R	R		
American Black Duck		R		R		
American Coot		U	U	U		
American Crow		A	A	A	R	
American Goldfinch		C	C	C	I	
American Kestrel		U	U	U	R	
American Pipit		U		U		
American Redstart		C	C	C		
American Robin		A	A	A	I	
American Tree Sparrow		R		R		
American White Pelican		R	R	R		
American Wigeon		U	R	U		
American woodcock				I		
Bairds Sandpiper				I		
Baltimore Oriole		A	A	U		
Bank Swallow		U	R	U		
Barn Swallow		A	A	C		
Barred Owl			I			
Bay-breasted warbler		C	U	C		
Belted Kingfisher		U	U	U		
Black Tern		R		R		
Black-and-white Warbler		C	U	U		
Black-backed Woodpecker				I		
Black-bellied Plover		I				
Black-billed Cuckoo		U	U	R		
Black-billed Magpie		R	R	R	R	
Blackburnian Warbler		U	U	U		

Black-capped Chickadee	U	U	C	C
Black-crowned Night-Heron	R	R	R	
Black-headed Grosbeak		I		
Blackpoll Warbler	C	U	C	
Black-throated Blue Warbler	I			
Black-throated Grenn Warbler	U	U	U	
Blue Jay	C	C	C	C
Blue-winged Teal	C	U	U	
Bobolink	U	U	R	
Bohemian Waxwing	U		C	I
Bonapartes Gull	U	I	R	
Brewers Blackbird	R		R	
Broad-winged Hawk	U	R	R	
Brown Creeper	C	U	C	R
Brown Thrasher	U	U	U	
Brown-headed Cowbird	A	A	R	
Bufflehead	U		U	
Canada Goose	U		U	
Canada Warbler	U	U	U	
Canvasback	R		R	
Cape May Warbler	U	U	U	
Caspian Tern	R		R	
Cedar Waxwing	U	C	C	I
Chestnut-sided Warbler	U	U	U	
Chimney Swift	C	C	U	
Chipping Sparrow	A	A	C	
Clay-colored Sparrow	C	C	C	
Cliff Swallow	A	A	U	
Common Goldeneye	U		U	I
Common Grackle	A	A	A	I
Common Loon	I			
Common Merganser	R		R	
Common Nighthawk	U	C	U	
Common Raven	R		R	R
Common Redpoll	R			R
Common Snipe	U	U	R	
Common Tern	R			
Common Yellowthroat	U	R	U	
Conneticut Warbler	U	R	U	
Coopers Hawk	R		R	
Dark-eyed Junco	A	R	A	I
Double-crested Cormorant	R	R	R	
Downy Woodpecker	U	U	U	U
Eared Grebe	I			
Eastern Kingbird	C	C		

Eastern Phoebe	C	U	U	
Eastern Screech-Owl	U	U	U	U
Eastern Wood-Pewee	U	U	U	
European Starling	C	C	C	U
Evening Grosbeak	U	I	U	U
Forsters Tern	U	R	R	
Fox Sparrow	C		C	
Franklins Gull	C	U	C	
Gadwall	R		R	
Golden-crowned Kinglet	U	U	U	I
Golden-winged Warbler	I	I		
Gray Catbird	C	C	C	
Gray Jay			I	I
Gray Partridge			I	
Gray-cheeked Thrush	U	U	U	
Great Blue Heron	U	U	U	
Great Crested Flycatcher	C	C	R	
Great Gray Owl	U	U	U	U
Great Horned Owl		I		
Greater Scaup	R		U	
Greater Yellowlegs	U	U	U	
Green Heron			I	
Green-winged Teal	U		U	
Hairy Woodpecker	U	U	U	U
Harlequin Duck			I	
Harris' Sparrow	U		U	
Hermit Thrush	C	I	C	
Herring Gull	U	R	U	
Hoary Redpoll	R			R
Hooded Merganser	R		R	
Hooded Warbler	I	I		
Horned Grebe	R			
Horned Lark	U		U	
House Sparrow	A	A	A	A
House Wren	C	C	U	
Indigo Bunting	R	I		
Killdeer	C	C	C	
Lapland Longspur	R		R	
Lark Sparrow	R			
Le Contes Sparrow		I		
Least Bittern		I	I	
Least Flycatcher	A	A	A	
Least Sandpiper	R	R		
Lesser Scaup	U		U	
Lesser Yellowlegs	U	U	U	

Lincolns Sparrow	U	U	U	
Long-billed Dowitcher			R	
Long-eared Owl	I	I		
Magnolia Warbler	C	U	C	
Mallard	A	A	A	I
Marsh Wren	R	R	I	
Merlin	R		R	R
Mountain Bluebird			I	
Mourning Dove	A	A	A	I
Mourning Warbler	U	R	U	
Nashville Warbler	C	C	C	
Nelsons Sharp-tailed Sparrow		I		
Northern Flicker	A	C	A	R
Northern Goshawk	I			
Northern Mockingbird	I	I		
Northern Parula			I	
Northern Pintail	U	U	U	
Northern Rough-winged	I	I		
Northern Saw-whet Owl			R	
Northern Shoveler	U	R	U	
Northern Shrike			I	
Northern Waterthrush	C	C	C	
Olive-sided Flycatcher	R	R	R	
Orange-crowned Warbler	C	R	C	
Orchard Oriole	I	I		
Ovenbird	C	C	C	
Palm Warbler	C	R	C	
Parasitic Jaeger			I	
Pectoral Sandpiper	U	U	U	
Peregrine Falcon	I			
Philadelphia Vireo	U	U	U	
Pied-billed Grebe	U			
Pileated Woodpecker			I	
Pine Grosbeak	U		U	U
Pine Siskin	C	U	C	R
Pine Warbler	I		I	
Prairie Falcon	I			
Purple Finch	C	U	C	R
Purple Martin	C	C	C	
Red Crossbill	I	R	R	R
Red-breasted Merganser	R		R	
Red-breasted Nuthatch	C	U	C	
Red-eyed Vireo	U	A	C	
Redhead	R		R	
Red-headed Woodpecker	U	U	U	

Red-necked Grebe	I			
Red-tailed Hawk	U	I	U	
Red-winged Blackbird	A	A	A	
Ring-billed Gull	U	U	U	
Ring-necked Duck	R		R	I
Rock Dove	A	A	A	A
Rose-breasted Grosbeak	C	C	C	
Rough-legged Hawk	U	I	R	
Ruby-crowned Kinglet	C	U	C	
Ruby-throated Hummingbird	U	U	U	
Ruddy Duck	I			
Ruddy Turnstone	I	I		
Ruffed Grouse	I			
Rusty Blackbird	U		U	
Sandhill Crane	R		R	
Savannah Sparrow	C	C	C	
Scarlet Tanager	I	I	I	
Semipalmated Sandpiper	R	I	R	
Semipalmated Sandpiper	R		I	
Sharp-shinned Hawk	U	I	U	
Short-billed Dowitcher	R		R	
Snow Bunting	R		R	R
Snow Goose	U		U	
Solitary Sandpiper	U	U	U	
Solitary Vireo	C	U	U	
Song Sparrow	U	U	U	
Sora	R			
Spotted Sandpiper	C	C	C	
Spotted Towhee	R	R	R	
Stilt Sandpiper		I		
Swainson's Thrush	C	U	C	
Swamp Sparrow	U	U	U	
Tennessee Warbler	A	C	C	
Three-toed Woodpecker				I
Townsends Solitaire			I	
Tree Swallow	C	C	U	
Trumpeter Swan	R		R	
Turkey Vulture	I			
Veery	U	U	R	
Vesper Sparrow	R			
Warbling Vireo	C	A	R	
Western Grebe	I			
Western Kingbird	C	C	U	
Western Meadowlark	C	C	C	
Western Sandpiper		I		

Whip-poor-will	R	R		
White-breasted Nuthatch	C	C	C	C
White-crowned Sparrow	U		U	
White-rumped Sandpiper	I	I		
White-throated Sparrow	A	U	A	
White-winged Crossbill	I	R	R	R
Wild Turkey	U	U	U	U
Willet			I	
Wilsons Warbler	C	U	U	
Winter Wren	R		R	
Wood Duck	C	C	C	
Wood Thrush	I	I		
Yellow Warbler	A	A	U	
Yellow-bellied Flycatcher	R	R	R	
Yellow-bellied Sapsucker	U	R	U	
Yellow-crowned Night-Heron	I			
Yellow-headed Blackbird	R		R	
Yellow-rumped Warbler	A	U	A	
Yellow-throated Vireo	U	U	U	

Back to map

APPENDIX D

GOVERNMENT CORRESPONDENCE

Gene Senior

From: McClean, Heather (TCHSCP) <Heather.McClean@gov.mb.ca>
Sent: October-02-14 10:12 AM
To: 'Gene Senior'
Cc: Smith, Brian (TCHSCP); Butterfield, David (TCHSCP)
Subject: FW: Request for heritage information within City of Winnipeg
Attachments: Figure 1 cross_section_locations.pdf

Hi Gene – I received your request and checked for possible heritage sites located within the area in question and there are no known heritage sites located within that particular area.

Thank you.

Heather McClean
Heritage Resources Registrar
Historical Assessment Services
Historic Resources Branch
Main Floor, 213 Notre Dame Avenue
Winnipeg MB R3B 1N3
Heather.McClean@gov.mb.ca
Phone: (204) 945-7146
Fax: (204) 948-2384

From: Gene Senior [mailto:GSenior@kgsgroup.com]
Sent: September-12-14 10:35 AM
To: +WPG574 - HRB (TCHSCP)
Cc: Sitchon, Myra (TCHSCP)
Subject: FW: Request for heritage information within City of Winnipeg

Good morning:
Please find below a request for heritage information for a transmission line upgrade project.
Attached is a map showing the project location.
Thank you,
Gene Senior

From: Gene Senior [mailto:GSenior@kgsgroup.com]
Sent: September-05-14 10:41 AM
To: 'McClean, Heather (TCHSCP)'
Subject: Request for heritage information within City of Winnipeg

Ms. Heather McClean,

KGS Group is conducting an Environmental Act Proposal for Manitoba Hydro. We are looking to identify heritage and archaeological resources which may be impacted by the project. The project is located in southwest Winnipeg along the path shown on the attached Figure 1 Cross Section Locations Harrow to Bishop Grandin.

We are requesting a location and description of each, if any, resources located on or near the land as shown on the attached figure. Additionally, we are requesting the data delivered in Excel and ArcView format (or PDF mapsheet).

Thank you for your assistance.

Sincerely,

Gene Senior (gsenior@kgsgroup.com)
Environmental Scientist

KGS GROUP CONSULTING ENGINEERS

865 Waverley Street
Winnipeg, Manitoba R3T 5P4
p. 204.896.1209 ext. 357
c. 204.218.3285
f. 204.896.0754
http://www.kgsgroup.com

Go Green:
Think before you print

Gene Senior

From: Friesen, Chris (CWS) <Chris.Friesen@gov.mb.ca>
Sent: September-09-14 11:22 AM
To: 'Gene Senior'
Subject: RE: Data Request: SW Winnipeg 115 kV Transmission System Upgrade Project

Gene

Thank you for your information request. I completed a search of the Manitoba Conservation Data Centre's rare species database and found no occurrences at this time for your area of interest.

The information provided in this letter is based on existing data known to the Manitoba Conservation Data Centre at the time of the request. These data are dependent on the research and observations of CDC staff and others who have shared their data, and reflect our current state of knowledge. **An absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present**; in many areas, comprehensive surveys have never been completed. Therefore, this information should be regarded neither as a final statement on the occurrence of any species of concern, nor as a substitute for on-site surveys for species as part of environmental assessments.

Because the Manitoba CDC's Biotics database is continually updated and because information requests are evaluated by type of action, any given response is only appropriate for its respective request. Please contact the Manitoba CDC for an update on this natural heritage information if more than six months pass before it is utilized.

Third party requests for products wholly or partially derived from Biotics must be approved by the Manitoba CDC before information is released. Once approved, the primary user will identify the Manitoba CDC as data contributors on any map or publication using Biotics data, as follows as: Data developed by the Manitoba Conservation Data Centre; Wildlife Branch, Manitoba Conservation and Water Stewardship.

This letter is for information purposes only - it does not constitute consent or approval of the proposed project or activity, nor does it negate the need for any permits or approvals required by the Province of Manitoba.

We would be interested in receiving a copy of the results of any field surveys that you may undertake, to update our database with the most current knowledge of the area.

If you have any questions or require further information please contact me directly at (204) 945-7747.

Chris Friesen
Biodiversity Information Manager
Manitoba Conservation Data Centre
204-945-7747
chris.friesen@gov.mb.ca
http://www.gov.mb.ca/conservation/cdc/

From: Gene Senior [mailto:GSenior@kgsgroup.com]
Sent: September-05-14 10:42 AM
To: Friesen, Chris (CWS)
Subject: Data Request: SW Winnipeg 115 kV Transmission System Upgrade Project

Chris,
Below is a data request for a Manitoba Hydro transmission upgrade project which will be taking place in SW Winnipeg.

Project Description:

The project is needed to improve the 115 kV system in south west Winnipeg to meet load and performance criteria necessary for reliability. The project is mostly replacement of existing towers and conductors on the existing right-of way.

Information Requested:
We request information regarding known locations of SAR (plant, wildlife, aquatic, etc.) occurrences along the project route (Figure 1) and immediate surrounding area. Please provide the specific quarter section of land for each occurrence if possible.

Format Requested:
Our preference is for the data to be presented in MS Excel and ArcView formats.

Location:
Please see attached Figure 1.

Thanks,

Gene Senior (gsenior@kgsgroup.com)
Environmental Scientist

KGS GROUP CONSULTING ENGINEERS

865 Waverley Street
Winnipeg, Manitoba R3T 5P4
p. 204.896.1209 ext. 357
c. 204.218.3285
f. 204.896.0754
http://www.kgsgroup.com

APPENDIX E

PUBLIC ENGAGEMENT REPORT

Manitoba Hydro

HARROW STATION – BISHOP GRANDIN TRANSMISSION PROJECT

Public Engagement Program Report

Prepared for: **Manitoba Hydro** I Prepared by: **MMM Group Limited** I February 2015

Manitoba Hydro

HARROW STATION – BISHOP GRANDIN TRANSMISSION PROJECT

Public Engagement Process Report

Prepared for: **Manitoba Hydro** I Prepared by: **MMM Group Limited** I **February 2015**

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STANDARD LIMITATIONS

This report was prepared by MMM Group Limited (MMM) for the account of Manitoba Hydro (the Client). The disclosure of any information contained in this report is the sole responsibility of the Client. The material in this report reflects MMM's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. MMM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report.

In July 2014, MMM Group Limited (MMM) was retained by Manitoba Hydro to assist with the Public Engagement Process (PEP) for the Harrow Station – Bishop Grandin Transmission Project. The report contained herein provides a summary of the PEP, including the following:

- Overall project summary
- Proposed schedule
- Public Engagement Process (PEP)
- Public feedback received
- Next steps & recommendations

1.0 PROJECT SUMMARY

Manitoba Hydro is proposing an upgrade of two existing 115 kV transmission lines between Harrow Station and the interconnection with the St. Vital transmission lines at Bishop Grandin Boulevard (**Figure 1**). The upgrade of the transmission lines is needed to address aging infrastructure and to accommodate Phase Two of the City of Winnipeg's Southwest Transitway. The project will be contained entirely within Manitoba Hydro's existing Harrow Station – Bishop Grandin right-of-way and is classified as a Class 2 Development under the Province of Manitoba's Environment Act.

The proposed work will include rebuilding and relocating two 115 kV double circuit transmission lines (located along the eastern boundary of the right-of-way) that support customers in southern Winnipeg. The two transmission lines will be relocated to the west within the existing right-of-way. The transmission line on the most eastern edge of the right-of-way will remain to accommodate future needs.

Figure 1: Project Location

2.0 SCHEDULE

The proposed Harrow Station – Bishop Grandin Transmission Project is as follows. Timing is subject to change and is dependent on the issuance of a Class 2 development licence under *The Environment Act*.

Public Notification: November 2014

Public Engagement: November – December 2014

Public Open House: December 2, 2014

Anticipated Environmental Assessment Filing: March 2015

Anticipated Construction Start: Summer/Fall 2015

Anticipated In-Service Date: Mid 2016

3.0 PUBLIC ENGAGEMENT PROCESS

In collaboration with Manitoba Hydro, MMM Group Limited (MMM) led the Public Engagement Process (PEP) for the proposed Harrow Station – Bishop Grandin Transmission Project. The overarching goals of the PEP were to:

- Share project information.
- Gather and understand local interests.
- Integrate local interests and concerns into the Environmental Assessment process.
- Discuss potential mitigation measures.

The PEP included:

- Background review
- Communication techniques
    - Newsletter
    - Newspaper ad
    - Notification letter to lease holders
    - Stakeholder phone calls and emails
    - Phone line and email address
    - Website
- Open house
- Public feedback summary

3.1 BACKGROUND REVIEW

In October 2014, representatives from Manitoba Hydro and MMM met to discuss and confirm the overarching goals of the project and details for the upcoming public engagement process. Once these details were confirmed, project team members reviewed all relevant background information and discussed potential project effects with the environmental consultants responsible for the Environmental Assessment.

As part of the Environmental Assessment process, the environmental consultant team prepared a preliminary interaction matrix that was used to identify potential project effects and assign a level of impact to each. The matrix was developed using site information obtained from various government agencies, conducting a site visit, and incorporating project information provided by Manitoba Hydro. According to data obtained from the Manitoba Conservation Data Centre, there are no species of conversation concern located within the Manitoba Hydro right-of-way. According to the Manitoba Historic Resources Branch, there are also no heritage resources located within the Manitoba Hydro right-of-way.

The environmental consultants explained that since a transmission line will continue to operate within the existing right-of-way, with no increase in the number of circuits, the potential project effects are primarily related to short-term construction impacts. These impacts will mainly be related to the decommissioning of the existing lines and limited to the construction area within the right-of-way. The majority of adverse effects identified were assessed as ‘minor’, with only a few assessed as ‘moderate’, and none assessed as ‘major’. The ‘moderate’ adverse effects

include the potential to contaminate soil or surface water if a spill or accidental release of fuel should occur during the transporting, storing, or fueling of vehicles during project-related construction activities (including site preparation and decommissioning).

Existing land uses along the right-of-way will experience temporary disturbance during the project's construction period. Land uses that may be affected include recreational land use at the dog park north of Parker Avenue, garden plot leases, commercial/industrial storage/parking uses, and public access (roads and recreation trails). Because these land uses will only be temporarily disturbed during construction, the land use effects of the project have been assessed as negligible and no temporary mitigation is required.

While not directly related to this project, but rather, due to the location of the proposed Rapid Transit Corridor, Manitoba Hydro has decided that the garden plot leases along the right-of-way will not be renewed. Manitoba Hydro will provide information to lease holders on the City of Winnipeg Garden Allotment Rentals program to find alternative garden plots.

3.2 COMMUNICATION

In order to inform the public of the proposed project, the project team developed and used a range of communication materials, including the following:

3.2.1 NEWSLETTER

The project newsletter (**Figures 2a & 2b**) included a description of the project, map of the study area, an invitation to the open house, website address, and project contact information (Manitoba Hydro phone line). Newsletters were distributed to 3,205 properties in the project area (between Taylor Avenue, Pembina Highway, Waverley Street and Bishop Grandin Boulevard). They were delivered as unaddressed admail by Canada Post and arrived in mailboxes by November 17, 2014 (two weeks prior to the open house).

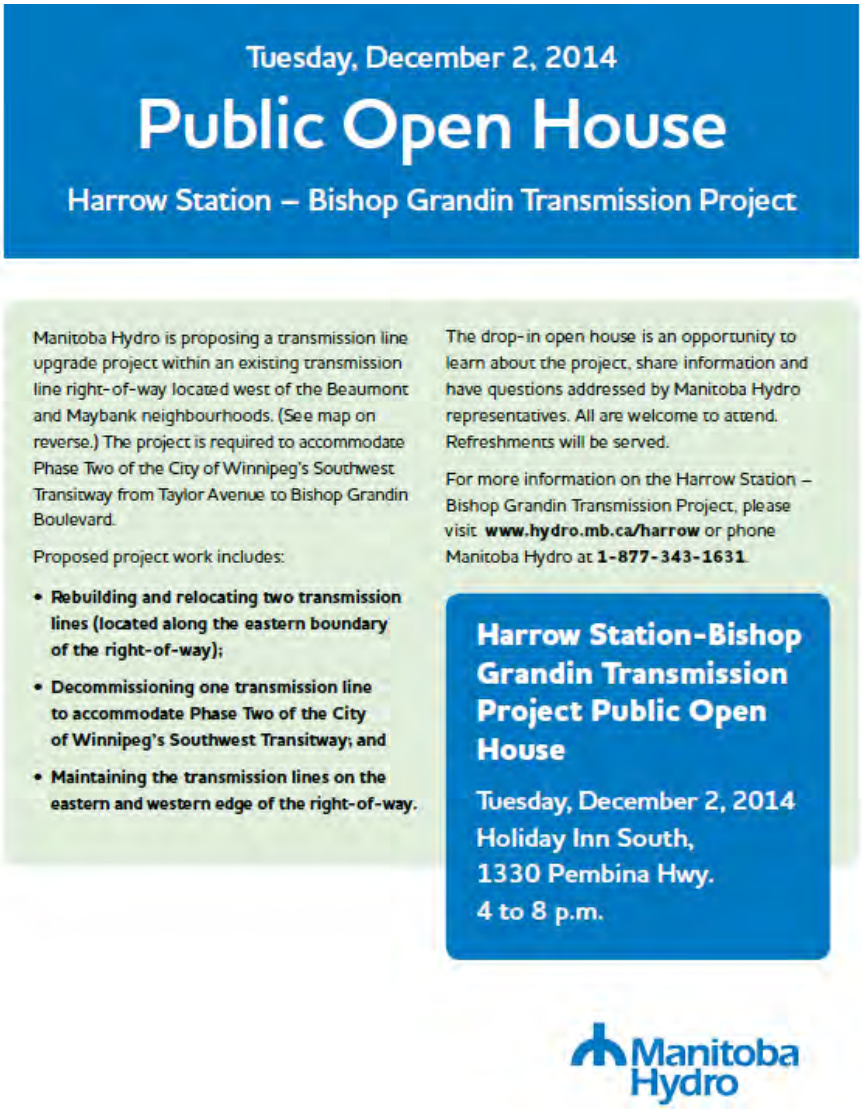


Figure 2a: Newsletter (front)

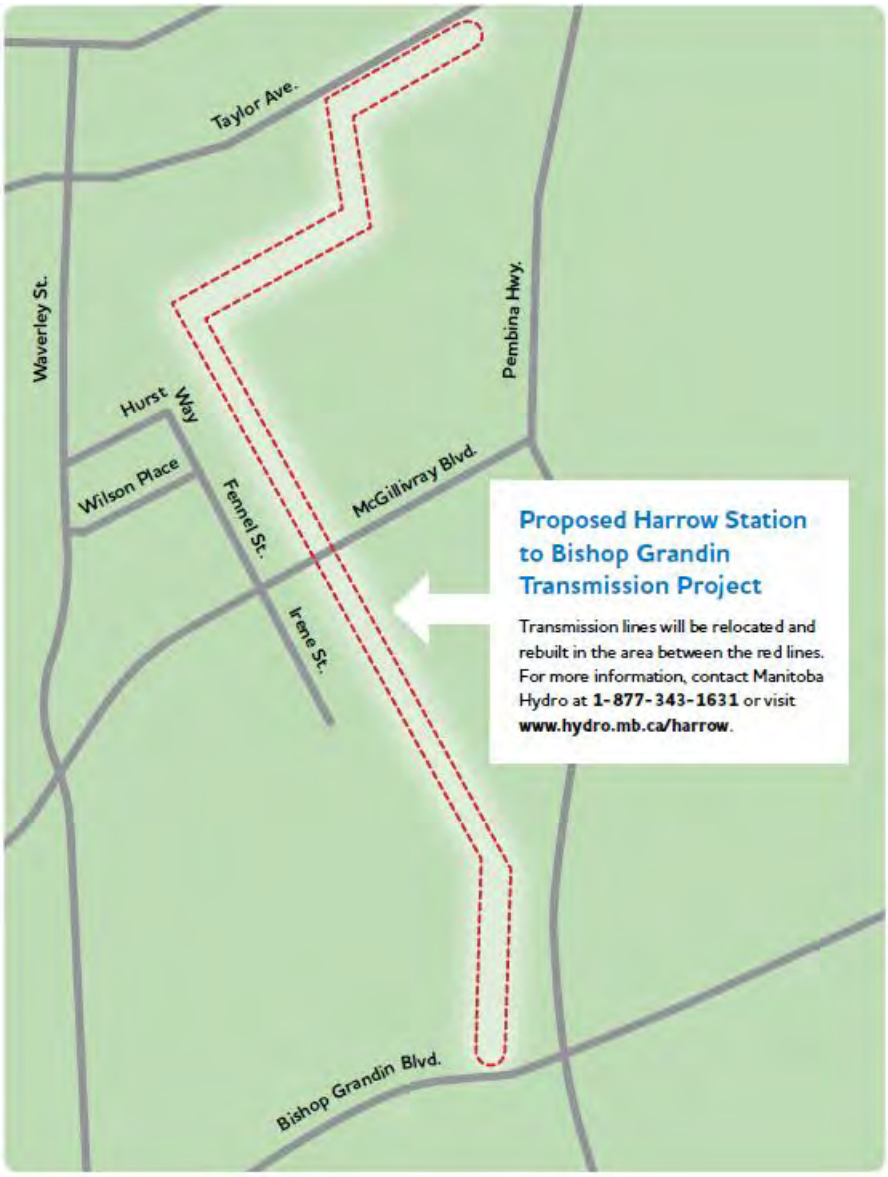


Figure 2b: Newsletter (back)

3.2.2 NEWSPAPER AD

The open house was advertised in the Winnipeg Free Press on Saturday, November 22, 2014, and Sunday, November 23, 2014. The event was also advertised in the local edition of the Canstar Weekly, the Sou'wester, on Wednesday, November 26, 2014.

3.2.3 NOTIFICATION LETTER TO LEASE HOLDERS

Notification letters were mailed to all lease holders leasing land for garden plots or parking lots within the right-of-way on November 13, 2014. The notification letter provided an overview of the project, invited lease holders to attend the open house, and encouraged anyone with project-related questions to contact Manitoba Hydro.

3.2.4 STAKEHOLDER PHONE CALLS AND EMAILS

Representatives from Manitoba Hydro and MMM worked together to identify and confirm stakeholders for the project. All stakeholders were contacted directly by project team members via telephone and/or email and informed about the project and the open house. Stakeholders included:

- Buhler Industries (parking lot in the right-of-way)
- City of Winnipeg
    - Water Branch Aqueduct
    - Transit
    - Active Transportation
    - Parks
- Church of the Rock (parking lot in the right-of-way)
- Parker Wetlands Conservation Committee (local environmental advocacy group)

To date, there have been no meeting requests from stakeholders requiring additional information. Manitoba Hydro will continue to have open communication with lease holders along the right-of-way as the project progresses.

3.2.5 PHONE LINE AND EMAIL ADDRESS

Project communication materials included a phone number and email address to which interested persons and stakeholders could direct their project-related questions. To date, Manitoba Hydro has received four project-related phone calls and one email. The following chart illustrates the nature of the inquiries and Manitoba Hydro's responses:

TYPE OF CONTACT	DETAILS
Email	Interested citizen inquiring about the overall cost of the project. A Manitoba Hydro representative explained that the overall cost would be approximately $25M.
Phone call	Garden permit holder who did not receive a notification letter. A Manitoba Hydro representative addressed this issue immediately.
Phone call	Storage lease holder south of Chevrier Boulevard who leases the property for a boat compound. A Manitoba Hydro representative addressed their questions.
Phone call	Representative from the Fort Garry Mennonite Brethren Church (parking lot lease holder adjacent to Pembina Highway). A Manitoba Hydro representative addressed their questions.
Phone call	Interested citizen who was unable to attend the open house. A Manitoba Hydro representative responded to their questions in the following manner: • Outlining that the open house storyboards are available online. • Discussing the decommissioning of the transmission line. • Discussing cost-sharing between Manitoba Hydro and the City of Winnipeg; outlining that the cost borne by the City will be determined at the final design stage. • Explaining that the overall cost of the project is $25M.

3.2.6 WEBSITE

MMM and Manitoba Hydro worked together to prepare the content for the project website. Website content included a project description, project location map and cross-sections, schedule, overview of the public engagement process and associated materials, environmental assessment information, document library, and contact information. The website went live on November 12, 2014, and the website address was included on all of the project communication materials.

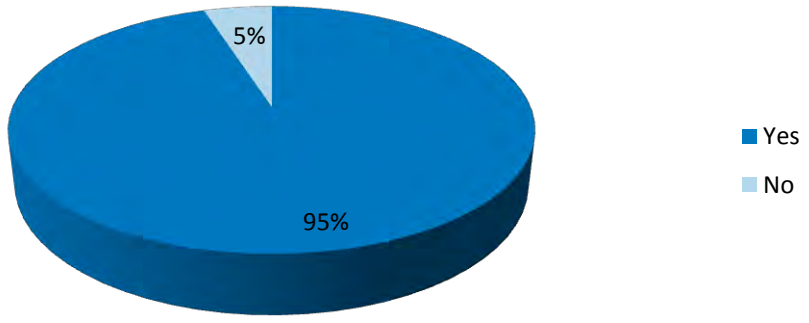
3.3 OPEN HOUSE

On December 2, 2014, project team members from MMM facilitated the Manitoba Hydro Harrow Station – Bishop Grandin Transmission Project open house at the Holiday Inn South, 1330 Pembina Highway. It was a come and go event from 4 p.m. to 8 p.m. with a series of storyboards displayed throughout the room. The storyboards provided project details and associated mapping and graphics (**Appendix A**). Thirty-seven people signed into the open house; however, it is estimated that approximately 50-60 people attended, as a few individuals did not sign in or only signed one name per couple. The open house provided attendees with an opportunity to view further information about the project, ask questions, and share their feedback with the project team.

3.4 PUBLIC FEEDBACK

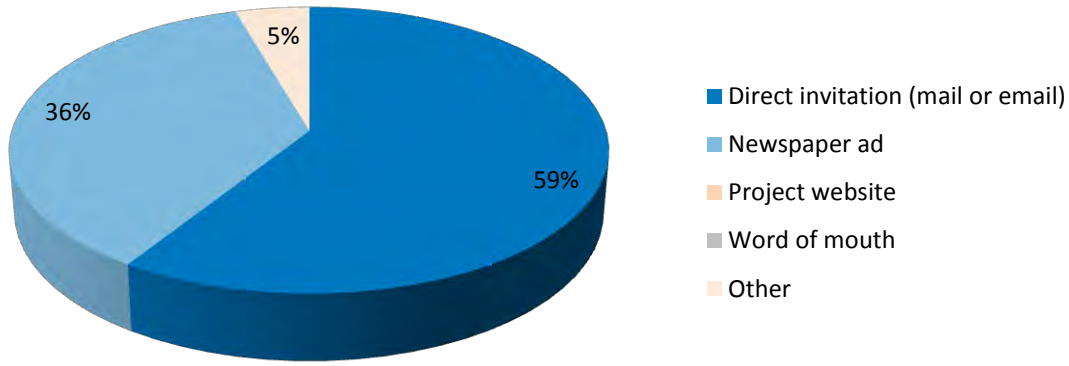
In addition to feedback received verbally during the open house, 22 comment sheets (**Appendix B**) were submitted to the project team. The following paragraphs summarize the written feedback received. The verbatim comment sheet feedback is included in **Appendix C**.

"DID YOU FIND TODAY'S OPEN HOUSE HELPFUL?"



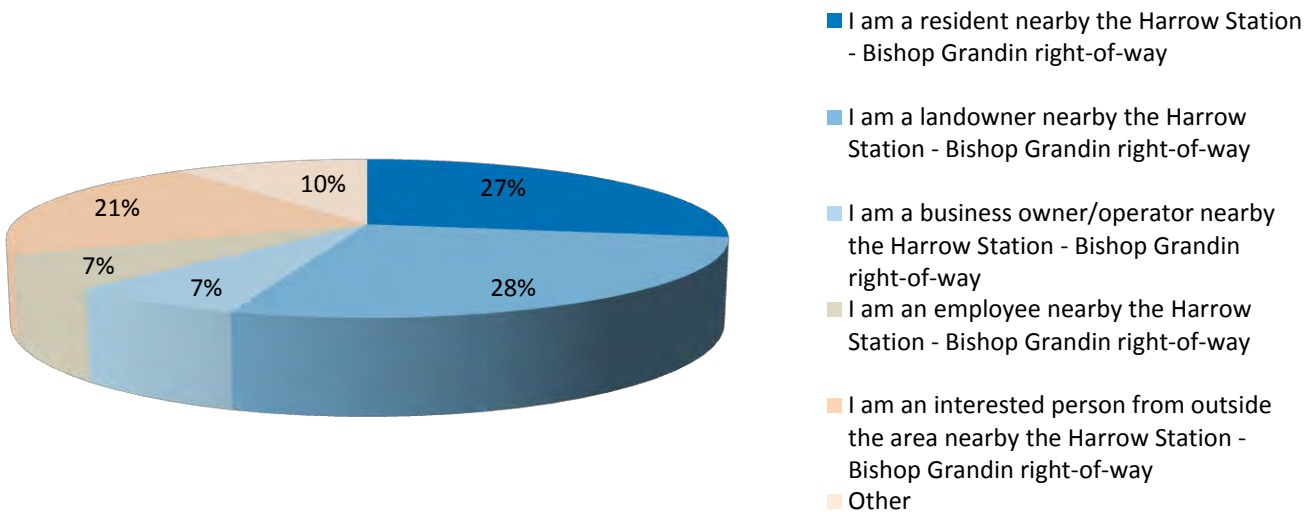
The majority of respondents (95%) indicated that the open house was helpful and informative. Many noted they were able to gain a better understanding of what will be occurring within the right-of-way by reviewing the storyboard content and speaking with members of the project team. Respondents appreciated the inclusion of cross-section views, the proposed project timeline, and proposed location of the Bus Rapid Transit (BRT) line. A few responses indicated there could have been more project details provided.

"HOW DID YOU FIND OUT ABOUT THE OPEN HOUSE?"



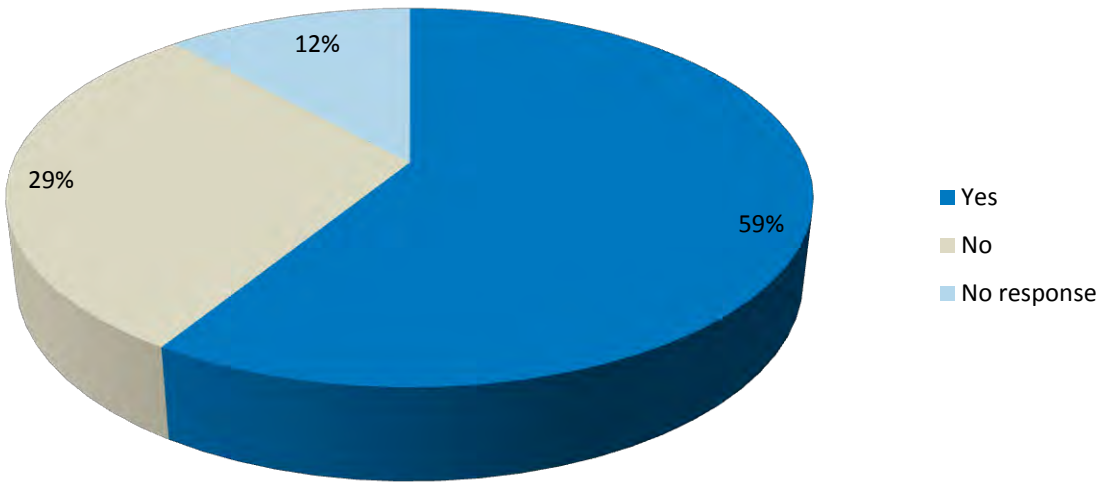
The majority of respondents (59%) found out about the open house through direct invitation (mail or email newsletter). Many others (36%) heard about the event by reading one of the two newspaper ads (Winnipeg Free Press or the Sou'wester).

"PLEASE CHECK ALL THE DESCRIPTIONS THAT APPLY TO YOU."



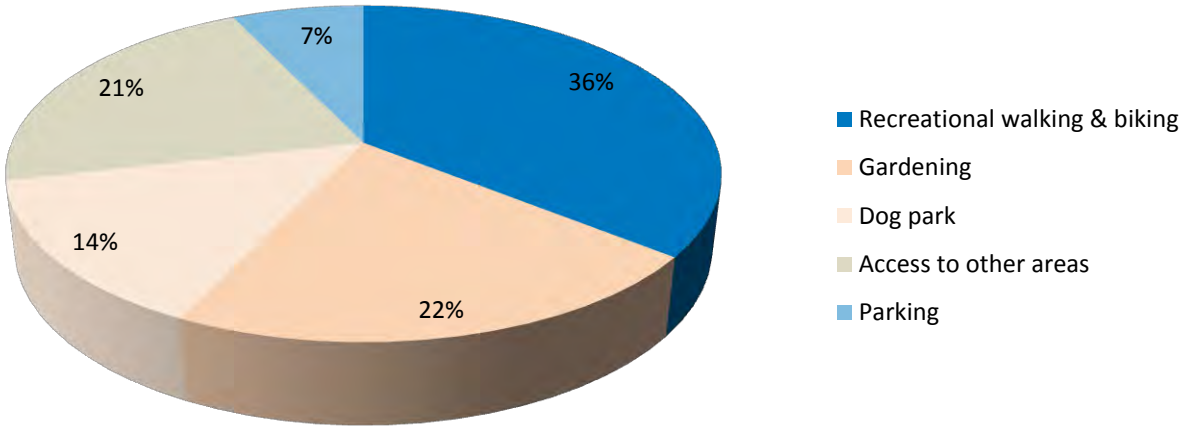
A substantial percentage of respondents indicated they were either landowners (28%) or residents (27%) nearby the Harrow Station – Bishop Grandin right-of-way. The remaining respondents indicated they were either interested persons from outside of the study area or nearby business owners and employees. (For this question, respondents were able to select multiple responses and therefore there were 29 responses in total, rather than 22).

"DO YOU USE THE HARROW STATION – BISHOP GRANDIN RIGHT-OF-WAY?"



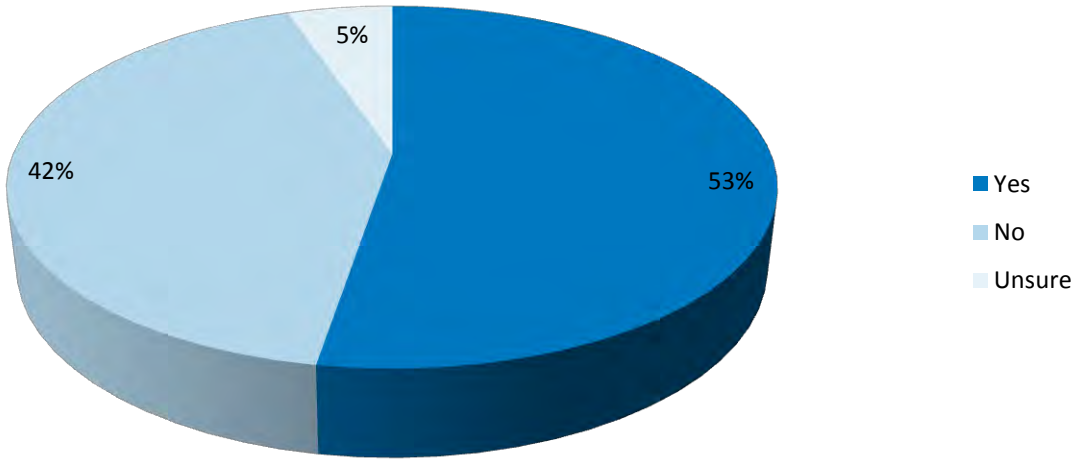
Fifty-nine percent (59%) of respondents noted that they use the Harrow Station – Bishop Grandin right-of-way, 29% indicated that they do not use the right-of-way, and 12% did not directly answer the question. Those who do use the right-of-way, use it for the following:

"HOW DO YOU USE THE HARROW STATION – BISHOP GRANDIN RIGHT-OF-WAY?"



Several respondents (36%) indicated they use the right-of-way for recreational walking and biking purposes, while many garden here (22%) or cross it to access nearby areas such as Waverley Street, Grant Avenue and Kenaston Boulevard (21%).

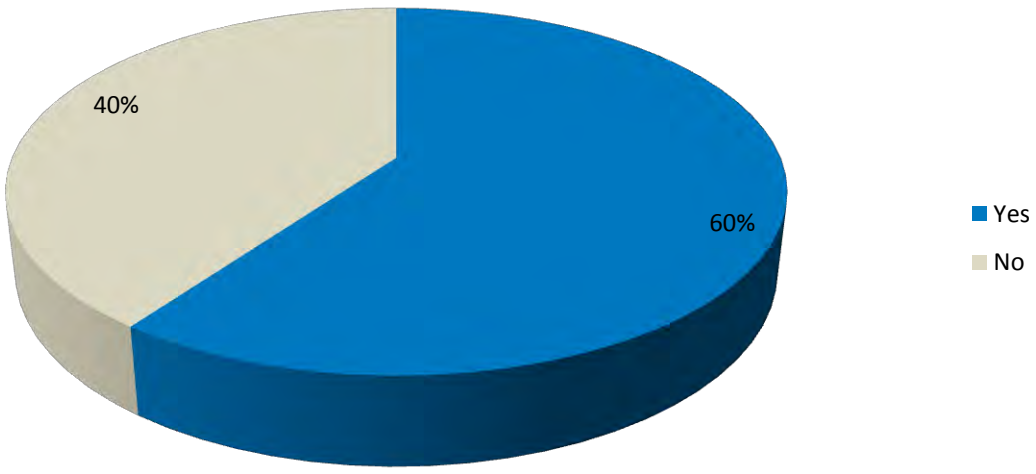
"DO YOU THINK THE REBUILDING AND RELOCATION OF THE TOWERS HAVE AN IMPACT ON YOU?"



Fifty-three percent (53%) of respondents noted that the rebuilding and relocation of the towers will have an impact on them while 42% indicated they would not be impacted and 5% were unsure. A few indicated that not all of the impacts would be negative, as the project could potentially help clean up the area and improve the aesthetics of the right-of-way. The negative impacts included:

- Construction impacts (traffic delays & inability to cross the right-of-way as a pedestrian)
- Expense for rate payers
- BRT impacts
- Inability to continue leasing land during & after construction (garden plots & parking)

"DO YOU HAVE ANY CONCERNS ABOUT THE RELOCATION AND UPGRADE OF THE TRANSMISSION LINES?"



Sixty percent (60%) of respondents had concerns about the proposed relocation and upgrade of the transmission lines and 40% did not. The concerns included the following:

- Loss of garden plots
- Project cost/waste of rate payer money
- Additional miscellaneous hydro lines
- Disruption to environment and nearby residents during construction
    - Construction hours

- Risk of watermain & aqueduct breakage
- Impact on local vehicle traffic due to road closures

- Environment & landowners' compensation
- BRT line impacts

"HOW COULD YOUR CONCERNS POTENTIALLY BE ADDRESSED?

Three respondents indicated how their concerns could be addressed. One noted that their concerns could be mitigated through frequent public notices and ongoing communication with Manitoba Hydro. Another noted that the hydro lines could be placed underground. One other noted that they would like to see the base of the new towers and access "roads" remain as vegetation rather than gravel.

"ADDITIONAL COMMENTS"

Respondents provided a few additional comments, including the following:

- A request for assistance relocating the garden plots, if necessary.
- Appreciation for the open house.
- Concern with location and appropriateness of this portion of the proposed transit corridor.
- Proximity of BRT to hydro lines (could affect potential for Transit Oriented Development).
- Need for local representation as part of Manitoba Hydro's decision-making process.
- Importance of landscaping and aesthetics within the right-of-way.
  - Improved lighting
  - Beautification & trees

All of the public feedback provided throughout the PEP will be considered by Manitoba Hydro and documented and reported in the Environmental Assessment Report, to be submitted by Manitoba Hydro in March 2015.

VERBAL QUESTIONS

The following section summarizes the frequently asked questions posed during the open house and the answers provided by the project team:

Project Details

***Q**: How many towers are being removed?*

A: Approximately 19 towers will be removed.

***Q**: What is the linear distance of the line?*

A: The linear distance is approximately five kilometres.

***Q**: What type of foundation is being put in?*

A: Cement foundations will be installed, but details will be determined at the final design stage.

***Q**: Why not bury the lines?*

A: Underground burial of the lines is cost prohibitive and only undertaken when there is insufficient right-of-way to route overhead lines. This particular right-of-way has ample space available.

***Q**: What is the lifespan of the transmission line?*

A: The transmission line lifespan is approximately 50 – 60 years.

Project Cost

***Q**: Will the City of Winnipeg be cost-sharing this project?*

A: The cost borne by the City will be determined at the final design stage. Manitoba Hydro is currently in discussion with the City regarding this matter.

Leases within the Right-of-Way

***Q**: What is happening to the leases for land under the existing lines (garden plots and parking spaces)?*

A: All of the lease holders have been notified about the project and will receive additional information as the project progresses.

Purpose of the Open House

***Q**: Manitoba Hydro isn't changing anything, so why are they having this big open house?*

A: Manitoba Hydro wants to share project information with local residents to understand concerns to minimize the potential impacts of the project.

4.0 NEXT STEPS & RECOMMENDATIONS

The anticipated construction start for the proposed project is summer/fall 2015. It is recommended that Manitoba Hydro maintain open communication with the public and stakeholders between now and then. It is further recommended that another unaddressed admail newsletter be delivered to all property owners in the vicinity of the right-of-way and phone calls/emails made to key stakeholders once the regulatory review is complete (anticipated - mid 2015) and a construction start date is set. This will help to ensure all interested persons are kept up to date on project progress and informed of any upcoming construction impacts (e.g. road closures, noise, etc.). Manitoba Hydro will be sending out termination letters to the gardeners by the end of March, 2015. The remainder of the leases will be terminated by July 1, 2015 as the entire width of the corridor is required during the relocation of the transmission lines and construction of the Rapid Transit Corridor (approximately three to four years). The lease holders will be kept informed and lease options revisited once construction is complete.

APPENDIX A
OPEN HOUSE STORYBOARDS

Harrow Station – Bishop Grandin Transmission Project

Welcome

Manitoba Hydro

Project Background

This project will:

- relocate and upgrade the transmission lines between Harrow Station and Bishop Grandin Boulevard;
- address aging infrastructure; and
- accommodate Phase 2 of the City of Winnipeg's Southwest Transitway.

Manitoba Hydro

Project Location

Harrow to Bishop Grandin Transmission Project

Project Infrastructure

- Proposed New Transmission Line
- Decommissioned Transmission Line
- Existing Transmission Line

Manitoba Hydro

Coordinate System: UTM Zone 14 NAD 83
Data Source: MBHydro, MMM, Stantec, ProvMB,
Date Created: October 21, 2014

0 250 500 Meters

0 0.25 0.5 Miles

N

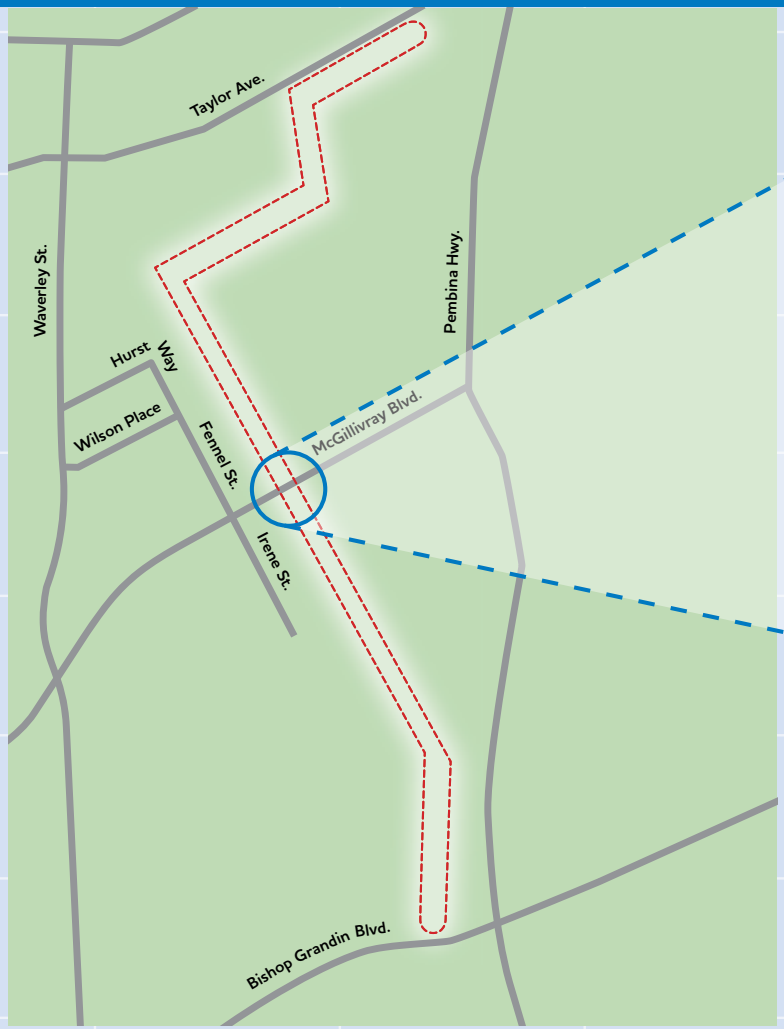
1:18,000

Harrow to Bishop Grandin Transmission Project

Draft: For Discussion Purposes Only

Right-of-way Cross Section

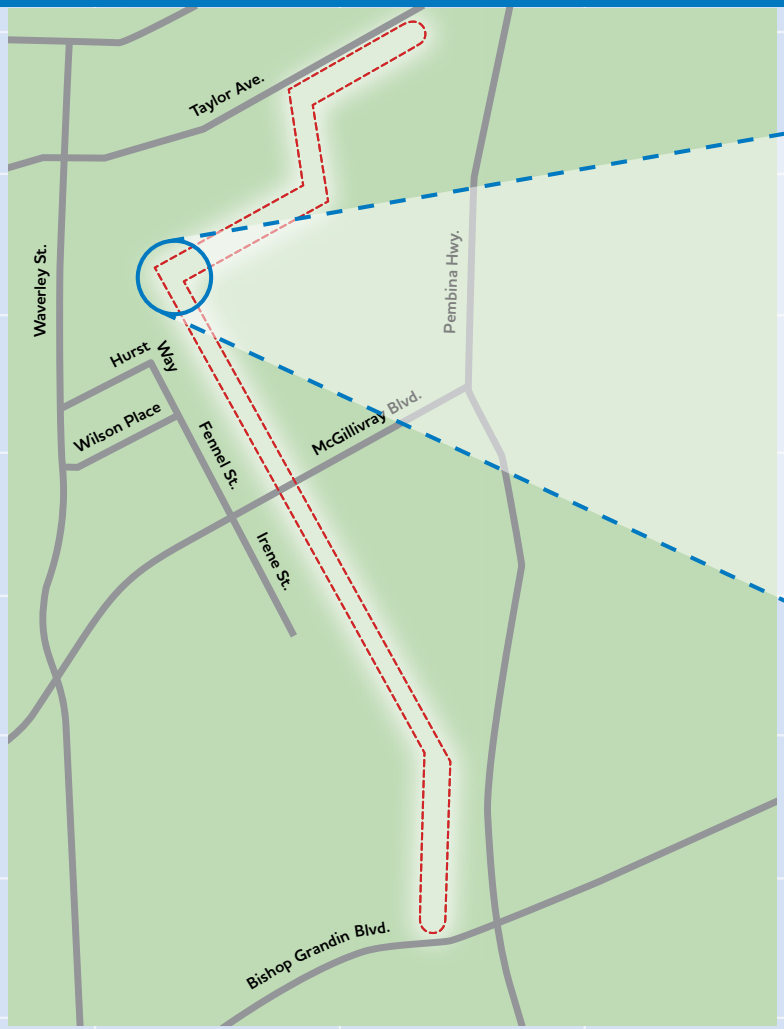
McGillivray Boulevard looking north



Manitoba Hydro

Right-of-way Cross Section

Parker Avenue looking south



Manitoba Hydro

Construction Activities

- **Foundation Installation**: foundations will be installed to ensure support for the transmission tower;
- **Tower Assembly**: towers will be assembled on site and then erected;
- **Tower Erection**: cranes will be used to lift the transmission towers onto the installed foundations; and
- **Stringing Conductors**: construction crews will secure the conductor (wire) to the transmission towers;

Manitoba Hydro

Construction Activities

- **Implodes**: this activity involves a high energy charge that fuses the conductor (wire) and makes a loud but brief noise. Manitoba Hydro will notify local residents if these activities occur; and
- **Decommissioning**: one transmission line will be disassembled and removed from the right-of-way.

Manitoba Hydro

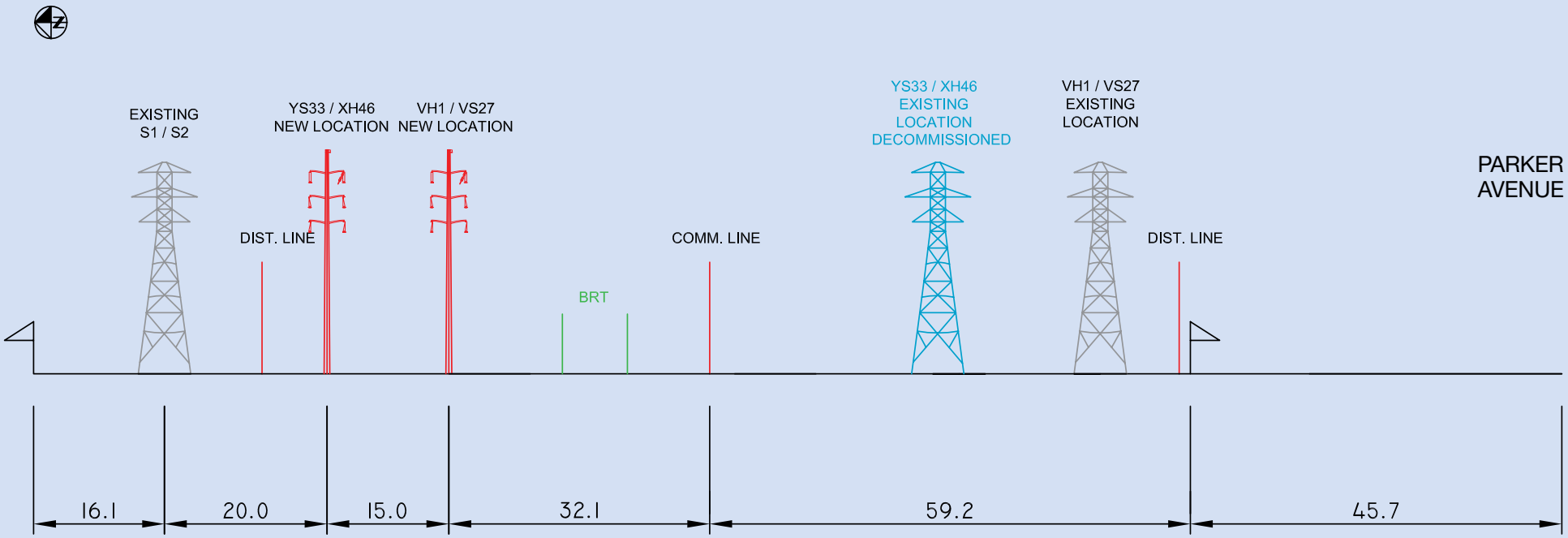
Safety

- Limit road closures to ensure public safety;
- Cranes, trucks and track hoes will be present in the construction area;
- Public access is not permitted during construction.

Promoting safety in the work of our employees and in the actions of the public around our facilities is Manitoba Hydro's foremost goal.

Manitoba Hydro

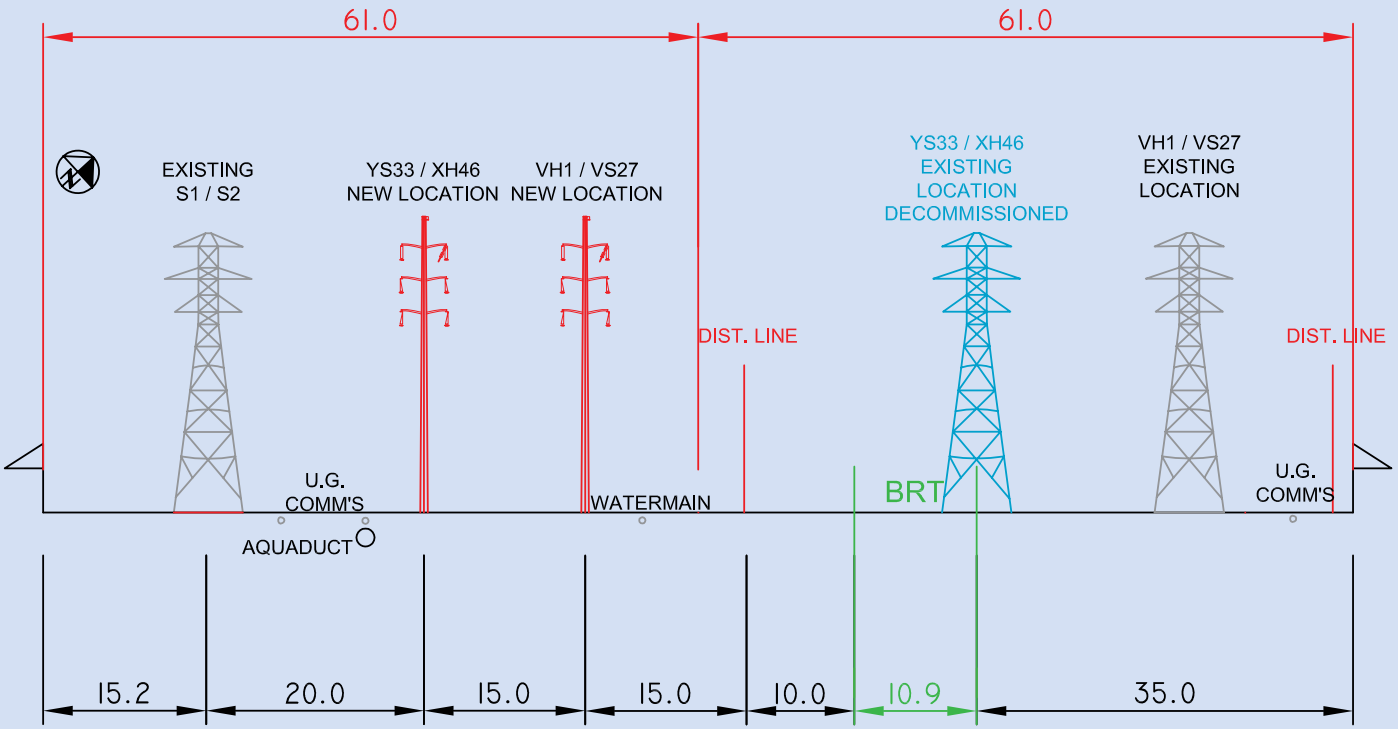
Planned Right-of-way Cross Section



PARKER LANDS LOOKING EAST

Manitoba Hydro

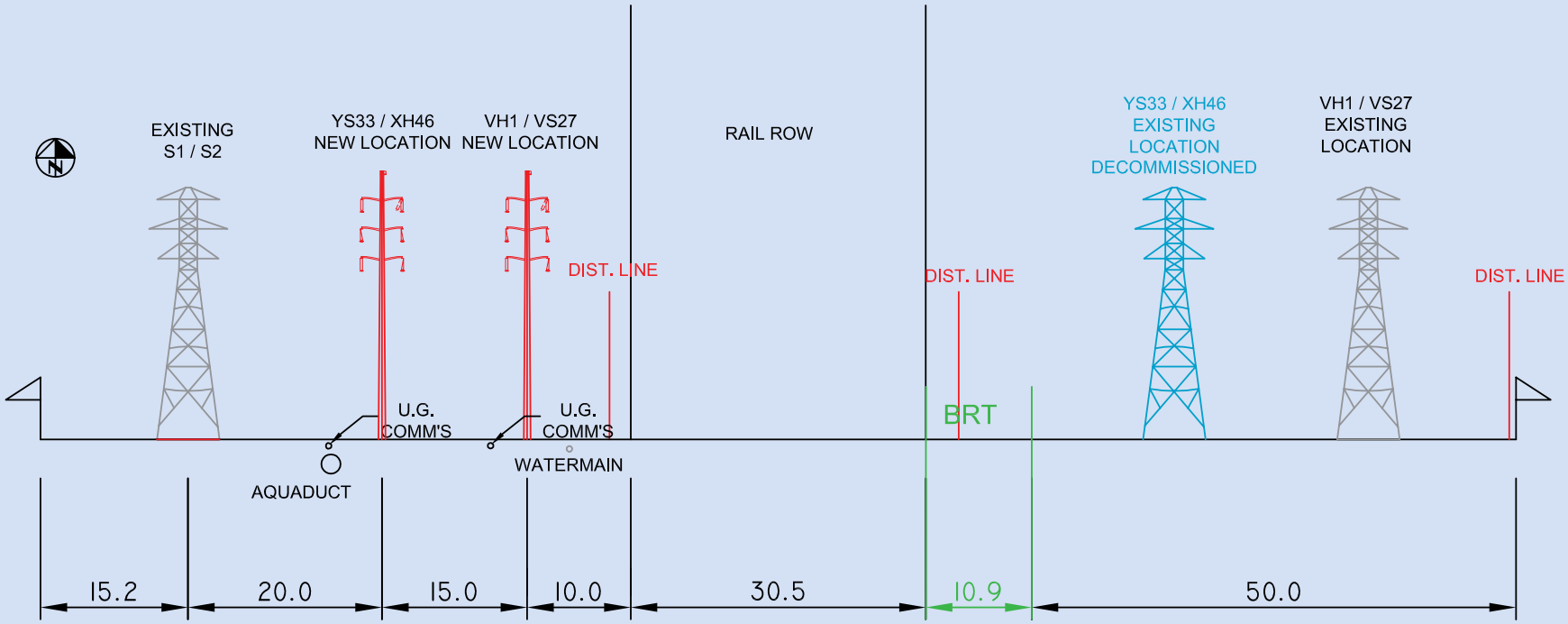
Planned Right-of-way Cross Section



CLARENCE AVE. LOOKING NORTH

Manitoba Hydro

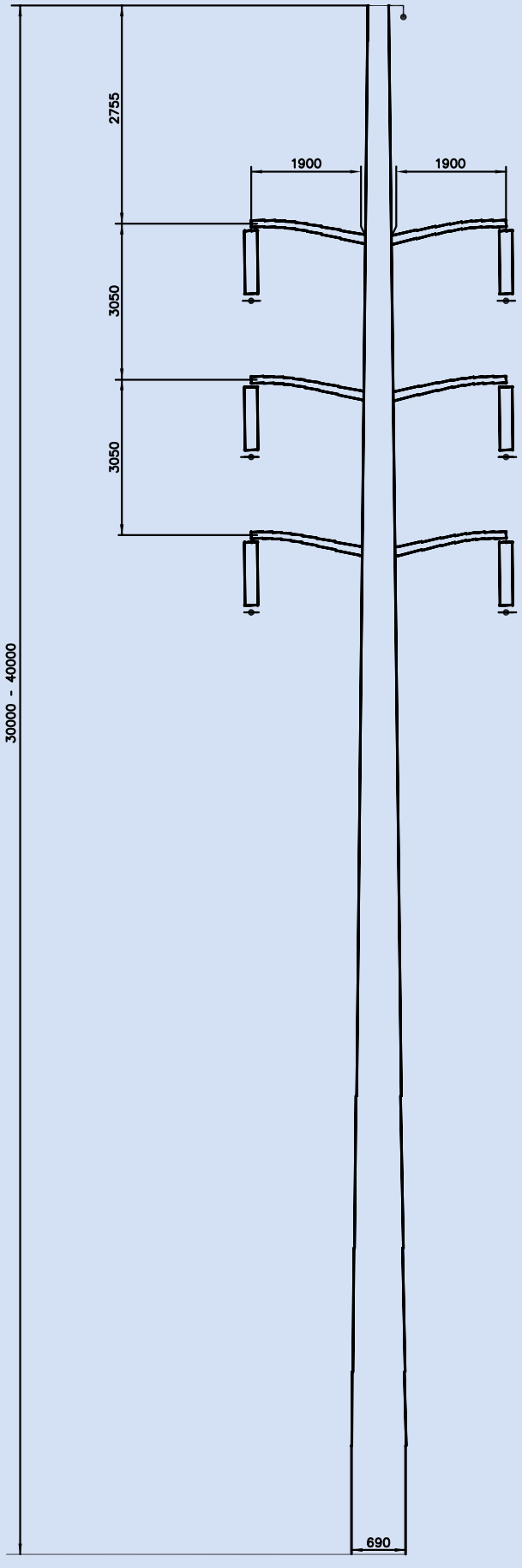
Planned Right-of-way Cross Section



PLAZA DRIVE LOOKING NORTH

Manitoba Hydro

Tower Design



- 30 to 40 metres in height

Manitoba Hydro

Environmental Assessment

The environmental assessment includes:

- Study area characterization through site visits and background investigation;
- A public engagement process;
- Documentation of potential environmental effects; and,
- Determination of mitigation measures to minimize effects.

Manitoba Hydro

Anticipated Project Timeline

November 2014	December 2, 2014	February 2015	Spring 2015	Summer - Fall 2015	Late 2016
	We are here.				
Public Notification	**Public Open House**	**Environmental Assessment Filing**	**Regulatory Review**	**Anticipated Construction Start**	**Anticipated In-Service Date**

Manitoba Hydro

Thank you for attending and providing your feedback!

For more project information:

- Visit www.hydro.mb.ca/harrow;
- email Manitoba Hydro at LEAprojects@hydro.mb.ca;
- Phone 1-877-343-1631.

Please leave your comment sheet in the drop box on your way out.

Manitoba Hydro

APPENDIX B

OPEN HOUSE COMMENT SHEET

Manitoba Hydro
Harrow Station – Bishop Grandin Transmission Project
Comment Sheet

Dec. 2014

Please take a few minutes to provide your input.

1. Did you find today's open house helpful? ☐ Yes ☐ No

   Please state why or why not: _____

   _____

   _____

   _____

   _____

2. How did you find out about the open house?

   ☐ Direct invitation – mail or email

   ☐ Newspaper ad

   ☐ Website

   ☐ Word of mouth

   ☐ Other _____

3. Please check all the descriptions that apply to you:

   ☐ I am a resident nearby the Harrow Station – Bishop Grandin right-of-way.

   ☐ I am a landowner nearby the Harrow Station – Bishop Grandin right-of-way.

   ☐ I am a business owner/operator nearby the Harrow Station – Bishop Grandin right-of-way.

   ☐ I am a employee nearby the Harrow Station – Bishop Grandin right-of-way.

   ☐ I am a interested person from outside the area nearby the Harrow Station – Bishop Grandin right-of-way.

   ☐ Other _____

4. Do you use the Harrow Station – Bishop Grandin right-of-way? If so, where?
   (For example: Brenda Leipsic Dog Park, recreation/biking, community gardens. `)

   _____

   _____

   _____

   _____

   _____

Manitoba Hydro

5. Do you think the rebuilding and relocation of the towers will have an impact on you? If so, why?

6. Do you have any concerns about the relocation and upgrade of the transmission lines? If so, what are they and how could they potentially be addressed?

7. Please share any additional comments.

Please hand in your comment sheet at the sign-in table before you leave or send by email/mail to:

- email: LEAprojects@hydro.mb.ca
- Mail: C/O Licensing & Environmental Assessment
  820 Taylor Ave. (3)
  Winnipeg, Manitoba
  R3M 3T1

Thank you for your input and participation.

For more information, visit
www.hydro.mb.ca/harrow

APPENDIX C
OPEN HOUSE COMMENTS

Manitoba Hydro Harrow Station - Bishop Grandin Transmission Project

1. Did you find today's open house helpful?

		Response Percent	Response Count
Yes		**95.0%**	**19**
No		5.0%	1
	Please state why or why not:		15
	answered question		**20**
	skipped question		**2**

2. How did you find out about the open house?

		Response Percent	Response Count
Direct invitation - mail or email		**61.9%**	**13**
Newspaper ad		38.1%	8
Website		0.0%	0
Word of mouth		0.0%	0
Other		4.8%	1
	Other (please specify)		1
	answered question		**21**
	skipped question		**1**

3. Please check all the descriptions that apply to you:

	Response Percent	Response Count
I am a resident nearby the Harrow Station - Bishop Grandin right-of-way.	**38.1%**	**8**
I am a landowner nearby the Harrow Station - Bishop Grandin right-of-way.	**38.1%**	**8**
I am a business owner/operator nearby the Harrow Station - Bishop Grandin right-of-way.	9.5%	2
I am an employee nearby the Harrow Station - Bishop Grandin right-of-way.	9.5%	2
I am an interested person from outside the area nearby the Harrow Station - Bishop Grandin right-of-way.	28.6%	6
Other	14.3%	3
	Other (please specify)	3
	answered question	**21**
	skipped question	**1**

4. Do you use the Harrow Station - Bishop Grandin right-of-way? If so, where? (for example: Brenda Leipsic Dog Park recreation/biking, community gardens.)

	Response Count
	17
answered question	**17**
skipped question	**5**

5. Do you think the rebuilding and relocation of the towers will have an impact on you? If so, why?

	Response Count
	19
answered question	19
skipped question	3

6. Do you have any concerns about the relocation and upgrade of the transmission lines? If so, what are they and how could they potentially be addressed?

	Response Count
	15
answered question	15
skipped question	7

7. Please share any additional comments.

	Response Count
	8
answered question	8
skipped question	14

Q1. Did you find today's open house helpful?		
1	Proposed dates, cross-section views	Dec 5, 2014 11:42 AM
2	Finally seeing exactly where things are going	Dec 5, 2014 11:35 AM
3	Good picture of the right of way, dimensions, and written timeline & overview	Dec 5, 2014 11:16 AM
4	very minimal info - looking forward to hearing details/timeline of construction	Dec 5, 2014 11:06 AM
5	Maps are indecipherable. Why don't they have Hydro employees here? What are they afraid of?	Dec 5, 2014 10:51 AM
6	To understand the redevelopment of the hydro communications line	Dec 5, 2014 9:57 AM
7	I no longer have to imagine where the construction will be. Staff member explained the layout well.	Dec 5, 2014 9:52 AM
8	Better understanding of where and when project will start and be located	Dec 4, 2014 4:29 PM
9	I now know a little more than I did before as I was not aware of this aspect in relation to the BRT expansion in this area.	Dec 4, 2014 4:27 PM
10	Fort Garry MB Church leases the Hydro line for its parking (100+ spots)	Dec 4, 2014 4:26 PM
11	No one from hydro there to answer who is paying for the tower line relocation	Dec 4, 2014 4:19 PM
12	It enlightened me to the city's plans on changing the location of the BRT from the west side of the powerline to closer to the east.	Dec 4, 2014 4:07 PM
13	could have provided more info	Dec 4, 2014 4:04 PM
14	Determined approx. location of transit system	Dec 4, 2014 4:03 PM
15	The layout of the towers - we didn't realize they needed to be moved or upgrded	Dec 4, 2014 4:01 PM

Q2. How did you find out about the open house?		
1	on the news then went to the website	Dec 5, 2014 9:57 AM

Q3. Please check all the descriptions that apply to you:		
1	resident - business owner adj. Parker Lands	Dec 5, 2014 9:57 AM
2	I rent a garden near the playground on Marshall	Dec 5, 2014 9:52 AM
3	Representative of landowner near R.O.W	Dec 5, 2014 9:51 AM

Q4. Do you use the Harrow Station - Bishop Grandin right-of-way? If so, where? (for example: Brenda Leipsic Dog Park recreation/biking, community gardens.)

1	Parker Lands for recreational walking, bike path across R.O.W. At Somerville, looking forward to bike path along BRT. Cross the R.O.W. to get to work	Dec 5, 2014 11:42 AM
2	Yes - have garden apponte? my townhouse unit in McGillivray park.	Dec 5, 2014 11:35 AM
3	Community gardens, walking	Dec 5, 2014 11:16 AM
4	recreation/biking	Dec 5, 2014 11:06 AM
5	Dog Park	Dec 5, 2014 11:02 AM
6	You are worried about the Boreal Forest and destroy Urban Land! These rights of way should be re-designated Green Space with community gardens - Eco Regions, Nature Trails and bike paths	Dec 5, 2014 10:51 AM
7	Use the Parker Lands as a "recreation" - nature zone	Dec 5, 2014 9:57 AM
8	No	Dec 5, 2014 9:52 AM
9	No	Dec 5, 2014 9:30 AM
10	access to Waverley, Grant, Headingley, Kenaston	Dec 4, 2014 4:29 PM
11	No	Dec 4, 2014 4:27 PM
12	As noted above. We will need to either continue to use our parking or need to arrange additional space nearby.	Dec 4, 2014 4:26 PM
13	Yes - cross it on bike and Parker Avenue	Dec 4, 2014 4:24 PM
14	No	Dec 4, 2014 4:19 PM
15	I use Parker/Hurst to access Waverly and west. I use the dog park and recreation/bike path for walking, biking, rollerblading, etc.	Dec 4, 2014 4:07 PM
16	No	Dec 4, 2014 4:04 PM
17	I've been renting 2 garden plots back of Farwell Bay from Hydro for many years. I was not notified whether or not I would be able to garden there this summer. Please contact me regarding my garden plot rental.	Dec 4, 2014 4:01 PM

Q5. Do you think the rebuilding and relocation of the towers will have an impact on you? If so, why?		
1	Yes, but only during construction. Will affect my daily commute (walk) to/from work	Dec 5, 2014 11:42 AM
2	It will clean up the area to some degree	Dec 5, 2014 11:35 AM
3	Yes, the Rapid Transit will come through the Parker Forrest	Dec 5, 2014 11:16 AM
4	yes	Dec 5, 2014 11:06 AM
5	No	Dec 5, 2014 11:02 AM
6	unsure	Dec 5, 2014 10:57 AM
7	It costs the rate payers millions and billions to rebuild what is still very usable and undepreciated lines and towers. Hydro spends money like drunken sailors! This is a useless project most likely to enrich Sam Katz, Shindico Realty and Phil Sheegl	Dec 5, 2014 10:51 AM
8	Not a negative impact. Nice to see them moved a bit and newer - more attractive tower system employed	Dec 5, 2014 9:57 AM
9	No	Dec 5, 2014 9:51 AM
10	No, other than possible traffic disruptions impacting Waverley, Pembina, and Taylor	Dec 5, 2014 9:30 AM
11	No	Dec 5, 2014 9:23 AM
12	No	Dec 4, 2014 4:29 PM
13	No	Dec 4, 2014 4:27 PM
14	Briefly (I hope) during construction	Dec 4, 2014 4:24 PM
15	No impact. If vista concern - take the wood pole line out. have all lines on poles kill the towers	Dec 4, 2014 4:19 PM
16	absolutely. due to the fact that removing the towers on the east side of the field allows the city to run the BRT closer to my back yard depreciating house value and area popularity.	Dec 4, 2014 4:07 PM
17	No	Dec 4, 2014 4:04 PM
18	might have an impact of being able to continue leasing hydro land	Dec 4, 2014 4:03 PM
19	not if they are going to be moved further away. My concern is whether or not I'll be able to garden there next year or in the future.	Dec 4, 2014 4:01 PM

Q6. Do you have any concerns about the relocation and upgrade of the transmission lines? If so, what are they and how could they potentially be addressed?

1	just the impact on gardens	Dec 5, 2014 11:35 AM
2	None	Dec 5, 2014 11:02 AM
3	no	Dec 5, 2014 10:57 AM
4	Useless project, waste of rate payers money! Another boondoggle by HYDRO PROFLIGETE waste of money for nothing. STOP the waste - postpone this for another 20 years.	Dec 5, 2014 10:51 AM
5	My concerns are over the additional misc. lines running through Taylor and the Parker lands that are wooden pole lines. Are these going to be "cleaned" up?	Dec 5, 2014 9:57 AM
6	No	Dec 5, 2014 9:51 AM
7	What hours will construction occur? Will traffic along McGillivray, Clarence, and Chevrier be affected by closures? *Old water mains and aqueduct are vulnerable to breakage due to heavy equipment used along right-of-way. Concerns could be mitigated through public notices	Dec 5, 2014 9:30 AM
8	Environment and Landowners Compensation	Dec 5, 2014 9:23 AM
9	Do not Rapid Transit in our backyard (35 meters away)	Dec 4, 2014 4:29 PM
10	- What will happen to the remaining existing lines eventually? - Does the BRT project compromise the future viability of the Hydro facility along this route? - What is the estimated cost of this project and who pays?	Dec 4, 2014 4:27 PM
11	no	Dec 4, 2014 4:24 PM
12	how do these new towers interface with the subdivision proposed for north of doggie park. Beaumont ave is to have a grade separation.	Dec 4, 2014 4:19 PM
13	Place underground	Dec 4, 2014 4:04 PM
14	no	Dec 4, 2014 4:03 PM
15	see # 5 above	Dec 4, 2014 4:01 PM

Q7. Please share any additional comments.

1	I would like to see hydro commit to the "community" that has grown from the gardens. It would be nice if hydro would help us move them as in working up new plots if need be. I suggest the following: see diagram showing McGillivray to the north, back lane to the east and hydro corridor on the west. Garden plots are shown 30 ft by 40 ft with a hedge between the plots and sidewalk to get to station. They suggest that the hedge could be lilacs or raspberries or even fruit trees interspersed with shrubbery. Opportunity exists to commit to community in the townhouse complex.	Dec 5, 2014 11:35 AM
2	Thank you for the open house, and people to answer questions	Dec 5, 2014 11:16 AM
3	Are there going to be any chances to landscape - such as removal of grass and gravel replacing grass? additional structures to accommodate lighting? Any roads? Will there be change in noise of lines? Will there be beautification done? Trees added.	Dec 5, 2014 11:06 AM
4	No Problem	Dec 5, 2014 11:02 AM
5	So called experts woefully uninformed what voltage is line - don't know - how old is line - don't know. BLAH BLAH BLAH. They only know irrelevant facts. This is probably part of their hidden agenda and will connect with bipole 3 and result in the expropriation of peoples homes and property. We live in a POLICE state A DICTATORSHIP! What we need is the TRUTH. They blab about the BOREAL FOREST while they build a road on the east side of lake Winnipeg. Hydro needs a MAJOR MAJOR clean up like a good diarrhea cleans out the S__T and infections and parasites from your body. A good cleansing. TOP HEAVY FAT CAT lazy pork chopper leeches who look after their own interests at the expense of the taxpayers. What a waste of time and money. THIS DOG WONT HUNT! How much are these FAKE MIRAGE CONSULTATIONS costing us while we get stale baloney sandwiches, limp veggies and underbaked cookies, the FATCATS stuff their faces with STEAK, SHRIMP, LOBSTER and CAVIAR.	Dec 5, 2014 10:51 AM
6	My preference is to see the hydro work "cleaned up". I am not convinced that the proposed transit corridor is appropriate or viable in its conception. But that's just me.	Dec 5, 2014 9:57 AM
7	My concerns are with the dogleg configuration of Phase 2 of BRT and how proximity to Hydro lines affects potential for TOD	Dec 4, 2014 4:24 PM
8	Need local representation. My business card attached.	Dec 4, 2014 4:19 PM

APPENDIX F

INTERACTION MATRIX

Harrow to Bishop Grandin 115kV Transmission Upgrade Project Activity / Environmental Component Interaction Matrix

	Surveying/Flagging	Vegetation Clearing	Excavating Soils	Drilling for Tower Foundation	Transporting Construction Materials	Storing Construction Materials/Equipment	Pouring Concrete Foundations	Erecting Towers	Anchoring Towers	Connecting 115 kV lines	Stringing Conductors	Imploding Connectors	Testing Grounding	Cleaning Conductors	Removing Conductors	Removing Towers/Poles	Operating Vehicles or Equipment	Disposing Solid Wasste	Disposing Liquid Waste	Signage	Transporting / Storing Fuel	Fuelling Vehicles or Equipment	Reclaiming / Revegetating	Spraying Vegetation	ROW Maintenance
Site Preparation	·	·	·	·	·																·	·			
Construction			·	·	·	·	·	·	·	·	·	·	·	·	·		·	·	·	·	·	·	·		
Operation																	·			·				·	·
Decommissioning															·	·	·			·	·	·	·		
Biophysical Conditions																									
Air Quality (Particulates)		·	□	·												·	□						□		□
Air Quality (GHG, VOC, *etc.*)		·	□	□	□	·	·							·			□	·	·		□	□	□	□	□
Soil (Stratigraphy)		·	□	□			·		·							·	□	·	·				·		
Soil (Quality)			·	·		·	·							·			□	·	·		■	■		·	·
Surface Water (Drainage)		·	□	·			□									·	·						□		·
Surface Water (Quality)			□	□		·	·							·		·	□	·	·		■	■	·	□	·
Groundwater Quality			·	□												·	·	·	·		□	□		·	·
Vegetation (Shrubs / Trees)	·	□	□	·																			+	□	□
Vegetation (Herbs / Grasses)	·	□	□	·				·	·		·					·	□			·		·	+	□	□
Mammals / Habitat		□	□	·													□				·	·	+	□	□
Birds / Habitat		□	·	·				□	·		□					+					·	·	+	□	□
Wetlands		·	·																		□	□	+		
Aquatic Biota / Habitat			·	·													·				□	□	+		
Protected Species																									
Socioeconomic Conditions																									
Roads / Access					·					□	□				□		·	·	·		·				
Traffic					·												·	·	·		·				
Noise Concern		·	□	□	·		·	□	·	□	□	□			□	□	□	·	·		·		·	·	·
Human Health			·	·	·					·	·	·	·	·			·	·	·		□	□		□	
Public Attitude / Well-being		·	·	·	·	·	·	·	·	□	□	□	·		+	+	·				·	·	+	·	+
Public Safety		·	□	□	·			□	·	□	□	·			□	□	□			+	·		·	·	·
Worker Safety		□	□	□	·	·	·	□	·	□	□	□	·	·	□	□	□	·	·	·	□	□	·	□	·
Aesthetics	·	□	·	·		·	·	□	·	□	□				+	+		+		·			+	·	+
Land Use			·	·		·	·	·	·	·	·				·	·	·				·	·	+	·	+
Heritage Resources																									
Recreation		·	·	·			·	·	·	·	·	·			·	·	·						+	·	+

· = Negligible. □ = Minor. ■ = Moderate. ◆ = Major. + = Positive.

CATEGORIES OF ADVERSE BIOPHYSICAL, SOCIO-ECONOMIC AND CULTURAL EFFECTS

Adversity Category	Biophysical	Socio-Economic	Physical and Cultural Heritage
Negligible	Effect on the population or a specific group of individuals at a local project area and/or over a short period in such a way as to be similar to small random changes in the population due to environmental irregularities but having no measurable effect on the population as a whole.	Effect of either very short duration or affects a small group of people or which occurs in the local project area in a manner similar to small random changes to extraneous irregularities, but having no measurable effect on the population as a whole.	Effect on physical and cultural heritage resources of short duration and in the local project area. The effect on physical and cultural resources is not detectable. The resources are not publicly recognized or protected by legislation.
Minor	Effect on a specific group of individuals in a population in the project area and/or over a short period (one generation or less), but not affecting other trophic levels or the integrity of the population itself.	Effect either of short-term duration or affects a specific group of people in the local project area but not necessarily affecting the integrity of the entire group itself.	Effect on physical and cultural heritage resources of short duration but over the adjacent local area. The effect on physical and cultural resources is minor or repairable. The resources are publicly recognized but not protected by legislation.
Moderate	Effect on a portion of a population that results in a change in abundance and/or distribution over one or more generations of that portion of the population or any population dependent upon it, but does not change the integrity of any population as a whole. The effect may be localized.	Effect either of medium-term duration (which affects one or two generations and/or the portion of the population dependent upon it) or affects a moderate portion of the population without affecting the integrity of the population as a whole.	Effects on physical and cultural heritage resources of moderate duration. Resources affected over the adjacent local area. The effect on physical and cultural resources is reversible. The resources are protected by legislation.
Major	Effect on a whole stock or population of a species in sufficient magnitude to cause a decline in abundance and/or change in distribution beyond which natural recruitment would not return that population or species dependent upon it, to its former level within several generations.	Effect either of long duration (lasting several generations) or affecting an entire definable group of people in sufficient magnitude to cause severe change in economic, physical or psychological well-being or long established activity patterns that would not return to pre-project levels or patterns within several generations.	Effect on physical and cultural heritage resources of long duration. Resources affected over large regional area. There is an irreversible effect on physical/cultural resources. The resources are protected by legislation.