

Manitoba Hydro

St. Vital Transmission Complex Summary of Public Engagement

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Project Number:

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Date:

December 20, 2013

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December 20, 2013

Ms Maggie Tisdale
Senior Environmental Specialist
Licensing and Environmental Assessment
Transmission, Manitoba Hydro
820 Taylor Ave R3M 3T1
Winnipeg, MB

Dear Ms Tisdale:

Project No: 60290259
Regarding: St. Vital Transmission Complex
Summary of Public Engagement

The following report documents the two-round public engagement process for the St. Vital Transmission Complex, including Key Person Interviews, Stakeholder Workshops and two rounds of Public Open Houses, as well as meetings with rural municipalities, and email and telephone communications.

The intent of the Round 1 public engagement was to provide information pertinent to the route selection and environmental assessment components of the project. Round 2 obtained information and preferences from stakeholders and the public related to a Preferred Alternative Route developed on the basis of Round 1 public engagement.

Sincerely,
AECOM Canada Ltd.



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Encl.

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Executive Summary

A. Public Engagement Plan

AECOM worked closely with Manitoba Hydro Licensing & Environmental Assessment Department staff to develop an approach to public engagement for the St. Vital Transmission Complex project, which would complement stakeholder involvement in a new route selection process and provide suitable information for the project Environmental Assessment Report.

The Public Engagement Program incorporated a range of engagement strategies including: Key Person Interviews, stakeholder workshops, public open houses, e-mail and telephone communications to gain general comments and concerns, as well as routing preferences from a broad cross-section of stakeholders, local landowners and the general public. Newspaper advertising, newsletters, postcards and the Manitoba Hydro website were also used to inform Manitobans about the project.

In total, approximately 189 people directly participated in Round 1 and approximately 170 in Round 2 of the Public Engagement processes (including 148 Open House attendees). Many of the stakeholders involved in interviews and workshops represented government departments, municipalities or broad constituencies ranging from Keystone Agriculture Producers and Dairy Farmers of Manitoba to Trans Canada Trail.

B. Route Selection

Manitoba Hydro piloted a new process in defining the Preferred Route for the St. Vital Station to Letellier Station transmission line, called the EPRI-GTC Methodology, which allowed for earlier stakeholder input and incorporated engineering, built and natural environment considerations. The new process involved stakeholders in identifying, weighting and scoring alternative corridor selection features and criteria, leading to the identification of alternative corridors. This process assisted Manitoba Hydro in developing Alternative Routes for the new transmission line.

C. Summary of Round 1 Comments and Concerns

The following table summarizes comments and concerns derived from the public engagement sources, including Key Person Interviews, stakeholder workshops, public open houses, and email and telephone communications with members of the public. Table ES.1 also provides an indication of how information from stakeholders and members of the public was addressed in route selection and environmental assessment.

Table ES.1: Comments and Concerns

Comment/Concern	How Feedback Was Incorporated
Potential impacts to aerial application.	Structure height in agricultural areas will be minimized to the extent possible, consistent with heights of distribution lines. Air strip locations were identified, and avoided as much as possible in final route selection.
Impacts to agricultural operations.	Avoid infield placement where possible. Alignments along road allowances are preferred. Guyed-wire structures are not being considered for this project. A tubular steel H-frame design, which has a smaller

Comment/Concern	How Feedback Was Incorporated
	footprint than self-supporting or guyed structures, will be utilized.
Impacts to use of GPS units.	Manitoba Hydro notes that GPS units function at a very different frequency than AC transmission lines and that there should be no interference with satellite based GPS systems.
Potential effects on livestock, particularly dairy cattle, e.g., tingle voltage.	Tingle voltage tends to occur with faulted distribution lines as opposed to transmission lines. Livestock operators are encouraged to contact Manitoba Hydro if they notice tingle voltage occurring so that the source can be identified.
Loss of high-quality farm land.	Route the line adjacent to road allowances to minimize the land area used for the transmission line and the related impact on farming activities.
Landowner compensation	Manitoba Hydro provides a one-time compensation payment for transmission line easements (75 per cent of market value), as well as one-time structure payment related to loss of annual production. Manitoba Hydro also compensates landowners for any damages which may occur through the construction and operation of the line.
Proximity to farmsteads and shelterbelts.	During routing, Manitoba Hydro avoids residences and shelterbelts to the extent possible.
Many areas are flood prone.	The potential for flooding was taken into account but does not hinder operation of the transmission line.
Locate transmission lines within existing Hydro transmission line corridors.	This is being done where feasible; a portion of the line passing through Sage Creek is in an existing Manitoba Hydro corridor as is the Southern Loop
Locate transmission line infrastructure adjacent to linear infrastructure such as provincial and municipal highways, roads and drains in order to reduce land requirements.	Existing corridors and linear features were identified as routing opportunities in the route selection process and are being taken advantage of where possible. Manitoba Hydro will consult with Manitoba Infrastructure and Transportation (MIT) on future planning before developing alignments near PTH 75, PTH 59 and PTH 52.
Minimize transmission line crossings of major highways and rail lines, as well as stream crossings. Concern that stream crossings could impact riparian habitat.	Such crossings, which require higher and more costly towers, were minimized.
Avoid rural residential developments, as well as commercial and industrial development.	Locations of rural residential, commercial and industrial development areas were identified and are avoided where possible.
Avoid landfills and lagoons, and cemeteries.	Locations of landfills, lagoons and cemeteries were noted. Structure placement will avoid these areas.
Transmission tower aesthetics.	Towers that will be placed adjacent to existing towers, such as along the South Loop, will have similar spacing and heights.
Potential impact on wildlife, including birds, vegetation, riparian area, endangered species and	The environmental assessment process will identify potential environmental sensitivities and will

Comment/Concern	How Feedback Was Incorporated
wetlands	prescribe appropriate mitigation measures.
Concern that construction will disrupt fur-bearing animals and affect trapping.	The environmental assessment process will identify potential sensitivities related to fur-bearing animals and will prescribe appropriate mitigation measures such as modifications to construction scheduling.
Avoid heritage sites.	The environmental assessment process will identify heritage resources, including archaeological sites, which will be avoided.
Perceived health effects due to electric and magnetic fields (EMF).	Information will continue to be provided in the public engagement process and these concerns will be addressed in the environmental assessment process. Health Canada, the World Health Organization and other international health entities have noted that no scientific evidence suggests that exposure to EMF will cause any negative health effects on humans, vegetation and wild or domestic animals.
Transmission line rights-of-way become areas for growth of noxious weeds and potential bio-security issues.	Manitoba Hydro will take necessary precautions as part of construction of the project to minimize the risk of invasive plants and diseases spreading. Manitoba Hydro has a bio-security policy.
Noise, dust and disruption of traffic, particularly related to emergency services, during construction.	Construction operations will minimize noise and dust. Construction traffic routes and detours will be identified and made available to local police, fire and emergency services.
City, municipal and business and industry stakeholders, in particular, noted beneficial effects of a more secure power supply on their operations and growth. Agricultural stakeholders also noted that they are impacted by electrical power system reliability.	The beneficial effect on power system reliability and capacity is a fundamental reason for this project.

D. Socio-economic Benefits and Costs

Key socio-economic benefits recognized by stakeholders were:

- greater power reliability and security
- increased growth potential particularly in the City of Winnipeg and rural municipalities
- opportunities for recreational trail co-location.

Costs included physical disruption and reduced property values:

- relocation of houses
- impacts on property values, including aesthetic concerns
- impacts on agricultural operations, including aerial spraying, manure spreading, livestock, bio-security issues, and noxious weeds
- loss of farm lands
- impacts on industrial operations
- impacts on trapping activities

E. Environmental Impacts and Mitigation

Environmental impacts included:

- impacts on endangered species and habitat, including riparian and wetland habitats
- effects on fur bearers
- noise and dust
- effects on heritage sites
- health and safety concerns about EMF and tingle voltage

F. Public Engagement Program Best Practice

The Public Engagement Program in conjunction with the EPRI-GTC methodology provided multiple opportunities for stakeholders and the public to be involved in the selection of a Preferred Route for the St. Vital Station to Letellier Station transmission line.

AECOM emailed and telephoned over 110 individuals to confirm their involvement in Stakeholder Workshops. Advertising for Public Open Houses included the Manitoba Hydro project website, landowner letters and newsletters, post card mail outs and newspaper advertising.

G. Round 2 Preferred Route

The Preferred Route presented to stakeholders and public in Round 2 of the St. Vital Transmission Complex Public Engagement Program was developed based in part on what was heard in the Round 1 Workshops and Public Open Houses. The Preferred Route deviates from the Alternative Corridors identified in the EPRI-GTC Route Selection process to incorporate a new southern alignment, which avoids more productive agricultural land and an aerial applicator landing strip, as recommended by two teams at the Dominion City Stakeholder Workshop and by a number of Public Open House attendees.

H. Summary of Round 2 Issues and Concerns

Round 2 issues and concerns were generally consistent with those heard in Round 1 of the Public Engagement Program.

Generally, despite some strongly expressed concerns by a number of local landowners and RM Councillors, the southern section of the Preferred Route was more acceptable, overall, to stakeholder and public participants in the Public Engagement Program than the southern Alternative Route Segments presented in Round 1. Fewer landowners were affected by the new southern alignment, and there were no impacts on the landing strip of an aerial applicator servicing most of the local area, identified in Round 1.

In the northern section of the Preferred Route, a number of additional constraints were identified, including a subdivision in the Grande Pointe area, an airstrip and a private landfill. There were also significant concerns expressed by the RM of Ritchot about developing transmission line infrastructure near their landfill and lagoon.

Residents of Sage Creek were significantly more involved in Round 2 of the Public Engagement Program than they were in Round 1, and were particularly concerned about the addition of transmission lines in the existing Manitoba Hydro Corridor through Sage Creek with regard to EMF, impacts on property values, aesthetics and changing existing trails.

Some general comments were received from participants related to tax revenue and wind turbines.

Significant constraints to be addressed in the final routing of the St. Vital Station to Letellier Station transmission line, including the airstrip and landfill, would ideally be mitigated by avoidance. Other concerns could be mitigated by design and compensation, including payments for easements.

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ROUND 1 PUBLIC OPEN HOUSES

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1 St. Vital Transmission Complex Public Engagement Program

1.1 Project

The St. Vital Transmission Complex project involves design and construction of two transmission lines in southern Manitoba

- The line from the St. Vital Station to the Letellier Station will be approximately 125 km in length and is required to address contingency loading and low voltage concerns in south central Manitoba due to load growth in the area. To accommodate the supply of power to a future 230 kV station in Grunthal, the line will be routed via the Steinbach area. The line will also help to maintain export levels under the increased loads in south central Manitoba.
- The line from the St. Vital Station to La Verendrye Station is required to improve performance during normal operations and to provide the ability to withstand severe power outages in the Winnipeg 230 kV network. The line will be routed via the existing right-of-way owned by Manitoba Hydro.

1.2 Purpose, Goal and Objectives of Public Engagement Program

1.2.1 Purpose

The purpose of the Public Engagement Program (PEP) was to support an Environmental Assessment License Application to Manitoba Conservation and Water Stewardship for the two 230 kV transmission lines.

Information collected as a result of the PEP informed two principal aspects of the project:

- Site Selection led by Photo Science Inc. and Manitoba Hydro.
- Environmental Assessment led by Stantec Consultants and Manitoba Hydro.

Information collected through the Public Engagement Program included biophysical, socio-economic, and heritage data, among others.

1.2.2 Goal and Objectives of PEP

The goal of the PEP was to facilitate the exchange of information between members of the public (including First Nations and Métis people) and the site selection and environmental assessment teams regarding the installation of the two proposed transmission lines.

The objective of the PEP was to provide stakeholders and the general public with meaningful opportunities to receive information about, and provide input into the site selection and environmental assessment process. The PEP included:

1. Engaging with stakeholders and the general public, including First Nations and MMF, at various stages of the route selection and environmental assessment processes.
2. Conducting Key Person Interviews to support the Environmental Assessment (particularly socio-economic considerations).
3. Providing input into Route Selection (opportunities and constraints) and Environmental Assessment (valued ecosystem components, socio-economic considerations, potential effects, mitigation measures) using information gathered from the PEP.

1.3 Public Engagement Program Components

The PEP was developed in cooperation with Manitoba Hydro and other project consultants. A Program outline is included in Appendix A.

1.3.1 Principal Components of the PEP

Data sources related to socio-economic, natural and built environment issues and concerns, physical constraints and potential mitigation strategies included:

- Key Person Interviews (KPI).
- Stakeholder Workshops (Workshops).
- Public Open House (POH) events.
- Email and telephone communications with landowners and other interested parties.
- Media outreach and information venues, e.g. mail outs and a project website.

1.4 Communications Strategy/Protocol

AECOM established a communications strategy/protocol with Manitoba Hydro staff and other project consultants, which allowed us to work in partnership with the overall project team. Key staff contacts in the AECOM office were:

- Project Manager: Don Hester, FCSLA, MCIP
- Project Coordinator: Alison Weiss, P. Eng./Stephen Biswanger, P. Eng.

Key contacts at Manitoba Hydro were:

- Project Manager: Maggie Tisdale, M.R.M
- Public Engagement Lead: Trevor Joyal, B. Env. Sc., EPT
- Aboriginal Engagement Lead: Lindsay Thompson
- Project Co-ordinator: David Block

1.5 Relation to Route Selection Process

Manitoba Hydro piloted a new Route Selection methodology as part of this project. The EPRI-GPC (Electric Power Research Institute – Georgia Power Corporation) methodology has been used in over 200 projects in the USA. The methodology provides a transparent and defensible approach to power transmission line route selection.

1.5.1 External and Internal Stakeholder Input

The EPRI-GPC route selection process also engaged stakeholders related to development of electric power transmission lines. In the early, higher level stages of route selection, representatives from Manitoba Hydro, government departments, environmental interest groups, recreational and agricultural organizations, and trappers association were involved in a series of three workshops addressing engineering, natural and built environment considerations for route selection in Southern Manitoba.

The external and internal stakeholders set the framework for defining Alternative Corridors within which Alternative Routes could be identified.

A summary of the EPRI-GPC methodology is included in the Open House materials in Appendix D2.

2 Key Person Interviews

2.1 Purpose

The purpose of the Key Person Interviews (KPI) conducted in Round 1 of the Public Engagement Program was to obtain information from representatives from a wide range of organizations that could be impacted by the development of the two new hydro transmission lines.

2.2 Methodology

2.2.1 Approach

Key Person Interviews provided one-on-one interview opportunities with key informants representing public agencies, private sector organizations and NGOs, with knowledge of a wide variety of factors related to power transmission line environmental impacts, both positive and negative. Interview questions were tailored to specific sectors so that they would be relevant to the informants. The importance of the KPI process was twofold, in that it introduced the project to a range of stakeholders, and obtained both general and specific information related to route selection and environmental assessment at the outset of the project.

2.2.2 Identification of Key Person Contacts

KPI contacts were identified by the consultants and Manitoba Hydro based on the project team members' general knowledge of the Study Area and previous experience with groups involved in Manitoba Hydro projects.

2.2.2.1 Sectors

A number of sectors were identified and separate interview scripts were developed for each. Sectors included:

- Agricultural
- Business and Industry
- Education
- Environmental
- Health
- Municipal
- Infrastructure
- Policing
- Trappers

Scripts for each sector are included in Appendix B1.

2.2.2.2 Organizations Contacted

Organizations contacted included the following:

- Government Departments and Agencies, including:
 - Manitoba Infrastructure and Transportation
 - Manitoba Floodway Authority
 - Manitoba Agriculture, Food and Rural Initiatives

- Manitoba Local Government
- Manitoba Conservation and Water Stewardship (Forestry, Wildlife, Parks and Natural Areas and Water Stewardship)
- Manitoba Culture, Heritage and Tourism
- Manitoba Historic Resources Branch
- Land Value Appraisal Commission
- Manitoba Health, Office of Disaster Management
- Public Utilities Board
- Cities, Towns and Rural Municipalities in the Study Area (10)
- School Divisions (9)
- Providence College
- Conservation Districts (2)
- Keystone Agricultural Producers
- Manitoba Aerial Applicators Association
- Manitoba Pork Council
- Manitoba Beef Producers
- Manitoba Turkey Producers
- Manitoba Chicken Producers
- Dairy Farmers of Manitoba
- Manitoba Wildlife Federation
- Manitoba Naturalist Society (Nature Manitoba)
- Nature Conservancy of Canada, Manitoba Division
- 50 by 30
- Bipole III Coalition
- Ducks Unlimited
- Sno-Man Inc.
- All-Terrain Vehicles Manitoba Inc.
- Trans Canada Trail Association
- Southern Regional Health Authority
- RCMP Detachments
- Railway
- Manitoba Trappers
- Emerson Milling

Not all organizations agreed to interviews. Some organizations (such as Manitoba Local Government) were not interviewed as part of the KPI process but did send representatives to Stakeholder Workshops.

The RCMP sent a general letter for all of the detachments that the project team had intended to contact (included in Appendix B2).

2.2.2.3 Total KPI Interviews

By October 15, 2013, over 54 KPI contacts had been made: 19 specifically declined interviews and 35 surveys were completed. A further 15 contacts were deemed not responsive after three contact attempts. A breakdown of representatives interviewed is provided in Table 2.1.

Table 2.1: KPI Interviews by Category

Category	Number of Interviews
Business and Industry	3
Environment	9
Municipal	7
Trappers	1
Education	7
Agriculture	5
Infrastructure	2
Health	1
Policing	0
Total	35

It should be noted that, additionally, a letter related to Policing concerns was received from the RCMP, and representatives of a number of provincial departments declined to be interviewed.

2.2.3 Interview Questions

Most of the scripts (Appendix B1) had questions in common, although emphasis was different. Questions addressed the following areas:

- Organization and interests represented
- Employment and economic development considerations, including the agricultural sector
- Power requirements
- Changes occurring in various economic sectors
- Preferred locations for power transmission lines, such as section or quarter section lines
- Land uses most suitable for location of power transmission lines, such as grain and oilseed farms, market gardens, livestock operations
- Effects of power transmission lines on agricultural operations, including: machinery operation, aerial spraying, irrigation and GPS navigation systems
- Effects of power transmission lines on property values
- Effects of power transmission lines on environmental components
- Future plans that would impact power line location
- Concerns about construction and maintenance activities
- Use of PowerSmart and other Manitoba Hydro programs

Interviewees were also asked if they would be interested in participating in a Stakeholder Workshop, and were provided with Manitoba Hydro contact information should they have additional questions. They were also asked if their responses could be applied to other Manitoba Hydro projects planned for southern Manitoba.

2.2.4 Key Concerns

2.2.4.1 Questions by Sector

Interview scripts were tailored to specific sectors, for example specific questions related to various sectors included:

- Agricultural KPI asked specifically about the overall impacts on agricultural operations, including for example the effects of transmission lines on GPS or other navigational tools.
- Business and Industry KPI asked about the effects of electric power system reliability on operations.
- Education KPI asked about student enrolment and any programs linked to Manitoba Hydro (co-op).
- Environmental KPI asked about what environmental features, such as water quality, wetlands, wildlife habitat, were important to their organizations, as well as the impacts of power transmission lines on such features.
- Health KPI asked about facilities and services, impacts on emergency response times and perceived health impacts of power transmission lines.
- Municipal KPI asked about linear infrastructure, roads, rail and drainage ditches, and suitability for construction of adjacent power transmission lines. These KPI also asked about future residential, commercial and industrial development and municipal public works projects, and airports. Other questions addressed transmission line ROW access and safety issues.
- Policing KPI also addressed emergency response times as well as types of crime.
- Trappers KPI asked specific questions related to positive and negative impacts on animal populations and potential use of transmission line corridors by trappers.

2.3 Summary of KPI Responses

2.3.1 Socio-economic Responses

The following is a summary of KPI responses related to socio-economic issues

2.3.1.1 Agriculture

- Respondents were split in their opinion with respect to the agricultural industry in their area – two respondents felt that it was in a state of growth, two thought it was in a state of decline and one thought there was no perceptible change.
- Four out of five felt that the labour force had changed over time.
- Four out of five said that the agricultural sector is affected by power system reliability.
- All respondents said that transportation corridors was the land use best suited to Hydro transmission lines and all respondents felt that hydro transmission lines have an effect on agricultural practices.
- All respondents said that they thought property values, irrigation systems, GPS and aerial spraying operations would be negatively affected by the implementation of this transmission line.
- Concerns include loss of land, use of large machinery and stray voltage as well as affecting meat production standards.
- All respondents said that they had concerns about operation or maintenance activities on their operating activities.
- All respondents were interested in learning more about the project and attending the workshop.

2.3.1.2 Business and Industry

- One of the three respondents said they thought the economy was in a state of decline while the other two respondents felt unable to comment. Two respondents thought that there may be some effects on their business or operating activities from a new transmission line right-of-way. This was related to utility and rail line crossings.

2.3.1.3 *Education*

- Three out of seven respondents said that a new Hydro transmission line would impact the operations of their organisation.
- Impacts included better resources and more reliable power and concerns over safe walking passages for students.
- Almost all respondents said that they would like to learn more about the project.

2.3.1.4 *Environment*

- Eight of nine respondents said that past developments had affected environmental features important to their organisation. Most respondents said that they thought this project would affect features important to their organisation.
- Most respondents felt that there are important areas to avoid, such as wildlife habitat, waterways and vegetation.
- Key concerns were changes to drainage patterns, changes to species habitat, climate change, heritage areas and flooding.
- Seven of nine felt that a transportation corridor would be the best land use to be in proximity to the transmission line.
- Existing rights-of-way or privately owned lands were suggested as the best locations for the transmission line.
- All respondents wanted to learn more about the project.

2.3.1.5 *Government Infrastructure*

- All respondents (2) thought that there are more jobs available now compared to the past.
- Both respondents thought that the new transmission line would affect existing transportation and utility corridors in a significant way.
- In building a new transmission line, it was felt by both respondents that agricultural lands (particularly those with cows on them) should be avoided.
- Both respondents felt that the transmission line would affect agricultural practices.
- They did not feel that property values would be affected.
- They did not expect that emergency services would be affected by the project.

2.3.1.6 *Health*

- The one respondent we spoke to felt that there would be effects on emergency services from the Project from road closures which could affect response times.

2.3.1.7 *Municipal*

- All municipal respondents thought that the new transmission line would positively affect business in the municipality.
- Positive aspects included increased growth and industry expansion as well as introducing new technologies and providing better service.
- Generally, respondents did not think there would be any major impacts on existing transportation and utility corridors.
- Transportation corridors and pasture/grazing lands were considered to be the land uses best suited to siting the transmission line.

- All respondents felt that electric power lines had an impact on agricultural practices.
- Only one respondent said that the community had expressed concerns about noise or dust; while only two respondents said that they had heard concerns about infrastructure or water.
- Only one respondent said that they felt the project would affect recreational activities in their community.
- The biggest concern in the communities was an aging population.
- All respondents were interested in learning more about the project.

2.3.1.8 Trappers

- A representative of the Manitoba Trappers Association said that they felt that the project would affect trapping activities in a negative way as the level of activity associated with construction could affect the presence of fur bearers and their food sources.

2.3.2 KPI Route Selection Responses

2.3.2.1 Location Specific Data from KPI

A number of specific considerations were identified by the key informants (Appendix B3). Segments were labelled following the naming convention included in the Workshop materials included in Appendix C2. Specific considerations and their applicable segment identifiers (N-1, N-2, N-3 etc.) are included below:

- Important streams and wetlands, wildlife and fish habitat: Red River Corridor/St. Adolphe PR 210 bridge (N-3), Brokenhead Swamp, Rat River (S-1, S-2, S-3), Joubert Creek (N-11, S-1, S-2), Arnauld (S-7, S-8), Kirkpatrick Swamp (S-8), Roseau River (S-8),
- Concentrations of geese: Dufrost (S-3, S-4, S-5) and Red River (S-7, S-8), Carlowrie (S-8, overwintering habitat), Fort Whyte Centre (Southern Loop)
- Tall grass prairie and other vegetation types: Pansy Township (S-4), Tolstoi Prairie (east of project), Roseau River First Nation (S-8, S-9)
- River bottom forest habitat: Red, Roseau and Rat Rivers
- Trappers: St. Malo (S-4) and above areas
- Flooding on local watercourses, including: Seine River (N-1, N-2), Manning Canal (N-2, N-4), Youville Drain (N-2, N-3)
- Flood prone lands: west of PTH 59
- Flood resistant route required: PTH 75 often closed with flood events (S-7, S-9)
- Residential areas potentially impacted by the transmission line: Sage Creek (N-1)
- Recreation trails / ecotourism: Ile des Chenes (N-2, N-3), St. Pierre Jolys (N-11), Crow Wing Trail/ Trans Canada Trail (N-11, S-1, S-2), St. Malo (S-4), St. Jean Baptiste (S-7)
- Recreation Areas: St. Malo (S-4), Birch Point, Moose Lake, Nature Conservancy Canada Lands
- Lagoons and landfills: Brady Landfill potential expansion (Southern Loop), Ile des Chenes Lagoon expansion (N-3), Oak Bluff lagoon adjacent to corridor and future planned expansions (Southern Loop)
- Local farmers' landing strips: Ile des Chenes (N-3), St. Adolphe, St. Agathe (west of project location???)
- Glider landing strip: west of Starbuck (Southern Loop)
- Population centres; development plans: Oak Bluff (Southern Loop)
- Important wildlife habitat at Fort Whyte (Southern Loop)

Note: the numbering system developed by Manitoba Hydro and Photo Science to identify alternative route segments is provided in Appendix F, referenced to the above segment numbering system.

2.3.3 Additional KPI Information

- Representative of Dairy Farmers of Manitoba provided a map with exact locations of all dairy farms near the proposed project. The map is included in Appendix B2.
- Information provided regarding considerations for transmission lines and railways. See Appendix B2.

3 Stakeholder Workshops

3.1 Purpose

The purpose of the three Stakeholder Workshops was to engage representatives of a wide range of organizations concerned with power transmission lines in group discussions related to route selection, and related environmental assessment processes.

Participants were asked to identify their issues and concerns, constraints, opportunities and mitigation strategies related to alternative routes identified. These comprised some 20 route segments for the St. Vital Station to Letellier Station Transmission Line.

3.2 Workshop Methodology

3.2.1 Approach

Stakeholder Workshops provided opportunities for stakeholders representing organizations with different interests:

- for learning more about the project
- for providing information, concerns and preferences regarding Alternative Routes
- for interacting and exchanging viewpoints with representatives of other organizations in the process of evaluating Alternative Routes for the St. Vital Transmission Complex

A number of Workshop participants had earlier been involved in the EPRI-GTC Route Selection Workshops to define Alternative Corridors and were able to see how their inputs had been used in the development of Alternative Routes.

3.2.2 Identification of Stakeholder Participants

3.2.2.1 Contact List

The contact list for Stakeholder Workshops was based on two sources: the list of invitees to the Alternative Corridor Workshops (EPRI methodology) and the KPI candidates.

Part of the intent of the Stakeholder Workshops was to provide feedback to stakeholders who had previously been involved in the Alternative Corridor EPRI workshops.

3.2.2.2 Letters and Follow-up Telephone Contacts

AECOM prepared letters, which were sent electronically on behalf of Manitoba Hydro and then followed up with direct telephone contacts to recruit Workshop participants. Typical invitation letters for KPI participants and EPRI-GTC Alternative Corridor Siting Model Workshop participants are included in Appendix C1.

3.2.3 Workshop Process

Stakeholder Workshops (3) were held in Dominion City (Dominion City Community Hall), Mitchell (Mitchell and Area Seniors Centre) and Winnipeg (Winakwa Community Centre), each between 9:00 am and 2:00 pm, on August 20, 21 and 22, respectively. Workshops were intended to inform participants about the project, and to obtain additional information and preferences related to Alternative Routes.

3.2.3.1 Attendance

Attendance at Stakeholder Workshops included representatives of the following groups:

- Dominion City - 7 people, including representatives of Manitoba Infrastructure and Transportation (MIT), MAFRI, Manitoba Local Government (2), Division Scholaire Franco-Manitoban (DSFM) and the RM of Franklin (2).
- Mitchell - 9 people including representatives of MIT (4), Keystone Agricultural Producers (District 4), Dairy Farmers of Manitoba, RM of Hanover, Trans Canada Trail, and Seine River Regional Conservation District.
- Winnipeg - 13 people including representatives of Manitoba Conservation and Water Stewardship (2), City of Winnipeg Planning Property and Development Department, RM of Ritchot (2), RM of Springfield, University of Manitoba Department of Landscape Architecture, Manitoba Beef Producers, Manitoba Metis Federation and Manitoba Aboriginal and Northern Affairs, as well as representatives of Whelan-Enns Associates who observed the process.

3.2.3.2 Background Presentation

A background presentation was prepared (Appendix C2), which outlined the purpose of the St. Vital Transmission Complex project, and described the Route Selection, Environmental Assessment and Public Engagement processes.

3.2.3.3 Map Exercise with Workbook

Workshop participants then broke out into teams of 3 to 5 people and used both large Maps and Workbooks to record information about their issues and concerns, and route preferences, considering routes identified by Manitoba Hydro and the Site Selection Consultant. These Alternative Routes were subdivided into 20 different Alternative Route segments, labelled N-1 to N-11 for the segments between St. Vital Station and Grunthal, and S1 to S-9 for the segments between Grunthal and Letellier Station. Figures showing the Alternative Route Segment labels are included in Appendix C2.

3.2.3.3.1 Issues and Concerns

The exercise provided opportunities for individual members of each team to identify their issues and concerns related to each Alternative Route segment, or the route segments generally. A list of possible issues and concerns was provided as a prompt, including:

Access to the Right-of-way	Health and Safety Issues	Impacts on Wetlands
Aesthetics of the Line	Location of the Line	Impacts on Wildlife/Wildfowl
Impact on Agricultural Activities	Property Issues	Other:
Construction of the Line	Reclamation	
Economic Considerations	Protection of Vegetation	

3.2.3.3.2 Physical Constraints

Each of the teams then worked to identify and rate physical constraints on construction of a power transmission line in each of the segments. These included physical barriers, impediments, or sensitive sites (such as habitat or dairy farms) along or near the alternative route segments. Teams were asked to note the severity of constraints as High, Medium, or Low.

3.2.3.3.3 Opportunities

Finally, teams were asked to work together to identify opportunities such as the following, relative to the Alternative Routes:

- Parallel existing transmission infrastructure
- Follow existing roadways
- Follow existing rail lines
- Follow existing drainage ditches
- Follow mile (Section) lines
- Follow half-mile (Quarter-section) lines
- Avoid forest and natural areas

3.2.3.3.4 Mapping Preferred Routes

Following the Workbook exercise, each team recorded their “Preferred Route” on the large-scale Maps, combining the Alternative Route Segments they considered to be most appropriate to connect St. Vital Station and Letellier Station.

In some instances, teams decided to slightly adjust route segments, or develop their own route segments and create new Alternative Routes.

3.2.3.3.5 Summaries

Finally, teams were asked to summarize their top three routing criteria and top three mitigation strategies.

3.2.3.4 *Group Presentations and Dot-mocracy*

Routing criteria and mitigation strategies, along with the Maps showing Preferred Routes were then posted on surrounding walls where all teams could review them.

All participants were then provided with 6 blue (positive) and 6 red (negative) dots, which they could use to highlight the route segments they liked or disliked on the large Maps, and 3 blue and 3 red dots which they could use to indicate aspects of the criteria and mitigation strategies they liked or disliked.

3.2.4 Review of Results

3.2.4.1 *General*

Workshop results are summarized in Appendix C3, C4 and C5. They include the following:

1. Summaries of Workbook responses outlining constraints, concerns and benefits discussed for each of the route segments (Appendix C3).
2. Summary of Worksheet information, including each team’s major routing criteria, rationale for route selection and mitigation measures (Appendix C3).
3. Summary of Workshop Comment Sheets (Appendix C4).

3.2.4.2 *Workbooks and Worksheets*

Table C3-1 summarizes all of the overarching criteria, rationale and mitigation measures along with dot-mocracy scores for each.

3.2.4.2.1 Criteria

The criteria used by individual Workshop teams to determine their preferred routes were sometimes at odds with those of other teams. Within individual teams compromises were generally reached when addressing particular route segments, but sometimes team members were not able to reach agreement on a preferred route segment. The following criteria were identified by stakeholders as important in transmission line siting. (Numbers in brackets indicate the number of favourable dot “votes” received by specific criteria.)

- Provincial Trunk Highway rights-of-way preferred (although not highway medians)
- Parallel existing transmission infrastructure, roadways, rail lines/ Follow existing roadways/Parallel PTH 59 as much as possible (4)
- MIT rights-of-way are constrained by other utilities, so don't use them
- Minimize highway crossings
- Follow mile lines(Section boundaries) but avoid half-mile(Quarter Section boundaries) (2)
- Straight routes and shorter towers are preferred/ More direct route is preferred (2)
- Avoid agricultural lands/ Minimize impacts on agriculture (2)
- Keep 100m buffer from watercourses
- Avoid native prairie and high impact native habitat/ Avoid forest and natural areas/ Avoid impacts on wetlands (2)

3.2.4.2.2 Concerns

A number of general concerns were identified by Workshop participants and included the following:

- Tower placement and Hydro right-of-way width
- Agricultural land taken out of production
- Need for fair compensation for land, i.e. market value
- Use appraised versus assessed value for compensation (2)
- Adequate compensation
- Aerial application and manure application
- Impacts on local harvesting and hunting
- Harvesting sweet grass and sage
- Introduction of invasive species during maintenance operations
- Impacts on waterfowl
- Residences and flood planning, cost of relocation in flood zones

3.2.4.2.3 Rationale for Routing Preferences

Some Workshop teams chose to identify overarching criteria to help guide them in Preferred Route selection. The following are some of the overarching criteria identified by Workshop participants.

1. General Routing Criteria
 - Straight routes preferred
 - No half-mile allowance (edge of field)
2. Parallel Linear Infrastructure
 - Use existing Provincial Road or Highway rights-of-way wherever possible/parallel transportation corridors. Co-locate with existing infrastructure corridors to reduce the footprint of the Hydro transmission corridor. (3)
 - Maximize use of Government rights-of-way (1)
 - Opportunities for beneficial co-location with trails (1)

On the other hand, one team was concerned about paralleling Provincial Roads and Highways:

- No paralleling of existing Provincial Roads and Highways, due to potential future requirements for wider rights-of-way (1)
3. Agriculture
 - Minimize impacts on agriculture/farming operations (2)
 - Less agricultural and aerial applicator interference/ areas with aerial application and irrigation to be avoided (2)
 - Avoid livestock operations, producers, industry/avoid dairy farms (preferably by at least 1 mile) (2)
 - Use of more marginal land /constructing the lines further east may have less impact on agricultural operations (2)
 4. Residential, Commercial and Industrial Land Uses
 - Less homes and businesses affected/ avoid residential, commercial and industrial uses/ avoid urban and high density areas (2)
 5. Natural Habitat
 - Avoid native habitat, including natural areas, native prairie, forest and wetland: minimize impacts on existing intact wildlife habitat and natural areas/avoid ecological and protected areas (2)
 - Minimize river crossings (1)
 6. Other Routing Criteria
 - Recognize exercise of treaty and aboriginal rights by minimizing project footprint (1)
 - Proximity to DeSalaberry Wind Co-op (1)

3.2.4.2.4 Mitigation

Some of the proposed mitigation approaches were similar to the routing criteria identified. The following are mitigation measures proposed by workshop participants.

- Avoid residential development, and designated and zoned residential areas
- Avoid dairy farm locations, use (Route Segment) N-11
- Avoid east-west alignment of towers to protect wildfowl
- Use bird diverters in specific areas, and provide clear space away from the transmission line
- Follow Noxious Weeds Act for control of weeds; bio-security issues
- Minimize transmission easement footprint on agricultural land
- Reclamation with native species
- Early inclusion of all stakeholders
- Avoid Provincial Trunk Highway 75, use S-8
- Complete functional design study of Provincial Trunk Highway 59 and 52 (to determine additional right-of-way requirements)

Table C3-2 provides Workshop team comments by route segment, as well as the dot-mocracy score for each segment.

Since each of the route selection segments must connect to others there are a limited number of combinations of segments that would make up complete routes. The colours in the chart below indicate clusters of Alternative Route Segments.

Table 3.1: Team Route Selection Preferences

Route Code	Team Preferences (from Preferred Route Selection Exercise)
N-1	6 teams out of 7
N-2	1 team out of 7
N-3	4 teams out of 7
N-4	2 teams out of 7
N-5	2 teams out of 7
N-6	1 team out of 7
N-7	2 teams out of 7
N-8	0 teams out of 7
N-9	2 teams out of 7
N-10	4 teams out of 7
N-11	5 teams out of 7
S-1	4 teams out of 7
S-2	4 teams out of 7
S-3	5 teams out of 7
S-4	6 teams out of 7
S-5	4 teams out of 7
S-6	0 teams out of 7
S-7	2 teams out of 7
S-8	1 teams out of 7
S-9	5 teams out of 7

Table 3.1 indicates that some route segments were more preferred than others. Some, such as N-8 and S-6, were not preferred by any of the Workshop Stakeholders.

3.2.4.3 Workshop Comment Sheets

Stakeholders attending the Workshops completed Comment Sheets. The 21 Comment Sheets returned indicated that 48% of stakeholders represented Provincial departments, particularly MIT; 19% represented the City of Winnipeg and Rural Municipalities, and 5% represented the MMF. The remaining stakeholders represented a broad range of agricultural, recreational and environmental interests.

A majority of stakeholders thought the process was “Somewhat Appropriate” (62%); while 24% thought it was “Very Appropriate”, and 5% “Appropriate”. Nine percent did not respond to the question. Ninety-five percent of respondents said they liked the Workshops; 5% had no comment. One stakeholder said: “There seemed to be a genuine desire to receive further input from various stakeholders.” Another noted: “The workshop was fine. A broader section of people/ reps would have been more useful; i.e. it is difficult to make routing decisions without MCWS reps in the group.”

Comments on the Stakeholder Workshop methodology included the following:

- “The discussion, presentation and process were a good way to understand the routing and look at any options that are practical.”
- “Great model, really appreciated the freedom to draw in new routes.”

- “Didn't place enough importance on the impacts on prime agricultural land and agricultural operations (overall route consisted of only prime agricultural land).”
- “The software itself seems fine but is only as useful as the data inputs. There are a variety of items that if input, may have caused/created a completely different corridor to be generated.”
- “If proposed line diverts outside the study corridor: maybe those affected were not contacted to participate and are outside the process & maybe new data would be needed in that case since field work would not have been done. Original data overlays (detail) is lost in the cumulative approach – i.e. where are the Provincial Parks, etc.”

General Comments included:

- “Within City of Winnipeg, (the transmission line is) not really an issue as the proposed line on the existing (Sage Creek) ROW & easement and/or land purchased along South Loop plus Floodway alignment (out of sight-out of mind).”
- “Concerned with planning districts/municipal development plans & zoning criteria, re: Siting Model”
- “Need to find best method for contacting stakeholders in proposed route areas to ensure meaningful dialogue and to readily ID problem areas.”
- “It's important to receive input from stakeholders to create acceptance of proposed routes - I hope these things will be seriously considered.”
- “The project will impact the use of lands and resources of the MB Métis community. The MMF looks forward to working with MB Hydro to minimizing the level of impact.”
- “More info on tower footprints, height, right-of-way size should be given up front to better assess potential impacts.”
- “The new transmission complex is very much NEEDED!”

3.2.4.4 Debrief Notes

Following each Stakeholder Workshop the project team reviewed the overall concerns of participants and any suggestions for improvement of the process. The following is a summary of the debriefing following each workshop.

3.2.4.4.1 Dominion City, Manitoba

3.2.4.4.1.1 Overall Concerns

- Agriculture is the biggest income generator in the local area
- Agriculture land quality is very high so minimize loss of land for the transmission line
- Lines should go further east into less productive agriculture land
- Aerial application is a major concern for whole area, considering both where the applicator is located relative to towers and lines, and aerial spraying of lands
- Compensation for all types of farmers (hog, cattle, agriculture, etc.) is a very important consideration
- Manure application on land is a concern related to having towers on land

3.2.4.4.1.2 What could have been done to make this process easier?

- Provide Workshop participants with a better general idea of what may be in place (i.e. type/size of towers, line spacing, etc.)

3.2.4.4.2 Mitchell, Manitoba

3.2.4.4.2.1 Overall Concerns

- Issues were mainly related to people and agriculture
- Land application of manure was a concern for many of the stakeholders
- Workshop participants expressed preference to cross Highways, rather than parallel them
- Workshop participants expressed concerns regarding utilities in their rights-of-way
- More input was needed concerning livestock particularly related to issues of tingle voltage / stray voltage
- Concerns about dairy farms expressed. Workshop participants would recommend that the line stay at least 1 mile away from farms. One team was not able to arrive at a consensus
- Workshop participants indicated that there would be a hydraulic study along Provincial Trunk Highway 75 and future projects along Provincial Trunk Highway 52
- There were some misunderstandings: for example a misconception of stray voltage. It would be good to have an expert explain stray voltage or other issues. If they could identify misunderstandings at the table, teams would have an easier time reaching a consensus

3.2.4.4.2.2 What could have been done to make this process easier?

- The Workshop process went well; introduction was good, as was participation.
- The 1.5 hr. presentation was too long, Environmental slides should be reduced.
- Repetition in route selection section. Suggested taking out Property Acquisition notes.

3.2.4.4.3 Winnipeg

3.2.4.4.3.1 Overall Concerns

- Use an outline rather than shaded map for the corridor area otherwise it is difficult to see map features.
- One participant brought up issues on zoning and future developments.
- One team did not want to go outside the shaded corridor area; resistance to commitment; issues addressing mitigation.
- One participant indicated that an airfield had not been avoided. He wished to see the results from the first two Workshops. In the south, one can see where the route is encroaching on natural areas. He would like to see the results of the natural model. He was sceptical about the process.
- Using the flood plain as criteria for route selection.

3.3 **Summary of Results**

3.3.1 Overall Route Preferences

3.3.1.1 *Description of Preferred Routes*

Table 3.2 compares Preferred Routes developed by Workshop participants. Some teams proposed alterations to the Alternative Routes, as shown in the following table.

Route segments used by the seven stakeholder teams included the following:

Table 3.2: Comparison of Route Preferences from Workshops

Route Segment	Team								Notes
	Dominion City, Aug. 20 Yellow	Dominion City, Aug. 20 Green	Mitchell, Aug. 21 Blue	Mitchell, Aug. 21 Green	Winnipeg, Aug. 22 Blue	Winnipeg, Aug. 22 Green	Winnipeg, Aug. 22 Purple	Total out of 7 teams	
N-1	X	X	X	X	No decision	X	X	6	
N-2	X		No decision		No decision			1	
N-3		X	No decision	X	No decision	X	X	4	
N-4		X	No decision	X	No decision			2	
N-5		X	No decision	X	No decision			2	
N-6			No decision		No decision		X	1	
Proposed alteration to N-6 (N-6-1)						X		1	follow drain 1/2 mile west of PTH 59, taking off south from N-3 about 1 mile west of its junction with N-6; continue south to 1 mile north of PR 311 and turn east, lining up with N-6 west to east section
N-7	X				X			2	
Proposed alteration to N-7 (N-7-1)				X				1	Continue about 1000 feet south of PTH 52 before turning west to rejoin N-7
N-8								0	
N-9		X	X					2	
Proposed alteration to N-9 (N-9-1)							X	1	turn east at a point 1 mile south of PTH 52 and connect to N-10, using a small west-east part of N-8.
Proposed alteration to N-9 (N-9-2)						X		1	turn east to join N-10 at a point 1 mile north of N-9 and N-11 connection.
N-10	X			X	X		X	4	
N-11	X	X			X	X	X	5	
Proposed alteration to N-11 (N-11-5)			X					1	turn west from N-11 alignment, 1/2 mile south of PR 205 and go 1 mile west before turning south along the Trans Canada Trail. Follow the trail due south to S-1 then follow S-1 west.
Proposed alteration to N-11 (N-11-6)				X					turn west from N-11 alignment, 1/2 mile south of PR 205 and go 1 mile west before turning south along the Trans Canada Trail. Follow the trail due south to S-2 then follow S-2 west.
S-1	X	X	X		No decision		X	4	
S-2	(X)			X	No decision	X	(X)	4	() Alternative
S-3	X			X	X	X	X	5	
Proposed alteration to S-3 (S3-4)		X						1	
Proposed alteration to S-3 (S3-5)		(X)						1	() Alternative
Proposed alteration to S-3 (S3-6)			X					1	go due south of junction of Segments S-2 and S-3 following drain; turn west 1 mile north of PR 217 to meet S-5.
S-4	X		X	X	X	X	X	6	
S-5		X			X	X	X	4	
S-6								0	
S-7					X		X	2	
Proposed alteration to S-7 (S-7-1)		X						1	Avoids aerial applicator continue westerly beyond the first bend in S-7 until about 3 miles east of St. Jean Baptiste and then turn south to rejoin S-7.
Proposed alteration to S-7 (S-7-2)						X		1	continue S-7 west of its first south turn after S-5 connection to a point 4 miles west of PR 200; then turn south to join S-8 at a point 1.5 miles north of Roseau River IR.
S-8				X				1	

Route Segment	Team								Notes
	Dominion City, Aug. 20 Yellow	Dominion City, Aug. 20 Green	Mitchell, Aug. 21 Blue	Mitchell, Aug. 21 Green	Winnipeg, Aug. 22 Blue	Winnipeg, Aug. 22 Green	Winnipeg, Aug. 22 Purple	Total out of 7 teams	
Proposed alteration to S-8 (S-8-5)	X							1	go 1 mile east of junction of segments S-4 and S-5; turn south along the east side of PR218 to PR 201; go 1 mile west on PR 201 then 1 mile south. Then go west on an alignment located 1 mile south of PR 201, crossing the Red River and PTH 75 to 1 mile west of PTH 75 and 1 mile south of Letellier, then go north to Letellier Station.
Proposed alteration to S-8 (S-8-6)			X					1	continue south of S-8 on an alignment 1 mile east of the Roseau River IR to a point 1 mile south of PR 201, turn west and go to a point 1 mile south of Letellier, then turn north to Letellier Station
S-9		X		X	X	X	X	5	

Note: X = Preference for route segment expressed by a team

4 Public Open Houses – Round 1

4.1 Purpose

The purpose of Round 1 Public Open Houses was to inform the public about the project and to obtain input on the Alternative Routes.

4.2 Methodology – Round 1

4.2.1 Approach

Round 1 Public Open Houses allowed the general public, local landowners and stakeholders to get information about the St. Vital Transmission Complex project, and to provide feedback about issues and concerns, preferred criteria and specific development constraints related particularly to the proposed Alternative Routes for a new transmission line between St. Vital Station and Letellier Station.

4.2.2 Advertising and Notification – Round 1

4.2.2.1 Newspaper and Newsletter Advertising

Manitoba Hydro produced a four page newsletter describing the Proposed St. Vital Transmission Complex (Appendix D1). The newsletter described the project need, and the Route Selection, Environmental Assessment and Engagement Processes, and provided an overview of Alternative Routes and the Southern Loop Transmission Corridor, along with a map. It also provided a project timeline and contact information for questions or comments. The newsletter was available at all Public Open House events and on the Manitoba Hydro Project Website.

A copy of the newspaper advertisement for the Public Open Houses is also included in Appendix D1. Newspaper advertising was printed in the Winnipeg Free Press on August 17, 2013, and all local newspapers, including:

- | | |
|---|-----------------|
| • Canstar Weeklies (5 newspapers) | August 7, 2013 |
| • Manitoba Cooperator | August 8, 2013 |
| • Steinbach Carillon (Steinbach/Morris) | August 8, 2013 |
| • Altona Red River Valley Echo (Letellier/Morris) | August 8, 2013 |
| • Carman Valley Leader (Morris) | August 8, 2013 |
| • Headingly Headliner | August 16, 2013 |
| • Emerson Southeast Journal (Letellier/Morris) | August 17, 2013 |

4.2.2.2 Postcards

Manitoba Hydro also produced brief postcards informing people of the locations and times for the Public Open House events. The postcards were mailed to almost 7000 addresses. A copy of the postcard is provided in Appendix D1. Postcards included a brief project description and map, as well as the locations and times of Public Open House events.

4.2.2.3 Landowner Letters

Local landowners were notified by direct mail of upcoming Public Open House events. A total of 2,266 letters were sent out by Manitoba Hydro to potentially affected landowners; however, 24 letters were

undeliverable and were returned to Manitoba Hydro. A copy of the landowner letter is provided in Appendix D1. Letters included a brief project description; an invitation to one of four Public Open House events, with locations and times, and email and telephone contact information for Manitoba Hydro.

4.2.3 Locations and Attendance

4.2.3.1 Venues and Times

Four Round 1 Public Open House events were held, with one each in Dominion City (Community Hall), Mitchell (Mitchell and Area Seniors Centre), Winnipeg (Winakwa Community Centre) and Oak Bluff (Oak Bluff Recreation Centre). Posted times for the Open Houses was 4:00 pm to 8:00 pm on August 20, 21, 22, and August 27, 2013, respectively.

4.2.3.2 Attendance

A total of 125 people attended the Round 1 Public Open Houses. Attendance at each of the four locations was as follows:

- Dominion City 38 (33 signed in, 5 did not)
- Mitchell 43
- Winnipeg 33
- Oak Bluff 11

4.2.4 Open House Process – Round 1

4.2.4.1 Stations

The Open House events were organized around a series of stations with presentation storyboards, large maps and PowerPoint presentations, intended to provide information about the proposed project and to obtain information and feedback about Alternative Routes.

4.2.4.1.1 Storyboards

Storyboards were prepared describing the overall project and the work completed by Manitoba Hydro and their Consultants to date; these are found in Appendix D2.

- One set of storyboards provided an introduction to the St. Vital Transmission Complex, indicating what was included and why it was needed.
- One set of storyboards described the Environmental Assessment process.
- One set of storyboards outlined the Route Selection approach, including key criteria.
- A large board was produced to show all major Manitoba Hydro projects.

4.2.4.1.2 Route Selection Presentation

Manitoba Hydro prepared a Route Selection presentation based on Photo Science materials. This comprised a PowerPoint presentation and storyboards describing the EPRI-GTC methodology, which uses GIS map information, stakeholder criteria and weightings, and expert judgement to determine Alternative Corridors, and Alternative Routes for new power transmission lines. The presentation is included with other Open House materials in Appendix D2.

4.2.4.1.3 Google Earth Mapping Station

A Google Earth Mapping Station allowed Open House attendees to find their own or other properties and see in more detail their locations relative to the proposed new transmission line.

4.2.4.1.4 Mapping Stations

Mapping stations provided a means to obtain detailed Route Selection comments from landowners and other attendees. Manitoba Hydro representatives discussed issues and concerns, constraints and/or suggested realignments with attendees who visited the Mapping Stations.

Facilitators used coloured dots to indicate on large map sheets the locations of specific constraints or concerns. Dots were numbered and recorded in spreadsheets, along with geographic location, personal contact information and notes about the constraint, issue or concern.

Many Open House attendees provided site specific information at the Mapping Stations. This is summarized in Table D-4 and Appendix D3.

4.2.4.2 Handouts and Comment Sheets

Handouts at the Open Houses included the following material, which is included in Appendix D2:

- Manitoba Hydro St. Vital Transmission Complex Project Newsletter
- Detailed maps showing an Alternative Routes. Routes were divided into 20 Alternative Route Segments in order to facilitate discussion of local considerations.
- EPRI-GTC Methodology
- Alternative Corridor Siting Model (spreadsheet with features and suitability values)
- Manitoba Hydro brochure on EMF (available on request)
- Manitoba Hydro brochure “The Hydro Province” about power generation and transmission in Manitoba

Attendees were provided with Comment Sheets (Appendix D4) upon entry to the Open Houses: of the 125 attendees, 49 completed Comment Sheets and returned them to AECOM by October 15, 2013.

4.3 Round 1 Public Open Houses - Summary of Results

4.3.1 Analysis of Open House Comment Sheets – Round 1

Round 1 Open House Comment Sheets were analyzed using Survey Monkey. The report in Appendix D4 summarizes the 49 Comment Sheets returned to AECOM by October 15, 2013.

An additional spreadsheet, following the summary, provides more detailed responses.

4.3.2 Review of Results – Round 1

4.3.2.1 Survey Monkey Analysis of Comment Sheets

Twenty-two, 45% of respondents heard about the Open Houses by letter, and a further 29% said they received a post card. Only one person learned of the Open Houses on the Manitoba Hydro website, while 9 heard by word of mouth.

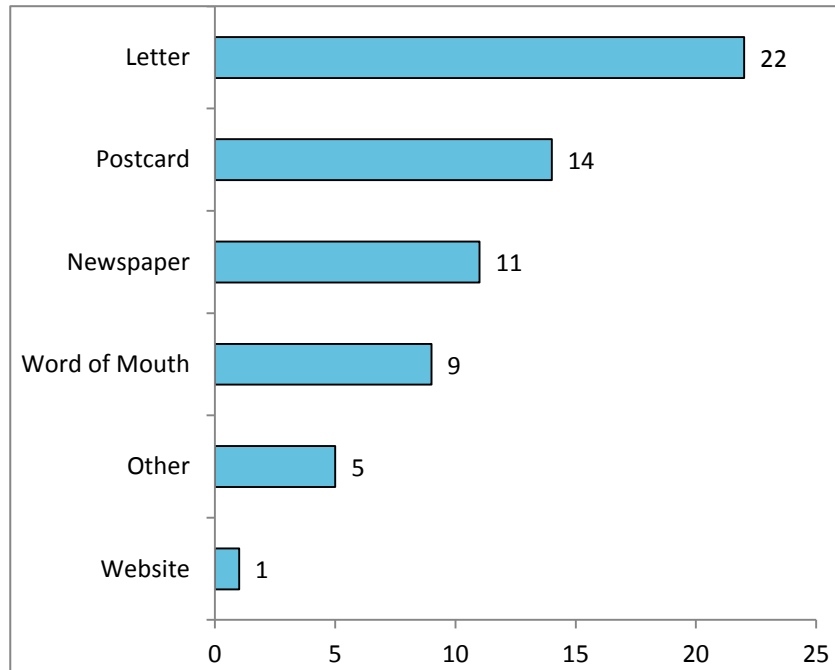
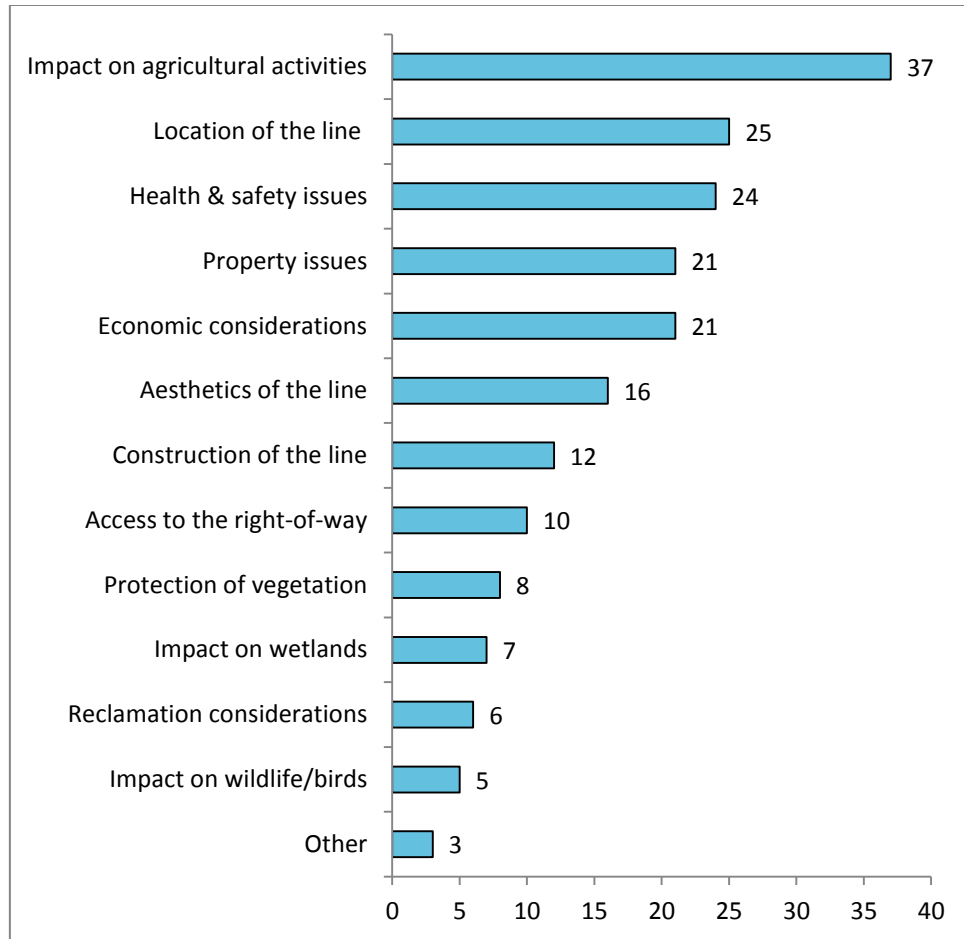


Figure 4.1: Analysis of Comment Sheets

Thirty-six, 73% of respondents said they lived near an alternative route and 37 respondents said they had concerns with the alternatives. Key concerns were as follows:

- Agricultural Concerns – *“The west line (south of 52) runs through prime agriculture land and is close to farms, seeding, spraying and air application are impacted.”*
76% of respondents said they were concerned about the impact of the proposed new line on agricultural activities.
- Tingle Voltage – *“Tingle voltage is a huge concern.”*
49% of respondents had health and safety issues.
- Locating the transmission line in an aerial applicator zone - *“You’re putting it in a flood zone and aerial applicator zone.”*
- Loss of land - 43% of respondents had property issues, while 43% had economic considerations.
- Visual impacts - 33% of respondents had concerns about the aesthetics of the line.
- Other concerns included:
 - Construction of the line, 25%
 - Access to the right-of-way, 20%
 - Impacts on wetlands, 14%
 - Protection of vegetation and reclamation considerations, 16 and 12%, respectively



Base=50 (respondents could give more than one answer)

Figure 4.2: Concerns about the Project

4.3.2.1.1 Siting Criteria from Comment Sheets

The top four transmission line siting preferences were as follows, based on greatest number of #1 rankings.

- Parallel to existing transmission infrastructure
- Follow existing roadways
- Follow existing rail lines
- Follow mile (Section) lines

Ranking #	Factor
1	Parallel to existing transmission infrastructure
2	Follow existing roadways
3	Follow existing rail lines
4	Follow mile (Section) lines
5	Avoid forest and natural areas, e.g. wildlife management areas
6	Follow half-mile (quarter section) lines
7	Follow existing drainage ditches
8	Follow undeveloped roadways

- (Overall ranking is based on greatest number of #1 rankings)

4.3.2.1.2 Key Word Analysis

Key word analysis highlighted the following concerns:

Key Word Search	Number of Occurrences	Notes
a. highway mentions	11	(PTH 59 - 6 mentions, PTH 75 and PTH 23 – 2 each, and PR 201, 1 mention.)
b. health	6	(5 human health, 1 animal (cow) health)
c. avoid production	4	(avoid future problems, avoid sensitive dairy facilities, avoid residential homes, avoid agricultural lands)
d. dairy farm	4	
e. tingle voltage	3	
f. livestock	3	
g. environment	3	
h. spraying	2	
i. view /view-shed	2	
j. water concern /wet area	2	
k. aerial applicator/spraying	4	
l. agricultural	1	
m. property value	1	
n. equipment	1	
o. roads	1	
p. airstrip	0	
q. cemetery	0	
r. EMF	0	
s. habitat	0	
t. hog barn	0	
u. irrigation	0	
v. land use	0	

Note that the key word search included a number of terms that were not found in the Comment Sheet analysis but were included due to issues and concerns that were raised by Open House attendees in their discussions with members of the project team or identified in other public engagement processes.

4.3.2.1.3 Specific Sites

Specific sites that respondents wanted Manitoba Hydro to be aware of are summarized in Table 4.1.

Table 4.1: Location Specific Concerns in Comment Sheets

Open House Location	Location	Concern/Constraint	Segment ID Comment/Constraint Relates to
received after Open House	Sage Creek	Sage Creek walking trails, Put new towers right beside with same spacing as existing Sage Creek towers.	N1
Mitchell	SW19-6-5E	Already have the Kleefeld lagoon on 1/4 next to use (north). We raise hay and graze cattle on our 1/4	N10
Oak Bluff	SW19-5-5E	Need to stay further from dairy barns (tingle voltage); proximity to boarding stable & guest barn - tingle voltage, loss of production and animal welfare	N10
Mitchell	1 mile south of PR205 (Hanover)	Too close to the dairy operation and crosses tributary of Joubert Creek which comes within 10 m of dairy barn - tingle voltage is a huge concern	N11, S1, S2 along Gnadefeld Road
Mitchell	Tourond Creek Discovery Centre	Tourond Creek Discovery Centre	N7
Mitchell	NW2-7-4E	Livestock	N8, N9
received after Open House	SW 26-7-4E, 23-7-4E, NE 14-7-4E, SE 34-7-4E, SE 27-7-4E, SW + NW 1 -7-4E	Mature shelterbelts of trees along mentioned locations, run along crown property whenever possible (e.g. Manning canal)	N8, N9
Mitchell	SE10-7-4E	Livestock operation, residence & farming practices	N9
Mitchell	SE10-7-4E	Residence	N9
Dominion City	SE16-5-4E	It would go right in front of our home & property on Nault Road	potentially S1, S2, or S3
Mitchell	Along Hwy 59, 4 km south of St-Pierre-Jolys	7 homes along the west side of the proposed route along Hwy 59, who would be concerned with any transmission development in close proximity to our homes & families.	S1, S3
Dominion City	Catellier Road between Hwy 23 and Paul's Road	Obstruction (towers) on farmland	S6
Dominion City	SE15-3-2E1 and SE16-3-2E1	Going 3 miles on my land in centre of section; 860 acres affected going centre of section	S8
Received after Open House	SE 34-7-4E, SE 27-7-4E, 23-7-4E, NE 14-7-4E, NW, SW 1-7-4E	shelterbelts, homes, barns, aerial spraying on lands, wide machinery, weed control around towers, livestock concerns	N8, N9

4.3.3 Mapping Stations

Appendix D3 provides detailed information from the Open House mapping stations. Note that numbers shown with each set of issues and concerns relate to the number of locations identified on the plans, using numbered dots, not the number of people reporting.

Figure 4.3: Overall Comments by Route Segment, from Mapping Stations

Route Segment	Dot ID Indicated as Preferred Segment	Dot ID Issues and Concerns	Notes/Concerns
N-1	0	0	
N-2	7	16	Residential cluster; dairy operations; land values; aesthetics; archaeology (Winnipeg Ridge); agricultural operations
N-3	2	11	Preferred for straight lines; future subdivision plans; landfill expansion; land value; agricultural operations
N-4	0	8	Agricultural operations; farmstead
N-5	0	5	Rural residential; land values; aesthetics
N-6	7	7	Preferred alignment; cemetery
N-7	11	9	Agricultural operations; livestock and manure management; Tourond Discovery Centre
N-8	0	7	Agricultural operations; EMF; GPS; shelterbelt
N-9	9	17	Agricultural operations; livestock, lagoon, manure management,
N-10	10	6	Agricultural operations; livestock; Suncrest Colony lagoon; Kleefeld lagoon
N-11	0	18	Dairy operations and boarding stable, tingle voltage; rural residential cluster; aesthetics
S-1	0	10	Agricultural operations, airstrip location; livestock operation (hogs); rural residential cluster; landfill
S-2	6	7	Agricultural operations, airstrip location; livestock operation (hogs); farmstead
S-3	0	7	Agricultural operations; aesthetics; valuable land; farmstead
S-4	0	0	
S-5	0	0	
S-6	0	3	Agricultural operations; too close to Dufrost
S-7	3	5	Flooding and farmstead
S-8	0	16	Aerial applicator landing strip, safety concerns; agricultural operations
S-9	0	1	

4.3.3.1 Summary of Issues and Concerns

Issues and concerns included:

- There were 20 alterations to the Alternative Routes proposed at the mapping stations. Key recommendations related to this were as follows:
 - Avoid houses/jog around house/use clear route
 - Move 1 mile/1 mile west/1/2 mile further away
 - Route with fewer farmsteads
 - Avoid livestock

- Use straight route because turns waste land
- Follow rail line
- Go straight south to PR 201
- Follow PTH 75 south
- Follow PTH 59
- Follow mile road
- Follow Manning Canal
- Avoid Provincial Drain (Arnott Drain)
- Service Grunthal area off Richer area export line
- Concerns about proximity to a residence of one or more of the Alternative Routes for the transmission line (22 occurrences). Informants were often concerned about proximity of a transmission line to single residences and groupings of three or more residences, and subdivisions. One additional informant noted that there were subdivision plans in proximity to one of the routes.
- Views or aesthetic concerns were mentioned numerous times, including informants (7 occurrences) specifically concerned and a number of the people concerned with proximity to residents, and one concerned about proximity to a riding stable.
- Loss of shelterbelts and tree lines were related concerns noted (3 occurrences). One note indicated that a 40 year old shelter belt would be affected by a transmission line route.
- Concerns about proximity to livestock operations, including dairy (9 occurrences), cattle (1 occurrence), hogs (4 occurrences), and horse barns (2 occurrences) and pasture. One informant noted that electric fences for cattle can be damaged by induced current, surges. Another had a boarding stable and did not think customers would like the impact on views. Five notes indicated that stray or tingle voltage was a concern related to dairy cattle.
- The ability to live on “clean acres”, unencumbered by a transmission line was noted 13 times, sometimes also in the context of land values.
- Also noted were agricultural impacts of transmission lines: two informants suggested that the transmission line should stay on more marginal land, particularly along the east edge of the Corridor, east of PTH 59.
- Manure management was also noted 3 times.
- Aerial spraying or airstrip locations were a significant safety concern, noted 18 times. One informant also noted that an airstrip was used as a landing area for hot air balloons. More than one airstrip location was identified.
- Human health concerns were less frequently mentioned, although EMF was noted 3 times and “health concerns”, generally, were noted 4 times. One informant was concerned that stress/EMF would impact his son-in-law’s heart condition. Another worried about the cumulative effects of EMF.
- Loss of land value (sometimes for “valuable irrigated land” was noted 4 times.
- Three people noted concerns about flooding. Another indicated that the line should be moved to the north side of a road because the south side was wetter.
- Informants thought transmission lines should be in straight lines (2 occurrences) and parallel road rights-of-way (3 occurrences), or use highways (1 occurrence).
- Two informants mentioned concerns related to transmission line impacts on GPS use.
- Municipal infrastructure concerns included: proximity to landfills or potential landfill expansion (2 occurrences) – St. Pierre-De Salaberry, existing lagoons or proposed lagoon expansions (3), including the Kleefeld Lagoon.
- Two informants wanted the transmission line to stay along mile roads or did not like half-mile alignments.
- One indicated that his three Sections would be split by one of the Alternative Routes.
- One informant was concerned about a humming noise.

- Other concerns along proposed Alternative Routes included:
 - Cemetery
 - Coulee 100 feet deep
 - Seine River
 - Tourond Discovery Centre on PTH 52
 - Proximity to a Hutterite Colony
 - Across from an elevator
 - Existing lines under the right-of-way
 - Future subdivision
 - Why no wind turbines?
 - Tourism in DeSalaberry

4.3.4 Open House Debrief Notes – Round 1

General observations by the Project Team were recorded after each of the Public Open House events.

4.3.4.1 *Dominion City*

General issues and concerns/comments heard during this Open House included:

- Agriculture is the biggest income generator in the area
- Agriculture impacts (are a major concern)
- Keep out of productive agriculture lands
- Question whether Hydro could bury lines in agriculture areas
- Aerial application is a major concern for whole area
- Hydro tower locations and landowner payments
- Land values in the area are very high
- Go further east, straight south (near PR 218), then across to Letellier to avoid the best land and aerial applicator airstrip
- Need better explanation as to where proposed lines are going: such as, if using an existing transmission line ROW
- Is it possible to follow old/abandoned rail lines near Roseau?
- What are the effects (of transmission lines) on GPS?
- Visual issues
- Some confusion about whether the project is connected with Bi-Pole III
- NIMBY
- Open House held at a bad time of year (harvest time)
- Why hold the Open House in Dominion City? It should have been in a venue closer along PTH #59

What could have been done to improve the Open House:

- Need lots of people in map area during Open House: add a third person to mapping station
- Get standardized information for GIS section
- Direct some attendees from mapping area, once complete or when too busy, to the environmental assessment area
- Be prepared with maps if there is no internet service
- Explain that this project is not connected to Bipole III: some attendees were confused

4.3.4.2 *Mitchell*

General issues and concerns/comments heard during this Open House included:

- Model understates agriculture

- Double application (aerial sprayers)
- EMF effects on cattle/Impact on dairy
- Half mile line is not preferred
- Follow PTH #75
- Road allowance use
- Tower design and photo would be helpful
- Compensation inadequate
- Annual payments
- Compensation (very important)
- Why routes and process methodology
- View-shed concerns
- Subdivision potential: no compensation
- Bipole III a big mistake

What could have been done to improve the Open House:

- Some liked the methodology and understood difficulty in routing
- No one left too angry
- Workshops and Open Houses were not held at a good time as farmers are harvesting/Nov-Feb better timing

4.3.4.3 Winnipeg

General issues and concerns/comments heard during this Open House included:

- Did not hear any opposition during Open House
- Many compensation questions
- Concerns about property values
- ATV representative recommended speaking with multiple stakeholders
- A few EMF questions and stray voltage comments
- A cemetery was flagged on Colony Land that had not been previously marked
- There was interest in seeing pictures of the towers
- Well-advertised

4.3.4.4 Oak Bluff

General issues and concerns/comments heard during this Open House included:

- Worst time of year to have the Open Houses: harvest time
- Question regarding whether VECs were used in the assessment

5 Email and Telephone Communications, and Other Meetings – Round 1

5.1 Summary of Round 1 Other Consultation

Table E-1 in Appendix E1 indicates that 10 emails and 20 telephone calls were received by October 15, 2013.

Most telephone calls were requests for specific project/route information, although one caller expressed strong opposition to the project. Another caller indicated that the timing did not respect farmers bringing in the harvest.

5.2 Comments

5.2.1 General Comments/Queries

General comments are found in Appendix E1.

5.2.2 Location Specific Comments

A number of location concerns were related to the locations of airstrips close to Alternative Routes, or farmers' ability to continue aerial spraying. Some correspondents noted that Manitoba Hydro has put transmission lines underground to mitigate this concern. A summary of the location specific comments is included in the following Table 5.1.

Table 5.1: Location Specific Data from Project Email and Phone Line

Data Source	Date and Time of Call or Initial Email	Constraint/Constraint	Location	Segment ID Comment/ Constraint Relates to
Email	8/15/2013 15:09	Airstrip	On the NW corner of Sec 15-5-4-E1	S1
Email	8/22/2013 10:59	Houses/airstrip	7 houses along Hwy 59 where potential line running, airstrip running east-west on east side of Hwy 59	S1
Phone Call	8/27/2013 13:00	L shape grass runway. S1 is boxing the north and west side of the landing strip. S2 is preferred.	2-3 miles north of La Rochelle along 59	S1
Phone Call	Information from call sent to AECOM 9/10/2013 9:19	Owns a distribution line on the southern side of his property and believes this line will be unsafe to maneuver around. Also aerial application (fungicide) will not be possible as he will be boxed in. Prefers the line further west, which runs south of Dufrost.	SE28-4-4E1 and SW28-4-4E1 (runs east-west)	S4

Data Source	Date and Time of Call or Initial Email	Constraint/Constraint	Location	Segment ID Comment/ Constraint Relates to
Meeting	9/11/2013	Land purchased for future lagoon	immediately to the north of S7 at junction of S7 and Hwy 75	S7
Phone Call	9/11/2013 9:00	Interfere with operations and limit ability for aerially spraying as he would be boxed in. S8 more preferred. Northern portion of route biggest impact.	(SW & NW34-3-3E1)	S7
Email	8/9/2013 Time unknown (AM)	Runway	2.4 miles east of Hwy 200 near S-8	S8

5.2.3 RM Meeting – Round 1

RM of Montcalm September 11, 2013

Manitoba Hydro made a presentation on the Project to the RM of Montcalm (see Appendix E2 for a record of the meeting). Questions that arose during the meeting included questions about right of way width, structure design and compensation. The RM of Montcalm also indicated that they had purchased land south of St. Jean Baptiste between Highway 75 and the Red River for a future lagoon. They also indicated that the last 5 miles of the proposed transmission line in this area was in a floodplain.

6 Brief Summary of Round 1 Public Engagement

Round 1 of the Public Engagement Program for the St. Vital Transmission Complex was successful in obtaining a variety of perspectives, which together informed identification of a Preferred Route for the new transmission line between St. Vital Station and Letellier Station.

- Key informants in the KPI interview process identified a range of environmental and socio-economic considerations related to the project, as well as general and specific constraints impacting the transmission line location.
- Stakeholders attending Workshops identified their issues and concerns with Alternative Route Segments, their criteria for route selection and their preferred routes. Stakeholders identified a number of additional alternatives to the Alternative Route Segments presented in the Workshops, which would better meet their teams' criteria and avoid particular constraints. These informed the Preferred Route identified by Manitoba Hydro following the Round 1 Public Engagement.
- Members of the public, local landowners and stakeholders who attended the Round 1 Public Open House events identified their issues and concerns about the proposed transmission line, and location-specific constraints related to different Alternative Route Segments. Many Open House participants also suggested revisions to the Alternative Route Segment alignments to address specific issues and concerns.

Issues and concerns identified in Round 1 Public Engagement are summarized in Table 6.1. The Comments and Concerns come from KPI, Stakeholder Workshop and Public Open House sources.

Table 6.1: Comments and Concerns

Comment/Concern	How Feedback Was Incorporated
Potential impacts to aerial application.	Structure height in agricultural areas will be minimized to the extent possible, consistent with heights of distribution lines. Air strip locations were identified, and avoided as much as possible in final route selection.
Impacts to agricultural operations.	Avoid infield placement where possible. Alignments along road allowances are preferred. Guyed-wire structures are not being considered for this project. A tubular steel H-frame design, which has a smaller footprint than self-supporting or guyed structures, will be utilized.
Impacts to use of GPS units.	Manitoba Hydro notes that GPS units function at a very different frequency than AC transmission lines and that there should be no interference with satellite based GPS systems.
Potential effects on livestock, particularly dairy cattle, e.g., tingle voltage.	Tingle voltage tends to occur with faulted distribution lines as opposed to transmission lines. Livestock operators are encouraged to contact Manitoba Hydro if they notice tingle voltage occurring so that the source can be identified.
Loss of high-quality farm land.	Route the line adjacent to road allowances to minimize the land area used for the transmission line and the related impact on farming activities.
Landowner compensation	Manitoba Hydro provides a one-time compensation payment for transmission line easements (75 per cent of market value), as well as one-time structure payment

Comment/Concern	How Feedback Was Incorporated
	related to loss of annual production. Manitoba Hydro also compensates landowners for any damages which may occur through the construction and operation of the line.
Proximity to farmsteads and shelterbelts.	During routing, Manitoba Hydro avoids residences and shelterbelts to the extent possible.
Many areas are flood prone.	The potential for flooding was taken into account but does not hinder operation of the transmission line.
Locate transmission lines within existing Hydro transmission line corridors.	This is being done where feasible; a portion of the line passing through Sage Creek is in an existing Manitoba Hydro corridor as is the Southern Loop
Locate transmission line infrastructure adjacent to linear infrastructure such as provincial and municipal highways, roads and drains in order to reduce land requirements.	Existing corridors and linear features were identified as routing opportunities in the route selection process and are being taken advantage of where possible. Manitoba Hydro will consult with Manitoba Infrastructure and Transportation (MIT) on future planning before developing alignments near PTH 75, PTH 59 and PTH 52.
Minimize transmission line crossings of major highways and rail lines, as well as stream crossings. Concern that stream crossings could impact riparian habitat.	Such crossings, which require higher and more costly towers, were minimized.
Avoid rural residential developments, as well as commercial and industrial development.	Locations of rural residential, commercial and industrial development areas were identified and are avoided where possible.
Avoid landfills and lagoons, and cemeteries.	Locations of landfills, lagoons and cemeteries were noted. Structure placement will avoid these areas.
Transmission tower aesthetics.	Towers that will be placed adjacent to existing towers, such as along the South Loop, will have similar spacing and heights.
Potential impact on wildlife, including birds, vegetation, riparian area, endangered species and wetlands	The environmental assessment process will identify potential environmental sensitivities and will prescribe appropriate mitigation measures.
Concern that construction will disrupt fur-bearing animals and affect trapping.	The environmental assessment process will identify potential sensitivities related to fur-bearing animals and will prescribe appropriate mitigation measures such as modifications to construction scheduling.
Avoid heritage sites.	The environmental assessment process will identify heritage resources, including archaeological sites, which will be avoided.
Perceived health effects due to electric and magnetic fields (EMF).	Information will continue to be provided in the public engagement process and these concerns will be addressed in the environmental assessment process. Health Canada, the World Health Organization and other international health entities have noted that no scientific evidence suggests that exposure to EMF will cause any negative health effects on humans, vegetation and wild or domestic animals.
Transmission line rights-of-way become areas for growth of noxious weeds and potential bio-security issues.	Manitoba Hydro will take necessary precautions as part of construction of the project to minimize the risk of invasive plants and diseases spreading. Manitoba Hydro has a bio-security policy.
Noise, dust and disruption of traffic, particularly related to emergency services, during construction.	Construction operations will minimize noise and dust. Construction traffic routes and detours will be identified

Comment/Concern	How Feedback Was Incorporated
	and made available to local police, fire and emergency services.
City, municipal and business and industry stakeholders, in particular, noted beneficial effects of a more secure power supply on their operations and growth. Agricultural stakeholders also noted that they are impacted by electrical power system reliability.	The beneficial effect on power system reliability and capacity is a fundamental reason for this project.

7 Final Preferred Route Selection Process

Public Engagement inputs informed the Final Preferred Route Selection Process.

7.1 Preferred Route

Prior to the Round 2 Public Engagement, Manitoba Hydro and their Project Team Consultants worked together to determine a Preferred Route that would be presented in the Round 2 Public Open Houses. The Preferred Route was determined using raw statistics for a variety of build and natural environment, and engineering features, as well as rough estimated costs to evaluate the most promising Alternative Routes. Examples are numbers of residences needing to be relocated and areas of prime farmland affected by the Alternative Routes.

Criteria for determining the Preferred Route were weighted as follows:

- Cost 40%
- Community 30% - this represented input from the Public Engagement Program
- Environmental 15%
- Schedule 10%
- Reliability 5%

7.2 Community Criteria

Both the north and south sections of the Preferred Route had strong scores related to Public Engagement.

In order to obtain a cumulative ranking for each of the Alternate Routes that was identified as a finalist in the process of identifying a Preferred Route, AECOM added all the scores for each Alternate Route Segment comprising the route and then divided the sum by the number of segments with scores. Segments in the routes that were proposed by Workshop participants and/or members of the public were not scored as they had not been presented in a public forum for feedback.

The scores were considered for each complete route and were then considered in conjunction with input received from the Manitoba Métis Federation to arrive at an overall ranking of the Alternative Routes. For the southern portion of the project (between Grunthal and Letellier), the calculated scores were considered; however, as some of the Alternate Routes included long segments proposed by Workshop participants and/or members of the public (and no Community feedback was obtained on them), the routes were scored considering the calculated scores and how well the routes conformed with route selection criteria identified as important by the public and stakeholders.

7.2.1 Final Preferred Route Selection

Round 2 Public Open Houses presented a Preferred Route that incorporated an alternative alignment identified through the Round 1 Workshops and Open Houses. This would be modified, based on discussions with landowners and public, to become the Final Preferred Route, including adjustments to the Preferred Route that was presented at the Open Houses.

7.3 Determination of Community Criteria for Preferred Route Selection

7.3.1 Community Criteria

Public Engagement Program inputs to the “Community Criteria” used in determining a Final Preferred Route for the new St. Vital Station to Letellier Station transmission line were quantified, using a 1 to 3 (best to worst) ranking system. Community rankings were one of the five different criteria used by Manitoba Hydro in its Preference Determination decision-making process to identify a Preferred Route for the new transmission line from St. Vital Station to Letellier Station.

7.3.2 Public Engagement Information Evaluation

Public Engagement inputs to the evaluation of each of the Alternate Route Segments blended information related to issues and concerns/constraints and opportunities, and preferences, which were obtained from Key Person Interview summaries, Stakeholder Workshop mapping exercises, Public Open House comment sheets, Public Open House mapping stations, and meetings, emails and telephone calls.

7.3.2.1 Data Related to the Route Selection

Following a review of methodologies used in similar types of projects in Ontario and British Columbia, AECOM decided to use only those concerns and/or preferences that were explicitly indicated as applying to particular Alternative Route Segments, using all sources of stakeholder and public feedback. For each Alternative Route Segment, including additional segments proposed by Public Engagement participants, information was tabulated related to the following:

- Location, segment designation
- Issues and concerns, or constraints with number of participants and a High, Medium or Low ranking

Table 7.3 shows the overall data summary for each of the Alternative Route Segments, complete with relevant notes, including data sources.

7.3.2.2 Evaluation Approach

The following approach was used to address multiple variables in the Public Engagement data using a common approach or scale. The approach emphasizes the following:

- Overall numbers of positive or negative responses received for each Alternative Route Segment (preferences)
- Ranking scale, or the importance of the issues and concerns identified, sorting for larger and/or more strategic concerns, with consideration of mitigation potential

7.3.2.3 Ranking Scale

The cumulative ranking was based on a scale of 1 to 3, from best to worst as summarized in Table 7.1.

Table 7.1: Ranking Scale

Rank	Criteria
1	<p>Positive Congruence</p> <ul style="list-style-type: none"> Majority of stakeholder and public responses regarding the route segment were positive, indicating a preference for the route Few concerns expressed, and only at a local (e.g. individual property) level Concerns are easily mitigated.
2	<p>Mixed Perspectives</p> <ul style="list-style-type: none"> Mixed perspectives about the route segment, with a number of concerns at the local level, or Small number of concerns expressed that relate to large or medium scale issues Concerns identified can be mitigated without major difficulty or cost.
3	<p>Multiple Concerns</p> <ul style="list-style-type: none"> Majority of responses were concerns, with a large number of local or medium scale issues expressed, or One or more major, strategic concerns were expressed Concerns identified are difficult to mitigate without substantial difficulty and cost.

7.3.2.4 Issues and Concerns, Constraints, and Mitigation Factors

Open House and Workshop participants had various ideas as to what constituted significant issues and concerns, or constraints related to transmission line locations. Few participants explicitly ranked issues and concerns as Low, Medium and High. Table 7.2 was developed to assist in ranking route issues and concerns, or constraints by Alternative Route Segment based on stakeholder and public comments.

Table 7.2: Issues and Concerns, Constraints and Mitigation – Round 1

Level of Concern	Number	Issues and Concerns	Mitigation
HIGH Costly relocation or avoidance is primary mitigation	1	Close proximity to a subdivision, or cluster of three or more residences	Avoid/minimize alignments near residential development Maintain distance of 100m from such development
	2	Close proximity to livestock operations; tingle voltage concerns	Avoid /minimize extent of alignments near dairy farms Maintain distance of 100m from dairy farms
	3	Aerial applicator landing strip location	Avoid aerial applicator landing strips by at least one mile
	4	Other constraints <ul style="list-style-type: none"> Cemetery Coulee 100 feet deep Tourond Discovery Centre on PTH 52 Hutterite Colony 	Avoid features
	5	First Nation Reserve and Land Claim areas	Avoid
MEDIUM	1	Desire for “clean acres”, for agricultural operations; do not locate on half-mile lines, or split one farmer’s lands; aerial spraying concerns	Minimize transmission lines in areas of aerial application Avoid transmission line alignments on

Level of Concern	Number	Issues and Concerns	Mitigation
Avoid if possible; mitigation, including relocation, is less costly			Quarter- section/half-mile lines
	2	Close proximity to a residence; human health concerns / EMF; humming noise	Avoid or relocate residence Minimize lengths of lines in proximity
	3	Farmstead locations	Avoid or relocate farmsteads Minimize lengths of lines in proximity
	4	Many corners (in route segments), more land impacted	Avoid right-angle turns in lines
	5	Municipal infrastructure locations, including landfills and lagoons	Avoid landfills and lagoons
	6	Flood zone concerns re: residential relocation	Avoid need for residential relocations
	7	Prime agricultural land taken out of production; loss of land value	Minimize footprint of transmission lines on agricultural land
	8	Manure management considerations; Manure application	Avoid areas with manure spreading Minimize locations in manure management areas
	9	Impact on native plant species and habitat, including wetlands	Avoid ecological and protected areas Minimize alignments in native grassland areas
	10	Maintain 100 m buffer from watercourses (Big drain/ Seine River)	Minimize water crossings
	11	MIT rights-of-way may be constrained by roads and utility expansion plans	Avoid or minimize lines along PTH 75 MIT to complete functional study of PTH 59 and 52 Minimum paralleling of existing Provincial Roads and Highways
	12	Century farms and historic sites	Avoid
LOW	1	Loss of shelterbelts and tree lines	Minimize locations impacting shelterbelts
Avoid if possible	2	Impacts on waterfowl	Use bird diverters in specific areas; provide more clearance to the line Avoid east-west alignment of towers
	3	Concerns about views and aesthetics	Locate lines to minimize exposure
	4	Transmission line alignment should be in a straight line/ parallel rights-of-way	Parallel linear infrastructure alignments Minimize turns
	5	Concerns with highway crossings	Minimize highway crossings
	6	Noxious weeds/invasive species in transmission line right-of-way; bio-security issues	Follow Noxious Weeds Act for control of weeds
	7	Don't want to cross River Lots	Minimize occurrences, or avoid
	8	GPS impacts, affects farm practices	Avoid if possible
		Other <ul style="list-style-type: none"> • Located across from a grain elevator • Existing services in ROW • Future subdivision • Future landfill <ul style="list-style-type: none"> ○ Potential municipal lagoon 	Avoid if possible

Mitigation potential was used as a consideration for sorting concerns with major, strategic significance from others. Mitigation approaches included avoidance, relocation, or engineering and environmental changes or interventions related to the line or environment. Compensation was also considered mitigation.

7.3.2.5 Opportunities/Benefits

A final metric, used to offset local or medium level issues and concerns, was whether the route provided benefits to the surrounding community, over and above improved capacity and reliability of electric power supply. This was indicated by negative numbers shown in Table 7.3.

Benefits identified included:

- Potential bike path or trail (such as the Trans Canada Trail, Crow Wing Trail)
- Reduced footprint on agricultural land due to co-location with Municipal or Provincial Roads, or Highways
- Proximity to wind turbines to pick up power

7.3.2.6 Ranking Alternative Route Segments

For some of the Alternative Route Segments there was a good correspondence between the different data sources, providing either a strong positive or negative ranking; for others there was minimal correspondence.

7.3.3 Proposed Realignments - Round 1

As indicated in Table 7.3, some of the realignments proposed in the Open Houses and Workshops were considered by Manitoba Hydro as part of the route evaluation process. Segments of the routes that were proposed by Workshop participants and/or members of the public were not scored as they had not been presented in a public forum for feedback.

7.3.4 Cumulative Rankings

Table 7.3 provides a summary of rankings from various stakeholder and public engagement venues, which were then given a cumulative ranking of 1, 2 or 3 (best to worst). Cumulative rankings were based on consideration of both the numbers and levels of issues and concerns identified in various PEP activities.

Thresholds were set as follows:

- | | | |
|----------------------------------|--------------------|-----|
| • High level concerns | 2 or more concerns | = 3 |
| • High and Medium level concerns | 1 + 5 concerns | = 3 |
| • High and Low level concerns | 1 + 10 concerns | = 3 |
| • High and Medium level concerns | 1 + 4 concerns | = 2 |
| • High and Low level concerns | 1 + 9 concerns | = 2 |
| • High level concern | 1 | = 2 |
| • Medium level concerns | 2 to 5 concerns | = 2 |
| • Medium and Low level concerns | 1 + 5 concerns | = 2 |
| • Low level concerns | 20 concerns | = 2 |
| • Medium level concerns | 1 | = 1 |
| • Low level concerns | 1 to 19 | = 1 |

Table 7.3: Route Segment Rankings

Route Segment (Photo Science ID)	Workshop Dot Score (+ and -)	Workshop Selection (Out of 7 teams)	Workshop Concern Level	Open House Mapping - Indicated as Preferred	Mapping Concern Level and Number of Comments	Open House Comment Sheets, Number of Comments	Open House Concern Level Comment Sheets	KPI Location Specific Data and Level of Concern	Email and Tele-phone/ Meetings Number of Comments	Email and Telephone Concern Level	Cumulative Ranking (1 to 3)	Comments
N-1 (1)	+1	6	Low - waterfowl	0	Low – aesthetics (tower spacing)	1	Low – aesthetics	Med - Seine River, flood Low – aesthetics (Sage Creek) Seine River, flood			1	Fixed alignment
N-2 (77)	-12	1	High – rural residential & dairy Med – more turns & clear for agriculture & flood	7	Total = 16 High – hot air balloon landing Med – residences & health (EMF) & water crossing & clear agriculture Low – aesthetics			Med – Seine River/Manning Canal/Youville Drain, flood Low – ecotourism Ile des Chenes			3	Use N-3
N-3 (2) (71)	-3	4	Low – highway crossings & future residential / landfill	2	Total = 11 Med. – residence & health (EMF) Low – straight line & future subdivision/ lagoon expansion			High – airstrip off Leclare Road Med – Youville Drain, land west of PTH 59, flood Low- Ile des Chenes Lagoon expansion, ecotourism - Ile des Chenes			2	Med. level concerns; many negative comments; preferred by most (70%) Workshop teams
N-4 (73) (74) (76)	+4	2	Low - waterfowl	0	Total = 8 Med – clear agriculture & farmstead			Med – Manning Canal, flood			2	
N-4-1 (75)				1							?	
N-5 (66) (69)	+1	2	Med – flood prone	0	Total = 5 High – residential cluster Low – aesthetics						2	Proposed UG line; Use N-6 to N-9
N-6 (4) (72)	-1	1	High – residential Low – future residential	7	Total = 7 Preferred alignment						2	
N-6-1 (3)	+1		Low – future residential								?	
N-7 (70)	-5	2	High – large livestock operation & Discovery Centre & cemetery Med – sensitive	11	Total = 9 High - Tourond Discovery Centre Med – clear agriculture (manure management)	1	High- Tourond Discovery Centre				3	Discovery Centre; Preferred by majority of teams

Route Segment (Photo Science ID)	Workshop Dot Score (+ and -)	Workshop Selection (Out of 7 teams)	Workshop Concern Level	Open House Mapping - Indicated as Preferred	Mapping Concern Level and Number of Comments	Open House Comment Sheets, Number of Comments	Open House Concern Level Comment Sheets	KPI Location Specific Data and Level of Concern	Email and Tele-phone/ Meetings Number of Comments	Email and Telephone Concern Level	Cumulative Ranking (1 to 3)	Comments
			wetland & MIT ROW									
N-7-1	-1										?	Go around landfill
N-8 (67)	-1	0	High – substantial development & cemetery Med – clear acres (not half mile) & livestock & turns Low – highway crossing	0	Total = 7 Med – clean acres & farmstead Low - shelterbelt	3	High - livestock Low – shelterbelt				2	Less direct than N-7
N-8-1				1							?	
N-9 (5) (6)	0	2	High – livestock Low – waterfowl Med – future highway plans	9	Total = 17 High –livestock & Suncrest Colony Med –farmstead Low -shelterbelt	5	High - livestock Med - residence				2	Effects on electric fences noted Values of the people farming are impacted
N-9-1	+2		High – livestock								?	
N-9-2 (64)											?	
N-9-3	+2										?	
N-10 (65) (68)	+3	4	High – livestock & airstrip Med – lagoon Low – river lots	10	Total = 6 High – livestock (dairy) Med –lagoon & health concerns & clean acres	2	High – livestock (tingle voltage) Med – clear agriculture				3	Preferred by majority of teams
N-11 (7) (55) (57)	+8	5	High – dairy farms Med – Century farms & habitat Low – water crossings	0	Total = 18 High – livestock (hog and dairy) & residential cluster Med – health concerns & clean acres Low – water crossing	1	High- livestock (tingle voltage)	Med – habitat , fishing - Joubert Creek Low - eco-tourism – Crow Wing/Trans Canada Trail. St. Pierre Jolys			3	Preferred by majority of teams BUT major issues
N-11-1 (9) (56)	+6			9							?	
N-11-2				6							?	
N-11-4 (8)				1							?	
N-11-6 (60)											?	
S-1 (10) (53) (58)	-2	4	High – livestock & airstrip proximity Med – stream crossings & habitat	0	Total = 10 High – livestock & airstrip Med – landfill & clear agriculture	3	High – residential cluster, livestock (tingle voltage)	Med – vegetation , habitat , fishing - Rat River and Joubert Creek Low - Eco-tourism – Crow	3	High – residential cluster (7 houses) & airstrip by PTH 59	3	

Route Segment (Photo Science ID)	Workshop Dot Score (+ and -)	Workshop Selection (Out of 7 teams)	Workshop Concern Level	Open House Mapping - Indicated as Preferred	Mapping Concern Level and Number of Comments	Open House Comment Sheets, Number of Comments	Open House Concern Level Comment Sheets	KPI Location Specific Data and Level of Concern	Email and Tele-phone/ Meetings Number of Comments	Email and Telephone Concern Level	Cumulative Ranking (1 to 3)	Comments
								Wing/Trans Canada Trail, Rat River				
S-1-1	-8		MIT preferred								?	
S-2 (59) (61) (62)	+2	4	High – livestock Med – stream crossings & habitat Low – highway crossing	6	Total = 7 High - livestock Med – stream crossing & home	3	High –, livestock (tingle voltage) Med - residence	Med – vegetation habitat , fishing - Rat River and Joubert Creek Low - eco-tourism – Crow Wing/Trans, Canada Trail, Rat River			3	Preferred by majority of teams
S-3 (46) (54)	+3	5	Med –stream crossings	0	Total = 7 Med – proximity to residential & clean acres	2	High – residential cluster	Med – vegetation habitat , fishing - Rat River Low – ecotourism Rat River & waterfowl, Dufrost			3	Preferred by all but one team
S-3-1 (12) (40)				1							?	
S-3-2 (13)												
S-3-3 (63)				1							?	
S-3-6 (11)												
S-4 (48) (49)	+3	6	Med - clean acres	0	0			St. Malo Area – ecotourism & vegetation & habitat , sport fishing Low – waterfowl, Dufrost	1	Med – clear agriculture	1	Preferred by majority of teams
S-5 (50)	-1	4	High – livestock & proximity to Dufrost	0	0			Low – waterfowl, Dufrost			3	
S-6 (41) (47)	-	0	High -livestock Med – parallel PTH	0	Total = 3 High – proximity to Dufrost Med – clean acres	1	Med - agriculture				2	No teams preferred this segment

Route Segment (Photo Science ID)	Workshop Dot Score (+ and -)	Workshop Selection (Out of 7 teams)	Workshop Concern Level	Open House Mapping - Indicated as Preferred	Mapping Concern Level and Number of Comments	Open House Comment Sheets, Number of Comments	Open House Concern Level Comment Sheets	KPI Location Specific Data and Level of Concern	Email and Tele-phone/ Meetings Number of Comments	Email and Telephone Concern Level	Cumulative Ranking (1 to 3)	Comments
S-7 (14) (17) (33) (34) (35) (42)	-6	2	High – aerial applicator Med – parallel PTH & river crossing	3	Total – 5 Med – proximity to residence & flood prone			Med – vegetation and wildlife & waterfowl and raptors, Red River & habitat, sport fishing – Marsh River & flooding Low - ecotourism St. Jean Baptiste , Arnaud	2	Med – clear agriculture Low – future lagoon	2	Airstrip glide path is major concern
S-7-1 (16)	+1										?	
S-7-2 (15) (25) (32)												
S-8 (24) (26) (37) (44) (51)	0	1	High – aerial applicator Med – clean acres & turns & river crossing Low – river lots	0	Total = 16 High – aerial applicator Med – clean acres & flood prone Low – use road allowance & south side wet	1	Med - agriculture	Med – vegetation and wildlife & waterfowl and raptors, Red River & vegetation, habitat , fishing - Rosseau River and Rosseau River First Nation and Carlowrie & habitat & fishing – Marsh River Low – ecotourism, Rosseau River, Rosseau River FN, Arnaud	1	High – airstrip	3	Airstrip glide path is major concern
S-8-1	+7			2						9	?	
S-8-2 (19) (22) (28) (30) (36) (38) (39)	+4			2							?	
S-8-3 (43) (45)				3							?	

Route Segment (Photo Science ID)	Workshop Dot Score (+ and -)	Workshop Selection (Out of 7 teams)	Workshop Concern Level	Open House Mapping - Indicated as Preferred	Mapping Concern Level and Number of Comments	Open House Comment Sheets, Number of Comments	Open House Concern Level Comment Sheets	KPI Location Specific Data and Level of Concern	Email and Tele-phone/ Meetings Number of Comments	Email and Telephone Concern Level	Cumulative Ranking (1 to 3)	Comments
S-8- (27) (29)				1							?	
S-8-5 (23) (31) (52)												
S-9 (18) (20) (21)	-2	5	Med – clean acres	0	Total = 1 Med – clean acres / grain elevator			Med – vegetation, Red River / vegetation habitat , fishing - Rosseau River FN & flooding Low – ecotourism, Rosseau River FN			1	Preferred by majority of teams
S-10 NEW	NR	1	Med – river crossing								?	

8 Environmental and Socio-economic Interests, and Routing Preferences

8.1 Profiles of Participants

Participants in Key Person Interviews (35), Stakeholder Workshops (29) and Public Open Houses (125, Round 1, and 148 Round 2) totalled 337 people, although some may have attended more than one event/activity (e.g. KPI and Workshop, or Workshop and Open House). In addition, newspaper advertising, newsletters and other advertising, as well as the Manitoba Hydro Website reached thousands more people to inform them about the project. A further 55 communications (calls and emails) occurred although many were from participants in one of more other stakeholder and public engagement opportunities. Manitoba Hydro also met with six RM Councils, a Landowner and MAFRI representative.

8.2 Perceived General Effects of Transmission Complex Construction and Operation

8.2.1 Agricultural

The greatest number of concerns about the transmission line were related to agriculture. Many comments included discussion of adverse effects of transmission towers and lines on agricultural operations, including:

- Aerial spraying of crops
- Operating farm equipment around towers
- Manure spreading
- Loss of valuable land for production
- Impacts on livestock, particularly dairy cattle
- Impacts on GPS units used in farming

8.2.2 Built Environment

Key impacts on the built environment related to rural residential clusters, as opposed to individual houses or farmsteads, although concerns were expressed regarding individual properties. Concerns included:

- Aesthetics of towers close to rural residential development
- Proximity to future residential development areas
- Difficult in flood prone areas to relocate residences due to the cost of building up land to flood protection elevations
- Proximity to landfills and lagoons
- Proximity to cemeteries
- Maintain developed walkways and trails under transmission lines (concern about their removal in construction of new lines)

8.2.3 Health – EMF

Health concerns were centred on potential EMF issues.

There was concern about tingle voltage impacts on farm animals, particularly dairy cattle. Also of concern were horses and hogs.

One informant was concerned about EMF effects on their partner's brain implant.

8.2.4 Natural Environment

There was concern about the impact of the project on a range of environmental assets, including:

- Natural areas, such as native prairie and wetlands
- Riparian zones; suggested buffers of 100 m
- Birds, including notes about impacts on wildfowl staging
- Endangered species
- Shelterbelts

8.2.5 Heritage

Heritage issues were discussed but did not appear to be of significant concern. The Winnipeg Ridge was noted as a potential archaeological zone, and heritage farms were mentioned.

8.2.6 Socio-economic

City, Municipal and Business and Industry stakeholders, in particular, noted the beneficial effects of a more secure power supply on their operations, and growth.

The ability to pick up power from existing and proposed Wind Farms was viewed positively.

Concerns were expressed by individuals about compensation and reduction in property values as a result of the transmission line.

8.3 Issues Related to Alternative Routes

8.3.1 Major Constraints for Alternative Routes

One of the most important routing considerations was related to aerial applicator's landing strips, although general concerns were expressed about aerial spraying in proximity to electric power infrastructure. Glide paths for landing strips as well as the fields themselves were noted as very important constraints to consider. Other significant route location concerns related to the presence of sewage lagoons, campground, cemetery and landfills as well locations of residences, and commercial and industrial land uses.

8.3.2 Preferred Alternative Route – Round 1

8.3.2.1 Workshops

The Workshops identified a Preferred Alternative Route

8.3.2.2 Open House, Email and Telephone Input

Implied preferences, based on the least constraints identified during open houses, email and telephone conversations were identified.

8.3.3 Proposed Alterations to Alternative Routes – Round 1

A number of proposed alterations to the Alternative Routes were suggested by Workshop participants and Open House attendees. Table 8.1 provides a summary of the 30 proposed adjustments selected in

Workshop teams' Preferred Routes, or suggested by Open House participants, and in emails and telephone calls. The table also provides Manitoba Hydro's comments indicating their consideration of the proposed alterations.

Table 8.1: Proposed Alterations to Alternative Routes

Segment ID-Adjustment ID	Source	Adjustment Consideration	Manitoba Hydro Response	Outcome
N2-1	Open House	Follow existing transmission corridor	Diagonal routing will be a hindrance to aerial spraying, and requires a jog back and extra angle tower at additional expense.	Not to be included in Alternative Route evaluation
N4-1	Open House	Jog out around house		To be considered
N4-2	Open House	Follow Manning Canal longer east and take East route	Diagonal routing will be a hindrance to aerial spraying, and requires a jog back and extra angle tower at additional expense.	Not to be included in Alternative Route evaluation
N6-1	Workshop	Avoid major road crossings, avoid crossing PTH 59 and PR 210 junction		To be considered
N7-1	Workshop	Avoid landfill	To avoid landfill, would be a final design adjustment, additional statistics not needed at this point.	Not to be included in Alternative Route evaluation
N9-1	Workshop	Avoid wetland and stream crossings	Too close to Bipole III route and N9-2 accomplishes same end of connecting N9 to N10	Not to be included in Alternative Route evaluation
N9-2	Workshop	Avoid ecological areas, avoid multiple stream crossings		To be considered
N11-1	Open House	Avoid tributary, increases separation distance to dairy operation, avoids residences		To be considered
N11-1	Open House	Realignment supported by another Open House attendee		To be considered
N11-1	Open House	Realignment supported by another Open House attendee		To be considered
N11-2	Open House	Avoid hog barn location and area landowner is cropping		To be considered
N-11-3	Open House	Avoid houses and a dairy	Travelling south from crossover of S2, no net benefit, crosses directly in front of too many homes	Not to be included in Alternative Route evaluation
N11-4	Open House	Preference to keep on east side of Plot 11, minimize impact on open field		To be considered
N11-5	Workshop	Avoid 2 dairy farms and tie into Trans Canada Trail		To be considered
N11-6	Workshop	Tie into Trans Canada Trail		To be considered
S3-1	Open House	Passing too close to, go down the 1/2 mile line on to next road allowance		To be considered
S3-2	Open House	Preferred realignment, avoid valuable land and aerial application		To be considered
S3-3	Open House	Alternative realignment, avoid valuable land and aerial application		To be considered
S3-4	Workshop	Minimize impacts on agriculture and maximize use of ROW/transportation corridors; straight routes preferred. Intent is to parallel road and drain and maintain straight alignment.	Segment between S2 travelling south through La Rochelle area to N11-3 should be eliminated as it travels through a more densely populated area with a large number of homes	Part of alteration noted not to be included in Alternative Route evaluation
S3-5	Workshop	Intent is to avoid landing strip north of the Roseau River Reserve, as well as prime agricultural land.	Cannot cross Federal Land (Roseau River First Nation)	Not to be included in Alternative Route evaluation
S3-6	Workshop	Better stream crossing point		To be considered
S7-1	Workshop	Intent is to avoid landing strip north of Roseau River Reserve.		To be considered
S7-2	Workshop	Avoid aerial applicator glide path.		To be considered
S8-1	Open House	No major roads, no homes, less jogs, straight away, access is better.	Requires modification to travel west as far as the existing transmission line to Letellier, then parallel into station	To be considered with noted adjustment
S8-2	Open House	Follow rail, no homes, dyke, clear.		To be considered
S8-3	Open House	Line crosses in front of residence, would prefer not straight, has railway trail, why not parallel railway ROW, understands no one wants and shifting impacts to others		To be considered
S8-3	Open House	Realignment supported by another Open House attendee. Avoids homes and yards, a mile is good, also avoids a provincial drain called Arnott Drain.		To be considered
S8-4	Open House	Crossing, area prone to flood, stick to mile roads, coulee is 100' deep, low point of valley, operates as a whole, low part of valley.		To be considered
S8-5	Workshop	Avoid prime agricultural land and aerial applicator landing strip - glide path. Push alignment more into the marginal lands.		To be considered
S8-6	Workshop	Note that south access to Letellier Station is feasible, avoid PTH 75 route.		To be considered

Manitoba Hydro to review, no identifier for photo science, what is outcome?

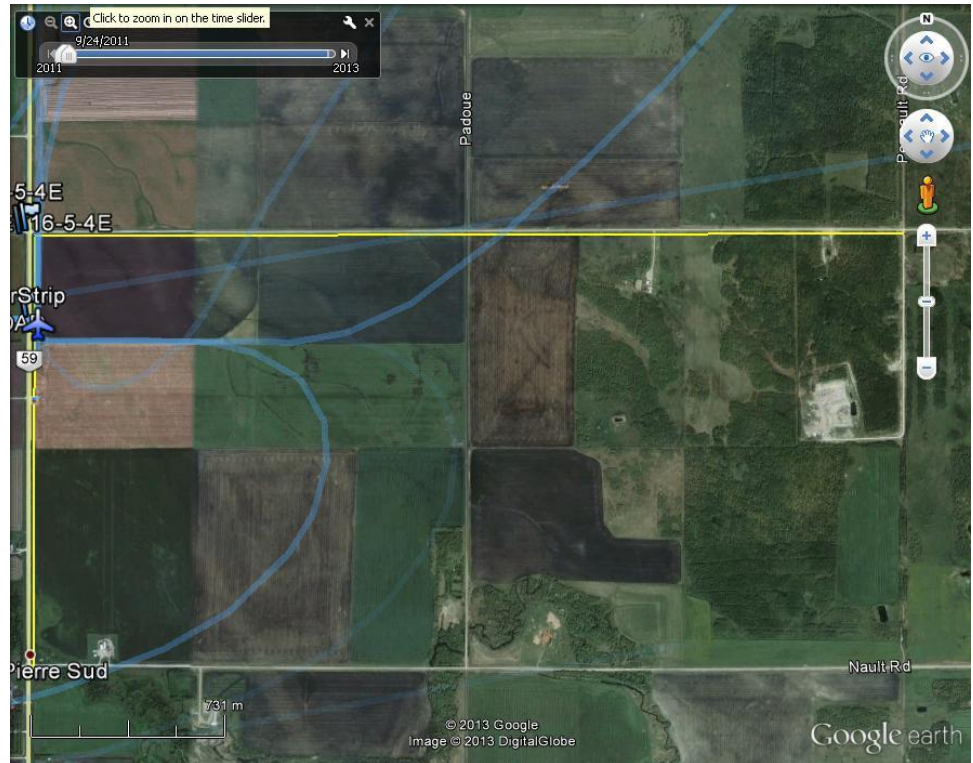


Figure 8.1: Preferred Route, October 2013

8.3.3.1 Example of Route Alteration

Based on the input received and summarized in Table 8.1, Manitoba Hydro evaluated potential route alterations and alternatives where a feasible alternative was identifiable. As an example, a constraint was identified for a segment near an airstrip just east of PTH 59 to Padoue Road and north of Nault Road, on Section 16-5-4E, (air strip is shown as the faint cross lines on the upper left side of the Google Earth view in Figure 8.1).

Table 8.2 and Figures 8.2-8.4 illustrate three alternatives considered by Manitoba Hydro in addressing the airstrip concern. The table considers airstrip function, cost (corner structures) and number of acres of agricultural land impacted by the transmission line.

Table 8.2: Example of Route Relocation

	Kilometres over Agricultural Land	Aerial Treatable Acres Sec15-5-4E	Corner Structures	Useable Airstrip
Round 1 Preferred Route Segment	3.658 Km	160 Acres	3	No
Alternate One	2.539 Km	320 Acres	3	Yes
Alternate Two	1.215 Km	640 Acres	3	Yes
Alternate Three	2.466 Km	640 Acres	1	Yes

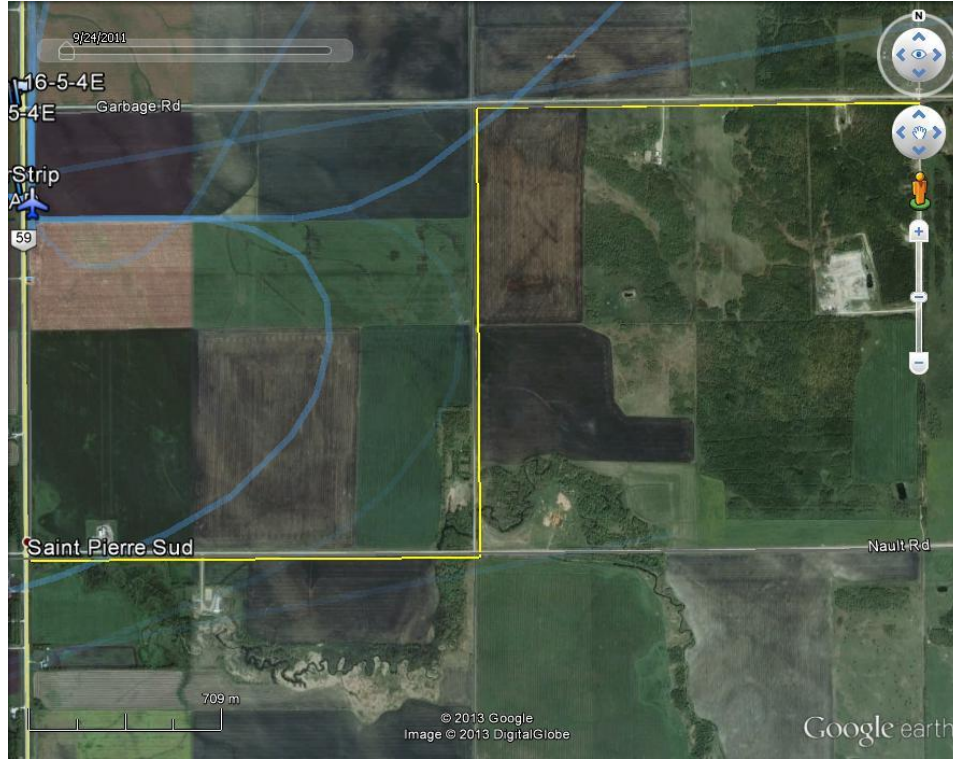


Figure 8.2: Alternative 1 – Follow Padoue Road Right-of-Way

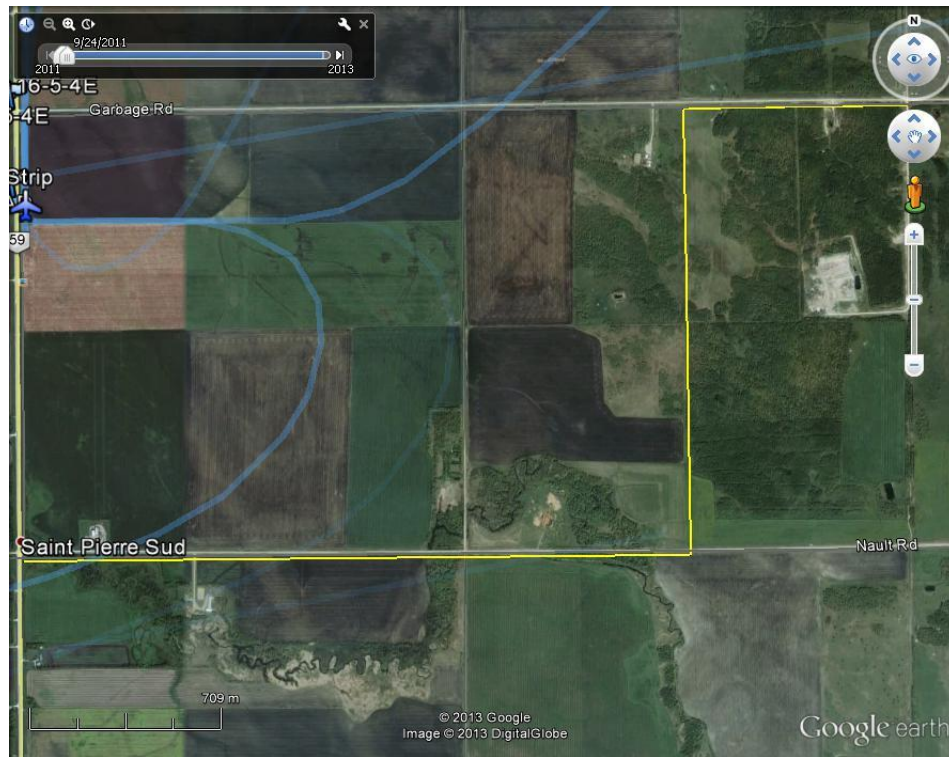


Figure 8.3: Alternative 2 – Follow Half-Mile

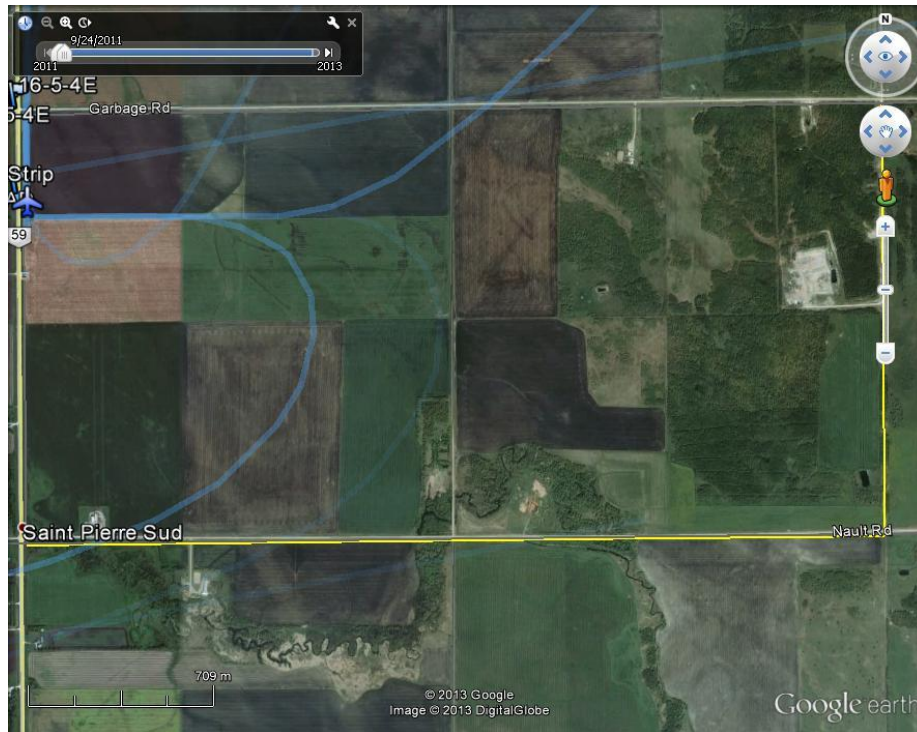


Figure 8.4: Alternative 3 – Mile Further East Relocation

8.4 Mitigation Measures and Management Strategies

8.4.1 Interests and Mitigation

Mitigation strategies proposed by KPI and Workshop participants, and Open House attendees typically emphasized avoidance.

Key notes were as follows:

- Minimize footprint on agricultural land through co-location with provincial and municipal rights-of-way
- Reclamation with native species
- Use bird diverters in specific areas, establish clear space further from the line
- Avoid east-west alignment of towers wherever possible
- Avoid dairy farm locations
- Early inclusion of all stakeholders, and open communication with Trails Association
- Avoid residential development, and designated and zoned residential areas
- Avoid PTHs, and complete functional studies of PTH 59 and 52
- Follow Noxious Weeds Act for control of weeds.

Other approaches suggested included putting lines underground in areas where there would be significant issues with views or aerial applicators.

9 Public Open Houses – Round 2

9.1 Purpose

The Round 2 Public Open Houses were intended to provide the general public, landowners and stakeholders with the opportunity to review the Preferred Route developed following Round 1 stakeholder and public engagement.

9.2 Preferred Route

As noted earlier, the Preferred Route was developed through consideration of a number of variables including Community, which emphasized inputs from the Public Engagement Program.

A number of adjustments, and completely new route segments were proposed in the Round 1 PEP. In the south part of the route, in particular, these provided a new alignment for the Preferred Route, on an alignment different from any of the Round 1 Alternative Route Segments, which avoided some significant concerns related to an aerial applicator airstrip, agricultural operations and residences.

9.3 Methodology

The Round 2 Public Engagement Program included discussions with key parties, including landowners, First Nations, the Manitoba Métis Federation, municipalities and other stakeholders, as well as interested members of the public. The input and perspectives heard during Round 1 helped Manitoba Hydro understand issues and concerns throughout south central Manitoba, and assisted Manitoba Hydro in identifying a Final Preferred Route for the transmission line from the St. Vital Station to Letellier Station.

The Preferred Route presented in the Round 2 public engagement, incorporated a new alternative route alignment south of Grunthal. Brought forward by local residents and stakeholder groups during Round 1, this route minimized impacts on aerial application in the corridor area and utilized what was considered to be more marginal land, as opposed to prime agricultural land.

Manitoba Hydro sought input on the Preferred Route in Round 2 of public engagement. Information obtained from people attending the four Public Open Houses or emailing and telephoning Manitoba Hydro during this round assisted in the identification of a Final Preferred Route balancing technical, biophysical, financial, scheduling and socio-economic considerations.

9.3.1 Advertising

9.3.1.1 *Newspaper and Newsletter Advertising*

Manitoba Hydro produced a four page newsletter describing the Proposed St. Vital Transmission Complex (Appendix D1), as well as the Preferred Route, Environmental Assessment Process, and Engagement Process, and provided a description of the Preferred Route and the Southern Loop Transmission Corridor. The newsletter was broadly distributed.

Newspaper advertising for Round 2 Public Open Houses was printed in the Winnipeg Free Press, Saturday, October 26, 2013, two weekends before the events. A copy of the advertisement is included in Appendix D5.

Other newspapers advertising Round 2 Public Open Houses included:

- | | |
|--|------------------|
| • Canstar Weeklies (5 papers) | October 23, 2013 |
| • <u>La Liberte</u> | October 23, 2013 |
| • <u>Manitoba Co-operator</u> | October 24, 2013 |
| • <u>Steinbach Carillon News</u> (Steinbach/Morris) | October 24, 2013 |
| • <u>Altona Red River Valley Echo</u> (Letellier/Morris) | October 24, 2013 |
| • <u>Carman Valley Leader</u> (Morris) | October 24, 2013 |
| • <u>Headingly Headliner</u> | October 25, 2013 |
| • <u>Emerson Southeast Journal</u> | October 26, 2013 |

9.2.1.2 Postcards

Manitoba Hydro also produced postcards informing people of the Public Open House events. These were sent to over 8360 addresses. A copy of the postcard is provided in Appendix D.

9.2.1.3 Landowner Letters

Local landowners were notified by direct mail of upcoming Public Open House events. A total of 93 letters were sent out by Manitoba Hydro to potentially affected landowners; however, a number of letters were undeliverable and were returned to Manitoba Hydro. A copy of the landowner letter is provided in Appendix D5.

9.2.2 Comparison of How Respondents Received Notification for Rounds 1 and 2

Respondents, who returned completed Comment Sheets at or following the Round 2 Public Open House events, indicated how they received notification of the events. The following compares Rounds 1 and 2.

Round 1 (total of 125 Open House attendees)

- | | |
|-----------------|----------------|
| • Letter | 22 respondents |
| • Postcard | 14 |
| • Newspaper | 11 |
| • Word of Mouth | 9 |
| • Other | 5 |

Round 2 (total of 148 Open House attendees)

- | | |
|-----------------|----------------|
| • Letter | 19 respondents |
| • Newspaper | 13 |
| • Word of Mouth | 13 |
| • Postcard | 4 |
| • Other | 4 |
| • Website | 4 |
- (including direct mail, Sage Creek Residents' Association, RM of Ritchot Council and walking by)

Only 11 respondents in Phase 2 had previously attended a Public Open House for the St. Vital Transmission Complex.

9.3.2 Locations – Round 2

9.3.2.1 Venues and Times

Round 2 Public Open Houses were held the week of November 4th, 2013. Venues were as follows:

- November 4 Dominion City Community Hall, 4:00pm to 8:00pm
- November 5 Cabane au Sucre, St. Pierre Jolys, 4:00pm to 8:00pm,
- November 6 Trans Canada Centre, Ile des Chenes, 4:00pm to 8:00pm
- November 7 Winakwa Community Centre (Main Hall) , 4:00pm to 8:00pm

9.3.3 Open House Process – Round 2

9.3.3.1 Storyboards/Stations

Similar to Round 1 Public Open Houses, Open House venues were organized in stations to present information and to provide opportunities for different kinds of public feedback about the project.

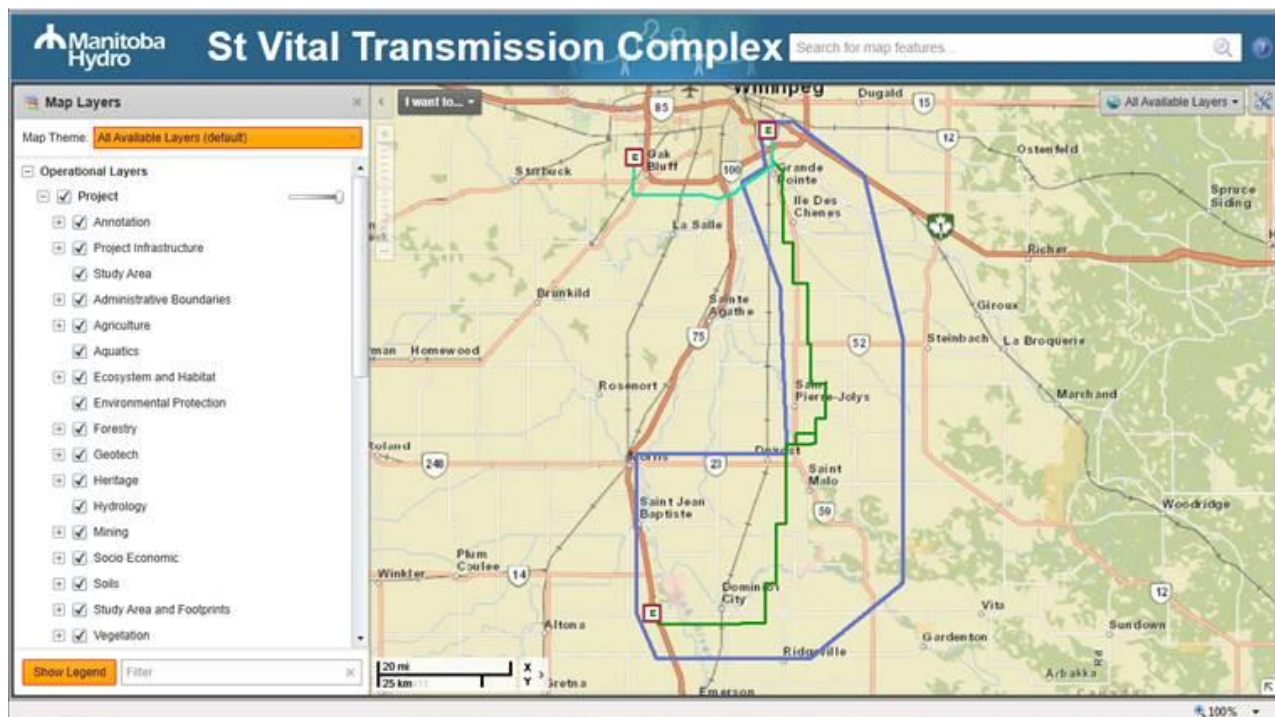
9.3.3.2 Open House Comment Sheets

Comment Sheets for the Round 2 Public Open House events included questions related to the Preferred Route. Comment Sheets for the Round 2 Open Houses are found in Appendix D7.

9.3.3.3 Landowner Information Centres

Landowner Information Centres (LICs) were set up within the Public Open House venues to address specific issues and concerns of local landowners and others.

LIC provided map information and data forms, which allowed landowners to document specific concerns and constraints.



LIC Forms are found in Appendix D 9.

The LICs were well attended and over 55 people provided detailed comments and locational information related to the Preferred Route.

9.4 Summary of Open House Results – Round 2

Round 2 Open House Comment Sheets were analyzed using Survey Monkey. The report in Appendix D8 summarizes the 57 Comment Sheets returned to AECOM by December 12, 2013.

9.4.1 Survey Monkey Analysis of Comment Sheets

Of the 57 people who had submitted Comment Sheets by Dec. 12, 2013, nineteen said they had heard about the Round 2 Public Open Houses by letter, and 13, each, by newspaper and word of mouth; 4 received a post card. And 4 learned about the Open Houses on the Manitoba Hydro website.

Only 11 respondents out of 53 (who answered the question) had previously attended a Manitoba Hydro Open House event for this project.

Table 9.1: Open House Comment Forms Received

Date of Event	Number of Comment Forms Completed
November 4, 2013	4
November 5, 2013	11
November 6, 2013	10
November 7, 2013	7
November 13, 2013	1
November 20, 2013	1
November 21, 2013	1
November 22, 2013	2
November 25, 2013	1
November 28, 2013	1
December 09, 2013	14
December 10, 2013	3
December 11, 2013	1
Total	57

9.4.1.1 Alternative routes

- The majority of respondents lived near an Alternative Route; 48 out of 55 said this.
- Attendees were asked what they thought of the Preferred Route; 19 respondents out of 53 (who answered the question) said that they either liked it or somewhat liked it, and 31 disliked or somewhat disliked it.

Attendees were asked to elaborate on their reasons for their responses; a summary is presented in Table 9.2.

Table 9.2: Opinions on the Preferred Route

Base=53

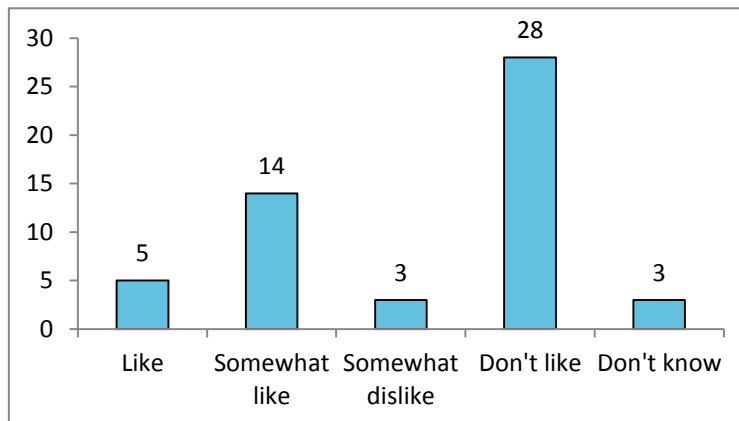
Opinion on the preferred route	Reasons
Like/Somewhat like	Good consideration of land uses
	Collaboration with wind farm projects in the area
	Maintains the Right of Way
	Avoids existing buildings and residential areas
	Avoids floodplains
	Fewer bends and turns
Somewhat dislike/Don't like	Loss of farmland
	Too close to residences
	Visual impacts
	Effects on agricultural practices
	Effects on land/property value
	Too many hydro lines in the area
	Not enough consultation on this route
	EMF Dangers

When asked if they had any concerns regarding the Preferred Route, 37 respondents said that they did while 16 said that they did not. All 28 respondents who said that they did not like the alternative route said that they had concerns about it. Principal concerns included:

- Effects on health;
- Effects on livestock;
- Encroaching on personal property;
- Loss of farmland;
- Effects on agricultural practices (e.g. aerial spraying);
- Aesthetic impacts; and
- Effects on property values.

Twenty three respondents said that they thought there were specific sites along the proposed route of which Manitoba Hydro should be aware. Common locations included individuals' property, Sage Creek, Seine River, agricultural lands and RM Ritchot Landfill.

Figure 9.1 – Opinions on the Preferred Route



9.4.1.2 Project Effects

Twenty-four respondents said that they had recommendations for Manitoba Hydro on minimizing/mitigating potential effects from the project. These included:

- Keep trails open during construction;
- Keep the line straight and high to avoid agricultural operations;
- Provide financial compensation to landowners for inconvenience;
- Use existing rights of way, keep it away from residences;
- Go around Sage Creek;
- Run cables underground; and
- Try to avoid disturbing the soils.

9.4.1.3 Opinions on Methodology

Attendees were asked what they thought of the methodology adopted for determining the Alternative Routes. Fourteen respondents said that it was very or somewhat appropriate while 22 respondents said that they did not know.

Of the nine respondents who said that the methodology was not appropriate, common reasons included a lack of consultation on the development of the proposed line, with one respondent calling the process “undemocratic”.

9.4.1.4 Overall Comments

Finally, respondents were offered the opportunity to provide some general comments on the project. Some of these responses are captured below.

- *“Very impressed with the information set-up...given a great deal of useful information. Thank you.”*
- *“I hope this will help with power black outs and surges.”*
- *“Much thought has gone into planning.”*
- *“Thank you for inviting public input!”*
- *“Please use right of ways as much as possible without going into people’s fields. You seem to be avoiding a lot of residences which is very appreciated.”*
- *“Despite having gone to two meetings during round one, we were ignored and our concerns were not met.”*
- *“Make the line big enough for tapping in wind farms.”*
- *“Landowner input will help direct the design of this project.”*
- *“I have no problem with 1 or 2 hydro lines in the corridor ...but there are plans for 5 hydro lines in the corridor going through the middle of my property. This does not seem fair because the sacrifice I will have to make, in terms of decreased property values, the intangible cost of having to look at them every day and the potential health risks associated with 5 lines instead of one or two, is far greater than anyone else has to make.”*
- *“We have beautiful, relatively untouched land in the Red River waterway area. Why do we continue to add these unsightly structures?”*
- *“I am very concerned about EMF dangers, migratory bird strikes on lines and decrease property values.”*
- *“It seems like project wasn’t presented to the community properly. [there will be] Negative effects on landscape with so many lines.”*

- *“We feel very disappointed in the non-disclosure of both MB Hydro and Qualico as to the possibility of this project and the ramifications to property owners.”*

9.4.1.5 Key word analysis

• EMF	– 8 mentions
• Houses(s)	- 13 mentions
• Home	– 10 mentions
• Property	– 24 mentions (including 12 mentions of property value)
• New subdivision	- 1 mention
• Lagoon	– 0 mentions
• Landfill	– 5 mentions
• Road	– 6 mentions (5 in addresses)
• Aerial applicator	– 0 mentions
• Aerial spraying	– 4 mentions
• Agricultural land	– 1 mention
• Airstrip	– 2 mentions
• Weeds/ managing weeds	- 1 mention
• Environmental Services)	- 3 mentions (2 as part of MidCanada Environmental Services)
• Hunting	– 0 mentions
• Impacts	- 9 mentions
• Alternative route	– 3 mentions
• Blind-sided	– 0 mentions
• Bury line	- 2 mentions
• Compensation payment(s)	– 4 mentions
• Concerned	– 8 mentions
• Expropriation	– 0 mentions
• Happy	– 1 mention (in a negative context)
• Underground lines	– 6 mentions
• Marginal land	– 1 mention
• Route adjustment /change	– 1 mention

9.4.2 Location Specific Information from Comment Sheets

Table 9.3 summarizes location specific data received in Public Open House Comment Sheets.

Principal concerns relate to the following:

- Proximity to residences and yard site, and EMF concerns
- Impact on good farmland
- Proximity to a hog barn
- Proximity to an airstrip
- Proximity to a private Class 1 landfill
- Impact of multiple (5) power lines

Table 9.3: Location Specific Information from Comment Sheets

Open House Location	Specific Location of Concern or Constraint	Concerns/Constraints Regarding the Preferred Route?	Notes on Specific Sites
St. Pierre Jolys	SE8-5-4E	Passes right beside our yard site.	Our yard! Our neighbour's yard at Hwy #59 & #26
St. Pierre Jolys	NE01-06-04E	Right on it. Clarity with concerns to which side of the road the line is actually on.	Being careful not to create new springs when setting poles.
St. Pierre Jolys	SE8-5-4E	It passes along residence, airstrip and good farming land.	
Ile des Chenes	Mid Canada Environmental Services Ltd. (RM of Ritchot landfill)	Cuts right through my licensed Class 1 landfill. My site goes 7 m below prairie to 7 m above prairie. Plus the height of excavators and triple-axle trucks with their boxes raised. There is currently a 25 foot fence right in line with the "Preferred Route."	MidCanada Environmental Services Ltd./ Green for Life; RM of Ritchot Landfill & soil treatment facility.
Ile des Chenes	Mile 22E (SW35-7-4E) and NW35-7-4E	Home-owner has a pacemaker and some medical people indicate this line could affect the pacemaker and is right next to our hog barn. Hog barn and house ID on scanned map.	Hog barn on NW35-7-4E
Ile des Chenes	Home on Cyril Place. SE-5-9-4	Located within 1/4 mile off the preferred route. Also close proximity to the RM landfill and also has water issues. Concerned with proximity to house, visual, effect on land value and previous experience with government saying there will be no effect and EMF.	
Ile des Chenes	32-8-4E	It crosses directly through my land; west of Ile des Chenes	
Ile des Chenes	Prefontaine Rd. E.	Line runs 34 m from their driveway	-
Winnipeg	Own property adjacent to it. Plan to live there in future Roll # 06000047100 between the Floodway and South Perimeter Highway	Plans for 5 hydro lines in the corridor going through the middle of my property. Plan to live there in the future. Too many Hydro lines in corridor from Sage Creek to Floodway. Decrease property value and an eye sore. Health issues because of 4 or 5 lines instead of 1? One or two lines are OK, but 3 or 4 are too many. This property has future development potential that will be diminished by additional Hydro lines in the corridor.	

9.4.3 Landowner Information Forms

Appendix D3 contains detailed information from the Open House Landowner Information Forms.

41 people attended Landowner Information Centres associated with the Round 2 Public Open Houses:

- Dominion City: 11
- St. Pierre Jolys: 20
- Ile des Chenes: 10

Questionnaire responses recorded on Landowner Information Forms were as follows.

- 90% of respondents (37) were owners of the properties in question; 7% (3) leased their land; one was not recorded.
- Land uses were predominantly Agriculture, 80% (33) and Pasture, 2% (1). Seven percent of respondents (3) identified their land use as Residential; 5% (2) said “Other”, including one with a runway and hanger, agricultural crops and a residence. Two were not recorded.
- Soy, canola and wheat were typical crops. A few respondents were also growing corn, oats, beans and/or alfalfa.
- 34% (14) of respondents had buildings on the properties in question, 63% did not, and one person was not recorded.
- Only 12% (5) of respondents did not use GPS in farming; one did not respond.
- 76% of respondents (31) said their crops were dependent on aerial application; 15% (6) said they were not, and four people did not respond, including those with Residential land uses.
- There were no Organically Certified operations identified.
- 24% of respondents (10) said they were operating livestock facilities on their properties, four people did not respond.
- 39% of respondents (16) said there was a residence on the parcel of land in question. Location information was recorded in sketches. Four people did not respond.
- 27% (11) had shelterbelts, trees, structures or retention ponds along the preferred right-of-way. Five people did not respond.
- 41% (17) were spreading manure on their property; four people did not respond.
- None of the respondents were using pivot irrigation; four people did not respond.
- 37% of respondents had other Manitoba Hydro infrastructure on their properties; five people did not respond to the question.
- 27% of respondents (11) had buried lines on their property; four people did not respond.
- 32% of respondents (13) said there was a rail line, access road or airstrip adjacent to or on their property; 8 people did not respond.
- Very few people responded to a question about whether they allowed hunting on their property, and all that did were negative.
- One identified a Century Farm.

Specific location information from the LIF is provided in Table 9.4.

Table 9.4: Data from Landowner Information Forms – Round 2

Open House Location	Location	Concern/Constraint
Dominion City	NW 8-3-4 E, SW 17-3-4E, NE 6-3-4E	SW17-34E - Avoid (span) cropped land. If possible, place structures in the bush or at road intersection. NW8-3-4E - Locate structure as close to the river as possible and as close to road allowance as possible. Avoid driveway at Quarter-section line. NE6-3-4E – Since the line will be on NW5-3-4E, no concerns. Concerned about weeds. Regarding one-time compensation: annual compensation is better because circumstances change (e.g. herbicides landowners are allowed to use, etc.).
Dominion City	NE 32-3-4 E, NW 32-3-4 E, SW 32-3-4 E	Minimize the number of structures on property.
Dominion City	NW9-2-2E	Place structures as close to road allowance as possible.
Dominion City	NE 18-2-4 E, NW 18-2-4 E, NE 13-2-3 E, SE 13-2-3 E, SW 13-2-3 E	The proposed alignment is outside the (original) corridor: process violated, not enough notice was provided. Existing utilities (gas) already have an impact on agricultural operations. EMF - Concerned about working under lines, health risks. Weed control is an annual activity. Preference to place line on south side of south Section. North/South portion: Need to place transmission line on the west side due to gas lines. Concerned about working around towers, safety. Aerial Application: Relies on applicators to provide. Prefer to have meetings with landowners present. Roads in area (PR 201, PR 200, PR 218) have restrictions in spring. PROPOSED REALIGNMENT NORTH OF ROAD 17E & TIE BACK IN
Dominion City	NW 32-2-4 E, NE 32-2-4 E NE 31-2-4 E	Prefers route on north side of North Road. Preferred route avoids his home site but may impact land he farms and is considering purchasing.
Dominion City	NE 12-2-2E	How strong are the poles: concerned about hitting one with sprayer.
Dominion City	RL 120 and RL 121, NE 8-2-2E, SE17-2-3E	Does not want project on property. Big issue with RL120/121. Will devalue property/generations. Will join CAEPLA.
Dominion City	NW8-3-4E	Cabin developed - marked.
Dominion City	18-2-2E (W)	Opposed to project location - route from the North; 1878 Century Farm. Underground is preferred. Sketch shows gas line location. MB Hydro owns 19-2-2E (W).
Dominion City	NW8-2-3E, NE7-2-3E	Aerial spraying. North side of road would be preferred. Approx. aerial spraying every 2 years. Sketch shows fibre-optics. Tower and compensation considerations.
Dominion City		Owns land east of the Red River. Very opposed. Will go to expropriation.
St. Pierre Jolys	NE 4-8-4 E	No concerns about shelterbelt removal. First concern is safety of runway! Doesn't want to move alignment. Doesn't want to anger neighbours. Biggest issue is fair compensation for runway and hangar. They feel they are in a very difficult position. Hangar, residence and grass runway shown on a sketch.
St. Pierre Jolys	SW 2-7-4 E, NW 2-7-4 E, NW 14-7-4E	Unique situation: this landowner is affected by BPIII and proposed St. Vital route. Will affect landowner every year of operations (farming practices). Standard compensation is not acceptable and in landowner's opinion, not appropriate.
St. Pierre Jolys	SW 9-5 4 E, SW4-5-4 E, NW and SW 33-4-4E, NW and SW16-4-4 E, SW 9-4-4E (some land owned, some land leased)	Concerned about all operations. Compensation would be provided to owner but leaser pays price of double application of fertilizer etc. on an annual basis.
St. Pierre Jolys	NW 4-4-4E, NW 33 -3-4 E SW 1/4 30-5-5E NE26-5-4E RL-SS-RR and own east 1/2 of river lot	As close as possible to road. Concerned about manure application (both Quarter-sections). Avoid drainage ditch in field for structure placement.
St. Pierre Jolys	28-4-4 E (shown on map)	Avoid all drainage ditches and access. Roads for structure placement shown on map. Aerial spraying not possible now due to existing Hydro line (E/W direction) and new line. Landowner uses aerial application every year. Hired workers using equipment - concerns about safety. Concerned about weeds and damages during maintenance. Against the project.
St. Pierre Jolys	NE and SE 26 -5-4E and 25-5- 4E (see map) and RL 55, SW30-5-5E, home quarter	Want structure on east side of road: one in the bluff, one near drain (marked on map) and one at edge of field near river crossing to minimize the number of structures. East side of creek crossing; place structures on north side - steep slope and erosion concerns on south side - captured proposed realignments for Hydro to consider (main objective is to minimize poles). Rent RL-SS-RR and own east 1/2 of river lot. Livestock and residence on home 1/4 SW30-5-5E and cattle on NE26-5-4E.
St. Pierre Jolys	NW23-6-4E, NW15-5-4E. (Noted on GPS pen)	
St. Pierre Jolys	SW 4-5-4E	Discussed compensation. DeSalaberry Wind Energy Co-op - interested in benefits and potential limitations of project on wind developments.
St. Pierre Jolys	NW 7-6-5E, SW 7-6-5E, NW23-6-4E	Indicated alignment of line most likely west side of road

Open House Location	Location	Concern/Constraint
St. Pierre Jolys	SE 16-5-4 E	Very opposed, proximity to homes. Didn't want to see any towers.
St. Pierre Jolys	SW 24-5-4E; River Lot 55, 80 acres SW24-5-4E	Home located North of 205. Pastureland rented. Noted Crow Wing Trail runs along "bush" road - this houses a number of plaques marking heritage use. Noted area has long Metis history.
St. Pierre Jolys	NE 1-6-4 E, north 80 acres	Land good enough for cropping. Most valuable agriculture land he operates due to higher elevation and good drainage. Has artesian well. Wanted to know whether hay could be stored under transmission lines (limit to stacking)? Currently up to 20 feet. CLI Class? Driveway for access. Confirm alignment with road. Harrow - widest equipment; up to 70 feet wide or more. Artesian well - can we bury line/access to it? Southern area "nativish" prairie.
St. Pierre Jolys	NE 27-7-4 E	Value of land for potential buyers with installment of transmission line. Currently, property is being rented.
St. Pierre Jolys		Wanted info on why adjustments were made and why ones were preferred. CAEPLA discussion. MMTP. Agricultural community getting hit.
St. Pierre Jolys	SE 28-4-4E	Agricultural 3 years.
St. Pierre Jolys	SE 16-5-4E	Buy out discussed: not opposed to it. Does not like the project. Tower spotting. Over 100 year ownership.
St. Pierre Jolys	NW15-5-4E	
St. Pierre Jolys	SE and SW 23-6-4E	Aerial spraying every year (fungicide). Owns N/S airstrip but rents it out (airplane mechanic). 320 acres small/intensive livestock, manure & straw hauling. Good land is being used vs. marginal (S8). Cut north of Colony if anything. Wet land usually (Prairie Sky). Insurance and structures.
St. Pierre Jolys	SE 8-5-4E. NW 9-5-4E	NW9-5-4; artifacts found, "Crow Wing Trail" - arrowheads. Compensation. Route adjustment suggested. Informed about 75 m buyout. RM of DeSalaberry passed a resolution opposing project regarding proximity to residences. Letter from the RM regarding Resolution No. 502-13.
St. Pierre Jolys	NE 12-6-4	Approx. 2 years (Aug) aerial. Allows some hunting by friends. Personal airstrip. Open field, property devalued, building potential
Iles des Chenes	SE 16-8-4 E, SW 16-8-4 E, NE 9-8-4 E, SW 16-8-4 E, owned, NE 4 -8-4 E is rented	Concerned about ability to farm Section as a whole (SW16 84E and SE16 84E) would be cut in half. Landowner uses aerial application and is concerned about ability to continue to do so with this line. Manure application with umbilical hose: proposed transmission line would affect ability to do this effectively: missed spaces and over application. Structure placement needs to avoid drains (all are registered with the province) to allow land to drain correctly. Land slopes to the west so these drains are critical to these lands. Landowner would prefer the least amount of structures to minimize effects on farming practices. Potential house building site was planned for SW9-8-4E. There are trees there now.
Iles des Chenes	West side of Bernat Road or over to NW30-8-4E	Ashlane Estates: - this subdivision is approved by the RM, the Province and MB Hydro (supply). Infrastructure is in place now (road, sewer, water). Proposed alignment is considered unacceptable. This is a \$2.6 million development: what the landowner has had to invest setting up this subdivision. Put line on west side of Bernat Road or over to NW30-8-4E. Or purchase from landowner.
Iles des Chenes	NE 16-8-4 E, westerly half, NW 16, 16-8-4 E, SW 16-8-4 E, NE 9-8-4E, SW 9-8-4 E, owned, some is joint with brother NE 9-8-4E	Manure application with umbilical hose; over-application and under- application - drag hoses need to be readjusted. Ability to farm as a unit (row crop) now has line between two lands. Not able to do aerial application. Power line splitting property affecting value. Land becomes less attractive and loses value. For structure placement, avoid drains (shown on map) and access driveway (offset from 1/2 miles line) (NE9-8-4E). Landowner prefers to have wide spans of structures.
Iles des Chenes	NW 4-8-4E, SE 4-8-4E, SW 3-8- 4E, NW 34-7-4E	Health concerns: implant for brain and gives impulses to brain. Avoid all access points in tower placement. Avoid highly valued shelterbelt near residence SE4-8-4E. SE4-8-4E is also boxed in and aerial application is very difficult.
Iles des Chenes		Interested in distance of ROW to house. No farming on property, just residential lot.
Iles des Chenes	SE 32-9-4-E	Concern on tree line. Preferred the original alternative to SW near the Seine River Diversion. Get back to them as to why the alternative.
Iles des Chenes	NE4-8-4E	NE4-8-4E; airstrip to the E/W - totally opposed to having towers on property; owns multiple quarter sections of land.
Iles des Chenes	21-8-4E, SE29-8-4E, NE29-8-4E, NW21-8-4E	Driveway onto NW21-8-4E - would like to ensure continued use and high clearance; 25 feet should suffice. On-field drains should be avoided including structures.
Iles des Chenes	SW corner of SW15-5-4 NW15-5-4	Low spot SW corner of SW15-5-4E, would prefer a pole in the low spot. Map 11 - preferred route (attached map). NW15-5-4e - recreation airstrip (neighbour's airstrip). If towers are on his land he may (not sure) prefer to have the tower 40 m further onto his land for his machinery to go around.
Iles des Chenes	NW14-5-4E, SW15-5-4E	Plan A get out. Plan B get to Bernat (W). Plan C if we have to span. Max. 7m above, truck 7m - if we can clear 14m.

9.4.4 Public Open Houses Debrief Notes - Round 2

General observations of the Project Team were recorded after each Public Open House event.

9.4.4.1 *Dominion City Community Hall*

Number of Attendees: 33

Overall Trends in Open House Session

- Overall flow of Open House was good
- No issues with the material presented. (Nobody read the storyboards)
- GIS station worked well; it was helpful in engaging large groups of people
- I-pads worked well
- Comment on underground lines.
- There was a 50-50 split in attendance between people happy /or concerned with Final Preferred Route
- The proposed southern route impacts significantly fewer homes than the northern routes
- At one of the Landowner Information Centres people were happy; at the other, less so.
- Dominion City area has a history of dealing with development impacts: gas lines, wind turbines, Hydro
- Expropriation will keep coming up as an issue
- Potential reason for low attendance was that people didn't want to show support

Overall Concerns/Comments Heard during Open House Session

- Hydro cannot be trusted because the public was “blind-sided” by “new” proposed southern route
- Callout that the process was “shifty”
- Questions regarding compensation for towers that have been on a property since 1960's
- Landowners want transmission line along existing road allowances
- Questions regarding who is responsible for managing weeds in and around towers
- Two local landowners were very upset with the process. Talked about expropriation. By end of conversation, they were almost accepting the proposed route, if one adjustment could be made
- Landowners want underground lines
- Expropriation

Follow-Up Items

- “Run a larger proposed line SE to border to proposed crossing and tap off to Letellier. Run line along US border ROW. Or build the proposed export line larger.”
- Question regarding who is responsible (Hydro or property owner) if the tower structures are hit on a property.
- Add to land use forms: “Do you allow public to hunt on your property?” as a general comment on back of Landowner Information Forms

9.3.4.2 *St. Pierre Jolys, Cabane a Sucre*

Number of Attendees: 47

Overall Trends during Open House Session

- Overall flow of open house was good(No one read the story boards)
- Not as much NIMBY as Dominion City Open House
- People questioning why the route does not follow Route Segment S-8, which is an area of marginal land with swamps

- Suggestions that the transmission line be moved into areas that have more marginal lands
- Only a few questions were raised regarding EMF
- Overall, I-pads went well
- There were a couple of very upset attendees

Overall Concerns/Comments during Open House Session

- There was confusion on some maps as to what side of the road the lines will be routed
 - Google Earth station allowed this to be checked
- Tower spacing given out during Dominion City's Open House and part of today's Open House may have been wrong.
- Some questions regarding compensation payment to either the renter or the owner were brought up (costs of over application of seeds etc. when turning around structures)
- One couple got very vocal and verbally abusive to the point of almost being asked to leave.
- Another landowner is affected by both BPIII and this proposed route; a unique situation. He stressed that any sort of standard compensation is not acceptable.

Follow-Up Items

Question: Why wouldn't compensation payment for the land easement be paid to the renter instead of the owner?

- Maggie to email correct tower spacing information to attendee
- Question: Interested in the benefits and potential limitations of the project on wind development.
- Question: indicated alignment of line most likely west side of road please confirm this.
- Question: Can we store hay under the lines (limits to stacking)? The CLI class? Also confirm alignment with road. For the artesian well on site – can we bury line/ access to it?
- Manitoba Hydro to provide information on option to potentially relocate affected airstrip runway
 - Runway in southern portion of NE 4-8-4E.

9.3.4.3 *Ile des Chenes, TransCanada Centre*

Number of Attendees: 47

Debrief Notes

Overall Trends during Open House Session

- Generally people were happy, even if transmission line was near their property
- Two people were angry about the adjustment. Falk family not happy
- Having two pens at the GIS station was helpful
- Need background on compensation as people want concrete answers

Overall Concerns/Comments during Open House Session

- A number of people did not receive information or see advertisements about the Open Houses- for both Round 1 and Round 2
 - Postcards were sent out, 144 letters, advertisements in local papers and Free Press
 - For people that did not receive postcards/letters- get their addresses and Hydro can address with Canada Post.
- Very few people from tonight attended R1
- One comment stating that they are getting away from aerial spraying, so that is not a concern for them
- Concerns regarding the new subdivision

Follow-Up Items

- Manitoba Hydro to follow up with attendee regarding potential effects of line on his wife's brain implant (that controls electrical impulses to the brain)
- Manitoba Hydro to provide landowner with a compensation brochure, map of preferred route on land), and Landowner Information Form. Landowner lives in Saskatchewan but owns land along the north-south stretch heading into Letellier
- Check with mail list to make sure Ile des Chenes wasn't overlooked.

Manitoba Hydro to confirm postal code for Niverville as residences indicated they did not receive letter/postcard.

- Manitoba Hydro to provide team with tower spacing and pictures of towers that are in Sage Creek right of way.
- Question: Potential route adjustment to push route to west side of Bernat Road to increase separation distance to "Ashlane Estates" subdivision.
- MB Hydro to follow up with as to why the alternative was selected near the Seine River Diversion to the SW.

9.3.4.4 *Winnipeg, Winakwa Community Centre*

Number of Attendees: 21

Debrief Notes

Overall Trends during Open House Session

- Two people from Qualico attended
- Two people attended from Sage Creek Homeowners Association
- One person was very upset
- Generally people were happy

Follow-Up Items

- AECOM to provide "method of notification" summary from comment sheets (Round 1 compared to Round 2).
- Manitoba Hydro to follow up with attendee regarding right-of-way width along the floodway between Highway 59 and the Red River.
 - Brad lives Resident on 2 Mile Road and has some aesthetic concerns about the St. Vital Transmission Complex and MMTP.
- Manitoba Hydro to follow up regarding the 50 endangered species that were identified in the environmental assessment.
- Manitoba Hydro to prepare project sheet (FAQs) for Qualico/Sage Creek Residents' Association.

10 Summary of Other Consultation - Round 2

10.1 Email and Telephone Comments/Queries – Round 2

10.1.1 General Comments/Queries

Email and telephone comments are found in Appendix E1 - Round 2.

Concerns included the following:

- Do rural municipalities would tax revenue for the transmission line or grants in lieu.
 - Manitoba Hydro noted that for an easement there would be no payments to a rural municipality. If RM lands are crossed, or if lands are purchased there would be grants in lieu.
- Benefits and limitations related to wind turbine development:
 - Owner informed Manitoba Hydro that airstrip on the NW 15-5-4-E1 might be obstructed by steel structures and wires. Air strip is needed for emergency purposes and also as remote operating location when the occasion arises.
 - As far of the crop dusting of the fields, the inside corner of angled structures is out of the question. Working parallel to the lines is an extra risk, but possible. Working “to and from the lines” is also not feasible and usually refused.
 - The owner also mentioned that there are alternate routes with less impact on agricultural land, and the 30 year old air strip. Avoid these risky situations for the aerial applicators sake.
 - Pinawa Game & Fish Association requested the dates for submission of the reports including the dates and locations of the public review of each of the reports, and identified stages listed in the distributed public information and published on the website.
- Sage Creek Development
 - Manitoba Hydro provided Qualico with links to information on the proposed St. Vital Transmission Project, noting that Hydro has owned this property since 1970 for the purpose of future development. Since the early stages of the Sage Creek development the developers have been aware that this was a Manitoba Hydro owned corridor, which could house future development in the form of towers.
Manitoba Hydro and Qualico have an agreement, which allows Qualico to design and implement landscaping that enhances the aesthetics and recreational use of the right of way. Manitoba Hydro thanked Qualico for offering to hold a meeting/open house for the Sage Creek Residents at the Qualico office in Sage Creek, and asked if they had any concerns with the above statements, which were intended to be used in advertising materials and in discussions at the Open House that evening. Qualico was also asked if they had any questions regarding the project in general.
Email Response from Qualico indicated that they thought everything Manitoba Hydro outlined in email sounded reasonable. “We’ll just deal with resident concerns as they come up.” Qualico suggested “When it’s convenient for Manitoba Hydro they should discuss the possibly of hosting an Open House in Sage Creek.

10.1.2 Location Specific Comments

Location-specific concerns/constraints related to the following:

- airstrips close to the Preferred Route,
- farmers’ abilities to continue aerial spraying
- manure spreading

- agricultural operations
- landfill and lagoon (Ile des Chenes)
- Sage Creek Manitoba Hydro corridor
 - residential locations and EMF
 - walking trail in the Hydro easement
- proximity to residences
 - aesthetics
 - property values
 - health impacts
- guy wires on angle structures

A summary of the location specific comments is included in Table 10.1 from the 55 email and telephone communications received by Manitoba Hydro in the period from September 29 to December 17, 2013.

Table 10.1: Location Specific Data from Project Email and Phone Line – Round 2

Data Source	Date and Time of Call or Initial Email	Concern/Constraint	Email or Call Summary	Location
Email	10/23/2013	Ritchot landfill and the Ile des Chenes lagoons.	Manitoba Hydro sent email to RM of Ritchot indicating that a Preferred Route has been selected and providing website to find information. Also indicated the dates of the 4 open houses. Response: RM provided a copy of Resolution No. 2013-11-46 that was passed by Council requesting that MH to revise the alignment of the St. Vital Transmission Line, to avoid the Ritchot landfill and the Ile des Chenes lagoons.	Ile des Chenes
Phone Call	10/29/2013 10:00	Manure spreading	Farm	North, Ile des Chenes area
Email	10/30/2013 11:55	Houses	Requesting additional information about where the line will run near the Green Ridge area specifically relative to NE and NW quarters of 32-2-4 E1.	Green Ridge area
Email	10/30/2013 12:36	Houses	Requesting information about Sage Creek area	Sage Creek area
Phone Call	10/31/2013 15:00	Airstrip	Landowner sent an email regarding his airstrip along PTH 59. He offered two adjustments. Project team has already been in discussion and will present two options in that area for consideration. He was not upset but wants to work together to determine a placement.	East of PTH 59
Email	10/31/2013 13:56	Location of Route	Requesting clarification on what side of the road allowances the line passes where the lines run.	North to south between the West side of Section 5-3-4 E1, and the East side

Data Source	Date and Time of Call or Initial Email	Concern/Constraint	Email or Call Summary	Location
				of Section 6-3-4 E1, and where the line travels east to west between the South side of Section 6-3-4 E1, and the North side of Section 31-2-4 E1.
Phone Call	10/31/2013 17:00	House	SVTC line will cross existing south east of him at 380m. Would see it out of the front of his Discussed tower structure and EMF	Landowner lives close to Preferred Route (180m) property on Southside Dr. , Grande Pointe
Phone Call	10/31/2013 17:00	Realignment	He is quite close to the line and wants Hydro to do a deviation of the route to move away from his residence.	Lives a mile north of Niverville and Stott Road.
Phone Call	10/30/2013 18:00	Realignment of route	Landowner is not happy about the placement and thinks Manitoba Hydro should have gone on the RM boundary between Hanover and De Salaberry because it is all slough grass.	RM boundary between Hanover and De Salaberry
Phone Call	11/1/2013 10:00	Alignment (PR 201)	Wanted to know the venues for St. Vital Transmission Complex; will come to Dominion City. Concerned about location of line in relation to PR 201; what side of the road would it be on from Dominion up to St. Pierre Jolys.	Location of line in relation to PR 201; from Dominion up to St. Pierre Jolys
Phone Call	11/1/2013 12:00	Aesthetics	Has the Facebook page for Sage Creek Residents Association. Wanted information on the location of the towers and span and alignment. Indicated the towers will line up and we will match span. Noted Manitoba Hydro's ownership of the right of way.	Sage Creek
Phone Call	11/5/2013 11:00	Walking Trails	Wanted to know if the tower placements will interfere with the walking trails (Sage Creek Corridor).	Sage Creek
Phone Call	11/6/2013 10:00	House and Future Development Potential	Homeowner is opposed to the project location; should not be located on the 1/2 mile behind his home. The transmission line will devalue the property and taxes are already going up. Would like to see the route	

Data Source	Date and Time of Call or Initial Email	Concern/Constraint	Email or Call Summary	Location
			located on PTH 3 or 75 instead. There are many parcels along this line which have great potential for subdivision but who would subdivide with a transmission line behind them. He owns 40 acres.	
Email	11/8/2013 11:20	Location of the transmission lines, aesthetics ; recreational trail in the corridor, and minimum distance from 230 kV line to a house	Location of the transmission lines, in-line with one another or staggered, approx. location of the line, will the current recreational path in the Hydro Corridor remain, and what is the minimum distance a 230 kV line has to be from a residential property.	Sage Creek
Phone Call	11/13/2013 10:00	Residence	Happy not west of Ile des Chenes.	Linden, MB
Phone Call	11/14/2013 7:00	Agriculture	Concerned about guy wires on angled structures	Dufrost
Phone Call	11/18/2013 17:00	Agriculture and Compensation	Noted he had joined CAEPLA and was concerned about compensation for the impacts to his agricultural operation.	On SW 26-7-4E1
Email	11/19/2013 21:55	Concerned with aesthetics, recreational trail and distance from residential property.	See Notes for questions and answers	Sage Creek
Phone Call	11/20/2013 8:00	EMF	Concerned that the transmission line is too close to their home and that the exposure will hurt their children. They built in the country to avoid this type of development - discussions at their home.	
Phone Call	11/20/2013 17:00	Airstrip	??	East of PTH 59
Phone Call	11/26/2013 11:00	Property Value	She lives in Grande Pointe and believes the lines will devalue her home.	Grande Pointe
Email	11/26/2013 1:22	Stray Voltage	Happy it is not on his property and noted a concern about stray voltage.	St. Vital transmission line would be 1 1/2 mile west of the lands owns and operated at 30-6-5E1
Email	11/7/14:48	EMF, safety, land value and long-term residential development	Concerns including EMF, real and/or perceived implications for safety, land value and long-term residential development merit careful review and consideration for the best possible long-term decision about the location of the Transmission Corridor.	Grande Pointe
Email	12/14/2013 13:00	Airstrip might be obstructed by steel structures and wires, risky situations for aerial applicator Impacts on agricultural land	We keep these air strips in mind for emergency purposes and also as remote operating location when the occasion arises. As far of the crop dusting of the fields on that Section, the inside corner of these structures	30-year old air strip on NW 15-5-4-E1

Data Source	Date and Time of Call or Initial Email	Concern/Constraint	Email or Call Summary	Location
			is out of the question. Working parallel to the lines is an extra risk but possible. "To and from" lines is not feasible and usually refused.	

10.2 RM and Landowner Meetings – Round 2

Additional RM and Landowner Meetings with the RM of Ritchot, RM of DeSalaberry, RM of Franklin, RM of Montcalm, RM of Hanover, and one Landowner were held in Winnipeg between November 5 and 21, 2013.

Key issues identified in the meetings were as follows:

- Preferred route runs directly through planned landfill and lagoon expansion by the RM of Ritchot.
 - Suggested route adjustment down Bernat Road
- RM of DeSalaberry has passed a resolution against the project. Agriculture and compensation concerns.
- RM of Franklin proposed a number of route adjustments to avoid agricultural land and a cabin. Other concerns related to expropriation and compensation.
- RM of Montcalm had concerns about the change to the southern section of the route, which was not shown in Round 1 of public engagement. There was a strong suggestion that the line be underground, and a suggestion that expropriation would be required versus easements and compensation.
- RM of Hanover had questions about local use of power from the line, and compensation for damage to municipal roads.
 - Manitoba Hydro noted that a Station was required to step down voltage and municipal roads would be repaired.
- Landowners at NW 26-7-4-E1 had concerns about the transmission line location, EMF, property values, views and effects on cell phone, internet and cable services.
 - If it can't be moved they would like a slight realignment of the route to minimize impacts.

The following are records of the RM and Landowner question and answer sessions.

10.2.1 RM of Ritchot Council - Meeting Notes

November 5th, 2013

Manitoba Hydro presented the Preferred Route for the St. Vital Transmission Complex to the RM Reeve and Council.

Council informed Manitoba Hydro that the preferred route runs directly through a planned landfill and lagoon expansion in the RM. This is a big issue for the RM, since they have invested a lot of money in the project and do not want to see the transmission line right-of-way go through the landfill. The RM plans to begin building the lagoon in 2014. The land has already been purchased.

Manitoba Hydro representatives indicated they will contact their design department to discuss potential structure adjustments to build through a lagoon or landfill, such as taller towers. Manitoba Hydro would prefer to see the right-of-way go through the lagoon area rather than the landfill.

RM Council suggested a route adjustment which would see the right-of-way go down Bernat Road to avoid the future landfill/sewage lagoon site. There are a number of residences on Bernat Road. At least three homes on the east side of the road a farm and one home on the west side of the road. RM Council gave Manitoba Hydro representatives the contact information for the residents on Bernat Road to discuss the potential route adjustment.

10.2.2 RM of DeSalaberry Council - Meeting Notes

November 12, 2013 6:00pm

Manitoba Hydro representative presented the St. Vital Letellier Transmission Project to Council. Handouts included the presentation, newsletter and comment sheet.

RM Council informed the Manitoba Hydro representative that they previously passed a resolution against the project.

Manitoba Hydro representative indicated they were aware of the previous resolution from Council and that while this resolution was taken into consideration during routing of the project Manitoba Hydro has to take into consideration all stakeholder perspectives in the Province of Manitoba.

Questions and Answers

1. Council asked about expropriation and compensation policies for the St. Vital Letellier Transmission Line Project.

Manitoba Hydro representative indicated that any expropriation situations have already been incorporated into the timelines for the project. Landowners will be offered compensation for the transmission line crossing their property. The property compensation policy, including easement, tower payments, construction/ operation damages as well as ancillary damages was discussed with council.

2. Council asked Manitoba Hydro representative if they could review the notes taken during Stakeholder Workshops with Keystone Agricultural Producers.

Manitoba Hydro representative indicated that the Workshop included numerous stakeholders. The intention of the Workshop was to include no bias and therefore while notes were taken they were not associated with any particular stakeholder group. The Manitoba Hydro representative indicated they will forward the Workshop notes to Council.

3. Council asked for the timeline for the remainder of the project?

Manitoba Hydro representative indicated Round 2 Public Open House Events were conducted throughout November, 2013 yet Manitoba Hydro was also accepting comments and feedback through the information line and the project email address. The anticipated submission of the environmental assessment to Manitoba Conservation and Water Stewardship and posting on Public Registry would occur in January of 2014. At this time Manitoba Hydro will initiate notification with affected landowners and stakeholders including RMs that the environmental

assessment had been filed. As part of this process, Manitoba Hydro will invite landowners and stakeholders to attend an information session which would present the final route, information on the Manitoba Conservation Public Registry Process as well as the Manitoba Hydro compensation process. Further information will be provided prior to submission to regulatory agencies.

The anticipated in-service date for St. Vital to Letellier Transmission Project is 2016 and anticipated project completion is 2017.

10.2.3 RM of Franklin Council - Meeting Notes

November 12, 2013

Manitoba Hydro made a presentation to Council on the St. Vital Letellier Transmission Project. Handouts included the presentation, newsletter and comment sheet.

1. Council asked why the transmission line could not be built along highways.

Manitoba Hydro representative answered that Manitoba Infrastructure and Transportation (MIT) has expansion plans along most highways in southern Manitoba and there are also many residences along the highways in comparison to mile roads. Manitoba Hydro tries to plan the transmission line route to be butted up to mile roads as much as possible.

There are also future plans for a transmission station at Grunthal. The new preferred St. Vital Letellier line would run very close to the proposed Grunthal Station allowing for less infrastructure in the future.

There is already a 230kV line along highway 75 used for export and domestic purposes. One of the purposes of building the St. Vital Letellier transmission line is for reliability. If there is a storm in the area two lines adjacent to each other will both be knocked out and will not increase reliability for the region. The Manitoba – Minnesota Transmission line cannot be routed along highway 75 due to reliability issues as well.

2. Council asked if it would be possible for Manitoba Hydro to move the Preferred Route along the escarpment, and cattle or ranch land in the southern portion along Highway 59. This would include moving the Preferred Route further east and continuing the line down to the U.S. Border, where the line could run west along the border until it gets closer to Letellier, where it could then move north to the Letellier Station. This would remove the line from a lot of valuable crop land. There is also no spraying along the U.S. border. Council stressed the terrible impact this line would have on cropland in the region also indicating that Manitoba Hydro has no idea the devastation this Preferred Route will cause.

Manitoba Hydro representative indicated that the team has taken this route into consideration. It has been entered into the EPRI model along with over 7000 other potential routes. This route was determined to be very expensive due to additional length and numerous additional angles it would add. Manitoba Hydro representatives also indicated that there are numerous stakeholders in the Province of Manitoba, and while the agricultural community is a stakeholder in the project there are many others whose opinions and suggestions also need to be taken into consideration. The cost to Manitobans needs to be considered as well. Manitoba Hydro considers a number of priorities when routing a new transmission line. Manitoba Hydro noted that expropriation is a last resort and it will attempt to negotiate with all affected landowners. Manitoba Hydro and

agricultural producers have always been able to negotiate a compensation package. This includes ancillary damages which the landowner also has the ability to negotiate.

3. Council suggested another route adjustment down PR 218 north to PR 217 towards the St. Malo drain right-of-way from PR 201 to PTH 23. There is no one on this section of the road. The suggestion is to build on the dike along the St. Malo drain. There would be major affects to the Greenridge area.

Manitoba Hydro indicated that there is a lot of untouched bush along the east side of PR 218 which other stakeholders indicated should stay intact. There are also many homes on the west side of the road. The line should be at least 75 metres away from homes. If the home is within 75 metres of the line it is Manitoba Hydro's policy to buy the home out. This is not something Manitoba Hydro wants to do. Even if the line was on the east side of PR 218 it would be closer than 75 metres to the homes on the west side of the road.

4. Council also asked about expropriation and compensation policies for the St. Vital Letellier Transmission Line Project.

Manitoba Hydro representative indicated that any expropriation situations have already been incorporated into the timelines for the project. The compensation policy including structure, easement and construction payments were discussed. Although easements are preferred to allow landowners the ability to continue land use, in special circumstances, a buy-out can be offered to provide compensation to landowners for all related and reasonable relocation costs, where the proximity of the transmission line is within 75 metres of the land owner's residence.

5. Council also had concern regarding the sag in transmission lines and whether this will be taken into account when spacing structures to allow large equipment to safely pass under the line.

Manitoba Hydro representatives indicated that the Manitoba Hydro Property Department will speak to individual landowners on a one to one basis to determine placement and height of structures to ensure there are no issues with the landowners' usage. Manitoba Hydro is also mandated by the Canadian Standards Association to determine maximum sag of the transmission line.

6. Council asked if there is any compensation for the RM.

Manitoba Hydro representative indicated there is only compensation for the RM if the right-of-way is on RM land. This is not the case for the RM of Franklin.

7. Council indicated there is a landowner with a cabin in close proximity to Roseau River (Map 14 in the Open House Map Book– NW8-3-4-E). The landowner indicated to Council they would like to see the right-of-way stay on the road allowance on not on private land. There is no actual road yet on this road allowance. Also, the west side of this road is the Provincial drain. Could the right-of-way be built on the dike allowing for easier drainage and water management.

Manitoba Hydro representative indicated that Manitoba Hydro will take this into consideration; however, he also noted that there would be a lot of additional cost to move the right-of-way as it would include two additional, costly angle structures. Council should put this suggested route adjustment in writing and send to Manitoba hydro for consideration.

10.2.4 RM of Montcalm Council - Meeting Notes

November 13, 2013 3:00 pm

The Manitoba Hydro representative began the meeting with an overview of the public engagement process already completed for the St. Vital – Letellier Transmission Complex Project. He then introduced the Preferred Route to the Reeve of Montcalm and Council, and opened the table for any questions or comments.

1. Council initially did not have any questions.

The Manitoba Hydro representative defended the adjustment that was made to the southern portion of the route, extending beyond the original corridor. The decision was based on feedback from the public, to avoid residences and be on a mile alignment.

2. Council commented that the newly affected residents by the southern route adjustment were never consulted, and thought they were in the clear during the first round of engagement

The Manitoba Hydro representative explained that he did not think the southern portion would have been preferred but Hydro is still trying to collect information in the area. Manitoba Hydro is looking for feedback on how this southern adjustment would affect land owners.

3. A Councillor stated that he had already provided comments to the Manitoba Hydro representative at the Open House.
4. Councillor gave a recommendation to Manitoba Hydro to put the transmission line underground. He noted that there are underground transmission lines in Saskatchewan and North Dakota, and the technology is available. People would be more cooperative if Manitoba Hydro was to put the line underground, and there would be no risk during storms or with ice buildup. Council expressed their view that overhead transmission lines are 1930s technology and that Manitoba Hydro needs to use more modern technology.
5. Council moved on to express views regarding Bipole III, asking why landowners should be held hostage with easements that last forever so we can subsidize exports

The Manitoba Hydro representative explained that Hydro rates for Manitobans are kept low due to export sales.

6. A Councillor told the Manitoba Hydro representative that the company is still thinking like it's the 1930s. He commented that easements and compensation are no good for landowners, and warned Hydro to prepare for expropriation for the project.
7. A Councillor questioned whether it was possible to use a monopole structure for the transmission line project. Less space would be used on the land and monopole structures are easier for agricultural producers to work around.

The Manitoba Hydro representative explained that they are height concerns with monopole structures. He agreed to look into using monopole structures.

10.2.5 RM of Hanover Council - Meeting Notes

November 20, 2013 10:00 am

Manitoba Hydro representative began the meeting with a description of the St. Vital Letellier Transmission Project to Council. Handouts included the newsletter and comment sheet.

1. Council asked the length of the transmission line route segment east of St. Pierre Jolys?

The Manitoba Hydro representative replied that the route segment is about 3 ½ miles long. He went on to explain the difficulty of routing in that area because of river lots and increasing development. The Manitoba Hydro representative explained the influence of public engagement on the route to Council. He used the southern portion of the transmission line as an example of how public concern and feedback was incorporated into the preferred route.

2. Council questioned if there are any reasons why Manitoba Hydro couldn't run the transmission line straight down to Letellier from St. Vital instead of routing over to the east.

Manitoba Hydro replied that the transmission line veers to the east because all mile alignments are taken up and there is a need to bring additional power to the Grunthal area in the future.

3. Council commented that the transmission line keeps on jogging to the east, around the town of Niverville.

Manitoba Hydro indicated the reason for the jogs in the route was to avoid residences.

4. Council then asked if it was possible for towns or landowners to pull power from the St. Vital Letellier Transmission line.

Manitoba Hydro indicated that a Station is required to step down power from the line, because of the difference in voltages. It would not be possible to pull power directly off of the transmission line. The Grunthal Station will do this in the future.

5. A Councillor clarified that the purpose of the St. Vital to Letellier Transmission line is to support increasing load growth in south-central Manitoba and for reliability.

Manitoba Hydro confirmed this is the purpose of the project.

6. The Reeve of Hanover inquired about the timeline for construction of the transmission line.

Manitoba Hydro indicated that the timeline for construction is dependent on when Manitoba Hydro receives a licence for the project from Manitoba Conservation and Water Stewardship. The anticipated in-service date for the project is July 2016; however, the project could go into Public Hearings. Manitoba Hydro has no control over whether or not the project goes into Public Hearings.

7. The Reeve then asked about compensation for municipalities if construction of the transmission line were to occur in the summer and roads were damaged by heavy equipment.

The Manitoba Hydro representative assured the Reeve that Manitoba Hydro will repair damages it causes to infrastructure and mentioned Manitoba Hydro's reputation for leaving roads in better condition than before construction for some projects.

The meeting ended with a short discussion on the types of tower structures that will be used for the St. Vital to Letellier Transmission Complex. Manitoba Hydro explained that the towers will consist of two pole structures made from steel, not wood.

10.2.6 Landowners at NW 26-7-4-E1

November 21, 2013

Manitoba Hydro representative started the meeting with a general discussion regarding the St. Vital Letellier Transmission Project as well as the public engagement processes that are part of the project.

1. The landowners indicated the first time they had heard of the project was at the end of October, 2013. They indicated that the Open House that was held in August of 2013 was not conducive to allowing agricultural producers to attend as it was in the middle of combining season.

As well as outlining Manitoba Hydro's Public Engagement Program the Manitoba Hydro representative also indicated the Province of Manitoba holds a public engagement process for 30 days after the Environmental Impact statement is submitted. The project is not yet final or approved. Manitoba Hydro still has to defend the final route to the Province of Manitoba. The Manitoba Hydro representative also indicated that Manitoba Hydro is still accepting modifications to the Preferred Route; however, it is a very difficult project to route as there are many developments and homes in the area. Manitoba Hydro does not want to buy out homes. The tower structures will be H-frames that are approximately 16-20 metres in height. The current distribution towers in front of their home are approximately the same height. It is important for Manitoba Hydro to balance the needs of all stakeholders in Manitoba when considering routing a line.

2. The landowner's enquired about the potential of burying the line.

Manitoba Hydro representative indicated that it is very expensive to bury the line. It could be done but would be at the landowner's expense.

3. The landowner's were also concerned about the potential health risks associated with EMF.

Manitoba Hydro representative left Health Canada and World Health Organization brochures with them, which both indicate no potential EMF health risks associated with hydro-electric transmission lines.

4. The landowners indicated they would prefer the line not be anywhere near their home; however, if this is not possible they would prefer the line to be further west into the field in front of their home. And they would also prefer to have the towers moved from their view shed. They also had concerns related to the potential decrease in property value to their home if the transmission line was out in across the road from their land.

Manitoba Hydro indicated there was a study recently conducted in East St. Paul which studied the land value of properties prior to a transmission line development and after the transmission

line project was completed. This included two 230kV lines as well as one 500kV line. The study indicated there was no difference in property value whether there were transmission lines in close proximity or not.

5. The landowners also had questions regarding why there seemed to be no concern regarding the cost of routing for Bipole III, yet the St. Vital Letellier Project cost is of concern. They feel Manitoba Hydro is more concerned with the environmental and wildlife considerations than they are concerned about the health and well-being of people. They also commented on the loud noise coming from the distribution line in front of their home.

Manitoba Hydro representative indicated they would follow up on this.

6. The landowner's also had concern regarding interference with their cell phone, internet and cable lines.

Manitoba Hydro representative left a brochure with them on this topic for further information.

7. The landowner's also indicated the Manitoba Hydro representative is not named in the newsletter; rather the contact information is for AECOM. They found this confusing.

10.2.7 MAFRI Representative – Meeting

December 16, 2013

Representative had the opportunity to speak with colleagues about the proximity to livestock operations question that came up at the Stakeholder Workshop. The following is a summary of the issues MAFRI has identified with respect to livestock operations. Representative plans on forwarding a more general document outlining all agricultural considerations for Manitoba Hydro transmission projects but first would like to circulate it to colleagues for review.

Potential impacts to livestock operations:

- For those operations with earthen and/or liquid manure storage, one method of manure application uses a dragline system where manure is pumped from the storage structure across fields through a conduit (pipe) and applied with equipment to surrounding fields. With boosters in place, a drag line system can apply manure to an area covering a three (optimum) to five (maximum) mile radius. Having hydro towers on fields where manure is being applied adds additional obstructions manure applicators will have to work around. The general thought is that with the 500 KV line and tower placement along ½ mile lines, the impact may be minimal. The impact will be greater with smaller transmission lines resulting in more frequent tower placement. With any tower construction, there is also the loss of agricultural land under the tower footprint. The cumulative impact of land loss should be considered, especially in municipalities where land base for manure application is already limited due to the number of livestock operations and the nature of the soil (examples RM of Hanover, RM of La Broquerie).
- Livestock bio-security is a significant concern for livestock producers due to the potential spread of disease via equipment and people moving from field to field. Proper equipment and personal clothing and equipment sanitation is necessary to limit the spread of disease. MAFRI is pleased to see that MB Hydro is working with MAFRD specialists to develop a bio-security protocol.
- Regarding the potential for stray voltage contacting barns or surface water sources used to water barns: is this a common occurrence?
- Concern regarding the presence of anthrax in pasture lands: if tower construction results in the disturbance of soil at 6-8 foot depths, the release of anthrax spores is a concern for animal health.

After considering the various concerns related to livestock operations, Manitoba Hydro is of the view that using a proximity of 75-250 m to the edge of the right-of-way that is used for 'Proximity to Residences' and 'Special Features' under the Built Groupings may also be an appropriate measure for livestock operations.

10.3 Media

Both Global TV and CTV covered a December 12 Information Meeting for Sage Creek Residents on the St. Vital Transmission Complex, hosted by Qualico.

Many residents were concerned about not having been adequately informed when they purchased their homes about the extent of Manitoba Hydro development planned in their transmission corridor.

The developer indicated that they were not aware of the extent of development either.

(Note that Manitoba Hydro had fully informed the developer of their long-term intentions for the corridor prior to Sage Creek development, as noted in Section 10.1.1.)

11 Aboriginal Engagement

11.1 Approach

Aboriginal engagement was managed by Manitoba Hydro Aboriginal Consultation specialists. Aboriginal input was incorporated into the Community component of the route selection process.

11.2 Aboriginal Workshops and Open Houses

Open Houses were held at Selkirk on November 18, 2013, and at the Peguis First Nation on November 26, 2013, attended by 10 and 16 people, respectively.

Comments received from the two Comment Sheets turned in were as follows:

- *Would like more talks with MB Hydro and First Nations! Don't like the idea of a one-time payment. Want talks about free Hydro on all First Nations affected by the MB Hydro and Dams!*
- *Can you not cut costs by making a straight line? Have alternative lines (e.g. existing lines, underground etc.) been considered?*
- *Specific sites to be avoided: It is the pathway of the annual flight raptors migration pathway.*
- *There has got to be a more comprehensive way to avoid hazards and effects so that there is no need for mitigation.*
- *If Manitoba Hydro was sincere with consultation, you would bring video cameras and equipment instead of paper. Profile the video on national media, instead of allowing mainstream media (news) edit to the point where it sells great TV and/or radio time.*

12 Brief Summary of Round 2 Public Engagement

Round 2 of the Public Engagement Program for the St. Vital Transmission Complex obtained comments from over 170 stakeholders and members of the public (148 at Open Houses) about the Preferred Route for the proposed transmission line between St. Vital Station and Letellier Station.

- Members of the public and local landowners who attended the Round 2 Public Open House events identified their preferences and concerns about the Preferred Route through responding to Comment Sheets and providing input at Landowner Information Centres. This included identifying various location-specific constraints impacting the route. Some participants suggested revisions to the proposed alignment to address their concerns and constraints.
- Rural Municipal Councils and other landowners provided their input to the Round 2 process at RM and Stakeholder Meetings with Manitoba Hydro staff.
- Other input was received through emails and telephone conversations with stakeholders, landowners along the Preferred Route and members of the public.

12.1 Summary of Comments

Generally, despite some strongly expressed concerns, the southern section of the Preferred Route was more acceptable to local landowners than the Alternative Route Segments presented in Round 1. Fewer landowners were affected and there was no impact on the landing strip for an aerial applicator servicing most of the local area, which had been identified in Round 1.

In the north, a number of additional constraints were identified, including a subdivision in the Grande Pointe area, an airstrip and a private landfill. There were also significant concerns expressed about developing transmission line infrastructure near the RM of Ritchot landfill and lagoon.

Residents of Sage Creek were significantly more involved in the Public Engagement process in Round 2 than they were in Round 1, and they were more concerned about the addition of transmission lines in the existing Manitoba Hydro Corridor through Sage Creek with regard to EMF, impacting property values, aesthetics and changing existing trails.

Some general comments were received related to tax revenue and wind turbines.

- One stakeholder asked whether their rural municipality would receive tax revenue for the transmission line, or grants in lieu.
 - Manitoba Hydro noted that for easements there are no payments to the rural municipality. If RM lands are crossed, or if lands are purchased there would be grants in lieu.
- Compensation: Manitoba Hydro provided a brochure.
- Benefits and limitations related to wind turbine development were discussed.

12.1.1 Open Houses

Fifty-seven people completed Open House Comment Sheets in Round 1 compared to 49 in Round 2. In addition 55 people attending the Round 2 Open Houses provided location-related information at Landowner Information Centres.

Overall 75% of attendees had concerns in Round 1, and 65% in Round 2.

The concerns were similar in both Rounds:

- Proximity to House
- Health/EMF
- Aesthetic and View-shed
- Property Values
- New development
- Landfill and Lagoon expansion
- Agricultural operations /aerial application/working around towers
- Livestock/Tingle Voltage
- Manure application
- Compensation payments

12.1.2 Location Specific Comments

Round 2 concerns and constraints are summarized in Table 12.1. In addition the table indicates Manitoba Hydro proposed actions to address the concerns and constraints.

12.1.2.1 South Route Adjustment

While some Open House attendees were happy with the route adjustment made in the south as a direct result of Round 1 input, there was significant concern on the part of other attendees, particularly local landowners who had initially thought that they would be unaffected by the St. Vital Transmission Complex.

12.1.2.2 North Area Adjustments

Some, less extensive, adjustments were proposed in the north to address specific constraints, such as avoiding the airstrip. Other discussions related to modifying tower design and locations to reduce impacts.

Table 12.1: Summary of Location Specific Concerns/Constraints

General Location	Concern or Constraint	Notes	Proposed Action
East of PTH 59	30 year old airstrip	Three alternatives for relocating the Preferred Route around the airstrip.	Manitoba Hydro has developed alternative routes to avoid the airstrip.
General agricultural areas	Manure spreading	41% of LIC attendees	Where possible these areas are avoided.
General agricultural areas	Agricultural operations: aerial spraying and seeding	76% of LIC attendees relied on aerial application	Where possible these areas are avoided
Livestock Operations	Livestock operations	24% of LIC attendees	Where possible these areas are avoided
	Shelterbelts and trees along Preferred Route	27% of LIC attendees	
General agricultural areas	GPS	88% of LIC attendees used GPS	Where possible these areas are avoided
Grande Pointe, Ile des Chenes	Houses: health, EMF, aesthetics and property values	Density of houses is a concern One homeowner with a pacemaker	Rural residential subdivisions are avoided where possible.

General Location	Concern or Constraint	Notes	Proposed Action
Grande Pointe/Sage Creek	Houses: health, EMF, aesthetics and property values	Only 7% of LIC attendees were residential lot owners	Rural residential is avoided where possible.
Close to Ile des Chenes	Loss of Development Potential	New subdivision location identified	Rural residential subdivisions are avoided where possible
Sage Creek	Walking trail	Trial and landscaping by Qualico	Walking trail will be restored if damaged.
	Guy wires with angled towers	Concern about angles, prefer straight line	Manitoba Hydro prefers to avoid angles in transmission lines.
RM of Ritchot	Licensed Class 1 Landfill, 7.62 m (25 foot) fence in line with Preferred Route	Mid-Canada Environmental Services	Larger towers are used to span landfills when other routing alternatives do not exist.
Sage Creek and RM of Ritchot	Density of Hydro Lines	37% of LIC attendees had other Hydro infrastructure on their land	Manitoba Hydro indicated to developers prior to development occurring that there would be five or more transmission lines in the Hydro right-of-way.

Two additional concerns of note, provided by MAFRI, relate to bio-security and anthrax. The first related to personnel moving through herds to construct the project, and the second related to potential anthrax in soil disturbed by construction. Pastureland should be avoided.

13 Conclusion

13.1 Route Selection

Public engagement played a significant role in the Round 1 Route Selection process. Community criteria, which were derived from stakeholder and public inputs, were weighted at 30% compared to the other four sets of criteria. Only Cost, at 40%, was higher.

In Round 2, the public engagement process identified a number of significant constraints to be addressed in the final routing of the transmission line including a new subdivision, airstrip and landfill, which would ideally be mitigated by avoidance.

Other concerns could potentially be mitigated by design and compensation, including payments for easements and other.

13.2 Environmental Considerations

Environmental considerations identified were the following:

- Impacts on natural areas, such as native prairie and wetlands
- Impacts on riparian zones; suggested buffers of 100 m
- Impacts on birds, including notes about impacts on wildfowl staging
- Impacts on rare species, wildlife and plants
- Impacts on agricultural shelterbelts
- Bio-security issues and potential anthrax concerns related to construction of new power transmission line in pasturelands

13.3 Socio-economic Considerations

Socio-economic considerations were similar in both Rounds of the St. Vital Transmission Complex Public Engagement.

Agricultural

- Loss of valuable land for production
- Difficulties in operating farm equipment around towers
- Difficulties in aerial spraying of crops
- Difficulties with manure spreading
- Impacts on agricultural drainage features
- Impacts on livestock, particularly dairy cattle
- Impacts on GPS units used in farming

13.3.1 Built Environment

Key impacts on the built environment were mainly related to rural residential clusters, as opposed to individual houses or farmsteads, although concerns were expressed regarding individual properties. Concerns included:

- Aesthetics of towers close to rural residential development
- Proximity to future residential development areas

- Difficulties in flood prone areas in relocating residences due to the cost of building up land to flood protection elevations
- Proximities to landfills and lagoons
- Proximity to cemeteries
- Maintaining developed walkways and trails under transmission lines

13.3.2 Health – EMF

Health concerns were centred on EMF issues.

One informant was concerned about EMF effects on their partner's brain implant.

13.3.3 Heritage

Heritage issues were discussed but did not appear to be of significant concern. The Winnipeg Ridge was noted as a potential archaeological zone, and heritage farms were mentioned.

13.3.4 Socio-economic

City, Municipal and Business and Industry stakeholders, in particular, noted the beneficial effects of a more secure power supply on their operations, and growth.

Ability to pick up power from existing and proposed Wind Farms was viewed positively.

Individuals noted concerns about compensation and reduction in property values as a result.

Appendix A

Public Engagement Program

1. PUBLIC ENGAGEMENT PLAN – June 7, 2013

1.1 Project

Environmental assessment for two 230 kV transmission lines originating from the St. Vital Station, Winnipeg, one going to the Letellier Station, and one going to the La Verendrye Station.

- The line from the St. Vital Station to the Letellier Station will be approximately 125 km in length and is required to address contingency loading and low voltage concerns in South Central Manitoba due to load growth in the area. To accommodate the supply of power to a future 230 kV station in Steinbach, the line will be routed via the Steinbach area. The line will also help to maintain export levels under the increased loads in South Central Manitoba.
- The line from the St. Vital Station to La Verendrye Station is required to improve performance during normal operations and to provide the ability to withstand severe power outages in the Winnipeg 230 kV network. The line will be routed via the existing right of way owned by Manitoba Hydro.

The goal of the Public Engagement Program (PEP) is to facilitate the exchange of information between members of the public (including First Nations and Métis people) and the environmental assessment team regarding the installation of the two proposed transmission lines.

Information collected as a result of the PEP will inform a number of aspects of the project including:

- ITEM 3 Site Selection – PhotoScience
- ITEM 4 Environmental Assessment – Stantec

Information collected may include biophysical, socio-economic, and heritage data among others.

Data sources will include:

- Key Person Interviews (KPI)
- Stakeholder Workshops (Workshops)
- Public Open House (POH) events
- Media outreach and information venues, e.g. mail outs, radio, etc. (Media)

The program as described herein was developed in cooperation with Manitoba Hydro and the other Item consultants.

Data for mapping and presentation will be obtained from PhotoScience or requisitioned from the GIS custodian (ITEM 5) on the project.

Intended result of the overall Environmental Assessment is to obtain a license from Manitoba Conservation and Water Stewardship.

1.1.1 Objective

AECOM will develop and implement a PEP for the St. Vital Transmission Complex Project (the Project), and will provide support for Manitoba Hydro with First Nation and Métis engagement. Consultation with aboriginal peoples will be consistent with the Project PEP unless otherwise directed.

The goal of the PEP is to provide stakeholders and the general public with meaningful opportunities to receive information about, and provide input into the environmental assessment process. The PEP will include:

1. Consulting with stakeholders and the general public, including First Nation and Métis peoples, at all stages of the environmental assessment process.
2. Conducting Key Person Interviews, as required, to support the Environmental Assessment (particularly socio-economic considerations).
3. Providing input into Site Selection (opportunities and constraints) and Environmental Assessment (valued ecosystem components, socio-economic considerations, potential effects, mitigation measures) using information gathered from PEP.

AECOM will utilize the Information Data Management System for spatial data management; EA and technical report review, and storage of relevant project documents and data.

1.2 Public Engagement Program (PEP)

1.2.1 PHASE 1 – Start-up

Task 1: Develop PEP (March to May, 2013)

1. Meet with Project Coordinator Consulting Services to discuss PEP development requirements.
 - a) March 28, 2013
2. Develop a Draft PEP in consultation with Manitoba Hydro staff and the consultants selected by Manitoba Hydro to deliver the Site Selection and Environmental Assessment Consulting Services.
 - a) Include a draft Communications Strategy/Protocol
 - i) Manitoba Hydro website – information, blogs and questionnaire surveys:
 1. Project description
 - a. Origin/destinations of the two new Transmission Lines
 - b. Why the new Transmission Lines are needed
 - c. General Study Area
 2. Environmental Assessment (EA) Process
 3. Route Selection/Technical Resource Advisory Committee (TRAC) process
 - a. Descriptions of Study Area, Alternate Corridors and Routes, including updated notes on issues, benefits and costs of each
 4. Outline of PEP
 - a. KPI
 - b. Workshops
 - c. POH
 5. Positive and negative impacts
 6. Feedback mechanism – Questionnaire Survey
 - a. Project
 - b. Process
 - c. Alternatives
 - ii) Links from RM, towns, city websites/or material on their websites

- iii) Email contacts for Workshops
 - iv) Mail-outs – particularly for POHs
 - v) Local newspaper advertising – particularly for POHs
- b) Manitoba Hydro/AECOM Meeting June 11, 2013 to review draft PEP and discuss Communications Strategy/Protocol
3. Identify representatives of various municipalities, First Nations, government agencies and other organizations that would be stakeholders in the development of the two new transmission line corridors.
- a) April – May 2013
 - b) Obtain input from Hydro and other consultants
 - i) AECOM met with Stantec in May 2013 to identify contact contacts related to socio-economic requirements.
 - c) Complete mailing list for stakeholders with contact numbers
 - i) AECOM has developed a list of 46 stakeholders, complete with contact information (Appendix A).
 - ii) Additional contacts will be added – information to be provided by Trevor Joyal from MMTP list, particularly environmental and other interest groups.
4. Identify appropriate timing of PEP activities.
- a) Draft Schedule to be revised with input from Consultants for Items 3, 4 and 5.
5. Develop PEP to formulate a socio-economic framework for the Transmission Lines Project with local input.
- a) Target a range of stakeholders
 - i) Draft KPI list includes potential Workshop attendees (Appendix A).
 - b) Questionnaire survey design

Deliverable: Draft PEP (This document)

Task 2: Convene Start-up Meeting with Project Consulting Services Team and Manitoba Hydro Project Manager (April/May 2013)

1. Introduce AECOM Consultant Team for the PEP.
 - a) Identify key contacts within Manitoba Hydro and Item Consultant Teams.
2. Review the draft PEP with Manitoba Hydro for the core components of engagement / consultation.
 - a) AECOM will take direction from Manitoba Hydro in ascertaining preferred consultation / engagement processes consistent with *The Environment Act*, understanding the corporate perspective and criteria for success.
3. Review the PEP Schedule and inter-relationship with other project components.
 - a) Significant schedule changes in the first part of the program due to need for integration with the PhotoScience TRAC process, and Manitoba Minnesota Transmission Line Project.
4. Discuss Communications Strategy/Protocol, including use of print and electronic media.
5. Receive Manitoba Hydro maps and information about the project.

Deliverable: Record of Meeting and List of Information Received

Task 3: Review Manitoba Hydro Information/Data (April to June 2013)

1. Examine current available information and data, to be received from Manitoba Hydro.
 - a) Trevor Joyal to provide previous examples of letters, newsletters, website text.
 - b) He will also provide existing Manitoba Hydro Stakeholder list and the System Planning Facility Report.
2. Develop an understanding of the Study Area, Corridor and Route Selection Process.
 - a) AECOM staff members participated in meetings and TRAC Workshops related to the Route Selection Process, developing a good understanding of the process.
3. Review maps, agreements, baseline documents, assessments, studies, municipal and First Nation profiles, and information on local interests.

Deliverable: Document providing a summary of the available information for municipalities, First Nations and other organizations.

Task 4: Complete Communications Strategy/Protocol (April to June, 2013)

1. Develop a communications and logistical strategy with Manitoba Hydro consistent with Hydro's requirements.
 - a) Meeting June 11 to address communications and logistics for the Project.

Deliverable: Agreed-upon multi-faceted strategy for communicating with landowners, municipalities, First Nations, and other organizations.

Task 5: Submit Final PEP and Communications Strategy/Protocol to Manitoba Hydro (June 14, 2013)

1. Revise Public Engagement Plan based on comments from Manitoba Hydro and Consultant Team
 - a) Following the June 11 Meeting between AECOM and Manitoba Hydro, AECOM will make minor adjustments to this Public Engagement Plan.
2. Submit final detailed Work Plan, Schedule and Budgets for PEP to Manitoba Hydro
 - a) A Scope Change with revised budgets was submitted to Manitoba Hydro on May 31, 2013 (Appendix B).
 - b) Revisions to the Work Plan to June 11, 2013 included:
 - i) Deleting one POH in each of the two Rounds of Public Engagement, so that there would be only three open houses in each Round.
 - ii) Adding three Stakeholder Workshops following the Route Selection process.
 - c) Schedule revisions will be completed by June 14, 2013.
3. Obtain confirmation/approval of PEP and Communications Strategy/Protocol.

Deliverable: Document with detailed PEP Work Plan, Schedule and Budgets, and Communications Strategy

Task 6: Recruit Stakeholder Workshop attendees and organize Stakeholder Workshops (June to August, 2013)

1. Involvement of municipalities, landowners, First Nations, and other organizations with the PEP would be facilitated by Workshops informing local constituencies and obtaining local knowledge of socio-economic opportunities and environmental considerations.
 - a) AECOM has developed a Preliminary Framework for Stakeholder Workshops (Appendix C), as well as a general list of potential attendees.
 - i) The Preliminary Framework includes an Agenda, Layout of Space and List of Needs
 - ii) Three locations are suggested: venues will need to be confirmed in each.
2. Manitoba Hydro will also contribute resources to Workshop planning and facilitation.
 - a) AECOM will work with Manitoba Hydro to draft a Stakeholder invitation
 - i) Some Stakeholders will be invited through the KPI process
 - b) AECOM will work with Manitoba Hydro to prepare a draft PowerPoint presentation for the Workshops
3. Stakeholders will be invited through email and telephone communications, and through the KPI process.

Deliverable: Workshop organization including a list of participants, with contact information, and schedule of events

1.2.2 PHASE 2 – Round 1 Public Engagement

Task 7: Prepare for Stakeholder and Public Consultation (April 13 to 21, 2013)

1. Understand the context of consultation within the scope of the route selection and EA process. Meet with consultants for the Route Selection and Environmental Assessment Consulting Services to discuss their investigations/ findings.
 - a) Identify issues and approaches to be used in the presentation of information.
 - b) Identify Key Person Interview contacts and list contact information
 - i) Assume telephone contacts/meetings with representatives of 32 local government, First Nation /federal and provincial agencies and other stakeholder organizations
 - ii) Assume telephone contacts with some landowner groups
 - c) Confirm contacts with Manitoba Hydro
2. Discuss use of social media and develop materials for Manitoba Hydro Project website, including blogs, if appropriate.

Deliverables: Key Person Interview contacts and scripts.

Task 8: Conduct Key Person Interviews (June 17 to 28, 2013)

1. Prepare a short, standardized interview format or script for KPI.
 - a) Draft standard scripts for KPI with Agriculture, Business and Industry, Education, Environment, Health, Policing and Trappers representatives as well as Municipal CAOs and politicians (Appendix D).
2. Conduct KPI with representatives of municipalities, First Nations, Provincial and Federal Government Agencies, economic interests and environmental groups.
 - a) AECOM assumes 32 interviews will be completed in total. (If this number appears to be insufficient once the process is underway, a Scope Change will be provided to Manitoba Hydro indicating requirements in time and fees estimated additional interview requirements.)

- b) Create a summary form for presentation of results.
3. Assess the extent and scope of individual and community participation and engagement on project at the end of the interview process.

Deliverable: Summary report that will provide local socio-economic and environmental information, and route selection preferences. The report will also profile the level of engagement by each municipality, and First Nation community potentially affected, as well as other stakeholders. The report will identify any concerns with or gaps in information.

Task 9: Identify Socio-Economic Opportunities (April 1 to June 30, 2013)

1. Examine socio-economic opportunities related to the St. Vital Transmission Lines Complex Environmental Assessment.
2. KPI will obtain some relevant socio-economic information.
 - a) AECOM reviewed script questions with the Environmental Item Consultant, Stantec. Some of the KPI interviews will be conducted by Stantec; over and above 32 interviews by AECOM. AECOM will receive the interviews done by Stantec for purposes of overall data coordination.

Deliverable: Checklist of socio-economic opportunities.

Task 10: Organize and Facilitate Round 1 POH Events (July 1 to July 31, 2013)

1. Provide input into agenda, discussions, materials and logistics for up to three (3) Round 1 POH events.
2. In consultation with the Site Selection and Environmental Assessment Consulting Services, develop display materials for POH events, including presentation/storyboards and a PowerPoint presentation.
 - a) Require electronic versions of maps and succinct descriptions from other consultants at least 5 weeks in advance of Open House events to allow for Manitoba Hydro approval of materials and production.
 - b) It is assumed that Manitoba Hydro will approve all presentation materials at least 3 weeks in advance of the Open House to allow for production of final presentation materials.
3. Prepare a questionnaire survey instrument to obtain feedback from Open House attendees.
 - a) Background note to discuss Hydro's need for the new Transmission Line, benefits to Manitobans.
 - b) Questions to include:
 - i) Location of respondent's residence and work, occupation, age and sex
 - ii) Perceived positive and negative impacts of Transmission Line
 1. During construction
 2. Post-construction
 - iii) Preferred alternative route and reasons
 - iv) Level of satisfaction
 - v) Comments about the consultation process
4. Arrange appropriate venues and refreshments for POH events (cost of venue rentals and refreshments to be borne by Manitoba Hydro).
5. Organize advertising for POH events, using direct mail and flyers where appropriate, as well as newspapers and notices (cost of distribution/advertising to be borne by Manitoba Hydro).

- a) It is assumed that Manitoba Hydro will approve all advertising materials at least 2 weeks in advance of the commencement of advertising
6. Facilitate Round 1 Open House events, including recording attendees and assisting in answering questions
7. Provide opportunities during the events, as required, for formal presentations with question and answer sessions

Deliverables: Plans and materials for POHs, all created with maps and information from other consultants, and with direction from and approval of Manitoba Hydro; summaries of questionnaire survey results and meeting Q&As.

1.2.3 PHASE 3 – Route Selection, Socio-economic and Environmental Issues

Task 11: Document Socio-Economic Interests (July 1 to August 1, 2013)

1. Identify Key Person profiles
2. Summarize Workshop profiles
3. Summarize POH profiles
4. Identify socio-economic interests identified in Key Person Interviews, Workshops and POH Questionnaire Survey responses
5. Describe the potential effects of construction and operation activities on those interests

Deliverables: Summary report on socio-economic interests, benefits and costs

Task 12: Document Issues Related To Alternative Routes (July 1 to August 1, 2013)

1. Identify issues and effects for individuals, municipalities, First Nations and others related to alternative routes

Deliverables: Impacts and effects of alternative routes identified based on PEP process

Task 13: Summarize Potential Effects and Document Mitigation Measures (July 1 to August 1, 2013)

1. Summarize the potential environmental, social, economic, health (including EMF), and heritage effects of the construction and operation of the transmission lines project on the interests identified during the PEP.
2. Identify mitigation measures and management strategies to avoid, minimize or otherwise mitigate potential effects of construction and operation activities on interests identified during consultation with landowners, municipalities, First Nations, and government agencies, and the general public.

Deliverables: Assessment completed to inform the Environmental Assessment Report; mitigation strategies developed with optional approaches

1.2.4 PHASE 4 – Round 2 Public Engagement

Task 14: Organize and Facilitate Round 2 POH Events (August 1 to September 30, 2013)

1. This task assumes that Preferred Routes for the transmission lines will be determined by August 1, 2013.
2. Provide input into agenda, discussions, materials and logistics for three Round 2 POH events.

3. In consultation with the Site Selection and Environmental Assessment Consulting Services, develop display materials for POH events, including presentation/storyboards and a PowerPoint presentation.
 - a) Require electronic versions of maps and succinct descriptions from other consultants at least 5 weeks in advance of Open House events to allow for Manitoba Hydro approval of materials and production
 - b) It is assumed that Manitoba Hydro will approve all presentation materials at least 2 weeks in advance of the Open House to allow for production of presentation materials
4. Prepare a questionnaire survey instrument to obtain feedback from Open House attendees.
5. Arrange appropriate venues and refreshments for POH events (cost of venue rentals and refreshments to be borne by Manitoba Hydro).
6. Organize advertising for POH events, using direct mail and flyers where appropriate, as well as newspapers and notices (cost of distribution/advertising to be borne by Manitoba Hydro).
 - a) It is assumed that Manitoba Hydro will approve all advertising materials at least 2 weeks in advance of the commencement of advertising.
7. Facilitate Open House events, including recording attendees and assisting in answering questions.
8. Provide opportunities, as required, for formal presentations with question and answer sessions.

Deliverables: Plans and materials for Round 2 POHs, all created with direction from and approval of Manitoba Hydro, and summaries of questionnaire survey results and meeting Q&As.

Task 15: Summarize Round 2 and Draft Technical Report (September 30 to October 15, 2013)

1. Summarize PEP and results, including potential effects of municipal and First Nation issues.
2. Provide relevant materials for Draft Technical Report that:
 - a) Confirms Site, Corridor, Route Selection – stakeholder and public feedback
 - b) Highlights socio-economic benefits and costs – stakeholder and public information
 - c) Summarizes impacts and mitigation strategies – stakeholder and public feedback
 - d) Assesses overall PEP involvement and decision making, and best practice.

Deliverables: Draft Technical Report

Task 16: Final Technical Report (November 15, 2013)

1. Review Draft Technical Report with Project Coordinator and consultants responsible for providing Site Selection and Environmental Assessment Consulting Services.
2. Revise draft as appropriate.
3. Review Draft Technical Report with Manitoba Hydro.
4. Revise Draft Technical Report as directed by Manitoba Hydro.

Deliverables: Final Technical Report

Task 17: First Draft EA Report (October 15, 2013)

1. Provide summary of engagement for the EA Report.
2. Included socio-economic summary from Draft Technical Report.
3. Include environmental summary from Draft Technical Report.

Deliverables: Content for Draft EA

1.2.5 PHASE 5 – Client Communication

Task 18: Provide Regular AECOM Project Status Reports (May to November 30, 2013)

1. Provide monthly summaries of all communications with landowners, municipalities, First Nations, Federal and Provincial Agencies and other organizations.
2. Provide summaries of hours worked per team member, amount billed to date and percentage complete.
3. Provide summaries of communications (see Appendix E).

Deliverable: Regular and consistent project reporting**1.3 Key Deliverables**

1. Public Engagement Program (PEP) and Communications Strategy/Protocol.
2. Interview Outline for Key Person Interviews (KPI) and Summary Report on the results of interviews.
3. Questionnaire Survey Forms to obtain feedback at Rounds 1 and 2 POH Events and report on results, including route/site selection, and socio-economic and environmental implications.
4. Workshop discussion materials and summaries/records of proceedings.
5. Information/Storyboards that relate to the Route Selection Options and Environmental Assessment
6. Draft and Final Technical Reports and input to the final EA Report

1.4 Major Assumptions Related to Schedule, Fees and Expenses

1. Manitoba Hydro will provide timely reviews of materials for advertising and presentations for KPI, Stakeholder Workshops and POHs.
2. Manitoba Hydro will be responsible for all costs for printing and dissemination of advertising.
3. Manitoba Hydro will be responsible for all costs for website maintenance and website links associated with the project public engagement process
4. Manitoba Hydro will be responsible for all costs for printing and mounting of presentation materials for Stakeholder Workshops and POH events.
5. AECOM costs assume a specific number of telephone interviews/meetings and POH events, as noted. Additional calls, meetings and events will be addressed by AECOM Scope Changes requesting additional time and budgets.
6. Manitoba Hydro will be responsible for all costs associated with venues and refreshments at meetings, Workshops and POH events, including: hall rentals, maintenance and security personnel, coffee and other refreshments.
7. Revisions to presentation materials and documents due to rework by other consultants will be subject to Scope Changes addressing additional time and costs incurred by AECOM.
8. AECOM will submit Scope Changes requesting modifications to the project schedule if deadlines for information, draft presentation materials and review comments are not met by Manitoba Hydro and/or other Item Consultants.

APPENDIX B

Scope Change 1B (Revised)

APPENDIX C

Framework for Stakeholder Workshops

Agenda

1. Introduction of Manitoba Hydro and Consultants for the St. Vital Transmission Lines Complex
 - a) Manitoba Hydro - Maggie and Trevor
 - b) AECOM - Don, Alison, Leanna and Kristina
2. Description of the St. Vital Transmission Lines Complex
 - a) Two lines/routes
 - b) Power security rationale – notes from Manitoba Hydro
3. Outline of Environmental Assessment requirements, including socio-economic
 - a) License to proceed with detailed design and construction
 - b) Socio-economic considerations from PEP
4. Outline of Photo Science Route Selection process, and TRAC Workshops
 - a) Overall Study Area from Macro-corridor
 - b) Alternative Corridors – TRAC criteria and weighting – within Study Area
 - c) Alternative Routes within Corridors
 - d) Preferred Route
5. Outline of PEP
 - a) Process related to Environmental Assessment
 - b) Process connected to each phase of the Route Selection process
 - i) Balance feedback from experts and local interests
6. Questions on process
7. Alternative Route Preferences (breakout groups of 6)
 - a) Map exercise
 - b) Issues identification
 - c) Dot-mocracy rating of issues
8. Questionnaire Survey

APPENDIX C

Framework for Stakeholder Workshops

Locations

1. Winnipeg South
 - High School Auditorium?
2. Steinbach
 - TBA
3. Morris
 - TBA

APPENDIX D KPI Scripts

1. Agriculture
2. Business and Industry
3. Education
4. Environment
5. Health
6. Municipal
7. Policing
8. Trappers



Manitoba Hydro

Proposed 230Kv Transmission Lines from St. Vital Station to Letellier Station and La Verendrye Station

ITEM 2: Public Engagement Program Consulting Services

June 3, 2013 DRAFT QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Agricultural KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization ? (Do you wish to remain anonymous?)	What interests do you represent?	Approximate -ly how many people are directly employed by agriculture/ your industry in your local area? (round number or estimated percentage of population)	How would you describe the current economic state of agriculture/ your industry in the local area?	How do you see agriculture/ your industry changing in the future (locally)?	What are some of the most significant economic events that have taken place in agriculture/ your industry in the recent past?	Are there any government subsidies or incentives for your industry?
Name:			State of growth			
			State of decline			
			No perceptible change			
					How has this affected the overall economy?	
Location:						
					How has this affected the labour force in Manitoba?	



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8	9	10	11	12	13	14
Has the labour force changed over time in agriculture/ your industry?	Are there more or less jobs available now compared to the past?	Have types of agricultural/ related industry employment changed recently?	Does agriculture/ your industry regularly seek employees from outside the province, or the local area?	Is the agricultural sector/ your industry affected by power system reliability?	Is agriculture/ your industry in need of more electric power?	In your opinion, where should Transmission Line Corridors be located relative to existing property lines?
YES	MORE	YES	YES	YES	YES	Section and Quarter-section boundaries
NO	LESS	NO	NO	NO	NO	Other
How?	Please explain	How?		How?	Please explain	



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15	16	17	18	19	20	21
In your opinion, should Transmission Lines be Constructed in areas with Class 1 to 3 (Prime to Good) Agricultural Land?	In your opinion, what land uses are best suited to be in proximity to Hydro Transmission Line Corridors?	In your opinion, do Hydro Transmission Lines have any effects on agricultural practices?	In your opinion, will property values be affected due to the implementation of this transmission line?	In your opinion, will the transmission towers and lines affect aerial spraying operations?	In your opinion, will the transmission towers and lines affect pivot irrigation systems?	In your opinion, will the transmission towers and lines affect GPS?
YES	Grain/Oilseed Farming	YES	YES	YES	YES	YES
NO	Market Gardening	NO	NO	NO	NO	NO
Why?	Berry Farms	How?	How?	How?	How?	How?
	Horticulture/ Tree Nurseries					
	Pasture/ Grazing					
	Intensive Animal Operations (Hog, Cattle, Poultry)					
	Woodlots					
	Wetlands and Marsh Areas					
	Parks and Recreation Areas					
	Transportation Corridors					
	Other					



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22	23	24	25	26	27	28
In your opinion, will the transmission towers and lines affect your industry's ability to conduct organic farming on or near the proposed ROW?	Do you have any concerns from construction or operation and maintenance activities associated with a Transmission Line right-of-way on agricultural/ your industry's operating activities?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?			
YES	YES		YES			
NO	NO		NO			
			Would you be interested in attending a related Workshop?			
How?	What are they?		YES			
			NO			



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Business and Industry KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization ? (Do you wish to remain anonymous?)	What is the scale and geographic extent of your company within Manitoba? Canada? Internationally?	How many people are directly employed by your organization ?	How would you describe your industry's economic state?	Do you see your industry changing in the future?	What are some of the most significant economic events that have taken place in your industry in the recent past?	Are there any government subsidies or incentives for your industry?
Name:	Manitoba?		State of growth	YES		YES
			State of decline	NO		NO
Location:			No perceptible change	How?	How has this affected the overall economy?	What are they?
	Canada?					
	Internationally?				How has this affected the labour force in Manitoba?	



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8	9	10	11	12	13	14
How has the labour force changed in your industry?	Are there more or less jobs available now compared to the past?	Generally, how have various types of employment changed over time in the local area?	Does your business or industry regularly seek employees from outside the province, or the local area?	What are your company's (or industry's) power requirements ?	Is your business or industry currently affected by the electric power system's reliability?	Is your industry in need of more electric power?
	MORE		YES		YES	YES
	LESS		NO		NO	NO
	Why?		Outside Province		How?	Why?
			Outside Local Area	What energy sources are used?		
				Manitoba Hydro electric power?		Other power?
			Why?	Other?		



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June 3, 2013 DRAFT QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

15	16	17	18	19	20	21
Are there any development initiatives (by others) – recently approved or in the approval process - that may affect your business or industry?	Is your business or industry planning any new developments that Manitoba Hydro should be aware of in planning for a new Transmission Line?	Would there be any effects on your business, or operating activities, related to construction, or operation and maintenance activities associated with a new Transmission Line right-of-way?	In your opinion, will property values be affected due to the construction of this Transmission Line?	Where should Transmission Line Corridors be located relative to existing property lines?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?
YES	YES	YES	YES	Section and Quarter-section boundaries?	YES	YES
NO	NO	NO	NO	Other?	NO	NO
Type?		What would they be?	Why?			Would you be interested in attending a related Workshop?
						YES
						NO
Where located?						



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Education KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization	What facilities are operated by your organization?	How many people are employed by your organization (provide breakdown by type if possible)?	What types of programs are offered at facilities operated by your organization?	What communities/ areas are serviced by your facilities?	Are rates of enrolment on the rise, steady state, in decline?	What are the demographics of your student bodies?
Name:					RISING	
					STEADY	
		Is the employment long term/short term/ contract			DECLINING	
Location:						



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8	9	10	11	12	13	14
What are typical employment rates after graduation?	Do you have any programs linked with Manitoba Hydro (such as cooperative education)?	Would a new Transmission Line impact the operations of your organization?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?		
		YES		YES		
		NO		NO		
		How?		Would you be interested in attending a related Workshop?		
				YES		
		Facilities?		NO		
		Transportation ?				



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Environmental KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization (Do you wish to remain anonymous?)	What interests do you represent?	How many people are directly employed by your organization?	What environmental features are important to your organization (e.g. water quality, wetlands)?	What type of initiatives does your organization undertake related to these features?	Have past development projects affected environmental features important to your organization?	How did your organization react to past projects?
Name?					YES	
					NO	
					How?	
Location?						



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8	9	10	11	12	13	14
How were impacts mitigated, if any?	In your opinion, will a new Transmission Line affect environmental features important to your organization?	What land uses are best suited to be in proximity to Hydro Transmission Line Corridors?	What is the impact of construction on local watersheds and aquifers?	Are there any vegetation types in the Study Area that are especially important (such as orchids, remnant tree stands, native prairie)?	Are there any areas with important wildlife habitat (spawning, calving, breeding and nesting areas) in the Study Area?	Are there any areas with large concentration or gatherings of wildlife in the Study Area? (e. g. A flush of migrating raptors through the area or large numbers of waterfowl feeding on grain fields?)
	YES			YES	YES	YES
	NO	Grain/Oilseed Farming		NO	NO	NO
	How?	Market Gardening		What type?	What type?	Where located?
		Berry Farms				
		Horticulture/Tree Nurseries				
		Pasture/Grazing				
		Intensive Animal Operations (Hog, Cattle, Poultry)				
		Woodlots		Where located?	Where located?	
		Wetlands and Marsh Areas				
		Parks and Recreation Areas				
		Transportation Corridors				



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15	16	17	18	19	20	21
Are there any important rivers, streams or wetlands in the Study Area that provide wildlife habitat or fishing opportunities ?	Where should Transmission Line Corridors be located relative to existing property lines?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?			
YES	Section and Quarter-section boundaries?		YES			
NO	Other?		NO			
Where located?			Would you be interested in attending a related Workshop?			
			YES			
			NO			



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Health KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization (Health Authority, hospital etc.)	What facilities are operated by your organization?	How many people are employed by your organization (provide breakdown by type if possible)?	What types of services are offered at the facilities operated by your organization?	What communities/ areas are serviced by your facilities?	How would you rate emergency response time in the communities/ areas serviced?	Would you expect emergency services be impacted by the Transmission Line project?
Name:					GOOD	YES
					FAIR	NO
Location:					POOR	
					UNSURE	How?
					Issues?	
					What changes have you noticed over time?	



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8	9	10	11	12	13	14
What services are unavailable at your facilities that patients need to travel elsewhere to obtain?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?				
		YES				
		NO				
		Would you be interested in attending a related Workshop?				
		YES				
		NO				



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Municipal KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Municipality (Do you wish to remain anonymous?)	What are the (approximate) current municipal population, and the populations in your major Urban and Rural Centres?	What are the major types of employment in your Municipality?	What are the principal industries, and other employers in your Municipality?	How would a new Transmission Line affect business in your Municipality?	What positive or negative effects do you think a new Transmission Line would have on the Municipality, if any?	What highways and rail lines run through your Municipality?
Name:	Overall Municipal Population?	Agricultural		POSITIVE	POSITIVE	Major Highways:
				NEGATIVE	NEGATIVE	
	Urban Centres?			DON'T KNOW	DON'T KNOW	
				EXPLAIN?	EXPLAIN?	
Location:		Industrial	Approximately how many people are employed by the principal employers in your Municipality?			
	Rural Centres?					
		Other	What industry or other employer has the largest labour force?			Rail Lines?



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8	9	10	11	12	13	14
How would a new Transmission Line affect existing transportation and utility corridors?	Should Transmission Lines be Constructed in areas with Class 1 to 3 Agricultural Land? (Prime to Good Agricultural Land)	What land uses are best suited to be in proximity to Hydro Transmission Line Corridors?	Do Hydro Transmission Lines have any effects on agricultural practices?	Where should Transmission Line Corridors be located relative to existing property lines?	What are community perceptions related to the aesthetics of existing utility infrastructure, such as telephone pole lines and transmission lines?	Has the community expressed any concerns about construction noise or dust issues for approved projects or projects in the process of being approved?
Significantly	YES		YES	Section and Quarter-section boundaries	Major Concerns	YES
Not much	NO	Grain/Oilseed Farming	NO	Other	Some Concerns	NO
Not at all	Why?	Market Gardening	How?		Minimal Concerns	UNSURE
Why?		Berry Farms			Unconcerned	
		Horticulture/ Tree Nurseries			Prefer buried lines	Noise
		Pasture/ Grazing				Dust
		Intensive Animal Operations (Hog, Cattle, Poultry)				Other
		Woodlots				
		Wetlands and Marsh Areas				
		Parks and Recreation Areas				
		Transportation Corridors				



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15	16	17	18	19	20	21
Has the community experienced any infrastructure issues from past industrial construction projects, such as roads, sewer and water lines?	Are there concerns locally about the impact of construction on local watersheds and aquifers?	Are there parks or recreation areas in your Municipality, or areas used for extensive outdoor activities (snow-mobiling, skiing, hiking, or camping)?	Do you think that any phases of the Transmission Line project (construction, operation, monitoring or maintenance) will affect recreational activities in your Municipality?	Are new residential, commercial or industrial developments planned in your Municipality that would be impacted by the proposed Transmission Line corridor?	Are new municipal projects (lagoons, landfills, other) planned in the next few years that could potentially be impacted by the Transmission Line?	Has your municipality undertaken any sustainable development initiatives?
YES	YES	YES	YES	YES	YES	YES
NO	NO	NO	NO	NO	NO	NO
Projects?	Why?	Activities?	HOW?	Where?	Where?	Where?
				Types of Development ?	Types of Development ?	Initiative?
Where are they located?		Locations?				
				Impacts?	Impacts?	PowerSmart?



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22	23	24	25	26	25	26
Would you anticipate community members accessing the Transmission Line right-of-way?	Are there any vegetation types in your Municipality that are especially important (such as orchids, remnant tree stands, native prairie)?	Are there any areas with important wildlife habitat (spawning, calving, breeding and nesting areas)?	Have you noticed any areas with large concentration or gatherings of wildlife in your area? (e.g. A flush of migrating raptors through the area or large numbers of waterfowl feeding on grain fields)	Are there any rivers, streams or wetlands in your area that provide important wildlife habitat or fishing opportunities ?	Are there any flood-related issues in your Municipality that would impact transmission line development ?	Are there other hazards to be addressed in your Municipality, such as frequent wildfires?
YES	YES	YES	YES	YES	YES	YES
NO	NO	NO	NO	NO	NO	NO
Why?	What type?	What type?	Where located?	Where located?	How extensive are they?	What are they?
Snow-mobiling?						
Hiking/skiing ?						
Berry picking?						
Other?	Where located?	Where located?				



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27	28	29	30	31	32	33
What safety measures should be put in place related to right-of-way access?	How would you describe the overall health and well-being of people in your Municipality?	Would you expect emergency services to be impacted by the Transmission Line project?	Are there any airports, including float plane landing areas in your Municipality?	Do you have any comments or further information that you would like to add?	Can a copy of the municipal development plan be provided?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?
	GOOD	YES	YES	YES		YES
	FAIR	NO	NO	NO		NO
	POOR					Would you be interested in attending a related Workshop?
	UNSURE	How?				YES
						NO
	Issues?		Where located?			
	What changes have you noticed over time?					



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Policing KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization	How many people are employed at your detachment (provide breakdown by type if possible)?	When was your detachment established?	What facilities are available at your detachment?	What communities/ areas are served by your detachment?	How would you rate emergency response time in the communities/ areas serviced?	What are the most common calls received?
Name:					GOOD	
					FAIR	
	Short Term/Long Term/Contract?	Have there been any upgrades?			POOR	
Location:					UNSURE	
		Are there any plans for future upgrades?			Issues?	Is 911 available in the area?
	Where are most employees coming from?					YES
					What changes have you noticed over time?	NO



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8	9	10	11	12	13	14
Have you seen changes in the types of crimes being committed recently?	Is the detachment involved in any programs or activities in the communities?	Would you expect emergency services to be impacted by the Transmission Line project?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?		
		YES		YES		
		NO		NO		
		How?		Would you be interested in attending a related Workshop?		
				YES		
				NO		



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June 3, 2013 DRAFT QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Trappers KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Name: Do you wish to remain anonymous?	We would like to ask some general questions about trapping in the area. Has the price of fur changed significantly in recent years?	Have trapper demographics changed in recent years?	Has the purpose of trapping changed in recent years?	Have trapping methods changed?	Have animal resources in the local area changed in recent years? (Population fluctuations, size, etc.)	We would also like to know some specific things about the local industry. How has recent development in the local area affected trapping activities?
	YES	YES	YES	YES	YES	
Location:	NO	NO	NO	NO	NO	
	How?	How?	How?	How?	How?	
How many years have you been trapping?						
	How do you anticipate the price of fur will change in the future?					
Where is your trapline located?						
	What factors affect the price of fur?					
What species are your primarily focus?						



Manitoba Hydro

Proposed 230Kv Transmission Lines from St. Vital Station to Letellier Station and La Verendrye Station

ITEM 2: Public Engagement Program Consulting Services

June 3, 2013 DRAFT QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

8	9	10	11	12	13	14
Have animal resources recovered in any developed areas?	What seasons are most important to trappers?	How do you access your trap line?	Can you identify any important areas for trapping that Manitoba Hydro should be aware of (tree stands, outpost cottages, baiting locations)?	Do you think that any phases of the Transmission Line project (construction, operation, monitoring or maintenance) will affect trapping activities?	What positive or negative effects would a new Transmission Line have on trappers, if any?	Would you anticipate that trappers might use the Transmission Line right-of-way for access to their traplines?
			YES	YES	POSITIVE	YES
			NO	NO		NO
			Located where?		NEGATIVE	
				How?		Why?
					DON'T KNOW	
					EXPLAIN?	What safety measures should be put in place related to transmission line right-of-way access?



Manitoba Hydro

Proposed 230Kv Transmission Lines from St. Vital Station to Letellier Station and La Verendrye Station

ITEM 2: Public Engagement Program Consulting Services

June 3, 2013 DRAFT QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

15	16	17	18	19	20	21
What land uses are best suited to be in proximity to Hydro Transmission on Line Corridors?	Are there any particular vegetation types that should be protected (such as orchids, remnant tree stands, native prairie)?	Are there any areas with important wildlife habitat that should be protected (spawning, calving, breeding and nesting areas)?	Do you know of any areas with large concentrations or gatherings of wildlife? (e.g. A flush of migrating raptors through the area, or large numbers of waterfowl feeding on grain fields)	Are there any rivers, streams or wetlands that provide important wildlife habitat or fishing opportunities ?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?
Grain, Oilseed Farming	YES	YES	YES	YES	YES	YES
Market Gardening	NO	NO	NO	NO	NO	NO
Berry Farms	What type?	What type?	Where located?	Where located?		Would you be interested in attending a related Workshop?
Horticulture /Tree Nurseries						YES
Pasture/ Grazing						NO
Intensive Animal Operations (Hog, Cattle, Poultry)						
Woodlots						
Wetlands and Marsh Areas	Where located?	Where located?				
Parks and Recreation Areas						
Transport Corridors						

APPENDIX E

AECOM Communications

St. Vital Transmission Complex - Public Engagement Program

Stakeholder Workshops

In August 2013 Manitoba Hydro intends to hold a series of three Stakeholder Workshops in south Winnipeg, Steinbach and Morris on the St. Vital Transmission Complex. With up to 24 individuals each, representing a broad range of perspectives, the Workshops are intended to enhance the public engagement process for a proposed 230 kV Transmission Line from St. Vital Station to Letellier Station and La Verendrye Station.

The Stakeholder Workshops are intended to be a forum in which stakeholders/interest groups can learn about the Route Selection and Environmental Assessment processes involved in this Project, and can share a range of understandings about the Project.

Who are the Stakeholders?

Manitoba Hydro intends to engage individuals representing diverse perspectives within the Project area and the Province in general. We anticipate that this will allow our Project Team to gain greater insight into the local context of the Project area, and hear a wide range of viewpoints on the St. Vital Transmission Complex Project.

How are members determined?

Manitoba Hydro has developed a preliminary list of the interest groups that may wish to participate in this process. The following are some candidates we are inviting:

- Representatives of Local Governments (CAO, Reeves and Mayors of Rural Municipalities)
- Landowner Groups
- Agricultural Groups (Keystone Agriculture)
- Environmental Non-Governmental Organizations
- Community Groups

Manitoba Hydro also intends to notify the general public of the Project through focused notifications. This will inform local individuals and interest groups of the activities being undertaken by Manitoba Hydro and how their groups might become involved. Manitoba Hydro will welcome new representation as the process becomes better known and additional groups demonstrate an interest.

Manitoba Hydro would like all Workshop participants to represent larger stakeholder/interest groups: there will be other options for individual affected landowners to provide feedback.

What will the Stakeholder Workshops review?

It is anticipated that the Stakeholder Workshop participants will learn about the following components of the Project's Environmental Assessment

- Transmission Line Route Selection Process
- Alternative Routes for new Transmission Lines
- The outcome of the PEP process Round 1 which has led to the Alternative Routes.

These are intended to provide insight into material which will be utilized in Round 2

When will Workshops occur?

It is anticipated that there will be three (3) Stakeholder Workshops in 2013, in south Winnipeg, Steinbach and Morris.

Will participants be paid?

No. Workshop stakeholder participants will not be paid for their involvement. Members of the group will be provided a meal, as well as all reasonable travel costs to attend the meetings.

Can one stakeholder/interest group have multiple members in the Workshops?

Similar interests may be present at the table but it is anticipated that only one representative will speak on behalf of a collective entity/interest. We encourage identification of back up representatives in case there are conflicts in Stakeholders availability to attend meetings.

Will the meetings be documented?

Yes. It is anticipated that there will be meeting notes drafted and reviewed by the PEP Consultant, which will be submitted as part of the Environmental Assessment Report.

What is the Code of Ethics?

The following will be required of all participants to participate in the Workshops. Participants:

- Will be courteous, and respectful of the opinions of others
- Will share information with Manitoba Hydro and other Stakeholders that is pertinent to the process
- Will provide information obtained in meetings with their respective interest groups
- Will be understanding of Manitoba Hydro constraints
- Will make clear in any subsequent media or external discussions that their views do not represent those of other stakeholders or Manitoba Hydro

Appendix B1

KPI Scripts



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Agricultural KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization? (Do you wish to remain anonymous?)	What interests do you represent?	Approximately how many people are directly employed by agriculture/ your industry in your local area? (round number or estimated percentage of population)	How would you describe the current economic state of agriculture/ your industry in the local area?	How do you see agriculture/ your industry changing in the future (locally)?	What are some of the most significant economic events that have taken place in agriculture/ your industry in the recent past?	Are there any government subsidies or incentives for your industry?
Name:			State of growth			
			State of decline			
			No perceptible change			
				How will this affect the overall economy?	How has this affected the overall economy?	
Location:						
					How has this affected the labour force in Manitoba?	



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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Agricultural KPI Questions

8	9	10	11	12	13	14
Has the labour force changed over time in agriculture/ your industry?	Are there more or less jobs available now compared to the past?	Have types of agricultural/ related industry employment changed recently?	Does agriculture/ your industry regularly seek employees from outside the province, or the local area?	Is the agricultural sector/ your industry affected by power system reliability?	Is agriculture/ your industry in need of more electric power?	In your opinion, where should Transmission Line routes be located relative to existing property lines?
YES	MORE	YES	YES	YES	YES	Section and Quarter-section boundaries
NO	LESS	NO	NO	NO	NO	Other
How?	Please explain	How?		How?	Please explain	



Manitoba Hydro

St. Vital Transmission Complex

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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Agricultural KPI Questions

15	16	17	18	19	20	21
In your opinion, If Transmission Lines are constructed in an agricultural area which land uses should be avoided or favoured?	In your opinion, what land uses are best suited to Hydro Transmission Lines?	In your opinion, do Hydro Transmission Lines have any effects on agricultural practices?	In your opinion, will property values be affected due to the implementation of this transmission line?	In your opinion, will the transmission towers and lines affect aerial spraying operations?	In your opinion, will the transmission towers and lines affect pivot irrigation systems?	In your opinion, will the transmission towers and lines affect GPS or other navigation tools?
	Grain/Oilseed Farming	YES	YES	YES	YES	YES
Avoided:	Market Gardening	NO	NO	NO	NO	NO
	Berry Farms	How?	How?	How?	How?	How?
	Horticulture/Tre e Nurseries					
Why?	Pasture/ Grazing					
	Intensive Animal Operations (Hog, Cattle, Poultry)					
	Woodlots					
Favoured?	Wetlands and Marsh Areas			Could placement minimize effects?	Could placement minimize effects?	
	Parks and Recreation Areas					
Why?	Transportation Corridors					
	Other					



Manitoba Hydro

St. Vital Transmission Complex

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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Agricultural KPI Questions

22	23	24	25	26	27	28
In your opinion, will the transmission towers and lines affect your industry's ability to conduct organic farming on or near the proposed ROW?	Do you have any concerns from construction or operation and maintenance activities associated with a Transmission Line right-of-way on agricultural/ your industry's operating activities?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?	If we have any additional questions, is it possible to contact you again?		
YES	YES		YES	YES		
NO	NO		NO	NO		
			Would you be interested in attending a related Workshop in mid August (half day in length)?			
How?	What are they?		YES			
			NO			
	Could they be mitigated?					



Manitoba Hydro

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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Agricultural KPI Questions

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Business and Industry KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization? (Do you wish to remain anonymous?)	What is the scale and geographic extent of your company within Manitoba? Canada? Internationally?	How many people are directly employed by your organization?	How would you describe your industry's economic state?	Do you see your industry changing in the future?	What are some of the most significant economic events that have taken place in your industry in the recent past?	Are there any government subsidies or incentives for your industry?
Name:	Manitoba?		State of growth State of decline	YES NO		YES NO
Location:			No perceptible change	How?	How has this affected the overall economy?	What are they?
	Canada?					
	Internationally?				How has this affected the labour force in Manitoba?	



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Business and Industry KPI Questions

8	9	10	11	12	13	14
How has the labour force changed in your industry?	Are there more or less jobs available now compared to the past?	Generally, how have various types of employment changed over time in the local area?	Does your business or industry regularly seek employees from outside the province, or the local area?	What are your company's (or industry's) power requirements?	Is your business or industry currently affected by the electric power system's reliability?	Is your industry in need of more electric power?
	MORE		YES		YES	YES
	LESS		NO		NO	NO
	Why?		Outside Province		How?	Why?
			Outside Local Area	What energy sources are used?		
				Manitoba Hydro electric power?		Other power?
			Why?	Other?		



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Business and Industry KPI Questions

15	16	17	18	19	20	21
Are there any development initiatives (by others) – recently approved or in the approval process - that may affect your business or industry?	Is your business or industry planning any new developments that Manitoba Hydro should be aware of in planning for a new Transmission Line?	Would there be any effects on your business, or operating activities, related to construction, or operation and maintenance activities associated with a new Transmission Line right-of-way?	In your opinion, will your property values be affected due to the construction of this Transmission Line?	Where should Transmission Line routes be located relative to existing property lines?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?
YES	YES	YES	YES	Section and Quarter-section boundaries?	YES	YES
NO	NO	NO	NO	Other?	NO	NO
Type?		What would they be?	Why?			Would you be interested in attending a related Workshop in mid August (half day in length)?
						YES
						NO
Where located?						



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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Business and Industry KPI Questions

22						
If we have any additional questions, is it possible to contact you again?						
YES						
NO						

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Education KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization	What facilities are operated by your organization?	How many people are employed by your organization (provide breakdown by type if possible)?	What types of programs are offered at facilities operated by your organization?	What communities/ areas are serviced by your facilities?	Are rates of enrolment on the rise, steady state, in decline?	What are the demographics of your student bodies?
Name:					RISING	
					STEADY	
		Is the employment long term/short term/ contract			DECLINING	
Location:						



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Education KPI Questions

8	9	10	11	12	13	14
What are typical employment rates after graduation?	Do you have any programs linked with Manitoba Hydro (such as cooperative education)?	Would a new Transmission Line impact the operations of your organization?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?	If we have any additional questions, is it possible to contact you again?	
		YES		YES	YES	
		NO		NO	NO	
		How?		Would you be interested in attending a related Workshop in mid August (half day in length)?		
				YES		
		Facilities?		NO		
		Transportation?				



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Education KPI Questions

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Environmental KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization (Do you wish to remain anonymous?)	What interests do you represent?	How many people are directly employed by your organization?	What environmental features are important to your organization (e.g. water quality, wetlands)?	What type of initiatives does your organization undertake related to these features?	Have past development projects affected environmental features important to your organization?	How was your organization involved in past projects?
Name?					YES	
					NO	
					How?	
		How many people volunteer at your organization?				
Location?						

Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Environmental KPI Questions

8	9	10	11	12	13	14
How were impacts mitigated, if any?	In your opinion, will a new Transmission Line affect environmental features important to your organization?	What land uses are best suited to be in proximity to Hydro Transmission Line routes?	In your opinion, will there be impacts related to transmission line construction on local watersheds and aquifers?	Are there any vegetation types in the Study Area that are especially important (such as orchids, remnant tree stands, native prairie)?	Are there any areas with important wildlife habitat (spawning, calving, breeding and nesting areas) in the Study Area?	Are there any areas with large concentration or gatherings of wildlife in the Study Area? (e. g. A flush of migrating raptors through the area or large numbers of waterfowl feeding on grain fields?)
	YES			YES	YES	YES
	NO	Grain/Oilseed Farming		NO	NO	NO
	How?	Market Gardening		What type?	What type?	Where located?
		Berry Farms				
		Horticulture/Tre e Nurseries				
		Pasture/ Grazing				
		Intensive Animal Operations (Hog, Cattle, Poultry)				
		Woodlots		Where located?	Where located?	
		Wetlands and Marsh Areas				
		Parks and Recreation Areas				
		Transportation Corridors				

Manitoba Hydro

St. Vital Transmission Complex

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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Environmental KPI Questions

15	16	17	18	19	20	21
Are there any important rivers, streams or wetlands in the Study Area that provide wildlife habitat or fishing opportunities?	Where should Transmission Line routes be located relative to existing property lines?	What are current stressors on important environmental features?	Are there any important recreation areas or areas of ecotourism in the Study Area?	Do you have concerns related to important recreation areas or areas of ecotourism and a new Transmission Line?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?
YES	Section and Quarter-section boundaries?		YES	YES		YES
NO	Other?		NO	NO		NO
Where located?		Are they increasing, decreasing or remaining relatively constant?	Where located?	What?		Would you be interested in attending a related Workshop in mid August (half day in length)?
						YES
		What can be done to reduce these stressors?				NO



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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Environmental KPI Questions

22						
If we have any additional questions, is it possible to contact you again?						
YES						
NO						

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Health KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization (Health Authority, hospital etc.)	What facilities are operated by your organization?	How many people are employed by your organization (provide breakdown by type if possible)?	What types of services are offered at the facilities operated by your organization?	What communities/ areas are serviced by your facilities?	How would you rate emergency response time in the communities/ areas serviced?	Would you expect emergency services be impacted by the Transmission Line project?
Name:					GOOD	YES
					FAIR	NO
Location:					POOR	
					UNSURE	How?
					Issues?	
					What changes have you noticed over time?	



Manitoba Hydro

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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Health KPI Questions

8	9	10	11	12	13	14
What services are unavailable at your facilities that patients need to travel elsewhere to obtain?	What are the predominant health concerns in the area?	Do you have any power reliability concerns?	Have you heard of any health impacts from Transmission Lines?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?	If we have any additional questions, is it possible to contact you again?
			YES		YES	YES
			NO		NO	NO
					Would you be interested in attending a related Workshop in mid August (half day in length)?	
			What?		YES	
					NO	

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



Manitoba Hydro

St. Vital Transmission Complex

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July 16, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Government Infrastructure KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization (Do you wish to remain anonymous?)	How many people are directly employed by your organization?	Do you see your organization changing in the future?	What are some of the most significant economic events that have taken place in your organization in the recent past?	How has the labour force changed in your organization?	Are there more or less jobs available now compared to the past?	Does your organization regularly seek employees from outside the province?
Name:		YES NO			MORE LESS	YES NO
		How?	How has this affected the overall economy?		Why?	
Location:						
			How has this affected the labour force in Manitoba?			Why?

Manitoba Hydro

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ITEM 2: Public Engagement Program Consulting Services

July 16, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Government Infrastructure KPI Questions

8	9	10	11	12	13	14
How would a new Transmission Line affect existing transportation and utility corridors?	In your opinion, If Transmission Lines are constructed in an agricultural area which land uses should be avoided or favoured?	What land uses are best suited to be in proximity to Hydro Transmission Line routes?	Do Hydro Transmission Lines have any effects on agricultural practices?	In your opinion, will your property values be affected due to the construction of this Transmission Line?	Where should Transmission Line routes be located relative to existing property lines?	Are there concerns locally about the impact of construction on local watersheds and aquifers?
Significantly			YES	YES	Section and Quarter-section boundaries?	YES
Not much	Avoided:	Grain/Oilseed Farming	NO	NO	Other?	NO
Not at all		Market Gardening	How?	Why?		Why?
Why?		Berry Farms				
	Why?	Horticulture/Tree Nurseries				
		Pasture/Grazing				
		Intensive Animal Operations (Hog, Cattle, Poultry)	Could effects be minimized or mitigated?			
	Favoured?	Woodlots				
		Wetlands and Marsh Areas				
	Why?	Parks and Recreation Areas	How?			
		Transportation Corridors				

Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

July 16, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Government Infrastructure KPI Questions

15	16	17	18	19	20	21
Has the community experienced any infrastructure issues from past industrial construction projects, such as roads, sewer and water lines?	What are community perceptions related to the aesthetics of existing utility infrastructure, such as telephone pole lines, transmission lines and wind farms?	Has the community expressed any concerns about construction noise or dust issues for approved projects or projects in the process of being approved?	Are new projects (lagoons, landfills, other) planned in the next few years that could potentially be impacted by the Transmission Line?	Are there any development initiatives (by others) – recently approved or in the approval process - that may affect your organization?	Is your organization planning any new developments that Manitoba Hydro should be aware of in planning for a new Transmission Line?	Would there be any effects on your business, or operating activities, related to construction, or operation and maintenance activities associated with a new Transmission Line right-of-way?
YES	Major Concerns	YES	YES	YES	YES	YES
NO	Some Concerns	NO	NO	NO	NO	NO
Projects?	Minimal Concerns	UNSURE	Where?	Type?		What would they be?
	Unconcerned					
	Prefer buried lines	Noise	Types of Development?			
Where are they located?		Dust		Where located?		
		Other				
			Impacts?			



Manitoba Hydro

St. Vital Transmission Complex

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July 16, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Government Infrastructure KPI Questions

22	23	24	25	26	27	28
What safety measures should be put in place related to right-of-way access?	Would you expect emergency services to be impacted by the Transmission Line project?	Is your organization currently affected by the electric power system's reliability?	Has your organization undertaken any sustainable development initiatives?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?	If we have any additional questions, is it possible to contact you again?
	YES	YES	YES	YES	YES	YES
	NO	NO	NO	NO	NO	NO
		How?	Where?		Would you be interested in attending a related Workshop in mid August (half day in length)?	
	How?				YES	
					NO	
			Initiative?			
			PowerSmart?			

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Municipal KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Municipality (Do you wish to remain anonymous?)	What are the (approximate) current municipal population, and the populations in your major Urban and Rural Centres?	What are the major types of employment in your Municipality?	What are the principal industries, and other employers in your Municipality?	How would a new Transmission Line affect business in your Municipality?	What positive or negative effects do you think a new Transmission Line would have on the Municipality, if any?	What highways and rail lines run through your Municipality?
Name:	Overall Municipal Population?	Agricultural		POSITIVE	POSITIVE	Major Highways:
				NEGATIVE	NEGATIVE	
	Urban Centres?			DON'T KNOW	DON'T KNOW	
				EXPLAIN?	EXPLAIN?	
Location:		Industrial	Approximately how many people are employed by the principal employers in your Municipality?			
	Rural Centres?					Rail Lines?
		Other	What industry or other employer has the largest labour force?			Are there any major drainage ditches associated with this infrastructure?

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June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Municipal KPI Questions

8	9	10	11	12	13	14
How would a new Transmission Line affect existing transportation and utility corridors?	In your opinion, If Transmission Lines are constructed in an agricultural area which land uses should be avoided or favoured?	What land uses are best suited to be in proximity to Hydro Transmission Line routes?	Do Hydro Transmission Lines have any effects on agricultural practices?	Where should Transmission Line routes be located relative to existing property lines?	What are community perceptions related to the aesthetics of existing utility infrastructure, such as telephone pole lines, transmission lines and wind farms?	Has the community expressed any concerns about construction noise or dust issues for approved projects or projects in the process of being approved?
Significantly			YES	Section and Quarter-section boundaries	Major Concerns	YES
Not much	Avoided:	Grain/Oilseed Farming	NO	Other	Some Concerns	NO
Not at all		Market Gardening	How?		Minimal Concerns	UNSURE
Why?		Berry Farms			Unconcerned	
	Why?	Horticulture/Tree Nurseries			Prefer buried lines	Noise
		Pasture/Grazing				Dust
		Intensive Animal Operations (Hog, Cattle, Poultry)	Could effects be minimized or mitigated?			Other
	Favoured?	Woodlots				
		Wetlands and Marsh Areas				
	Why?	Parks and Recreation Areas	How?			
		Transportation Corridors				



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Municipal KPI Questions

15	16	17	18	19	20	21
Has the community experienced any infrastructure issues from past industrial construction projects, such as roads, sewer and water lines?	Are there concerns locally about the impact of construction on local watersheds and aquifers?	Are there parks or recreation areas in your Municipality, or areas used for extensive outdoor activities (snow-mobiling, skiing, hiking, or camping)?	Do you think that any phases of the Transmission Line project (construction, operation, monitoring or maintenance) will affect recreational activities in your Municipality?	Are new residential, commercial or industrial developments planned in your Municipality that would be impacted by the proposed Transmission Line corridor?	Are new municipal projects (lagoons, landfills, other) planned in the next few years that could potentially be impacted by the Transmission Line?	Has your municipality undertaken any sustainable development initiatives?
YES	YES	YES	YES	YES	YES	YES
NO	NO	NO	NO	NO	NO	NO
Projects?	Why?	Activities?	HOW?	Where?	Where?	Where?
				Types of Development?	Types of Development?	Initiative?
Where are they located?		Locations?				
				Impacts?	Impacts?	PowerSmart?

Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Municipal KPI Questions

22	23	24	25	26	25	26
Would you anticipate community members accessing the Transmission Line right-of-way?	Are there any vegetation types in your Municipality that are especially important (such as orchids, remnant tree stands, native prairie)?	Are there any areas with important wildlife habitat (spawning, calving, breeding and nesting areas)?	Have you noticed any areas with large concentration or gatherings of wildlife in your area? (e.g. A flush of migrating raptors through the area or large numbers of waterfowl feeding on grain fields)	Are there any rivers, streams or wetlands in your area that provide important wildlife habitat or fishing opportunities?	Are there any flood-related issues in your Municipality that would impact transmission line development?	Are there other hazards to be addressed in your Municipality, such as frequent wildfires?
YES	YES	YES	YES	YES	YES	YES
NO	NO	NO	NO	NO	NO	NO
Why?	What type?	What type?	Where located?	Where located?	How extensive are they?	What are they?
Snow-mobiling?						
Hiking/skiing?						
Berry picking?						
Other?	Where located?	Where located?				

Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Municipal KPI Questions

27	28	29	30	31	32	33
What safety measures should be put in place related to right-of-way access?	How would you describe the overall health and well-being of people in your Municipality?	Would you expect emergency services to be impacted by the Transmission Line project?	Are there any airports, including float plane landing areas in your Municipality?	Do you have any comments or further information that you would like to add?	Can a copy of the municipal development plan be provided?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line Corridor?
	GOOD	YES	YES	YES		YES
	FAIR	NO	NO	NO		NO
	POOR					Would you be interested in attending a related Workshop in mid August (half day in length)?
	UNSURE	How?				YES
						NO
	Issues?		Where located?			
	What changes have you noticed over time?					



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Municipal KPI Questions

34						
If we have any additional questions, is it possible to contact you again?						
YES						
NO						

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Policing KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Organization	How many people are employed at your detachment (provide breakdown by type if possible)?	When was your detachment established?	What facilities are available at your detachment?	What communities/ areas are served by your detachment?	How would you rate emergency response time in the communities/ areas serviced?	What are the most common calls received?
Name:					GOOD	
					FAIR	
	Short Term/Long Term/Contract?	Have there been any upgrades?			POOR	
Location:					UNSURE	
		Are there any plans for future upgrades?			Issues?	Is 911 available in the area?
	Where are most employees coming from?					YES
					What changes have you noticed over time?	NO
		Is there a need for upgrades?				



Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Policing KPI Questions

8	9	10	11	12	13	14
Have you seen changes in the types of crimes being committed recently?	Is the detachment involved in any programs or activities in the communities?	Would you expect emergency services to be impacted by the Transmission Line project?	Do you have any comments or further information that you would like to add?	Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?	If we have any additional questions, is it possible to contact you again?	
		YES		YES	YES	
		NO		NO	NO	
		How?		Would you be interested in attending a related Workshop in mid August (half day in length)?		
				YES		
				NO		

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?



Manitoba Hydro
 St. Vital Transmission Complex
 ITEM 2: Public Engagement Program Consulting Services
 June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Trappers KPI Questions

In the context of southeastern Manitoba, east of the Red River (except for the RM of Morris and RM of Montcalm in southern Manitoba) and south of the Trans Canada Highway:

1	2	3	4	5	6	7
Name: Do you wish to remain anonymous?	We would like to ask some general questions about trapping in the area. Has the price of fur changed significantly in recent years?	Have trapper demographics changed in recent years?	Has the purpose of trapping changed in recent years?	Have trapping methods changed?	Have animal resources in the local area changed in recent years? (Population fluctuations, size, etc.)	We would also like to know some specific things about the local industry. How has recent development in the local area affected trapping activities?
	YES	YES	YES	YES	YES	
Location:	NO	NO	NO	NO	NO	
	How?	How?	How?	How?	How?	
How many years have you been trapping?						
	How do you anticipate the price of fur will change in the future?					
Where is your trapline located?						
	What factors affect the price of fur?					
	What species are your primarily focused?					
	Has this changed over time?					

Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Trappers KPI Questions

8	9	10	11	12	13	14
What are the current stressors on species you trap?	What seasons are most important to trappers?	How do you access your trap line?	Can you identify any important areas for trapping that Manitoba Hydro should be aware of (tree stands, outpost cottages, baiting locations)?	Do you think that any phases of the Transmission Line project (construction, operation, monitoring or maintenance) will affect trapping activities?	What positive or negative effects would a new Transmission Line have on trappers, if any?	Would you anticipate that trappers might use the Transmission Line right-of-way for access to their traplines?
			YES	YES	POSITIVE	YES
			NO	NO		NO
Are they increasing, decreasing or remaining relatively constant?			Located where?		NEGATIVE	
				How?		Why?
What can be done to reduce these stressors?					DON'T KNOW	
					EXPLAIN?	What safety measures should be put in place related to transmission line right-of-way access?

Manitoba Hydro

St. Vital Transmission Complex

ITEM 2: Public Engagement Program Consulting Services

June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Trappers KPI Questions

15	16	17	18	19	20	21
What land uses are best suited to be in proximity to Hydro Transmission Line routes?	Are there any particular vegetation types that should be protected (such as orchids, remnant tree stands, native prairie)?	Are there any areas with important wildlife habitat that should be protected (spawning, calving, breeding and nesting areas)?	Do you know of any areas with large concentrations or gatherings of wildlife? (e.g. A flush of migrating raptors through the area, or large numbers of waterfowl feeding on grain fields)	Are there any rivers, streams or wetlands that provide important wildlife habitat or fishing opportunities?	Do you know of any specific trappers we should be talking to related to this project?	Do you have any comments or further information that you would like to add?
Grain, Oilseed Farming	YES	YES	YES	YES	YES	YES
Market Gardening	NO	NO	NO	NO	NO	NO
Berry Farms	What type?	What type?	Where located?	Where located?		
Horticulture/ Tree Nurseries					Who?	
Pasture/ Grazing						
Intensive Animal Operations (Hog, Cattle, Poultry)					Where located?	
Woodlots						
Wetlands and Marsh Areas	Where located?	Where located?				
Parks and Recreation Areas						
Transport Corridors						



Manitoba Hydro
St. Vital Transmission Complex
ITEM 2: Public Engagement Program Consulting Services
June 25, 2013 QUESTIONS FOR STAKEHOLDERS – KEY PERSON INTERVIEWS

Trappers KPI Questions

22	23					
Would you be interested in learning more about how Manitoba Hydro is planning the new Transmission Line routes?	If we have any additional questions, is it possible to contact you again?					
YES	YES					
NO	NO					
Would you be interested in attending a related Workshop in mid August (half day in length)?						
YES						
NO						

Do you give your consent to Manitoba Hydro to use the information provided in this interview for future project planning including the Manitoba Minnesota Transmission Project?

Appendix B2

KPI Supplied Information



Royal Canadian Gendarmerie royale
Mounted Police du Canada

Security Classification/Designation

Protected A

"D" Division

Your File

Ms. Jen Murray

Our File

2013-06-05

Dear Ms. Murray:

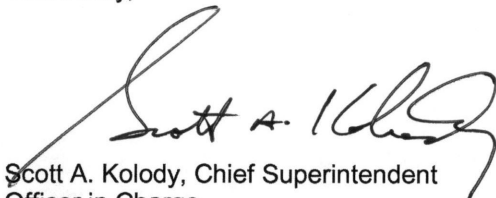
Manitoba Hydro Survey

Thank you for your recent email to Inspector David Thorne, Officer in Charge of Operations Strategy Branch expressing your interest relative to the Manitoba Hydro Survey, your request for information and the potential for partnership with the RCMP in Manitoba. In the interest of efficiency I will provide one consistent message with regards to the Manitoba Hydro Survey. The vast majority of information that you seek can be found on the external RCMP Manitoba Website at <http://www.rcmp-grc.gc.ca/mb/index-eng.htm>. I encourage you to visit the website for the information you require.

From an operational perspective I ask, please, that the RCMP be notified well in advance of any extended road closures to be forecast by Manitoba Hydro in order that we may plan for possible disruptions in traffic. Furthermore, if as a result of the proposed expansion of service any large work camps are formed in the rural area, I ask that the RCMP be notified in advance so that ample contingency plans can be put in place to ensure effective police service delivery to affected area(s).

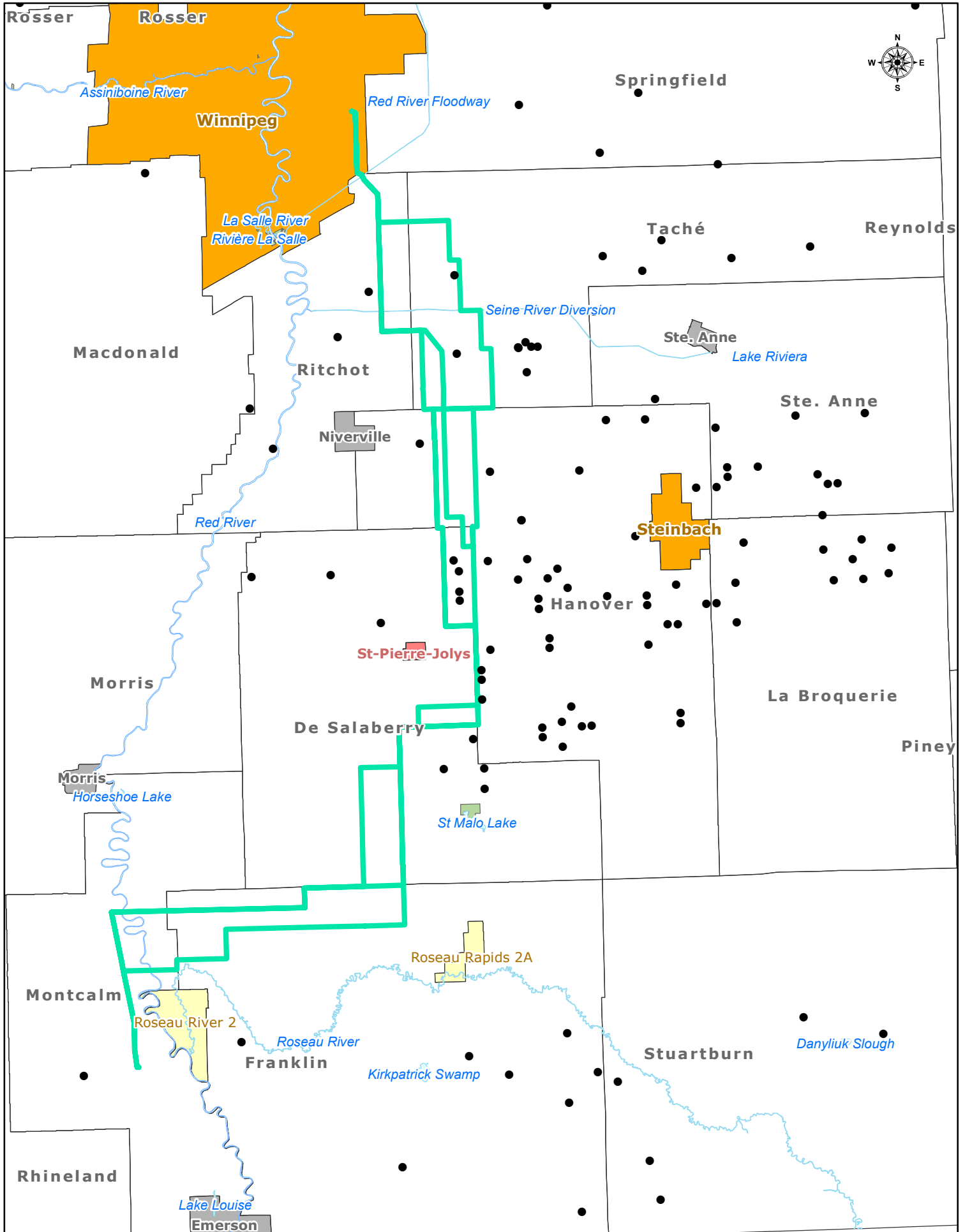
Thank you in advance for your assistance.

Yours truly,

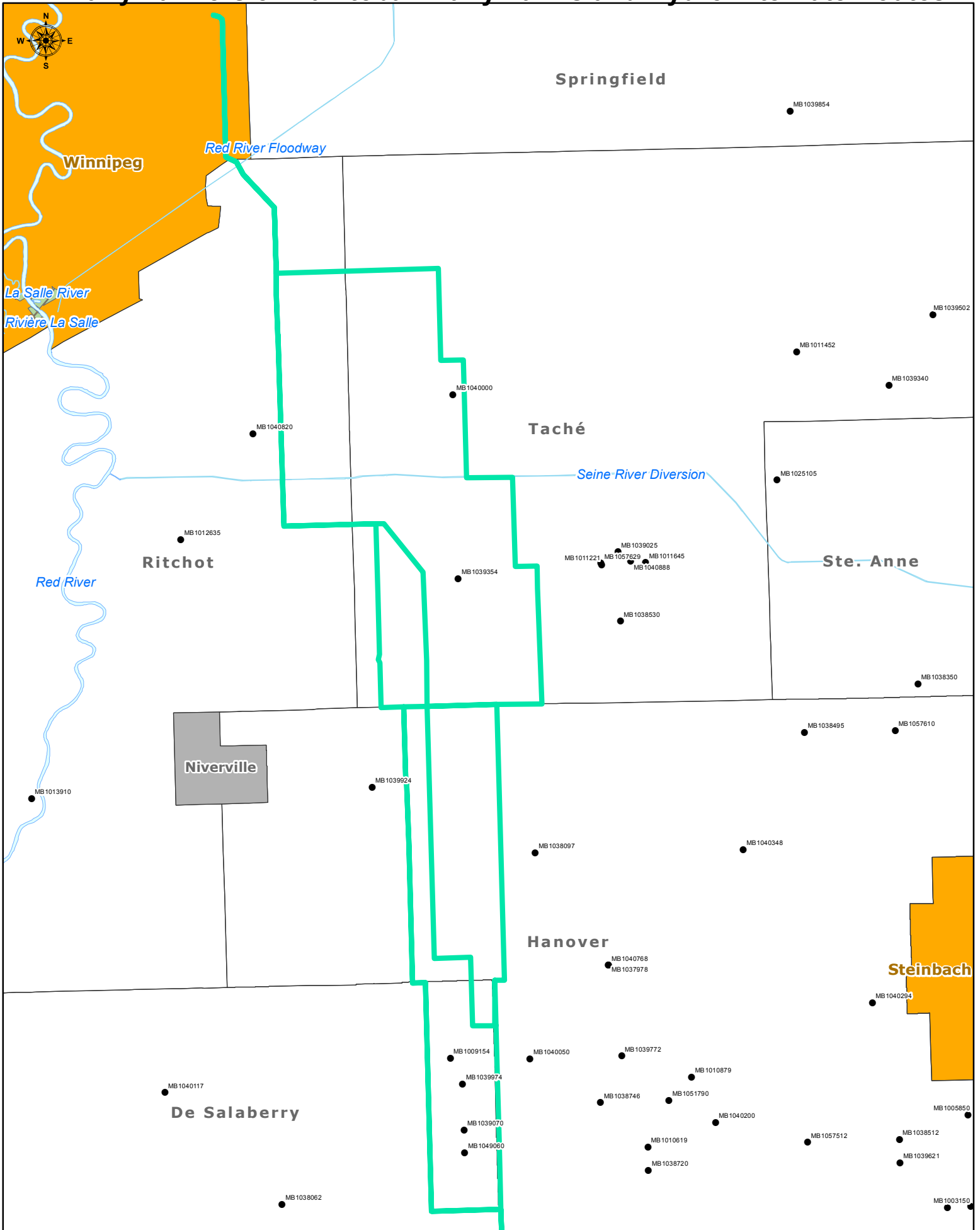

Scott A. Kolody, Chief Superintendent
Officer in Charge
Criminal Operations

Box 5650, 1091 Portage Avenue
Winnipeg, Manitoba
R3C 3K2

Dairy Farmers of Manitoba - Dairy Farms and Hydro Alternate Routes



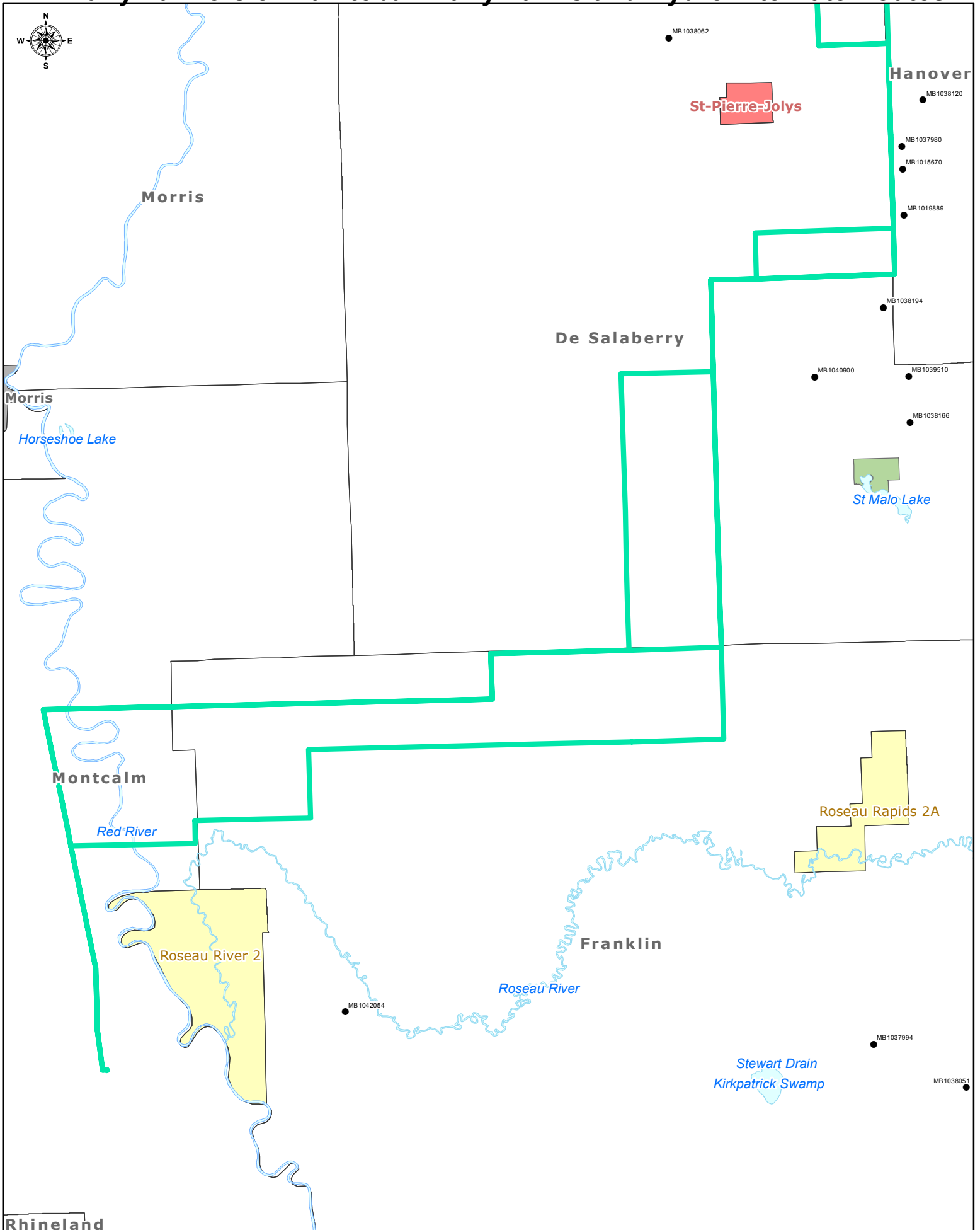
Dairy Farmers of Manitoba - Dairy Farms and Hydro Alternate Routes



1 centimeter = 1,700 meters

August 13, 2013

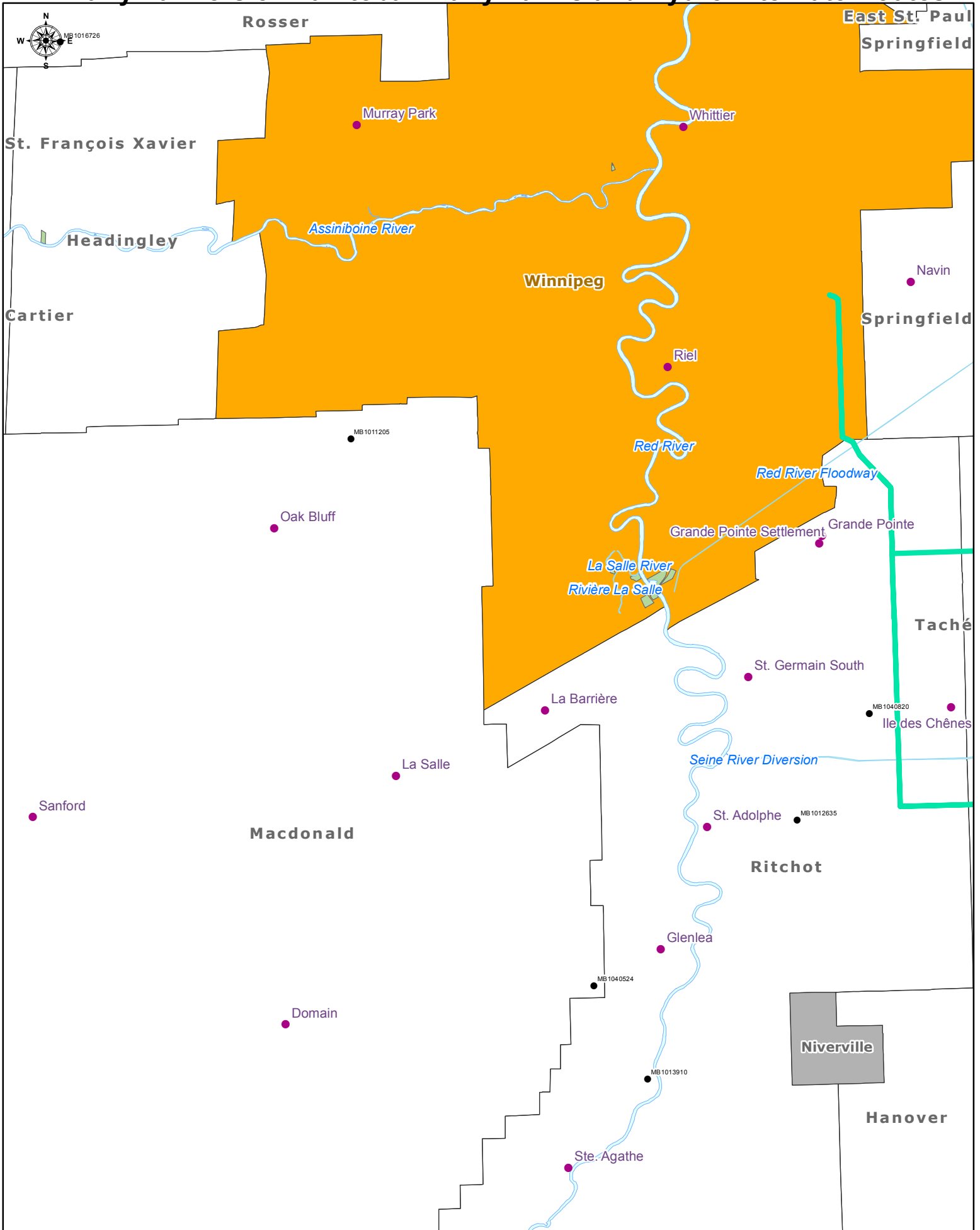
Dairy Farmers of Manitoba - Dairy Farms and Hydro Alternate Routes



1 centimeter = 1,700 meters

August 13, 2013

Dairy Farmers of Manitoba - Dairy Farms and Hydro Alternate Routes



1 centimeter = 1,700 meters

August 13, 2013

Electromagnetic Interference Screening Tool

Description	Classification	Issue or concern
45-90 degree Crossings	≥ 200 kV	S & C concerned about electric charge building up on metal objects such as signal objects
0 - 45 degree Crossings	≥ 60 kv	Real Estate ask applicant for more information to determine is this qualifies as a parallel
0 - 45 degree crossings or parallels	Earth Return Power Systems, single wire no neutral	Currents flowing through the ground can cause crossing interference issues
* Parallels < 1 Mile	≥ 345 kV	If parallels are within 300 feet
* Parallels 1- 2 Mile	≥ 200 kV	If parallels are within 400 feet
* Parallels 2 - 3 Miles	≥ 60 kV	If parallels are within 500 feet
* Parallels 3 Miles or more	> 0.75 kV	If parallels are within 800 feet
Substations and generating stations	Within 300 feet / 100 meters of the right of way	Ground potential rise hazards for personnel, and surge damage to S & C equipment during substation equipment failure

* Parallel lines can be well off the CPR property and still have a negative impact on the railway operations and equipment. The magnitude depends on other conditions such as the current flowing in the wires, pole line construction, and soil resistivity. A qualified person, such as an electrical engineer, needs to look at these situations and to complete the screening process.

Information Required for Initial Screening of Power Lines Parallel to Railway Track

A. From Power Company:

1. Line (system) voltage.
2. Line Configuration (vertical, horizontal, delta).
3. Phase to phase separation (horizontal and vertical).
4. Maximum average phase current (steady state).
5. Maximum emergency operation phase current.
6. Length of parallel.
7. Multi-grounded overhead shield wire or not.
8. Power pole (tower) to track distance.
9. Soil resistivity between pole line and track.
10. Fault clearing time (in cycles), and number of re-closures.
11. Fault currents values.
12. Maximum unbalance (in %).
13. Conductor characteristics or names (preferable).
14. Length of line to substation on either side.
15. Soil resistivity at each substation.
16. Maximum sag of conductors.
17. The currents directions.

B. from railway:

1. Weight of rails.
2. Ballast resistivity.
3. Location of signaling insulation joints.
4. Type of signaling.

From the screening we can determine if:

1. There is a personal touch potential hazard on the rail during steady state conditions;
2. There is a personal touch potential hazard on the rail during fault conditions;
3. If there is a personal hazard from railway pole line capacitive coupling;
4. If Railway equipment will survive fault conditions;

and if a detailed engineering study will be required to accurately evaluate the impact on the railway, and then model recommended mitigation.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

1.0 Scope

- a. This Recommended Practice identifies the railway activities involved in inductive coordination with power utilities where power lines are built across or in proximity to railway facilities.
- b. This Recommended Practice applies to both Canada and United States, except that any specific country item is marked “Canada only” or “USA only”.
- c. It is recommended that Signals and Communications (S&C) employees involved with inductive coordination, or whose function involves the evaluation and approval of power utility wire crossings built across or in proximity to railway facilities on Canadian Pacific follow these procedures.
- d. Please refer to S&C Recommended Practice 1082 Power Line Inductive Coordination Utility Requirements, which defines the inductive coordination requirements that electrical utility companies must follow before the construction of any power line which crosses the railway right-of-way or parallels the railway right-of-way, to identify and minimize any inductive interference to railway systems and equipment.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

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Power Line Inductive Coordination Plan

3.0 General

- a. Work that could impact the movement of trains must not be started until train movements have been fully protected. Installation, maintenance, test and repair work must not interfere with the safe operation of trains.
- b. These power lines built across the railway track or in proximity to railway facilities may present safety hazards to personnel or property, or interfere with the safe operation of railway signals and communications systems and equipment.
- c. Verification of the integrity of proposed wire crossing installations and their overall conformance with the various federal regulations and standards and various state and provincial regulations are not addressed in this document, except as a general references.
- d. It is assumed that the power utility submitting the wire crossing plans to the railway has sufficient knowledge of wire crossing engineering considerations and related regulations and standards to ensure that all railway, regulatory, state and provincial standards are fully complied with.
- e. While the focus of this document is on power utility wire crossings, proximities and parallels, it should not be inferred that communication wire crossings do not have safety implications, or that these could be built to a relaxed standard. The basic principles of evaluation of any wire crossing, a power line or a communication line, are essentially the same.
- f. The level of the top of rail of the railway track is not fixed, and may be raised during track maintenance operations, such as ballasting or road re-surfacing. Allowance for such maintenance operations should be provided, and the minimum overhead clearances prescribed by regulations and the Railway's Standard Clearance Diagrams should be increased accordingly when overhead wire crossings are constructed.
- g. For information on regulations and standards dealing with certain aspects of inductive interference, please refer to the sections below:
 - i. Appendix 1 - Regulations and Standards Canada, or:
 - ii. Appendix 2 - Regulations and Standards USA.
- h. Where there are known or suspected foreign ac voltages or dc currents which are affecting S&C equipment or systems, for more information please refer to:
 - i. S&C Recommended Practice 1047 Foreign AC Voltage Tests, or:
 - ii. S&C Recommended Practice 1048 Foreign DC Current Tests.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

4.0 Definitions

- a. The definitions shown in the following table apply throughout this document.

Term	Definition
CSA	Canadian Standards Association
EPRI	Electric Power Research Institute
IEEE	Institute of Electrical and Electronics Engineers
Inductive coordination	The location, design, construction, operation and maintenance of supply and communication systems in conformity with methods which will reduce inductive interference effects to safe, satisfactory levels.
NESC	National Electrical Safety Code (USA)
Parallel	When a supply line runs parallel to or on the Railway right of way.
Proximity	When lines are so located that the failure of a conductor or any part of the structure would interfere with the normal use, operation or maintenance of railway property, plant or other facilities either by contact or encroachment on minimum clearance requirements by the conductor or structure.
Susceptiveness	Those characteristics of a communication system which determine how it will be adversely affected by a given electric or magnetic field.
Telephone Influence Factor (on form)	A measure of the interference of power-line harmonics with telephone lines, which is derived by weighting the terms in the mathematical expression for the total harmonic distortion of the power-line voltage. The ratio of the square root of the sum of the squares of the weighted rms values of all the sine wave components to the rms value of the entire wave.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

5.0 Interference from Power Systems

- a. This Section provides an overview of the nature of interference and the manner in which it can impact railway facilities.
- b. The term "interference" in the context of this practice means any effects which are of such character and magnitude as to prevent any of the electrical facilities (such as railway signalling and communications circuits and equipment) from rendering safe, satisfactory and economical service.

5.1 Physical Interference

- a. Power utility wire crossings, proximities or parallels can cause physical or electrical (commonly known as inductive) interference.
- b. Physical interference can, for the most part, be controlled by building lines to prescribed standards, ensuring structural integrity and by providing adequate clearances.

5.2 Inductive Interference

- a. Inductive interference is an effect arising from the characteristics and inductive relationship between power systems (disturbing circuits) and signals & communications systems (disturbed circuits).
- b. Inductive interference is produced by the simultaneous co-existence of three factors:
 - i. Influence from disturbing circuits.
 - ii. Mutual impedance between the disturbing and the disturbed circuits.
 - iii. Susceptiveness of the disturbed circuits.
- c. Depending on the magnitude of inductive influence and mutual impedance, hazardous voltages or currents may be induced on signals and communications circuits, rails, fences and other plant facilities by electromagnetic induction, electrostatic induction and Ground Potential Rise (GPR).
- d. The electromagnetic and electrostatic fields may contain harmonics that will interfere with susceptible equipment operating in the VF band or the carrier frequency band.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

5.3 Electromagnetic Induction

- a. Alternating current flowing in a power supply circuit, including its harmonics, generates a magnetic field that induces a voltage in nearby conductors. It is called electromagnetic or magnetic induction.
- b. The magnitude of induced voltage depends upon the magnitude of current in the power supply circuit, its frequency, length of exposure, mutual impedance between the circuits, earth resistivity and shielding effects.
- c. Magnetically induced voltage is longitudinal which can be measured as voltage to ground at one end of an open circuit conductor with the other end grounded.

5.4 Electrostatic Induction

- a. Electrostatic or electric induction is the generation of voltage on a conductor by the electric field surrounding the power conductors adjacent to it.
- b. The magnitude of induced voltage is a function of power system voltage and the distance between power conductors, signals & communications conductors and ground.
- c. Electrostatic induction to signals and communications circuits may be significant, especially for circuits located near power lines energized at higher voltages.

5.5 Ground Potential Rise

- a. Ground potential rise (GPR) is the voltage with respect to remote ground that is produced by power supply earth return current at the points where these enter and leave the earth through ground impedances.
- b. It may reach high values during power faults due to large fault current. GPR is a concern where signals and communications grounding electrodes are in the vicinity of transmission line towers, transformer stations or near other power system grounds.
- c. The effect may be thought of as a "resistive" coupling where the ground return current flowing through an impedance common to both power and the railway signals and communications system produces a voltage to ground on the signal and communication wires.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

5.6 Noise Frequency Induction

- a. Noise frequency induction is the induction, either electrostatic or electromagnetic, generated by the harmonics in the voltage or current waves of the power supply circuits.
- b. The noise induction creates noise in telephone circuits or false signals in data or other systems that are sensitive to noise frequencies. Audio frequency noise in a communication circuit located near a power line is the combined result of three basic factors:
 - i. The magnitude of audio frequency components in the power line current or voltage waves.
 - ii. The coupling between the power line and the communications circuit.
 - iii. The susceptiveness of the communication circuit.
- c. Because much of the data required for calculation is not accurately known and may vary considerably from one location to another, estimates of noise are usually made on empirical methods of measured data rather than direct calculations.

5.7 Effects on Signal & Communication Systems

- a. Undesirable voltages and current on signals and communications circuits can be induced during steady state (normal) operation or during fault conditions of the power system.
- b. These situations will degrade the operation of the railway equipment and give rise to the following areas of concern:
 - i. Shock hazards to personnel.
 - ii. Service disruption or degradation.
 - iii. Plant and equipment damage.
 - iv. Malfunction of signalling devices.
 - v. Increased maintenance costs.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

5.8 Prevention and Mitigation of Interference

- a. The degree of electrical interference from a power line depends upon many factors such as the type and size of power line, length parallel to the railway, configuration, distance from the railway, type of soils and other environmental factors and the type of railway facility.
- b. Some railroad signal equipment (vital relays and searchlight signal mechanisms) have been found to exhibit a high degree of vulnerability to possible false-clear failure modes under certain conditions of 60 Hertz and harmonic power line interference.
- c. Rigorous testing for such failure modes is necessary using procedures that are acceptable to both the signal equipment manufacturers and the railway. All vital signal equipment should be tested for possible false-clear failures.
- d. Grade crossing equipment remains largely untested for AC susceptibility. Both safe and unsafe failure modes should be tested for all such equipment.
- e. Prevention and mitigation of inductive interference can be achieved by several means, such as route separation, shielding, choice of facility and by employing special mitigation devices.
- f. In the overall coordination process, mitigative or specific coordination measures are considered on both the signals and communications circuits and equipment as well as on the power circuits and equipment.
- g. The choice of these measures depends upon the specific exposure conditions and the type of facilities involved. In order to resolve any problem, the situation is first characterized and then the best engineering solution is developed on the basis of technical and economic merits.
- h. Inductive coordination is the key to preventing and mitigating interference, and this can be done most effectively during the planning stages. Experience has shown that after-the-fact analysis and application of coordination measures is often more complex and has a higher financial impact.

5.9 Induced Voltage Objectives

- a. Appendix D of the AAR/EEI's "Blue Book" discusses induced voltage objectives for railroad signalling and communications circuits.
- b. Canadian Pacific generally subscribes to these induced voltage objectives.
- c. These objectives are intended to serve as a guide to all concerned as to what is reasonable in securing acceptable inductive coordination goals.

S&C Recommended Practice 1081

Power Line Inductive Coordination Plan

5.10 Induced Voltage Levels

- a. The acceptable levels for longitudinally induced voltages in railroad signalling and communications circuits are as follows:
 - i. 50 VAC rms under normal power line conditions. 150 VAC rms may be acceptable under special conditions. When special conditions apply, it will be essential to provide special instructions to personnel likely to have access to the exposed section and to ensure that special markings appear on any equipment connected to the exposed section.
 - ii. Step and touch voltages should be calculated at each location under the fault conditions and both should be lower than values calculated using IEEE Standard. 80 - IEEE Guide for Safety in AC Substation Grounding.
 - iii. The induced voltages rail to rail should be lower than 5.0 volts ac, and the induced voltages rail to ground should be lower than 25 volts ac.

- b. Note: If the normal or fault induced longitudinal voltages exceed the objectives, a study should be made to find the most efficient and economical solution. Good engineering judgement should be applied. The method used, whether mitigation is applied to the electric power system or to the railway signalling and communication system or both, must maintain safety of personnel and train operation at acceptable levels.

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6.0 Specific Inductive Interference Mitigation Techniques for S&C

6.1 Reduction of Track Circuit Inductive Interference

- a. Inductive interference into the track circuits is caused by the magnetic field, which is produced by the current flowing through the nearby high voltage power lines, causing an induced voltage on the rails.
- b. In general:
 - i. The longer the track circuit, the greater the induced voltage in the rails.
 - ii. Magnetic induction causes a rail-to-ground voltage to appear on both rails simultaneously.
 - iii. Induced voltages are 60 Hz and its odd harmonics, 180 Hz, 300 Hz, 420 Hz, 540 Hz, etc.
- c. Usually the voltage on each rail to ground is about the same, and this is called common-mode voltage.
- d. If one rail is closer to ground than the other, or is significantly longer than the other, through failed insulated joints, shorted rail to ground lightning arresters, salt on road crossings, damaged track cables, etc. then there can be a difference in the voltage between the rails, and this is called differential voltage.
- e. This differential voltage is the usual cause of signal and crossing track circuit equipment working improperly or failing to operate.
- f. Before attempting to make any changes to reduce the effects of inductive interference, the Engineer S&C Power and the Manager Signal Design **MUST** be consulted.
- g. Some mitigation techniques which can be considered to reduce effects of the induced voltages in the rails on the track circuit equipment are:
 - i. Check the insulated joints with an approved insulated joint checker and replace or repair those which have low resistance. Shorted insulated joints effectively make the rail section longer and a greater induced voltage can occur.
 - ii. Check for shorted rail-to-ground lightning arresters. A shorted arrester will pull the induced voltage on one rail down and there will be a resulting larger rail-to-rail, or differential voltage.
 - iii. Carry out these 2 checks more frequently in areas of inductive interference.
 - iv. Carry out insulation resistance tests on track wires. A grounded track wire will pull the induced voltage on one rail down and there will be a resulting larger rail-to-rail, or differential voltage.
 - v. Reduce the length of track circuits by adding additional track circuits and additional insulated joints.

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- vi. Replace wide band joint bypass units with narrowband (tuned) joint bypass units. The wideband couplers effectively make the rail section longer and a greater induced voltage can occur.
- vii. Replace tuned narrowband shunts with wide band shunts or hard wire shunts, as the interfering ac current through the reactor can saturate the reactors and de-tune the units.
- viii. Remove narrow band joint bypass couplers by a system redesign, as the interfering ac current through the reactor can saturate the reactors and de-tune the units.
- ix. Re-ballast the track section to balance (equalize) the voltage of the two rails to ground, after other methods to identify the reason for an unbalance have failed.
- x. Change equipment frequencies to higher frequencies which avoid 60 Hz and its odd harmonics, 180 Hz, 300 Hz, 420 Hz, 540 Hz, etc. and particularly try to avoid the 180 Hz and 300 Hz harmonics.
- xi. Increase track circuit equipment transmitter output voltages to improve the signal to noise ratio.
- xii. Replace motion detectors with constant warning time systems. A motion detector is only looking for a change in rail-to-rail voltage to start operating the crossing, and interfering voltages can cause this change. A constant warning device is looking for both a change in rail-to-rail voltage and a change in phase angle which indicates train location, so it is more immune to the interfering voltages.
- xiii. Replace older electronic equipment with newer equipment which has been designed to be more immune to power line frequency interference.
- xiv. For dc track circuits replace 0.5 ohm track relays with 2.0 ohm or 4.0 ohm track relays which have a greater inductance.
- xv. Where lightning arresters are severely damaged or destroyed by infrequent but recurring power line faults, install heavier duty lightning arresters, or consider doubling up the lightning arresters.
- xvi. Where signal equipment is damaged by infrequent but recurring power line faults, and this damage results in costly repairs or lengthy outages, suitable sized fuses can be installed in the track leads between the rails and the lightning arresters, so the induced power line fault voltages between the rails and ground would cause the arresters to arc over and the fuses would blow, protecting the equipment from damage but requiring a site visit to replace the fuses. This might not be practical in areas of frequent lightning.

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6.2 Reduction of Railway Pole Line Inductive Interference

- a. Some mitigation techniques which can be considered to reduce effects of the induced voltages in the wires of a railway pole line are:
 - i. Wear high voltage gloves when working on the pole line. Refer to S&C Requirements Section 18 – Pole Line Electrical Work Procedures, and S&C Recommended Practice 1037 Electrical Work Procedures for more information.
 - ii. Move the pole line farther away from the power line, i.e. relocate to the other side of the track.
 - iii. Replace the pole line with buried cable in the area of the inductive interference.
 - iv. Replace the pole line with electronic track circuits in the area of the inductive interference.

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7.0 Approval Procedures

7.1 Summary of Application Process

- a. Normally, the first interaction between a power utility company and the railway occurs when the power utility makes an application for environmental assessment for a proposed route. The railway will be notified if the proposed power line will cross over or under the railway track or pass nearby railway property. Notification will be made to the Real Estate Department of the railway.
- b. Real Estate will coordinate responses from the railway for any application.
- c. If approved from an environmental viewpoint, ultimately a formal detailed application will be sent to the railway Real Estate Department by the power company. Applications are required when new power facilities are proposed, when upgrading existing plant or when voltages or currents on conductors are increased beyond previously agreed upon limits.
- d. As a part of the application, the power utility will provide a description of the project, timing of the work, plans, reference to existing crossings and agreements, a completed Inductive Coordination Form and other information as required.
- e. When received, the Real Estate Department will initially review the application for completeness and review property records. They will then screen the application for its effect on railway operations as described in this Recommended Practice in the section: “Power Lines Requiring Inductive Coordination Review”. If none of the problem conditions are indicated from an electrical viewpoint, Real Estate can proceed to prepare an agreement for signature by the power utility as long as other track maintenance aspects are met.
- f. If a review is required, as determined by the section: “Power Lines Requiring Inductive Coordination Review”, the Real Estate Department will forward the Application and accompanying documents to the General Manager ES Signals and Communications. The General Manager ES S&C will arrange a review and either approve the Application or initiate a detailed engineering study.

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7.2 Power Utility Preliminary Notice

- a. A power utility may give preliminary notice of plans for a projected power line or other facility with the request that they be informed if it will be near railway facilities.
- b. The power utility should be advised if the projected line will cross or be near railway facilities.
- c. The General Manager ES Signals and Communications must be advised of any proposals for lines which meet or exceed the criteria described in the section: “Power Lines Requiring Inductive Coordination Review”.

7.3 Power Utility Applications

- a. The power utility must make applications for every new crossing, parallel or occupancy and also before making any physical changes to an existing site.
- b. The power utility must apply if it has reason to believe that any proposed new or revised facility in the vicinity of the railway may give rise to the possibility of any form of physical, inductive or electrical interference. This includes proximities and also changes in operating conditions on an existing line that increase the possibility or degree of interference.
- c. Where it appears that a power facility is to be constructed close to the railway, local officers may need to remind the power utility of the applicable regulations.
- d. Applications for a crossing, occupancy or proximity should include the necessary detailed engineering drawings, with supporting information, for railway approval.
- e. The technical requirements for the construction of lines crossing railway facilities are based on safety considerations and are covered under applicable CSA Standards in Canada and the NESC in USA. Please refer to Appendix 1 and 2 for more information.
- f. The responsibility for ensuring that wire crossings meet the safety considerations covered by standards and regulations rests with the power utility making the application.

7.4 Prime Responsibilities of the Railway

- a. The prime responsibilities of the railway are as follows:
 - i. Accuracy of location.
 - ii. Property lines.
 - iii. Vertical and horizontal clearances.
 - iv. Identifying potential electrical interference or personnel safety hazards.
 - v. Identifying potential restrictions to present and future rail operations posed by the crossing.

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7.5 Power Utility Application

- a. For the purposes on providing information necessary to identify the need of inductive coordination work prior to a power line installation, the electrical utility company must follow S&C Recommended Practice 1082 Power Line Inductive Coordination Utility Requirements. The Recommended Practice includes the “Inductive Coordination Form For Power Transmission and Distribution Lines” which must be submitted along with other documentation called for in the Recommended Practice.

7.6 Power Lines Requiring Inductive Coordination Review

- a. The General Manager ES Signals and Communications has the responsibility for resolving existing or potential interference problems and harmonizing inductive coordination studies with power companies. Certain cases involving crossings, proximities and parallels may be potentially hazardous to railway operations and these can be often depicted from the power utility's crossing plans. These cases must be reported to the General Manager ES Signals and Communications for technical approval prior to a formal agreement with the power utility.
- b. As an example, where power transmission or distribution lines cross the tracks at relatively flat angles, a slanting exposure will exist as shown in Figure 1. Situations of this nature may produce adverse effects similar to those produced by parallels and must be reported.

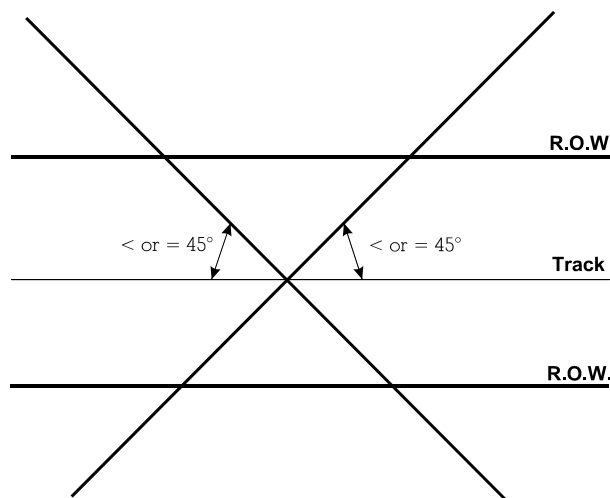


Figure 1

- c. The General Manager ES Signals and Communications will review the referred cases with an approved outside electrical protection consultant and provide recommendations. These recommendations must be taken into account before an agreement is finalized between CP and the power utility involved at that specific location.

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- d. Note: In many cases with crossings and parallels, it is not possible to define, in simple terms, a voltage level or distance where interference will not be of concern. The potential for interference is determined by the line voltage and current, distance and the specific geometry of the parallel or crossing.
- e. The following cases must be reported to the General Manager ES Signals and Communications for approval:
- i. Alternating current power line crossings exceeding 230 kV phase-to-phase.
 - ii. Direct current power line crossings (all voltages).
 - iii. Power line crossings (all voltages) which cross the railway at an angle less than 45 degrees to the centreline of track.
 - iv. Power line proximities and parallels (all voltages).
 - v. Power generating or transformer stations:
 - Operating at less than 230 kV where the horizontal separation is less than 300 ft (100 metres); or:
 - Operating at 230 kV and above where the horizontal separation is less than 600 ft (200 metres).
 - vi. Note: The concern with power generating or transformer stations is with Ground Potential Rise (GPR). This is unlikely to be of concern where the horizontal separation between the fenced perimeter of the generating or transformer station and the limit of railway right-of-way is more than 300 ft (100 metres). However, for major power company installations of 230 kV or more, the GPR could be significant for railway systems and personnel at horizontal separations up to 600 ft (200 metres). The objective is to have the railway right-of-way outside the station's "zone of influence".

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- f. In part, this requirement for review can be determined by the Electromagnetic Interference Screening Tool listed below.

Electromagnetic Interference Screening Tool		
Description	Classification	Issue or concern
45 - 90 degree Crossings	≥ 200 kV	S&C concerned about electric charge building up on metal objects such as signal objects.
0 - 45 degree Crossings	≥ 60 kV	Real Estate to ask applicant for more information to determine if this qualifies as a parallel.
0 - 45 degree crossings or parallels	Earth Return Power Systems, single wire no neutral	Currents flowing through the ground can cause crossing interference issues.
* Parallels < 1 Mile	≥ 345 kV	If parallels are within 300 feet.
* Parallels 1- 2 Mile	≥ 200 kV	If parallels are within 400 feet.
* Parallels 2 - 3 Miles	≥ 60 kV	If parallels are within 500 feet.
* Parallels 3 Miles or more	> 0.75 kV	If parallels are within 800 feet.
Substations and generating stations	Within 300 feet / 100 metres of the right of way	Ground potential rise hazards for personnel, and surge damage to S&C equipment during substation equipment failure.
* Parallel lines can be well off the railway property and still have a negative impact on the railway operations and equipment. The magnitude depends on other conditions such as the current flowing in the wires, pole line construction, and soil resistivity. A qualified person, such as an electrical engineer, needs to look at these situations and to complete the screening process.		

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8.0 Appendix 1 - Regulations and Standards Canada

8.1 Transport Canada General Order E-11

- a. General Order E-11 Wire Crossings and Proximities Regulations provides the following:
 - i. Section 5(4) states that construction, maintenance and operation of the line must not unduly interfere with the railway or endanger safety.
 - ii. Section 6 describes how the power utility is to apply to the railway for its written consent. An application may be necessary for a new line, a line that is to be modified, or one where the operational conditions are changed.
 - iii. Section 8 is the basis for requiring both the power line and the railway to meet recognized Standards and to take other measures "necessary to avoid interference with the service of the railway".
 - iv. Section 9 holds the power utility liable for damage or injury.
 - v. Other sections of General Order E-11 describe the requirement for giving notice of work to be performed by the power utility, use of an inspector, railway electrification, etc.
 - vi. In compliance with General Order E-11, power companies must submit detailed crossing plans of their proposed lines for the railway's approval.
 - vii. It is the responsibility of the power companies to design, construct and maintain their lines in accordance with the relevant Standards. However, the power utility plans should be carefully evaluated as outlined in section "Recommended Approval Procedures" prior to giving approval in order to safeguard the railway's interests.
 - viii. Section 15 states "for the purpose of these Regulations, Canadian Standards Association Standard C22.3 No. 1-1970 pertaining to Overhead Systems and Underground Systems, being part of the Canadian Electrical Code Part III, containing rules, requirements and specifications relating to the construction of:
 - a) supply lines and trolley lines along or across railways
 - b) communication lines along or across railways, and
 - c) communications lines near or across communication lines on file with Commission, under Case 4707, is approved".
- b. Transport Canada General Order E-11 - Wire Crossings and Proximities Regulations can be viewed at:
 - <http://laws.justice.gc.ca/en/C.R.C.-c.1195/>
 - <http://www.canlii.org/en/ca/laws/regu/crc-c-1195/latest/crc-c-1195.html>

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8.2 Transport Canada E-05 Standards Respecting Railway Clearances

- a. Transport Canada E-05 Standards Respecting Railway Clearances says, in part:
 - i. Section 1.1 - This Standard shall apply on all tracks owned or operated on by a railway company.
 - ii. Section 7 Wires and Conductors and 7.1 says Canadian Standards Association Standard C22.3 shall be used for minimum clearances.
- b. Transport Canada E-05 Standards Respecting Railway Clearances can be viewed at:
 - <http://www.tc.gc.ca/RailSafety/Standards/TCE05.htm>

8.3 CSA Standard C22.3 No. 1 - Overhead Systems

- a. **Inductive coordination** - Supply and communication circuits and their connected apparatus shall be designed, constructed, operated, and maintained with due regard to avoiding or minimizing interference to the service provided by the communication circuits and hazards to persons using, operating, or maintaining the communication circuits. Where excessive inductive interference or induced voltages are anticipated or experienced, the methods of coordination specified in CAN/CSA-C22.3 No. 3 shall be applied.
- b. **Basic clearances** - The minimum vertical clearances of wires and conductors above ground or rails shall be as specified in the following table, except that:
 - i. The rail level of a railway where ballast is used is not fixed and, therefore, when any line that crosses a railway is constructed or altered, an additional 0.3 m of vertical clearance above rails shall be provided, unless a lesser amount is mutually agreed upon, to permit normal subsequent ballast adjustments without encroaching on the specified minimum clearance.

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Power Line Clearance Chart				
Data from CSA Standard C22.3 No. 1 – Overhead Systems				
Voltage ac (to ground except p-p = phase to phase) Open supply conductors	Minimum Clearance Required Above Top of Rail		Minimum Clearance Required Above Railway Signal or Communication Lines	
	in metres	in feet	in metres	in feet
0 to 750 V	7.3	24.0	0.3	1.0
751 V to 22 kV	7.6	24.9	0.6	2.0
22 kV to 50 kV	8.1	26.6	0.9	3.0
50 kV to 90 kV	8.4	27.6	1.2	3.9
90 kV to 120 kV	8.7	28.5	1.5	4.9
120 kV to 150 kV	9.0	29.5	1.8	5.9
150 kV to 200 kV	9.5	31.2		
190 kV to 220 kV			2.7	8.9
220 kV (360 kV p-p)	9.7	31.8		
220 kV to 320 kV			3.9	12.8
318 kV (500 kV p-p)	10.7	35.1		
320 kV to 425 kV			4.6	15.1
442 kV (735 kV p-p)	11.9	39.0		
<p>Note: This chart is included to show minimum distances for inductive coordination purposes only, and is not intended to show construction standards.</p> <p>Note: This chart was made from 2 separate charts and that is why there are some blanks.</p>				

8.4 CSA Standard C22.3 No. 3 - Electrical Coordination

- a. **Railway System levels** - The acceptable levels for longitudinally induced voltages in railway signalling and communication circuits are as follows:
 - i. 50 Vac rms – under normal power line conditions. 150 v may be acceptable under certain conditions. Where special conditions apply, it will be necessary to provide special instructions to personnel likely to have access to the exposed section and to ensure that special markings appear on all equipment connected to the exposed section.
 - ii. Note: For adjacent track sections of equal length separated by a pair of insulated joints, the ac voltage developed across each insulated rail joint is twice the maximum voltage of each rail with respect to remote earth. To limit the voltage across insulated rail joints to 50 V, the maximum rail-to-remote earth voltage shall not exceed 25 V.
 - iii. The acceptable level for longitudinally induced voltages in railway signalling and communication circuits is 430 V rms under power line fault conditions. This level applies to usual power line equipment and maintenance. Higher voltages may be acceptable under special conditions, such as high reliability power lines with high-speed relaying and fault clearing.

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- b. **Performance Degradation Railways** - In a general sense, the performance degradation can appear in two different equipment areas:
 - i. Signal equipment, which affects the certainty of control of either individual trains, groups of trains, or the entire railroad system, and
 - ii. Communication equipment, which affects the reliable transmission of either train operations, voice data, or business-related data.
- c. The degradation of equipment affecting the control of trains could cause serious hazards to the safe operation of trains and to the safe operation of highway grade-crossing warning systems.

8.5 CSA Standard C22.3 No. 7 - Underground Systems

- a. **Induced voltages and current** - Where supply cables are installed in close proximity to communication circuits, metal pipes, railway tracks, metal fences, and other possible receptors, measures shall be taken to control any undue hazard to personnel and equipment due to induced voltage and current. Mitigation may include changes to the supply cables, the receptor, the method of installation, or the method of operation, or a combination thereof.
- b. **Inductive coordination** - Supply and communication circuits and their connected apparatus shall be designed, constructed, operated, and maintained with regard to the problem of avoiding or minimizing interference to the service given over the communication circuits and hazards to persons using, operating, or maintaining communication circuits. Where excessive inductive interference or induced voltages are anticipated or experienced, methods of coordination shall be applied in accordance with CAN/CSA-C22.3 No. 3.

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9.0 Appendix 2 - Regulations and Standards USA

9.1 National Electrical Safety Code (NESC)

Power Line Clearance Chart				
Data from National Electrical Safety Code				
Voltage ac (to ground except p-p = phase to phase) Open supply conductors	Minimum Clearance Required Above Top of Rail		Minimum Clearance Required Above Railway Signal or Communication Lines	
	in metres	in feet	in metres	in feet
0 to 750 V	7.5	24.5	1.2	4.0
751 V to 22 kV	8.1	26.5	1.5	5.0
50 kV	8.4	27.4	1.8	6.0
120 kV	9.1	29.8	2.5	8.3
150 kV	9.4	30.8	2.8	9.3
220 kV	10.1	33.1	3.5	11.6
320 kV	11.1	36.4	4.5	14.9
425 kV	12.1	39.9	5.5	18.4
470 kV	12.6	41.4	6.0	20.0
Note: Values above 22 kV were calculated as per NESC: For voltages between 22 and 470 kV, the clearance shall be increased at the rate of 10 mm (0.4 in) per kilovolt in excess of 22 kV.				
Note: This chart is included to show minimum distances for inductive coordination purposes only, and is not intended to show construction standards.				

9.2 Electric Power Research Institute (EPRI)

- a. EPRI “Principles and Practices for Inductive Coordination of Electric Supply and Railroad Communication/Signal Systems” September 1977 (Blue Book).
 - i. Provides railroad specific electromagnetic compatibility information. While it is not a Standard it is the closest thing in North America to an industry accepted guide.
- b. EPRI “Power System and Railroad Electromagnetic Compatibility (EMC) Handbook” Second Edition 2006 or current version.
 - i. Provides railroad specific electromagnetic compatibility information.

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9.3 Institute of Electrical and Electronics Engineers (IEEE)

- a. IEEE Recommended Practice for Inductive Coordination of Electric Supply and Communication Lines/IEEE STD 776-1992:
 - i. This recommended practice addresses the inductive environment that exists in the vicinity of electric power and wire-line telecommunications systems and the interfering effect that may be produced thereby; guidance is offered for the control or modification of the environment and the susceptibility of the affected systems in order to maintain an acceptable level of interference.

- b. IEEE 1137-1991 IEEE Guide for the Implementation of Inductive Coordination Mitigation Techniques and Applications:
 - i. IEEE Std 1137-1991 provides guidance for controlling or modifying the inductive environment and the susceptibility of affected wire line telecommunications facilities in order to operate within the acceptable levels of steady-state or surge induced voltages.

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Power Line Inductive Coordination Utility Requirements

1.0 Scope

- a. This Recommended Practice defines the inductive coordination requirements which electrical utility companies must follow before the construction of any power line which crosses the railway right-of-way or parallels the railway right-of-way, to identify and minimize any inductive interference to railway systems and equipment.
- b. These power lines may present safety hazards to personnel or property, or interfere with the safe operation of railway signals and communications plant and equipment.
- c. This recommended practice covers ONLY the inductive interference aspects of the proposed power line installation. Request for approval for installing a power line crossing or parallel of the railway right-of-way must be made separately to the Real Estate Department.
- d. This Recommended Practice applies to both Canada and United States, except that any specific country item is marked “Canada only” or “USA only”.
- e. It is recommended that Signals and Communications (S&C) employees engaged in the installation, testing, maintenance and inspection of S&C systems on Canadian Pacific follow these procedures.

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Power Line Inductive Coordination Utility Requirements

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Power Line Inductive Coordination Utility Requirements

3.0 General

- a. For proposed electrical lines paralleling railway tracks, Canadian Pacific may request that an inductive interference study be performed at the expense of the Utility Owner. Inductive interference from certain lines has the potential to disrupt the signal system in the track circuits, on the pole line and on buried cables, causing failures in the track signal systems and highway grade crossing warning systems. The General Manager ES Signals and Communications will determine the need for a study on a case-by-case basis.
- b. The design of all utility installations will be the responsibility of the Utility Owner.
- c. Where a Regulation or Standard is referenced, the most current version published at the time of the application must be used by the Utility Company.
- d. For more information on the railway activities involved in inductive coordination with power utilities where power lines are built across or in proximity to railway facilities, please refer to
- e. Recommended Practice 1081 Power Line Inductive Coordination Plan.

4.0 Effects on Railway Signal & Communication Systems

- a. Undesirable voltages and current on signals and communications circuits can be induced during steady state (normal) operation or during fault conditions of the power system.
- b. These situations will degrade the operation of the railway equipment and give rise to the following areas of concern:
 - i. Shock hazards to personnel.
 - ii. Service disruption or degradation.
 - iii. Plant and equipment damage.
 - iv. Malfunction of signalling devices.
 - v. Increased maintenance costs.

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Power Line Inductive Coordination Utility Requirements

4.1 Induced Voltage Levels

- a. The acceptable levels for longitudinally induced voltages in railroad signalling and communications circuits are as follows:
 - i. 50 VAC rms under normal power line conditions. 150 VAC rms may be acceptable under special conditions. When special conditions apply, it will be essential to provide special instructions to personnel likely to have access to the exposed section and to ensure that special markings appear on any equipment connected to the exposed section.
 - ii. Step and touch voltages should be calculated at each location under the fault conditions and both should be lower than values calculated using IEEE Standard 80 - IEEE Guide for Safety in AC Substation Grounding.
 - iii. The induced voltages rail to rail should be lower than 5.0 volts ac, and the induced voltages rail to ground should be lower than 25 volts ac.

- b. Note: If the normal or fault induced longitudinal voltages exceed the objectives, a study should be made to find the most efficient and economical solution. Good engineering judgement should be applied. The method used, whether mitigation is applied to the electric power system or to the railway signalling and communication system or both, must maintain safety of personnel and train operation at acceptable levels.

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Power Line Inductive Coordination Utility Requirements

5.0 Regulations and Standards Canada

5.1 Transport Canada General Order E-11

- a. General Order E-11 Wire Crossings and Proximities Regulations provides the following:
 - i. Section 5(4) states that construction; maintenance and operation of the line must not unduly interfere with the railway or endanger safety.
 - ii. Section 6 describes how the power utility is to apply to the railway for its written consent. An application may be necessary for a new line, a line that is to be modified, or one where the operational conditions are changed.
 - iii. Section 8 is the basis for requiring both the power line and the railway to meet recognized Standards and to take other measures "necessary to avoid interference with the service of the railway".
 - iv. Section 9 holds the power utility liable for damage or injury.
 - v. Other sections of General Order E-11 describe the requirement for giving notice of work to be performed by the power utility, use of an inspector, railway electrification, etc.
 - vi. In compliance with General Order E-11, power companies must submit detailed crossing plans of their proposed lines for the railway's approval.
 - vii. It is the responsibility of the power companies to design, construct and maintain their lines in accordance with the relevant Standards. However, the power utility plans should be carefully evaluated as outlined in section "Recommended Approval Procedures" prior to giving approval in order to safeguard the railway's interests.
 - viii. Section 15 states "for the purpose of these Regulations, Canadian Standards Association Standard C22.3 No. 1-1970 pertaining to Overhead Systems and Underground Systems, being part of the Canadian Electrical Code Part III, containing rules, requirements and specifications relating to the construction of:
 - a) supply lines and trolley lines along or across railways
 - b) communication lines along or across railways, and
 - c) communications lines near or across communication lines on file with Commission, under Case 4707, is approved".
- b. Transport Canada General Order E-11 - Wire Crossings and Proximities Regulations can be viewed at:
 - <http://laws.justice.gc.ca/en/C.R.C.-c.1195/>
 - <http://www.canlii.org/en/ca/laws/regu/crc-c-1195/latest/crc-c-1195.html>

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Power Line Inductive Coordination Utility Requirements

5.2 Transport Canada E-05 Standards Respecting Railway Clearances

- a. Transport Canada E-05 Standards Respecting Railway Clearances says, in part:
 - i. Section 1.1 - This Standard shall apply on all tracks owned or operated on by a railway company.
 - ii. Section 7 Wires and Conductors and 7.1 says Canadian Standards Association Standard C22.3 shall be used for minimum clearances.
- b. Transport Canada E-05 Standards Respecting Railway Clearances can be viewed at:
 - <http://www.tc.gc.ca/RailSafety/Standards/TCE05.htm>

5.3 CSA Standard C22.3 No. 1 - Overhead Systems

- a. **Inductive coordination** - Supply and communication circuits and their connected apparatus shall be designed, constructed, operated, and maintained with due regard to avoiding or minimizing interference to the service provided by the communication circuits and hazards to persons using, operating, or maintaining the communication circuits. Where excessive inductive interference or induced voltages are anticipated or experienced, the methods of coordination specified in CAN/CSA-C22.3 No. 3 shall be applied.
- b. **Basic clearances** - The minimum vertical clearances of wires and conductors above ground or rails shall be as specified in the following table, except that:
 - i. The rail level of a railway where ballast is used is not fixed and, therefore, when any line that crosses a railway is constructed or altered, an additional 0.3 m of vertical clearance above rails shall be provided, unless a lesser amount is mutually agreed upon, to permit normal subsequent ballast adjustments without encroaching on the specified minimum clearance.

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Power Line Inductive Coordination Utility Requirements

Power Line Clearance Chart				
Data from CSA Standard C22.3 No. 1 – Overhead Systems				
Voltage ac (to ground except p-p = phase to phase) Open supply conductors	Minimum Clearance Required Above Top of Rail		Minimum Clearance Required Above Railway Signal or Communication Lines	
	in metres	in feet	in metres	in feet
0 to 750 V	7.3	24.0	0.3	1.0
751 V to 22 kV	7.6	24.9	0.6	2.0
22 kV to 50 kV	8.1	26.6	0.9	3.0
50 kV to 90 kV	8.4	27.6	1.2	3.9
90 kV to 120 kV	8.7	28.5	1.5	4.9
120 kV to 150 kV	9.0	29.5	1.8	5.9
150 kV to 200 kV	9.5	31.2		
190 kV to 220 kV			2.7	8.9
220 kV (360 kV p-p)	9.7	31.8		
220 kV to 320 kV			3.9	12.8
318 kV (500 kV p-p)	10.7	35.1		
320 kV to 425 kV			4.6	15.1
442 kV (735 kV p-p)	11.9	39.0		
<p>Note: This chart is included to show minimum distances for inductive coordination purposes only, and is not intended to show construction standards.</p> <p>Note: This chart was made from 2 separate charts and that is why there are some blanks.</p>				

5.4 CSA Standard C22.3 No. 3 - Electrical Coordination

- a. **Railway System levels** - The acceptable levels for longitudinally induced voltages in railway signalling and communication circuits are as follows:
 - i. 50 Vac rms – under normal power line conditions. 150 V may be acceptable under certain conditions. Where special conditions apply, it will be necessary to provide special instructions to personnel likely to have access to the exposed section and to ensure that special markings appear on all equipment connected to the exposed section.
 - ii. Note: For adjacent track sections of equal length separated by a pair of insulated joints, the ac voltage developed across each insulated rail joint is twice the maximum voltage of each rail with respect to remote earth. To limit the voltage across insulated rail joints to 50 V, the maximum rail-to-remote earth voltage shall not exceed 25 V.

- b. **Performance Degradation Railways** - In a general sense, the performance degradation can appear in two different equipment areas:
 - i. Signal equipment, which affects the certainty of control of either individual trains, groups of trains, or the entire railroad system, and
 - ii. Communication equipment, which affects the reliable transmission of either train operations, voice data, or business-related data.

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Power Line Inductive Coordination Utility Requirements

- c. The degradation of equipment affecting the control of trains could cause serious hazards to the safe operation of trains and to the safe operation of highway grade-crossing warning systems.

5.5 CSA Standard C22.3 No. 7 - Underground Systems

- a. **Induced voltages and current** - Where supply cables are installed in close proximity to communication circuits, metal pipes, railway tracks, metal fences, and other possible receptors, measures shall be taken to control any undue hazard to personnel and equipment due to induced voltage and current. Mitigation may include changes to the supply cables, the receptor, the method of installation, or the method of operation, or a combination thereof.
- b. **Inductive coordination** - Supply and communication circuits and their connected apparatus shall be designed, constructed, operated, and maintained with regard to the problem of avoiding or minimizing interference to the service given over the communication circuits and hazards to persons using, operating, or maintaining communication circuits. Where excessive inductive interference or induced voltages are anticipated or experienced, methods of coordination shall be applied in accordance with CAN/CSA-C22.3 No. 3.

S&C Recommended Practice 1082

Power Line Inductive Coordination Utility Requirements

6.0 Regulations and Standards USA

6.1 National Electrical Safety Code (NESC)

Power Line Clearance Chart				
Data from National Electrical Safety Code				
Voltage ac (to ground except p-p = phase to phase) Open supply conductors	Minimum Clearance Required Above Top of Rail		Minimum Clearance Required Above Railway Signal or Communication Lines	
	in metres	in feet	in metres	in feet
0 to 750 V	7.5	24.5	1.2	4.0
751 V to 22 kV	8.1	26.5	1.5	5.0
50 kV	8.4	27.4	1.8	6.0
120 kV	9.1	29.8	2.5	8.3
150 kV	9.4	30.8	2.8	9.3
220 kV	10.1	33.1	3.5	11.6
320 kV	11.1	36.4	4.5	14.9
425 kV	12.1	39.9	5.5	18.4
470 kV	12.6	41.4	6.0	20.0
Note: Values above 22 kV were calculated as per NESC: For voltages between 22 and 470 kV, the clearance shall be increased at the rate of 10 mm (0.4 in) per kilovolt in excess of 22 kV.				
Note: This chart is included to show minimum distances for inductive coordination purposes only, and is not intended to show construction standards.				

6.2 Electric Power Research Institute (EPRI)

- a. EPRI “Principles and Practices for Inductive Coordination of Electric Supply and Railroad Communication/Signal Systems” September 1977 (Blue Book).
 - i. Provides railroad specific electromagnetic compatibility information. While it is not a Standard it is the closest thing in North America to an industry accepted guide.

- b. EPRI “Power System and Railroad Electromagnetic Compatibility (EMC) Handbook” Second Edition 2006 or current version.
 - i. Provides railroad specific electromagnetic compatibility information.

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Power Line Inductive Coordination Utility Requirements

6.3 Institute of Electrical and Electronics Engineers (IEEE)

- a. IEEE Recommended Practice for Inductive Coordination of Electric Supply and Communication Lines/IEEE STD 776-1992:
 - i. This recommended practice addresses the inductive environment that exists in the vicinity of electric power and wire-line telecommunications systems and the interfering effect that may be produced thereby; guidance is offered for the control or modification of the environment and the susceptibility of the affected systems in order to maintain an acceptable level of interference.

- b. IEEE 1137-1991 IEEE Guide for the Implementation of Inductive Coordination Mitigation Techniques and Applications:
 - i. IEEE Std 1137-1991 provides guidance for controlling or modifying the inductive environment and the susceptibility of affected wire line telecommunications facilities in order to operate within the acceptable levels of steady-state or surge induced voltages.

S&C Recommended Practice 1082

Power Line Inductive Coordination Utility Requirements

7.0 Approval Procedures

7.1 Summary of Application Process

- a. Normally, the first interaction between a power utility company and the railway occurs when the power utility makes an application for environmental assessment for a proposed route. The railway will be notified if the proposed power line will cross over or under the railway track or pass nearby railway property. Notification will be made to the Real Estate Department of the railway.
- b. Real Estate will coordinate responses from the railway for any application.
- c. If approved from an environmental viewpoint, ultimately a formal detailed application will be sent to the railway Real Estate Department by the power company. Applications are required when new power facilities are proposed, when upgrading existing plant or when voltages or currents on conductors are increased beyond previously agreed upon limits.
- d. As a part of the application, the power utility will provide a description of the project, timing of the work, plans, reference to existing crossings and agreements, a completed Inductive Coordination Form and other information as required.
- e. When received, the Real Estate Department will initially review the application for completeness and review property records. They will then screen the application for its effect on railway operations as described in this Recommended Practice in the section: “Power Lines Requiring Inductive Coordination Review”. If none of the problem conditions are indicated from an electrical viewpoint, Real Estate can proceed to prepare an agreement for signature by the power utility as long as other track maintenance aspects are met.
- f. If a review is required, as determined by the section: “Power Lines Requiring Inductive Coordination Review”, the Real Estate Department will forward the Application and accompanying documents to the General Manager ES Signals and Communications. The General Manager ES S&C will arrange a review and either approve the Application or initiate a detailed engineering study.

7.2 Power Utility Preliminary Notice

- a. A power utility may give preliminary notice of plans for a projected power line or other facility with the request that they be informed if it will be near railway facilities.
- b. The power utility should be advised if the projected line will cross or be near railway facilities.

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Power Line Inductive Coordination Utility Requirements

- c. The General Manager ES Signals and Communications must be advised of any proposals for lines which meet or exceed the criteria described in the section: "Power Lines Requiring Inductive Coordination Review".

7.3 Power Lines Requiring Inductive Coordination Review

- a. The General Manager ES Signals and Communications will review the following proposed installations, where required, with an approved outside electrical protection consultant and provide recommendations. These recommendations must be taken into account before an agreement is finalized between CP and the power utility involved at that specific location.
- b. The following cases must be reported to the General Manager ES Signals and Communications for approval:
 - i. Alternating current power line crossings exceeding 230 kV phase-to-phase.
 - ii. Direct current power line crossings (all voltages).
 - iii. Power line crossings (all voltages) which cross the railway at an angle less than 45 degrees to the centreline of track.
 - iv. Power line proximities and parallels (all voltages).
 - v. Power generating or transformer stations:
 - Operating at less than 230 kV where the horizontal separation is less than 300 ft (100 metres); or:
 - Operating at 230 kV and above where the horizontal separation is less than 600 ft (200 metres).
 - vi. Note: The concern with power generating or transformer stations is with Ground Potential Rise (GPR). This is unlikely to be of concern where the horizontal separation between the fenced perimeter of the generating or transformer station and the limit of railway right-of-way is more than 300 ft (100 metres). However, for major power company installations of 230 kV or more, the GPR could be significant for railway systems and personnel at horizontal separations up to 600 ft (200 metres). The objective is to have the railway right-of-way outside the station's "zone of influence".

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Power Line Inductive Coordination Utility Requirements

- c. In part, this requirement for review can be determined by the Electromagnetic Interference Screening Tool listed below.

Electromagnetic Interference Screening Tool		
Description	Classification	Issue or concern
45 - 90 degree Crossings	≥ 200 kV	S&C concerned about electric charge building up on metal objects such as signal objects.
0 - 45 degree Crossings	≥ 60 kV	Real Estate to ask applicant for more information to determine if this qualifies as a parallel.
0 - 45 degree crossings or parallels	Earth Return Power Systems, single wire no neutral	Currents flowing through the ground can cause crossing interference issues.
* Parallels < 1 Mile	≥ 345 kV	If parallels are within 300 feet.
* Parallels 1- 2 Mile	≥ 200 kV	If parallels are within 400 feet.
* Parallels 2 - 3 Miles	≥ 60 kV	If parallels are within 500 feet.
* Parallels 3 Miles or more	> 0.75 kV	If parallels are within 800 feet.
Substations and generating stations	Within 300 feet / 100 metres of the right of way	Ground potential rise hazards for personnel, and surge damage to S&C equipment during substation equipment failure.
* Parallel lines can be well off the railway property and still have a negative impact on the railway operations and equipment. The magnitude depends on other conditions such as the current flowing in the wires, pole line construction, and soil resistivity. A qualified person, such as an electrical engineer, needs to look at these situations and to complete the screening process.		

7.4 Power Utility Applications

- a. The power utility must make applications for every new crossing, parallel or occupancy and also before making any physical changes to an existing site.
- b. The power utility must apply if it has reason to believe that any proposed new or revised facility in the vicinity of the railway may give rise to the possibility of any form of physical, inductive or electrical interference. This includes proximities and also changes in operating conditions on an existing line that increase the possibility or degree of interference.
- c. Applications for a crossing, occupancy or proximity should include the necessary detailed engineering drawings, with supporting information, for railway approval.
- d. The responsibility for ensuring that wire crossings meet the safety considerations covered by Regulations and Standards rests with the power utility making the application.

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Power Line Inductive Coordination Utility Requirements

7.5 Engineering Drawings

- a. Engineering drawings provided by the Power Utility applicant must include the following minimum technical information:

UNDERGROUND SYSTEMS	
Equipment	Information Required
Power circuit voltage(s)	Volts phase-to-phase; phase to effectively grounded neutral.
Power and communications cables	Number of conductors; type; diameter; weight; method of installation; number of cables.
Angle of crossing	Angle of line to signals and communications line; angle of change of direction at crossing and/or adjacent pole(s).
Poles	Riser and adjacent.
Power and communications conduit(s), pipe(s) and encased ducts	Diameter; material; thickness; length under CP property; total length; number of conduits or ducts; depth and burial; method of installation.

OVERHEAD SYSTEMS	
Equipment	Information Required
Poles and adjacent structures or towers	Height; class; set; material; pole number; owner.
Anchor(s) and anchor rods	Type; size; setting depth; owner; anchor rod size.
Guy(s)	Length and height; material.
Crossarm(s)	Size; material.
Insulators	type; flashover ratings
Power conductors and communication wires	Size; material; type; minimum breaking strength; maximum tension; maximum sag; present number; ultimate number.
Power circuit voltage(s)	Volts phase-to-phase; phase to effectively grounded neutral.
Minimum clearance under maximum sag	Above rails; above Signals and Communications plant.
Separation between wires and cables	Horizontal and vertical.
Power and communications cables	Number of conductors; type; diameter; weight; method of installation; number of cables.
Messenger(s)	Diameter; type; grade; minimum breaking strength; maximum tension.
Distances	Crossing pole (tower) to crossing pole; crossing pole to adjacent pole; crossing pole to gauge of rail(s); crossing pole to signals and communications plant.
Angle of crossing	Angle of line to signals and communications line; angle of change of direction at crossing and/or adjacent pole(s).

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Power Line Inductive Coordination Utility Requirements

7.6 Engineering Drawings / Other Information

- a. Engineering drawings shall also include the following information:
 - i. "Profile of Crossing" detail (vertical elevation).
 - ii. "Plan View" detail (showing CP property line and adjacent lot numbers).
 - iii. "Crossing Structure" pole framing detail.
 - iv. "Scale" for each of the above and dimensions ("not to scale" unacceptable).
 - v. When power line parallels railway signals and communication lines, separate drawings must be submitted together with the "Inductive Coordination Form for Power Transmission and Distribution Lines".
 - vi. Revised drawings must be marked as revised and reason for revision stated
 - vii. When joint use facilities are used, drawing must show information pertaining to both users and approval of other user denoted on drawing.
 - viii. The seal and signature of the professional engineer responsible for the work.

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Power Line Inductive Coordination Utility Requirements

8.0 Inductive Coordination Form

- a. The form “Inductive Coordination Form For Power Transmission and Distribution Lines” must be completed by the power utility (applicant) for each proposed power line crossing or running parallel to, on or near, railway right-of-way. It may also be required for other types of power facilities proposed to be located near railway facilities, and where it is suspected that an existing power line or facility may be causing hazard, damage or interference to personnel or systems on railway property.
- b. The information will be used to help determine whether hazard, damage or interference may arise and therefore the mitigation measures required.
- c. It is realized that to provide all of the information requested may involve considerable effort, and that in many cases this may not be justified. In such cases, a partial or preliminary submission may be made; showing such basic information as will indicate the degree of seriousness of the exposure.
- d. CP generally subscribes to the principles stated in CSA Standard C22.3 No. 3 - Electrical Coordination, but it must be recognized that for railways there are areas of concern beyond communications systems.
- e. It will be helpful if the information requested is provided in the format shown, but the form may be altered in a manner appropriate for the particular exposure. In every case, the utility may wish to furnish supplementary information that will help to determine a mutually satisfactory solution.

Inductive Coordination Form For Power Transmission and Distribution Lines Canadian Pacific

This form must be completed by the power utility (applicant) for each proposed power line crossing or running parallel to, on or near, the railway right-of-way.

1	Power Company Name:			
2	Designation of Line:		In-Service Date:	
3	Railway Subdivision Name:			
	Railway Mileage From:		Railway Mileage To:	
4	Voltage in KV:		Frequency or DC:	
5	System – Yes/No?			
	3-Phase:		Single Phase:	
	Star:		Delta:	
	Grounded:		Ungrounded:	
6	Total length of Line in KM			
7	Length of Proposed Exposed Section in KM:		Additional Existing Exposures in KM:	
8	Length of power line between substation:			
9	Resistivity of soil at each substation:			
10	Geometrical Line Configuration (vertical, horizontal or delta):			
11	Geometrical Phase to phase wire separation (horizontal and vertical):			
12	Power pole (tower) distance to track centreline:			
13	Minimum Horizontal Separation Between Power Line Centre to Communication / Signal Line Centre:			
14	Number of Circuits Initial:		Number of Circuits Ultimate:	
15	Phase Conductors	Number:	Material:	Size:
16	Neutral Conductor (Where Applicable)		Material:	Size:
17	Overhead Ground Conductors (Where Applicable)	Number:	Material:	Size:
18	Power Line Transposed Yes/No?			

Submit this form and other required documentation to: General Manager ES Signals and Communications, Canadian Pacific Railway, Suite 700 Gulf Canada Square, 401 – 9th Avenue SW, Calgary, AB T2P 4Z4.

Form SCR1082-1-010111-V02-E

Inductive Coordination Form For Power Transmission and Distribution Lines Canadian Pacific

19. Load Current Diagram		
Power System	Maximum Average Phase Current / Circuit	
Operating Condition	Initial	Ultimate
Normal		
Maximum		
Emergency		
Maximum Emergency		

20	Maximum Current Unbalance, % of Load Current:	
21	Maximum Residual Current in Amps:	
22	Currents direction for each line:	
23	Maximum Ground Return Fault Current Through Exposure Assuming Zero Resistance Phase to Ground Fault, in Amps:	
	Note: If exposed section can be fed from both directions or fault current varies substantially along exposure, provide ground fault current curves for exposed section or use the following table and diagram as appropriate.	

24. Fault Current Table			
Fault Current Exposure (See Exposure Diagram)	Total Fault Current in Amps	Ground return Current "A" in Amps	Ground return Current "B" in Amps

Submit this form and other required documentation to: General Manager ES Signals and Communications, Canadian Pacific Railway, Suite 700 Gulf Canada Square, 401 – 9th Avenue SW, Calgary, AB T2P 4Z4. Form SCR1082-1-010111-V02-E

Inductive Coordination Form For Power Transmission and Distribution Lines Canadian Pacific

25. Exposure Diagram	
Location "A"	Location "B"

26. Maximum Fault Clearing time:		
27. Type of Relaying		
28. Are Reclosures Used Yes/No?		
Number of Reclosures?		
29. Earth Resistivity in the Exposed Section in Ohm-Metres	Measured	Estimated
30. Are Transformer Neutrals Grounded at Both Ends of Exposure Yes/No?		

31. Telephone Influence Factor (TIF) Diagram (Where Required)		
Factor	Balanced	Residual
$V * T = TIF * V_{rms}$		
$I * T = TIF * I_{rms}$		

32. Attached Drawings:	Layout Plan Title & Number:	
	Pole or Tower Configuration Number:	
	Transportation Diagram Number:	

Submit this form and other required documentation to: General Manager ES Signals and Communications, Canadian Pacific Railway, Suite 700 Gulf Canada Square, 401 – 9th Avenue SW, Calgary, AB T2P 4Z4. Form SCR1082-1-010111-V02-E

Inductive Coordination Form

For Power Transmission and Distribution Lines

Canadian Pacific

Comments or Additional Information:			
Name:		Date:	
Title:			
Signature:		Telephone:	
Other Contact Name:		Telephone:	
Address:			

Submit this form and other required documentation to: General Manager ES Signals and Communications, Canadian Pacific Railway, Suite 700 Gulf Canada Square, 401 – 9th Avenue SW, Calgary, AB T2P 4Z4.

Form SCR1082-1-010111-V02-E

Appendix B3

Location Specific KPI Data

Location Specific KPI Data

Data Source	Constraint/Constraint	Location	Segment ID Comment/Constraint Relates to
Municipal KPI	Rivers, streams or wetlands in your area that provide important wildlife habitat or fishing opportunities: Brokenhead swamp (hunting in this area)	Brokenhead swamp	far east of routes
Municipal KPI	Residential, commercial or industrial developments planned in your Municipality that would be impacted by the proposed Transmission Line corridor: Depending on location - Sage Creek	Sage Creek	N1
Municipal KPI	Frequent floods along Seine River, Youville Drain, Manning Drain - typically these overtop in spring runoff.	Seine River, Youville Drain, Manning Drain	N1/N2 (Seine River), N2/N4 (Manning Canal), N2/N3 (Youville Drain)
Environment KPI	Important recreation areas or areas of ecotourism: Crow Wing trails, 202km from Winnipeg at floodway to Emerson	Crow Wing Trail	N11/S1/S2 (Trans Canada Trail/Crow Wing Trail)
Municipal KPI	Ile des Chenes lagoon expansion; landfill moving west of the existing one on the east side of Bernat Road - north of Diversion channel	Ile des Chenes lagoon	N3
Municipal KPI	East of Ile des Chenes is generally not an issue, i.e. west of PTH #59; most other areas are flood prone.	land west of 59 near IDC (flood)	N3
Municipal KPI	Many bird watchers come to St. Adolphe to look out over the Red River from the PR 210 Bridge.	St Adolphe	N3 (closest to) but far west of routes
Municipal KPI	Two landing strips for local farmers - Ile des Chenes off Lac Claire Road, St. Agathe off PR 200 between St. Agathe and St. Adolphe	Ile des Chenes, St Adolphe/St Agathe	N3 (IDC strip - based on description but not apparent in air photo), St Adolphe/St Agathe strip far west of routes
Environment KPI	Important recreation areas or areas of ecotourism: Ile des Chenes, St. Jean or St. Pierre. there may be locally important recreational trails or areas but not aware specifically of them	Ile des Chenes, St Jean, St Pierre	N3/N2 (IDC), S7 (St Jean Baptiste), closest to N11 (St Pierre Jolys)
Environment KPI	Vegetation types in the Study Area that are especially important: Tolstoi tall grass prairie; Red, Rat, Roseau rivers; Red river bottom forest	Tolstoi prairie, Red, Rat, Roseau Rivers	S1/ S2/ S3 (Rat River), S7/ S8 (Red River), S8 (Roseau River), S9 (Roseau River FN), Tolstoi is far east of routes
Environment KPI	Important rivers, streams or wetlands in the Study Area that provide wildlife habitat or fishing opportunities: minor sport and domestic netting on Roseau and Rat rivers, trappers using this area, near Marsh Creek, Roseau, St. Malo	Roseau and Rat Rivers, Marsh Creek, Roseau, St. Malo	S1/ S2/ S3 (Rat River), S8 (Roseau River), S9/S8 (Roseau River FN), S4 (St Malo), S7/S8 (Marsh River)
Municipal KPI	Rivers, streams or wetlands in your area that provide important wildlife habitat or fishing opportunities: possibly Joubert Creek	Joubert Creek	S1/S2/N11
Municipal KPI	In Pansy township, there is a stand of tall grass prairie - there may be rare plants in this area and/or the undeveloped lands in southern portion of RM.	Pansy	S4 (closest to) but far east of routes
Environment KPI	Important recreation areas or areas of ecotourism: Moose Lake, Birch Point, St. Malo, NCC lands (tall grass prairie habitats), birding is a big draw in these areas.	Moose Lake, Birch Point, St. Malo, NCC lands	S4 (St Malo), Moose Lake/Birch Point far east of routes
Environment KPI	Important recreation areas or areas of ecotourism: St. Pierre Jolys, trans Canada trail, snowmobile trails near St. Malo, ATV trails near St. Jean Baptiste	St Pierre Jolys, Trans Canada Trail, St Malo, St Jean Baptiste	S4 (St Malo), S7 (St Jean Baptiste), N11/S1/S2 (Trans Canada Trail)
Environment KPI	Vegetation types in the Study Area that are especially important: St. Malo; cluster of trees near Carlowrie which hosts overwintering habitat for deer and owls. Other cluster of trees near Roseau River reserve.	St Malo, Calorie, Roseau River Reserve	S4 (St Malo), S8 (Carlowrie and Roseau River FN), S9 (Roseau River FN)
Environment KPI	Important recreation areas or areas of ecotourism: St. Malo, seems likely near Roseau and Rat Rivers, including aboriginal lands and uses; Arnauld area has natural areas; there may be guided tours in this area (check for permit holders); other trails.	St Malo, Roseau and Rat Rivers, Aboriginal Lands, Arnauld	S4 (St Malo), S8 (Roseau River), S1/S2/S3 (Rat River), S7/S8 (Arnauld), S8/S9 (Roseau River FN)
Government and Infrastructure KPI	Flood resistant route, - highway 75 closes a lot due to flooding, pressure from trucking to find a route to be "flood proof" - 6 months away from hydrologic study being complete.	Highway 75	S7, S9
Environment KPI	Important recreation areas or areas of ecotourism: Arnauld area has natural areas; there may be guided tours in this area	Arnauld	S7/S8
Municipal KPI	Rivers, streams or wetlands in your area that provide important wildlife habitat or fishing opportunities: Fishing in the Red River near St. Adolphe.	Red River	S7/S8 (Red River)
Environment KPI	Large concentration or gatherings of wildlife: in Red River corridor; huge gatherings of geese on a farm near Dufrost. any stands of trees.	Red River, Dufrost	S7/S8 (Red River), S3/S4/S5 (Dufrost)
Environment KPI	Areas with important wildlife habitat: in Red River corridor: important migration corridor for raptors and waterfowl. cluster of trees in south near Carlowrie provides important overwintering habitat.	Red River, Carlowrie	S7/S8 (Red River), S8 (Carlowrie)
Municipal KPI	Rivers, streams or wetlands in your area that provide important wildlife habitat or fishing opportunities: Roseau River; wetlands in eastern part of RM; Kirkpatrick swamps	Roseau River, Kirkpatrick swamp	S8 (Roseau River), Kirkpatrick swamp far southeast of routes
Municipal KPI	Development Plans for Oak Bluff include growth to the north and west in order to stay away from the highway puts housing near the La Verendrye Transmission Line. Land is designated right up to the transmission line ROW.	Oak Bluff	Southern loop
Municipal KPI	Oak Bluff Lagoon is adjacent to the existing corridor - Section 17-9-2 E. Future planned expansion. Could it go under the Hydro lines?	17-9-2E	Southern loop
Municipal KPI	Brady Landfill - Future cells and Water and Waste Dept. improvements /new technologies - need land; composting utility operations	Brady Landfill	Southern loop
Municipal KPI	Private glider club in Starbuck	west of Starbuck (Winnipeg Gliding Club)	Southern Loop (closest to) but west of Starbuck
Municipal KPI	Areas with important wildlife habitat (spawning, calving, breeding and nesting areas): Fort Whyte Centre is on the Boundary with Winnipeg	Fort Whyte	Southern Loop (closest to) but far north of routes

Round 1 Workshops

Appendix C1

Workshop Invitation Letters



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1
Telephone / N° de téléphone : (204)360-4632 • Fax / N° de télécopieur : (204) 360-6176
lthompson@hydro.mb.ca

August 6, 2013

[Title] [Name]
[Organization]
[Address1]
[Town], MB, [Postal Code]

Dear [Title] [Name]:

Re: Proposed St. Vital Transmission Complex

Manitoba Hydro would like to advise you of the proposed St. Vital Transmission Complex. The project is intended to maintain and enhance the reliability of the power supply and address load growth in south-central Manitoba.

We would like to thank you for your participation in the transmission siting workshops in June of this year. Your feedback and contribution was incorporated into the routing methodology which was presented to you by PhotoScience Inc. This Project will be the first time which this methodology will be utilized by Manitoba Hydro.

The St. Vital Transmission Complex consists of two separate but related components - the St. Vital Station to LaVerendrye Station and the St. Vital Station to Letellier Station 230 kV transmission lines. In addition, modifications of the St. Vital and Letellier stations will be required to terminate the new lines. These will occur on existing Manitoba Hydro property within the fenced area of each station. The Project will require a Class 2 licence under *The Environment Act* (Manitoba).

Alternative routes are being considered to connect the St. Vital and Letellier Stations whereas the route between St. Vital and LaVerendrye will follow a transmission corridor which exists south of Winnipeg. The enclosed map outlines the location of these alternative routes

Manitoba Hydro will be undertaking 3 stakeholder workshops to achieve the following goals:

- Present the route selection methodology utilized by Manitoba Hydro
- Determine local issues and concerns
- Detailed route review utilizing large scale mapping
- Outline the public engagement process and the incorporation into route selection

These workshops will begin at 9:00am to 1:30pm in the following locations:

Dominion City	August 20	Dominion City Community Hall
Mitchell	August 21	Mitchell and Area Senior Centre
Winnipeg	August 22	Winakwa Community Centre

We would like you to provide your time and knowledge to assist us in the evaluation of these alternative routes. A Manitoba Hydro representative will be in contact with you in the near future to discuss whether you or a representative from your organization would like to participate.

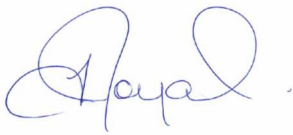
If you are unable to attend the workshop we will be holding public open houses from 4:00-8:00pm at the same locations and dates as listed above. An additional open house will be held at the Oak Bluff Recreation Centre on August 27th from 4:00-8:00pm. These open houses are drop-in.

Further Project information can be found on our website at www.hydro.mb.ca/stvital.

If you have any questions regarding the project or the workshops, please contact me directly at 1-877-343-1631 or by email at LEAprojects@hydro.mb.ca.

We look forward to discussing this Project with you.

Sincerely,

A handwritten signature in blue ink, appearing to read "Trevor Joyal".

Trevor Joyal
Environmental Specialist
Licensing & Environmental Assessment Department



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1
Telephone / N° de téléphone : (204)360-4632 • Fax / N° de télécopieur : (204) 360-6176
lthompson@hydro.mb.ca

August 6, 2013

[Title] [Name]
[Organization]
[Address1]
[Town], MB, [Postal Code]

Dear [Title] [Name]:

Re: Proposed St. Vital Transmission Complex

Manitoba Hydro would like to advise you of the proposed St. Vital Transmission Complex. The project is intended to maintain and enhance the reliability of the power supply and address load growth in south-central Manitoba.

The St. Vital Transmission Complex consists of two separate but related components - the St. Vital Station to LaVerendrye Station and the St. Vital Station to Letellier Station 230 kV transmission lines. In addition, modifications of the St. Vital and Letellier stations will be required to terminate the new lines. These will occur on existing Manitoba Hydro property within the fenced area of each station. The Project will require a Class 2 licence under *The Environment Act* (Manitoba).

Alternative routes are being considered to connect the St. Vital and Letellier Stations whereas the route between St. Vital and LaVerendrye will follow a transmission corridor which exists south of Winnipeg. The enclosed map outlines the location of these alternative routes

Manitoba Hydro will be undertaking 3 stakeholder workshops to achieve the following goals:

- Present the route selection methodology utilized by Manitoba Hydro
- Determine local issues and concerns
- Detailed route review utilizing large scale mapping
- Outline the public engagement process and the incorporation into route selection

These workshops will begin at 9:00am to 1:30pm in the following locations:

Dominion City	August 20	Dominion City Community Hall
Mitchell	August 21	Mitchell and Area Senior Centre
Winnipeg	August 22	Winakwa Community Centre

We would like you to provide your time and knowledge to assist us in the evaluation of these alternative routes. A Manitoba Hydro representative will be in contact with you in the near future to discuss whether you or a representative from your organization would like to participate.


If you are unable to attend the workshop we will be holding public open houses from 4:00-8:00pm at the same locations and dates as listed above. An additional open house will be held at the Oak Bluff Recreation Centre on August 27th from 4:00-8:00pm. These open houses are drop-in.

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If you have any questions regarding the project or the workshops, please contact me directly at 1-877-343-1631 or by email at LEAprojects@hydro.mb.ca.

We look forward to discussing this Project with you.

Sincerely,

A handwritten signature in blue ink that reads "Trevor Joyal". The signature is fluid and cursive, with a small flourish at the end.

Trevor Joyal
Environmental Specialist
Licensing & Environmental Assessment Department

Appendix C2

Workshop Background
Presentation

Presentation August 20, 2013



St. Vital Transmission Complex
Stakeholder Workshop

WELCOME!

Manitoba Hydro

9:00am to 1:50pm

Purpose of Workshop

- Share current project information
 - Including outcomes of the Route Selection process
- Understand local issues and concerns
- Obtain stakeholder feedback on the route selection process
- Discuss site-specific concerns
 - Mapping exercises
- Discuss appropriate mitigation measures to address local issues

Workshop Agenda

1. Introduction – 10 min.
 - Participants
 - Project Description
 - Deliverables
2. Background – 1 hr.
 - Outline of Route Selection Process (EPRI)
 - Outcomes to Date – Alternative Routes
 - Environmental Assessment Process
 - Public Engagement Process
 - Property Acquisition
 - Project Schedule
 - Questions

Workshop Agenda

- Refreshment Break /Grouping – 15 min.
- 3. Breakout Discussion/Map Exercise – 2 hr. 15 min.
 - Discuss local Issues and Concerns
 - Discuss /Identify Opportunities and Constraints
 - Engineering
 - Environmental
 - Socio-economic
 - Determine Route Preferences
 - Apply the above to Alternative Route Maps
- Lunch - 15 min.
- 4. Summary – 45 min.
 - Group Presentations
 - Dot-mocracy Exercise
- 5. Wrap up – 5 min.

1. Introduction 9:00 to 9:10am

1.1 Manitoba Hydro/Consultant Project Team

1.2 Stakeholders/Workshop Participants

1.3 Project Description

1.4 Deliverables

1.5 Transmission Line Development Process

1.1 Manitoba Hydro Project Team

- Project Coordination – Manitoba Hydro
- Route Selection – Photo Science, Inc/MH
- Stakeholder & Public Engagement –
AECOM/MH
- Environmental Assessment – Stantec/MH
- Mapping – Stantec
– Working in tandem

1.2 Stakeholder Workshop

- Representation
 - Agriculture
 - Business and Industry – including Trappers
 - Environment – Provincial and Groups
 - Health, Education and Policing – including EMS
 - Infrastructure
 - Municipal – RMs, Towns and Cities
- Invited through interviews, telephone calls, letters and emails
 - Some representatives participated in EPRI Workshops

1.3 Project: Two New 230kV Transmission Lines

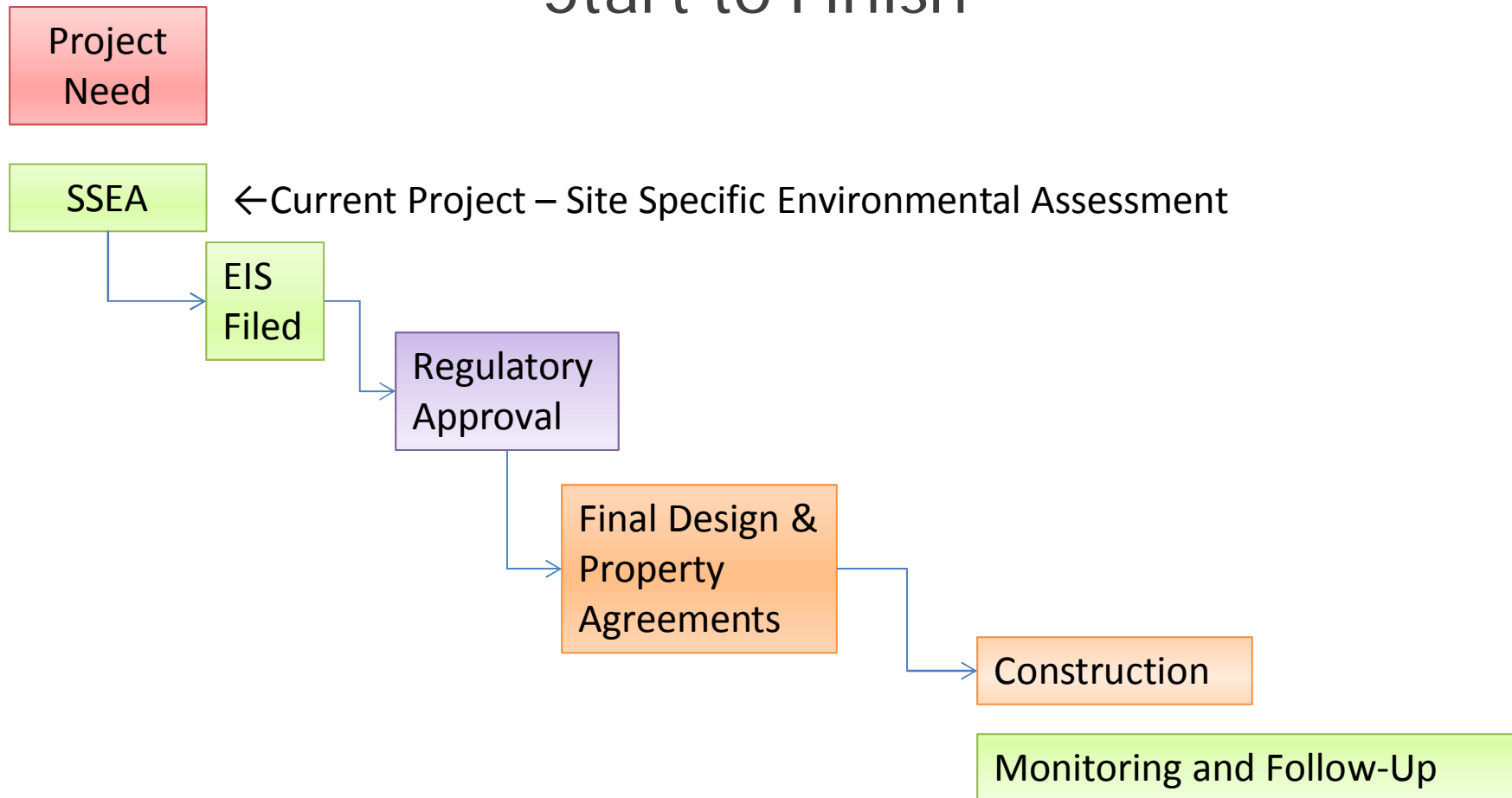
- St. Vital Station to La Verendrye Station
 - On an existing Manitoba Hydro right-of-way south of Winnipeg - the Southern Loop
 - Will enable the Winnipeg electrical network to withstand severe outages; improve system performance during normal operation, and promote the reliability of the power system in southern Manitoba
- St. Vital Station to Letellier Station
 - Required to address load and voltage concerns in the South Central area of Manitoba due to load growth

1.4 Deliverables

- Environmental Assessment Report
 - Assessment of a Preferred Route
 - Environmental (including Socio-economic) Impacts
 - Record of Stakeholder and Public Engagement
 - Provincial Review

1.5 Transmission Line Development Process

Start to Finish



2. Background 9:10 to 10:10am

2.1 Route Selection Process

2.2 Environmental Assessment Process

2.3 Public Engagement

~ Results to Date

2.4 Property Acquisition

2.5 Schedule

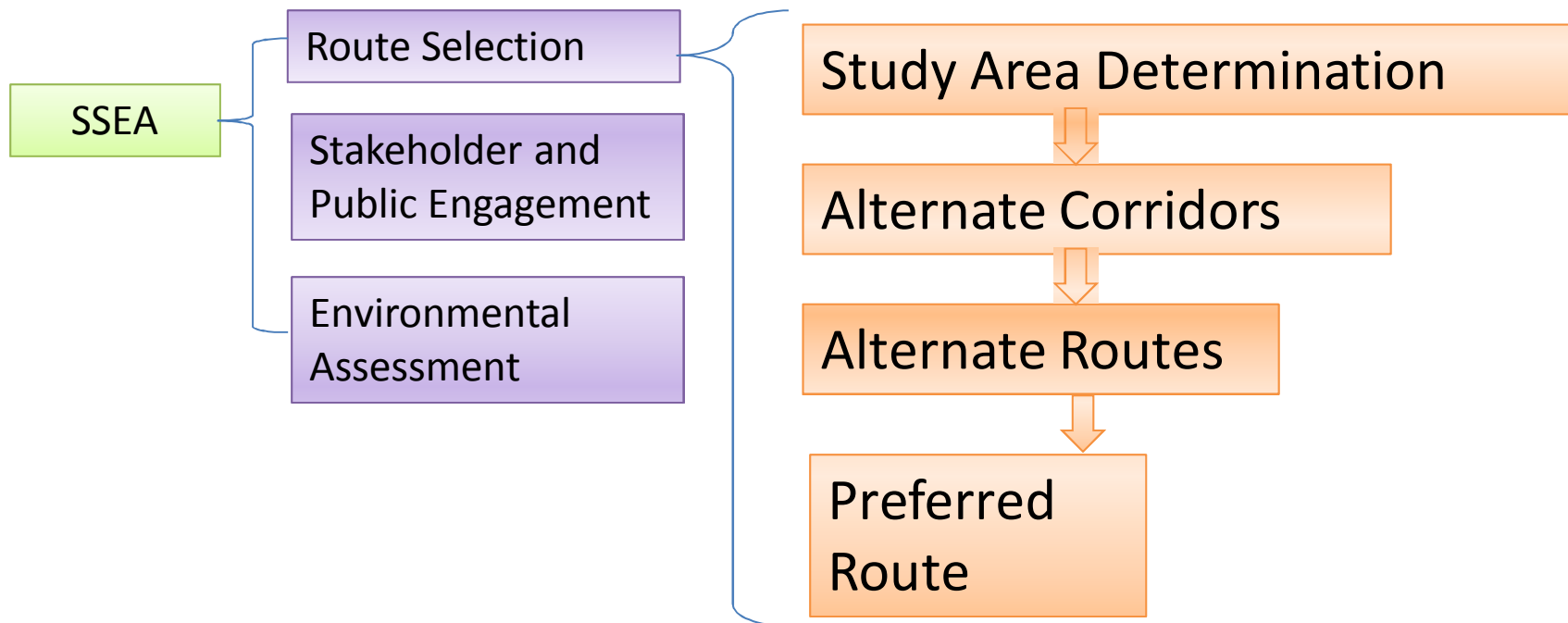
2.6 Questions

2.1 Route Selection Process

- Macro Corridor and Study Area Identification
- Alternative Corridor Identification (Natural, Built, Engineering & Simple Average)
- Alternative Route Selection and Review
- Preferred Route Determination

SSEA: Site Selection & Environmental Assessment

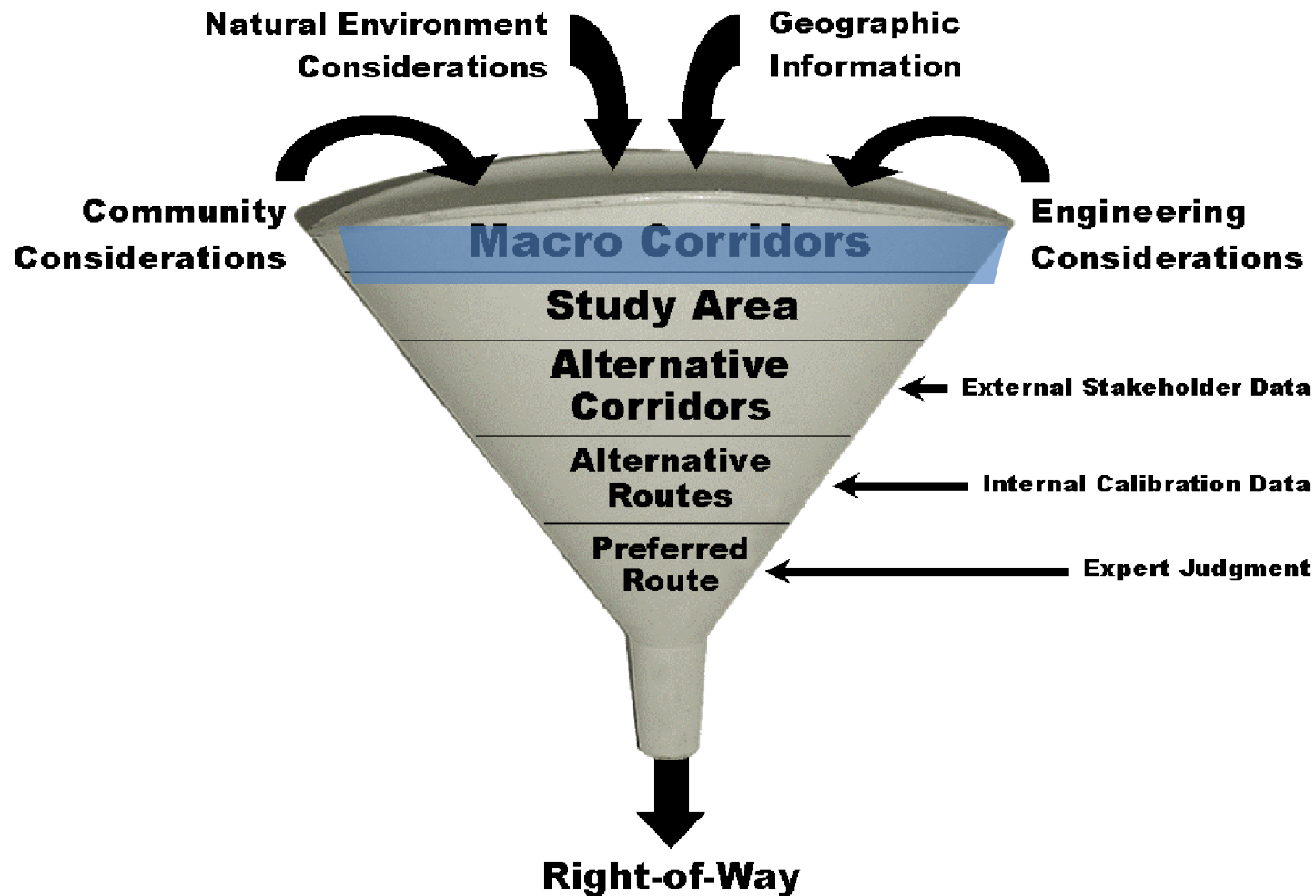
Regional Siting Criteria and Suitability



Route Selection Methodology

- Macro Corridor and Study Area Identification
- Alternative Corridor Identification
 - Engineering, Natural Environment and Built Environment Considerations
 - Simple Average and Composite Corridor
- Alternative Route Selection and Review
- Preferred Route Determination

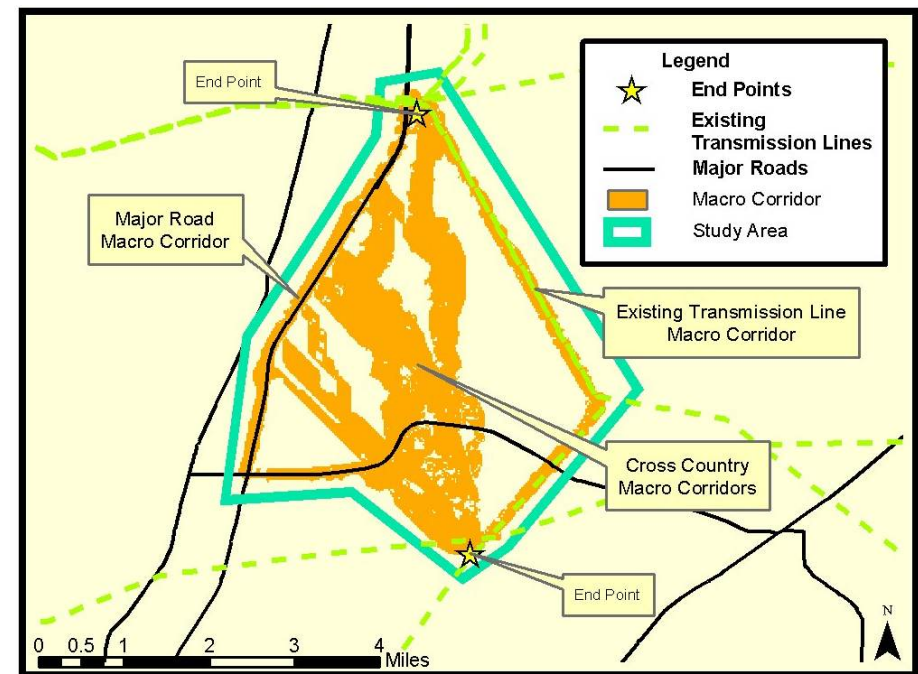
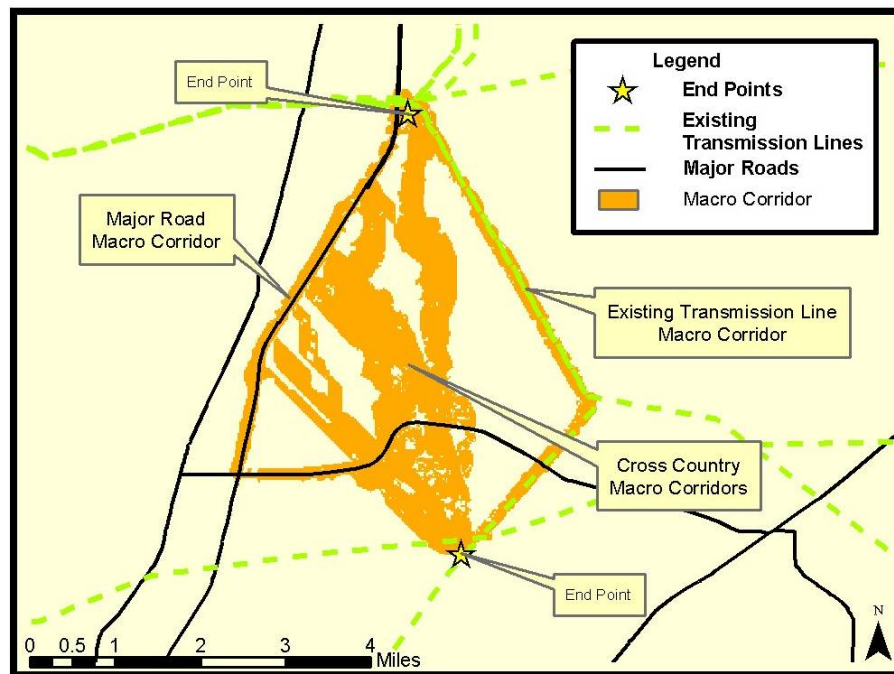
The EPRI-GTC Methodology Funnel



Macro Corridor Identification

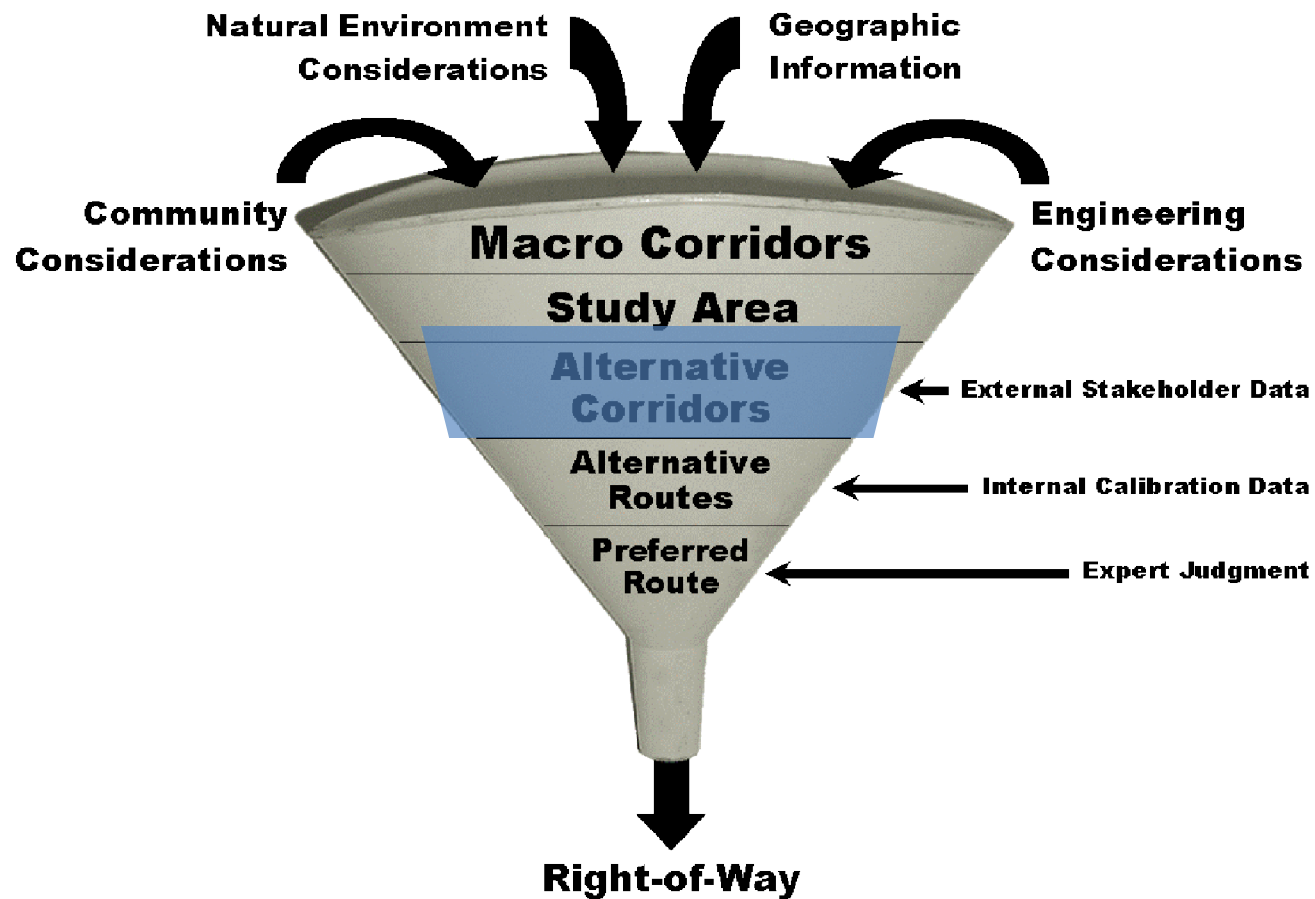
- Identifies broad areas with least environmental and community impacts
- Identifies start and end points of the project, and one central point
- Used to define the outer boundaries/limits of Project Study Area
- Based on available provincial GIS data sets

Marco-Corridor and Study Area



The top 5% of the best possible connections within the project area form the macro corridors

Alternative Corridor Identification



Alternative Corridor Identification

- External and internal stakeholders determine the relative suitability of different features for routing a transmission line
- This is focused on a regional scale, prior to application on a specific project
- Examples of features include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Slope• Paralleling existing infrastructure• Span-ability of water bodies	<ul style="list-style-type: none">• Wetlands• Grasslands• Critical habitat• National parks	<ul style="list-style-type: none">• Agricultural• Recreational trails• Historic sites• View-shed

Alternative Corridor Identification

- Examples of external stakeholders
 - Trappers Association
 - Manitoba Conservation and Water Stewardship
 - Manitoba Infrastructure and Transportation
 - Manitoba Local Government
 - MAFRI
 - Manitoba Aerial Applicators
 - Manitoba Food and Rural Initiatives
 - Ducks Unlimited Canada
 - Keystone Agricultural Producers
 - Trails Association
 - Manitoba Nature Conservancy

Stakeholder Input

- External and internal stakeholder feedback and contribution was incorporated into the Routing Methodology
- Stakeholders identified features and suitability values, as well as relative weightings for routing based on Engineering, Natural and Built Environment perspectives
- This input was used to determine the Alternative Corridors within which Alternative Routes could be drawn

Southern Manitoba Alternate Corridor Siting Model

Engineering	Natural	Built
Linear Infrastructure 35.7%	Aquatics 10.0%	Proximity to Buildings 10.0%
Unutilized ROW (Manitoba Hydro Owned) 1	No Aquatic Feature 1.0	> 800 m 1
Parallel Roads ROW 2.6	Ephemeral Streams (Non-Fish Bearing) 4.9	400 - 800 m 2.7
Municipal Road Allowances 3.1	Spannable Waterbodies (Lakes & Ponds) 6.1	100 - 400 m 6.5
Parallel Provincial Highways ROW 3.4	Ephemeral Streams (Fish Bearing) 6.3	ROW - 100 m 9
Parallel Existing Transmission Lines 3.8	Swamps 6.8	Building Density 15.0%
No Linear Infrastructure 4.4	Ephemeral Streams (CRA Fish Bearing) 6.9	< 1 Building / Acre (Rural Agricultural) 10.0
Rebuild Existing Transmission & Sub-Transmission Line 5	Riparian Floodplain 7.1	1 Building per 1-5 acres 2.8
Parallel Oil / Gas Transmission Pipeline 5.6	Permanent Stream 7.5	1-3 Buildings / Acre (Rural Residential) 3.7
Parallel Railway ROW 5.6	Bogs 7.7	3-10 Buildings / Acre (Suburban Density) 7.2
Future MIT Plans 7.8	Fens 8.2	>10 Buildings / Acre (Urban) 9.0
>= 300 kV Transmission Line & Within Separation Buffer 8.5	Marsh 8.2	Proposed Development 3.7%
Within Road, Railroad, or Utility ROW 9	Permanent Stream (CRA Fish Bearing) 9.0	No Proposed Development 1.0
Spannable Waterbodies 10.4%	Special Features 42.4%	Proposed Development - Industrial Zoning 3.0
No Waterbody 1	No Special Land 1.0	Proposed Development - Agriculture Zoning 4.1
Non-Nav. Spannable Waterbody (Standard Structures) 2.8	Managed Woodlots 5.4	Proposed Development - Commercial Zoning 5.1
Nav. Spannable Waterbody (Standard Structures) 4.3	Crown Land With Special Code 7.0	Permitted Development 6.9
Non-Nav. Spannable Waterbody (Specialty Structures) 6	Community Pastures 7.3	Proposed Development - Rural Residential Zoning 6.9
Nav. Spannable Waterbody (Specialty Structures) 9	Flyways 7.5	Proposed Development - Urban Zoning 9.0
Geotechnical Considerations 30.2%	Areas of Special Interest (ASI) 7.8	Soil Capability & Agricultural Use 11.9%
Rock 1	Recreation Provincial Park (Non-Protected Portions) 8.0	Other 1.0
No Special Geotechnical Considerations 1.3	Conservation Easements 8.0	Class 6 & 7 (Low Productivity) 3.3
100 Year Floodplain 6.6	Wildlife Management Area (Non-Protected Portions) 8.2	Organic Soils / Peat Bogs / Sod Production 3.9
Wetland / Peatlands 9	Proposed Protected Areas 8.6	Artisanal Farms / Wild Rice 4.3
Mining Operations / Quarries 13.2%	Heritage Rivers 8.7	Class 4 & 5 (Forages, Transitional) 5.9
No Mining Operation 1	Important Bird Areas 8.7	Class 1- 3 (Prime Agricultural & Cultivated Land) 9.0
Abandoned / Inactive Mines (Aggregate Piles, Pits, etc) 6.5	Heritage Marshes 8.9	Land Use 16.0%
Mine-Owned Land 9	Conservation Lands 8.9	Forest 1.0
Slope 5.4%	Natural Provincial Park (Non-Protected Portions) 9.0	Open Land (Sand & Gravel) 1.5
Slope 0 - 15% 1	Land Cover 10.2%	Industrial 1.6
Slope 15 - 30% 3.1	Exposed / Urbanized / Open Land 1.0	Burnt Areas 1.8
Slope > 30% 9	Agricultural (Forage) 2.5	Active Forestry Operation 2.3
Proximity to Future Wind Farms 5.1%	Agricultural (Crops) 2.8	Hunting / Trapping Locations 3.9
500m - 10k 1	Burnt Areas 4.9	Listed Trails (Existing & Planned) 4.6
> 10k 9	Grassland 5.0	Agricultural (Forage) 4.9
Areas of Least Preference 100.0%	Deciduous Forest 5.5	Organic Farming 5.5
Non-Spannable Waterbodies (300 m) 1	Coniferous Forest 5.7	WMAs (Unprotected) 5.8
Mines and Quarries (Active) 1	Mixed Forest 6.0	Out-of-Park Recreational Development 6.4
Wastewater Treatment Areas 1	Non-Developed Sand Hills 8.1	Intense Development & Use 6.5
Buildings 1	Native Grassland 9.0	Agricultural (Crops) 6.6
Oil Well Heads (100m) 1	Wildlife Habitat 37.4%	500m Buffer of Irrigated Land 6.6
Waste Disposal Sites 1	Other 1.0	Intensive Livestock 6.9
Towers and Antennae Area of Potential Affect (< 200m*) 1	Ungulate Habitat (High) 6.1	Institutional 7.4
Existing Wind Turbine Area of Potential Affect (< 500m) 1	Waterfowl Habitat (High) 6.3	In-Park Recreational Development 7.9
Airports (Including Glide Paths - 2° Slope) 1	Waterfowl Paired Density (High) 6.9	Agricultural (Crops Limited to Aerial Application) 8.9
Federal Park 1	Waterfowl Hotspots (High) 7.0	Irrigated Land 9.0
Military Facilities 1	Grouse Lek Area 7.7	National, Provincial, & Municipal Historic Sites 12.0%
	Rare Species Habitat 8.0	> 300 m 1.0
	Critical Habitat 9.0	200 - 300 m 9.0
	Endangered Species Habitat 9.0	Proximity to Heritage, Archaeological Sites, & Centennial Farms 12.0%
	Areas of Least Preference 100.0%	> 300 m 1.0
	Protected Areas 1	200 - 300 m 9.0
	World Heritage Sites 1	Landscape Character (Viewsheds) 7.8%
	Special Conservation Areas 1	Other 1.0
	Ecological Reserves 1	Recreational Trails 4.1
	Wildlife Refuge 1	Cottage Subdivisions 6.1
	Natural Provincial Park (Protected Portions) 1	Identified Scenic Provincial Trails & Roads 6.8
	Recreation Provincial Park (Protected Portions) 1	Escarpments (Timeless Topography) 7.5
	Wildlife Management Area (Protected Portions) 1	Resort Lodges & Campgrounds 8.6
	National Parks 1	Residential 8.9
	Provincial Park Reserves 1	Designated Historic Sites 9.0
	Wilderness Provincial Park 1	Edge of Field 11.7%
	Heritage Provincial Park 1	Road Allowances 1.0
		Drains 1.8
		Quarter Section Lines / Half-Mile Section Lines 2.0
		Vacant Rail ROW 2.1
		Parallel Or Adjacent To Road Allowances 2.8
		Other (None of the Above) 9.0
		Areas of Least Preference 100.1%
		Indian Reserves 1
		Treaty Land Entitlement Selection 1
		Campgrounds & Picnic Areas (500 m) 1
		Aircraft Landing Areas (STARS, Flying Farmers, Float Planes, etc) (3 Miles In-Line with Glide Path or Transport Canada Designation) 1
		Recreational Centers (Golf, Skiing, etc) (500m) 1
		Federal Heritage Sites (200m) 1
		Provincial Heritage Sites (200 m) 1
		Municipal Heritage Sites (200 m) 1
		Heritage Plaques (200 m) 1
		Day Care Parcels 1
		Cemeteries / Burial Grounds 1
		Schools 1
		Past Military Installations 1
		Contaminated Sites 1
		Known Archaeological & Paleoarchaeological Site (300m) 1
		National, Provincial, & Municipal Historic Site (200m) 1
		Religious / Worship Site Parcels 1

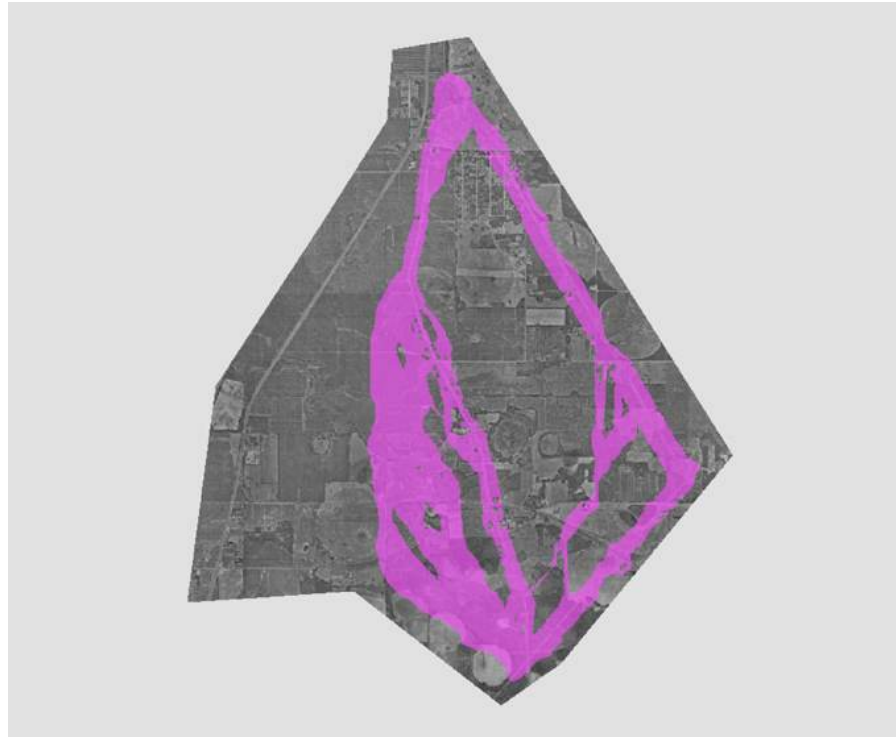
Engineering, Natural and Built Environment Features (Criteria), with Scores (1-9) and Weightings



Areas of Least Preference



Alternative Corridor Identification



Weights and relative suitability values are applied to features (or criteria), such as roads, wetlands and forests; or distances from buildings and different slope classifications.

The less suitable a feature is, the less likely a corridor will be mapped over that feature.

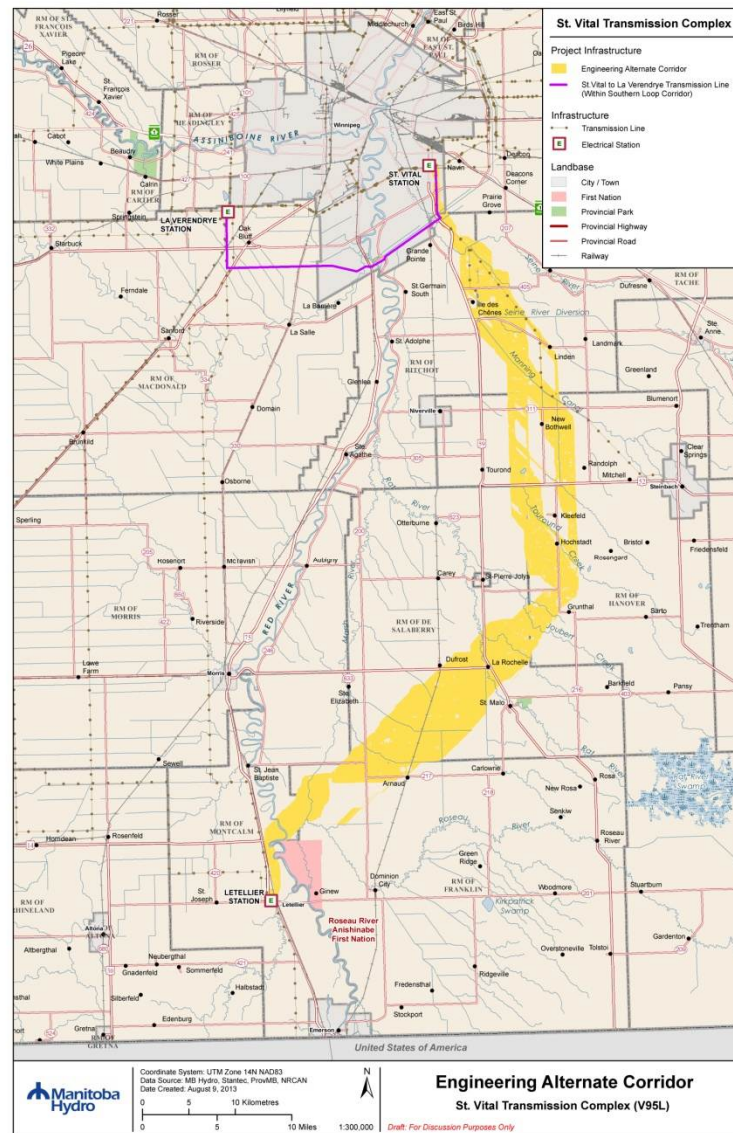
Alternative Corridor Identification

- Areas of Least Preference are also determined
- Some examples include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Non span-able water bodies• Active Mines and quarries	<ul style="list-style-type: none">• Wildlife refuge• Ecological reserves• National parks• Provincial Parks	<ul style="list-style-type: none">• Federal heritage sites• Airports• Known archeological sites

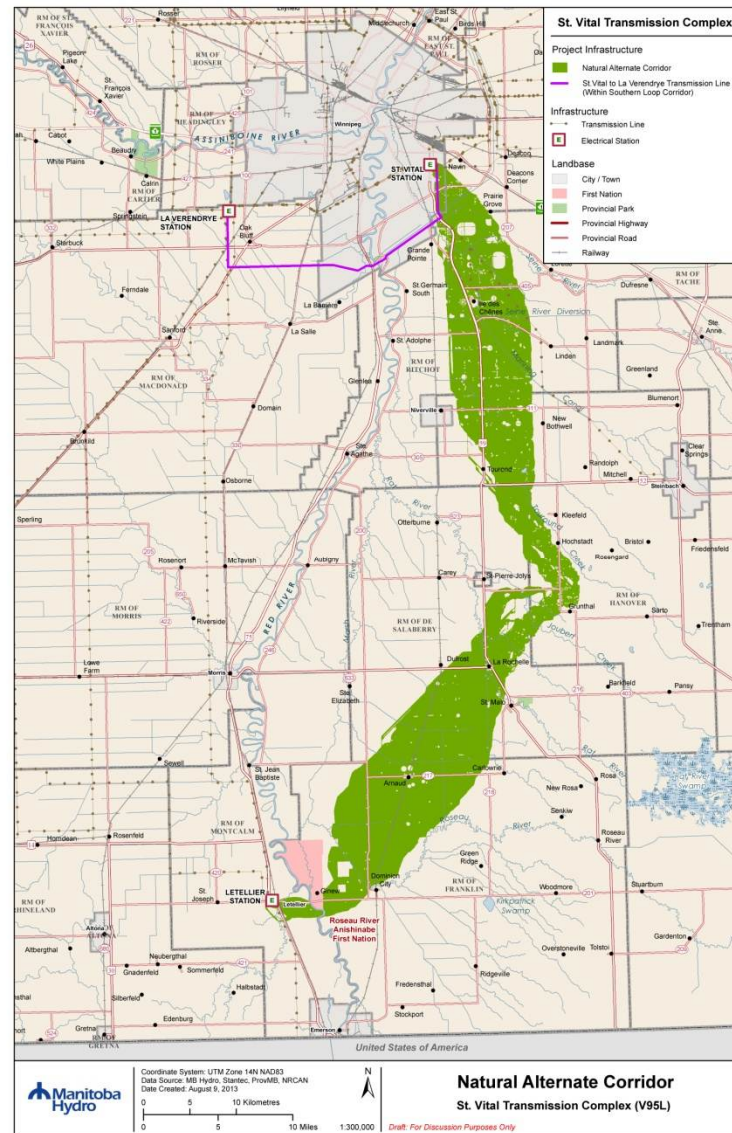
Alternate Corridor - Engineering

Developed by placing five–times (5:1:1) emphasis on engineering considerations



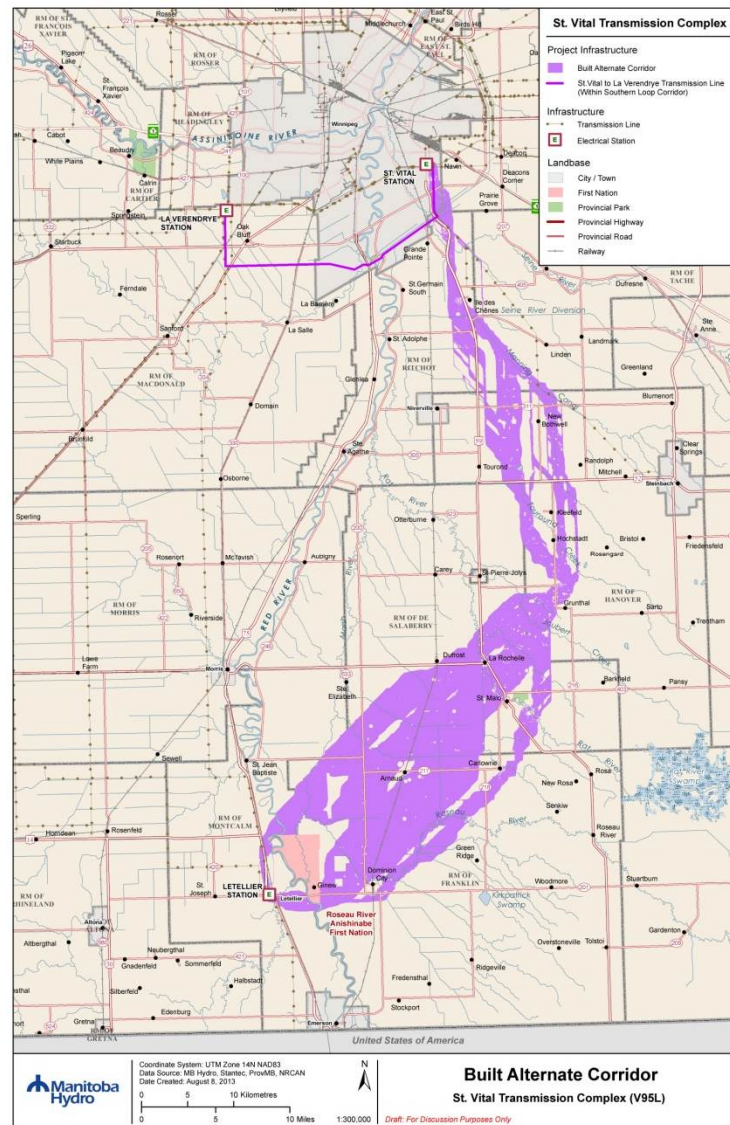
Alternate Corridor – Natural

Developed by
placing five–
times
emphasis on
natural
considerations



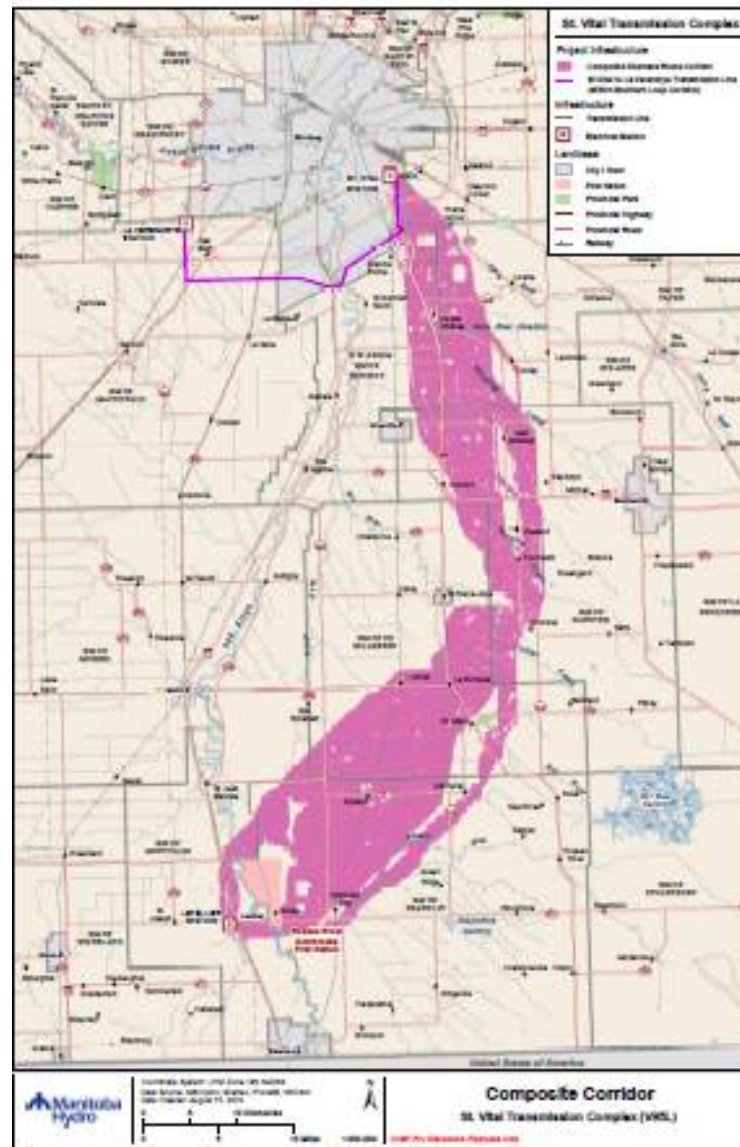
Alternate Corridor – Built

Developed by
placing five–
times
emphasis on
built
considerations



Alternate Corridor - Composite

All corridors
combine into a
Composite
Corridor

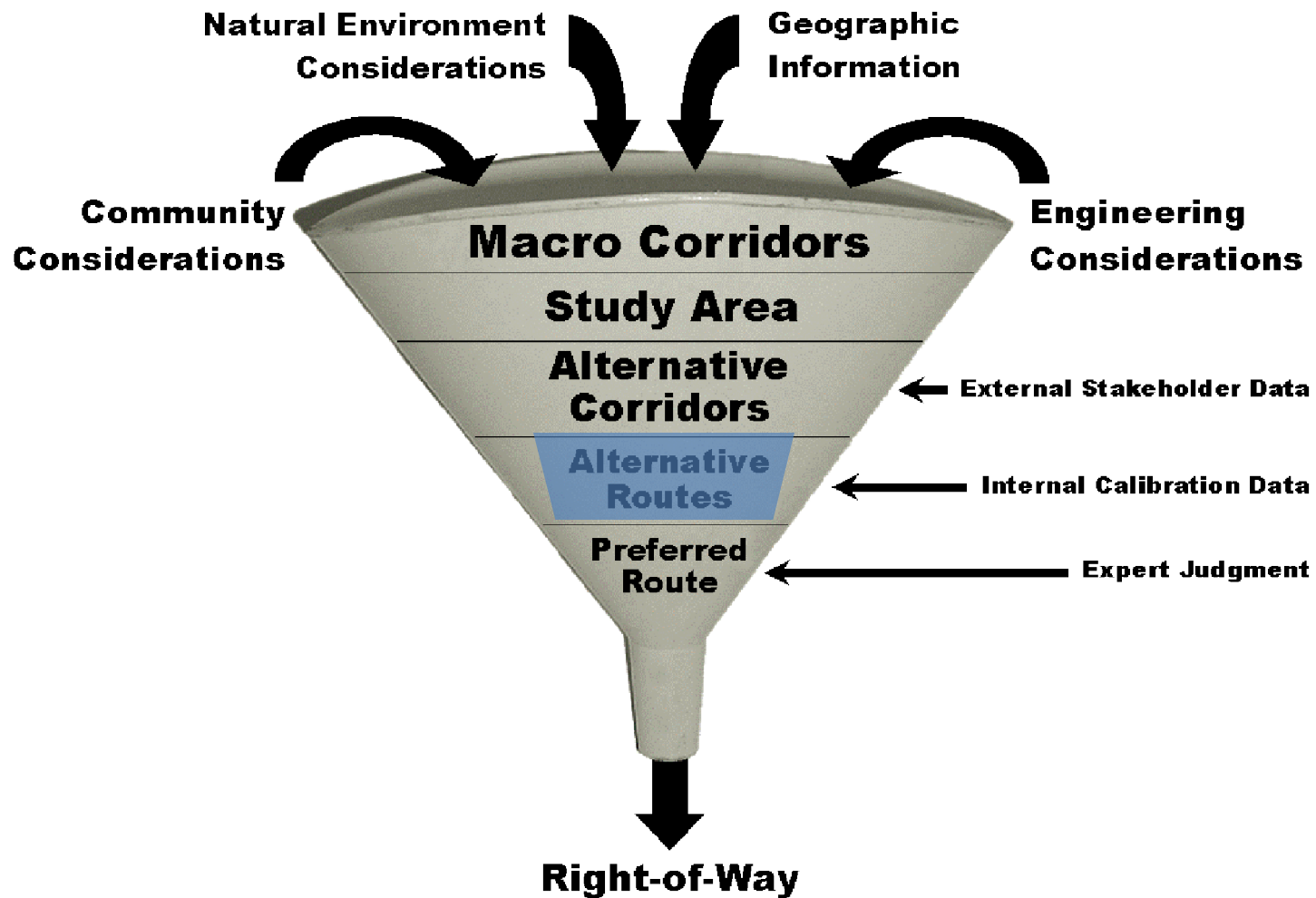


Further Data Gathering



- Additional data collection for the Route Selection process occurs once corridors are developed
- This includes existing sources of data, windshield surveys and site visits

Alternative Route Selection



Alternative Route Selection

- Multiple routes are developed within the Alternative Corridors
- Developed by project team taking into account all information gathered to date

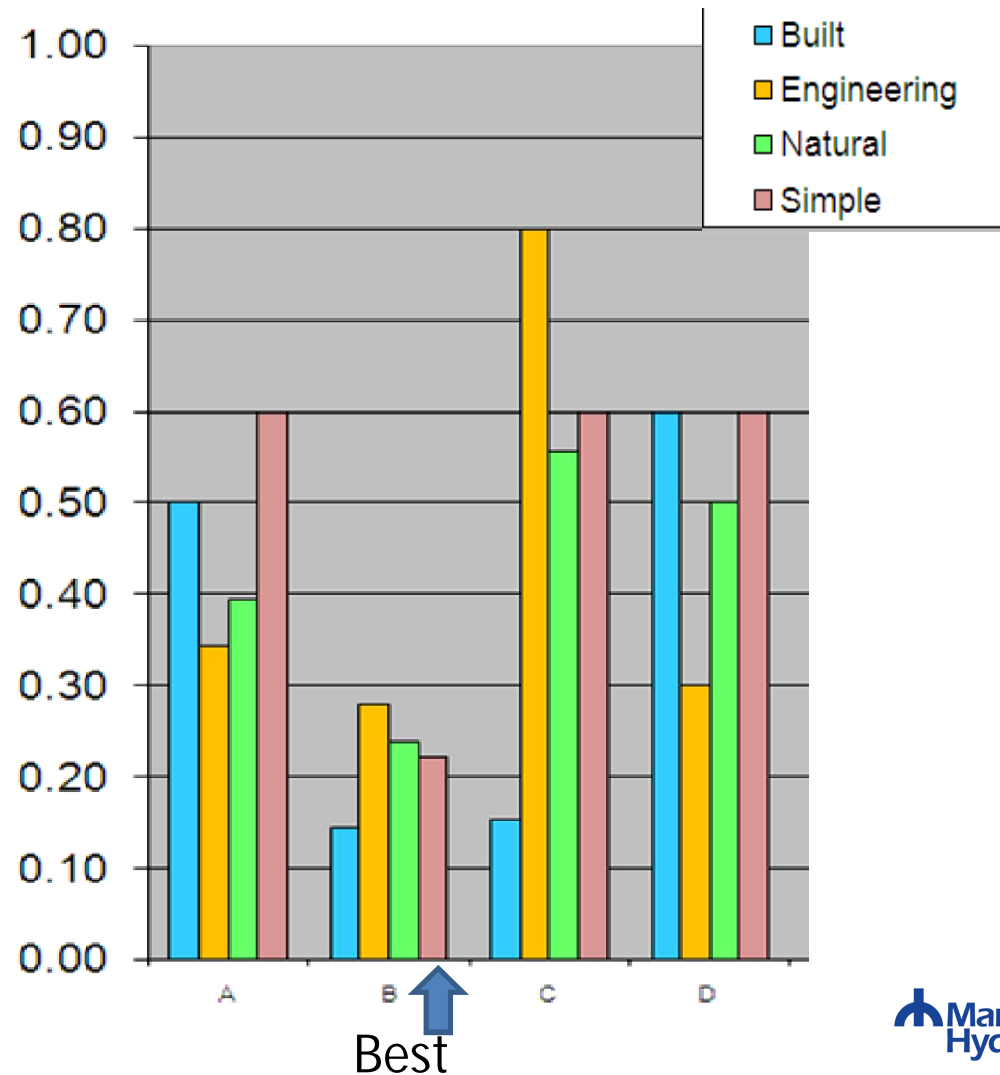


Review of Alternative Routes

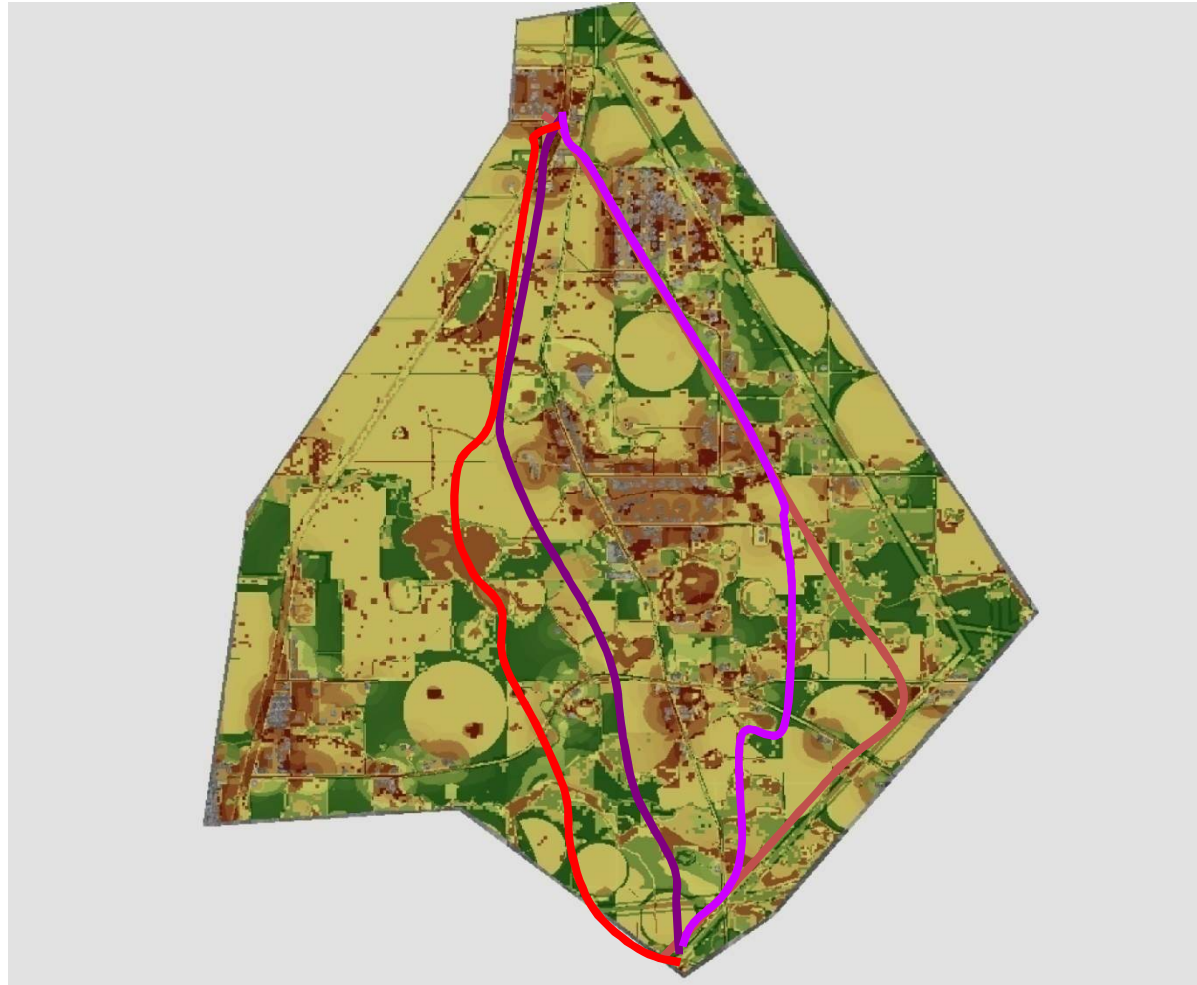
- Public and Stakeholders provide input into the Alternative Routes through various avenues, including:
 - Workshops
 - Open Houses
 - Meetings with project team members
 - Manitoba Hydro Project Website

Alternative Route Selection

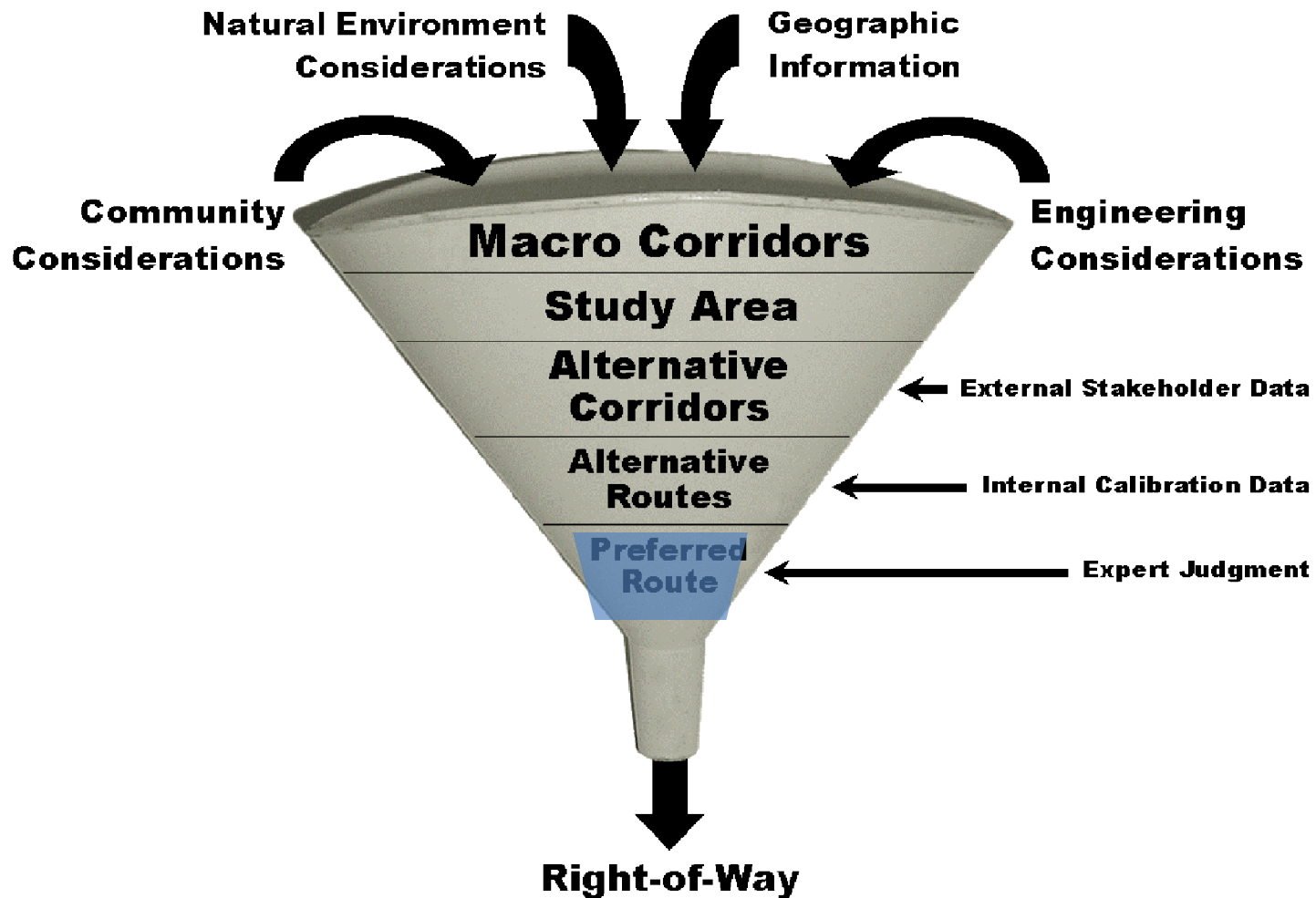
- An Alternative Route Evaluation Model is used to determine the relative strengths and weaknesses of each route



Alternative Routes Determined



Preferred Route Selection



Preferred Route Selection

- Expert judgment is used to determine the Final Preferred Route
 - Takes into account feedback from Round One engagement and preliminary assessment information
- Round Two Public Open Houses will provide public feedback on the Final Preferred Route

Route Selection - Conclusion

With the help of stakeholder input, expert judgment and internal expertise, a balanced, transparent and defensible Final Preferred Route is developed.

EPRI-GTC* Methodology

- Stakeholder Calibration
- Siting Criteria – Stakeholders identify/refine and provide relative suitability values (modified Delphi process to gain consensus)
 - Engineering Stakeholders – infrastructure co-location
 - Natural Environment Stakeholders – natural areas considerations
 - Built Environment Stakeholders – land use issues
- Stakeholders provide relative importance /weights (analytical hierarchy process)
- Computer-generated corridor models
 - GIS data, moving from general to specific
 - Models for each of the above criteria (5:1:1)
 - Models with Equal weighting
 - Combination Model
- Expert Judgment (Internal Stakeholders)

*Electric Power Research Institute-Georgia Transmission Corp.

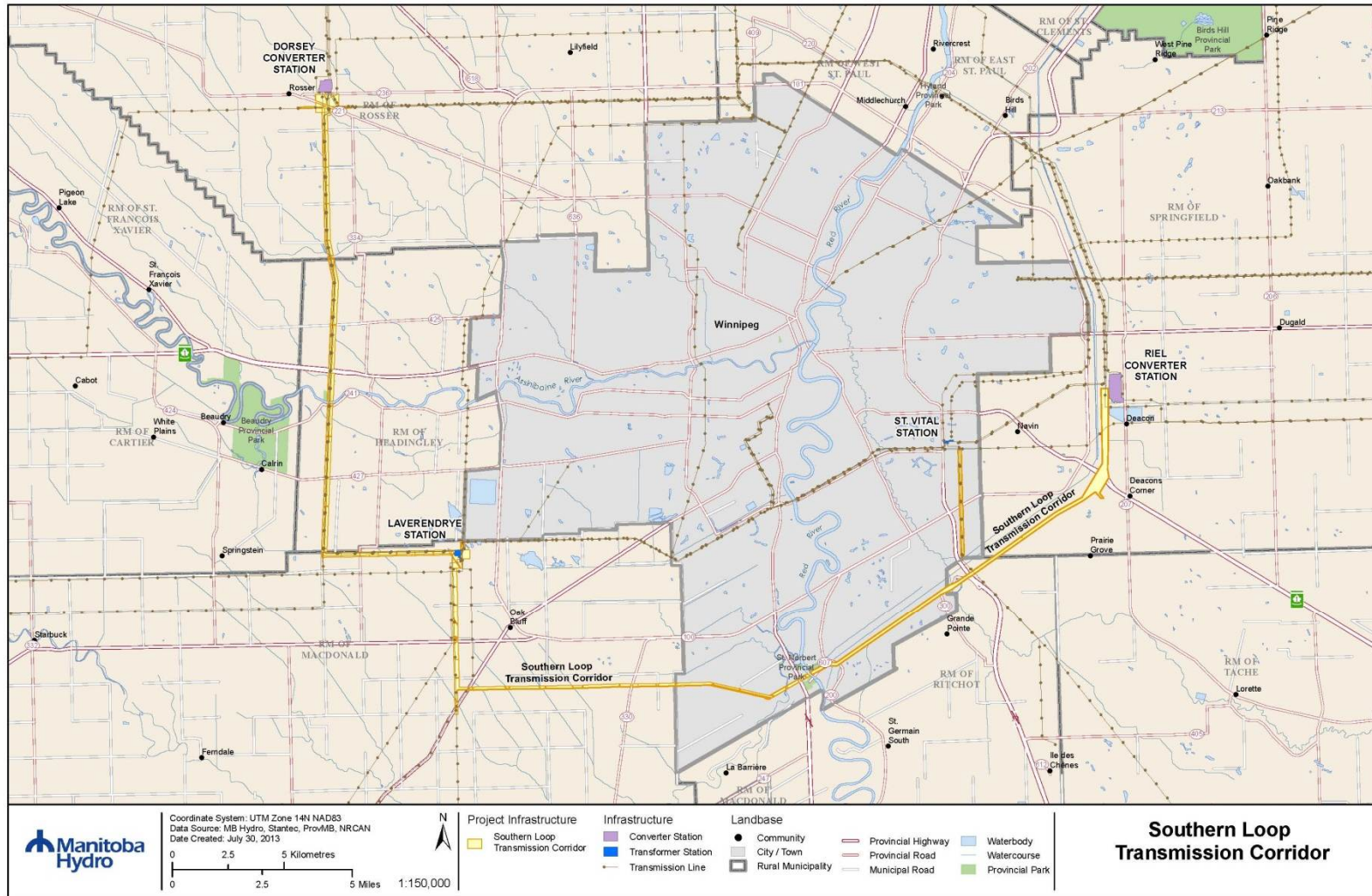
Benefits of EPRI Process

- Objective
 - Based on clear identification of criteria by stakeholders
 - Values and weights developed during the process are applied to geographic information
 - As the area of interest becomes more focused and defined, data becomes more detailed and accurate
- Consistent
 - Algorithms provide replicable results
- Defensible
 - Understanding “what” is required and “how” to do it before determining “where” to put it

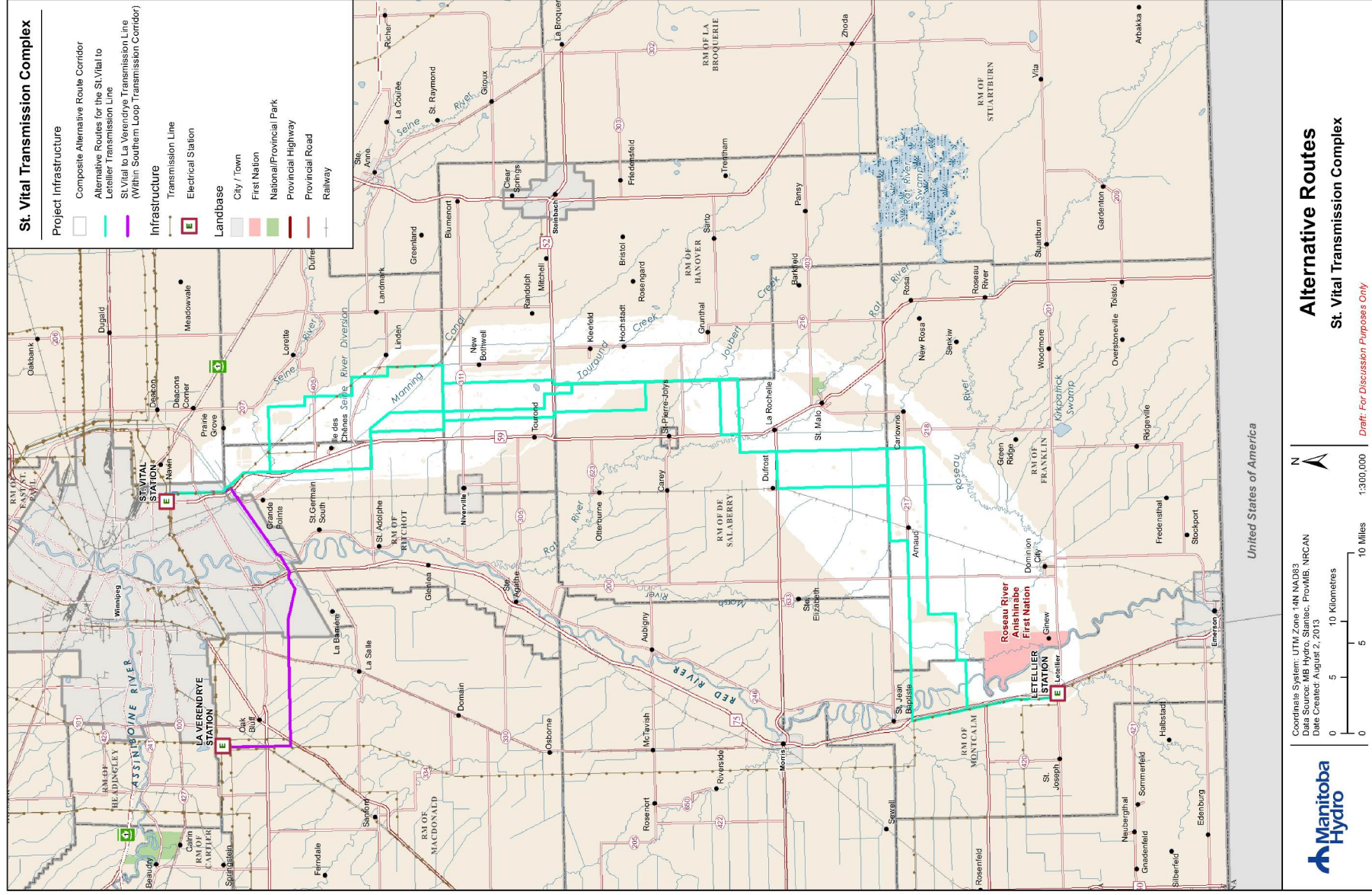
Alternative Routes

- St. Vital to La Verendrye Station - Southern Loop Transmission Corridor
 - In a fixed right-of-way
- St. Vital to Letellier Station
 - 20 different segments
 - 4 segments common to all routes
- Goal of Workshops
 - Identify one Preferred Route

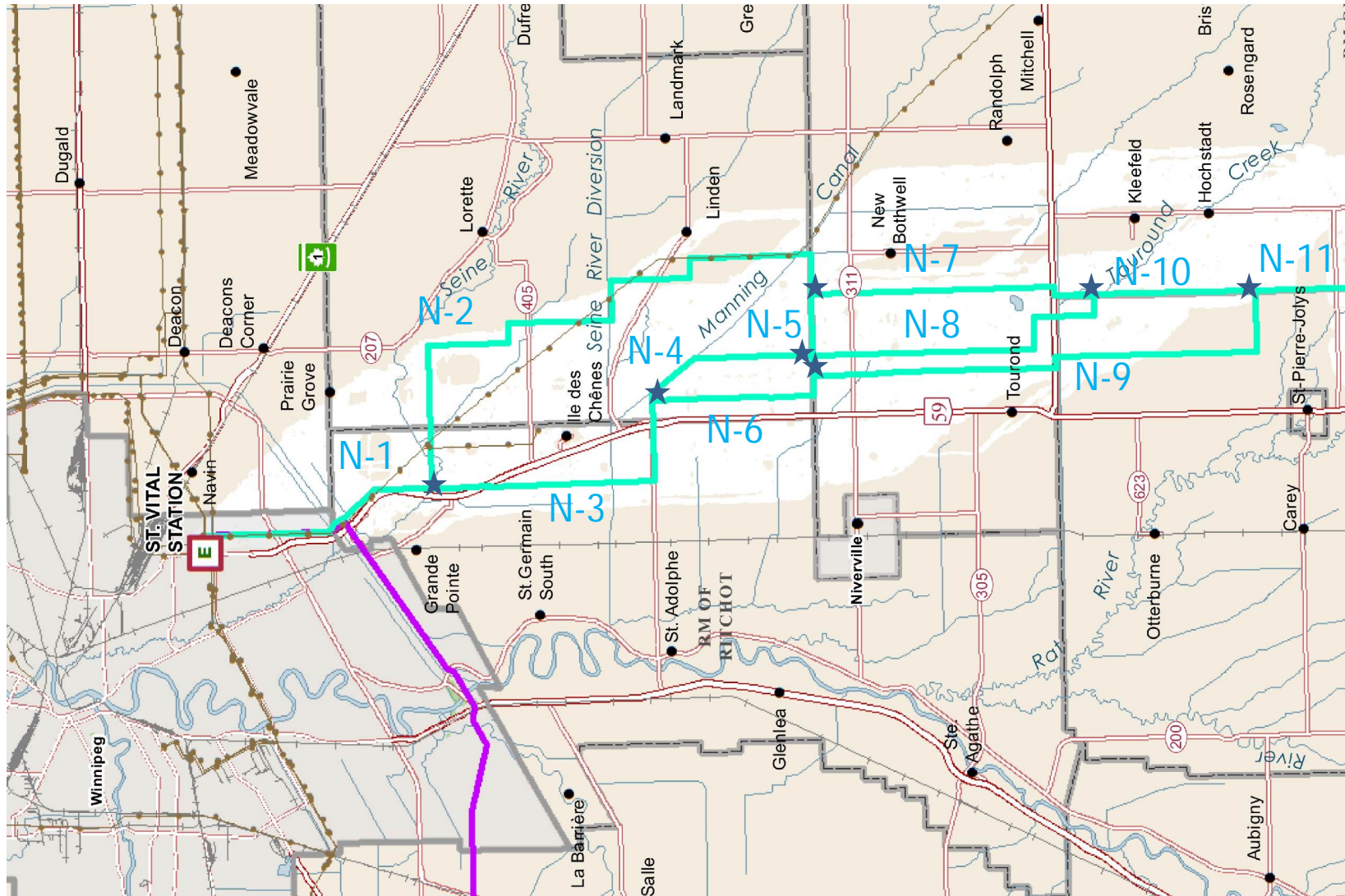
St. Vital to La Verendrye Transmission Line



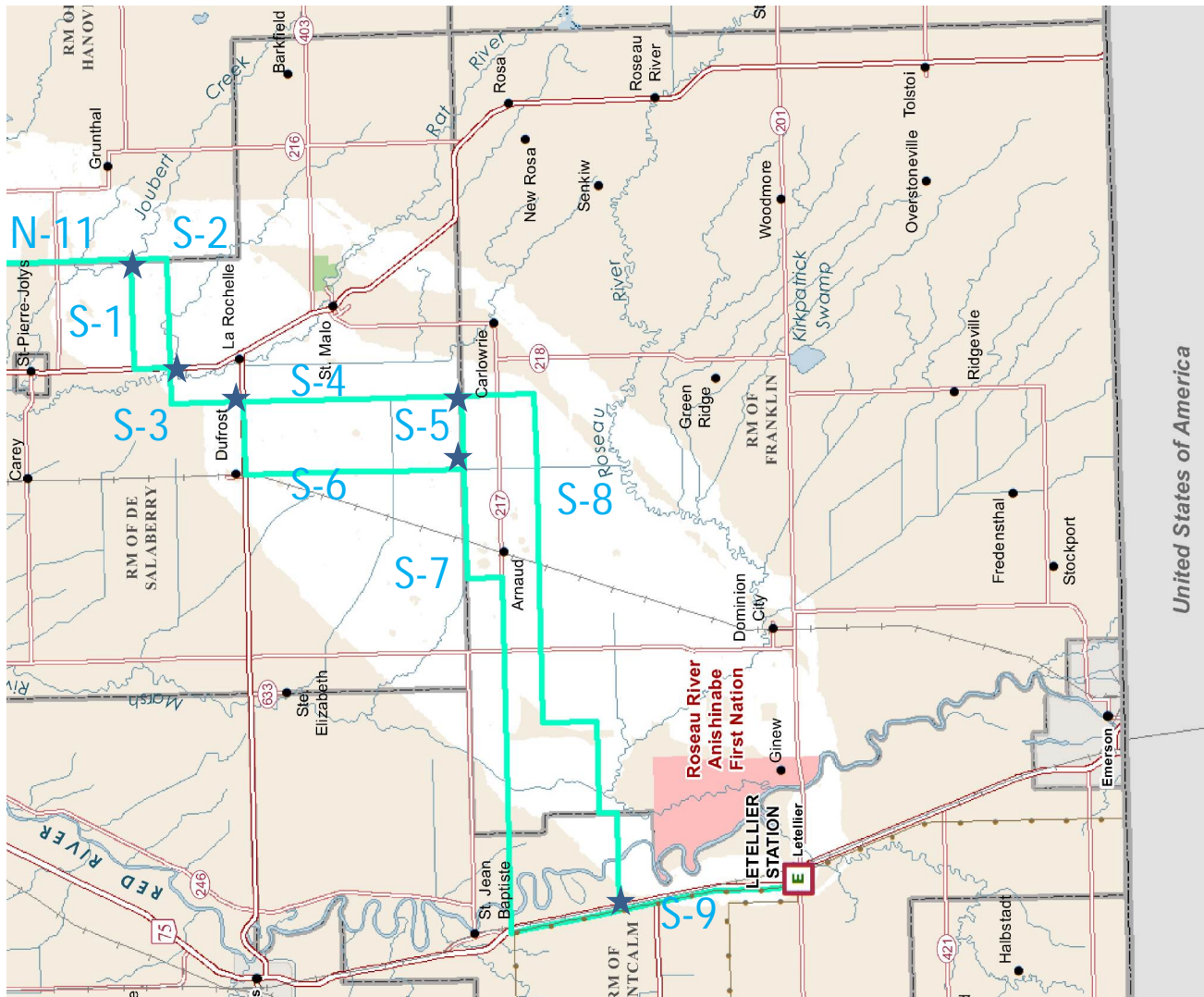
St. Vital Station to Letellier Station



St. Vital Station to Letellier Station North Segments – Alternative Routes



St. Vital Station to Letellier Station South Segment – Alternative Routes



2.2 Environmental Assessment

- The Project is considered a Class 2 development under *The Environment Act* (Manitoba) and will require an Environmental Assessment Report to be completed and submitted to Regulators.

Environmental Assessment

- Environmental Assessment generally consists of:
 - Characterization of the environment
 - Identification of potential effects on people and the environment
 - Stakeholder and public engagement process
 - Determination of methods to avoid or reduce potential adverse effects while enhancing beneficial effects

Study Area Characterization

- The Environmental Assessment will include characterization of the following aspects of the Study Area:
 - Physical Environment (climate, soils, surficial geology, hydrogeology)
 - Aquatic Environment (surface hydrology, water quality, fish and fish habitat)
 - Terrestrial Environment (vegetation, wildlife and habitat)
 - Socio-economic Environment (land use, infrastructure, agriculture and landowners, economy, heritage resources, general concerns/issues with the Project)

Study Area Characterization



Entry sign to Crow Wing Trail, near Senkiw



Pasture, NE of Roseau River



Unnamed wetland, near Tourond

Valued Environmental Components

- The Environmental Assessment will determine Valued Environmental Components (VECs)
 - VEC - Any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process; importance may be determined on the basis of societal or cultural values, or scientific interest or concern.
 - VECs are selected by
 - Utilizing experience from other, similar projects
 - Getting input from specialists in the various disciplines
 - Collecting input from interested stakeholders and the public

VECs for St. Vital Transmission

VECs currently being considered for the St. Vital Transmission Complex Project include:

- Wildlife Habitat
- Native Prairie
- Employment and Business Opportunities
- Property and Residential Development
- Aboriginal Lands
- Agricultural Productivity
- Agricultural Land Uses
- Communication and Transportation
- Human Health
- Public Safety
- Aesthetics

Examination of Effects

- To assess the potential environmental effects of the project, the following will be undertaken:
 - Identification and assessment of potential environmental effects of the project on VECs
 - Identification of mitigation measures for environmental effects on VECs
 - Identification of methodology for determining significance of environmental effects on VECs
 - Identification of measurable parameters to quantify and evaluate the significance of environmental effects on VECs
 - An assessment of cumulative effects on identified VECs

2.3. Public Engagement Program

- Key Person Interviews – over 70 contacts
- Stakeholder Workshops – 3 locations
- Two Rounds of Public Open Houses – 4 locations
 - Winnipeg, Mitchell, Dominion City and Oak Bluff
- Website
- Newsletters and Advertising
- Direct Mailings
- Meetings

Results to Date

- EPRI Process
- PEP Organization
 - KPI Interviews
 - 56 completed
 - 14 declined, some with general comments/letters
 - Workshops -3
 - Open Houses – 4, including Oak Bluff
- Environmental Review of Routes

2.4. Property Acquisition

- Manitoba Hydro enters into easement agreements with all affected landowners
- The landowner retains property ownership of the land, while the easement agreement grants Manitoba Hydro right of access to construct, maintain and operate the transmission line
- Manitoba Hydro will pay landowners 75% of appraised market value for easement rights for the land
- Compensation will be paid to landowners for construction-related damages, including crop damage, fence damage and soil compaction

2.5. Schedule



2.6. Questions on Process

Break 10:10 to 10:25am

3. Breakout Map Exercise

10:25am to 12:40pm

Facilitated Groups of 3 to 4 Stakeholders

1. Maps showing Alternative Route Segments on Workshop tables
 - Based on refinement of Alternative Corridors
 - Top Alternative Routes
 - Different criteria emphasized for each route
2. Checklist of Considerations for Design and Construction
3. Working in groups, discuss and record:
 - Key Issues and Concerns for each Alternative Route Segment
 - Constraints for each Alternative Route Segment
 - Opportunities for each Alternative Route Segment
 - Preferred Route
4. Rationale for Preferred Route
 - Issues and Concerns with Preferred Route
 - Suggested Mitigation Strategies for Preferred Route

. Breakout Map Exercise – Process

- For each route segment identified (of 20, e.g. N-2), please discuss and record the following, using the appropriate Workbook pages:

Issues and Concerns

- Complete the chart provided in the Workbook identifying what you think are issues and concerns. Add any others you consider important.
- Include all individual (each team member's) issues and concerns.
- Either address issues and concerns for each Route Segment or just generalize.
- If you are working segment by segment, it may be best to also address the Constraints and Opportunities considerations for each segment in turn.

. Breakout Map Exercise - Process

Constraints

- These are specific development impediments or barriers, including physical and environmental (for example, a house in the proposed ROW)
- Develop a group consensus on each of the constraints, and determine whether they should be considered High, Medium or Low
- Each Route Segment should be addressed

Opportunities

- Complete the ranking of the most important Opportunities
- Either generalize for all Route Segments, or address each individually

. Breakout Map Exercise - Process

- Decide jointly on a Preferred Route. (This will include a number of North and South route segments that link together.)
 - Draw the route on the maps using your team colour.
- Using the large sheets of paper provided, identify of your group's Rationale for the Preferred Route
 - Use only 3 points, and also record them in the Workbook
- Identify any issues and concerns your group members have with Preferred Route.
 - Record them on the large sheet, as well as in the Workbook
- Identify any proposed mitigation measures.
 - Record them on a separate large sheet and in the Workbook
- Post the materials – maps and large sheets - on walls.

Lunch 12:40pm to 12:55 pm

4. Summary 12:55pm to 1:40pm

- Groups present their Preferred Routes to all Workshop participants
 - Identify 3 Key Issues
 - Positive and/or negative
- Questions?
- Dot-mocracy (voting on the Preferred Routes and Key Issues)
 - Green Dots – Preferred
 - Red Dots – “Thumbs Down”

Dot-mocracy

- All participants will have an opportunity to “vote” on the Preferred Routes; Rationales, Issues and Concerns, and Mitigation Approaches.
 - Blue dots – agree
 - Red dots – disagree
- Use the first sets of three blue and three red dots - thumbs up and/or thumbs down for the Preferred Routes
- Use the second sets of blue and red dots to vote on the Rationales, Issues and Mitigation Strategies
 - What you consider important/ or not important

5. Wrap-up 1:40 to 1:45pm

- Immediate Next Steps:
 - Complete Round One Public Open Houses – immediately following
 - Identify Preferred Route based on inputs
 - Complete Environmental Assessment
 - Round Two Public Open Houses with Final Preferred Route



Thank you for attending!

For additional information, please contact:

Trevor Joyal at 204-360-4305

(Please complete your comment sheets!)

Presentation August 21, 2013



St. Vital Transmission Complex
Stakeholder Workshop

WELCOME!

Manitoba Hydro

9:00am to 1:50pm

Purpose of Workshop

- Share current project information
 - Including outcomes of the Route Selection process
- Understand local issues and concerns
- Obtain stakeholder feedback on the route selection process
- Discuss site-specific concerns
 - Mapping exercises
- Discuss appropriate mitigation measures to address local issues

Workshop Agenda

1. Introduction – 10 min.
 - Participants
 - Project Description
 - Deliverables
2. Background – 1 hr.
 - Outline of Route Selection Process (EPRI)
 - Outcomes to Date – Alternative Routes
 - Environmental Assessment Process
 - Public Engagement Process
 - Property Acquisition
 - Project Schedule
 - Questions

Workshop Agenda

- Refreshment Break /Grouping – 15 min.
- 3. Breakout Discussion/Map Exercise – 2 hr. 15 min.
 - Discuss local Issues and Concerns
 - Discuss /Identify Opportunities and Constraints
 - Engineering
 - Environmental
 - Socio-economic
 - Determine Route Preferences
 - Apply the above to Alternative Route Maps
- Lunch - 15 min.
- 4. Summary – 45 min.
 - Group Presentations
 - Dot-mocracy Exercise
- 5. Wrap up – 5 min.

1. Introduction 9:00 to 9:10am

1.1 Manitoba Hydro/Consultant Project Team

1.2 Stakeholders/Workshop Participants

1.3 Project Description

1.4 Deliverables

1.5 Transmission Line Development Process

1.1 Manitoba Hydro Project Team

- Project Coordination – Manitoba Hydro
- Route Selection – Photo Science, Inc/MH
- Stakeholder & Public Engagement –
AECOM/MH
- Environmental Assessment – Stantec/MH
- Mapping – Stantec
– Working in tandem

1.2 Stakeholder Workshop

- Representation
 - Agriculture
 - Business and Industry – including Trappers
 - Environment – Provincial and Groups
 - Health, Education and Policing – including EMS
 - Infrastructure
 - Municipal – RMs, Towns and Cities
- Invited through interviews, telephone calls, letters and emails
 - Some representatives participated in EPRI Workshops

1.3 Project: Two New 230kV Transmission Lines

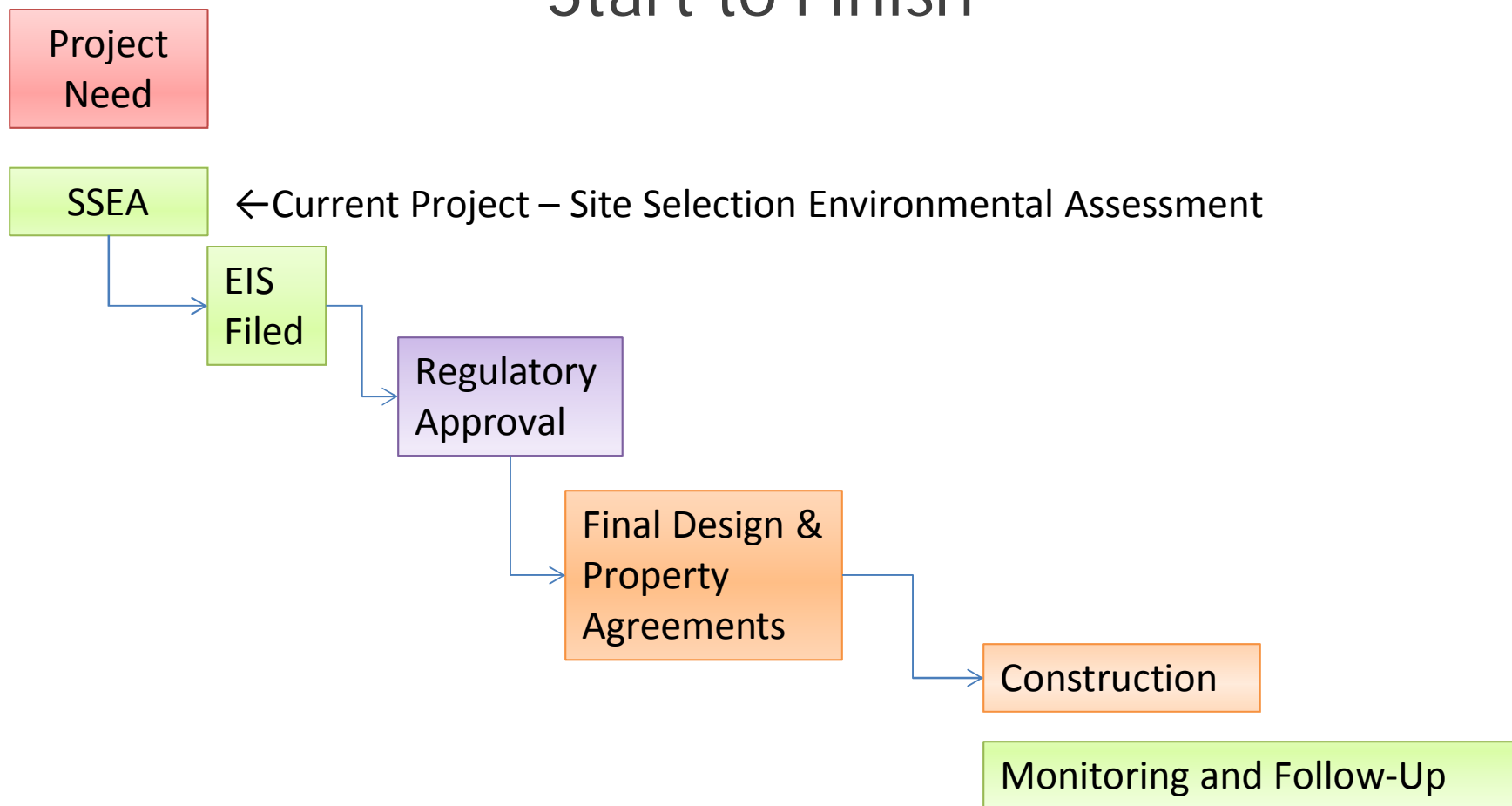
- St. Vital Station to La Verendrye Station
 - On an existing Manitoba Hydro right-of-way south of Winnipeg - the Southern Loop
 - Will enable the Winnipeg electrical network to withstand severe outages; improve system performance during normal operation, and promote the reliability of the power system in southern Manitoba
- St. Vital Station to Letellier Station
 - Required to address load and voltage concerns in the South Central area of Manitoba due to load growth

1.4 Deliverables

- Environmental Assessment Report
 - Assessment of a Preferred Route
 - Environmental (including Socio-economic) Impacts
 - Record of Stakeholder and Public Engagement
 - Provincial Review

1.5 Transmission Line Development Process

Start to Finish



2. Background 9:10 to 10:10am

2.1 Route Selection Process

2.2 Environmental Assessment Process

2.3 Public Engagement

~ Results to Date

2.4 Property Acquisition

2.5 Schedule

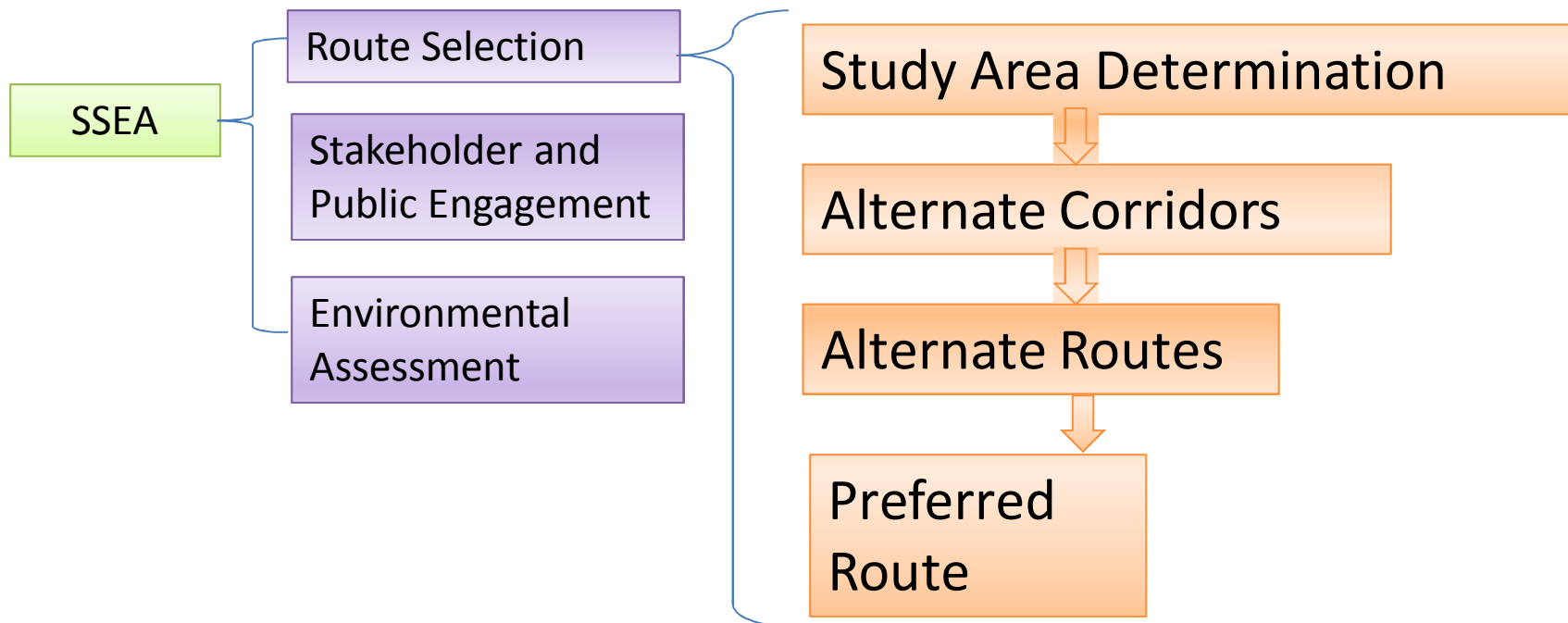
2.6 Questions

2.1 Route Selection Process

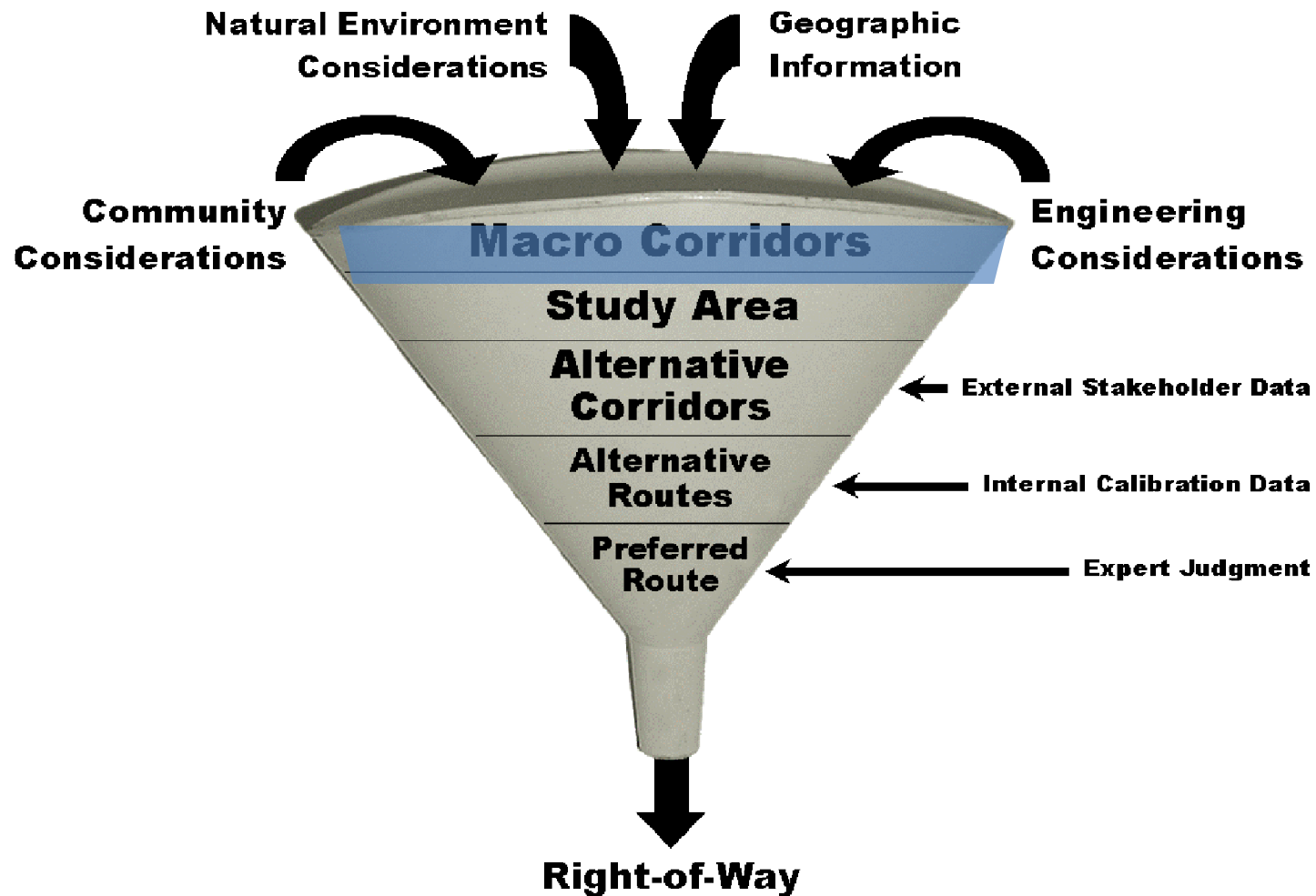
- Macro Corridor and Study Area Identification
- Alternative Corridor Identification (Natural, Built, Engineering & Simple Average)
- Alternative Route Selection and Review
- Preferred Route Determination

SSEA: Site Selection & Environmental Assessment

Regional Siting Criteria and Suitability



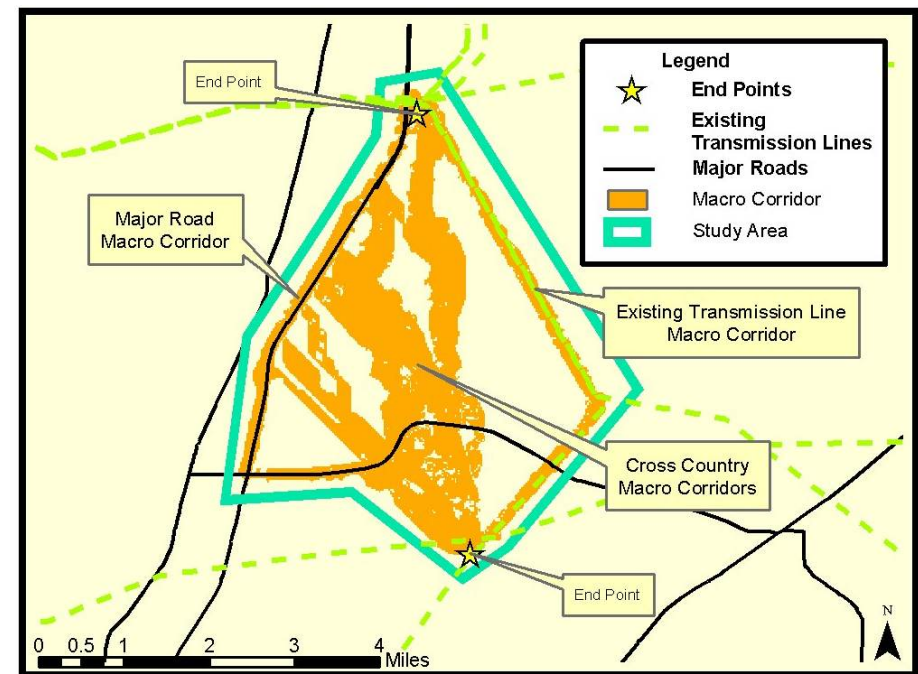
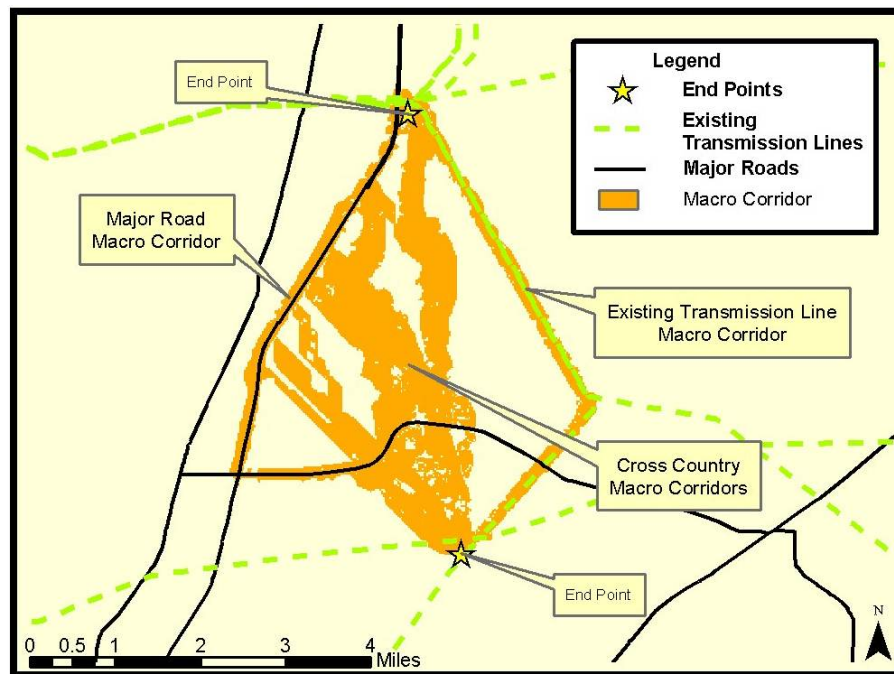
The EPRI-GTC Methodology Funnel



Macro Corridor Identification

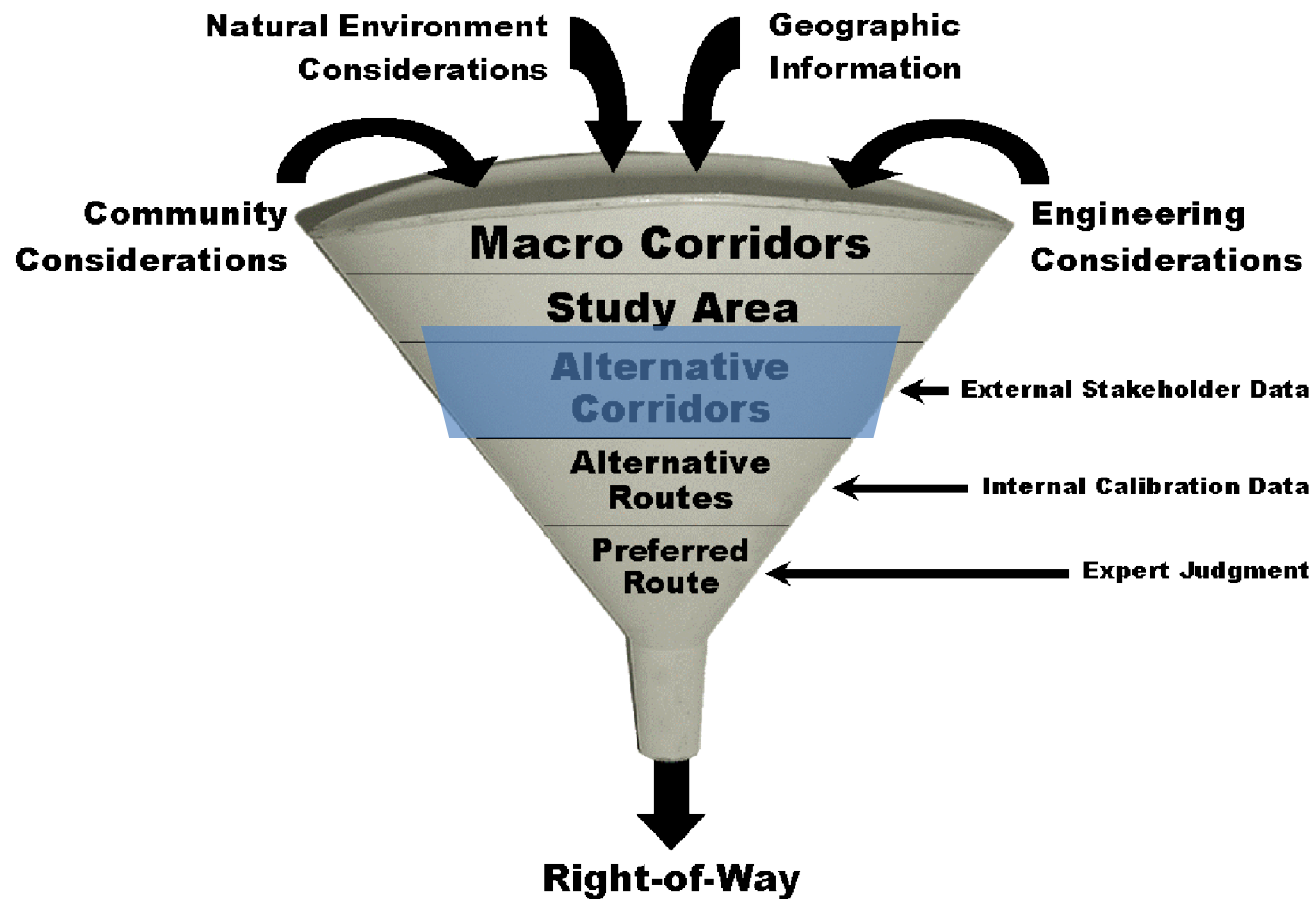
- Identifies broad areas with least environmental and community impacts
- Identifies start and end points of the project, and one central point
- Used to define the outer boundaries/limits of Project Study Area
- Based on available provincial GIS data sets

Marco-Corridor and Study Area



The top 5% of the best possible connections within the project area form the macro corridors

Alternative Corridor Identification



Alternative Corridor Identification

- External and internal stakeholders determine the relative suitability of different features for routing a transmission line
- This is focused on a regional scale, prior to application on a specific project
- Examples of features include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Slope• Paralleling existing infrastructure• Span-ability of water bodies	<ul style="list-style-type: none">• Wetlands• Grasslands• Critical habitat• National parks	<ul style="list-style-type: none">• Agricultural• Recreational trails• Historic sites• View-shed

Alternative Corridor Identification

- Examples of external stakeholders
 - Trappers Association
 - Manitoba Conservation and Water Stewardship
 - Manitoba Infrastructure and Transportation
 - Manitoba Local Government
 - MAFRI
 - Manitoba Aerial Applicators
 - Manitoba Food and Rural Initiatives
 - Ducks Unlimited Canada
 - Keystone Agricultural Producers
 - Trails Association
 - Manitoba Nature Conservancy

Stakeholder Input

- External and internal stakeholder feedback and contribution was incorporated into the Routing Methodology
- Stakeholders identified features and suitability values, as well as relative weightings for routing based on Engineering, Natural and Built Environment perspectives
- This input was used to determine the Alternative Corridors within which Alternative Routes could be drawn

Southern Manitoba Alternate Corridor Siting Model

Engineering	Natural	Built
Linear Infrastructure 35.7%	Aquatics 10.0%	Proximity to Buildings 10.0%
Unutilized ROW (Manitoba Hydro Owned) 1	No Aquatic Feature 1.0	> 800 m 1
Parallel Roads ROW 2.6	Ephemeral Streams (Non-Fish Bearing) 4.9	400 - 800 m 2.7
Municipal Road Allowances 3.1	Spannable Waterbodies (Lakes & Ponds) 6.1	100 - 400 m 6.5
Parallel Provincial Highways ROW 3.4	Ephemeral Streams (Fish Bearing) 6.3	ROW - 100 m 9
Parallel Existing Transmission Lines 3.8	Swamps 6.8	Building Density 15.0%
No Linear Infrastructure 4.4	Ephemeral Streams (CRA Fish Bearing) 6.9	< 1 Building / Acre (Rural Agricultural) 10.0
Rebuild Existing Transmission & Sub-Transmission Line 5	Riparian Floodplain 7.1	1 Building per 1-5 acres 2.8
Parallel Oil / Gas Transmission Pipeline 5.6	Permanent Stream 7.5	1-3 Buildings / Acre (Rural Residential) 3.7
Parallel Railway ROW 5.6	Bogs 7.7	3-10 Buildings / Acre (Suburban Density) 7.2
Future MIT Plans 7.8	Fens 8.2	>10 Buildings / Acre (Urban) 9.0
>= 300 kV Transmission Line & Within Separation Buffer 8.5	Marsh 8.2	Proposed Development 3.7%
Within Road, Railroad, or Utility ROW 9	Permanent Stream (CRA Fish Bearing) 9.0	No Proposed Development 1.0
Spannable Waterbodies 10.4%	Special Features 42.4%	Proposed Development - Industrial Zoning 3.0
No Waterbody 1	No Special Land 1.0	Proposed Development - Agriculture Zoning 4.1
Non-Nav. Spannable Waterbody (Standard Structures) 2.8	Managed Woodlots 5.4	Proposed Development - Commercial Zoning 5.1
Nav. Spannable Waterbody (Standard Structures) 4.3	Crown Land With Special Code 7.0	Permitted Development 6.9
Non-Nav. Spannable Waterbody (Specialty Structures) 6	Community Pastures 7.3	Proposed Development - Rural Residential Zoning 6.9
Nav. Spannable Waterbody (Specialty Structures) 9	Flyways 7.5	Proposed Development - Urban Zoning 9.0
Geotechnical Considerations 30.2%	Areas of Special Interest (ASI) 7.8	Soil Capability & Agricultural Use 11.9%
Rock 1	Recreation Provincial Park (Non-Protected Portions) 8.0	Other 1.0
No Special Geotechnical Considerations 1.3	Conservation Easements 8.0	Class 6 & 7 (Low Productivity) 3.3
100 Year Floodplain 6.6	Wildlife Management Area (Non-Protected Portions) 8.2	Organic Soils / Peat Bogs / Sod Production 3.9
Wetland / Peatlands 9	Proposed Protected Areas 8.6	Artisanal Farms / Wild Rice 4.3
Mining Operations / Quarries 13.2%	Heritage Rivers 8.7	Class 4 & 5 (Forages, Transitional) 5.9
No Mining Operation 1	Important Bird Areas 8.7	Class 1- 3 (Prime Agricultural & Cultivated Land) 9.0
Abandoned / Inactive Mines (Aggregate Piles, Pits, etc) 6.5	Heritage Marshes 8.9	Land Use 16.0%
Mine-Owned Land 9	Conservation Lands 8.9	Forest 1.0
Slope 5.4%	Natural Provincial Park (Non-Protected Portions) 9.0	Open Land (Sand & Gravel) 1.5
Slope 0 - 15% 1	Land Cover 10.2%	Industrial 1.6
Slope 15 - 30% 3.1	Exposed / Urbanized / Open Land 1.0	Burnt Areas 1.8
Slope > 30% 9	Agricultural (Forage) 2.5	Active Forestry Operation 2.3
Proximity to Future Wind Farms 5.1%	Agricultural (Crops) 2.8	Hunting / Trapping Locations 3.9
500m - 10k 1	Burnt Areas 4.9	Listed Trails (Existing & Planned) 4.6
> 10k 9	Grassland 5.0	Agricultural (Forage) 4.9
Areas of Least Preference 100.0%	Deciduous Forest 5.5	Organic Farming 5.5
Non-Spannable Waterbodies (300 m) 1	Coniferous Forest 5.7	WMAs (Unprotected) 5.8
Mines and Quarries (Active) 1	Mixed Forest 6.0	Out-of-Park Recreational Development 6.4
Wastewater Treatment Areas 1	Non-Developed Sand Hills 8.1	Intense Development & Use 6.5
Buildings 1	Native Grassland 9.0	Agricultural (Crops) 6.6
Oil Well Heads (100m) 1	Wildlife Habitat 37.4%	500m Buffer of Irrigated Land 6.6
Waste Disposal Sites 1	Other 1.0	Intensive Livestock 6.9
Towers and Antennae Area of Potential Affect (< 200m*) 1	Ungulate Habitat (High) 6.1	Institutional 7.4
Existing Wind Turbine Area of Potential Affect (< 500m) 1	Waterfowl Habitat (High) 6.3	In-Park Recreational Development 7.9
Airports (Including Glide Paths - 2° Slope) 1	Waterfowl Paired Density (High) 6.9	Agricultural (Crops Limited to Aerial Application) 8.9
Federal Park 1	Waterfowl Hotspots (High) 7.0	Irrigated Land 9.0
Military Facilities 1	Grouse Lek Area 7.7	National, Provincial, & Municipal Historic Sites 12.0%
	Rare Species Habitat 8.0	> 300 m 1.0
	Critical Habitat 9.0	200 - 300 m 9.0
	Endangered Species Habitat 9.0	Proximity to Heritage, Archaeological Sites, & Centennial Farms 12.0%
	Areas of Least Preference 100.0%	> 300 m 1.0
	Protected Areas 1	200 - 300 m 9.0
	World Heritage Sites 1	Landscape Character (Viewsheds) 7.8%
	Special Conservation Areas 1	Other 1.0
	Ecological Reserves 1	Recreational Trails 4.1
	Wildlife Refuge 1	Cottage Subdivisions 6.1
	Natural Provincial Park (Protected Portions) 1	Identified Scenic Provincial Trails & Roads 6.8
	Recreation Provincial Park (Protected Portions) 1	Escarpments (1 meless Topography) 7.5
	Wildlife Management Area (Protected Portions) 1	Resort Lodges & Campgrounds 8.6
	National Parks 1	Residential 8.9
	Provincial Park Reserves 1	Designated Historic Sites 9.0
	Wilderness Provincial Park 1	Edge of Field 11.7%
	Heritage Provincial Park 1	Road Allowances 1.0
		Drains 1.8
		Quarter Section Lines / Half-Mile Section Lines 2.0
		Vacant Rail ROW 2.1
		Parallel Or Adjacent To Road Allowances 2.8
		Other (None of the Above) 9.0
		Areas of Least Preference 100.1%
		Indian Reserves 1
		Treaty Land Entitlement Selection 1
		Campgrounds & Picnic Areas (500 m) 1
		Aircraft Landing Areas (STARS, Flying Farmers, Float Planes, etc) (3 Miles In-Line with Glide Path or Transport Canada Designation) 1
		Recreational Centers (Golf, Skiing, etc) (500m) 1
		Federal Heritage Sites (200m) 1
		Provincial Heritage Sites (200 m) 1
		Municipal Heritage Sites (200 m) 1
		Heritage Plaques (200 m) 1
		Day Care Parcels 1
		Cemeteries / Burial Grounds 1
		Schools 1
		Past Military Installations 1
		Contaminated Sites 1
		Known Archaeological & Paleoarchaeological Site (300m) 1
		National, Provincial, & Municipal Historic Site (200m) 1
		Religious / Worship Site Parcels 1

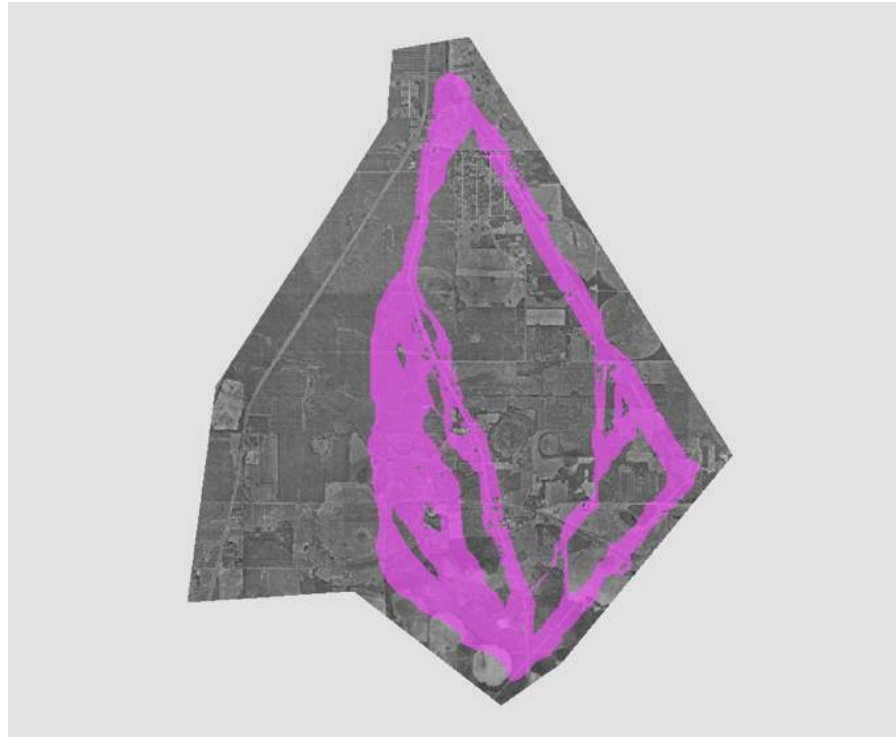
Engineering, Natural and Built Environment Features (Criteria), with Scores (1-9) and Weightings



Areas of Least Preference



Alternative Corridor Identification



Weights and relative suitability values are applied to features (or criteria), such as roads, wetlands and forests; or distances from buildings and different slope classifications.

The less suitable a feature is, the less likely a corridor will be mapped over that feature.

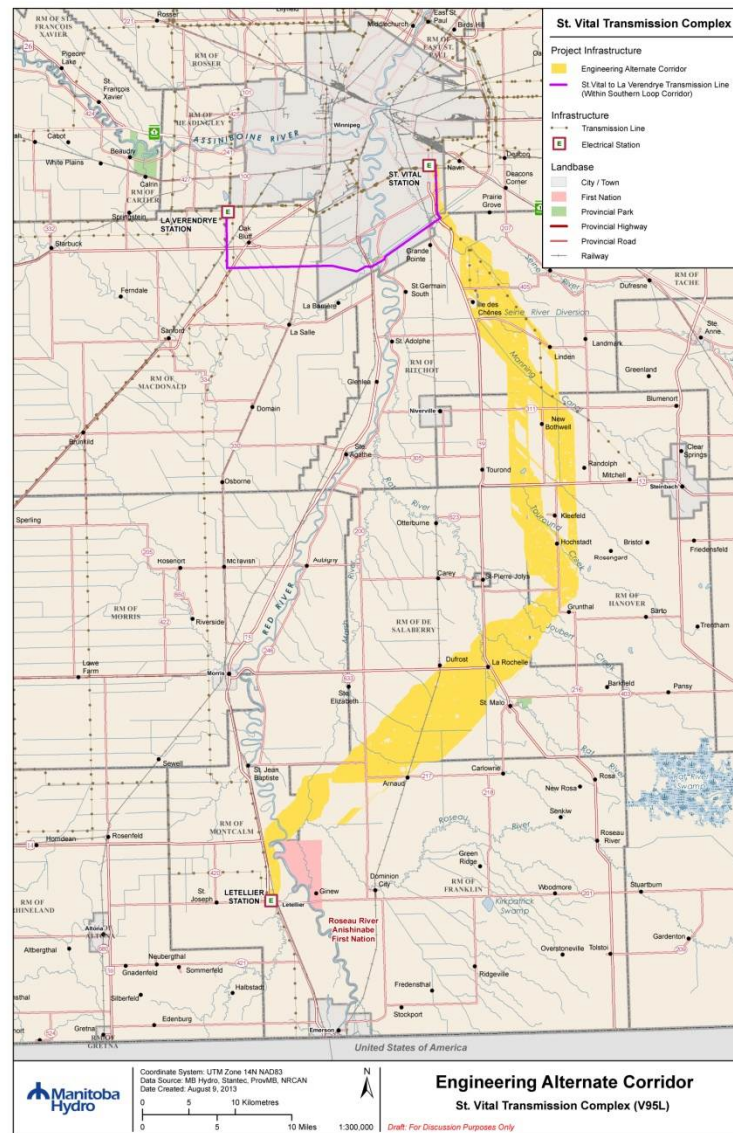
Alternative Corridor Identification

- Areas of Least Preference are also determined
- Some examples include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Non span-able water bodies• Active Mines and quarries	<ul style="list-style-type: none">• Wildlife refuge• Ecological reserves• National parks• Provincial Parks	<ul style="list-style-type: none">• Federal heritage sites• Airports• Known archeological sites

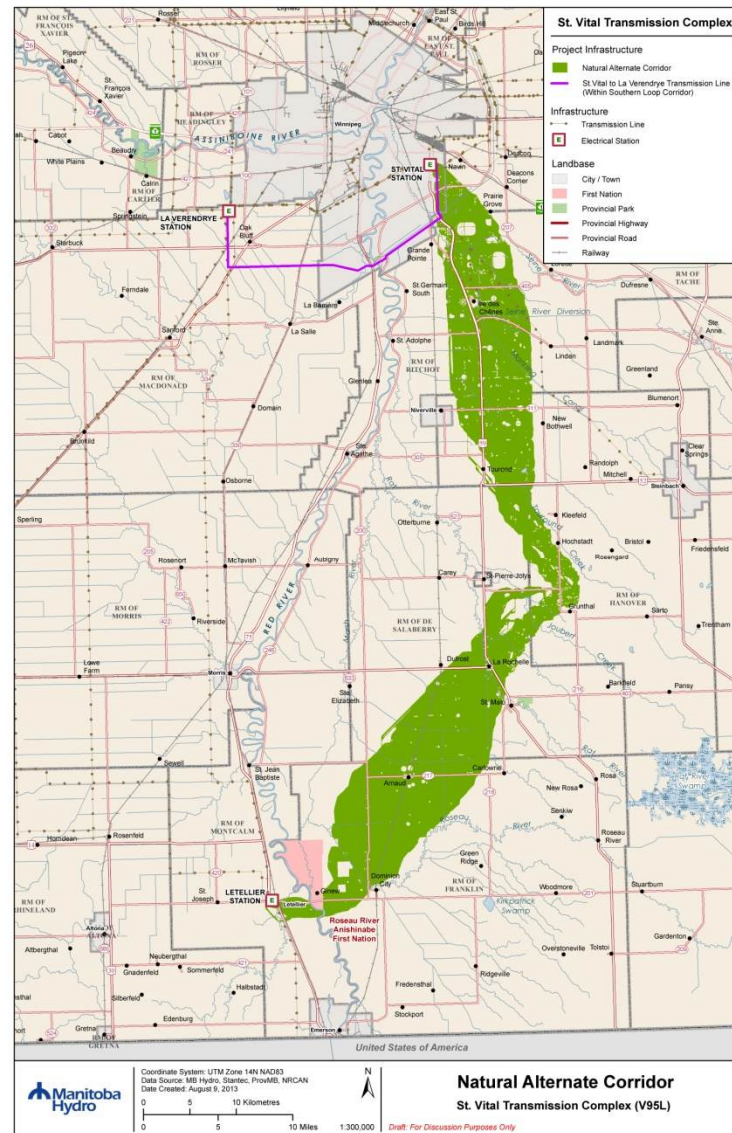
Alternate Corridor - Engineering

Developed by placing five–times (5:1:1) emphasis on engineering considerations



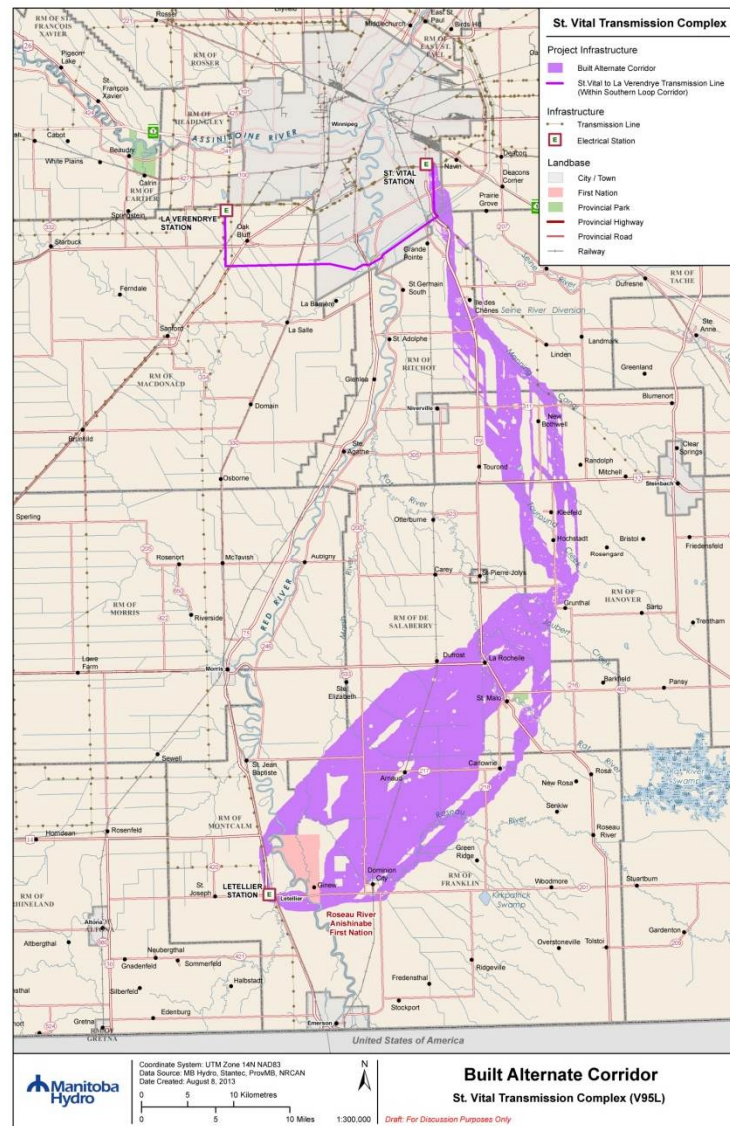
Alternate Corridor – Natural

Developed by
placing five–
times
emphasis on
natural
considerations



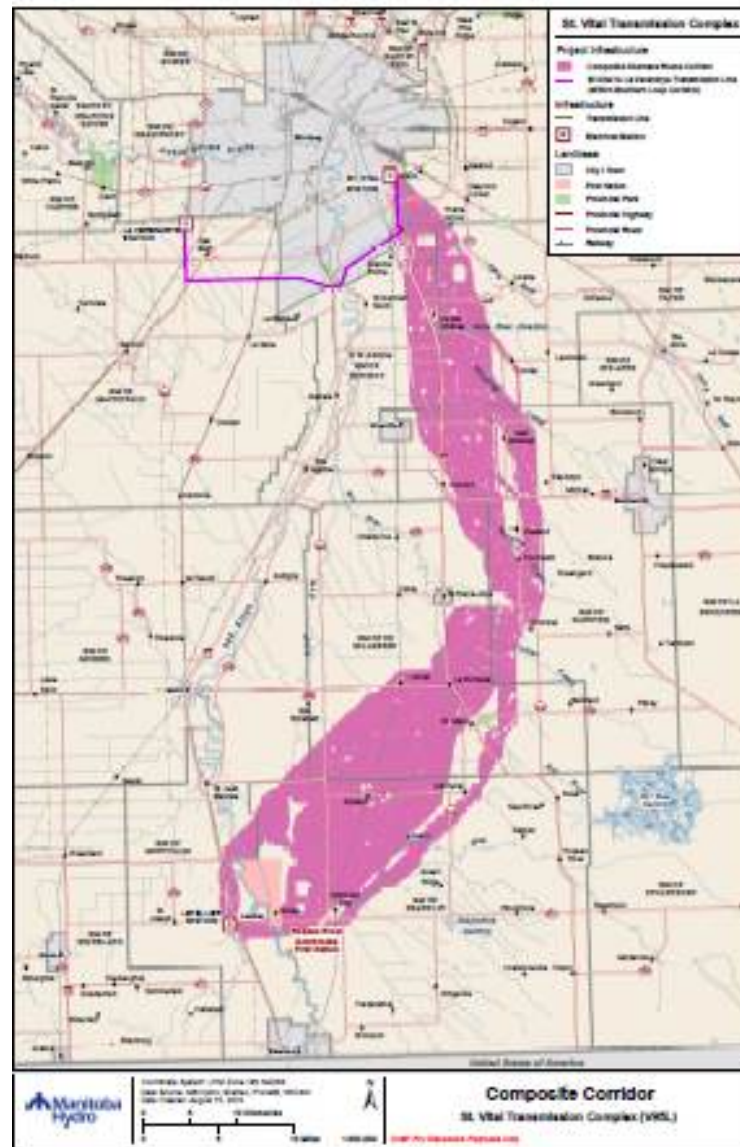
Alternate Corridor – Built

Developed by
placing five–
times
emphasis on
built
considerations



Alternate Corridor - Composite

All corridors
combine into a
Composite
Corridor

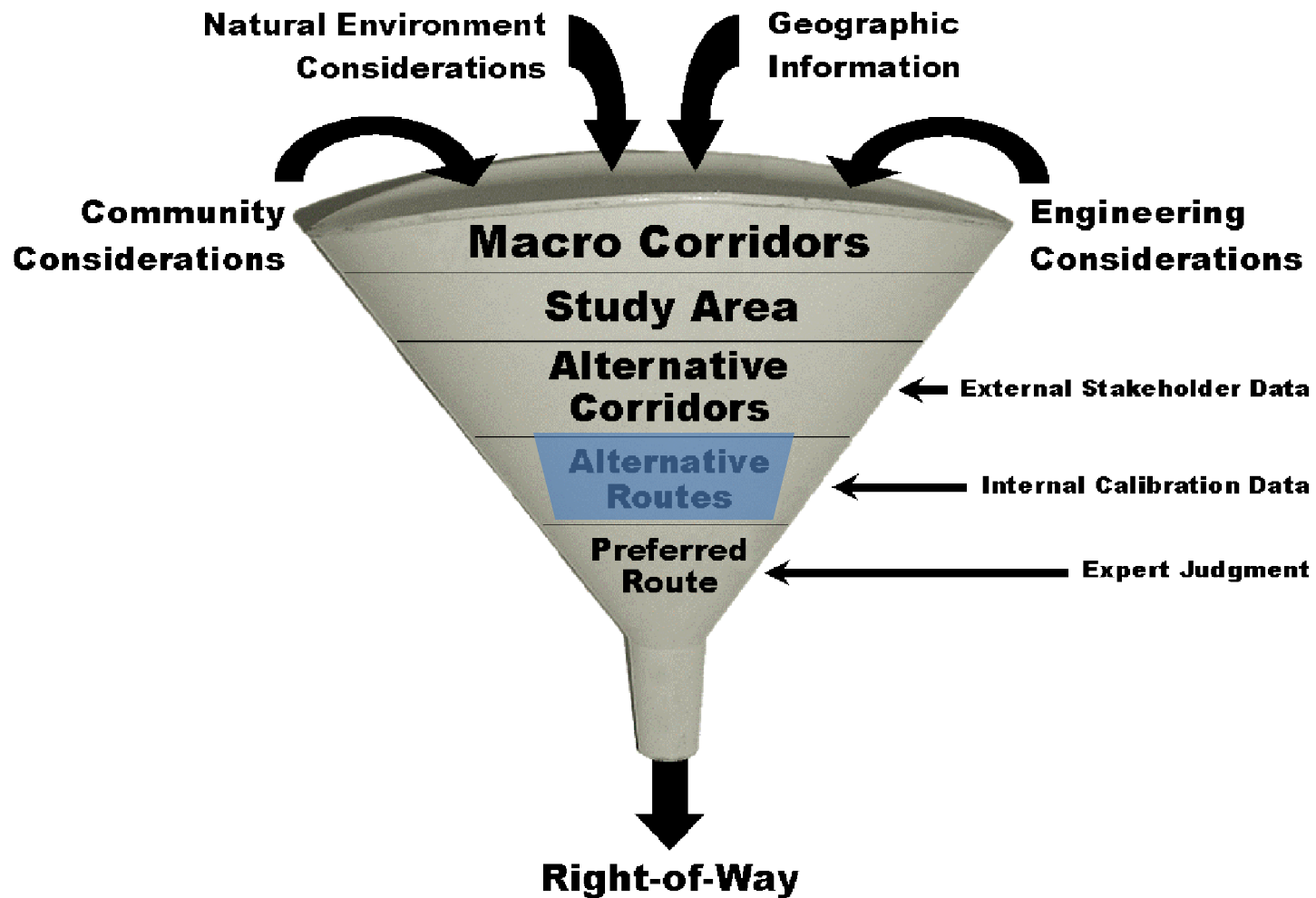


Further Data Gathering



- Additional data collection for the Route Selection process occurs once corridors are developed
- This includes existing sources of data, windshield surveys and site visits

Alternative Route Selection



Alternative Route Selection

- Multiple routes are developed within the Alternative Corridors
- Developed by project team taking into account all information gathered to date

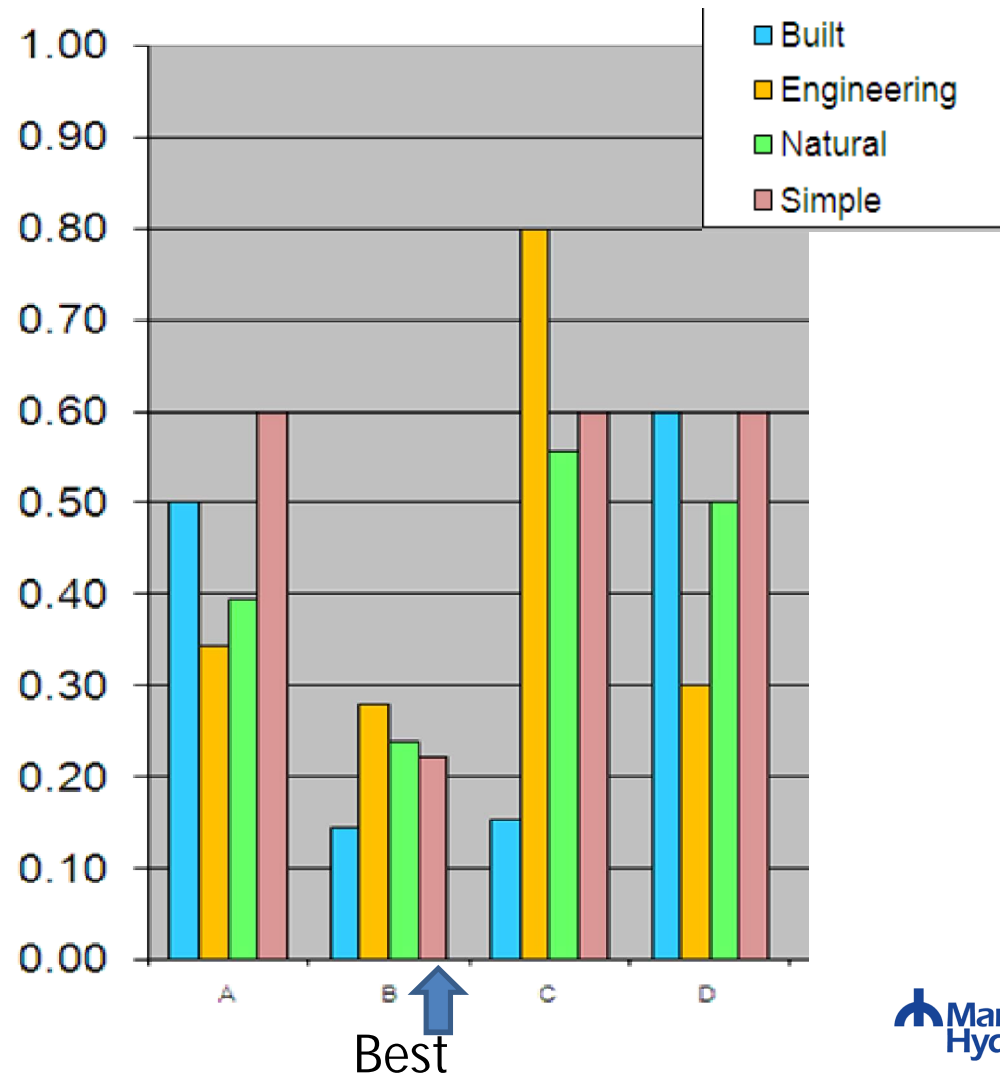


Review of Alternative Routes

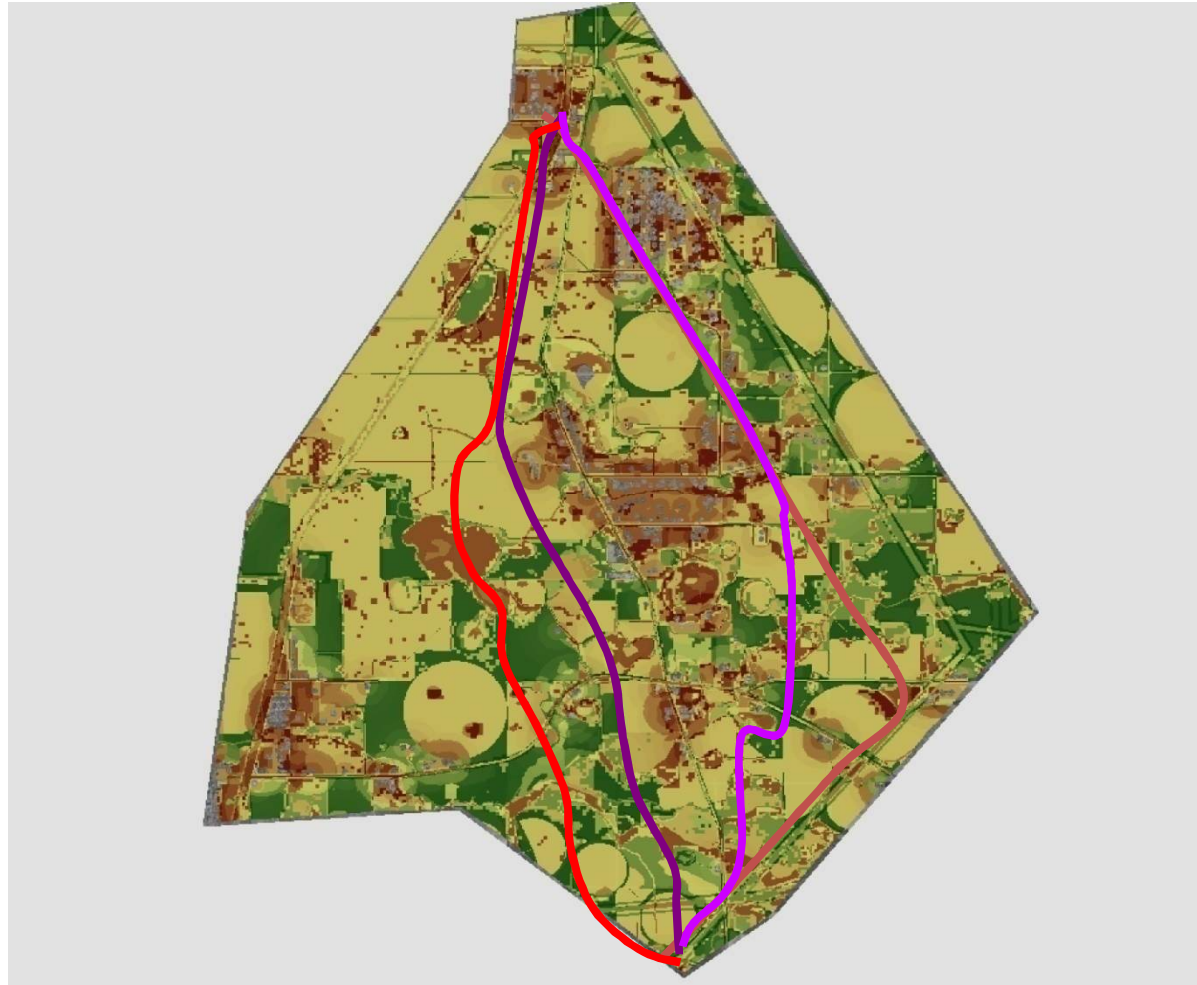
- Public and Stakeholders provide input into the Alternative Routes through various avenues, including:
 - Workshops
 - Open Houses
 - Meetings with project team members
 - Manitoba Hydro Project Website

Alternative Route Selection

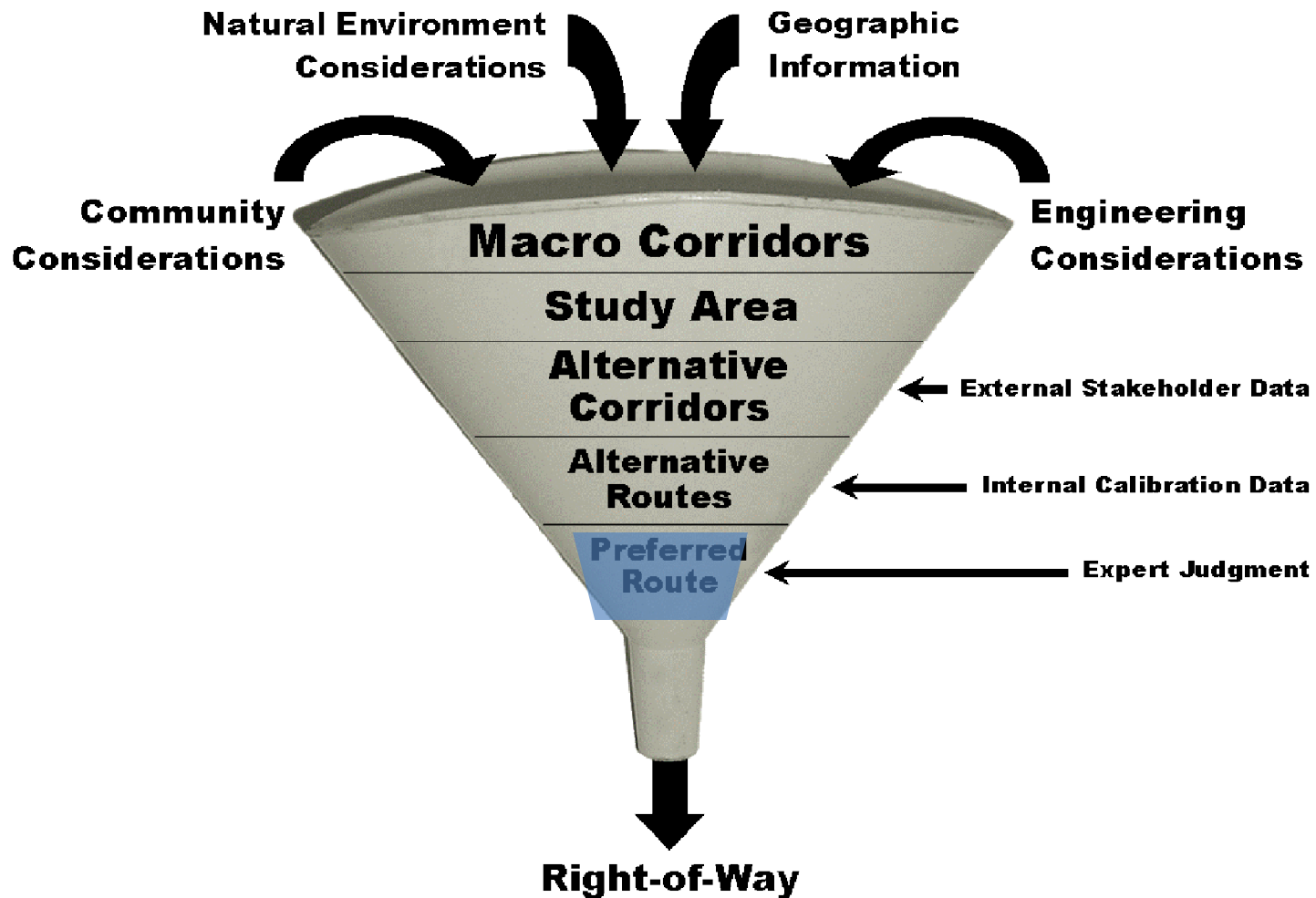
- An Alternative Route Evaluation Model is used to determine the relative strengths and weaknesses of each route



Alternative Routes Determined



Preferred Route Selection



Preferred Route Selection

- Expert judgment is used to determine the Final Preferred Route
 - Takes into account feedback from Round One engagement and preliminary assessment information
- Round Two Public Open Houses will provide public feedback on the Final Preferred Route

Route Selection - Conclusion

With the help of stakeholder input, expert judgment and internal expertise, a balanced, transparent and defensible Final Preferred Route is developed.

EPRI-GTC* Methodology

- Stakeholder Calibration
- Siting Criteria – Stakeholders identify/refine and provide relative suitability values (modified Delphi process to gain consensus)
 - Engineering Stakeholders – infrastructure co-location
 - Natural Environment Stakeholders – natural areas considerations
 - Built Environment Stakeholders – land use issues
- Stakeholders provide relative importance /weights (analytical hierarchy process)
- Computer-generated corridor models
 - GIS data, moving from general to specific
 - Models for each of the above criteria (5:1:1)
 - Models with Equal weighting
 - Combination Model
- Expert Judgment (Internal Stakeholders)

*Electric Power Research Institute-Georgia Transmission Corp.

Benefits of EPRI Process

- Objective
 - Based on clear identification of criteria by stakeholders
 - Values and weights developed during the process are applied to geographic information
 - As the area of interest becomes more focused and defined, data becomes more detailed and accurate
- Consistent
 - Algorithms provide replicable results
- Defensible
 - Understanding “what” is required and “how” to do it before determining “where” to put it

Preliminary Structure Design

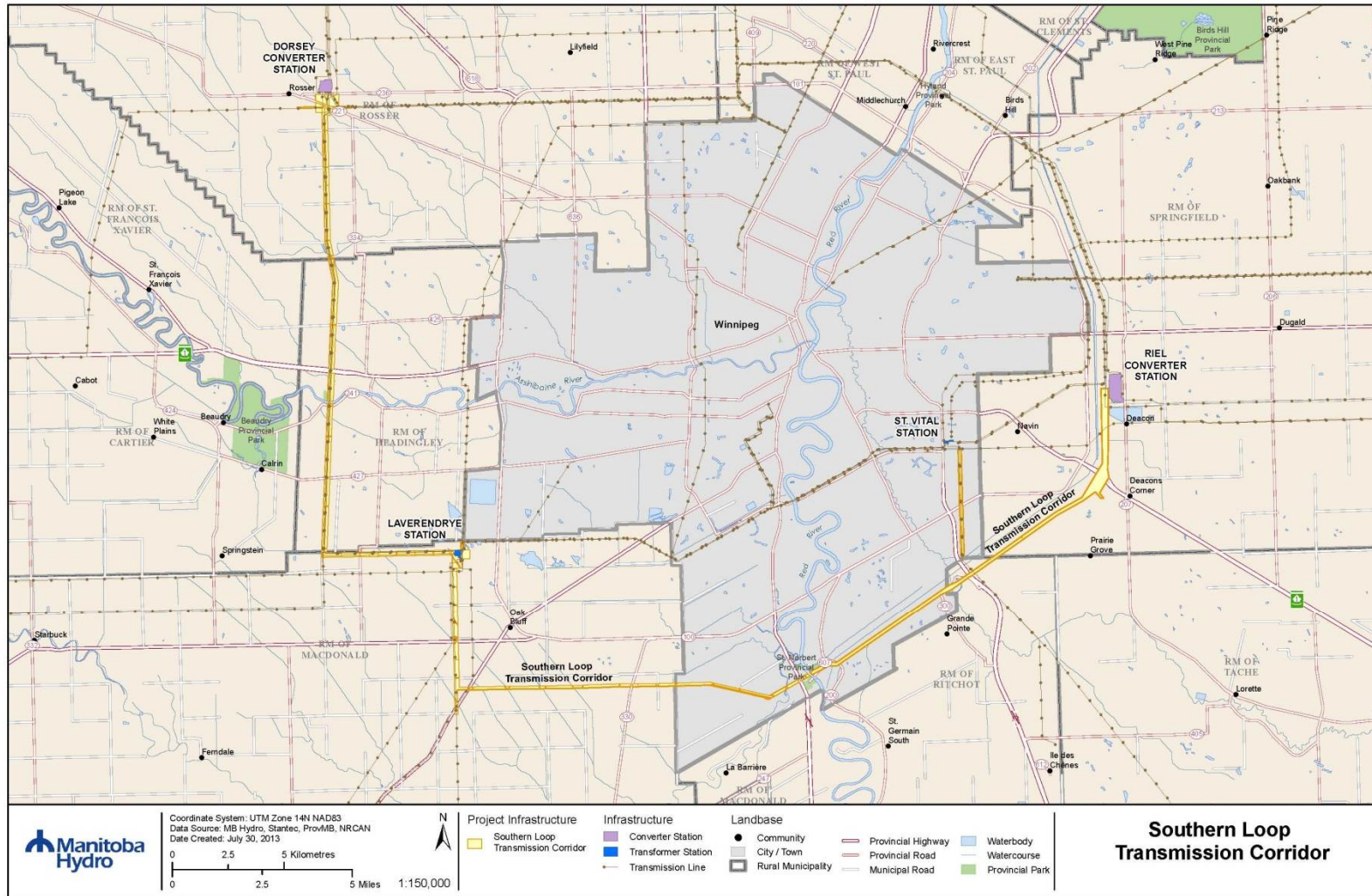
- Towers, H-Frame
 - 2 steel columns
 - 6m wide between column
 - Average 300m between towers
 - Height 16m to 39.5m
 - Higher towers at end points and crossings

Final tower design may depend on route characteristics

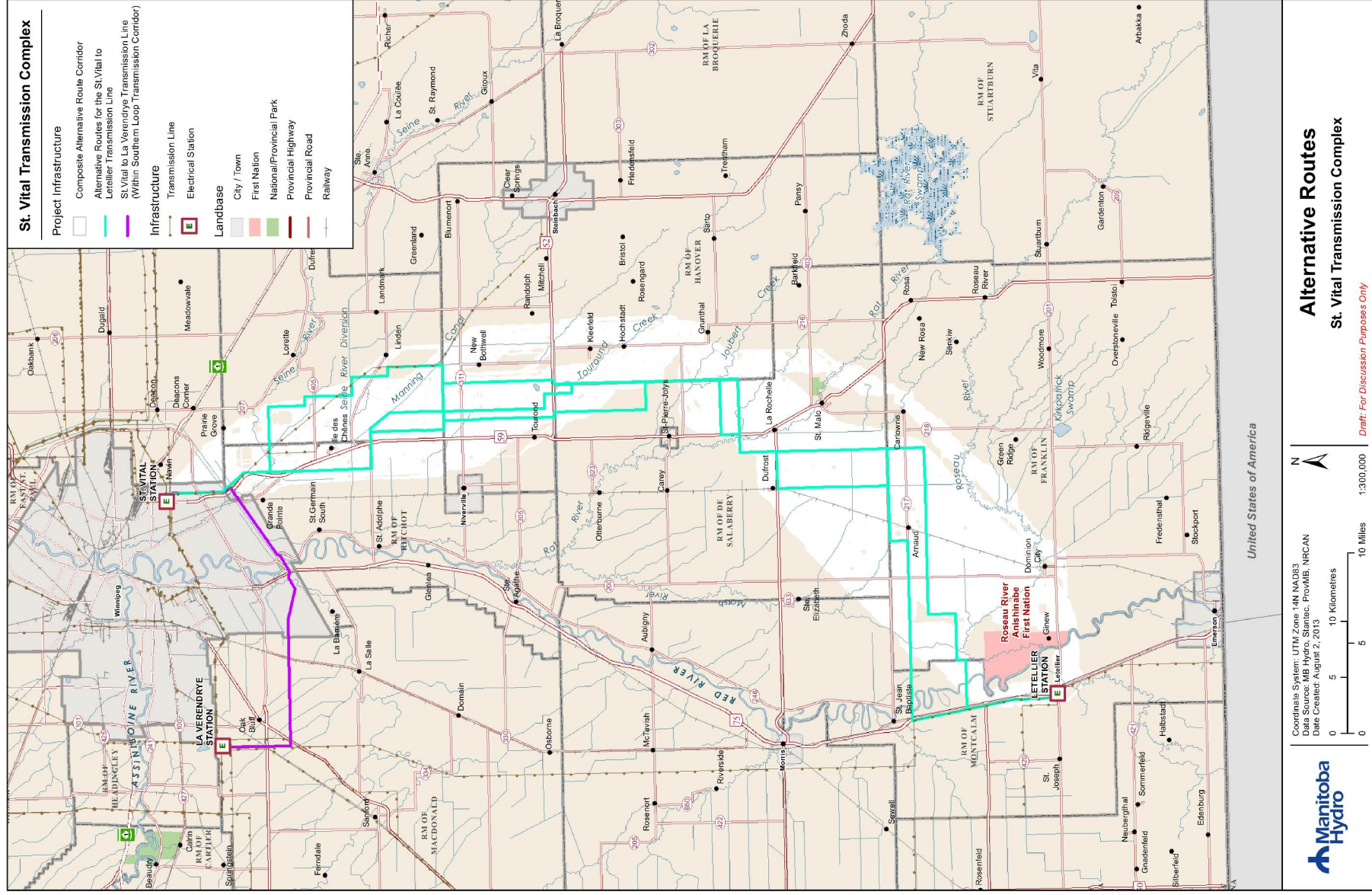
Alternative Routes

- St. Vital to La Verendrye Station - Southern Loop Transmission Corridor
 - In a fixed right-of-way
- St. Vital to Letellier Station
 - 20 different segments
 - 4 segments common to all routes
- Goal of Workshops
 - Identify one Preferred Route

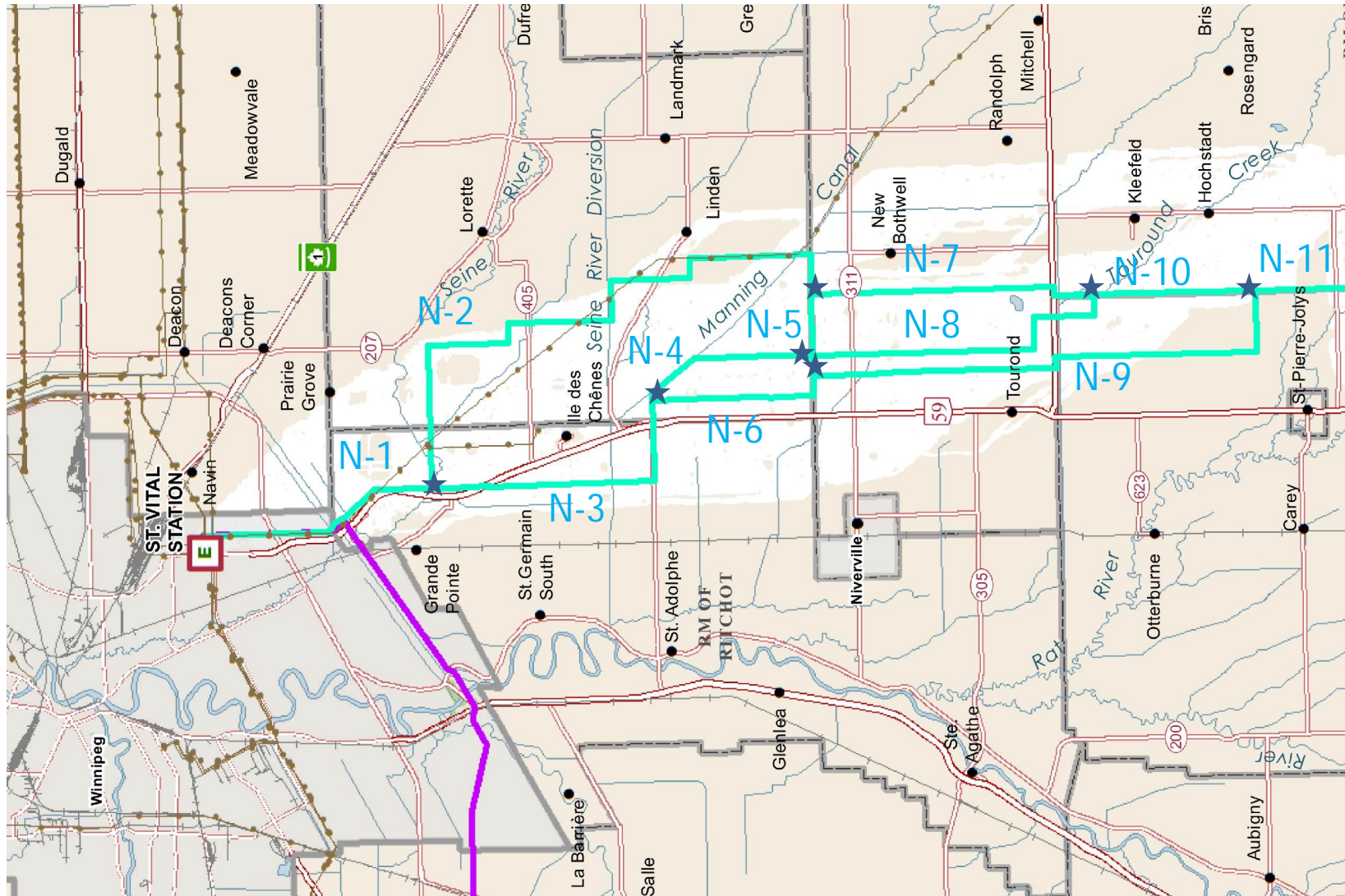
St. Vital to La Verendrye Transmission Line



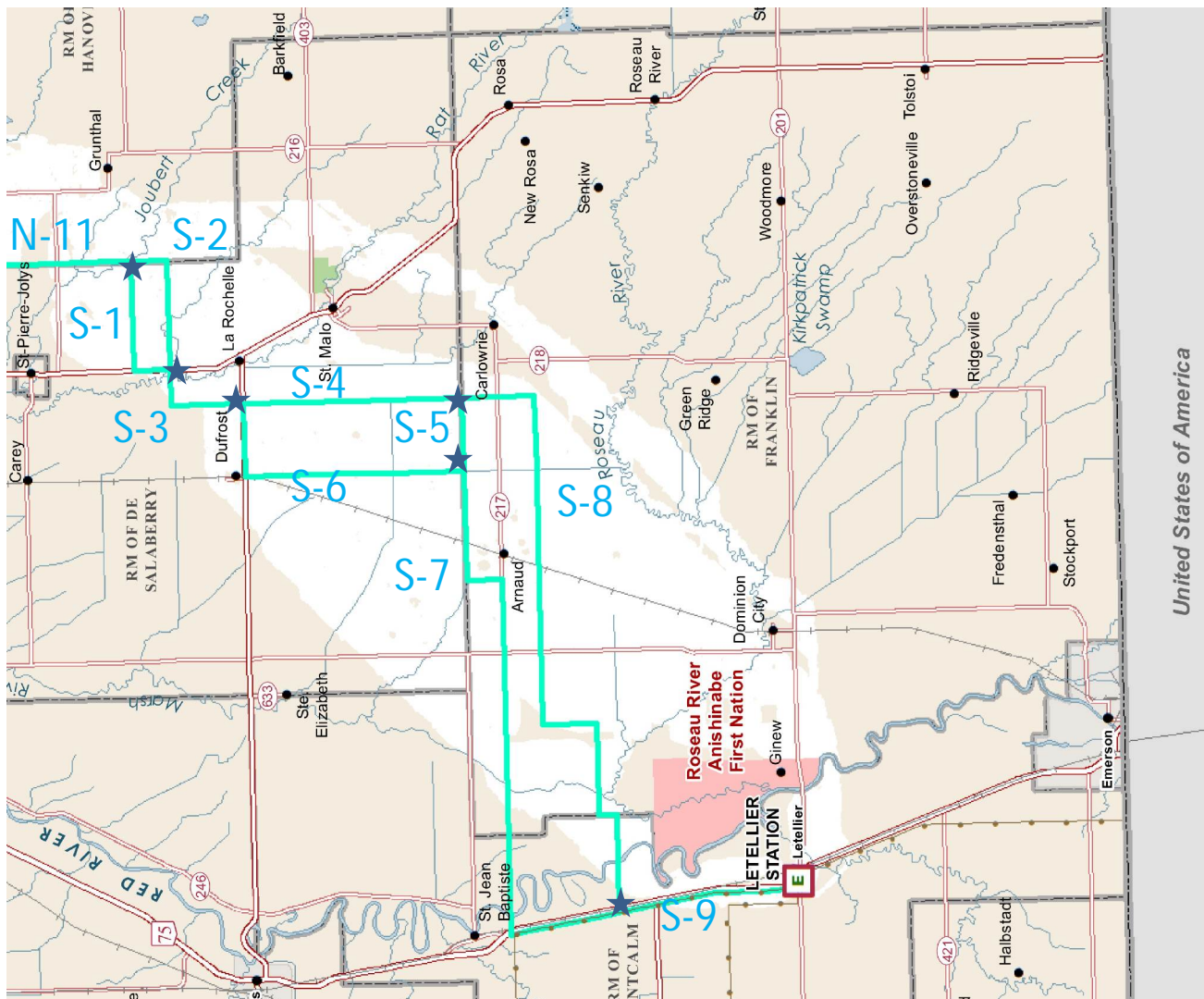
St. Vital Station to Letellier Station



St. Vital Station to Letellier Station North Segments – Alternative Routes



St. Vital Station to Letellier Station South Segment – Alternative Routes



2.2 Environmental Assessment

- The Project is considered a Class 2 development under *The Environment Act* (Manitoba) and will require an Environmental Assessment Report to be completed and submitted to Regulators.

Environmental Assessment

- Environmental Assessment generally consists of:
 - Characterization of the environment
 - Identification of potential effects on people and the environment
 - Stakeholder and public engagement process
 - Determination of methods to avoid or reduce potential adverse effects while enhancing beneficial effects

Study Area Characterization

- The Environmental Assessment will include characterization of the following aspects of the Study Area:
 - Physical Environment (climate, soils, surficial geology, hydrogeology)
 - Aquatic Environment (surface hydrology, water quality, fish and fish habitat)
 - Terrestrial Environment (vegetation, wildlife and habitat)
 - Socio-economic Environment (land use, infrastructure, agriculture and landowners, economy, heritage resources, general concerns/issues with the Project)

Study Area Characterization



Entry sign to Crow Wing Trail, near Senkiw



Pasture, NE of Roseau River



Unnamed wetland, near Tourond

Valued Environmental Components

- The Environmental Assessment will determine Valued Environmental Components (VECs)
 - VEC - Any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process; importance may be determined on the basis of societal or cultural values, or scientific interest or concern.
 - VECs are selected by
 - Utilizing experience from other, similar projects
 - Getting input from specialists in the various disciplines
 - Collecting input from interested stakeholders and the public

VECs for St. Vital Transmission

VECs currently being considered for the St. Vital Transmission Complex Project include:

- Wildlife Habitat
- Native Prairie
- Employment and Business Opportunities
- Property and Residential Development
- Aboriginal Lands
- Agricultural Productivity
- Agricultural Land Uses
- Communication and Transportation
- Human Health
- Public Safety
- Aesthetics

Examination of Effects

- To assess the potential environmental effects of the project, the following will be undertaken:
 - Identification and assessment of potential environmental effects of the project on VECs
 - Identification of mitigation measures for environmental effects on VECs
 - Identification of methodology for determining significance of environmental effects on VECs
 - Identification of measurable parameters to quantify and evaluate the significance of environmental effects on VECs
 - An assessment of cumulative effects on identified VECs

2.3. Public Engagement Program

- Key Person Interviews – over 70 contacts
- Stakeholder Workshops – 3 locations
- Two Rounds of Public Open Houses – 4 locations
 - Winnipeg, Mitchell, Dominion City and Oak Bluff
- Website
- Newsletters and Advertising
- Direct Mailings
- Meetings

Results to Date

- EPRI Process
- PEP Organization
 - KPI Interviews
 - 56 completed
 - 14 declined, some with general comments/letters
 - Workshops -3
 - Open Houses – 4, including Oak Bluff
- Environmental Review of Routes

KPI Results

- All – transportation corridors best suited for Hydro transmission lines
- All – concerns about impacts on agricultural practices
- Environmental – affect important natural features
- Municipal – positive for growth and industry

2.4. Property Acquisition

- Manitoba Hydro enters into easement agreements with all affected landowners
- The landowner retains property ownership of the land, while the easement agreement grants Manitoba Hydro right of access to construct, maintain and operate the transmission line
- Manitoba Hydro will pay landowners 75% of appraised market value for easement rights for the land
- Compensation will be paid to landowners for construction-related damages, including crop damage, fence damage and soil compaction

2.5. Schedule



2.6. Questions on Process

Break 10:10 to 10:25am

3. Breakout Map Exercise

10:25am to 12:40pm

Facilitated Groups of 3 to 4 Stakeholders

1. Maps showing Alternative Route Segments on Workshop tables
 - Based on refinement of Alternative Corridors
 - Top Alternative Routes
 - Different criteria emphasized for each route
2. Checklist of Considerations for Design and Construction
3. Working in groups, discuss and record:
 - Key Issues and Concerns for each Alternative Route Segment
 - Constraints for each Alternative Route Segment
 - Opportunities for each Alternative Route Segment
 - Preferred Route
4. Rationale for Preferred Route
 - Issues and Concerns with Preferred Route
 - Suggested Mitigation Strategies for Preferred Route

. Breakout Map Exercise – Process

- For each route segment identified (of 20, e.g. N-2), please discuss and record the following, using the appropriate Workbook pages:

Issues and Concerns

- Complete the chart provided in the Workbook identifying what you think are issues and concerns. Add any others you consider important.
- Include all individual (each team member's) issues and concerns.
- Either address issues and concerns for each Route Segment or just generalize.
- If you are working segment by segment, it may be best to also address the Constraints and Opportunities considerations for each segment in turn.

. Breakout Map Exercise - Process

Constraints

- These are specific development impediments or barriers, including physical and environmental (for example, a house in the proposed ROW)
- Develop a group consensus on each of the constraints, and determine whether they should be considered High, Medium or Low
- Each Route Segment should be addressed

Opportunities

- Complete the ranking of the most important Opportunities
- Either generalize for all Route Segments, or address each individually

. Breakout Map Exercise - Process

- Decide jointly on a Preferred Route. (This will include a number of North and South route segments that link together.)
 - Draw the route on the maps using your team colour.
- Using the large sheets of paper provided, identify of your group's Rationale for the Preferred Route
 - Use only 3 points, and also record them in the Workbook
- Identify any issues and concerns your group members have with Preferred Route.
 - Record them on the large sheet, as well as in the Workbook
- Identify any proposed mitigation measures.
 - Record them on a separate large sheet and in the Workbook
- Post the materials – maps and large sheets - on walls.

Lunch 12:40pm to 12:55 pm

4. Summary 12:55pm to 1:40pm

- Groups present their Preferred Routes to all Workshop participants
 - Identify 3 Key Issues
 - Positive and/or negative
- Questions?
- Dot-mocracy (voting on the Preferred Routes and Key Issues)
 - Green Dots – Preferred
 - Red Dots – “Thumbs Down”

Dot-mocracy

- All participants will have an opportunity to “vote” on the Preferred Routes; Rationales, Issues and Concerns, and Mitigation Approaches.
 - Blue dots – agree
 - Red dots – disagree
- Use the first sets of three blue and three red dots - thumbs up and/or thumbs down for the Preferred Routes
- Use the second sets of blue and red dots to vote on the Rationales, Issues and Mitigation Strategies
 - What you consider important/ or not important

5. Wrap-up 1:40 to 1:45pm

- Immediate Next Steps:
 - Complete Round One Public Open Houses – immediately following
 - Identify Preferred Route based on inputs
 - Complete Environmental Assessment
 - Round Two Public Open Houses with Final Preferred Route



Thank you for attending!

For additional information, please contact:

Trevor Joyal at 204-360-4305

(Please complete your comment sheets!)

Presentation August 22, 2013



St. Vital Transmission Complex
Stakeholder Workshop

WELCOME!

Manitoba Hydro

9:00am to 1:50pm

1. Introduction 9:00 to 9:10am

1.1 Safety

1.2 Manitoba Hydro/Consultant Project Team

1.3 Stakeholders/Workshop Participants

1.4 Project Description

1.5 Purpose of Workshop

1.6 Workshop Agenda

1.7 Deliverables

1.8 Transmission Line Development Process

1.1 Manitoba Hydro Project Team

- Project Coordination – Manitoba Hydro
- Route Selection – Photo Science, Inc/MH
- Stakeholder & Public Engagement –
AECOM/MH
- Environmental Assessment – Stantec/MH
- Mapping – Stantec
– Working in tandem

1.2 Stakeholder Workshop

- Representation
 - Agriculture
 - Business and Industry – including Trappers
 - Environmental – Provincial and Groups
 - Health, Education and Policing – including EMS
 - Infrastructure
 - Municipal – RMs, Towns and Cities
 - Aboriginal
- Invited through interviews, telephone calls, letters and emails
 - Some representatives participated in EPRI Workshops

1.3 Project: Two New 230kV Transmission Lines

- St. Vital Station to La Verendrye Station
 - On an existing Manitoba Hydro right-of-way south of Winnipeg - the Southern Loop
 - Will enable the Winnipeg electrical network to withstand severe outages; improve system performance during normal operation, and promote the reliability of the power system in southern Manitoba
- St. Vital Station to Letellier Station
 - Required to address load and voltage concerns in the South Central area of Manitoba due to load growth

1.4 Purpose of Workshop

- Share current project information
 - Including outcomes of the Route Selection process
- Understand local issues and concerns
- Obtain stakeholder feedback on the route selection process
- Discuss site-specific concerns
 - Mapping exercises
- Discuss appropriate mitigation measures to address local issues

1.5 Workshop Agenda

1. Introduction – 10 min.
 - Participants
 - Project Description
 - Deliverables
2. Background – 1 hr.
 - Outline of Route Selection Process (EPRI)
 - Outcomes to Date – Alternative Routes
 - Environmental Assessment Process
 - Public Engagement Process
 - Property Acquisition
 - Project Schedule
 - Questions

1.5 Workshop Agenda

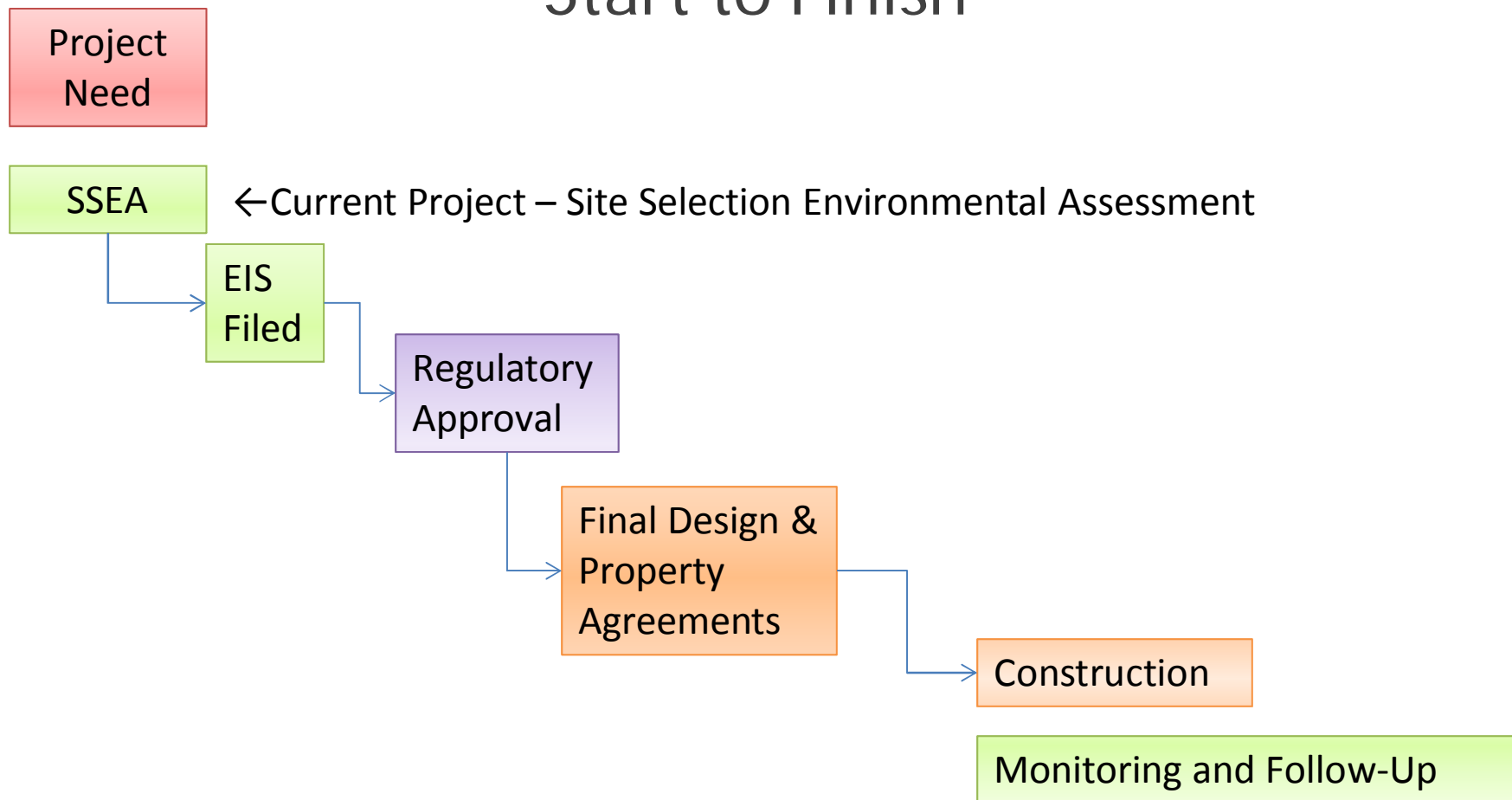
- Refreshment Break /Grouping – 15 min.
- 3. Breakout Discussion/Map Exercise – 2 hr. 15 min.
 - Discuss local Issues and Concerns
 - Discuss /Identify Opportunities and Constraints
 - Engineering
 - Environmental
 - Socio-economic
 - Determine Route Preferences
 - Apply the above to Alternative Route Maps
- Lunch - 15 min.
- 4. Summary – 45 min.
 - Group Presentations
 - Dot-mocracy Exercise
- 5. Wrap up – 5 min.

1.6 Deliverables

- Environmental Assessment Report
 - Assessment of a Preferred Route
 - Environmental (including Socio-economic) Impacts
 - Record of Stakeholder and Public Engagement
 - Provincial Review

1.7 Transmission Line Development Process

Start to Finish



2. Background 9:10 to 10:10am

2.1 Route Selection Process

2.2 Environmental Assessment Process

2.3 Public Engagement

~ Results to Date

2.4 Property Acquisition

2.5 Schedule

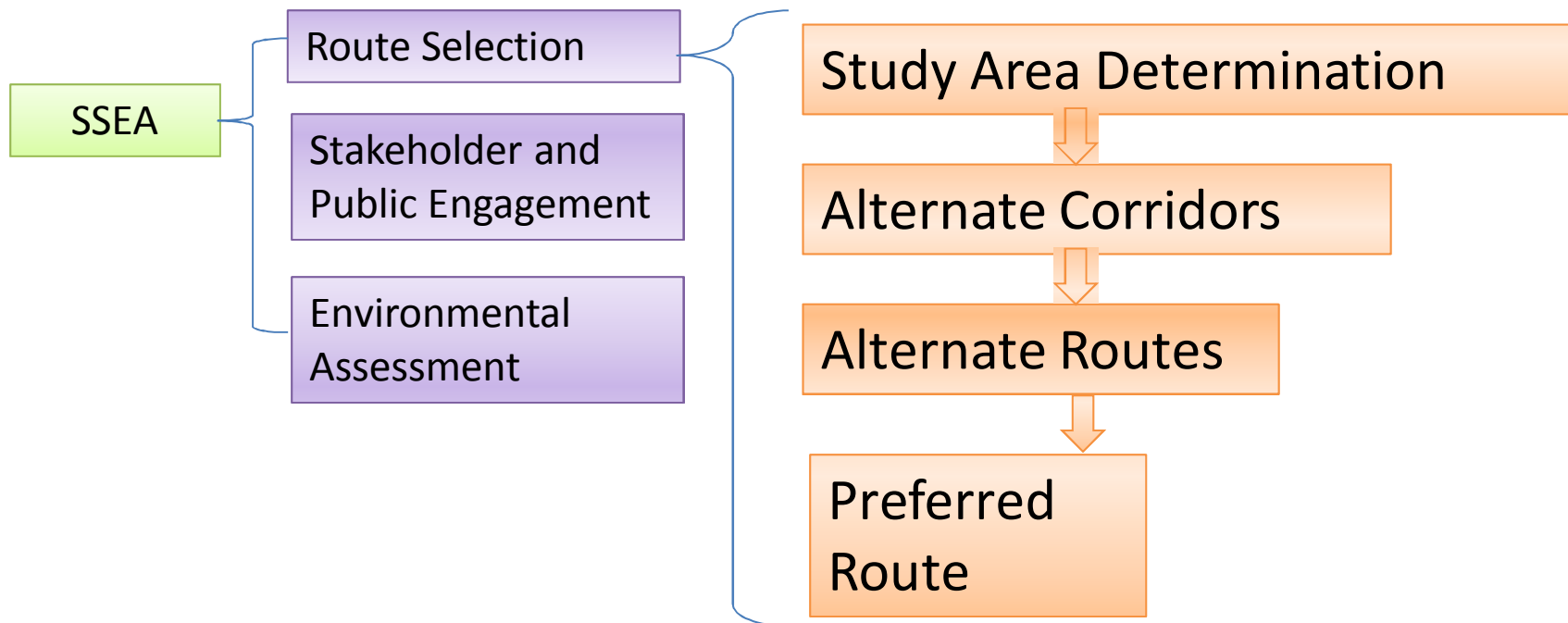
2.6 Questions

2.1 Route Selection Process

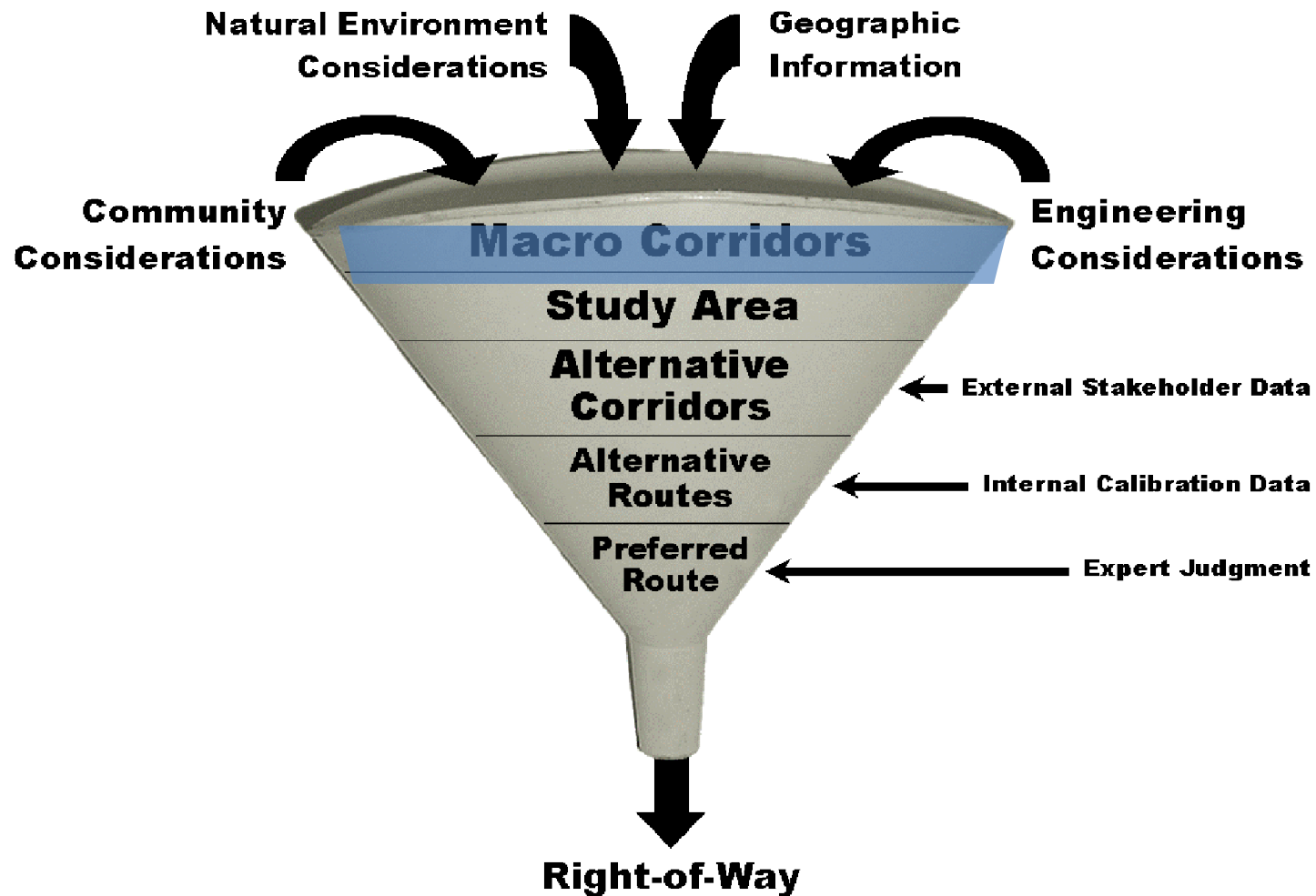
- Macro Corridor and Study Area Identification
- Alternative Corridor Identification (Natural, Built, Engineering & Simple Average)
- Alternative Route Selection and Review
- Preferred Route Determination

SSEA: Site Selection & Environmental Assessment

Regional Siting Criteria and Suitability



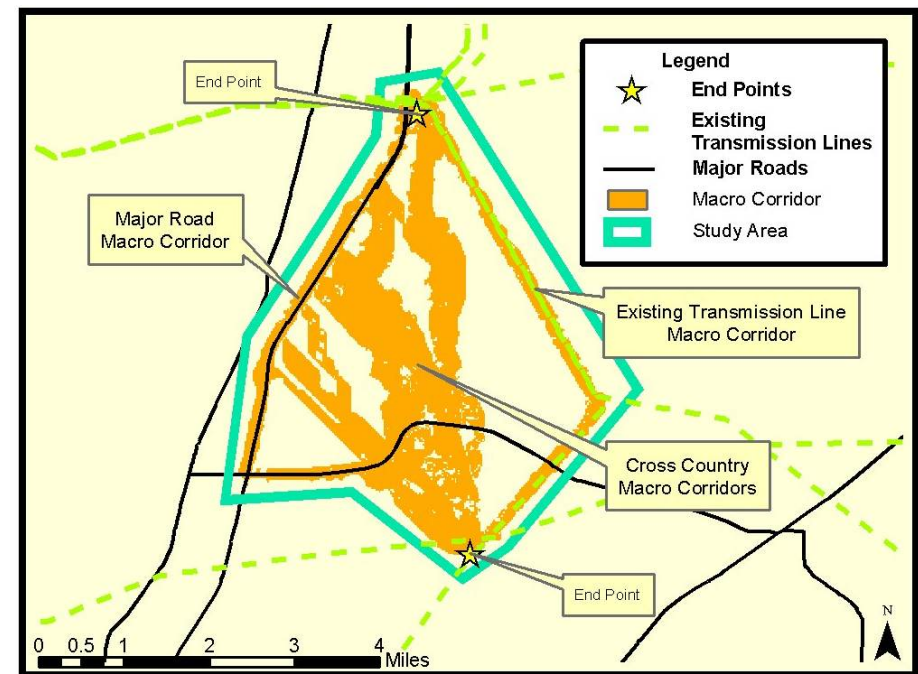
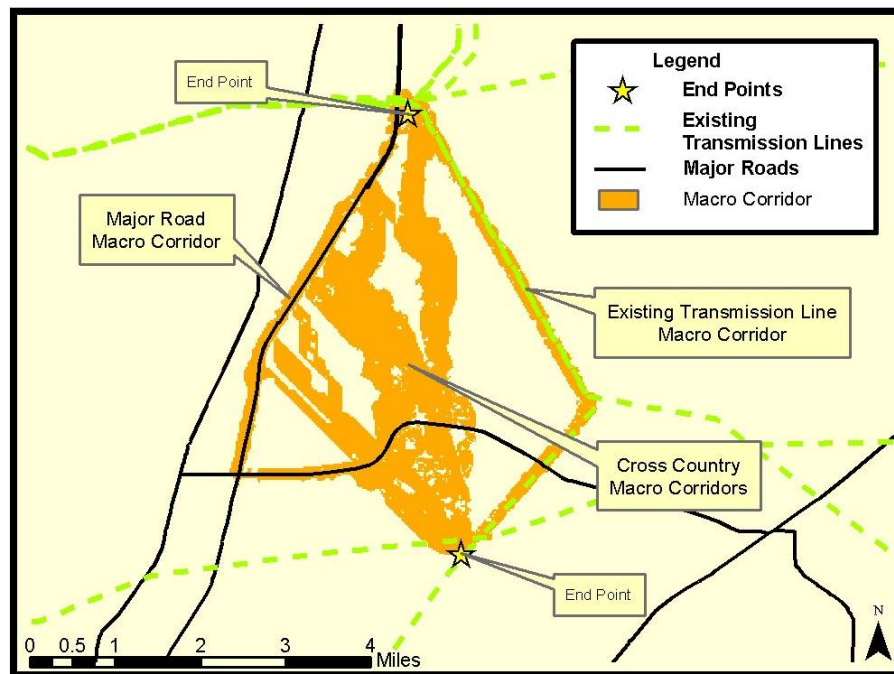
The EPRI-GTC Methodology Funnel



.1 Macro Corridor Identification

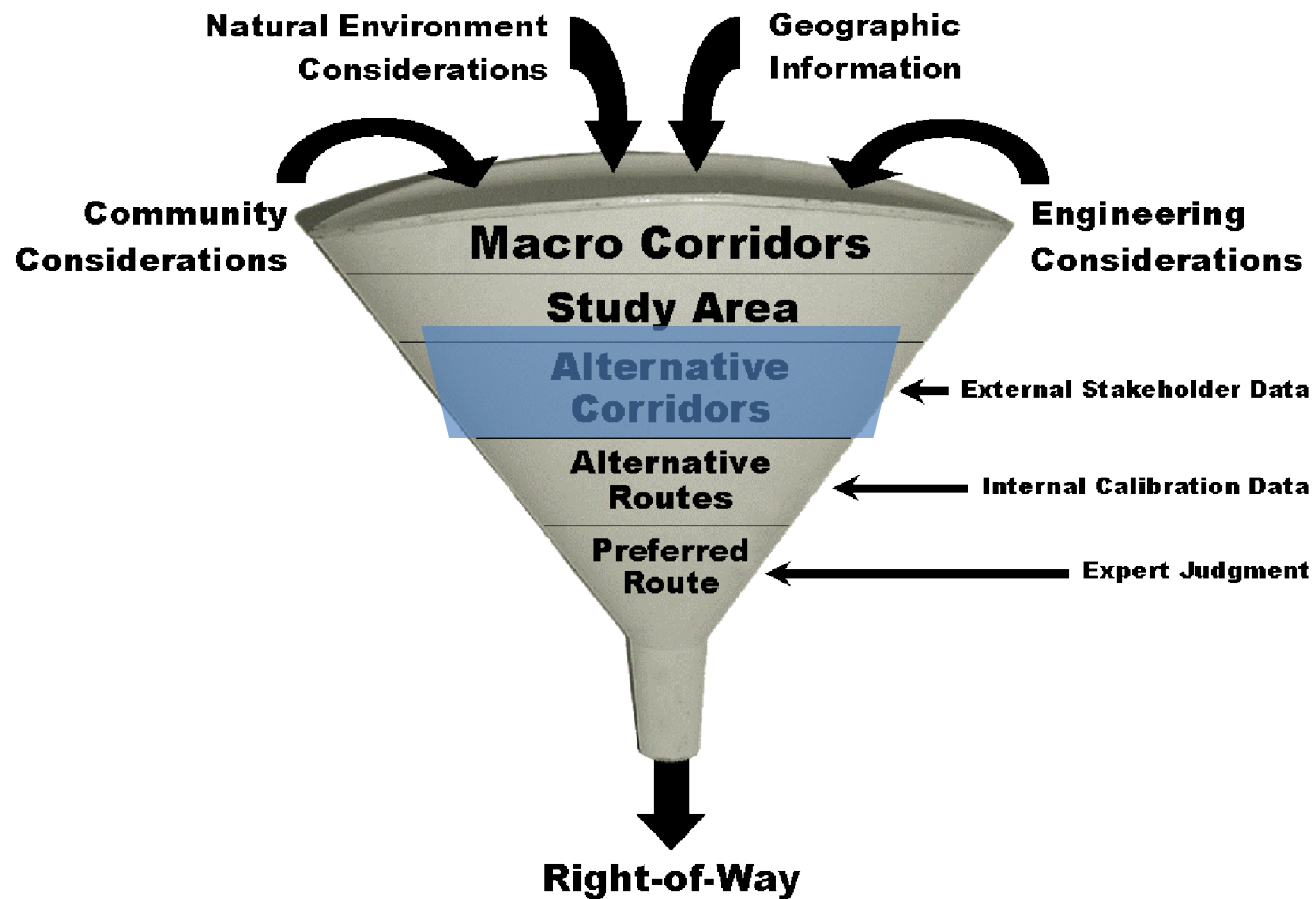
- Identifies broad areas with least environmental and community impacts
- Identifies start and end points of the project, and one central point
- Used to define the outer boundaries/limits of Project Study Area
- Based on available provincial GIS data sets

Marco-Corridor and Study Area



The top 5% of the best possible connections within the project area form the macro corridors

.2 Alternative Corridor Identification



Alternative Corridor Identification

- External and internal stakeholders determine the relative suitability of different features for routing a transmission line
- Focused on a regional scale, prior to application on a specific project
- Examples of features include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Slope• Paralleling existing infrastructure• Span-ability of water bodies	<ul style="list-style-type: none">• Wetlands• Grasslands• Critical habitat• National parks	<ul style="list-style-type: none">• Agricultural• Recreational trails• Historic sites• View-shed

Alternative Corridor Identification

- Examples of external stakeholders
 - Trappers Association
 - Manitoba Conservation and Water Stewardship
 - Manitoba Infrastructure and Transportation
 - Manitoba Local Government
 - MAFRI
 - Manitoba Aerial Applicators
 - Manitoba Food and Rural Initiatives
 - Ducks Unlimited Canada
 - Keystone Agricultural Producers
 - Trails Association
 - Manitoba Nature Conservancy

Stakeholder Input

- External and internal stakeholder feedback and contribution was incorporated into the Routing Methodology
- Stakeholders identified features and suitability values, as well as relative weightings for routing based on Engineering, Natural and Built Environment perspectives
- This input was used to determine the Alternative Corridors within which Alternative Routes could be drawn

Southern Manitoba Alternate Corridor Siting Model

Engineering

Natural

Built

Engineering	35.7%	Aquatics	10.0%	Proximity to Buildings	10.0%
Linear Infrastructure		No Aquatic Feature	1.0	> 800 m	1
Unutilized ROW (Manitoba Hydro Owned)	1	Ephemeral Streams (Non-Fish Bearing)	4.9	400 - 800 m	2.7
Parallel Roads ROW	2.6	Spannable Waterbodies (Lakes & Ponds)	6.1	100 - 400 m	6.5
Municipal Road Allowances	3.1	Ephemeral Streams (Fish Bearing)	6.3	ROW - 100 m	9
Parallel Provincial Highways ROW	3.4	Swamps	6.8	Building Density	15.0%
Parallel Existing Transmission Lines	3.8	Ephemeral Streams (CRA Fish Bearing)	6.9	< 1 Building / Acre (Rural Agricultural)	10.0
No Linear Infrastructure	4.4	Riparian Floodplain	7.1	1 Building per 1-5 acres	2.8
Rebuild Existing Transmission & Sub-Transmission Line	5	Permanent Stream	7.5	1-3 Buildings / Acre (Rural Residential)	3.7
Parallel Oil / Gas Transmission Pipeline	5.6	Bogs	7.7	3-10 Buildings / Acre (Suburban Density)	7.2
Parallel Railway ROW	5.6	Fens	8.2	>10 Buildings / Acre (Urban)	9.0
Future MIT Plans	7.8	Marsh	8.2	Proposed Development	3.7%
>= 300 kV Transmission Line & Within Separation Buffer	8.5	Permanent Stream (CRA Fish Bearing)	9.0	No Proposed Development	1.0
Within Road, Railroad, or Utility ROW	9	Special Features	42.4%	Proposed Development - Industrial Zoning	3.0
Spannable Waterbodies	10.4%	No Special Land	1.0	Proposed Development - Agriculture Zoning	4.1
No Waterbody	1	Managed Woodlots	5.4	Proposed Development - Commercial Zoning	5.1
Non-Nav. Spannable Waterbody (Standard Structures)	2.8	Crown Land With Special Code	7.0	Permitted Development	6.9
Nav. Spannable Waterbody (Standard Structures)	4.3	Community Pastures	7.3	Proposed Development - Rural Residential Zoning	6.9
Non-Nav. Spannable Waterbody (Specialty Structures)	6	Flyways	7.5	Proposed Development - Urban Zoning	9.0
Nav. Spannable Waterbody (Specialty Structures)	9	Areas of Special Interest (ASI)	7.8	Soil Capability & Agricultural Use	11.9%
Geotechnical Considerations	30.2%	Recreation Provincial Park (Non-Protected Portions)	8.0	Other	1.0
Rock	1	Conservation Easements	8.0	Class 6 & 7 (Low Productivity)	3.3
No Special Geotechnical Considerations	1.3	Wildlife Management Area (Non-Protected Portions)	8.2	Organic Soils / Peat Bogs / Sod Production	3.9
100 Year Floodplain	6.6	Proposed Protected Areas	8.6	Artisanal Farms / Wild Rice	4.3
Wetland / Peatlands	9	Heritage Rivers	8.7	Class 4 & 5 (Forages, Transitional)	5.9
Mining Operations / Quarries	13.2%	Important Bird Areas	8.7	Class 1- 3 (Prime Agricultural & Cultivated Land)	9.0
No Mining Operation	1	Heritage Marshes	8.9	Land Use	16.0%
Abandoned / Inactive Mines (Aggregate Piles, Pits, etc)	6.5	Conservation Lands	8.9	Forest	10.0
Mine-Owned Land	9	Natural Provincial Park (Non-Protected Portions)	9.0	Open Land (Sand & Gravel)	1.5
Slope	5.4%	Land Cover	10.2%	Industrial	1.6
Slope 0 - 15%	1	Exposed / Urbanized / Open Land	1.0	Burnt Areas	1.8
Slope 15 - 30%	3.1	Agricultural (Forage)	2.5	Active Forestry Operation	2.3
Slope > 30%	9	Agricultural (Crops)	2.8	Hunting / Trapping Locations	3.9
Proximity to Future Wind Farms	5.1%	Burnt Areas	4.9	Listed Trails (Existing & Planned)	4.6
500m - 10k	1	Grassland	5.0	Agricultural (Forage)	4.9
> 10k	9	Deciduous Forest	5.5	Organic Farming	5.5
Areas of Least Preference	100.0%	Coniferous Forest	5.7	WMAs (Unprotected)	5.8
Non-Spannable Waterbodies (300 m)		Mixed Forest	6.0	Out-of-Park Recreational Development	6.4
Mines and Quarries (Active)		Non-Developed Sand Hills	8.1	Intense Development & Use	6.5
Wastewater Treatment Areas		Native Grassland	9.0	Agricultural (Crops)	6.6
Buildings		Wildlife Habitat	37.4%	500m Buffer of Irrigated Land	6.6
Oil Well Heads (100m)		Other	1.0	Intensive Livestock	6.9
Waste Disposal Sites		Ungulate Habitat (High)	6.1	Institutional	7.4
Towers and Antennae Area of Potential Affect (< 200m*)		Waterfowl Habitat (High)	6.3	In-Park Recreational Development	7.9
Existing Wind Turbine Area of Potential Affect (< 500m)		Waterfowl Paired Density (High)	6.9	Agricultural (Crops Limited to Aerial Application)	8.9
Airports (Including Glide Paths - 2° Slope)		Waterfowl Hotspots (High)	7.0	Irrigated Land	9.0
Federal Park		Grouse Lek Area	7.7	National, Provincial, & Municipal Historic Sites	12.0%
Military Facilities		Rare Species Habitat	8.0	> 300 m	1.0
		Critical Habitat	9.0	200 - 300 m	9.0
		Endangered Species Habitat	9.0	Proximity to Heritage, Archaeological Sites, & Centennial Farms	12.0%
		Areas of Least Preference	100.0%	> 300 m	1.0
		Protected Areas		200 - 300 m	9.0
		World Heritage Sites		Landscape Character (Viewsheds)	7.8%
		Special Conservation Areas		Other	1.0
		Ecological Reserves		Recreational Trails	4.1
		Wildlife Refuge		Cottage Subdivisions	6.1
		Natural Provincial Park (Protected Portions)		Identified Scenic Provincial Trails & Roads	6.8
		Recreation Provincial Park (Protected Portions)		Escarpments (I imeless Topography)	7.5
		Wildlife Management Area (Protected Portions)		Resort Lodges & Campgrounds	8.6
		National Parks		Residential	8.9
		Provincial Park Reserves		Designated Historic Sites	9.0
		Wilderness Provincial Park		Edge of Field	11.7%
		Heritage Provincial Park		Road Allowances	1.0
				Drains	1.8
				Quarter Section Lines / Half-Mile Section Lines	2.0
				Vacant Rail ROW	2.1
				Parallel Or Adjacent To Road Allowances	2.8
				Other (None of the Above)	9.0
				Areas of Least Preference	100.1%
				Indian Reserves	
				Treaty Land Entitlement Selection	
				Campgrounds & Picnic Areas (500 m)	
				Aircraft Landing Areas (STARS, Flying Farmers, Float Planes, etc) (3 Miles In-Line with Glide Path or Transport Canada Designation)	
				Recreational Centers (Golf, Skiing, etc) (500m)	
				Federal Heritage Sites (200m)	
				Provincial Heritage Sites (200 m)	
				Municipal Heritage Sites (200 m)	
				Heritage Plaques (200 m)	
				Day Care Parcels	
				Cemeteries / Burial Grounds	
				Schools	
				Past Military Installations	
				Contaminated Sites	
				Known Archaeological & Paleoarchaeological Site (300m)	
				National, Provincial, & Municipal Historic Site (200m)	
				Religious / Worship Site Parcels	

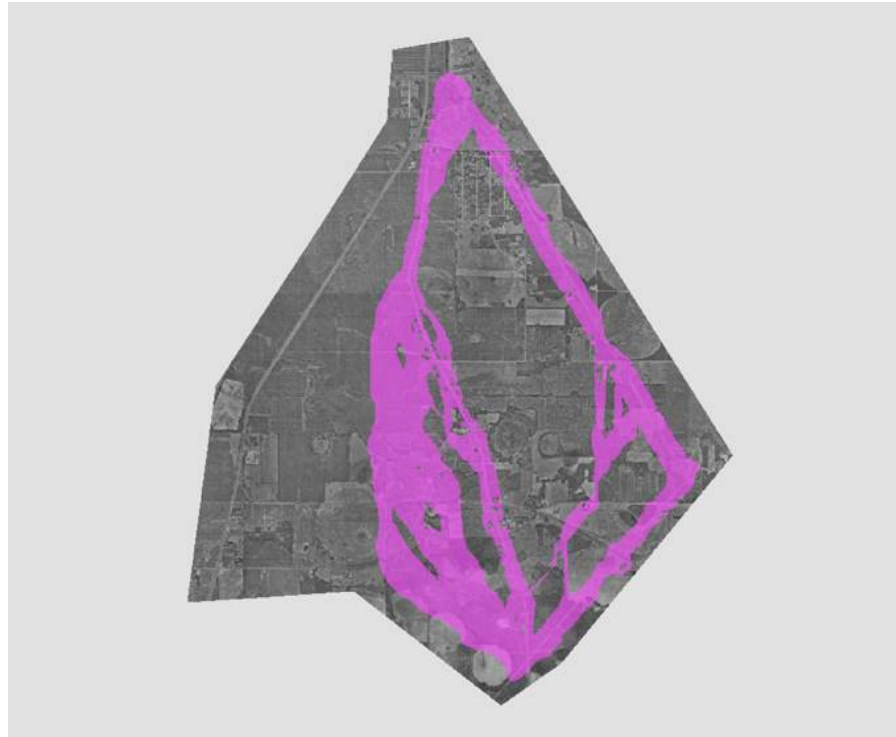
Engineering, Natural and Built Environment Features (Criteria), with Scores (1-9) and Weightings



Areas of Least Preference



Alternative Corridor Identification



Weights and relative suitability values are applied to features (or criteria), such as roads, wetlands and forests; or distances from buildings and different slope classifications.

The less suitable a feature is, the less likely a corridor will be mapped over that feature.

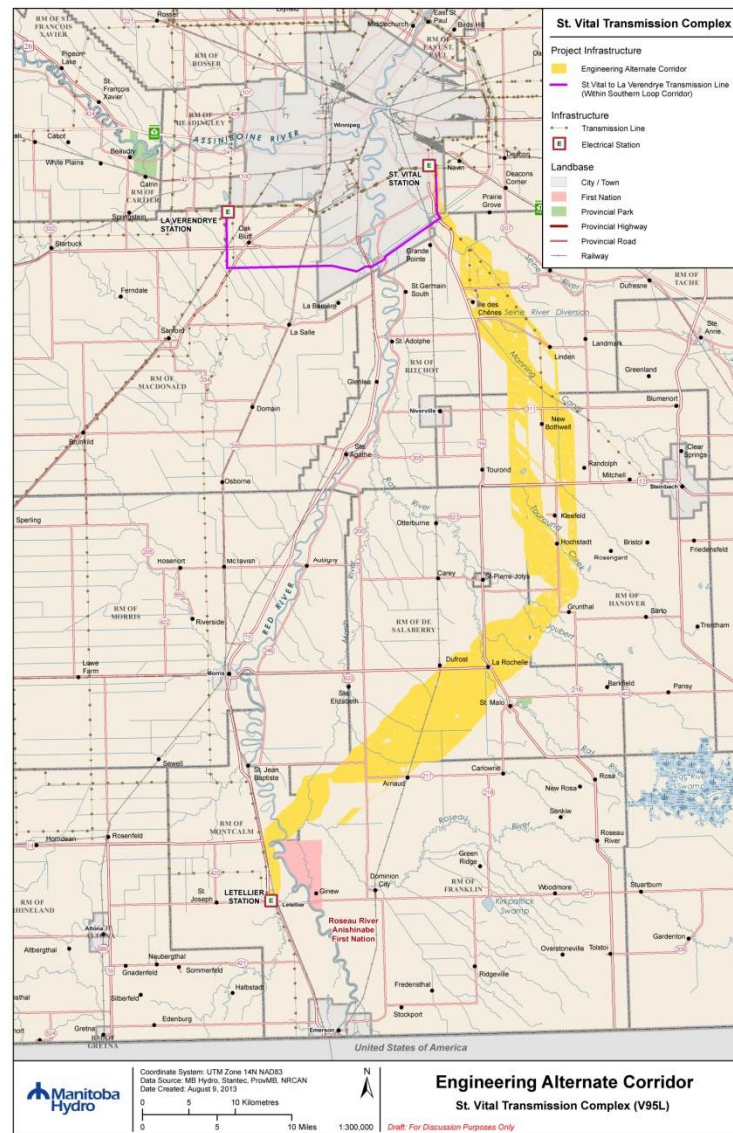
Alternative Corridor Identification

- Areas of Least Preference are also determined
- Some examples include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Non span-able water bodies• Active Mines and quarries	<ul style="list-style-type: none">• Wildlife refuge• Ecological reserves• National parks• Provincial Parks	<ul style="list-style-type: none">• Federal heritage sites• Airports• Known archeological sites

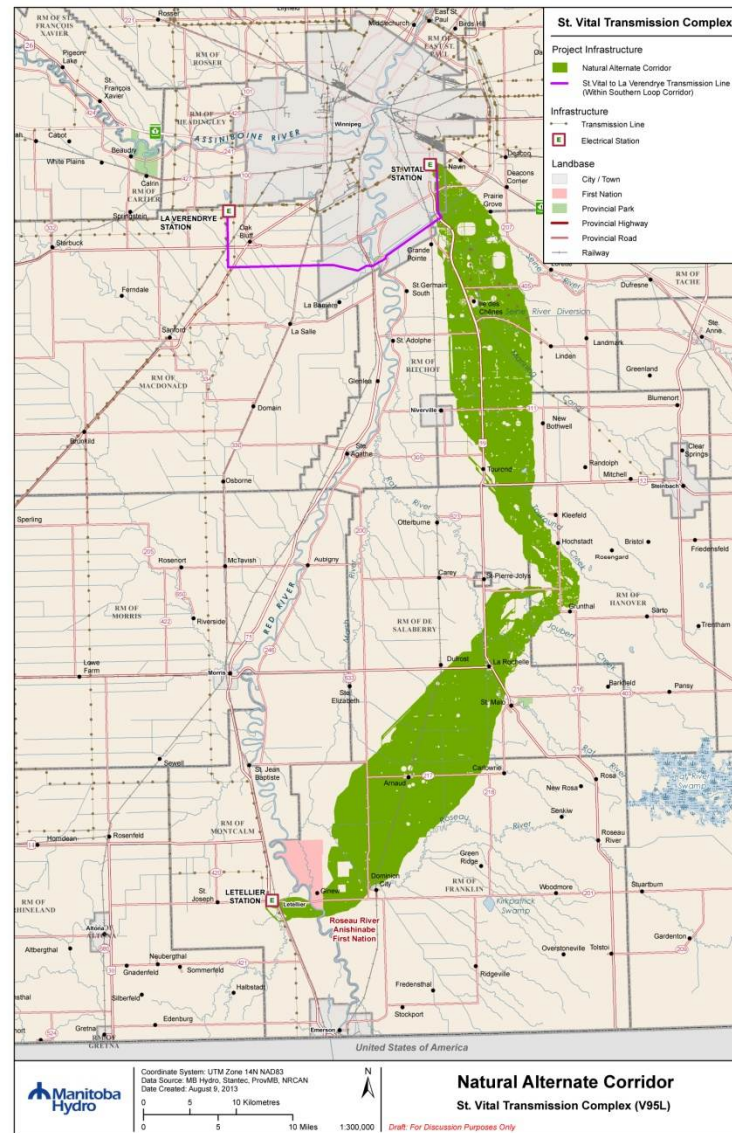
Alternate Corridor - Engineering

Developed by placing five–times (5:1:1) emphasis on engineering considerations



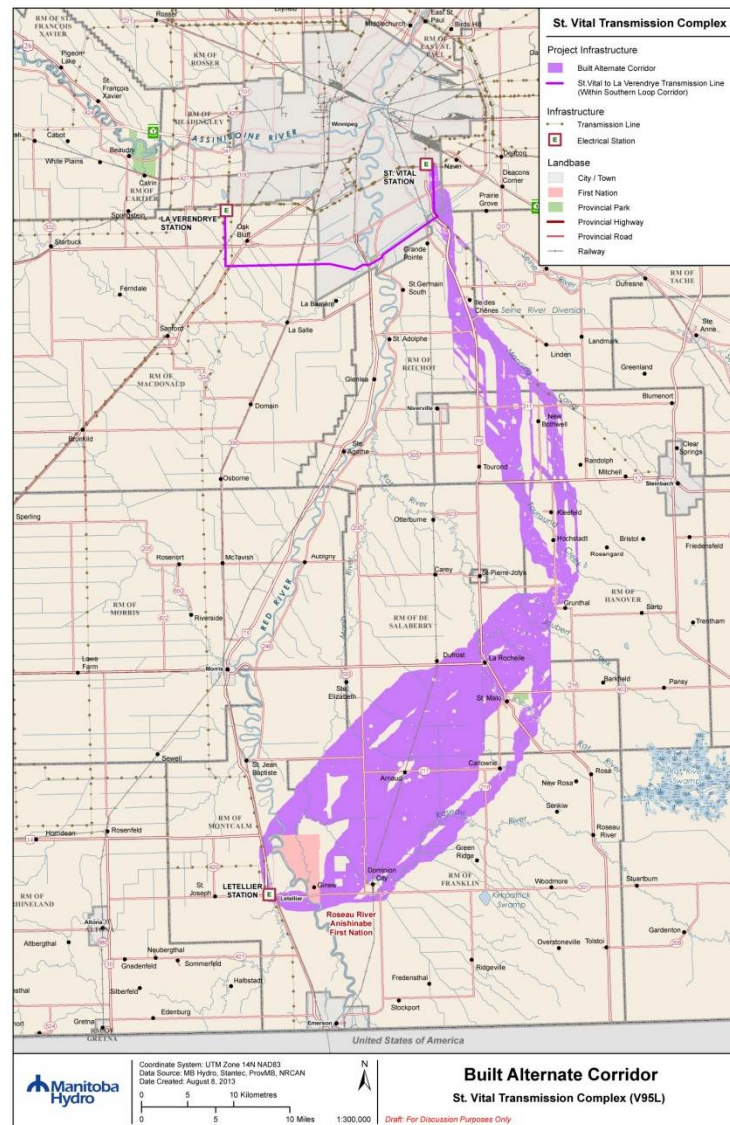
Alternate Corridor – Natural

Developed by
placing five–
times
emphasis on
natural
considerations



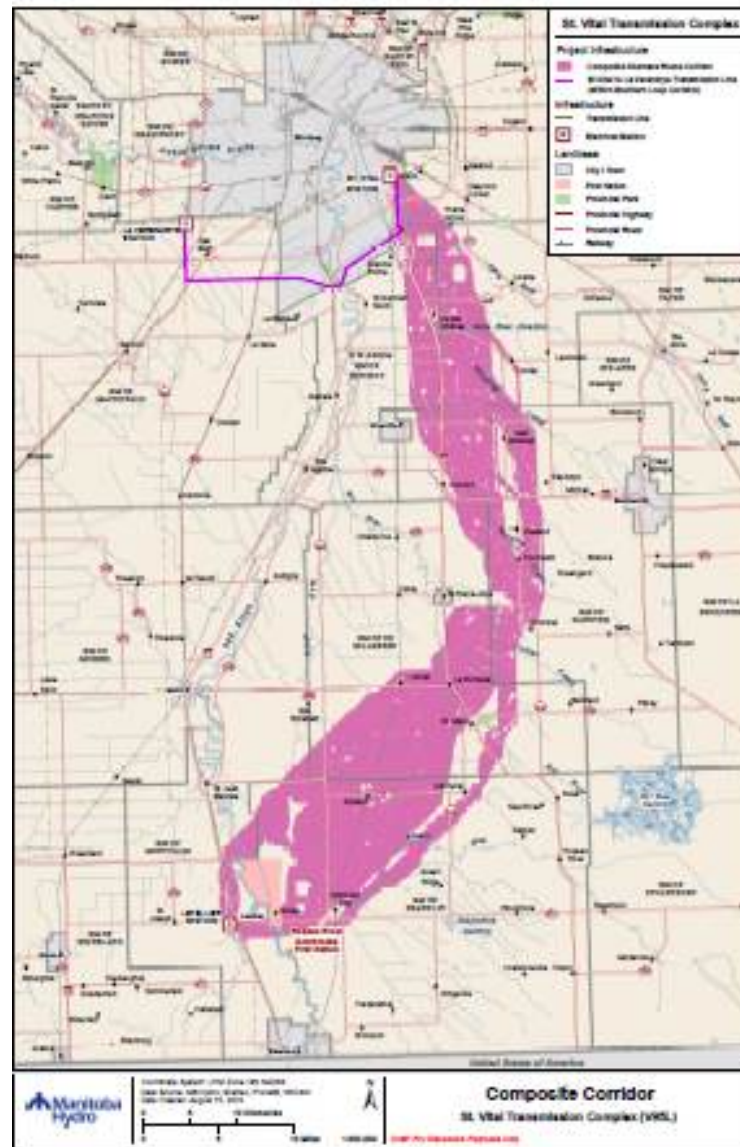
Alternate Corridor – Built

Developed by
placing five–
times
emphasis on
built
considerations



Alternate Corridor - Composite

All corridors
combine into a
Composite
Corridor

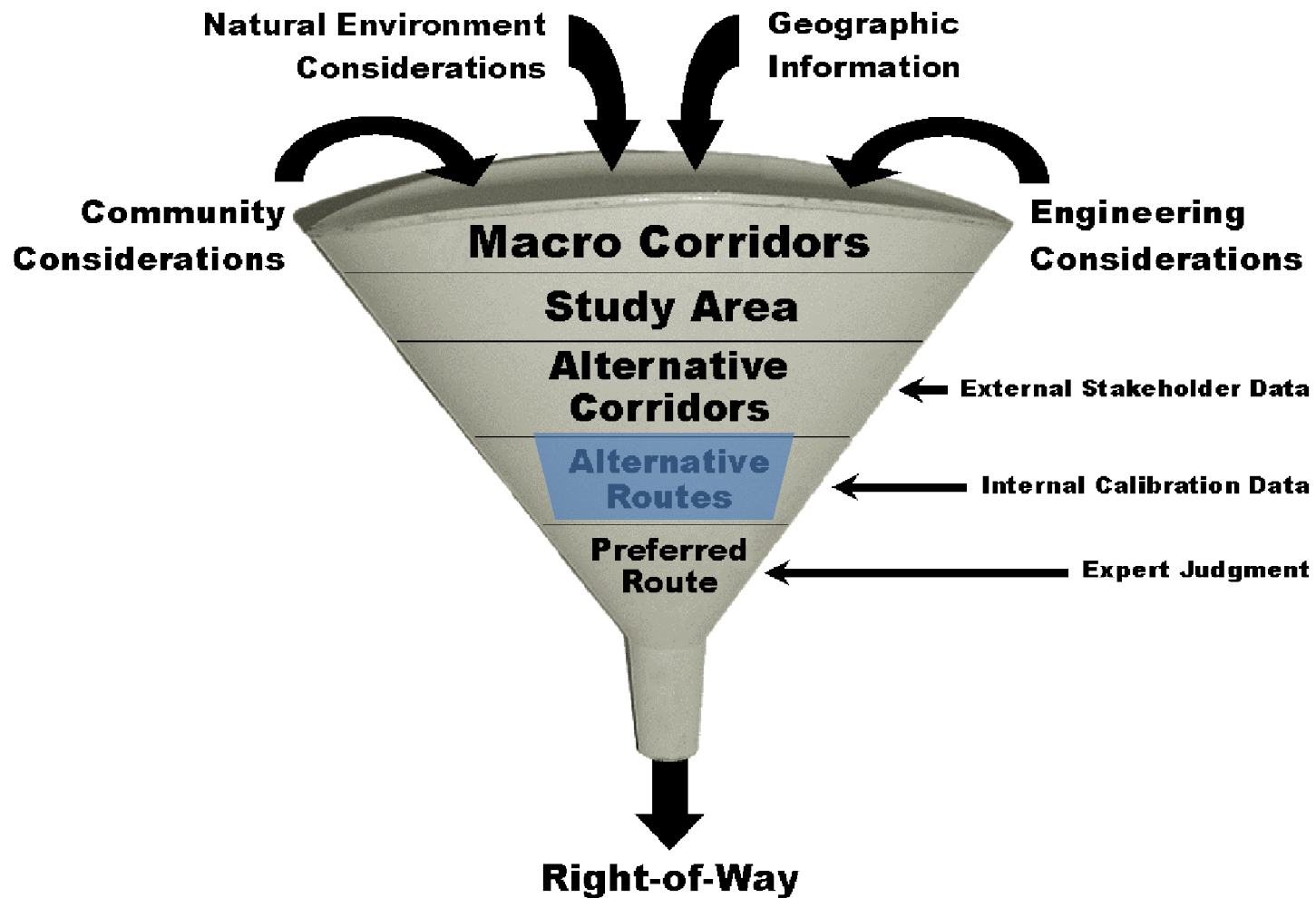


Further Data Gathering



- Additional data collection for the Route Selection process occurs once corridors are developed
- This includes existing sources of data, windshield surveys and site visits

.3 Alternative Route Selection



Alternative Route Selection

- Multiple routes are developed within the Alternative Corridors
- Developed by Project Team taking into account all information gathered to date

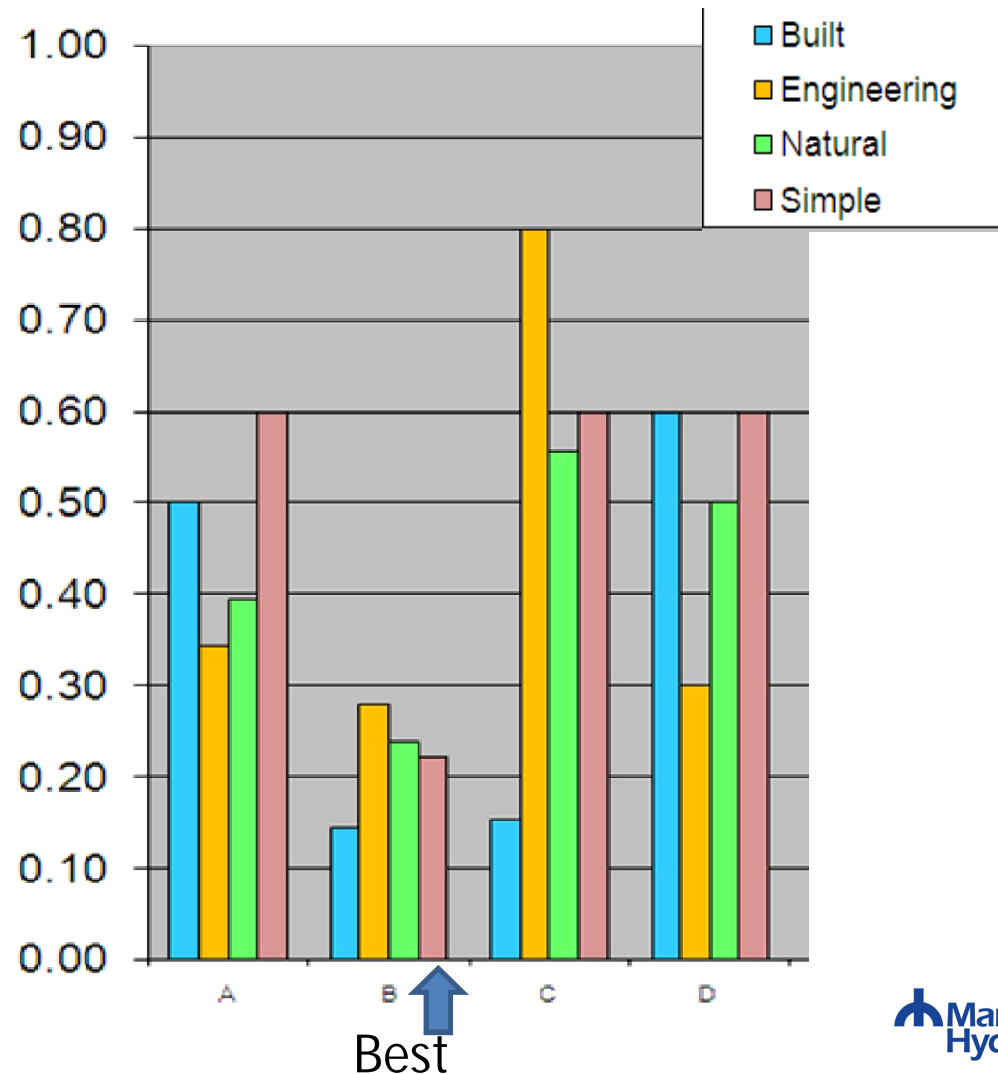


Review of Alternative Routes

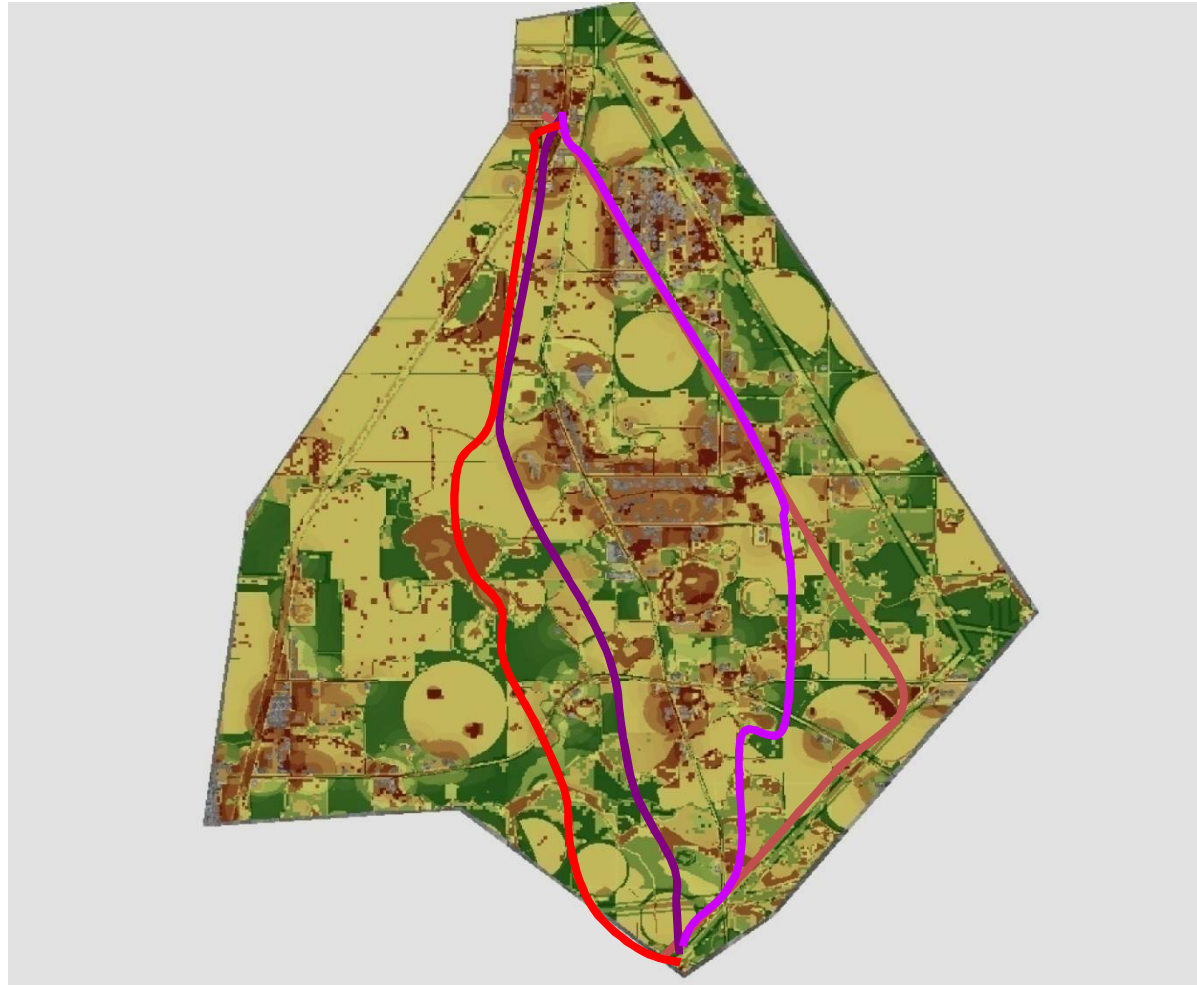
- Public and Stakeholders provide input into the Alternative Routes through various avenues, including:
 - Workshops
 - Open Houses
 - Interviews /meetings with project team members
 - Manitoba Hydro Project Website
 - Dedicated telephone number
 - Email address

Alternative Route Selection

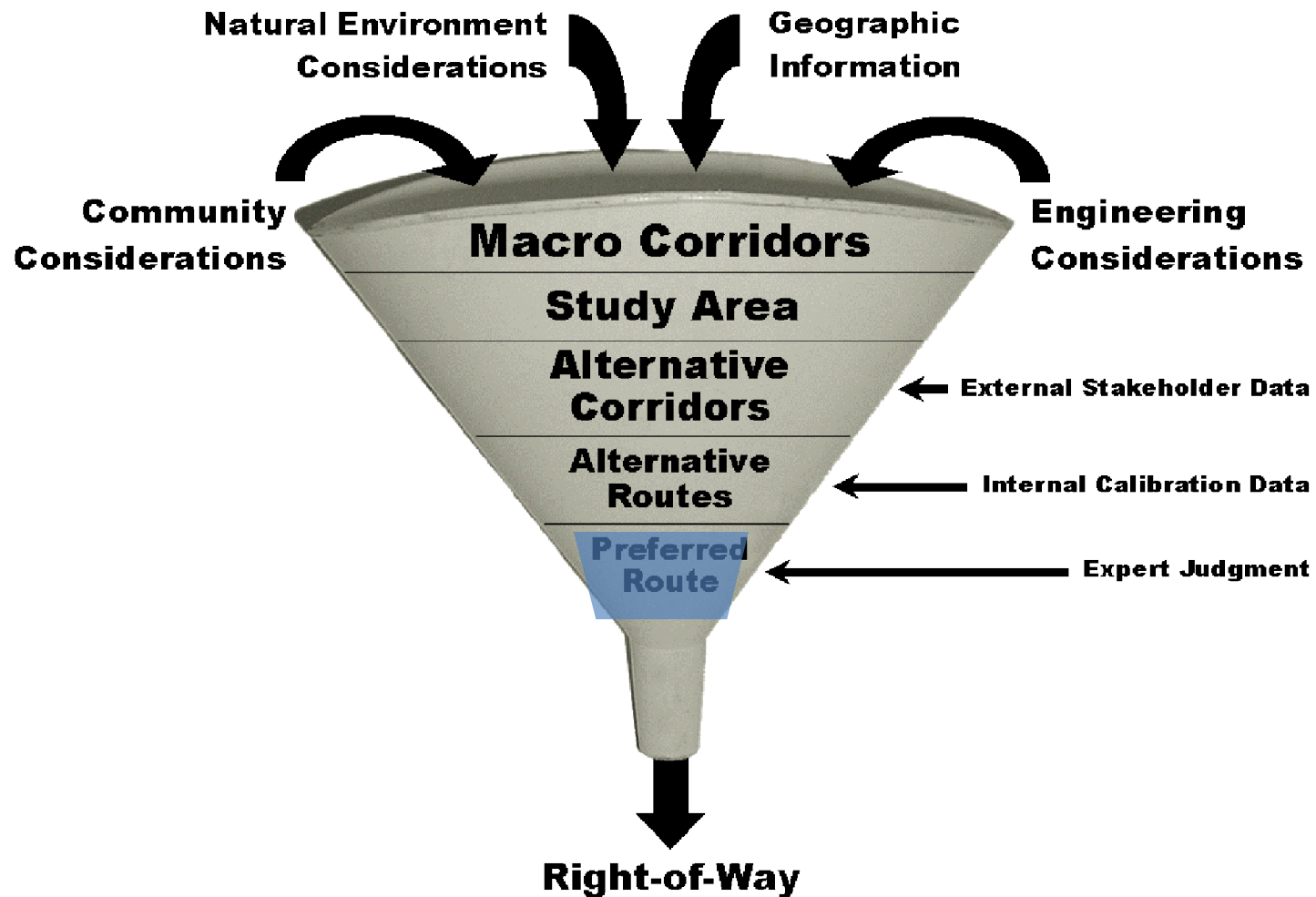
- An Alternative Route Evaluation Model is used to determine the relative strengths and weaknesses of each route



Alternative Routes Determined



.4 Preferred Route Selection



Preferred Route Selection

- Expert judgment is used to determine the Final Preferred Route
 - Takes into account feedback from Round One engagement and preliminary assessment information
- Round Two Public Open Houses will provide public feedback on the Final Preferred Route

Route Selection - Conclusion

With the help of Stakeholder input, Expert Judgment and internal expertise, a balanced, transparent and defensible Final Preferred Route is developed.

Summary - EPRI-GTC* Methodology

- Stakeholder Calibration
- Siting Criteria – Stakeholders identify/refine and provide relative suitability values (modified Delphi process to gain consensus)
 - Engineering Stakeholders – infrastructure co-location
 - Natural Environment Stakeholders – natural areas considerations
 - Built Environment Stakeholders – land use issues
- Stakeholders provide relative importance /weights (analytical hierarchy process)
- Computer-generated corridor models
 - GIS data, moving from general to specific
 - Models for each of the above criteria (5:1:1)
 - Models with Equal weighting
 - Combination Model
- Expert Judgment (Internal Stakeholders)

*Electric Power Research Institute-Georgia Transmission Corp.

Benefits of EPRI Process

- Objective
 - Based on clear identification of criteria by stakeholders
 - Values and weights developed during the process are applied to geographic information
 - As the area of interest becomes more focused and defined, data becomes more detailed and accurate
- Consistent
 - Algorithms provide replicable results
- Defensible
 - Understanding “what” is required and “how” to do it before determining “where” to put it

.5 Preliminary Structure Design

- Towers, H-Frame
 - 2 steel columns
 - 6m wide between column
 - Average 300m between towers
 - Height 16m to 39.5m
 - Higher towers at end points and crossings

Final tower design may depend on route characteristics

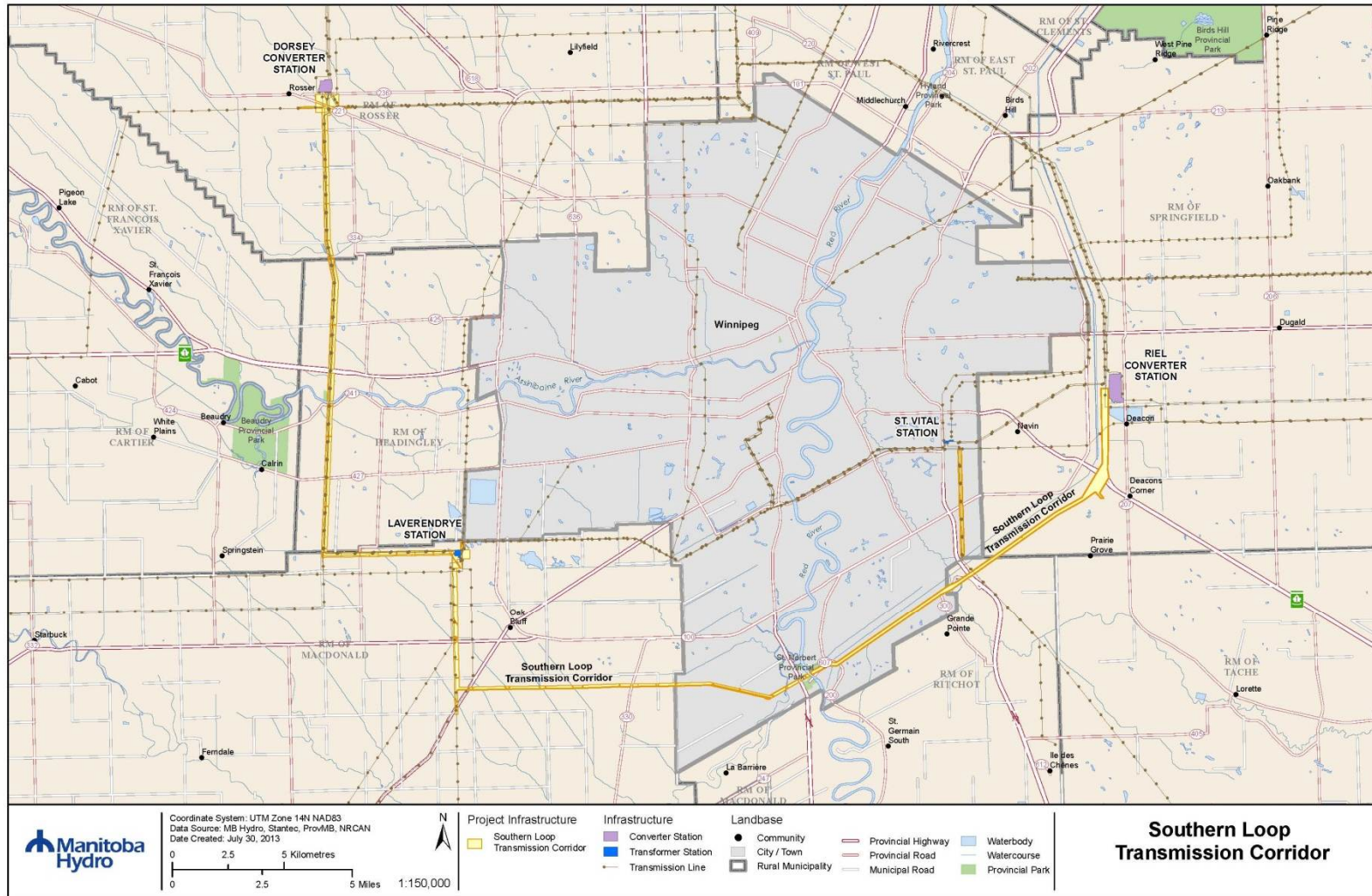
.6 Property Acquisition

- Manitoba Hydro enters into easement agreements with all affected landowners
- The landowner retains property ownership of the land, while the easement agreement grants Manitoba Hydro right of access to construct, maintain and operate the transmission line
- Manitoba Hydro will pay landowners 75% of appraised market value for easement rights for the land
- Compensation will be paid to landowners for construction-related damages, including crop damage, fence damage and soil compaction

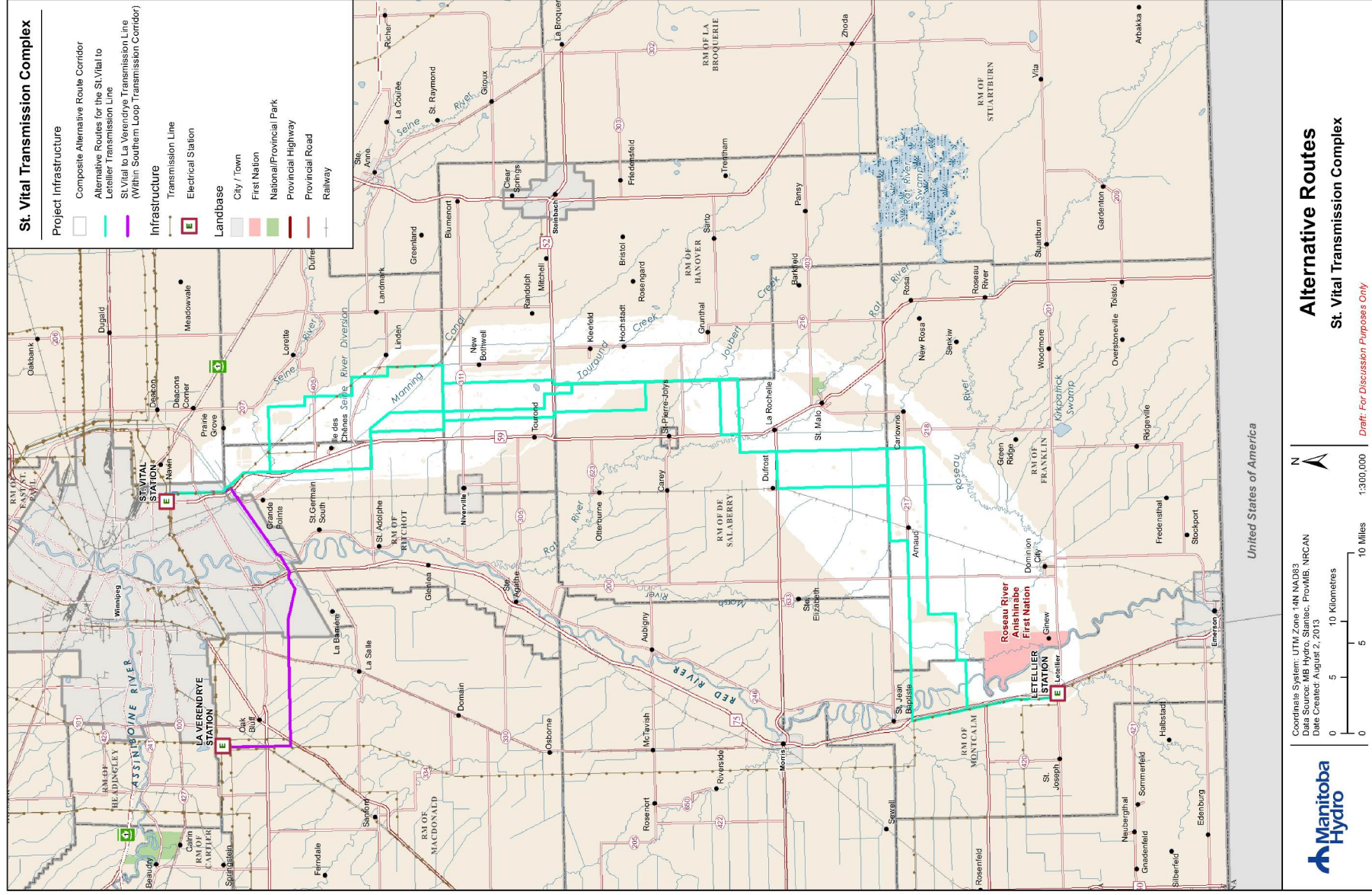
.7 Alternative Routes

- St. Vital to La Verendrye Station - Southern Loop Transmission Corridor
 - In a fixed right-of-way
- St. Vital to Letellier Station
 - 20 different segments
 - 4 segments common to all routes
- Goal of Workshops
 - Identify one Preferred Route

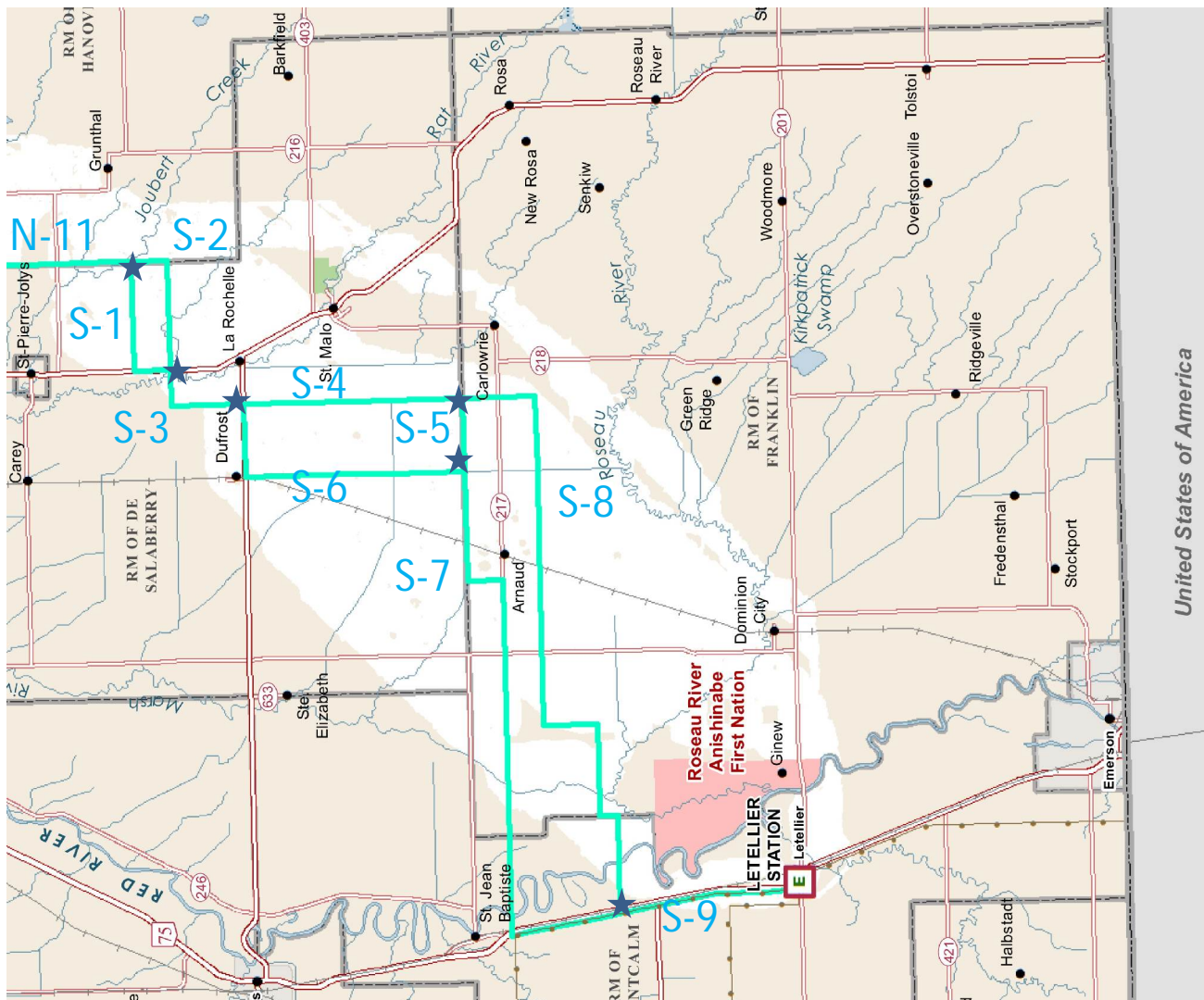
St. Vital to La Verendrye Transmission Line



St. Vital Station to Letellier Station



St. Vital Station to Letellier Station South Segment – Alternative Routes



2.2 Environmental Assessment

- The Project is considered a Class 2 development under *The Environment Act* (Manitoba) and will require an Environmental Assessment Report to be completed and submitted to Regulators.

Environmental Assessment

- Environmental Assessment generally consists of:
 - Characterization of the environment
 - Identification of potential effects on people and the environment
 - Stakeholder and public engagement process
 - Determination of methods to avoid or reduce potential adverse effects while enhancing beneficial effects

Study Area Characterization

- The Environmental Assessment will include characterization of the following aspects of the Study Area:
 - Physical Environment (climate, soils, surficial geology, hydrogeology)
 - Aquatic Environment (surface hydrology, water quality, fish and fish habitat)
 - Terrestrial Environment (vegetation, wildlife and habitat)
 - Socio-economic Environment (land use, infrastructure, agriculture and landowners, economy, heritage resources, general concerns/issues with the Project)

Study Area Characterization



Entry sign to Crow Wing Trail, near Senkiw



Pasture, NE of Roseau River



Unnamed wetland, near Tourond

Valued Environmental Components

- The Environmental Assessment will determine Valued Environmental Components (VECs)
 - VEC - Any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process; importance may be determined on the basis of societal or cultural values, or scientific interest or concern.

Valued Environmental Components

- VECs are selected by
 - Utilizing experience from other, similar projects
 - Getting input from specialists in the various disciplines
 - Collecting input from interested stakeholders and the public

VECs for St. Vital Transmission

VECs currently being considered for the St. Vital Transmission Complex Project include:

- Wildlife Habitat
- Native Prairie
- Employment and Business Opportunities
- Property and Residential Development
- Aboriginal Lands
- Agricultural Productivity
- Agricultural Land Uses
- Communication and Transportation
- Human Health
- Public Safety
- Aesthetics

Examination of Effects

- To assess the potential environmental effects of the project, the following will be undertaken:
 - Identification and assessment of potential environmental effects of the project on VECs
 - Identification of mitigation measures for environmental effects on VECs
 - Identification of methodology for determining significance of environmental effects on VECs
 - Identification of measurable parameters to quantify and evaluate the significance of environmental effects on VECs
 - An assessment of cumulative effects on identified VECs

2.3. Public Engagement Program

- Key Person Interviews – over 70 contacts
- Stakeholder Workshops – 3 locations
- Two Rounds of Public Open Houses – 4 locations
 - Winnipeg, Mitchell, Dominion City and Oak Bluff
- Website
- Newsletters and Advertising
- Direct Mailings
- Meetings
- Telephone Line and Email

Results to Date

- EPRI Process – Route Selection
- PEP Organization
 - KPI Interviews
 - 56 completed
 - 14 declined, some with general comments/letters
 - Workshops -3
 - Open Houses – 4, including Oak Bluff
- Environmental Review of Routes

Sample KPI Results

- All – transportation corridors best suited for Hydro transmission lines
- All – concerns about impacts on agricultural practices
- Environmental – affect important natural features
- Municipal – positive for growth and industry

2.4 Schedule



2.5 Questions on Process

Break 10:10 to 10:25am

3. Breakout Map Exercise

10:25am to 12:40pm

Facilitated Groups of 3 to 4 Stakeholders

1. Maps showing Alternative Route Segments on Workshop tables
 - Based on refinement of Alternative Corridors
 - Top Alternative Routes
 - Different criteria emphasized for each route
2. Checklist of Considerations for Design and Construction
3. Working in groups, discuss and record:
 - Key Issues and Concerns for each Alternative Route Segment
 - Constraints for each Alternative Route Segment
 - Opportunities for each Alternative Route Segment
 - Preferred Route
4. Rationale for Preferred Route
 - Issues and Concerns with Preferred Route
 - Suggested Mitigation Strategies for Preferred Route

. Breakout Map Exercise – Process

For each route segment identified (of 20, e.g. N-2), please discuss and record the following, using the appropriate Workbook pages:

Issues and Concerns

- Complete the chart provided in the Workbook identifying what you think are issues and concerns. Add any others you consider important.
- Include all individual (each team member's) issues and concerns.
- Either address issues and concerns for each Route Segment or just generalize.
- If you are working segment by segment, it may be best to also address the Constraints and Opportunities considerations for each segment in turn.

. Breakout Map Exercise - Process

Constraints

- These are specific development impediments or barriers, including physical and environmental (for example, a house in the proposed ROW)
- Develop a group consensus on each of the constraints, and determine whether they should be considered High, Medium or Low
- Each Route Segment should be addressed, entire Southern Loop

Opportunities

- Complete the ranking of the most important Opportunities
- Either generalize for all Route Segments, or address each individually

Breakout Map Exercise - Process

- Decide jointly on a Preferred Route. (This will include a number of North and South route segments that link together.)
 - Draw the route on the maps using your team colour.
- Using the large sheets of paper provided, identify of your group's Rationale for the Preferred Route
 - Use only 3 points, and also record them in the Workbook
- Identify any issues and concerns your group members have with Preferred Route.
 - Record them on the large sheet, as well as in the Workbook
- Identify any proposed mitigation measures.
 - Record them on a separate large sheet and in the Workbook
- Post the materials – maps and large sheets - on walls.

Lunch 12:40pm to 12:55 pm

4. Summary 12:55pm to 1:40pm

- Groups present their Preferred Routes to all Workshop participants
 - Identify 3 Key Issues
 - Positive and/or negative
- Questions?
- Dot-mocracy (voting on the Preferred Routes and Key Issues)
 - Green Dots – Preferred
 - Red Dots – “Thumbs Down”

Dot-mocracy

- All participants will have an opportunity to “vote” on the Preferred Routes; Rationales, Issues and Concerns, and Mitigation Approaches.
 - Blue dots – agree
 - Red dots – disagree
- Maps - 6 red/6 blue
- Rationale – 3 red/3 blue
- Use the first sets of three blue and three red dots - thumbs up and/or thumbs down for the Preferred Routes
- Use the second sets of blue and red dots to vote on the Rationales, Issues and Mitigation Strategies
 - What you consider important/ or not important

5. Wrap-up 1:40 to 1:45pm

- Immediate Next Steps:
 - Complete Round One Public Open Houses – immediately following
 - Identify Preferred Route based on inputs
 - Complete Environmental Assessment
 - Round Two Public Open Houses with Final Preferred Route



Thank you for attending!

For additional information, please contact:

Trevor Joyal at 204-360-4305

(Please complete your comment sheets!)

Appendix C3

Workshop Workbook and
Summary of Responses

Workshop Date _____

Team No. _____

Workshop - Work Book

St. Vital Transmission Complex

1. **Issues and concerns** regarding the alternative routes. (Please refer to the route segments noted on the maps included with this workbook. If there are no concerns, then circle “No concerns”. Please indicated the importance/level of the issues and concerns by designating them “H”, for High, “M”, for Medium, and “L”, for Low.)

Some examples of issues and concerns might be as follows:

Access to the Right-of-way	Health & Safety Issues	Impacts on Wetlands
Aesthetics of the Line	Location of the Line/Station	Impacts on Wildlife/Wildfowl
Impact on Agricultural Activities	Property Issues	Other:
Construction of the Line	Reclamation	
Economic Considerations	Protection of Vegetation	

a. North Routes, Segment N-1 No Concerns
 (Common to all Alternative Routes.)

b. North Routes, Segment N-2 No Concerns



Workshop Date _____

Team No. _____

c. North Routes, Segment N-3 No Concerns

d. North Routes, Segment N-4 No Concerns

e. North Routes, Segment N-5 No Concerns
(Include Alternative Route between N-2 and N-6)

f. North Routes, Segment N-6 No Concerns

Workshop Date _____

Team No. _____

g. North Routes, Segment N-7

No Concerns

h. North Routes, Segment N-8

No Concerns

i. North Routes, Segment N-9

No Concerns

j. North Routes, Segment N-10

No Concerns

Workshop Date _____

Team No. _____

k. North Routes, Segment N-11
(Common to all Alternative Routes)

No Concerns

l. South Routes, Segment S-1

No Concerns

m. South Routes, Segment S-2

No Concerns

n. South Routes, Segment S-3
(Common to all Alternative Routes)

No Concerns



Workshop Date _____

Team No. _____

o. South Routes, Segment S-4

No Concerns

p. South Routes, Segment S-5

No Concerns

q. South Routes, Segment S-6

No Concerns

r. South Routes, Segment S-7

No Concerns

Workshop Date _____

Team No. _____

s. South Routes, Segment S-8

No Concerns

t. South Routes, Segment S-9
(Common to all Alternative Routes)

No Concerns

2. **Constraints** (physical barriers, impediments, or sensitive sites) along or near the proposed alternative routes. Please note severity as “H”, High (significant constraint), “M”, Medium, or “L”, Low. If there are no constraints, then circle “No Constraints”.

a. North Routes, Segment N-1
(Common to all Alternative Routes)

No Constraints

Workshop Date _____

Team No. _____

b. North Routes, Segment N-2

No Constraints

c. North Routes, Segment N-3

No Constraints

d. North Routes, Segment N-4

No Constraints

e. North Routes, Segment N-5

No Constraints



Workshop Date _____

Team No. _____

f. North Routes, Segment N-6 No Constraints

g. North Routes, Segment N-7 No Constraints

h. North Routes, Segment N-8 No Constraints

i. North Routes, Segment N-9 No Constraints

Workshop Date _____

Team No. _____

j. North Routes, Segment N-10 No Constraints

k. North Routes, Segment N-11 No Constraints
(Common to all Alternative Routes)

l. South Routes, Segment S-1 No Constraints

m. South Routes, Segment S-2 No Constraints

Workshop Date _____

Team No. _____

n. South Routes, Segment S-3
(Common to all Alternative Routes)

No Constraints

o. South Routes, Segment S-4

No Constraints

p. South Routes, Segment S-5

No Constraints

q. South Routes, Segment S-6

No Constraints

Workshop Date _____

Team No. _____

r. South Routes, Segment S-7

No Constraints

s. South Routes, Segment S-8

No Constraints

t. South Routes, Segment S-9
(Common to all Alternative Routes)

No Constraints

Workshop Date _____

Team No. _____

- 3. Opportunities (for co-location, sites needing power) along or near the proposed alternative routes. Note importance as “H”, High (significant opportunity), “M”, Medium, or “L”, Low.

Some site factors for transmission lines:

Factors	Rank (1 to 3)
Parallel existing transmission infrastructure	
Follow existing roadways	
Follow existing rail lines	
Follow existing drainage ditches	
Follow mile (Section) lines	
Follow half-mile (Quarter-section) lines	
Avoid agricultural lands (typically grain and oilseed)	
Avoid forest and natural areas	

- a. North Routes, Segment N-1 (Common to all Alternative Routes)

- b. North Routes, Segment N-2

- c. North Routes, Segment N-3

Workshop Date _____

Team No. _____

d. North Routes, Segment N-4

e. North Routes, Segment N-5

f. North Routes, Segment N-6

g. North Routes, Segment N-7

h. North Routes, Segment N-8

Workshop Date _____

Team No. _____

i. North Routes, Segment N-9

j. North Routes, Segment N-10

k. North Routes, Segment N-11 (Common to all Alternative Routes)

l. South Routes, Segment S-1

Workshop Date _____

Team No. _____

m. South Routes, Segment S-2

n. South Routes, Segment S-3
(Common to all Alternative Routes)

o. South Routes, Segment S-4

p. South Routes, Segment S-5

Workshop Date _____

Team No. _____

q. South Routes, Segment S-6

r. South Routes, Segment S-7

s. South Routes, Segment S-8

t. South Routes, Segment S-9
(Common to all Alternative Routes)

Summary of Team Notes for Route Segments

Date	Team Color	Segment ID	Constraint	Concerns	Benefits	Dotmocracy
20/08/2013	Green	N1	-	First half of line is agricultural land, existing residential development	potential bike path partnership/development	-
20/08/2013	Yellow	N1	-	-	-	-
21/08/2013	Blue	N1	-	-	Brief parallel ok, no concerns	-
21/08/2013	Green	N1	-	-	Minimal impact to MIT right of way and infrastructure	-
22/08/2013	Blue	N1	area likely to be designated as residential- labeled on map	-	No concern	-
22/08/2013	Green	N1	-	Floodway crossing- bird strikes- divertors, new path needed for avoidance	-	+1
22/08/2013	Purple	N1	No constraints	Distance from water courses, flight path of migratory birds, riparian buffer, little intact connecting habitat connecting parcels, right angle crossing of Seine	-	-
20/08/2013	Green	N2	-	High concern- lots of corners, more land impacted, 'Separation to the rural residential	-	-
20/08/2013	Yellow	N2	Tache development - prompt change	-	The segment is not straight, but the area in question has numerous constraints, therefore the staircase tends to decrease the impact on residential and commercial	+3 -3 = 0
21/08/2013	Blue	N2	-	Cuts through dairy farm - proximity to production facility-stray voltage more of a concern than proximity to pasture, not preferred but little other options	Maintained gravel road, low traffic, MIT preferred because of PTH crossings and intersection	-13 +1 = -12
21/08/2013	Blue	N2 Alternative (not selected as preferred route)	-	-	-	-
21/08/2013	Green	N2	-	More angle towers required, too long, larger footprint- high concern, homes in area constrained by flooding, so development an issue	2 PR crossings, better than paralleling road, longer than N3, but N3 doesn't get us as far	-
22/08/2013	Blue	N2	-	Length, route outside of corridor, convoluted and unknown constraints	Preferred over N3	-
22/08/2013	Green	N2	Residences in flooded areas, so homes are constrained by flooding already and not just built anywhere	Lots of jogs	Parks ok with this route	-
22/08/2013	Purple	N2	-	Impediments to agricultural operations- alignment appears to be through fields, not along existing roads, intersection on Seine River, more and better quality habitat (isolated pockets) on East side	-	-
20/08/2013	Green	N3	-	-	Potentially fewer yard sites, shorter than N2	+1, -1 = 0
20/08/2013	Yellow	N3	-	-	-	-
21/08/2013	Blue	N3	-	Tower height at Hwy 59, 210 intersection possible twinning and at intersection (potential up to 52 twinning), two crossings of Hwy 59	Dairy farms further away than N2 located, straight line preferred over N3, Still in proximity to dairy operations, but N3 further away than N2	-1
21/08/2013	Blue	N3 Alternative (not selected as preferred route)	-	-	-	+2 -1 = +1
21/08/2013	Green	N3	Potential flood issue	2 HWY 59 crossings: Diagonal crossing - high concern, 90 ° crossing - medium concern, homes in area constrained by flooding, so development an issue	Preferred over N2 because it is shorter, following an existing developed area	+8 -4 = +4
22/08/2013	Blue	N3	east of N3-area identified on map that was purchased for future lagoon expansion (completed by 2014), landfill and lagoon identified on map. North of lagoon to be developed for residential, need coordination with the RM (more info needed). 160 acres purchased and shown on map.	Future landfill expansion and residential development- RM of Richot- high concern	MMF preferred route. This land (landfill, lagoon etc) likely not used by MMF, potential to share land with landfill and lagoon	-
22/08/2013	Green	N3	-	-	Parks ok with this route, subdivisions are outside of this area	-4 + 1 = -3

Summary of Team Notes for Route Segments

Date	Team Color	Segment ID	Constraint	Concerns	Benefits	Dotmocracy
22/08/2013	Purple	N3	No constraints		Preferred over N2 due to better quality habitat near N2	-3
20/08/2013	Green	N4	-	If the line is too offset from the Manning Canal, it will be affecting farming practices	A benefit if the line is close enough to the ditch because it follows the Manning Canal, potentially less people are affected	-1
20/08/2013	Yellow	N4	-	-	-	-
21/08/2013	Blue	N4	-	-	MB Dairy Farmers Ok, KAP indifferent, least preferred by Conservation	-
21/08/2013	Green	N4	-	-	Minimal impacts to the farmer. Farmer already impacted by the canal	+4
22/08/2013	Blue	N4	depends on lagoon constraint	-	preferred over N6	-
22/08/2013	Green	N4	-	Minor concern of waterway	Parks ok with this route	-
22/08/2013	Purple	N4	Few constraints	Channel provides waterfowl habitat - waterfowl require a certain area for landing, potential habitat along drain		-
20/08/2013	Green	N5	-	-	-	-
20/08/2013	Yellow	N5	-	-	-	-
21/08/2013	Blue	N5	-	-	No major concerns	-
21/08/2013	Green	N5	-	Potential impact for one RM depending on routing, homes in area constrained by flooding, so development an issue		+1
22/08/2013	Blue	N5	No constraints	-	shorter piece of N5 is preferred	-
22/08/2013	Green	N5	-	-	Parks ok with this route	-
22/08/2013	Purple	N5	No constraints			-
20/08/2013	Green	N6	-	-	More direct than N4	-
20/08/2013	Yellow	N6	-	-	-	-
21/08/2013	Blue	N6	canal future expansion, PTH 59 might go around new growth just west of N6. Entire area pocketed with small subdivisions and rural neighborhoods	-	MB Dairy Farmers Ok, KAP either or	-1
21/08/2013	Green	N6	-	Potential for relocation conflicts with Hwy 59 twinning - high concern		-
22/08/2013	Blue	N6	depends on lagoon constraint	bisects residential development to E & W- potentially low concern	-	-
22/08/2013	Green	N6	-	Potential for subdivision, why go through least preferred circle- depends what the circle is		-
22/08/2013	Purple	N6	Few constraints		Follows roads, less agricultural impact	-
22/08/2013	Green	N6 Alternative (N6-1)	-	possible subdivisions	Minimize crossing at PTH 59 (only crosses once) - avoids junction at PR 210	+4 -3 = +1
20/08/2013	Green	N7	Agriculture operations circled on map - livestock constraint - high concern	-	-	-
20/08/2013	Yellow	N7	-	-	-	+1 -1 = 0
21/08/2013	Blue	N7	at Hwy 52, sensitive wetland and Tourond Discovery Centre- backed by KAP. Massive chicken operation.	Paralleling Hwy 52 as opposed to crossing once, large poultry	-	-1
21/08/2013	Green	N7	Cemetery identified on map, Bipole final routing uncertain	Potential future upgrade of Hwy 59 - high concern		+2 -3 = -1
21/08/2013	Green	N7 Alternative (N7-1)	-	-	Go around landfill identified on map	-4 +3 = -1
22/08/2013	Blue	N7	-	-	More direct when connected with N10	-3
22/08/2013	Green	N7	-	-	preferable	-
22/08/2013	Purple	N7	-	Wetland near PTH 52 junction - proximity - need to avoid		-
20/08/2013	Green	N8	Agriculture operations circled on map - livestock constraint - high concern	-	-	-
20/08/2013	Yellow	N8	-	-	-	-1
21/08/2013	Blue	N8	Aerial applicators	2 jogs, not well travelled, aerial spraying and ROW	Dairy farmers of MB and MIT preferred route, SRCD indifferent	-

Summary of Team Notes for Route Segments

Date	Team Color	Segment ID	Constraint	Concerns	Benefits	Dotmocracy
21/08/2013	Green	N8	Cemetery identified on map	1/2 mile line less preferred for farmers, 52 crossing- high concern	Crossing with 52 is preferred compared to N7	-
22/08/2013	Blue	N8	-	Less direct than N7 (depending on what segment it is connecting to), not on RM boundary line	-	-
22/08/2013	Green	N8	-	substantial development - industry and commercial, east/west direction of lines- may result in bird strikes	-	-
22/08/2013	Purple	N8	-	-	Not as intrusive as N7	-
20/08/2013	Green	N9	Agriculture operations circled on map - livestock constraint - high concern	-	May impact fewer livestock operations than N7 or N8	-1
20/08/2013	Yellow	N9	-	-	-	-
21/08/2013	Blue	N9	-	Paralleling Hwy 52 as opposed to crossing once, dairy farms, hog operation proximity	SCRD indifferent, KAP preferred, MIT not preferred (re: discussion with MH/MIT)	+6 -6 = 0
21/08/2013	Green	N9	-	52 crossing and Bipole III final routing - high concern, future plans for Hwy 52 and 59	Potential Hwy 59 parallel - same ROW or adjacent to-benefit, depends on MIT plans	-
22/08/2013	Blue	N9	-	Segment outside of study area (corridor), consider showing to 5% of corridor to see if this is a big impact	-	-
22/08/2013	Green	N9	Possible staging and feed	Possible waterfowl staging and feeding area south of connection, native habitat	-	+1
22/08/2013	Purple	N9	-	-	N9 ok until 1 mile south of 52, then jog east (alternative N9-1) to connect to N-10 to avoid creek to the west	-
22/08/2013	Green	N9 Alternative (N9-2)	-	-	Moving north from staging and feeding area (located south of connection in terms of N9), clearing space further from line and location of N9 Alternative would mitigate concern with birds	+2
22/08/2013	Green	N9 Alternative (not selected as preferred route)	-	-	would mitigate concern with birds	-
22/08/2013	Purple	N9 Alternative (N9-1)	-	-	N9 ok until 1 mile south of 52, then jog east (N9-1) to connect to N-10 to avoid creek to the west	+2
20/08/2013	Green	N10	Potential municipal lagoon location (located on map)- low concern	-	-	-
20/08/2013	Yellow	N10	-	-	-	+1
21/08/2013	Blue	N10	-	Dairy operations between N9 and N10	MB Dairy preferred route/issues with N10	-
21/08/2013	Green	N10	Municipal lagoon (Kleefeld) indicated on map. Don't want to span over lagoon. West side of line preferred because of lagoon and Tourond drain	-	straddling a municipal boundary, west side of line will minimize impact on residents on Hanover side	+1
22/08/2013	Blue	N10	-	-	Follow RM boundaries - it can reduce conflicts between RMs - equal impact to both RMs	+1
22/08/2013	Green	N10	-	east of Hwy 75 (close to Red River crossing) a high number of geese, tree stand and wintering area - avoid taking down trees (leave trees), airstrip, don't want to cross through river lots, need to speak to landowner	-	-
22/08/2013	Purple	N10	-	-	N9 ok until 1 mile south of 52, then jog east (N-91) to connect to N-10, then south to N-11	-
20/08/2013	Green	N11	-	Barn identified on map (5 structures) - high concern, livestock, potentially dairy farms, designated rural residential identified east of N11	-	-
20/08/2013	Yellow	N11	-	-	-	-
21/08/2013	Blue	N11	Road used for water retention and has been raised in the past- it is the first line of defense for the village from flooding, but not impacted by trans line	Hog operations close to northern section of N11- labeled on map, southern section of N11 in conflict with dairy operations, riding stables almost under N11	-	-

Summary of Team Notes for Route Segments

Date	Team Color	Segment ID	Constraint	Concerns	Benefits	Dotmocracy
21/08/2013	Blue	N11 Alternative (N11-5)	-	-	Proposed for safety, distance to livestock and avoid horse stable, close to hog operations on northern portion of N11	+7
21/08/2013	Green	N11	Dairy farms indicated on map - high, Landfill and Trans-Canada Trail and organic century farms identified on map	Unnamed creek and Joubert Crossing, some clearing - low concern	straddling a municipal boundary	-
21/08/2013	Green	N11 Alternative (N11-6)	-	A lot of natural land - potential environmental concern	Avoids dairy and incorporates Crow Wing trail	+6
22/08/2013	Blue	N11	-	-	Follow RM boundaries	+1
22/08/2013	Green	N11	-	Crossing of River and marsh	-	-
22/08/2013	Green	N11 alternative (not selected as preferred route)	-	Closer to St. Pierre, so might get more push back	Route pending review	-
22/08/2013	Purple	N11	-	Concern with river crossing/paralleling riparian zone and conserving riparian zone, impact. Suggest follow existing roadway to minimize impact	Along ROW, less impact to residences	-
20/08/2013	Green	S1	-	Livestock operations identified on map - high concern	Fewer livestock operations in S1 than S2	-
20/08/2013	Yellow	S1	-	Physical crossings. No concern with parallel.	-	-
21/08/2013	Blue	S1	-	Possible conservation easements along the Rat River	Conservation OK	-1
21/08/2013	Green	S1	-	Airstrip proximity identified on map (less preferred to N11), paralleling Hwy 59	Well maintained road	-
22/08/2013	Blue	S1	-	Depends on future connection with Grunthal, MMF concerned with impacts on waterbody- examine how line would be constructed - would access be removed, MMF would want input on operational practices ie. cutting vs spraying and access	-	-
22/08/2013	Green	S1	-	Proximity to pond not preferred	-	-
22/08/2013	Purple	S1	-	woodland/forest, stream crossing, wetlands, equal impacts between S1 and S2 (no immediate obvious choice between the two)	-	-1
20/08/2013	Green	S2	-	Livestock operations identified on map - high concern	-	-
20/08/2013	Yellow	S2	-	-	No concern	-
21/08/2013	Blue	S2	-	Multiple stream crossings, less preferred by MB Dairy	MIT preferred/conservation ok	-
21/08/2013	Green	S2	Coulee located here (but runs dry)- not a high concern	-	One 59 crossing and gravel road- preferred over S1, aerial applicator not as impacted as N11	+2
22/08/2013	Blue	S2	-	3 water body crossings and access concerns, max intrusion at crossing at junction of 2 watersheds, flooding and erosion - major concern, route selection depends on connection at Grunthal	Less concerns than S1 due to simplicity reasons, less impact on river (not paralleling river)	-
22/08/2013	Green	S2	-	-	Location of ponds preferred as they are further away, multiple stream crossings, but lower class habitat - can mitigate with bird divertors, one angle structure preferred, S2 preferred over S1	-
22/08/2013	Purple	S2	-	woodland/forest, stream crossing, wetlands, equal impacts between S1 and S2 (no immediate obvious choice between the two)	-	-
20/08/2013	Green	S3	Larochelle was inundated in 1997 flood	Prime agricultural land - high concern	-	-
20/08/2013	Green	S3 Alternative (S3-4)	-	-	Minimize impacts on agriculture and maximize use of ROW/transportation corridors	-3 +3 = 0
20/08/2013	Green	S3 Alternative (S3-5)	-	-	Avoid landing strip and prime agricultural land	+10-3 = +7
20/08/2013	Yellow	S3	-	to be reviewed with MIT upon decision, "Drain" connects to Rat River	-	-
21/08/2013	Blue	S3	-	SRCD landowner	MIT preferred/KAP OK/Conservation ok/Dairy OK	-
21/08/2013	Blue	S3 Alternative (S3-6)	-	-	MB Dairy/MIT preferred route	-9 +1 = -8

Summary of Team Notes for Route Segments

Date	Team Color	Segment ID	Constraint	Concerns	Benefits	Dotmocracy
21/08/2013	Green	S3	-	Prefer to be on east side of road to avoid landowner- high concern	Follows gravel road before it jobs south - benefit from Municipal perspective	+3
22/08/2013	Blue	S3	-	water crossings - high concern, environmental impact and access	-	-
22/08/2013	Green	S3	-	-	-	-
22/08/2013	Purple	S3	No constraints	-	-	-
20/08/2013	Green	S4	-	Larger parcels and larger equipment - maneuverability a concern, prime agricultural land	-	-
20/08/2013	Yellow	S4	Unmaintained, stay on the west side because there is a creekbed: huge provincial drain that always backs up	-	Descent, clear path	-
21/08/2013	Blue	S4	-	SRCD landowner	MIT preferred/KAP OK	+2
21/08/2013	Green	S4	St. Malo lagoon identified east of S4 on map	-	De Salaberry Wind Co-op east of S4 - identified on map, less impact on highways	+2
22/08/2013	Blue	S4	-	-	straighter/more simpler than S6	-1
22/08/2013	Green	S4	-	-	Clear strip- no obstruction, straighter route so preferred	-
22/08/2013	Purple	S4	No constraints	-	Preferred over S6	-
20/08/2013	Green	S5	-	Barns identified on map - high concern	-	-
20/08/2013	Yellow	S5	unmaintained-stay within road allowances	-	-	-
21/08/2013	Blue	S5	-	-	No major concerns from dairy perspective	-
21/08/2013	Green	S5	-	-	Municipal Boundary	-
22/08/2013	Blue	S5	-	-	On a municipal boundary	-1
22/08/2013	Green	S5	-	Close to Dufrost	-	-
22/08/2013	Purple	S5	No constraints	-	-	-
20/08/2013	Green	S6	-	Barns identified on map - potential livestock operations - high concern	-	-
20/08/2013	Yellow	S6	Trans Canada Pipeline ROW (200 ft of ROW) in field alignment would be needed. Preliminary work being done for additional oil pipe.	-	Gravel road maintained	-
21/08/2013	Blue	S6	-	2 miles parallel not preferred	-	-
21/08/2013	Green	S6	-	Parallel Hwy 23, railway near by	Less impact compared to S4	-
22/08/2013	Blue	S6	-	Less direct than S4	-	-
22/08/2013	Green	S6	-	-	-	-
22/08/2013	Purple	S6	Has a few more constraints from the model	Few more least preference- use S4	-	-
20/08/2013	Green	S7	-	Close location to aerial applicator - high concern	Further than S8 from aerial applicator, but still within buffer	-
20/08/2013	Green	S7 Alternative (S7-1)	-	-	Avoid landing strip	1
20/08/2013	Yellow	S7	Unmaintained except where defined on map. Runway (mile minimum). Lower towers needed	-	Maintained Roadway shown on map (C1)	-
21/08/2013	Blue	S7	Study being undertaken by KGS for raising Hwy 75 - potential construction clash	-	Preferred because of the flooding that occurs near Reserve, no dairy concerns, parallels only a PR, so MIT Ok	-
21/08/2013	Green	S7	Potential Hwy 75 raises - high concern, rail crossing identified on map	Parallel concern for PR 217 and PTH 75 - limited ROW available	-	-
22/08/2013	Blue	S7	-	outside of corridor for Red River crossing and impacting river	Further from exclusion zones (First Nation), uses more existing infrastructure than S8, more direct (likely preferred to S8 but have to look at current land use), avoids Reserve land	-7 + 1 = -6
22/08/2013	Green	S7	-	landing airstrip, river crossing (east side of the river) because of development, don't want to cross through river lots	Preferred over S8 because it avoids landing strip, preferable to stay north of landing strip	-2

Summary of Team Notes for Route Segments

Date	Team Color	Segment ID	Constraint	Concerns	Benefits	Dotmocracy
22/08/2013	Green	S7 Alternative (S7-2 and incorporates part of S8)	-	-	Preferred - Safety, north of landing strip, avoids river lots, residential, advantage of mile line, prefer north of road	+10 -5 = +5
22/08/2013	Purple	S7	-	Streams	Further away from Roseau than S8, less concerns than S8, fewer stream crossings	-4 +2 = -2
20/08/2013	Green	S8	-	Barn indicated on map- high concern, aerial applicator location - high concern, due to number of corners may have a larger footprint on agricultural land	-	-
20/08/2013	Yellow	S8	Overlap concerns on line on 200 (east), dirt road and in winter is unmaintained and labeled on map as C6, stay within road allowances as S8 is unmaintained, yards indicated on map (C4)	Aerial applicators, split fields - issues with landowners and easements	Maintained Roadway, a small section highlighted on map is maintained by the RM. Maintained identified as C2 on map. (1/2 full glass-use shortest towers)	-
20/08/2013	Yellow	S8 Alternative (S8-5)	-	-	follows marginal land	+4
21/08/2013	Blue	S8	-	Lot of angles and turns	No dairy concerns	+1
21/08/2013	Blue	S8 Alternative (S8-6)	-	Crossing the Roseau River- high flows and velocities, require a larger span than crossing the marsh	Less paralleling than S7	-2 +1 = -1
21/08/2013	Green	S8	rail crossing identified on map	-	Less parallel on highways than S7	-2 +1 = -1
22/08/2013	Blue	S8	-	impacting river crossing, less direct than S7, closer to First Nation - maybe Métis use as well	-	+1
22/08/2013	Green	S8	-	east of Hwy 75 (close to Red River crossing) a high number of geese, tree stand and wintering area - avoid taking down trees (leave trees), airstrip, don't want to cross through river lots, need to speak to landowner	Preferable river crossing because less development	-1
22/08/2013	Purple	S8	-	Closer to Roseau and potential glide path interference (S8 less preferable)	-	-
20/08/2013	Green	S9	-	If the line is not paralleling an existing line, it is dissecting agricultural land	If parallels an existing line - benefit	-1
20/08/2013	Yellow	S9	Cross at Hwy 75 would have to be underground. Truck haul route. "Super expressway" work on 8, 16, 10, 1, 75 in progress. (also underground required)	Span and cross 75. Property and easements likely to go expropriate. Old PTH 14-dwelling concerns	-	-
21/08/2013	Blue	S9	Study being undertaken by KGS (from St. Jean to Morris) for raising Hwy 75 - potential construction clash, raise bridge in St. Jean Baptiste	Seedex, windfarm and Letellier grain separation on west side of Letellier	-	-
21/08/2013	Green	S9	-	-	No concern	-2 +2 = 0
22/08/2013	Blue	S9	-	-	Visual impacts already exist and route is along an existing corridor	-
22/08/2013	Green	S9	-	-	No issue as long as windmills taken into consideration	-
22/08/2013	Purple	S9	-	-	Parallel to Hwy 75	-

Workshop Team Rational for Route Selection

Group	Date	Rationale for Route Selection	Dot Mocracy Segment Votes for Rationale (each blue = +1 each red = -1)
Yellow	20/08/2013	Uses more 'marginal' lands	+2
Yellow	20/08/2013	Less agricultural and aerial application interference	+2
Yellow	20/08/2013	Uses PR/PTH ROW where possible	+2
Yellow	20/08/2013	Less homes/businesses affected - S4 & S3 preferred and S1 & S2 pending dwellings & Rat River Crossing	+2
Green	20/08/2013	Minimize impacts on agriculture (land and operations) and residences	+2
Green	20/08/2013	Maximize use of government right of ways and transportation corridors	+2
Green	20/08/2013	Straight routes preferred	-
Green	20/08/2013	Fair compensation for land (overarching criteria)	+1
Blue	21/08/2013	Minimize major PTH crossings	-
Blue	21/08/2013	No parallel of PTH/PR	+2
Blue	21/08/2013	Avoidance of dairy (preferably by at least 1 mile)	+2
Blue	21/08/2013	Follow existing ROWs (MH,water)	-
Blue	21/08/2013	No 1/2 mile allowance (edge of field)	+2
Green	21/08/2013	Utilize existing municipal right of way and minimize impact on major provincial roads	+1
Green	21/08/2013	Minimize impact on agricultural and natural areas	+2
Green	21/08/2013	Opportunities for beneficial co-location with trails and proximity to De Salaberry wind Co-op and Trans Canada Trail	+4
Green	21/08/2013	Future PTH 59 and 52 twinning and Bipole III final routing	+4
Blue	22/08/2013	Follow existing corridors & political boundaries	-
Blue	22/08/2013	Simplicity of route	-1
Blue	22/08/2013	More information needed on specific areas	+3
Green	22/08/2013	Avoidance of residential and commercial/industry	+2
Green	22/08/2013	Avoidance of ecological and protected areas	+2
Green	22/08/2013	Aerial application and irrigation to be considered	+1
Green	22/08/2013	Avoidance of urban and high density areas	+1
Green	22/08/2013	Minimize east/west alignment	-
Green	22/08/2013	S7-1 - safety, aerial application, residential	-
Green	22/08/2013	N6-1 - min crossing at PTH 59 (avoids junction at PR 210)	-
Green	22/08/2013	N9-1 - moving north from staging and feeding area	-
Purple	22/08/2013	Minimize impacts to existing, intact wildlife - habitat and natural areas	+2
Purple	22/08/2013	Minimize impacts to farming operations	+3
Purple	22/08/2013	Minimize overall impacts by using existing infrastructure corridor ie. minimizing footprint of project	+3
Purple	22/08/2013	Recognizing the exercise of treaty and aboriginal rights by minimizing the project footprint	+1

Workshop Proposed Mitigation Measures

Group	Date	Mitigation Measures	Dot Mocracy Segment Votes for Mitigation (each blue = +1 each red = -1)
Yellow	20/08/2013	-	-
Yellow	20/08/2013	-	-
Yellow	20/08/2013	-	-
Yellow	20/08/2013	-	-
Yellow	20/08/2013	-	-
Yellow	20/08/2013	-	-
Yellow	20/08/2013	-	-
Green	20/08/2013	To mitigate biosecurity issues (diseases- crop and animal)and spread of noxious weeds - follow Noxious Weeds Act	-
Green	20/08/2013	Contact Landowners and Producers	-
Green	20/08/2013	Avoid designated and zoned residential areas/residentially developed lands	+1
Blue	21/08/2013	No team consensus for N2-N6. Alternatives presented to mitigate	-
Blue	21/08/2013	Dairy farms mitigated by using N-11 alternative	-
Blue	21/08/2013	S8 alternative- avoids PTH 75, 1 mile south of PR201 and stream vs marsh crossing	-
Green	21/08/2013	Open communication with Trails Association (timing, detours etc.) & MIT (planning for Hwy 59)	-
Green	21/08/2013	Functional study of PTH 59 & PTH 52 to be completed	+3
Blue	22/08/2013	Areas where additional information is required to make decisions on routing are identified: information needed for informed decisions	+2
Green	22/08/2013	Avoid east/west alignment	+1
Green	22/08/2013	Bird diverters used in specific areas	-
Purple	22/08/2013	Reclamation Recommendations - replace with native plants, particularly grass species - what has been removed has to be compensated ie. no net loss	+3
Purple	22/08/2013	Recommendation: Minimize footprint on agricultural land	+2

Appendix C4

Workshop Comment Sheet and
Responses

St. Vital Transmission Project

Date _____

Comment Sheet

1. What organization /department do you represent?

2. What do you think of the EPRI methodology that was used in determining the Alternative Routes?

Very Appropriate Somewhat Appropriate Not Appropriate Don't Know

3. Please provide any general comments you may have regarding the proposed St. Vital Transmission Complex.

4. How did you like the Stakeholder Workshop? Liked Disliked No Opinion

Why? _____

Please return you comment sheet to a Manitoba Hydro or AECOM representative at the Workshop or complete it later and email, fax or mail your response to: Don Hester, AECOM, 99 Commerce Dr., Winnipeg, MB, R3P 0Y7
Don.Hester@aecom.com



Workshop Comment Forms

Date	2a. What do you think of the EPRI methodology that was used in determining the Alternative Routes?	2b. Comments	3. Please provide any general comments you may have regarding the proposed St. Vital Transmission Complex.	4a. How did you like the Stakeholder Workshop?	4b. Why?
20-Aug-13	Somewhat Appropriate	-	Should have had more info explaining width of ROW/footprint of the tower, this would have made it easier to select line location	Liked	Expect to be able to express our opinion
20-Aug-13	Somewhat Appropriate	Needs to encompass more data	Try to use existing ROW or Provincial roadway system where possible	Liked	Good presenters; very knowledgeable
20-Aug-13	Appropriate	Worked well, although some of preferred route fell outside of corridor	Not sure I have any specific other than to reinforce preferred criteria: Follow MIT ROWs where possible Avoid developed areas Preserve productive land (ag or natural)	Liked	Worked well for me.
20-Aug-13	Somewhat Appropriate	Good to get a general idea but needs input as site specific can't be known	Good to parallel GRA/existing PR/PTH Avoid residential (designated zoned or dvlp'd)	Liked	Gave some ownership to design process allows people to feel engaged/as though they can alter/impact design
20-Aug-13	Somewhat Appropriate	Didn't place enough importance on the impacts on prime agricultural land and agricultural operations (overall route consisted of only prime agricultural land)	Has significant potential impacts on agriculture - this should be considered during route selection More info on tower footprints, height, ROW size should be given up front to better assess potential impacts	Liked	Well organized; group facilitator was very helpful in keeping route selection/discussion on track.
21-Aug-13	Somewhat Appropriate	It was an appropriate exercise	It's important to receive input from stakeholders to create acceptance of proposed routes - I hope these things will be seriously considered.	Liked	There seemed to be a genuine desire to receive further input from various stakeholders.
21-Aug-13	Very Appropriate	Great model, really appreciated the freedom to draw in new routes	Tourond Creek Discovery Centre needs to be avoided!!! Need to address concern from MIT water control re. paralleling waterways, especially Provincial waterways	Liked	Greatly appreciated the invitation. Great facilitation - Trevor & Don were a wonderful help!
21-Aug-13	-	-	More consultation will be required with MIT to any alignment crossing or adjacent to provincial roadways as to specific alignments, offsets & pole tower placements	-	Would be better if done in time allotted - time specified was 9-1:30; started late & ran longer. I had other items planned in my day that put my daily schedule out.
21-Aug-13	Very Appropriate	-	Minimizing impacts to highways can save the taxpayers lots of money	Liked	It gives a good opportunity to see what the project is about
21-Aug-13	Very Appropriate	Very scientific	The new transmission complex is very much NEEDED!	Liked	Good blend of types of organization involved
21-Aug-13	Very Appropriate	Fact finding is best approach.	Within City of Wpg, not really an issue as proposed line on existing (Sage Creek) ROW & easement and/or land purchased along south loop plus floodway alignment (out of sight-out of mind)	Liked	Good to discuss with various stakeholders as it has to go somewhere-need consensus. Very well organized but a bit long-a bit too repetitious
21-Aug-13	Very Appropriate	-	Good luck on the project.	Liked	Got to comment/pick a possible alignment.
21-Aug-13	Somewhat Appropriate	As a group project-this seemed helpful	Some routes can be adjusted to mitigate concerns from various groups	Liked	-
22-Aug-13	Somewhat Appropriate	-	Need to find best method for contacting stakeholders in proposed route areas to ensure meaningful dialogue and to readily ID problem areas.	Liked	Appreciate opportunity for our stakeholder group to be "kept in the loop"
22-Aug-13	Somewhat Appropriate	The discussion, presentation and process was a good way to understand the routing and look at any options that are practical	-	Liked	Created a good [understanding] of the routing & the challenges to be dealt with.
22-Aug-13	Somewhat Appropriate	-	Concerned with planning districts/municipality development plans & zoning criteria. R.E: Siting Model	Liked	Diversity of participants
22-Aug-13	Somewhat Appropriate	-	Need more info on impacts.	Liked	-
22-Aug-13	Somewhat Appropriate	-	No specific comments or concerns	Liked	Thorough and interactive. Better distribution of professional backgrounds in working groups would be an improvement.

Workshop Comment Forms

Date	2a. What do you think of the EPRI methodology that was used in determining the Alternative Routes?	2b. Comments	3. Please provide any general comments you may have regarding the proposed St. Vital Transmission Complex.	4a. How did you like the Stakeholder Workshop?	4b. Why?
22-Aug-13	-	The software itself seems fine but is only as useful as the data inputs. There are a variety of items that if input, may have caused/created a completely different corridor to be generated.	The project will impact the use of lands and resources of the MB Métis community. The MMF looks forward to working with MB Hydro to minimizing the level of impact.	Liked	The workshop was fine. A broaden section of people/ reps would have been more useful. Ie) it is difficult to make routing decisions without MCWS reps in the group.
22-Aug-13	Somewhat Appropriate	Lacks data rigor. Not enough detailed inputs	-	Liked	Allowed for input and good discussions.
22-Aug-13	Somewhat Appropriate	If proposed line diverts outside the study corridor, maybe those ppl affected were not contacted to participate and are outside the process & maybe new data would be needed in that case-field wk would not have been done - original data overlays (detail) is lost in the cumulative approach-ie. where are the provincial parks, etc.	Within City of Wpg, not really an issue as proposed line on existing (Sage Creek) ROW & easement and/or land purchased along south loop plus floodway alignment (out of sight-out of mind)	Liked	Logical plus based on science.
					Respects accepted practice for public engagement (IAP2)
					Did you invite professional associations (APEGM, MPPI, MALA, MAA, PIDIM)?

Round 1 Public Open Houses

Appendix D1

Newsletter, Postcard,
Landowner Letter, Open House
Advertising – Round 1



Proposed St. Vital Transmission Complex Round 1 - Alternative Routes

Round 1 - Alternative Routes

Project need

In order to improve system reliability and accommodate the growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt (kV) transmission lines, both originating at the St. Vital Station, located in southeastern Winnipeg. One line will run south to the Letellier Station and the other will run west to the La Verendrye Station located near the community of Oak Bluff.

Project description

The new line between the St. Vital and La Verendrye stations will be located on an existing Manitoba Hydro right-of-way south of Winnipeg known as the Southern Loop. This portion of the Project will enable the Winnipeg electrical network to withstand various severe outages, improve performance during normal operation and promote the reliability of the power system in southern Manitoba.

Project location

The new line between St. Vital Station and the Letellier Station will be routed through south central Manitoba, near Steinbach, to accommodate a potential future 230-kV station. This portion of the Project is required to address load and voltage concerns in the south central area of Manitoba due to load growth.

Environmental characterization underway

Manitoba Hydro has begun to collect information that will contribute to the selection of a transmission line route and environmental assessment of the Project. Once a route is determined, this information will help the Project team understand the landscape in order to determine any potential effects the Project may have on:

- physical, terrestrial and aquatic environments.
- heritage resources.
- land use.
- socio-economic environment.

Project Facts

The proposed St. Vital Transmission Complex includes two 230-kV transmission lines. Both will start at the St. Vital Station located in southeastern Winnipeg:

- One new line will run south to the Letellier Station, passing close to Steinbach.
- The other new line will run to La Verendrye Station, within an existing right-of-way known as the Southern Loop.

The engagement process includes:

- Round 1, August 2013: presentation of alternative routes.
- Round 2, October 2013: presentation of preferred route.

The Project's Environmental Assessment Report is scheduled to be submitted in December 2013.

The anticipated Project completion date is 2017.

Route Selection and Environmental Assessment Processes

Manitoba Hydro is piloting a new process to develop alternative routes for the St. Vital to Letellier transmission line. Known as EPRI-GTC Methodology, this process allows for early stakeholder input and incorporates engineering, built and natural environment considerations. The process involves stakeholders identifying, weighting and scoring alternative corridor selection factors, leading to the identification of alternative corridors to begin siting alternative routes. Feedback provided will assist in the identification of a preferred route for the new transmission line.

The development of the proposed transmission lines will require a Class 2 licence under *The Environment Act* (Manitoba). An environmental assessment generally consists of:

- characterization of the environment.
- identification of potential effects on people and the environment.
- determination of methods to avoid or reduce potential effects while enhancing beneficial effects.

The environmental assessment, including the public engagement process, will be documented in an Environmental Assessment Report and is anticipated to be submitted to regulatory authorities by end of 2013.



Engagement Process

Manitoba Hydro will undertake two rounds of engagement to gather feedback at different stages in the transmission line and assessment processes. The engagement process will include discussions with landowners, First Nations, the Manitoba Metis Federation, municipalities and other stakeholders.

Manitoba Hydro will:




- inform the public regarding the Project, timelines and route selection process.
- utilize a variety of mechanisms to receive and share information with interested individuals.
- gather feedback on the local environment to assist routing the transmission lines as well as the environmental assessment.
- provide opportunities to have questions answered and concerns addressed by Manitoba Hydro representatives.

Manitoba Hydro will undertake stakeholder workshops, open houses and meetings to collect information which will assist with determining a route that minimizes the impact on people and the environment.



Alternative Routes

St. Vital Transmission Complex







Project Infrastructure

-  Composite Alternative Route Corridor
-  Alternative Routes for the St. Vital to Letellier Transmission Line
-  St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)

Infrastructure

-  Transmission Line
-  Electrical Station

Landbase

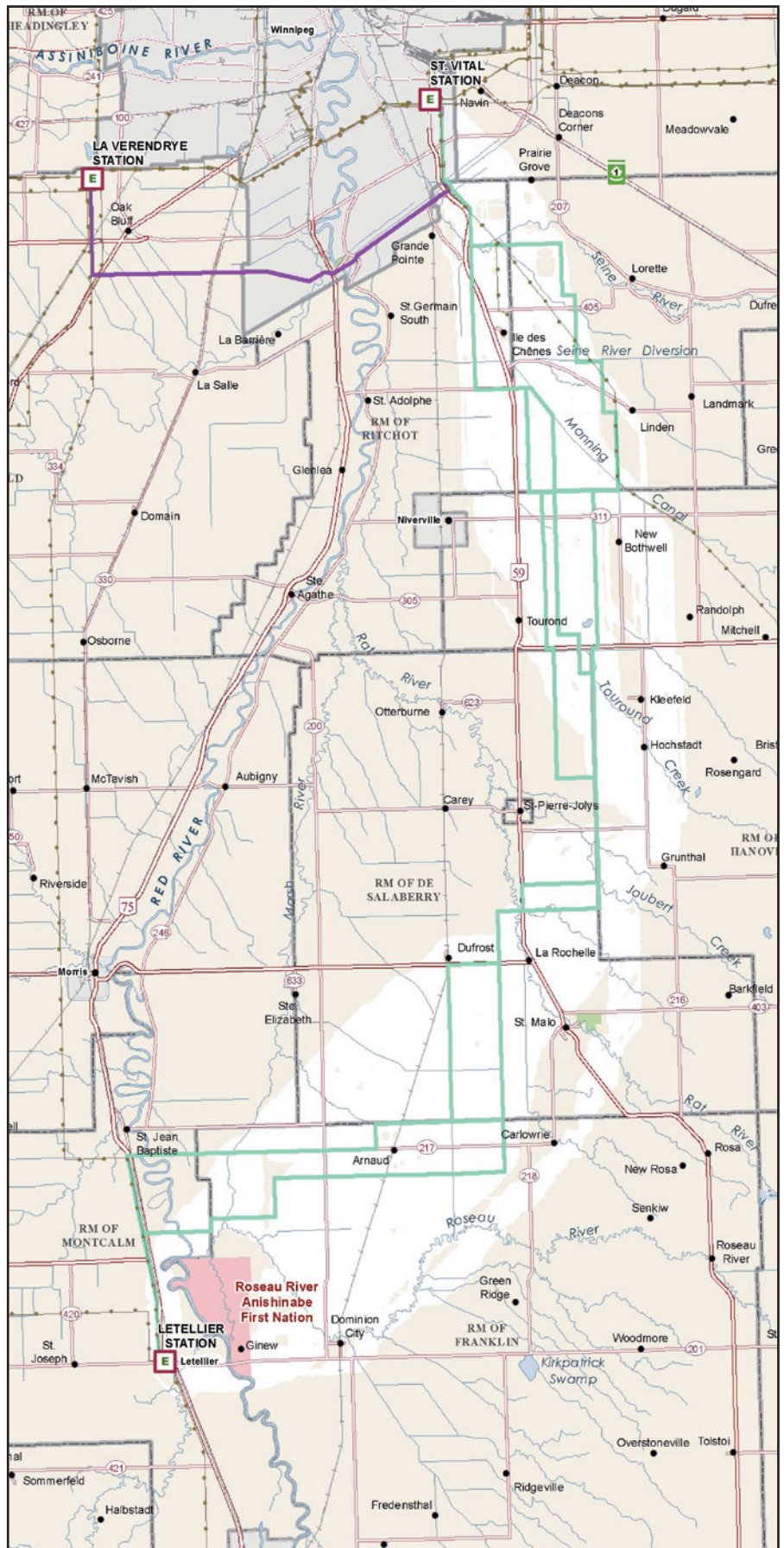
-  City / Town
-  First Nation
-  National/Provincial Park
-  Provincial Highway
-  Provincial Road
-  Railway

Southern Loop Transmission Corridor

The Southern Loop is a dedicated transmission corridor that will accommodate multiple transmission lines necessary for system reliability and to meet future energy demands.

Located between the Dorsey Converter Station (near Rosser) and the Riel Station (east of Winnipeg), the transmission corridor follows the western and southern boundaries of the City of Winnipeg. It connects to the LaVerendrye Station, near Oak Bluff.

Manitoba Hydro has been acquiring property rights for the Southern Loop for many years. The Southern Loop will allow for multiple transmission lines within a single corridor, which would reduce the number of independent rights-of-way on the landscape. The St. Vital to La Verendrye transmission line will take advantage of this right-of-way.



Project Timeline

Round 1 - August 2013

- Introduce the Project.
- Present alternative routes.
- Answer questions.
- Identify and document concerns.
- Use input to guide preferred route selection process.

Round 2 - October 2013

- Present Round 1 findings.
- Present the preferred route.
- Answer questions.
- Identify and document outstanding concerns.
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize or avoid effects.

Next Steps

- Submit the Environmental Assessment Report.
- Regulatory authorities review report.
- Receipt of licence.
- Construction.
- Complete in-service date 2017.

We are here.



We would like to hear from you.

There are a number of ways that you can participate in the review of this project and provide your input:

- attend an Open House.
- submit a comment sheet, available at the Open Houses or on our website (see address below).
- contact us directly.

Questions or comments?

Please contact:

Trevor Joyal

Licensing & Environmental Assessment Department

Phone: **1-877-343-1631**

Email: LEAprojects@hydro.mb.ca

www.hydro.mb.ca/stvital.



St. Vital Transmission Complex Public Open House

To improve system reliability and accommodate growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt transmission lines originating at the St. Vital Station in southeastern Winnipeg. One line will run south to the Letellier Station and the other will run west to the La Verendrye Station.

Alternative routes will be presented at the open houses.

You are invited to attend any of the Open Houses to share your comments about this project. Staff will be available to provide project information and answer questions. Your feedback will help us determine a preferred project route.

Refreshments will be served.

**Dominion
City**

Tuesday, August 20
4 to 8 p.m.
Dominion City
Community Hall

Mitchell

Wednesday, August 21
4 to 8 p.m.
Mitchell & Area
Seniors Centre

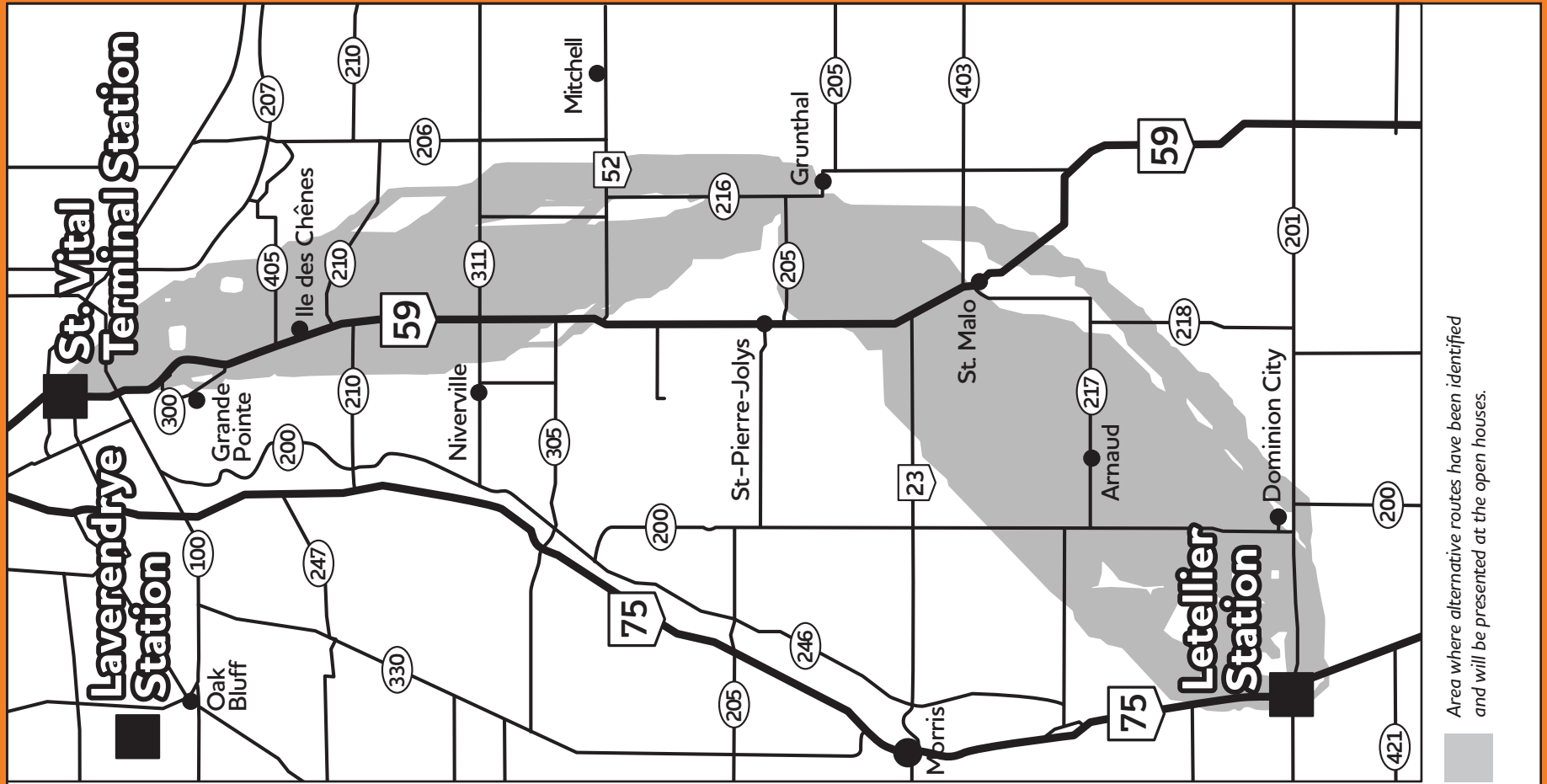
Oak Bluff

Tuesday, August 27
4 to 8 p.m.
Oak Bluff
Recreation
Centre

Winnipeg

Thursday, August 22
4 to 8 p.m.
Winakwa
Community
Centre





If you are unable to attend, please contact: Trevor Joyal, Licensing & Environmental Assessment Department
 Phone: **1-877-343-1631** Email: **LEAprojects@hydro.mb.ca** or visit **www.hydro.mb.ca/stvital**

Area where alternative routes have been identified and will be presented at the open houses.



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1
Telephone / N° de téléphone : 1-877-343-1631 • Fax / N° de télécopieur : (204) 360-6176
LEAprojects@hydro.mb.ca

August 1st, 2013

[Name]
[Address]
[Town], MB [Postal Code]

Dear: [Name]

Re: Proposed St. Vital Transmission Complex

Manitoba Hydro would like to advise you of the proposed St. Vital Transmission Complex. The Project intended to maintain and enhance the reliability of the power supply and address load growth in south-central Manitoba.

The St. Vital Transmission Complex consists of two separate but related components - the St. Vital Station to LaVerendrye Station and the St. Vital Station to Letellier Station 230 kV transmission lines. The Project will require a Class 2 licence under *The Environment Act* (Manitoba).

Alternative routes are being considered to connect the St. Vital and Letellier Stations whereas the route between St. Vital and LaVerendrye will follow a transmission corridor which exists south of Winnipeg. The map on the back of the letter outlines the location of these alternative routes

The engagement process for the Project will begin in August 2013 which will assist in the determination of most suitable route for the transmission line. Manitoba Hydro is seeking your input and perspective to help understand issues and concerns and gather local input throughout south-central Manitoba. **Manitoba Hydro invites you to attend a drop-in Public Open House;**

Dominion City
August 20
4 p.m. to 8 p.m.
Dominion City
Community Hall

Mitchell
August 21
4 p.m. to 8 p.m.
Mitchell and Area
Senior Centre

Winnipeg
August 22
4 p.m. to 8 p.m.
Winakwa Community
Centre

Oak Bluff
August 27
4 p.m. to 8 p.m.
Oak Bluff Recreation
Centre

We encourage you to attend and open house. If you are unable to attend please contact us at 1-877-343-1631 or LEAprojects@hydro.mb.ca to discuss the Project and provide your input.

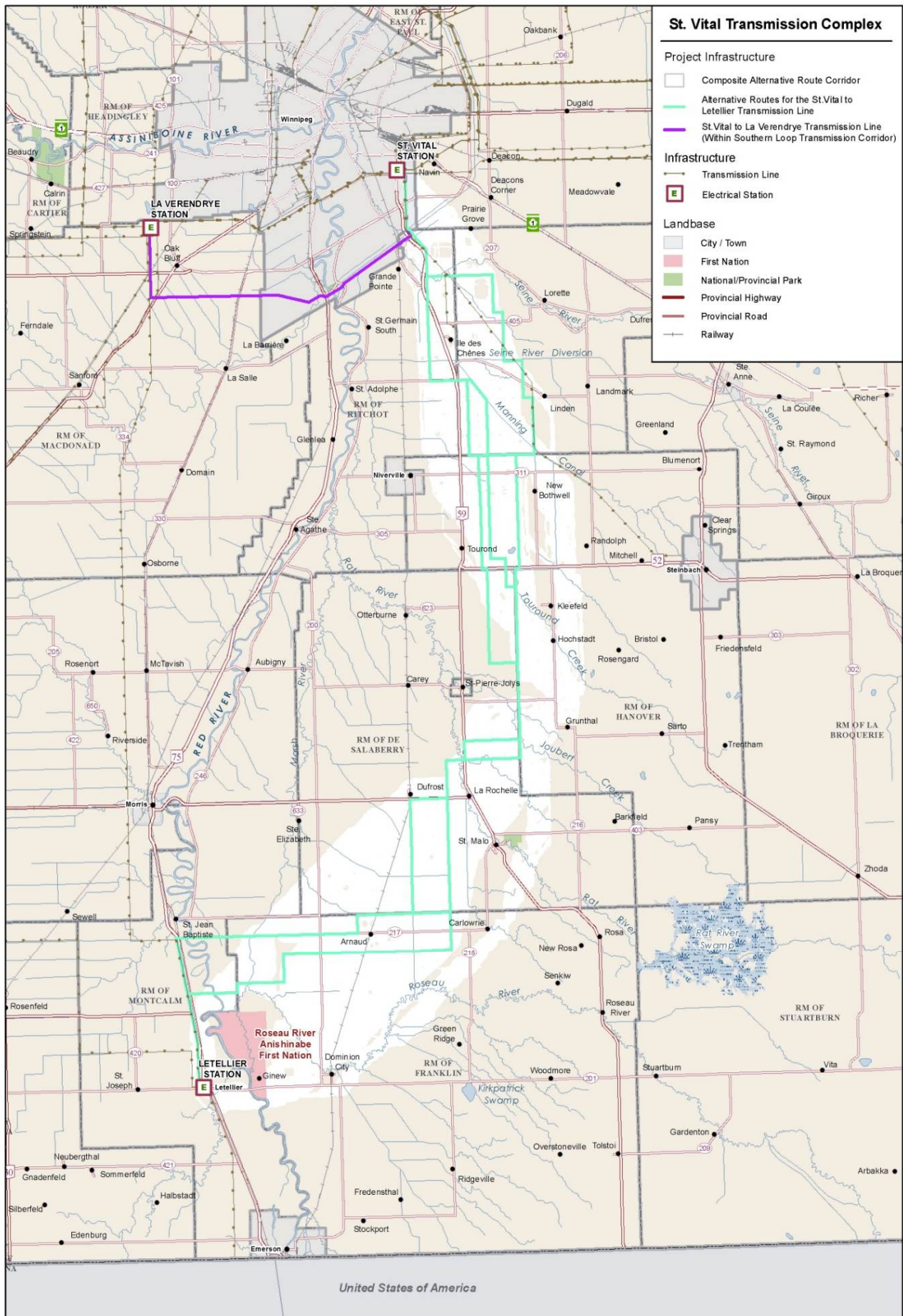
Further Project information can be found at www.hydro.mb.ca/stvital

We look forward to discussing this Project with you.

Sincerely,

Trevor Joyal

Environmental Specialist- Licensing & Environmental Assessment Department



St. Vital Transmission Complex Public Open Houses

To improve system reliability and accommodate growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt transmission lines originating at the St. Vital Station in southeastern Winnipeg. One line will run south to the Letellier Station and the other will run to the La Verendrye Station.

Alternative routes will be presented within this planning corridor at the open houses.

You are invited to attend one of the Open Houses below to share your comments about this project. Staff will be available to provide project information and answer questions. Your feedback will help us determine a preferred project route. Refreshments will be served.

Dominion City

August 20

4 to 8 p.m.

Dominion City Community
Hall

Mitchell

August 21

4 to 8 p.m.

Mitchell & Area Seniors
Centre

Winnipeg

August 22

4 to 8 p.m.

Winakwa Community
Centre

Oak Bluff

August 27

4 to 8 p.m.

Oak Bluff Recreation
Centre

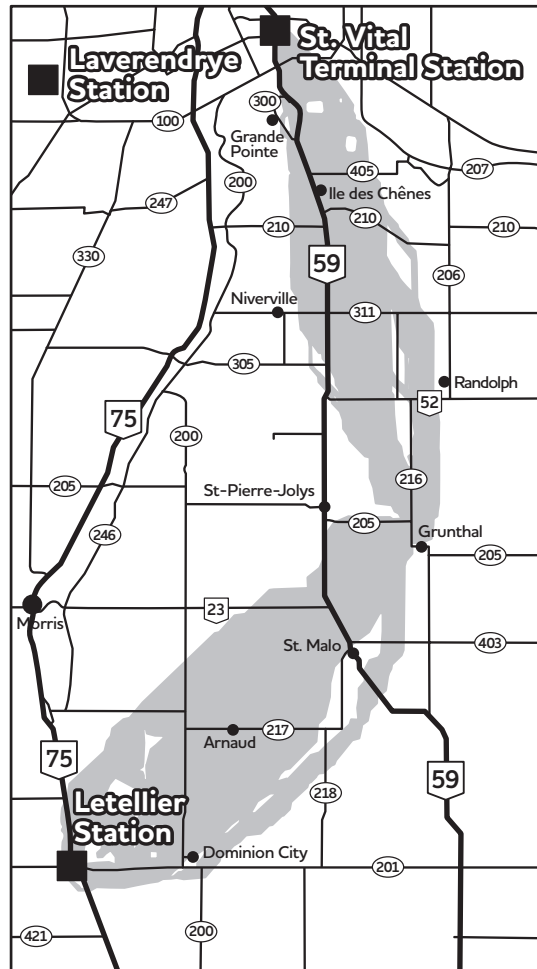
For more information, please contact:

Trevor Joyal, Licensing & Environmental Assessment

Phone: **1-877-343-1631**

Email: LEAprojects@hydro.mb.ca

or visit www.hydro.mb.ca/stvital



Area where alternative routes have been identified and will be presented at the open houses.

Investing today for a powerful tomorrow.



Appendix D2

Open House Storyboards, Route
Selection Presentation, and
Handouts – Round 1

Public Open House St. Vital Transmission Complex

Welcome

Purpose of the Open House

- Provide information about the proposed St. Vital Transmission Complex and environmental assessment process.
- Introduce the Project to the public.
- Gain feedback on alternative routes.
- Identify interests, opportunities and constraints.
- Gather information that will feed into the environmental assessment.

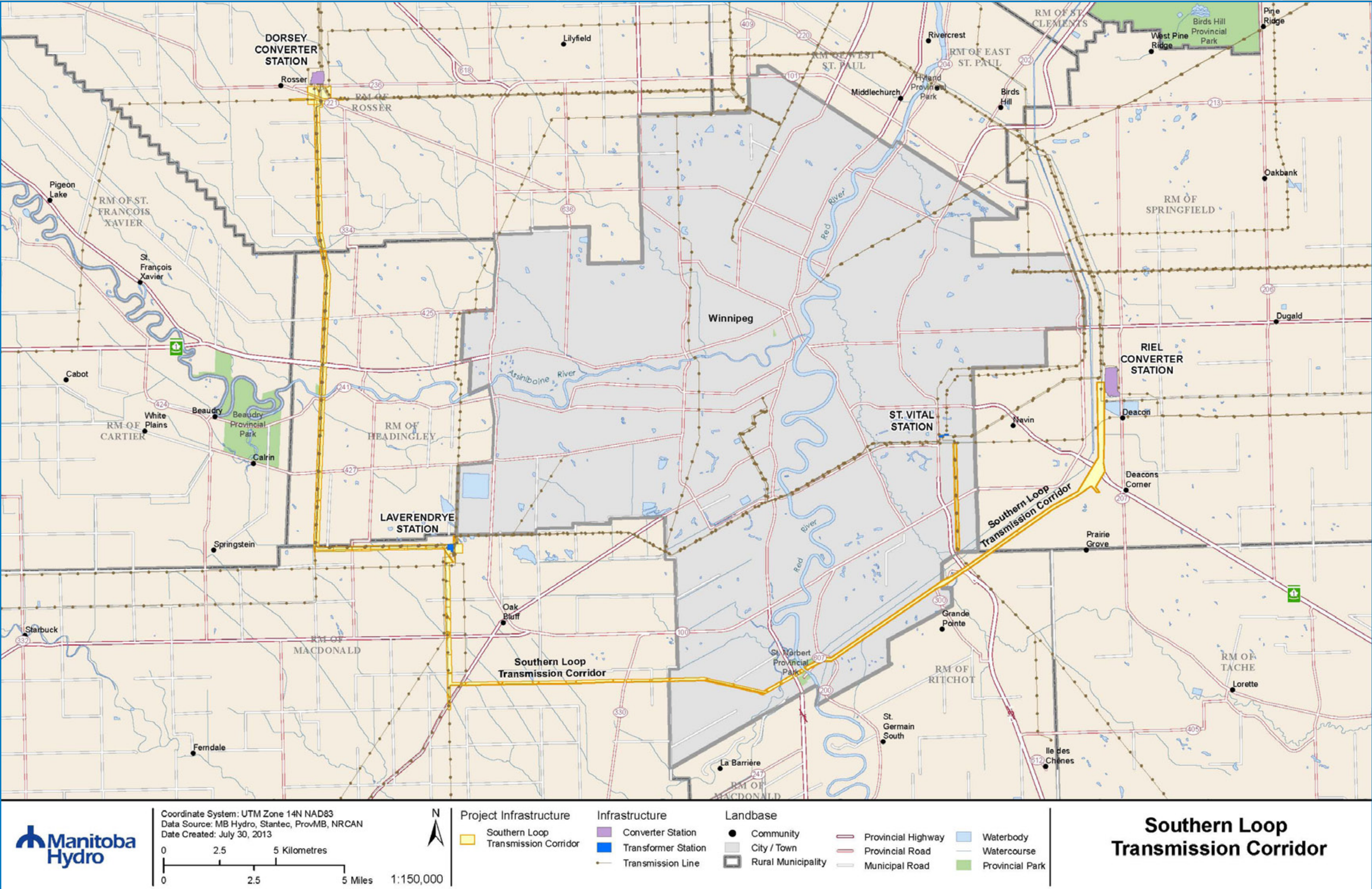
Project Overview

The Project includes the construction of two 230-kilovolt (kV) transmission lines, both originating at the St. Vital Station located in southeastern Winnipeg.

- One line will run south to Letellier Station.
 - Required to accommodate growth
- One line will run to La Verendrye Station.
 - Required to improve reliability and performance

Southern Loop

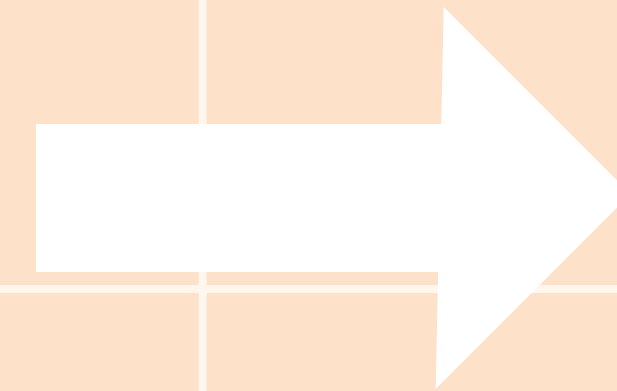
New line between the St. Vital and LaVerendrye stations will be located on an existing right-of-way.



Engagement Process

Round 1 - August

- Introduce the Project.
- Present Alternative Routes.
- Answer questions.
- Identify and document concerns.
- Use input to guide Preferred Route selection process.



Round 2 - October

- Present findings of Round 1.
- Present the Preferred Route.
- Answer questions.
- Identify and document outstanding concerns.
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize effects.

Input was also gained through:

- Initial stakeholder meetings or discussions.
- Key person interviews (KPI).
- Workshops.
- Comments received by telephone, email and on the Project website.

Environmental Assessment Process

Environmental assessment generally consists of:

- Characterization of the environment.
- Identification of potential effects on people and the environment.
- Determination of methods to avoid or reduce potential adverse effects while enhancing beneficial effects.



Unnamed wetland located near Tourond.



Pasture located southeast of Rosa.

Environmental Assessment – Study Area Characterization

The Environmental Assessment will include characterization of the following in the study area:

- physical environment, e.g. climate, soils, surficial geology, hydrogeology.
- aquatic environment, e.g. surface hydrology, water quality, fish and fish habitat.
- terrestrial environment, e.g. vegetation, wildlife and habitat.
- socio-economic environment, e.g. land use, infrastructure, agriculture and landowners, economy, heritage resources, general concerns/issues with the Project.



Entry sign to Crow Wing Trail near Senkiw.



Pasture located northeast of Roseau River.

Environmental Assessment – VECs

The environmental assessment will determine valued environmental components (VECs).

- VEC definition: any part of the environment that is considered important by the proponent, public, scientists and government involved in the assessment process. Importance may be determined on the basis of societal or cultural values, scientific interest or concern.
- VECs are selected by
 - Utilizing experience from other, similar projects.
 - Getting input from specialists in the various disciplines.
 - Collecting input from interested stakeholders and the public.



Cairn, near Senkiw.

Environmental Assessment – VECs

VECs currently being considered for the St. Vital Transmission Complex include:

- wildlife habitat.
- native prairie.
- employment and business opportunities.
- property and residential development.
- Aboriginal lands.
- agricultural productivity.
- agricultural land uses.
- communication and transportation.
- human health.
- public safety.
- aesthetics.



Unnamed creek crossing east of Greenridge.

Environmental Assessment - Examination of Effects

To assess the potential environmental effects of the project, the following will be undertaken:

- identification and assessment of potential environmental effects of the project on VECs.
- identification of mitigation measures for environmental effects on VECs.
- identification of methodology for determining significance of environmental effects on VECs.
- identification of measurable parameters to quantify and evaluate the significance of environmental effects on VECs.
- an assessment of cumulative effects on identified VECs.

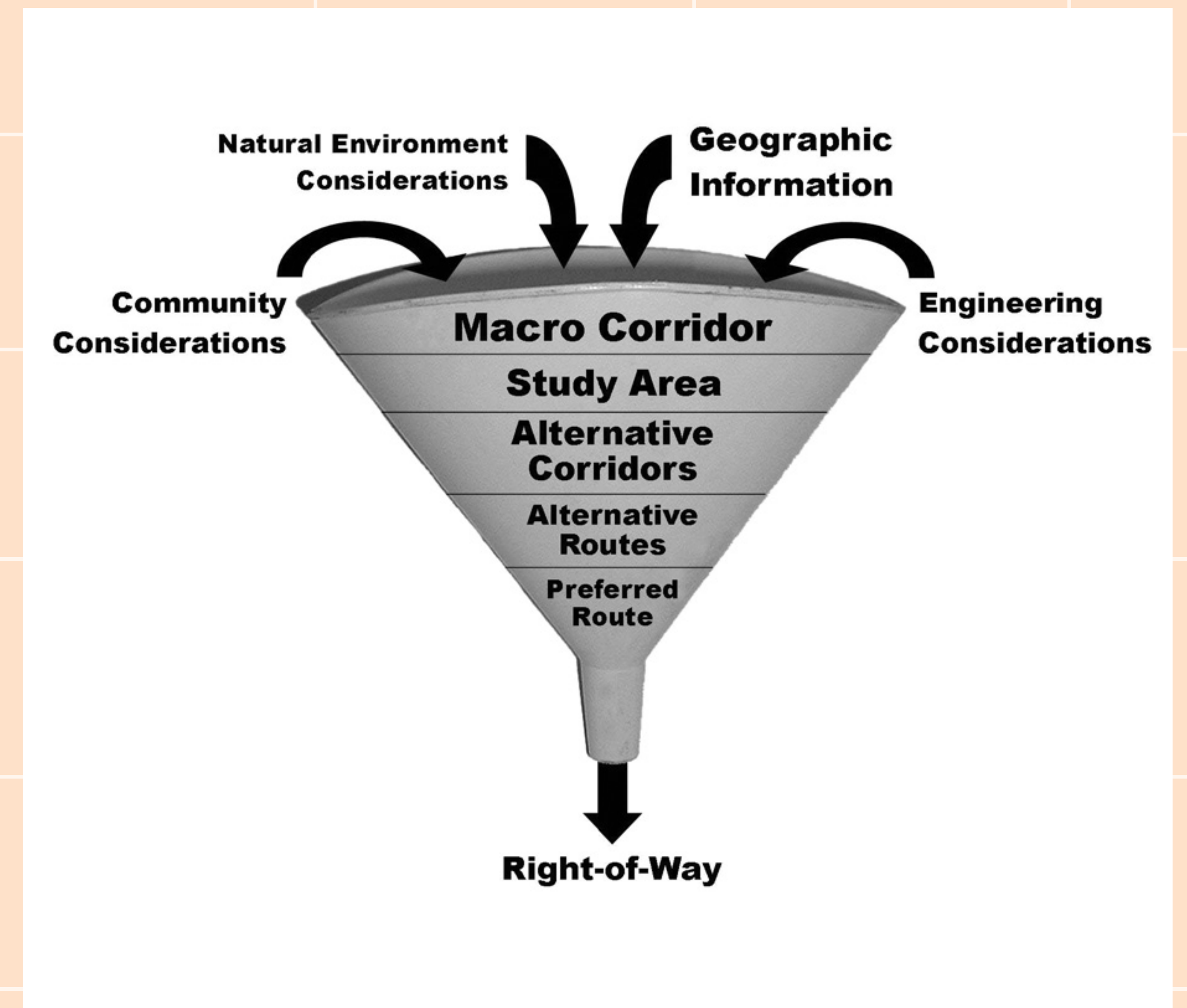
Route Selection Process

Manitoba Hydro is piloting a new process to develop alternative routes for the St. Vital to Letellier transmission line.

EPRI-GTC methodology* includes:

- Earlier stakeholder input into the route selection process to help guide alternative route selection.
- Consideration of engineering, natural and built environments.

* Electrical Power Research Institute



Route Selection Process

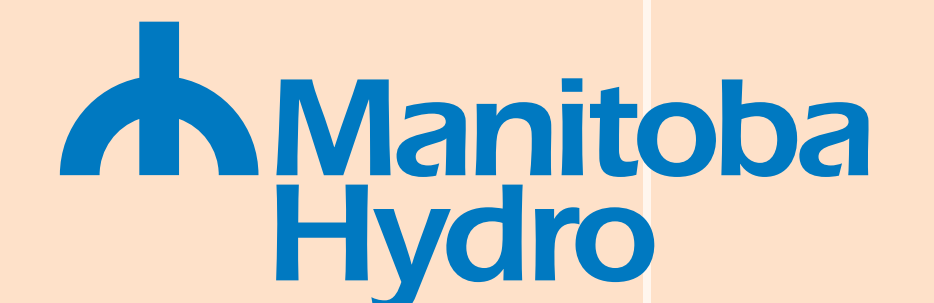
- Stakeholder feedback and contribution was incorporated into the routing methodology.
- Stakeholders developed features and suitability values for routing based on engineering, natural and built perspectives.
- This input was used to determine corridors where alternative routes could be drawn.
- Some stakeholders that participated in this process included:
 - Manitoba Trappers Association.
 - Manitoba Infrastructure and Transportation.
 - Manitoba Aerial Applicators.
 - Ducks Unlimited Canada.
 - Keystone Agricultural Producers.
 - Conservation Districts.
 - parks and natural areas.
 - Manitoba Trails Association.
 - Bird Atlas.
 - Nature Conservancy.

Stakeholder Siting Workshop Results

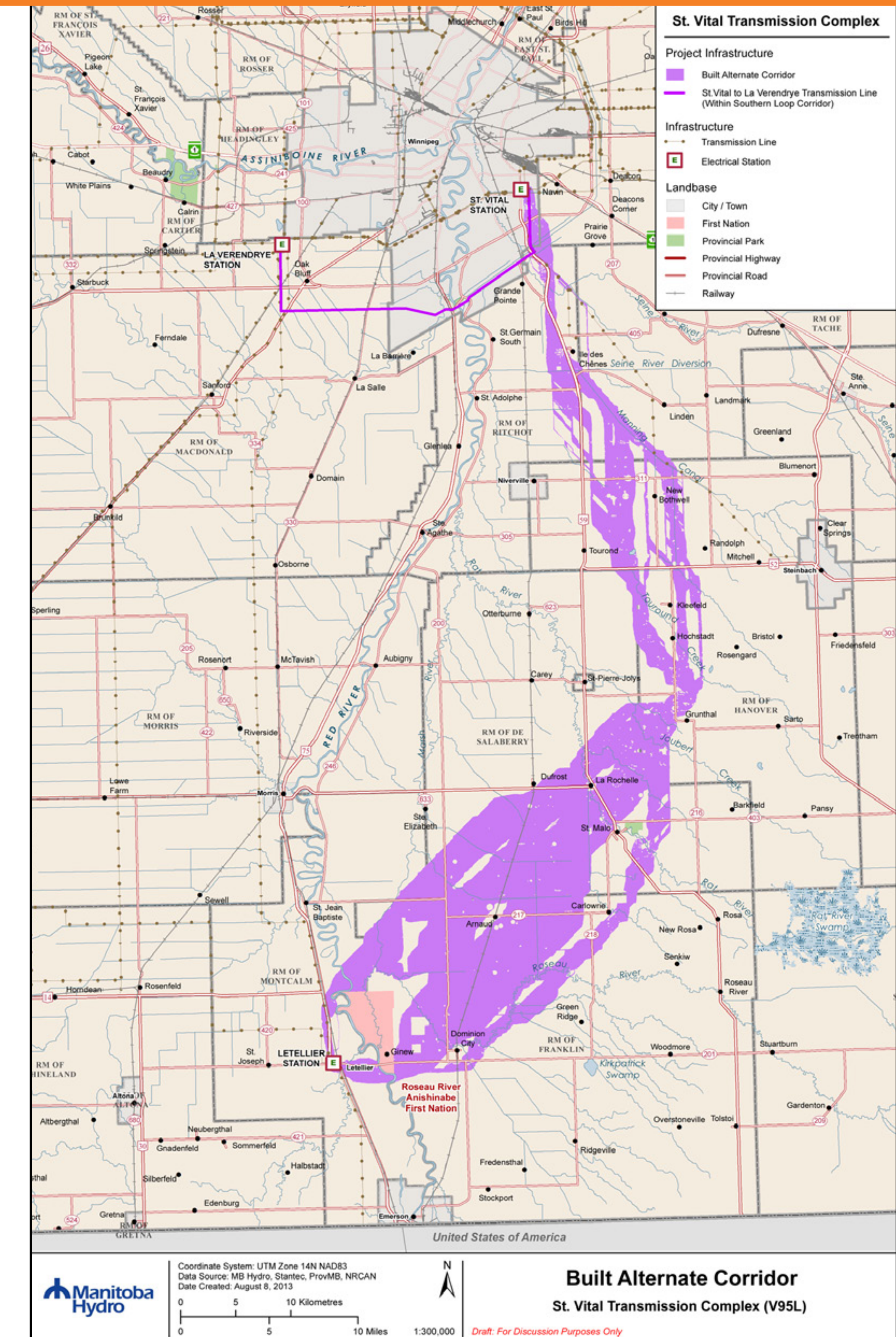
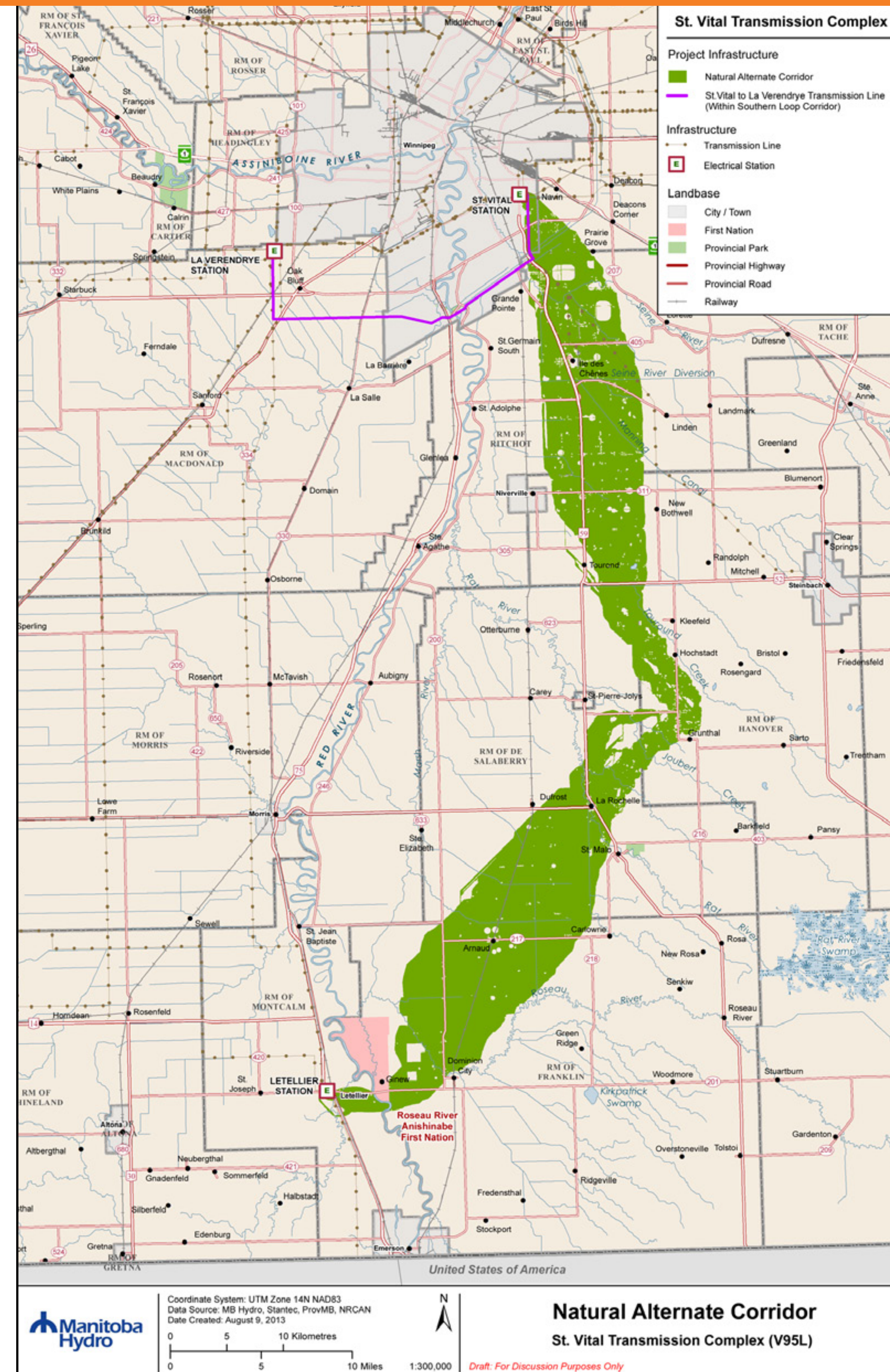
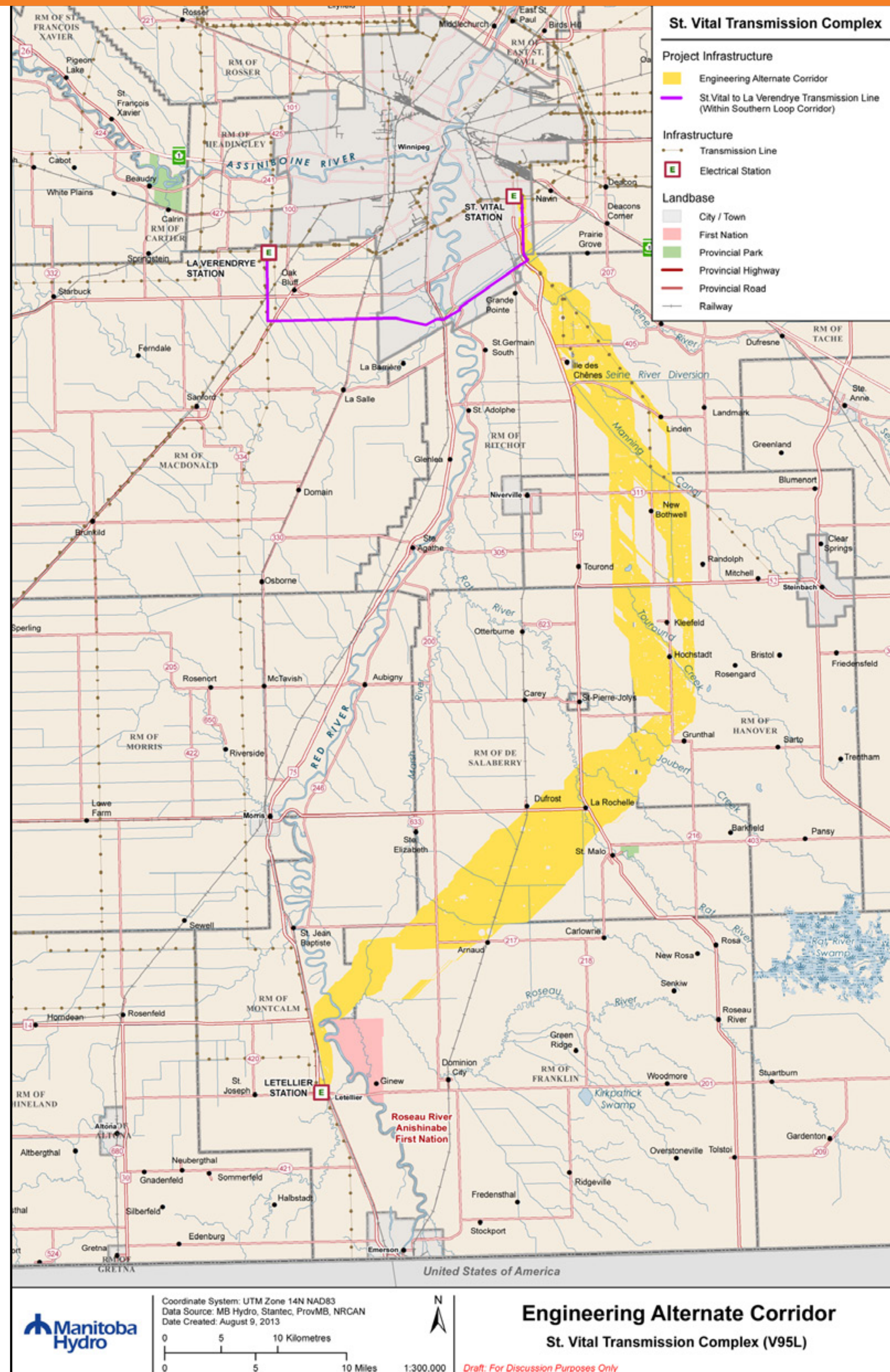
Engineering		Natural		Built	
Linear Infrastructure	35.7%	Aquatics	10.0%	Proximity to Buildings	10.0%
Unused ROW (Manitoba Hydro Owned)	1	No Aquatic Feature	1.0	> 800 m	1
Parallel Roads ROW	2.6	Ephemeral Streams (Non-Fish Bearing)	4.9	400 - 800 m	2.7
Municipal Road Allowances	3.1	Spannable Waterbodies (Lakes & Ponds)	6.1	100 - 400 m	6.5
Parallel Provincial Highways ROW	3.4	Ephemeral Streams (Fish Bearing)	6.3	ROW - 100 m	9
Parallel Existing Transmission Lines	3.8	Swamps	6.8	Building Density	15.0%
No Linear Infrastructure	4.4	Ephemeral Streams (CRA Fish Bearing)	6.9	< 1 Building / Acre (Rural Agricultural)	1.0
Rebuild Existing Transmission & Sub-Transmission Line	5	Riparian Floodplain	7.1	1 Building per 1-5 acres	2.8
Parallel Oil / Gas Transmission Pipeline	5.6	Permanent Stream	7.5	1-3 Buildings / Acre (Rural Residential)	3.7
Parallel Railway ROW	5.6	Bogs	7.7	3-10 Buildings / Acre (Suburban Density)	7.2
Future MIT Plans	7.8	Fens	8.2	>10 Buildings / Acre (Urban)	9.0
>= 300 kV Transmission Line & Within Separation Buffer	8.5	Marsh	8.2	Proposed Development	3.7%
Within Road, Railroad, or Utility ROW	9	Permanent Stream (CRA Fish Bearing)	9.0	No Proposed Development	1.0
Spannable Waterbodies	10.4%	Special Features	42.4%	Proposed Development - Industrial Zoning	3.0
No Waterbody	1	No Special Land	1.0	Proposed Development - Agriculture Zoning	4.1
Non-Nav. Spannable Waterbody (Standard Structures)	2.8	Managed Woodlots	5.4	Proposed Development - Commercial Zoning	5.1
Nav. Spannable Waterbody (Standard Structures)	4.3	Crown Land With Special Code	7.0	Permitted Development	6.9
Non-Nav. Spannable Waterbody (Specialty Structures)	6	Community Pastures	7.3	Proposed Development - Rural Residential Zoning	6.9
Nav. Spannable Waterbody (Specialty Structures)	9	Flyways	7.5	Proposed Development - Urban Zoning	9.0
Geotechnical Considerations	30.2%	Areas of Special Interest (ASI)	7.8	Soil Capability & Agricultural Use	11.9%
Rock	1	Recreation Provincial Park (Non-Protected Portions)	8.0	Other	1.0
No Special Geotechnical Considerations	1.3	Conservation Easements	8.0	Class 6 & 7 (Low Productivity)	3.3
100 Year Floodplain	6.6	Wildlife Management Area (Non-Protected Portions)	8.2	Organic Soils / Peat Bogs / Sod Production	3.9
Wetland / Peatlands	9	Proposed Protected Areas	8.6	Artisanal Farms / Wild Rice	4.3
Mining Operations / Quarries	13.2%	Heritage Rivers	8.7	Class 4 & 5 (Forages, Transitional)	5.9
No Mining Operation	1	Important Bird Areas	8.7	Class 1-3 (Prime Agricultural & Cultivated Land)	9.0
Abandoned / Inactive Mines (Aggregate Piles, Pits, etc)	6.5	Heritage Marshes	8.9	Land Use	16.0%
Mine-Owned Land	9	Conservation Lands	8.9	Forest	1.0
Slope	5.4%	Natural Provincial Park (Non-Protected Portions)	9.0	Open Land (Sand & Gravel)	1.5
Slope 0 - 15%	1	Land Cover	10.2%	Industrial	1.6
Slope 15 - 30%	3.1	Exposed / Urbanized / Open Land	1.0	Burnt Areas	1.8
Slope > 30%	9	Agricultural (Forage)	2.5	Active Forestry Operation	2.3
Proximity to Future Wind Farms	5.1%	Agricultural (Crops)	2.8	Hunting / Trapping Locations	3.9
500m - 10k	1	Burnt Areas	4.9	Listed Trails (Existing & Planned)	4.6
> 10k	9	Grassland	5.0	Agricultural (Forage)	4.9
Areas of Least Preference	100.0%	Deciduous Forest	5.5	Organic Farming	5.5
Non-Spannable Waterbodies (300 m)		Coniferous Forest	5.7	WMAs (Unprotected)	5.8
Mines and Quarries (Active)		Mixed Forest	6.0	Out-of-Park Recreational Development	6.4
Wastewater Treatment Areas		Non-Developed Sand Hills	8.1	Intense Development & Use	6.5
Buildings		Native Grassland	9.0	Agricultural (Crops)	6.6
Oil Well Heads (100m)		Wildlife Habitat	37.4%	500m Buffer of Irrigated Land	6.6
Waste Disposal Sites		Other	1.0	Intensive Livestock	6.9
Towers and Antennae Area of Potential Affect (< 200m*)		Ungulate Habitat (High)	6.1	Institutional	7.4
Existing Wind Turbine Area of Potential Affect (< 500m)		Waterfowl Habitat (High)	6.3	In-Park Recreational Development	7.9
Airports (Including Glide Paths - 2° Slope)		Waterfowl Paired Density (High)	6.9	Agricultural (Crops Limited to Aerial Application)	8.9
Federal Park		Waterfowl Hotspots (High)	7.0	Irrigated Land	9.0
Military Facilities		Grouse Lek Area	7.7	National, Provincial, & Municipal Historic Sites	12.0%
		Rare Species Habitat	8.0	> 300 m	1.0
		Critical Habitat	9.0	200 - 300 m	9.0
		Endangered Species Habitat	9.0	Proximity to Heritage, Archaeological Sites, & Centennial Farms	12.0%
		Areas of Least Preference	100.0%	> 300 m	1.0
		Protected Areas		200 - 300 m	9.0
		World Heritage Sites		Landscape Character (Viewsheds)	7.8%
		Special Conservation Areas		Other	1.0
		Ecological Reserves		Recreational Trails	4.1
		Wildlife Refuge		Cottage Subdivisions	6.1
		Natural Provincial Park (Protected Portions)		Identified Scenic Provincial Trails & Roads	6.8
		Recreation Provincial Park (Protected Portions)		Escarpments (Timeless Topography)	7.5
		Wildlife Management Area (Protected Portions)		Resort Lodges & Campgrounds	8.6
		National Parks		Residential	8.9
		Provincial Park Reserves		Designated Historic Sites	9.0
		Wilderness Provincial Park		Edge of Field	11.7%
		Heritage Provincial Park		Road Allowances	1.0
				Drains	1.8
				Quarter Section Lines / Half-Mile Section Lines	2.0
				Vacant Rail ROW	2.1
				Parallel Or Adjacent To Road Allowances	2.8
				Other (None of the Above)	9.0
				Areas of Least Preference	100.1%
				Indian Reserves	
				Treaty Land Entitlement Selection	
				Campgrounds & Picnic Areas (500 m)	
				Aircraft Landing Areas (STARS, Flying Farmers, Float Planes, etc) (3 Miles In-Line with Glide Path or Transport Canada Designation)	
				Recreational Centers (Golf, Skiing, etc) (500m)	
				Federal Heritage Sites (200m)	
				Provincial Heritage Sites (200 m)	
				Municipal Heritage Sites (200 m)	
				Heritage Plaques (200 m)	
				Day Care Parks	
				Cemeteries / Burial Grounds	
				Schools	
				Past Military Installations	
				Contaminated Sites	
				Known Archaeological & Paleoarchaeological Site (300m)	
				National, Provincial, & Municipal Historic Site (200m)	
				Religious / Worship Site Parcels	

Southern Manitoba Alternative Corridor Siting Model

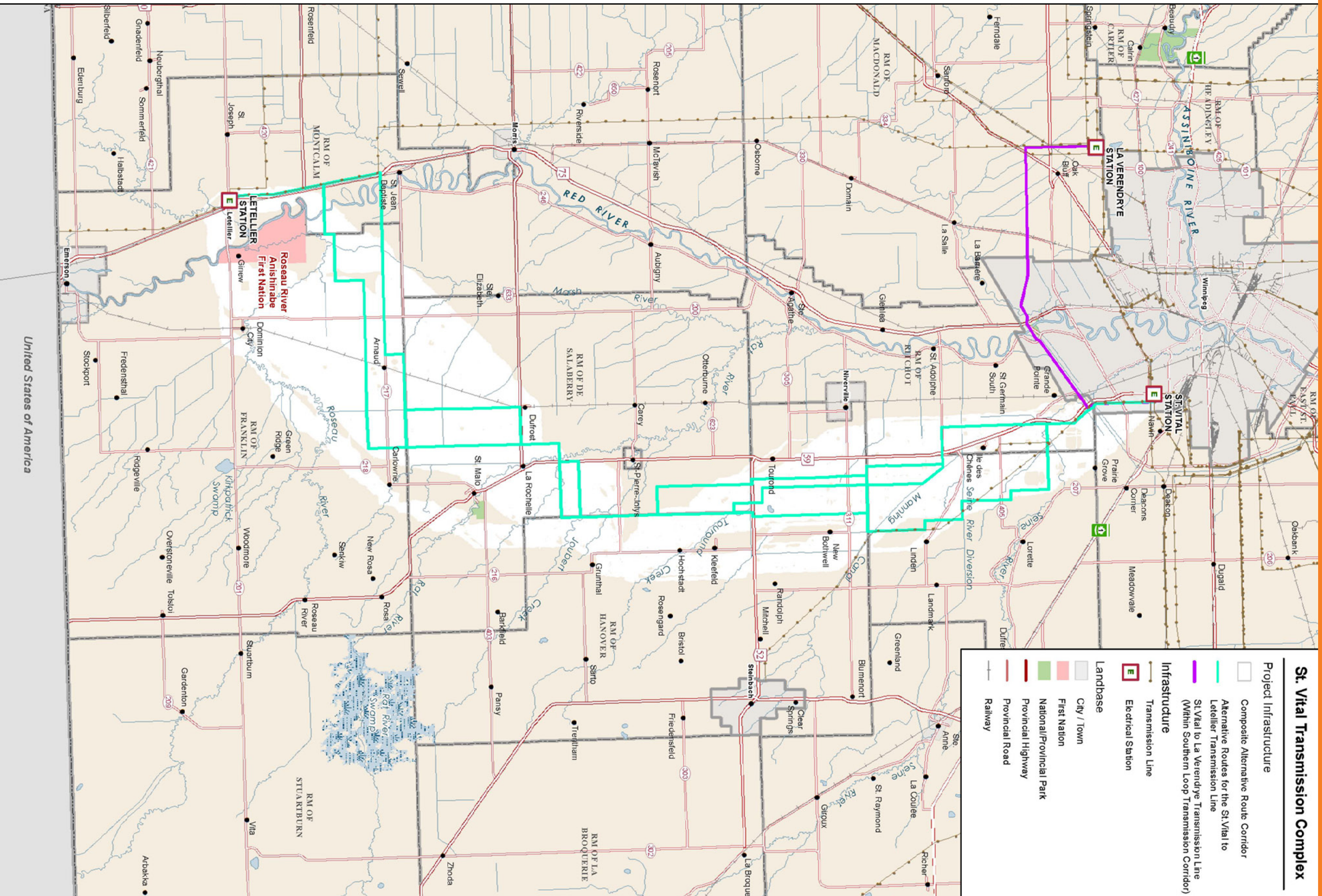
Last Revised May 31, 2013



Alternative Corridors



St. Vital Transmission Complex Map



Alternative Routes
St. Vital Transmission Complex

Draft: For Discussion Purposes Only

Timelines and Next Steps

September

- Preferred Route identified and site specific field work to continue.

October

- Round 2 Public Open House Events

November

- Ongoing design and environmental assessment

December

- Anticipated Submission of Environmental Assessment to Manitoba Conservation and Water Stewardship and posting on public registry.

Mid-2016

- Anticipated in-service date for St. Vital to Letellier Transmission Project. Anticipated project completion is 2017.

Manitoba Hydro

Vision and Mission Statements

Vision

To be the best utility in North America with respect to safety, rates, reliability, customer satisfaction and environmental leadership; and to always be considerate of the needs of customers, employees and stakeholders.

Mission

To provide for the continuance of a supply of energy to meet the needs of the province and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of energy.

The Project team wants to hear from you

- Manitoba Hydro representatives are available to answer questions.
- Please take a moment to complete a comment sheet so the study team can document your concerns.
- Display boards and the comment form are also available at **[www. hydro.mb.ca/stvital](http://www.hydro.mb.ca/stvital)**.

Public Open House St. Vital Transmission Complex

**Thank you for attending
and providing your feedback.**

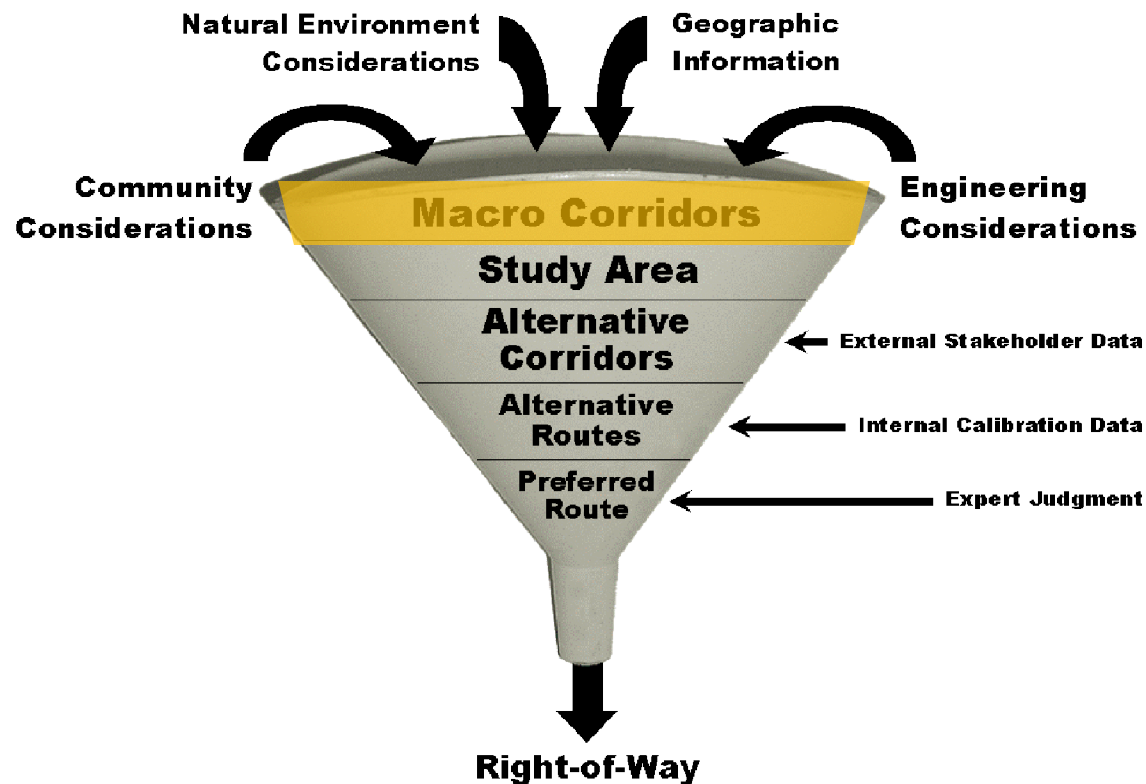
Routing Process

EPRI – GTC Routing Methodology

Route Selection Process

- Macro Corridor and Study Area Identification
- Alternative Corridor Identification (Natural, Built, Engineering & Simple Average)
- Alternative Route Selection and Review
- Preferred Route Determination

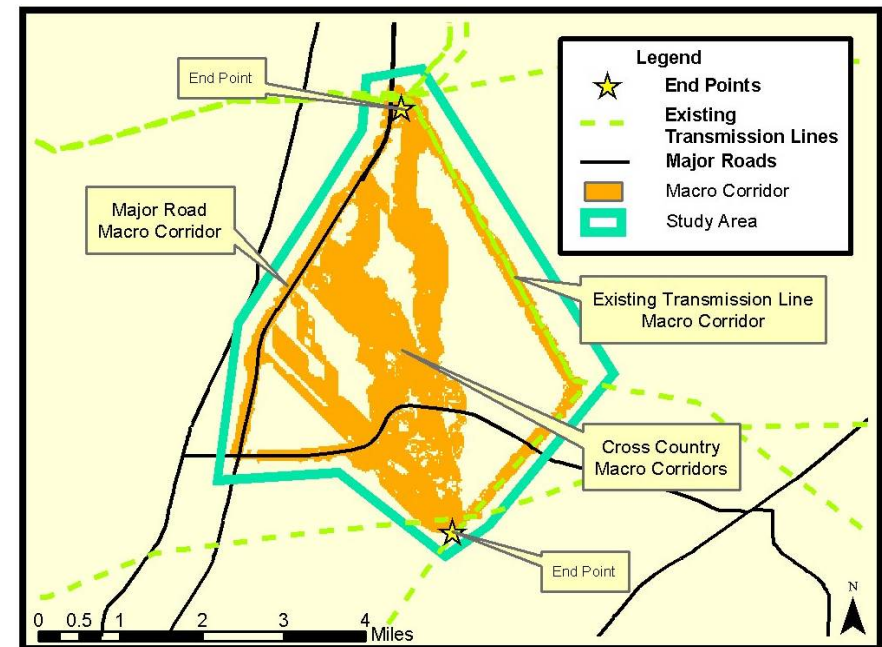
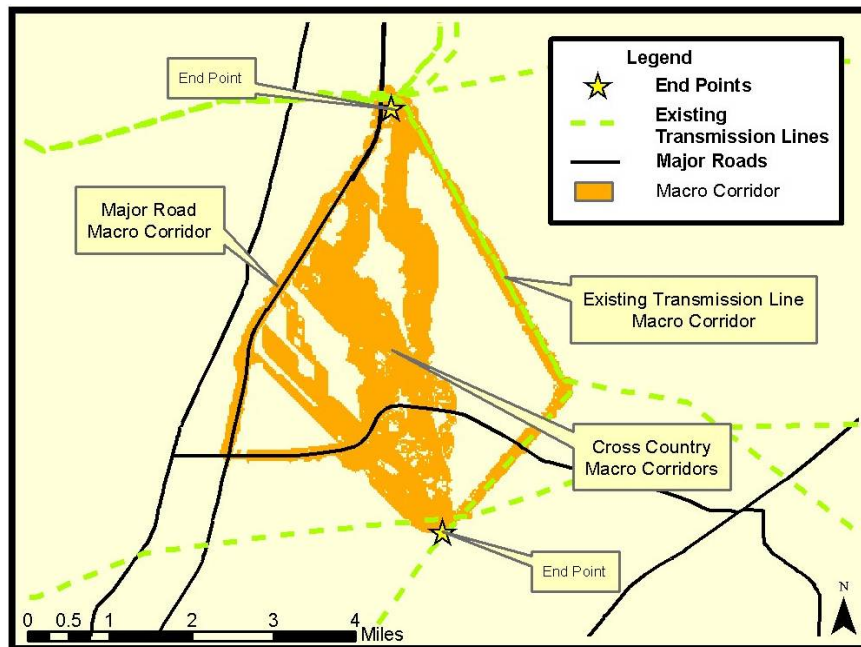
The EPRI GTC Methodology Funnel



Macro Corridor Identification

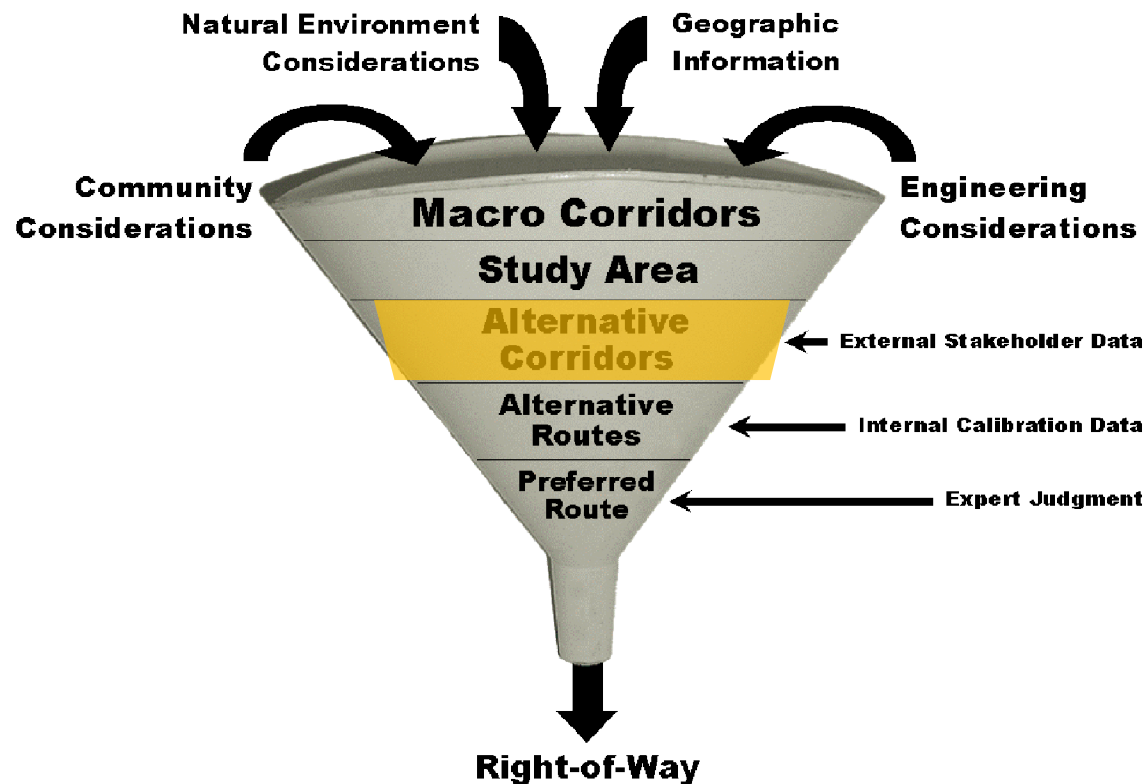
- Broad areas of least environmental and community impacts
- The start and end point of the project are identified
- Used to define outer boundaries of project study area
- Existing GIS data sets from well established provincial inventories

Macro Corridor Identification



The top 5% of the best possible routes within the project area form the macro corridors

Alternative Corridor Identification



Alternative Corridor Identification

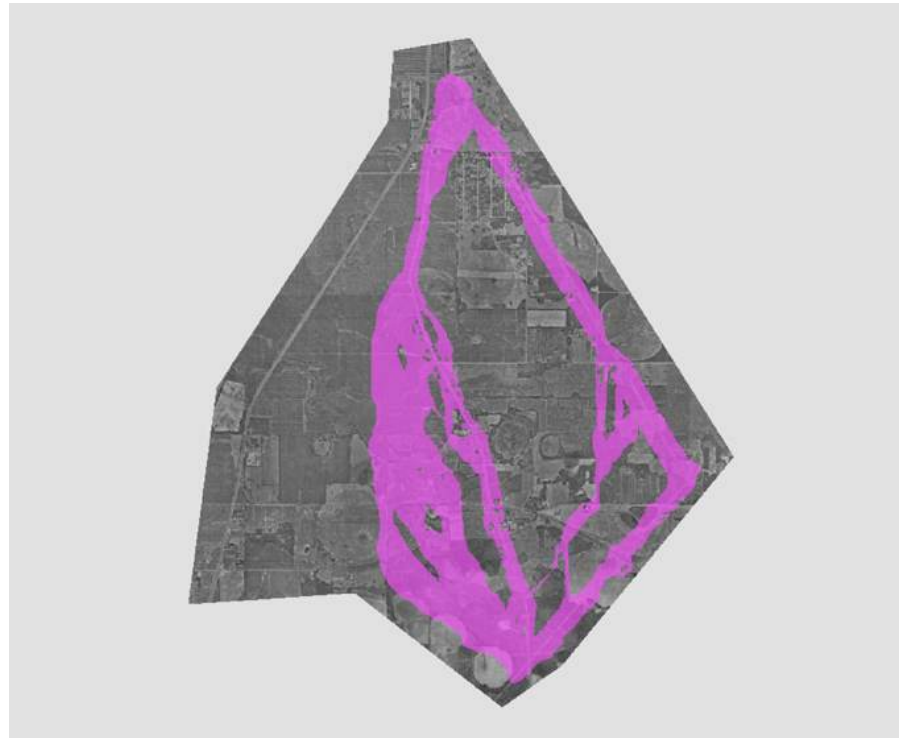
- External and internal stakeholders contribute to determination of the suitability of different features for routing a transmission line
- This is focused on a regional scale, prior to application on a specific project
- Examples of features include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Slope• Paralleling existing infrastructure• Spanability of water bodies	<ul style="list-style-type: none">• Wetlands• Grasslands• Critical habitat• National parks	<ul style="list-style-type: none">• Agricultural• Recreational trails• Historic sites• Viewshed

Alternative Corridor Identification

- Examples of external stakeholders
 - Trappers Association
 - Conservation and Water Stewardship
 - Infrastructure and Transportation
 - Manitoba Aerial Applicators
 - Manitoba Food and Rural Initiatives
 - Ducks Unlimited Canada
 - Keystone Agricultural Producers
 - Trails Association
 - Manitoba Nature Conservancy

Alternative Corridor Identification



Weights and relative suitability are applied to features such as roads, wetlands, historic sites and buildings.

The less suitable a feature is for transmission line location, the less likely a corridor will be mapped over that feature.

Alternative Corridor Identification

- Areas of least suitability are also determined
- These are areas of least preference

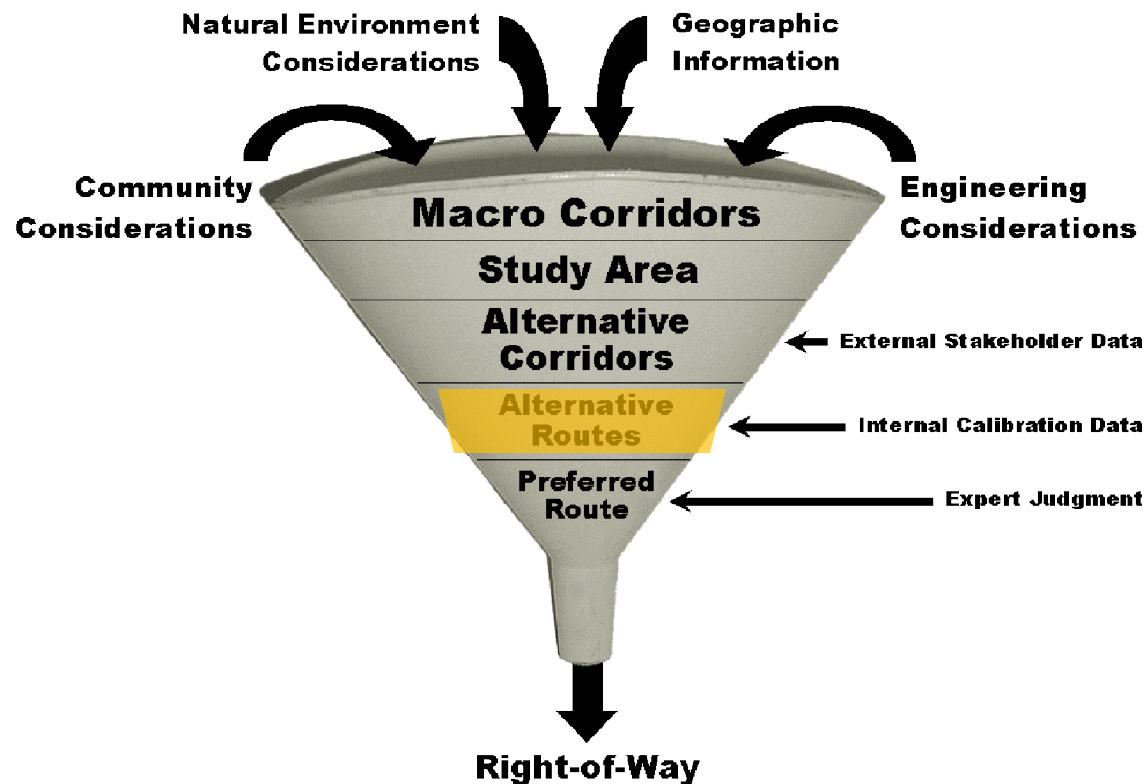
Engineering	Natural	Built
<ul style="list-style-type: none">• Non spanable water bodies• Active Mines and quarries	<ul style="list-style-type: none">• Wildlife refuge• Ecological reserves• National parks• Provincial Parks	<ul style="list-style-type: none">• Federal heritage sites• Airports• Known archeological sites

Further Data Gathering



- Additional data collection for the route selection process occurs once corridors are developed
- This includes existing sources of data, windshield surveys and site visits

Alternative Route Selection

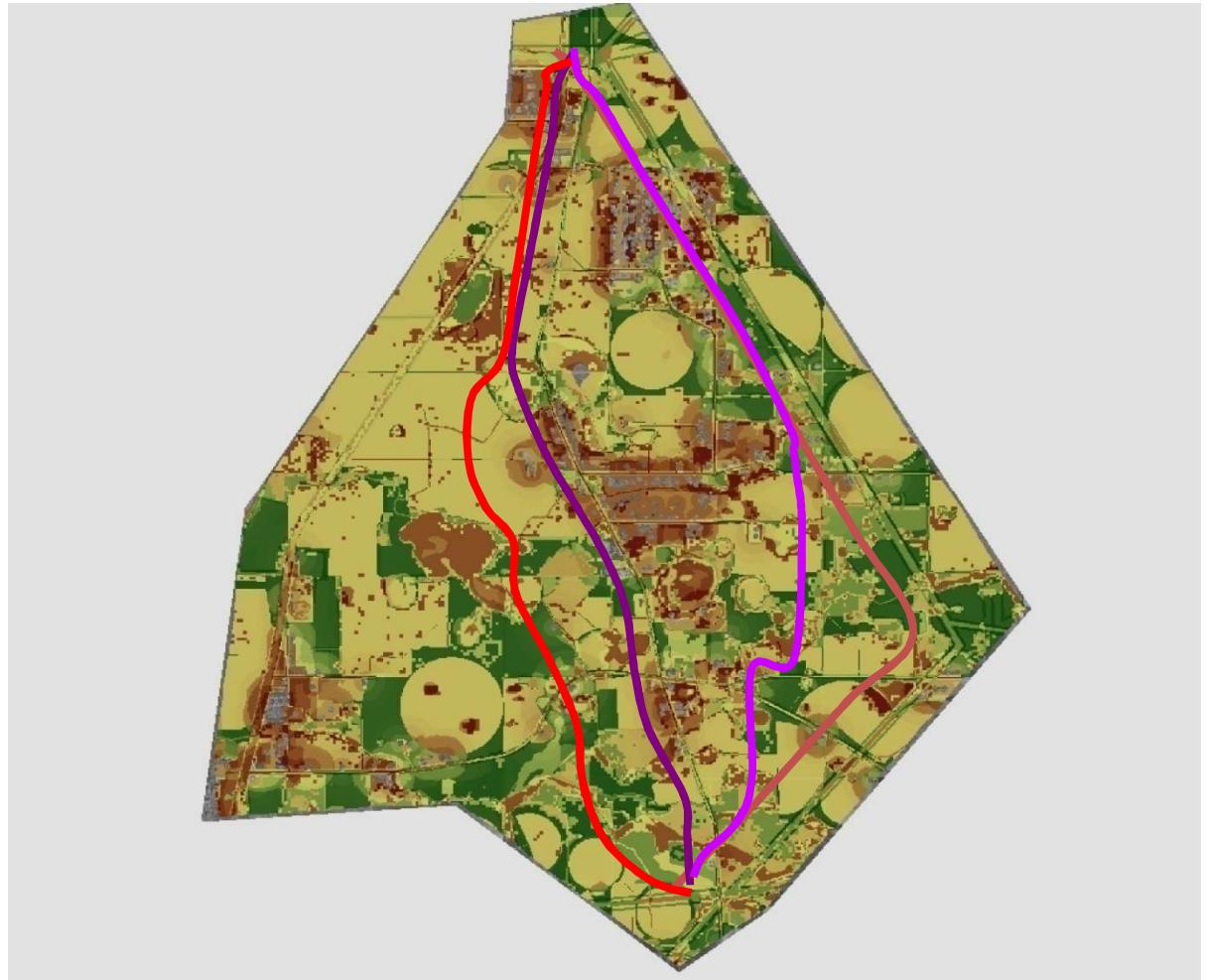


Alternative Route Selection

- Multiple routes are developed within the alternative corridors
- Developed by project team taking into account all information gathered to date



Alternative Routes Determined

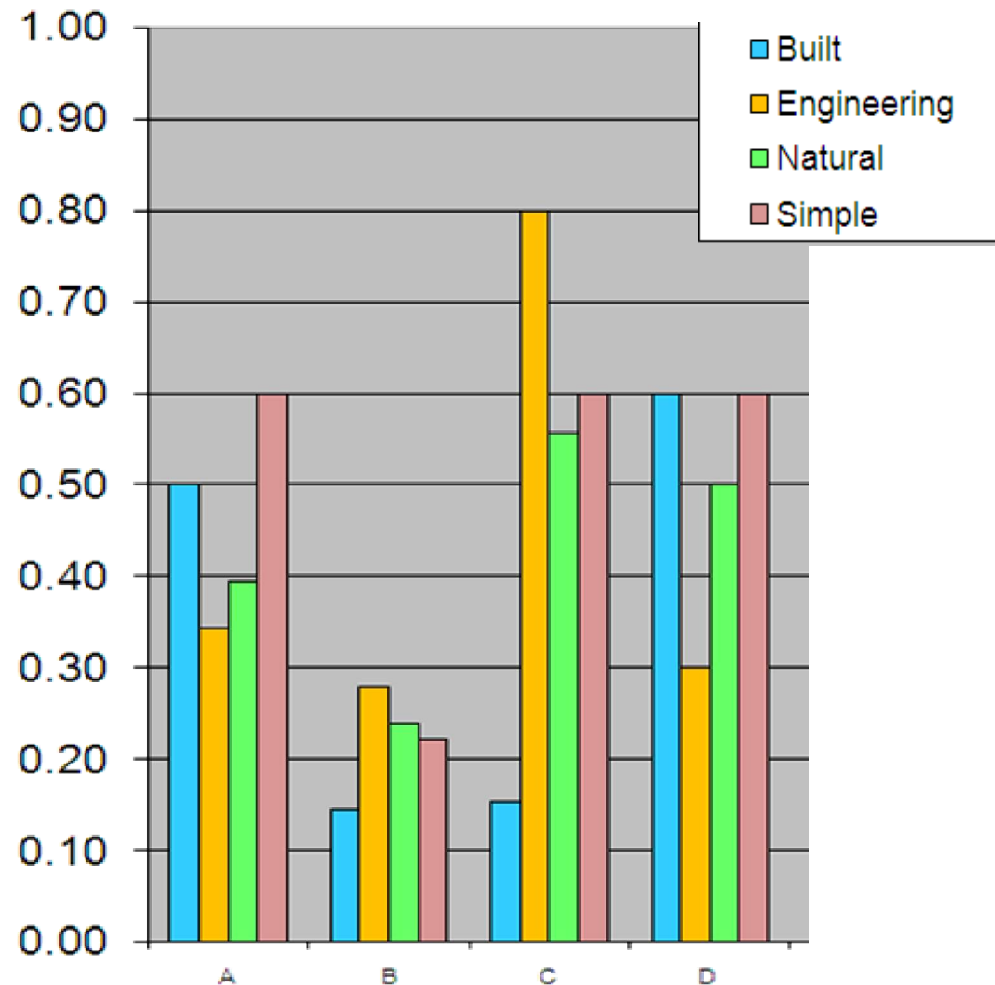


Review of Alternative Routes

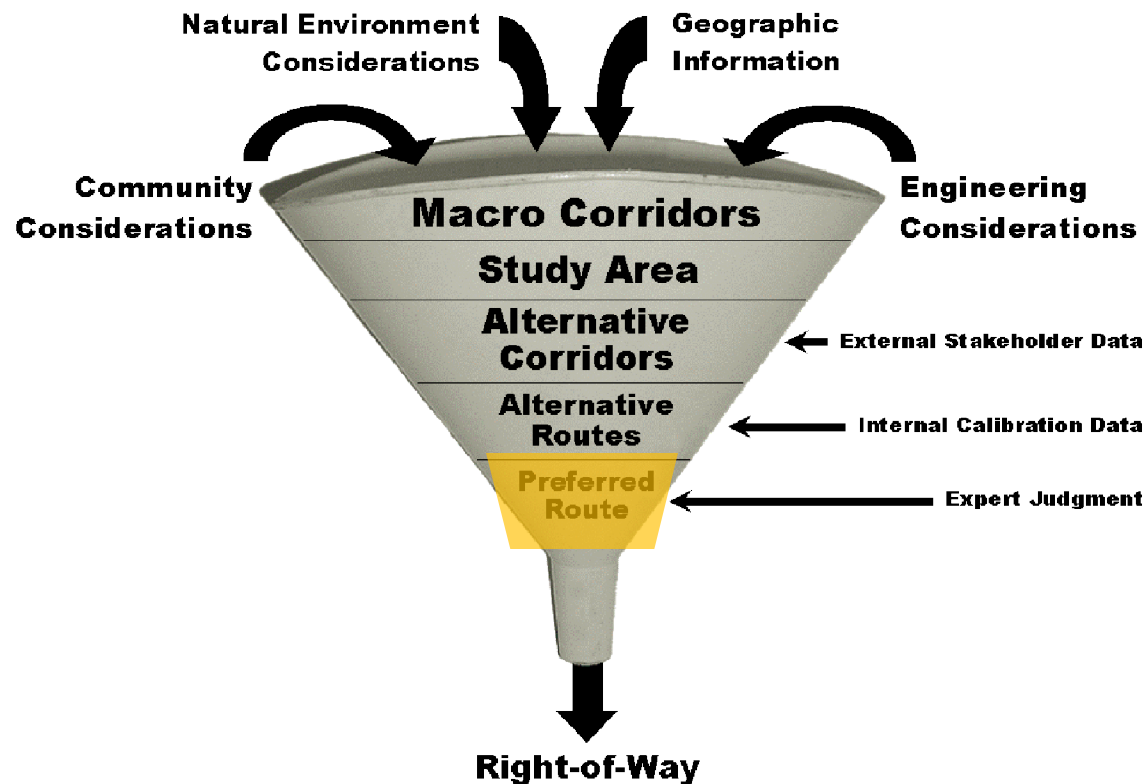
- Public and Stakeholders provide input into the alternative routes through various avenues, including:
 - Workshops
 - Open houses
 - Meetings with project team members
 - Website

Alternative Route Selection

- An alternative route evaluation model is used to determine the relative strengths and weaknesses of each route



Preferred Route Selection



Preferred Route Selection

- Expert judgment is used to determine the final preferred route
- Incorporates input received from stakeholders in the routing phase, and from public and aboriginal engagement

Conclusion

With the help of stakeholder input, expert judgment and internal expertise, a balanced, transparent and defensible preferred final route is developed.

Next Steps

After the Final Preferred Route is determined:

- further discussions with Landowners
- adjustments to the route to address site-specific concerns.
- discussion of how to mitigate unavoidable impacts.



Proposed St. Vital Transmission Complex Round 1 - Alternative Routes

Round 1 - Alternative Routes

Project need

In order to improve system reliability and accommodate the growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt (kV) transmission lines, both originating at the St. Vital Station, located in southeastern Winnipeg. One line will run south to the Letellier Station and the other will run west to the La Verendrye Station located near the community of Oak Bluff.

Project description

The new line between the St. Vital and La Verendrye stations will be located on an existing Manitoba Hydro right-of-way south of Winnipeg known as the Southern Loop. This portion of the Project will enable the Winnipeg electrical network to withstand various severe outages, improve performance during normal operation and promote the reliability of the power system in southern Manitoba.

Project location

The new line between St. Vital Station and the Letellier Station will be routed through south central Manitoba, near Steinbach, to accommodate a potential future 230-kV station. This portion of the Project is required to address load and voltage concerns in the south central area of Manitoba due to load growth.

Environmental characterization underway

Manitoba Hydro has begun to collect information that will contribute to the selection of a transmission line route and environmental assessment of the Project. Once a route is determined, this information will help the Project team understand the landscape in order to determine any potential effects the Project may have on:

- physical, terrestrial and aquatic environments.
- heritage resources.
- land use.
- socio-economic environment.

Project Facts

The proposed St. Vital Transmission Complex includes two 230-kV transmission lines. Both will start at the St. Vital Station located in southeastern Winnipeg:

- One new line will run south to the Letellier Station, passing close to Steinbach.
- The other new line will run to La Verendrye Station, within an existing right-of-way known as the Southern Loop.

The engagement process includes:

- Round 1, August 2013: presentation of alternative routes.
- Round 2, October 2013: presentation of preferred route.

The Project's Environmental Assessment Report is scheduled to be submitted in December 2013.

The anticipated Project completion date is 2017.

Route Selection and Environmental Assessment Processes

Manitoba Hydro is piloting a new process to develop alternative routes for the St. Vital to Letellier transmission line. Known as EPRI-GTC Methodology, this process allows for early stakeholder input and incorporates engineering, built and natural environment considerations. The process involves stakeholders identifying, weighting and scoring alternative corridor selection factors, leading to the identification of alternative corridors to begin siting alternative routes. Feedback provided will assist in the identification of a preferred route for the new transmission line.

The development of the proposed transmission lines will require a Class 2 licence under *The Environment Act* (Manitoba). An environmental assessment generally consists of:

- characterization of the environment.
- identification of potential effects on people and the environment.
- determination of methods to avoid or reduce potential effects while enhancing beneficial effects.

The environmental assessment, including the public engagement process, will be documented in an Environmental Assessment Report and is anticipated to be submitted to regulatory authorities by end of 2013.



Engagement Process

Manitoba Hydro will undertake two rounds of engagement to gather feedback at different stages in the transmission line and assessment processes. The engagement process will include discussions with landowners, First Nations, the Manitoba Metis Federation, municipalities and other stakeholders.

Manitoba Hydro will:




- inform the public regarding the Project, timelines and route selection process.
- utilize a variety of mechanisms to receive and share information with interested individuals.
- gather feedback on the local environment to assist routing the transmission lines as well as the environmental assessment.
- provide opportunities to have questions answered and concerns addressed by Manitoba Hydro representatives.

Manitoba Hydro will undertake stakeholder workshops, open houses and meetings to collect information which will assist with determining a route that minimizes the impact on people and the environment.



Alternative Routes

St. Vital Transmission Complex







Project Infrastructure

-  Composite Alternative Route Corridor
-  Alternative Routes for the St. Vital to Letellier Transmission Line
-  St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)

Infrastructure

-  Transmission Line
-  Electrical Station

Landbase

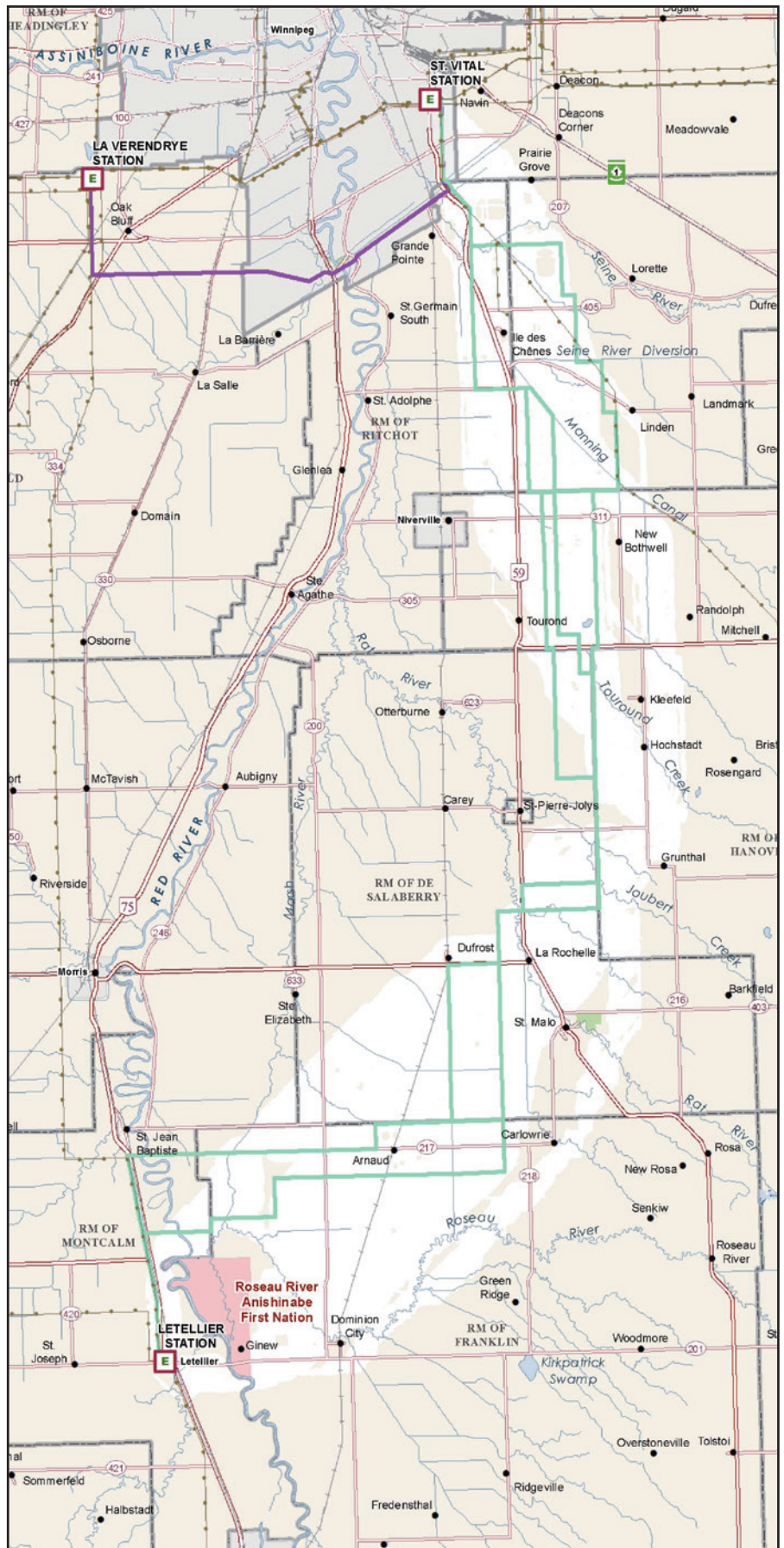
-  City / Town
-  First Nation
-  National/Provincial Park
-  Provincial Highway
-  Provincial Road
-  Railway

Southern Loop Transmission Corridor

The Southern Loop is a dedicated transmission corridor that will accommodate multiple transmission lines necessary for system reliability and to meet future energy demands.

Located between the Dorsey Converter Station (near Rosser) and the Riel Station (east of Winnipeg), the transmission corridor follows the western and southern boundaries of the City of Winnipeg. It connects to the LaVerendrye Station, near Oak Bluff.

Manitoba Hydro has been acquiring property rights for the Southern Loop for many years. The Southern Loop will allow for multiple transmission lines within a single corridor, which would reduce the number of independent rights-of-way on the landscape. The St. Vital to La Verendrye transmission line will take advantage of this right-of-way.



Project Timeline

Round 1 - August 2013

- Introduce the Project.
- Present alternative routes.
- Answer questions.
- Identify and document concerns.
- Use input to guide preferred route selection process.

Round 2 - October 2013

- Present Round 1 findings.
- Present the preferred route.
- Answer questions.
- Identify and document outstanding concerns.
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize or avoid effects.

Next Steps

- Submit the Environmental Assessment Report.
- Regulatory authorities review report.
- Receipt of licence.
- Construction.
- Complete in-service date 2017.

We are here.



We would like to hear from you.

There are a number of ways that you can participate in the review of this project and provide your input:

- attend an Open House.
- submit a comment sheet, available at the Open Houses or on our website (see address below).
- contact us directly.

Questions or comments?

Please contact:

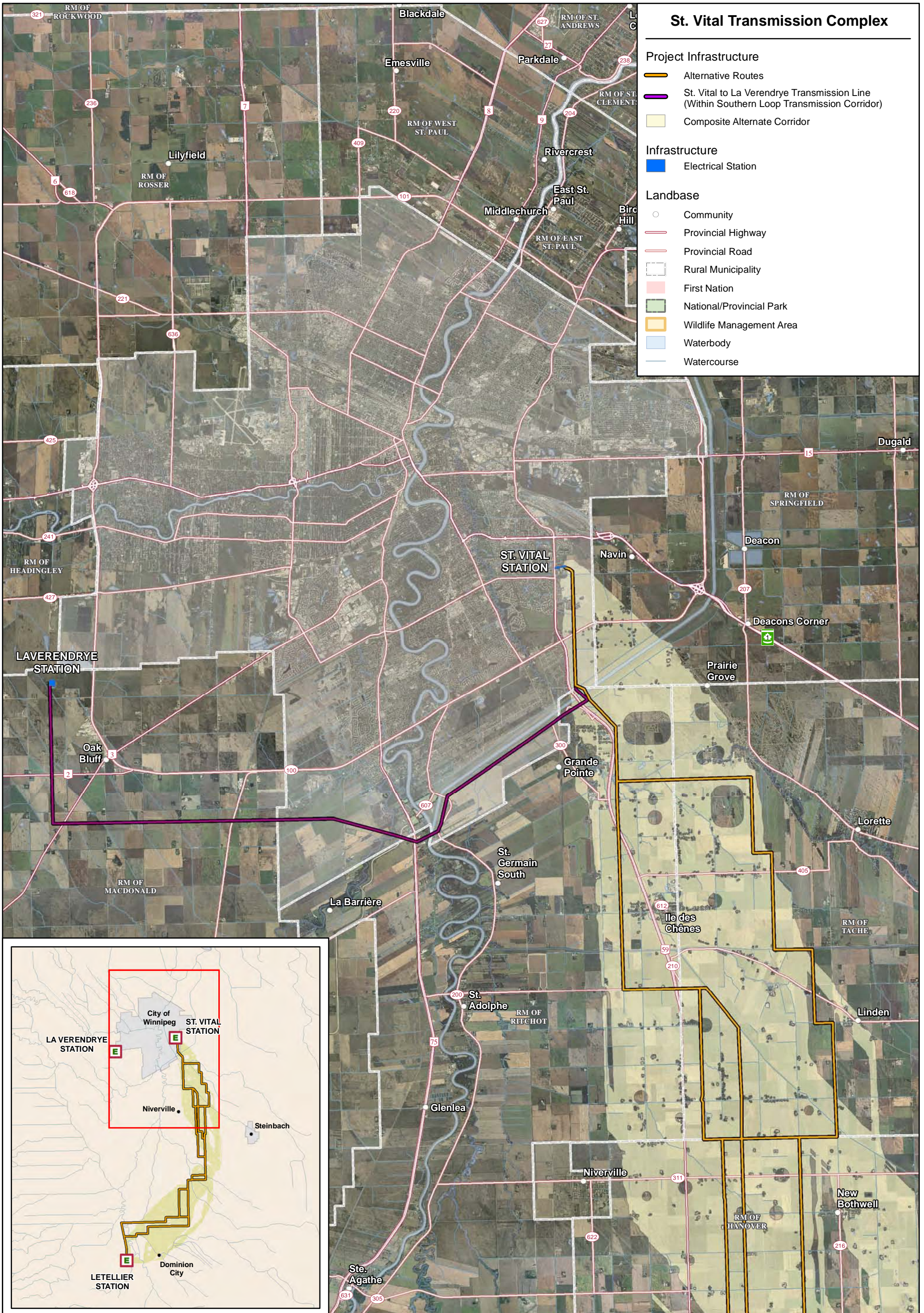
Trevor Joyal

Licensing & Environmental Assessment Department

Phone: **1-877-343-1631**

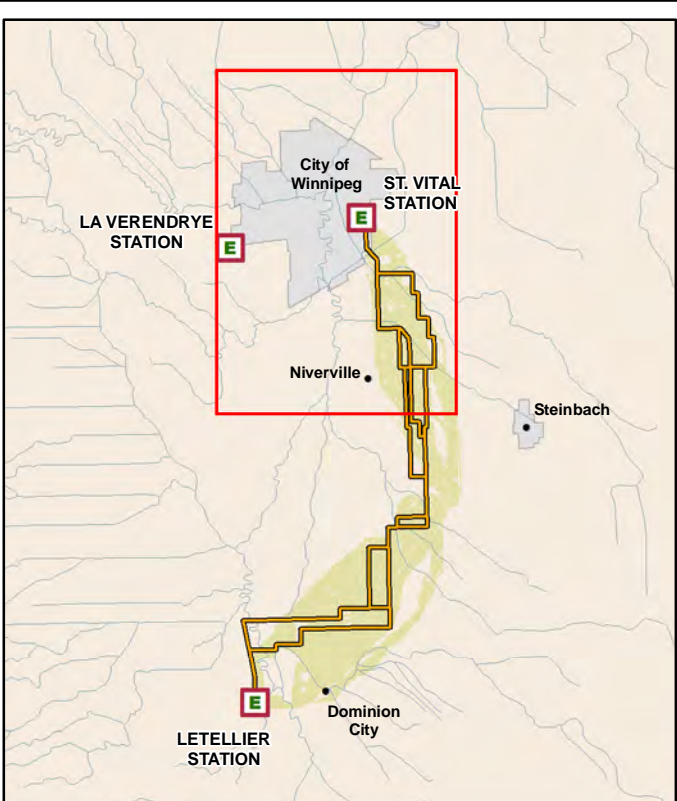
Email: LEAprojects@hydro.mb.ca

www.hydro.mb.ca/stvital.

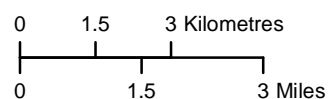


St. Vital Transmission Complex

- Project Infrastructure**
- Alternative Routes
 - St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)
 - Composite Alternate Corridor
- Infrastructure**
- Electrical Station
- Landbase**
- Community
 - Provincial Highway
 - Provincial Road
 - Rural Municipality
 - First Nation
 - National/Provincial Park
 - Wildlife Management Area
 - Waterbody
 - Watercourse



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, Stantec, PGS, ProvMB, NRCAN
 Date Created: August 19, 2013






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Composite Corridor and Alternative Routes St. Vital Transmission Complex


Draft: For Discussion Purposes Only

St. Vital Transmission Complex










Project Infrastructure

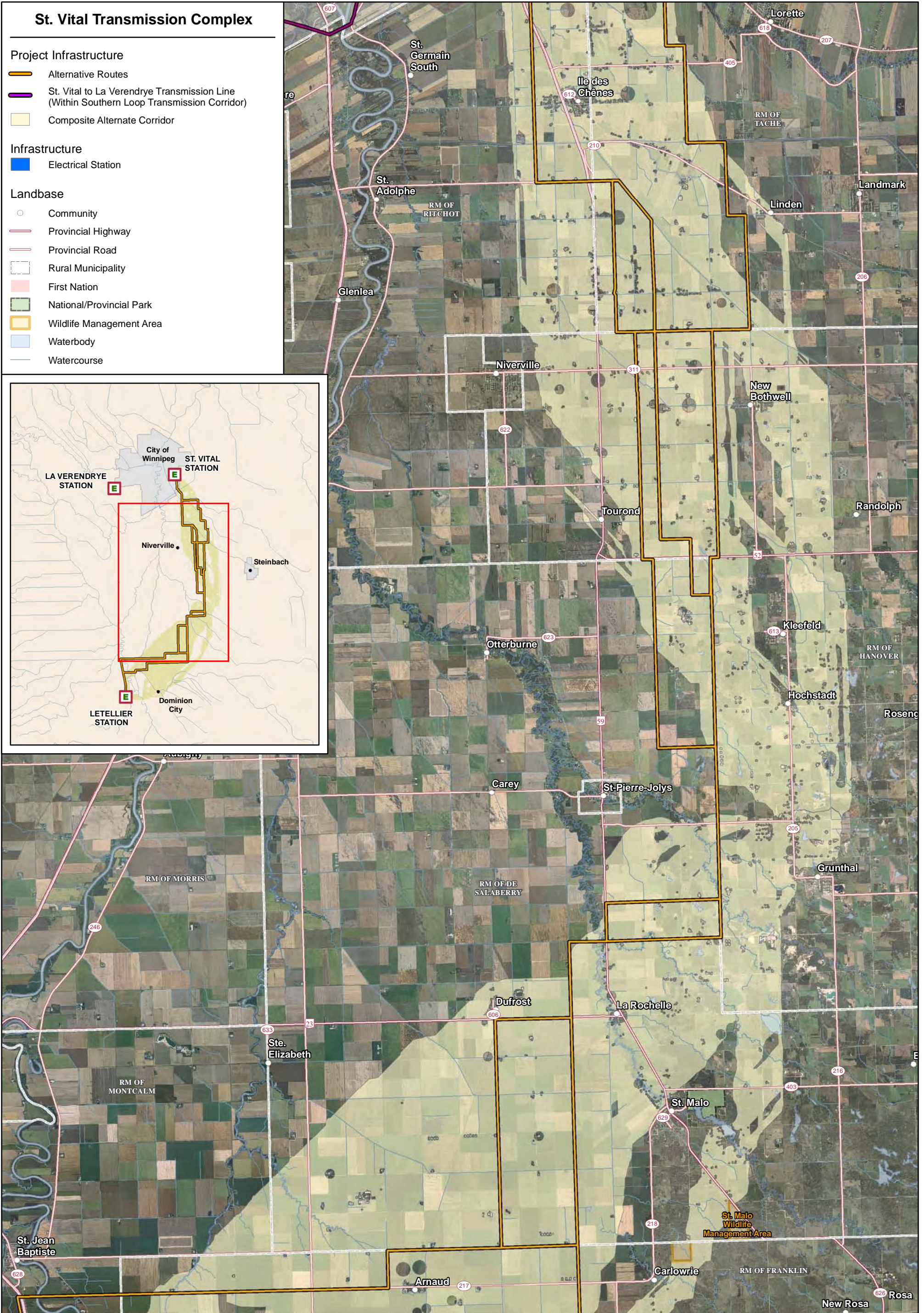
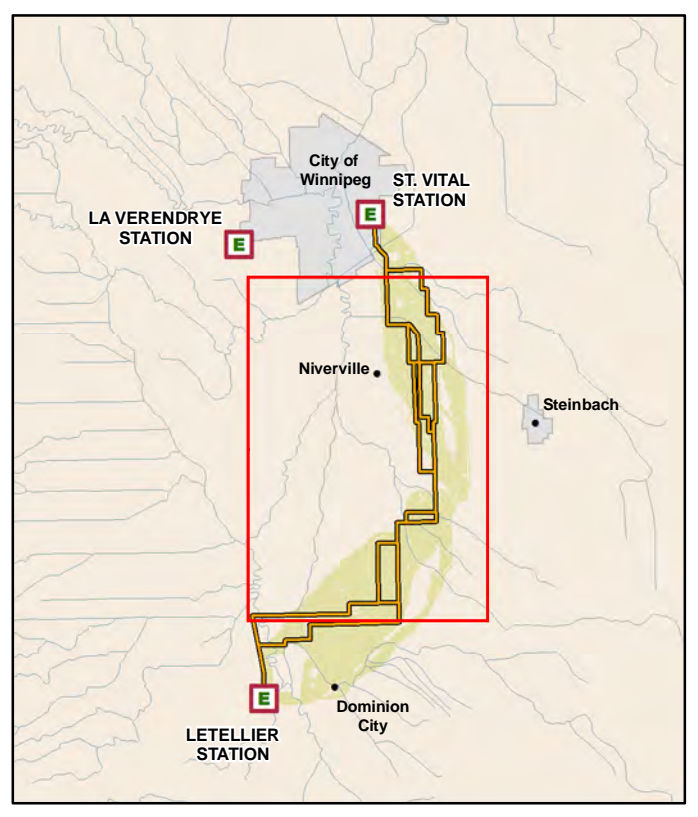
-  Alternative Routes
-  St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)
-  Composite Alternate Corridor

Infrastructure

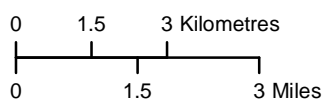
-  Electrical Station

Landbase

-  Community
-  Provincial Highway
-  Provincial Road
-  Rural Municipality
-  First Nation
-  National/Provincial Park
-  Wildlife Management Area
-  Waterbody
-  Watercourse



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, Stantec, PGS, ProvMB, NRCAN
 Date Created: August 19, 2013






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Composite Corridor and Alternative Routes St. Vital Transmission Complex

St. Vital Transmission Complex










Project Infrastructure

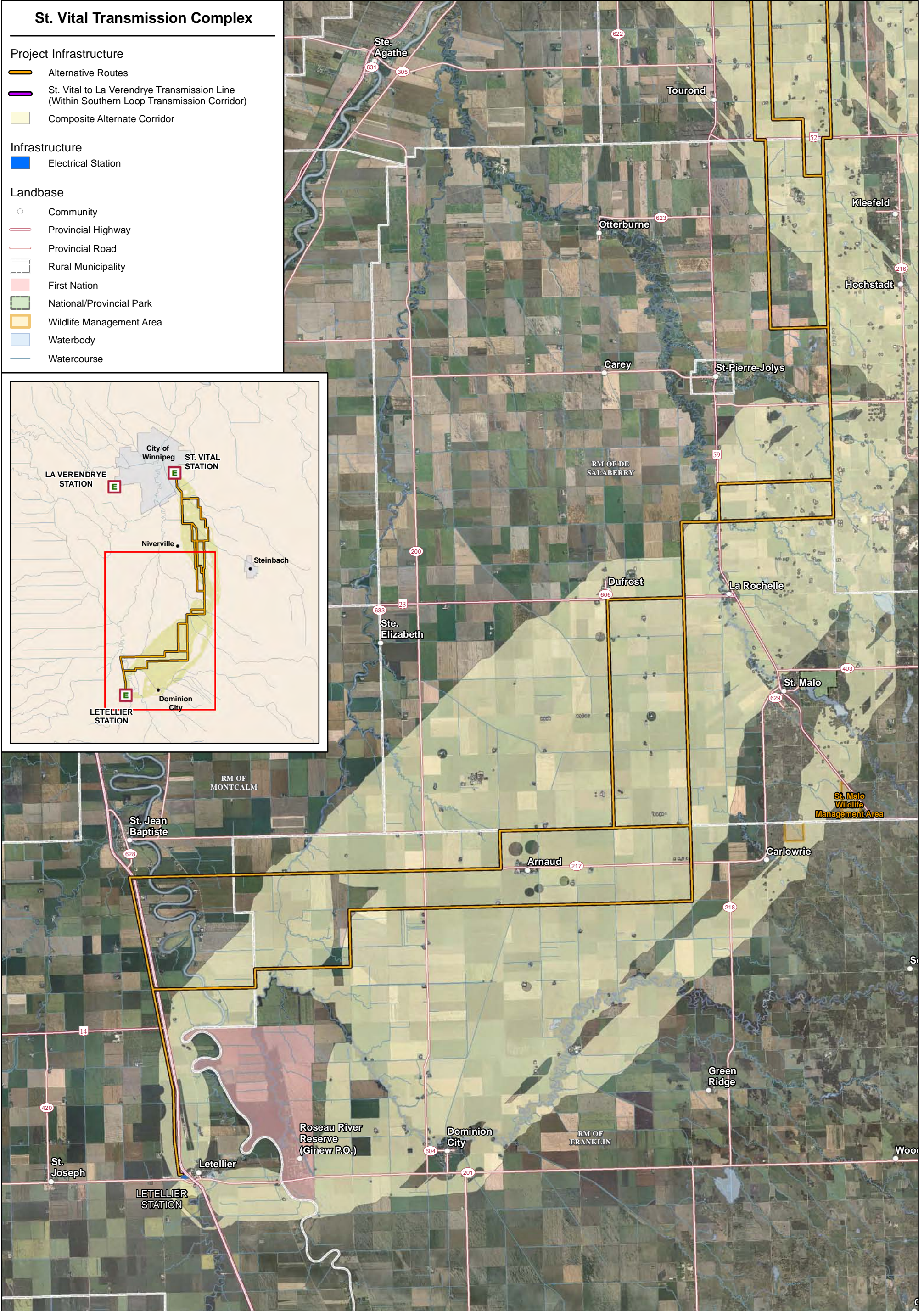
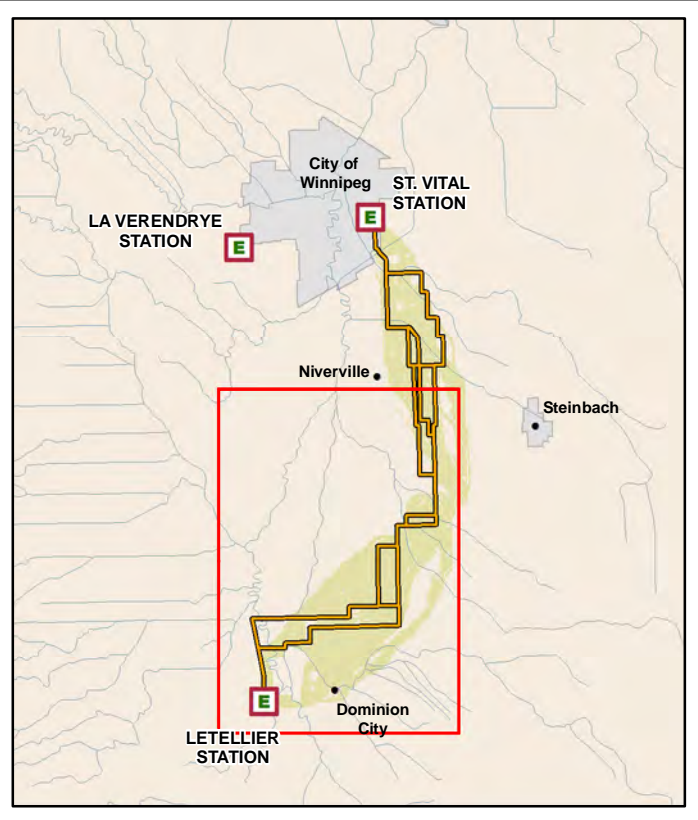
-  Alternative Routes
-  St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)
-  Composite Alternate Corridor

Infrastructure

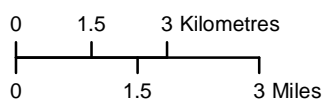
-  Electrical Station

Landbase

-  Community
-  Provincial Highway
-  Provincial Road
-  Rural Municipality
-  First Nation
-  National/Provincial Park
-  Wildlife Management Area
-  Waterbody
-  Watercourse



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Composite Corridor and Alternative Routes St. Vital Transmission Complex

Draft: For Discussion Purposes Only

There is a shortage of high-voltage transmission lines, and demand is expected to grow in the future. Even so, these lines are usually unwanted as a result of the real and perceived impacts to people and natural resources. Selection of transmission line routes is a growing source of public controversy and regulatory scrutiny throughout the world.

A siting methodology was developed through a \$500,000 collaborative effort co-funded by the Electric Power Research Institute (EPRI), the nonprofit Georgia Transmission Corporation (GTC), and Photo Science, a geospatial solutions contractor. The methodology addresses these criticisms by allowing external groups to participate in the process and by making decisions by utility professionals more transparent and credible. It uses a GIS to map all geographic features, assign stakeholder-generated numerical suitability values, assign engineering constraints, generate corridor alternatives using computer algorithms, and automatically create reports summarizing criteria used and values assigned. The methodology has proven to be objective, consistent, and defensible. A report is available to help transmission line developers implement the methodology.

The methodology is being adopted throughout the United States and has received international interest. The siting methodology earned GTC the National Rural Electric Cooperative Association's 2006 Cooperative Innovators Award.

Siting Transmission Lines Using the EPRI–GTC Siting Methodology

Jesse Glasgow

Keywords: geographic information system, stakeholder input, transmission line siting

INTRODUCTION

Electric transmission lines are a critical component to the modern electric power system. Transmission lines carry wholesale electricity in bulk from the generator to the local distribution systems or industrial consumers. Transmission lines move power at a high voltage from plants to substations and transform power from high voltage to low voltage so that it can be delivered to homes and businesses. Transmission line voltage can range from 69 to 765 kV. Subtransmission lines, ranging from 34.5 to 69 kV, are often grouped with major transmission lines in a power company's organization structure. Lower-voltage lines require smaller structures and narrower rights-of-way (ROWs), while higher-voltage lines require larger structures and wider ROWs. In general, the perception is that lower-voltage lines have less impact and, therefore, the siting criteria may differ from those of higher-voltage lines.

Population growth and migration, increased per-capita electricity consumption, new power plants, and the need to add efficiency to the transmission system have increased the need for new transmission lines. The world population reached 7 billion in 2011, just 12 years after reaching 6 billion, and, in mid-2011, the U.S. population reached 312 million and has grown approximately 1% per year from 2000 to 2011 (Population Reference Bureau 2011). The world population is expected to peak at 9.2 billion in 2075 (United Nations 2004).

World per-capita electricity consumption increased by 25% from 1990 to 2005. The U.S. per-capita electricity consumption increased by almost 17% in that same time frame (International Energy Agency 2007). Residential electricity use in the United States increased by 23% from 1999 to 2009, and the trend is expected to continue increasing by 20% from 2007 to 2030 (Energy Information Administration 2009). Between 2010 and 2030, the U.S. electric utility industry will need to make a total infrastructure investment of \$1.5 to \$2.0 trillion—\$300 billion of which is needed for transmission (Chupka et al. 2008).

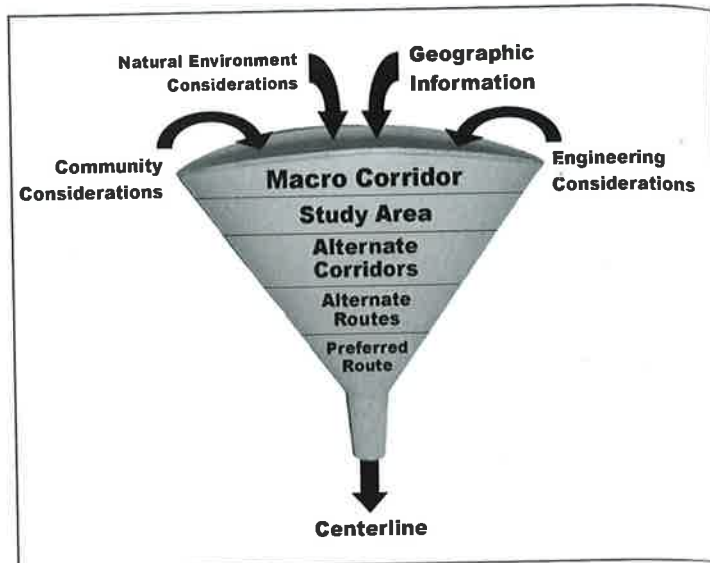


Figure 1. Corridor analysis funnel.

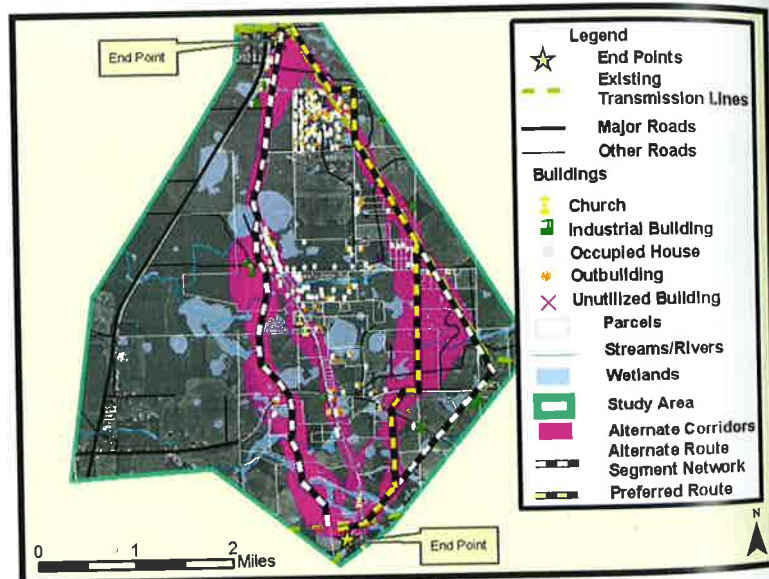


Figure 2. Alternative routes within alternative corridors.

Nevertheless, public opposition to new transmission lines is increasing. Typically, people prefer not to have transmission lines erected near where they live, work, or play. This is because of both real and perceived impacts to the scenery, property values, land use, and safety. At the same time, many people prefer to keep new transmission lines out of undeveloped natural areas so as to preserve wildlife habitat. Transmission line developers often find themselves between a rock and a hard place (Mortenson 2009; Wheeler 2009).

EPRI-GTC SITING METHODOLOGY

Development of transmission line routes is a growing source of public controversy and regulatory scrutiny. A siting methodology developed by Georgia Transmission Corporation (GTC), Photo Science, and the Electric Power Research Institute (EPRI) addresses these criticisms. The EPRI-GTC siting methodology allows external groups to participate in the process and makes decisions by utility professionals more

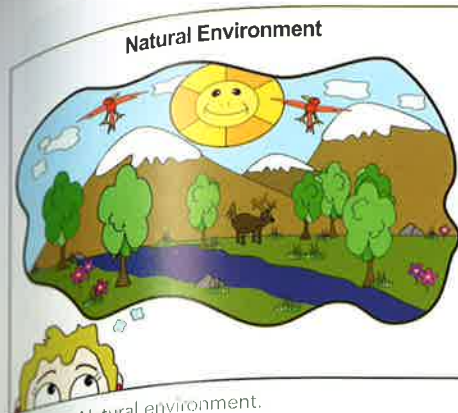


Figure 3. Natural environment.

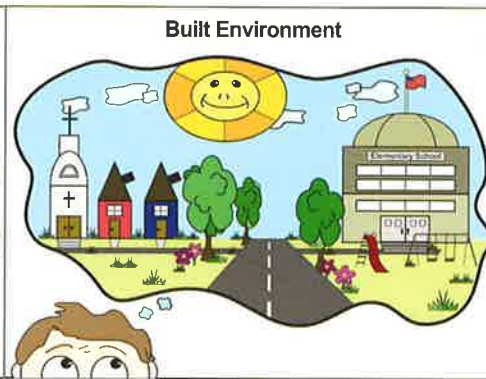


Figure 4. Built environment.

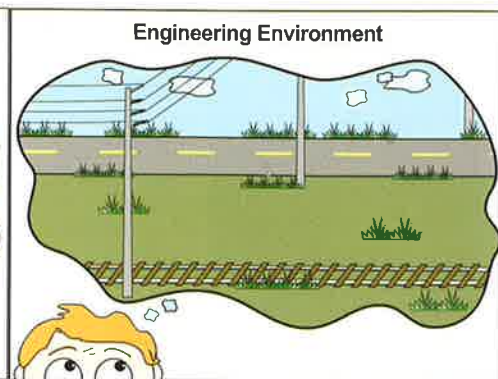


Figure 5. Engineering environment.

transparent and credible. It capitalizes on the ability of GIS software to map all geographic features in a study area, assign numerical suitability values to all features, assign engineering constraints, generate corridor alternatives using statistically sound algorithms, automatically generate alternative corridor reports, and automatically create reports summarizing criteria used and values assigned. At least nine utilities have adopted the methodology, and it has been used on more than 70 projects in at least seven U.S. states and Korea.

Methodology Overview

The funnel (Figure 1) is a conceptual diagram that illustrates the siting methodology at a high level. Values and weights developed during the process are applied to geographic information. During each phase of the process, as the area of interest becomes more focused and defined, and the data incorporated become more detailed and accurate. The final stage of this siting methodology culminates in route selection, where a preferred route, or centerline, is selected for the proposed facility.

Stakeholder Input

One of the key components to this methodology is the incorporation of input from external stakeholders. Stakeholders develop the criteria, determine relative suitability, and determine the relative importance of the criteria used to identify alternative corridors. Stakeholders represent members of com-

munity groups, regulatory agencies, conservation groups, other utilities, government agencies, elected officials, and others. This is done on a programmatic basis, and the resulting model is used on multiple projects.

Stakeholder input is used to create suitability maps from three perspectives. One perspective is the built environment, which contains mapped features that represent human and cultural resource areas. Another is the natural environment, which includes mapped features that represent plants, animals, and hydrologic resources. Finally, there is an engineering concerns perspective, which addresses physical constraints and contains features for maximizing co-location and minimizing cost and schedule delays. A computer algorithm is applied to evaluate all possible routes, determining the routes most preferred from each perspective. The top 3% of all the routes are used for the alternative corridors (Figure 2).

Once the corridors are identified, the process continues down the funnel. More detailed data are collected for these refined areas. As the process moves down the funnel, the data become more detailed and accurate, and the area to locate the transmission line becomes more concentrated and precise.

The professional siting team identifies alternative routes (Figure 2) within the alternative corridors. The alternative route evaluation model applies a standard set of metrics and weights to each route.

To select the preferred route, all top-scoring routes are scrutinized by the project team in a procedure known as “expert judgment.” The team decides on a set of issues or risk factors that may be unique to each project. These issues are more subjective—such as public concern, maintenance accessibility, and schedule delay risk. Using the expert judgment model, the project team selects the preferred route.

Siting Criteria

Transmission line siting criteria can be grouped into three general categories: Criteria aimed at minimizing impacts to the natural environment (Figure 3), the built environment (Figure 4), and the engineering environment (Figure 5). By grouping criteria in this manner, models can be developed to place emphasis on one of these groups or consider them equally. This organization structure also provides options for obtaining input from stakeholders with varying expertise. Some stakeholders may have more expertise and concern relative to people, places, the natural environment, or engineering.

Another consideration for criteria is the phase of the project. As the project proceeds, more-detailed criteria are considered. The criteria used for the identification of corridors may not be as detailed or specific as the criteria used to evaluate alternative routes.

Following is an example of criteria for the identification of alternative corridors within a siting program in the eastern United States. It should be noted

that these criteria may be different in different regions; therefore, the model should be updated to accommodate region-specific concerns. These criteria and the suitability values and weights were identified by a group of external stakeholders.

Natural Environment

- Streams and Wetlands
 - ⇒ No streams and wetlands
 - ⇒ Small streams
 - ⇒ Nonforested, noncoastal wetlands
 - ⇒ Large streams
 - ⇒ Nonforested coastal wetlands
 - ⇒ Trout streams
 - ⇒ Forested wetlands
- Floodplain
 - ⇒ In the floodplain
 - ⇒ Not in the floodplain
- Public Lands (see other public lands, in the avoidance category)
 - ⇒ Areas where there are no public lands
 - ⇒ Wildlife management areas (private ownership)
 - ⇒ Other conservation land
 - ⇒ U.S. Forest Service land
 - ⇒ Wildlife management areas (state owned)
- Protected Wildlife Habitat
 - ⇒ Federally endangered
 - ⇒ Federally threatened
 - ⇒ State endangered
 - ⇒ State threatened
 - ⇒ No protected wildlife habitat
- Land Cover
 - ⇒ Open land
 - ⇒ Managed pine plantation
 - ⇒ Row crops
 - ⇒ Developed land
 - ⇒ Forest
- Avoidance Areas
 - ⇒ EPA Superfund sites
 - ⇒ Federal, state, and local parks
 - ⇒ Wilderness areas
 - ⇒ National Wild and Scenic Rivers
 - ⇒ Wildlife refuge

Built Environment

- Proximity to Buildings
 - ⇒ Close to buildings
 - ⇒ Far from buildings
- Building Density
 - ⇒ High building density
 - ⇒ Low building density
- Proximity to Eligible Historic Structures
 - ⇒ Close to historic structures
 - ⇒ Far from historic structures
- Proposed Developments
 - ⇒ Area with proposed development
 - ⇒ No proposed development
- Land Use
 - ⇒ Undeveloped
 - ⇒ Developed nonresidential
 - ⇒ Residential
- Avoidance Areas
 - ⇒ Listed archeology sites, historic structures, and districts
 - ⇒ Areas of ritual importance
 - ⇒ School and daycare parcels
 - ⇒ Cemetery parcels
 - ⇒ Church parcels
 - ⇒ Buildings

Engineering Environment

- Slope
 - ⇒ High slope
 - ⇒ Low slope
- Intensive Agriculture
 - ⇒ Center pivot irrigation
 - ⇒ Fruit orchards
 - ⇒ No intensive agriculture
- Co-Location Opportunities
 - ⇒ Rebuild existing transmission lines
 - ⇒ Parallel existing transmission lines
 - ⇒ Parallel gas transmission lines
 - ⇒ Parallel roads
 - ⇒ Parallel interstates
 - ⇒ Scenic highways
 - ⇒ Parallel railroads
- Avoidance Areas
 - ⇒ Airports and glide paths
 - ⇒ Nonspannable water
 - ⇒ Military facilities
 - ⇒ Mines and quarries

Stakeholder Calibration

The methodology recommends that a group of stakeholders identify/refine the siting criteria and assign relative suitability values and relative importance weights (Figure 6). This is accomplished by using the modified Delphi process to gain consensus on the suitability values and the analytical hierarchy process to

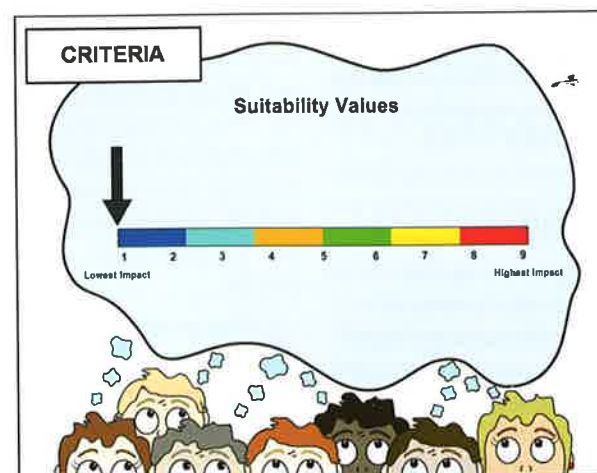


Figure 6. Suitability values.

Engineering		Natural Environment		Built Environment		Avoidance Areas
Linear Infrastructure	48.3%	Floodplain	6.2%	Proximity to Buildings	11.5%	Listed archaeology sites
Rebuild existing transmission lines	1	No floodplain	1	> 1200	1	Listed NRHP districts and buildings
Parallel existing transmission lines	1.4	100-year floodplain	9	900-1200	1.8	Eligible NRHP districts
Parallel roads ROW	3.6	Streams/Wetlands	20.9%	600-900	2.6	Airports
Parallel gas pipelines	4.5	No streams/wetlands	1	300-600	4.2	EPA Superfund sites
Parallel railway ROW	5	Streams < 5 ft ³ /sec. + regulatory buffer	5.1	0-300	9	Nonspannable water bodies
No linear infrastructure	5.5	Nonforested noncoastal wetlands + 30-foot buffer	6.1	Eligible NRHP Historic Structures	13.9%	State and national parks
Future GDOT plans	7.5	Rivers/streams > 5 ft ³ /sec. + regulatory buffer	7.4	>1500	1	Military facilities
Parallel interstates ROW	8.1	Nonforested coastal wetlands + 30-foot buffer	8.4	0-1500	9	City and county parks
Road ROW	8.4	Trout streams (50-foot buffer)	8.5	Building Density	37.4%	Mines and quarries
Scenic highways ROW	9	Forested wetlands + 30-foot buffer	9	0-0.05 buildings/acre	1	Daycare parcels
Slope	9.1%	Public Lands	16.0%	0.05-0.2 buildings/acre	3	Cemetery parcels
Slope 0-15%	1	No public lands	1	0.2-1 buildings/acre	5	School parcels (K-12)
Slope 15-30%	5.5	WMA, not state owned	4.8	1-4 buildings/acre	7	Church parcels
Slope >30%	9	Other conservation land	8.3	4-25 buildings/acre	9	USFS wilderness area
Intensive Agriculture	42.6%	U.S. Forest Service	8	Proposed Development	6.3%	National Wild and Scenic Rivers
No intensive agriculture	1	WMA, state owned	9	No proposed development	1	Areas of ritual importance
Fruit orchards	5	Land Cover	20.9%	Proposed development	9	Wildlife refuge
Pecan orchards	9	Open land (pastures, scrub/shrub, etc.)	1	Spannable Lakes and Ponds	3.8%	Buildings + buffer
Center pivot irrigation	9	Managed pine plantations	2.2	No spannable lakes or ponds	1	
		Row crops and horticulture	2.2	Spannable lakes and ponds	9	
		Developed land	6.5	Major Property Lines	8.0%	
		Hardwood/mixed/natural coniferous forests	9	Edge of field	1	
		Wildlife Habitat	36.0%	Land lots	7.9	
		No sensitive wildlife habitat	1	No major property lines	9	
		Species of concern habitat	3	Land Use	19.1%	
		Natural areas	9	Undeveloped	1	
				Nonresidential	3	
				Residential	9	

Table 1. Alternative corridor model.

develop relative importance weights. The stakeholders are grouped by expertise/concern, and a facilitator drives the group to as much consensus as possible. The stakeholder input process results in a model that contains weights (measured by percentage of total) that represent the relative suitability of the layers and suitability values represent-

ing the relative suitability of the features. The higher the weight, the more important the layer is within that group. The lower the suitability value, the more suitable a feature is for a new transmission line.

GIS tools, such as ESRI's Spatial Analyst, are used to perform suitability and least-cost-path analysis. Multiple suit-

ability maps and corridors are generated based on emphasizing each perspective. For example, a fivefold emphasis is placed on the built perspective to develop the built corridor. Finally, an analysis is performed equally weighting all three perspectives. This process results in four corridors which, when combined, form the alternative corridors (Table 1).

Table 2. Alternative route evaluation model.

For All Routes		Sample Weights					
Feature	33%	Route A	Route B	Route C	Route D	Route E	Route F
		Unit	Unit	Unit	Unit	Unit	Unit
Built							
Relocated residences (within 75-foot corridor)	44.3%	0.00	0.00	1.00	0.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.44	0.00	0.44	0.00
Proximity to residences (300 feet)	13.1%	0.00	1.00	0.25	0.13	0.28	0.16
<i>Weighted</i>		0.00	0.13	0.03	0.02	0.04	0.02
Proposed residential developments	5.4%	1.00	0.00	0.50	0.00	0.00	0.00
<i>Weighted</i>		0.05	0.00	0.03	0.00	0.00	0.00
Proximity to commercial buildings (300 feet)	3.6%	0.50	0.75	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.02	0.03	0.00	0.00	0.00	0.04
Proximity to industrial buildings (300 feet)	1.8%	0.33	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.01	0.00	0.00	0.00	0.02	0.02
School, daycare, church, cemetery, park parcels (#)	16.3%	1.00	0.14	0.14	0.00	0.00	0.00
<i>Weighted</i>		0.16	0.02	0.02	0.00	0.00	0.00
NRHP listed/eligible structures/districts (1500 feet from edge of ROW)	15.5%	1.00	0.50	0.00	0.00	0.00	0.00
		0.16	0.08	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.40	0.26	0.53	0.02	0.50	0.07
WEIGHTED TOTAL		0.13	0.09	0.17	0.01	0.16	0.02
Natural		33%					
Natural forests (acres)	9.3%	0.00	0.54	0.49	0.61	0.88	1.00
<i>Weighted</i>		0.00	0.05	0.05	0.06	0.08	0.09
Stream/river crossings	38.0%	0.00	0.50	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.00	0.19	0.00	0.00	0.38	0.38
Wetland areas (acres)	40.3%	0.02	0.00	0.62	0.72	0.90	1.00
<i>Weighted</i>		0.01	0.00	0.25	0.29	0.36	0.40
Floodplain areas (acres)	12.4%	0.29	0.00	1.00	0.85	0.67	0.29
<i>Weighted</i>		0.04	0.00	0.12	0.11	0.08	0.04
TOTAL	100.0%	0.04	0.24	0.42	0.45	0.91	0.91
WEIGHTED TOTAL		0.01	0.08	0.14	0.15	0.30	0.30
Engineering		33%					
Miles of rebuild with existing transmission line	65.6%	1.00	0.16	0.84	0.00	0.43	0.32
<i>Weighted</i>		0.66	0.11	0.55	0.00	0.28	0.21
Miles of co-location with transmission line	19.2%	2.58	1.25	8.50	2.36	3.69	9.50
<i>Weighted</i>		0.50	0.24	1.63	0.45	0.71	1.82
Miles of co-location with roads	7.8%	0.84	1.00	0.12	0.87	0.70	0.00
<i>Weighted</i>		0.07	0.08	0.01	0.07	0.05	0.00
Total project costs	7.4%	4.05	1.04	3.63	0.62	0.43	0.23
<i>Weighted</i>		0.30	0.08	0.27	0.05	0.03	0.02
TOTAL	100.0%	1.52	0.50	2.46	0.57	1.08	2.05
WEIGHTED TOTAL		0.50	0.17	0.81	0.19	0.36	0.68
SUM OF WEIGHTED TOTALS		0.65	0.33	1.12	0.34	0.82	1.00

Table 3. Expert judgment model.

For Top 3 to 5 Routes (Internal)

Expert Judgment	Sample Weights			
	Per Project	Route A	Route B	Route D
Visual issues	10%	1	3	1
<i>Weighted</i>		0.1	0.3	0.1
Community issues	20%	1	3	2
<i>Weighted</i>		0.2	0.6	0.4
Schedule delay risk	0%	0	0	0
<i>Weighted</i>		0	0	0
Special permit issues	40%	1	3	1
<i>Weighted</i>		0.4	1.2	0.4
Construction/maintenance accessibility	30%	3	1	2
<i>Weighted</i>		0.9	0.3	0.6
Environmental justice	0%	0	0	0
<i>Weighted</i>		0	0	0
TOTAL	100%	1.6	2.4	1.5

The interdisciplinary project team identifies alternative routes within the alternative corridors that minimize impacts and maximize efficiency in accordance with each company's principles. Once the alternative routes are identified, they are evaluated using the alternative route evaluation model (Table 2). This model normalizes metrics on a scale from 0 to 1 so that metrics using different units can be compared. Stakeholders typically identify the criteria and calibrate the weights in this model on a programmatic basis and use it on multiple projects. Typically, a group of internal stakeholders (company representatives) will calibrate this model with corporate values. However, there have been instances of external stakeholders, such as regulatory agency representatives, calibrating this model for specific projects.

Regardless of how this model is calibrated, it is used to evaluate the alternative routes and filter out the top routes. Sensitivity analysis is applied by, again, placing fivefold emphasis on the three perspectives and equally weighting all three perspectives. This method can be used to produce the top route finalist.

The top three to five routes are then taken into the expert judgment model (Table 3). This model is used to guide the project team in selecting the preferred route. The project team adjusts the criteria as necessary on a per project basis, as well as on the relative importance weights. Then the project team ranks each of the route finalists based on their relative score in comparison to the other finalists. The route with the lowest score is the preferred route.

Finally, the route is selected and a detailed technical routing report is created that describes the study area, alternative corridors, alternative routes, and preferred route. This report also describes the siting methodology.

CONCLUSION

Population growth and migration, increased per-capita electricity consumption, new power plants, and the need to add efficiency to the transmission system have increased the need for new transmission lines. There is significant public opposition to new transmission line development projects. The EPRI-GTC siting methodology offers a standardized, objective, consistent, inclusive, transparent, and defensible methodol-

ogy for siting new transmission lines. Application of this methodology may lead to more-defensible siting programs and transmission line development projects.

ACKNOWLEDGMENTS

The EPRI-GTC siting methodology was developed by a core team of utility practitioners, academics, and consultants including Gayle Houston; Christy Johnson; Christopher Smith; Steven French, Ph.D.; Steven Richardson, Esq.; Paul Zwick, Ph.D.; Joseph Berry, Ph.D.; Elizabeth Kramer, Ph.D.; and the author.

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AUTHOR PROFILE

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Since 1999, Jesse Glasgow has been responsible for oversight of the geographic information acquisition, management, analysis, and distribution functions and staff for Georgia Transmission Corporation (GTC). While at GTC, he has led the development of business processes and custom software solutions in support of the siting, design, construction, operations, and maintenance of electric transmission facilities. Glasgow was a team leader in developing the EPRI-GTC siting methodology. Additionally, Glasgow manages transmission line siting projects and consults with a variety of clients involved in developing electric transmission lines, power plants, and greenways. Glasgow earned a BS degree in professional geography from the University of North Alabama and a GIS certification from the University of North Alabama, and is a Licensed Professional Land Surveyor (GIS surveyor) in South Carolina. He serves on the board of directors for the MillionMile Greenway organization. Prior to working in the utility/energy industry, Glasgow was a planner at a regional government agency.

Southern Manitoba Alternate Corridor Siting Model

Last Revised May 31, 2013

Engineering		Natural		Built		Areas of Least Preference	
Linear Infrastructure		35.7%	Aquatics	10.0%	Proximity to Buildings	10.0%	Indian Reserves
Unutilized ROW (Manitoba Hydro Owned)	1	No Aquatic Feature	1.0	> 800 m	1	Treaty Land Entitlement Selection	
Parallel Roads ROW	2.6	Ephemeral Streams (Non-Fish Bearing)	4.9	400 - 800 m	2.7	Campgrounds & Picnic Areas (500 m)	
Municipal Road Allowances	3.1	Spannable Waterbodies (Lakes & Ponds)	6.1	100 - 400 m	6.5	Aircraft Landing Areas (STARS, Flying Farmers, Float Planes, etc) (3 Miles In-Line with Glide Path or Transport Canada Designation)	
Parallel Provincial Highways ROW	3.4	Ephemeral Streams (Fish Bearing)	6.3	ROW - 100 m	9	Recreational Centers (Golf, Skiing, etc) (500m)	
Parallel Existing Transmission Lines	3.8	Swamps	6.8	Building Density	15.0%	Federal Heritage Sites (200m)	
No Linear Infrastructure	4.4	Ephemeral Streams (CRA Fish Bearing)	6.9	< 1 Building / Acre (Rural Agricultural)	1.0	Provincial Heritage Sites (200 m)	
Rebuild Existing Transmission & Sub-Transmission Line	5	Riparian Floodplain	7.1	1 Building per 1-5 acres	2.8	Municipal Heritage Sites (200 m)	
Parallel Oil / Gas Transmission Pipeline	5.6	Permanent Stream	7.5	1-3 Buildings / Acre (Rural Residential)	3.7	Heritage Plaques (200 m)	
Parallel Railway ROW	5.6	Bogs	7.7	3-10 Buildings / Acre (Suburban Density)	7.2	Day Care Parcels	
Future MIT Plans	7.8	Fens	8.2	>10 Buildings / Acre (Urban)	9.0	Cemeteries / Burial Grounds	
>= 300 kV Transmission Line & Within Separation Buffer	8.5	Marsh	8.2	Proposed Development	3.7%	Schools	
Within Road, Railroad, or Utility ROW	9	Permanent Stream (CRA Fish Bearing)	9.0	No Proposed Development	1.0	Past Military Installations	
Spannable Waterbodies	10.4%	Special Features	42.4%	Proposed Development - Industrial Zoning	3.0	Contaminated Sites	
No Waterbody	1	No Special Land	1.0	Proposed Development - Agriculture Zoning	4.1	Known Archaeological & Paleoarchaeological Site (300m)	
Non-Nav. Spannable Waterbody (Standard Structures)	2.8	Managed Woodlots	5.4	Proposed Development - Commercial Zoning	5.1	National, Provincial, & Municipal Historic Site (200m)	
Nav. Spannable Waterbody (Standard Structures)	4.3	Crown Land With Special Code	7.0	Permitted Development	6.9	Religious / Worship Site Parcels	
Non-Nav. Spannable Waterbody (Specialty Structures)	6	Community Pastures	7.3	Proposed Development - Rural Residential Zoning	6.9		
Nav. Spannable Waterbody (Specialty Structures)	9	Flyways	7.5	Proposed Development - Urban Zoning	9.0		
Geotechnical Considerations	30.2%	Areas of Special Interest (ASI)	7.8	Soil Capability & Agricultural Use	11.9%		
Rock	1	Recreation Provincial Park (Non-Protected Portions)	8.0	Other	1.0		
No Special Geotechnical Considerations	1.3	Conservation Easements	8.0	Class 6 & 7 (Low Productivity)	3.3		
100 Year Floodplain	6.6	Wildlife Management Area (Non-Protected Portions)	8.2	Organic Soils / Peat Bogs / Sod Production	3.9		
Wetland / Peatlands	9	Proposed Protected Areas	8.6	Artisanal Farms / Wild Rice	4.3		
Mining Operations / Quarries	13.2%	Heritage Rivers	8.7	Class 4 & 5 (Forages, Transitional)	5.9		
No Mining Operation	1	Important Bird Areas	8.7	Class 1- 3 (Prime Agricultural & Cultivated Land)	9.0		
Abandoned / Inactive Mines (Aggregate Piles, Pits, etc)	6.5	Heritage Marshes	8.9	Land Use	16.0%		
Mine-Owned Land	9	Conservation Lands	8.9	Forest	1.0		
Slope	5.4%	Natural Provincial Park (Non-Protected Portions)	9.0	Open Land (Sand & Gravel)	1.5		
Slope 0 - 15%	1	Land Cover	10.2%	Industrial	1.6		
Slope 15 - 30%	3.1	Exposed / Urbanized / Open Land	1.0	Burnt Areas	1.8		
Slope > 30%	9	Agricultural (Forage)	2.5	Active Forestry Operation	2.3		
Proximity to Future Wind Farms	5.1%	Agricultural (Crops)	2.8	Hunting / Trapping Locations	3.9		
500m - 10k	1	Burnt Areas	4.9	Listed Trails (Existing & Planned)	4.6		
> 10k	9	Grassland	5.0	Agricultural (Forage)	4.9		
Areas of Least Preference	100.0%	Deciduous Forest	5.5	Organic Farming	5.5		
Non-Spannable Waterbodies (300 m)		Coniferous Forest	5.7	WMAs (Unprotected)	5.8		
Mines and Quarries (Active)		Mixed Forest	6.0	Out-of-Park Recreational Development	6.4		
Wastewater Treatment Areas		Non-Developed Sand Hills	8.1	Intense Development & Use	6.5		
Buildings		Native Grassland	9.0	Agricultural (Crops)	6.6		
Oil Well Heads (100m)		Wildlife Habitat	37.4%	500m Buffer of Irrigated Land	6.6		
Waste Disposal Sites		Other	1.0	Intensive Livestock	6.9		
Towers and Antennae Area of Potential Affect (< 200m*)		Ungulate Habitat (High)	6.1	Institutional	7.4		
Existing Wind Turbine Area of Potential Affect (< 500m)		Waterfowl Habitat (High)	6.3	In-Park Recreational Development	7.9		
Airports (Including Glide Paths - 2° Slope)		Waterfowl Paired Density (High)	6.9	Agricultural (Crops Limited to Aerial Application)	8.9		
Federal Park		Waterfowl Hotspots (High)	7.0	Irrigated Land	9.0		
Military Facilities		Grouse Lek Area	7.7	National, Provincial, & Municipal Historic Sites	12.0%		
		Rare Species Habitat	8.0	> 300 m	1.0		
		Critical Habitat	9.0	200 - 300 m	9.0		
		Endangered Species Habitat	9.0	Proximity to Heritage, Archaeological Sites, & Centennial Farms	12.0%		
		Areas of Least Preference	100.0%	> 300 m	1.0		
		Protected Areas		200 - 300 m	9.0		
		World Heritage Sites		Landscape Character (Viewsheds)	7.8%		
		Special Conservation Areas		Other	1.0		
		Ecological Reserves		Recreational Trails	4.1		
		Wildlife Refuge		Cottage Subdivisions	6.1		
		Natural Provincial Park (Protected Portions)		Identified Scenic Provincial Trails & Roads	6.8		
		Recreation Provincial Park (Protected Portions)		Escarments (Timeless Topography)	7.5		
		Wildlife Management Area (Protected Portions)		Resort Lodges & Campgrounds	8.6		
		National Parks		Residential	8.9		
		Provincial Park Reserves		Designated Historic Sites	9.0		
		Wilderness Provincial Park		Edge of Field	11.7%		
		Heritage Provincial Park		Road Allowances	1.0		
				Drains	1.8		
				Quarter Section Lines / Half-Mile Section Lines	2.0		
				Vacant Rail ROW	2.1		
				Parallel Or Adjacent To Road Allowances	2.8		
				Other (None of the Above)	9.0		

100.1%

Bipole III

Bipole III Transmission Project: A Major Reliability Improvement Initiative Alternating Current Electric and Magnetic Fields (EMF)

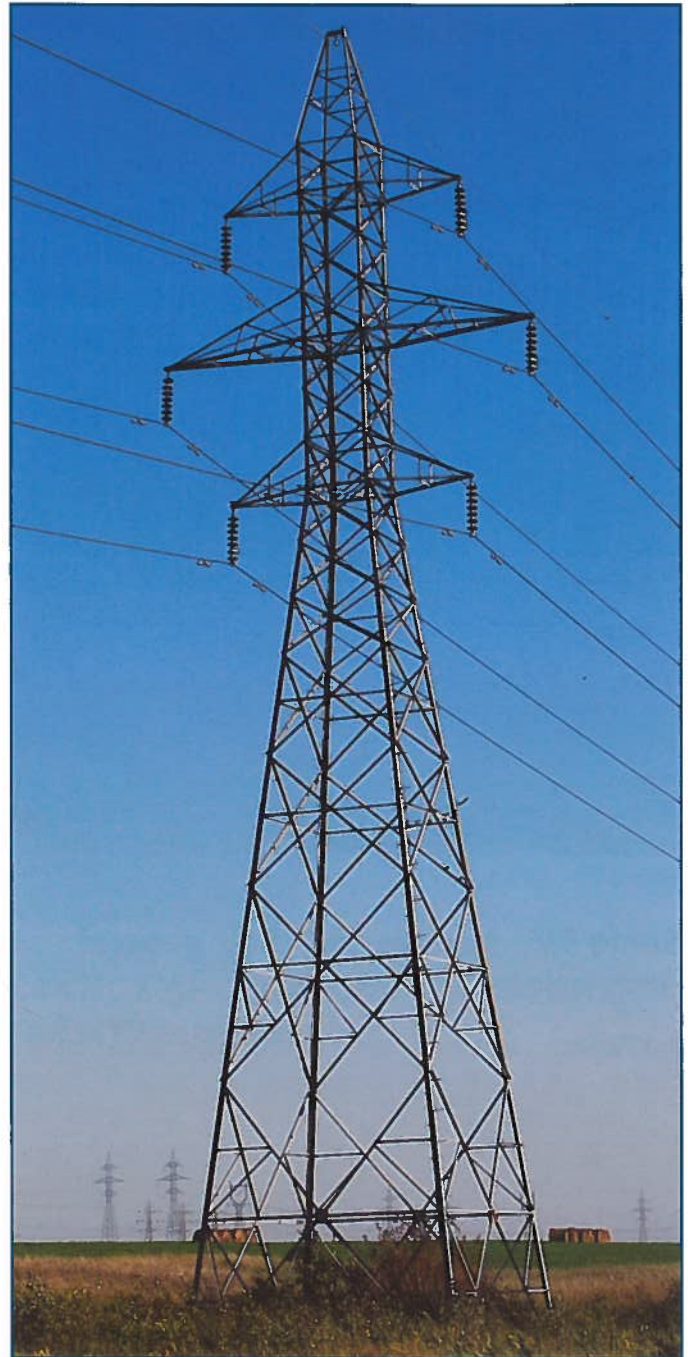
Manitoba Hydro is proposing to build a new direct current (DC) transmission line, known as Bipole III, to improve system reliability. The new line will link the northern power generating complex on the Lower Nelson River with the delivery system in southern Manitoba. In addition to the DC transmission line, the Bipole III Transmission Project will include the construction of a 230 kV alternating current (AC) transmission line between the existing 230 kV switchyard at Long Spruce Generating Station and a new 230 kV switchyard at the site of the new northern converter station; and two 230 kV AC transmission lines to connect the existing 230 kV switchyard at Henday Converter Station to the new 230 kV switchyard at the new northern converter station.

The proposed AC transmission lines will produce AC electric and magnetic fields (EMF) that oscillate at a frequency of 60 Hertz (Hz). This brochure describes electric and magnetic fields, the health research that has been conducted, and the conclusions offered by various scientific agencies on AC EMF and effects on human health.

What are AC electric and magnetic fields?

Our electrical system carries power from generating stations to our homes by way of transmission lines, substations, and distribution lines. Each component of this system – from the transmission lines that carry the electricity, to the appliances that use the electricity – produces electric and magnetic fields in the extremely low frequency (ELF) range that includes 60 Hz¹. A field describes the properties of the space surrounding an object due to the characteristics of the object. A temperature field, for example, surrounds a hot object, just as electric and magnetic fields surround electrical objects.

¹ELF EMF is different from radiofrequency fields, such as those produced by mobile phones and radio and TV stations.



There are differences between electric fields and magnetic fields. Electric fields are due to a system's voltage and are measured in kilovolts per meter (kV/m). Magnetic fields are due to the flow of electrical current and are measured in milligauss (mG). Most objects partially block electric fields, including trees, cars and buildings, while magnetic fields are not shielded by these objects. Since magnetic fields are more pervasive, magnetic fields have been the focus of health research.

The EMF levels measured near any source depend on a number of factors, but largely on the distance at which the measurement is taken. Both electric and magnetic field levels decrease with increasing distance from the source, just as the heat from a candle or stove decreases as you move farther away. The box below describes the general properties of different EMF sources.



Some EMF sources and their general properties

Appliances. Appliances, such as microwave ovens, vacuum cleaners, and hand-held appliances tend to produce the highest EMF levels indoors. Compared to power lines, EMF levels from appliances drop off more rapidly with distance. A microwave oven, for example, produces a magnetic field of approximately 200 mG at 6 inches and 4 mG at 1 foot.

Power lines. The EMF levels associated with an AC power line depend on the configuration of the line's conductors, the line's voltage, the amount of current the line is carrying, distance from the

conductors, etc. The EMF levels under AC transmission lines are higher than the levels under the distribution lines that run down local streets. Transmission lines are located on dedicated right-of-ways, and are typically farther away from residences.

Substations. Similar to appliances, substation equipment is configured in such a way that field levels drop off quickly with distance. At the fence surrounding a substation, the EMF levels associated with the substation's equipment are typically within the range of background levels, except where the transmission lines connect to the substation. Background levels are the EMF levels typically measured in homes or offices away from appliances and other major EMF sources.

What levels of magnetic fields are most people exposed to?

The answer to this question is difficult to answer precisely because, in our modern day society, we are all exposed for varying amounts of time to innumerable sources of magnetic fields throughout the day. The highest levels are recorded very close to electrical sources which range from dozens to hundreds of milligauss (mG). It is generally agreed, that if the average of a person's magnetic field exposures throughout an entire day is measured, most persons are exposed to levels in the range of 1 to 2 mG. While this is our average level of exposure, we are exposed to both higher and lower field levels throughout the day.

Has research been conducted on the potential for AC electric and magnetic fields to affect health?

Yes. A large body of research has been conducted in Canada and other countries for almost 40 years on a wide variety of topics. This research includes:

- **Epidemiology studies.** Observational studies of people, which evaluate the relationship between estimated magnetic field exposures and diseases.
- **Experimental studies.** This includes studies of laboratory animals exposed to high EMF levels for long periods of time and studies of cells and tissues exposed to EMF in the laboratory.

What have scientific agencies concluded about the research on AC electric and magnetic fields and human health?

Numerous scientific and health agencies have evaluated this body of research, including the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), and the Health Protection Agency (HPA) of Great Britain. In Canada, the topic has been evaluated by the Federal Provincial Territorial Radiation Protection Committee (FPTRPC). The FPTRPC is an intergovernmental, Canadian committee assembled to harmonize the standards and practices for ELF EMF within federal, provincial and territorial jurisdictions. Health Canada refers to the FPTRPC as the authority on issues related to EMF. The FPTRPC established an ELF Working Group to carry out periodic reviews, recommend appropriate actions and provide position statements that reflect the common opinion of intergovernmental authorities.

The conclusions of these scientific agencies have been generally consistent. Overall, they concluded that the research does not show that electric or magnetic fields are a known or likely cause of any disease, including cancer. They also concluded that some statistical data suggests a relationship between childhood leukemia and rare exposure to high magnetic field levels, although the uncertainty associated with these findings and the lack of support from experimental studies does not support a true relationship. Please consult the documents listed at the end of this handout for more details on the agencies' conclusions.

What specifically did the FPTRPC conclude?

The Canadian committee concluded that, "there is insufficient scientific evidence showing exposure to EMFs from power lines can cause adverse health effects such as cancer" (<http://hc-sc.gc.ca/ewh-semt/radiation/fpt-radprotect/emf-cem-eng.php>). Also, the Manitoba Clean Environment Commission developed a Health and EMF Expert's Consensus Statement on the Human Health Effects of ELF EMF in 2001, which concluded that "The weight of scientific evidence does not support the conclusion that extremely low frequency EMFs such as those produced by power lines are a cause of adverse effects on human health." (http://www.cecmanitoba.ca/Reports/PDF/CEC_EMF_Consensus_Report.pdf).

Are there any standards or guidelines to limit exposure to AC electric and magnetic fields in Canada?

Canada does not have any national, territorial or provincial standards or guidelines related to EMF. However, Canada supported the application of the precautionary principle in the assessment of environmental factors in the late 1990s, at about the same time as

Europe. The principle states that, in areas of scientific uncertainty, steps should be taken to reduce exposures that are proportional to the perceived level of risk. This principle has been supported by the WHO, which recommends low-cost measures to reduce EMF exposure such as constructing electrical infrastructure in ways that reduce EMF levels. Such measures might include adjusting the design of adjacent lines to minimize magnetic fields.

What does Health Canada recommend?

Health Canada states the following: "You do not need to take action regarding typical daily exposures to electric and magnetic fields at extremely low frequencies. There is no conclusive evidence of any harm caused by exposures at levels normally found in Canadian living and working environments." (<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/magnet-eng.php>).

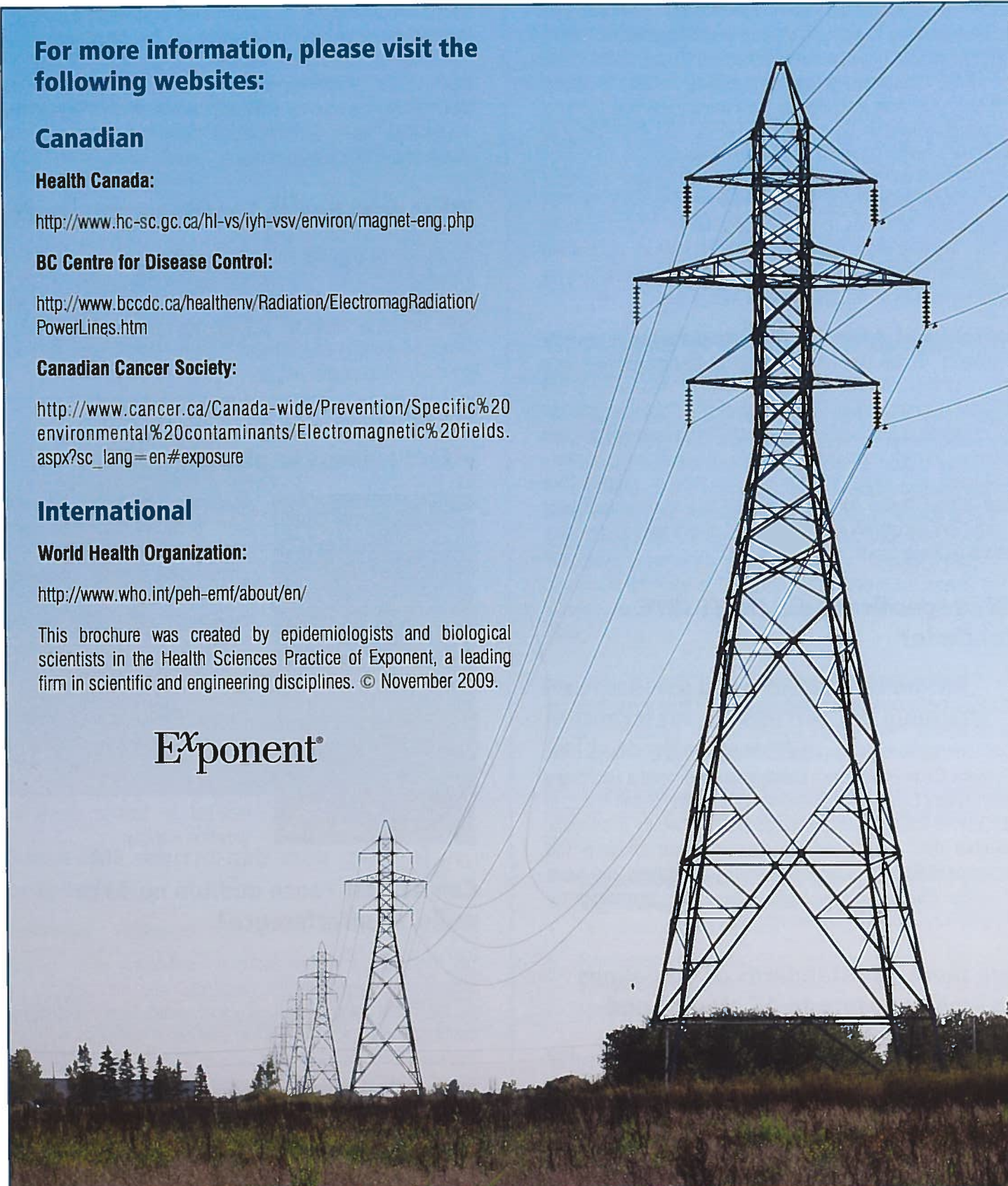
Do AC electric and magnetic fields affect animals or plants?



Numerous research programs have been conducted to study the effects of EMF on wild and domesticated animals; the largest of these research programs was conducted with cows at the University of McGill in Quebec. Overall, this research has not found any relationship between EMF and the health, behavior or productivity of animals, including cows, pigs and sheep. Furthermore, studies of crops and other plants have reported no adverse effects on growth or viability.

Can AC EMF cause audible noise or radio/TV interference?

Yes, these effects may be noticeable, particularly when crossing underneath a transmission line. These occur when the strength of the electric field at points on the conductors' surface locally exceeds the insulating properties of air and tiny amounts of energy are released. This may be noticeable for AM radio or analog television pictures, but not for FM radio or cable television. Adherence to Canadian and Manitoba electrical codes and standards will minimize such effects.



For more information, please visit the following websites:

Canadian

Health Canada:

<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/magnet-eng.php>

BC Centre for Disease Control:

<http://www.bccdc.ca/healthenv/Radiation/ElectromagRadiation/PowerLines.htm>

Canadian Cancer Society:

http://www.cancer.ca/Canada-wide/Prevention/Specific%20environmental%20contaminants/Electromagnetic%20fields.aspx?sc_lang=en#exposure

International

World Health Organization:

<http://www.who.int/peh-emf/about/en/>

This brochure was created by epidemiologists and biological scientists in the Health Sciences Practice of Exponent, a leading firm in scientific and engineering disciplines. © November 2009.

Exponent

Manitoba Hydro

The Hydro Province



The Nelson River flows within a huge drainage basin that stretches from the Canadian Rocky Mountains to about 19 km from Lake Superior. The river is a rich source of water energy and generating stations that dam it can produce 3,924 MW of electricity. Above, looking westward on the Nelson are Long Spruce Generating Station and, 16 km upstream, Kettle Generating Station.

Providing continuous, reliable, and economical energy for the people of the province is Manitoba Hydro's mandate. The utility is also responsible for determining Manitoba's future electricity requirements and for designing, constructing, maintaining, and operating all the facilities needed to meet those requirements.

Manitoba Hydro is a Crown Corporation, owned by the Government of Manitoba, serving the entire province.

The electricity generated and distributed by Manitoba Hydro is produced by 16 generating stations, 14 hydroelectric and two thermal, and at four diesel sites.

The affairs of Manitoba Hydro are administered by a Board appointed by the provincial cabinet. The Manitoba Hydro-Electric Board reports to the minister responsible for The Manitoba Hydro Act, who, in turn, reports to the Manitoba Legislative Assembly. In this manner, Manitoba Hydro is responsible to the people of the province through their elected representatives.

Power development

Virtually all of the electricity generated in Manitoba is from self-renewing water energy. The Winnipeg River, about 100 kilometres (km) from the City of Winnipeg, was the main source of hydroelectric power for Manitoba throughout the first half of the century. By the time the Winnipeg River was completely developed in the mid-1950s, the rich energy resources of Manitoba's northern rivers became attainable with the introduction of new technologies. These advances made it possible to transmit electricity over extremely long distances.

First, Manitoba Hydro's power planners directed their attention northwards to the Saskatchewan River and completed Grand Rapids Generating Station in 1968. But the principal interest lay in the tremendous potential of the Nelson River's water system further north.

Kelsey, the first generating station on the Nelson River, was built in 1960 to supply the International Nickel

company's mining and smelting operations in Thompson. But, it was Kettle Generating Station, completed in 1974, that was the start of major plans to harness the Nelson for the province's growing electricity needs. Since that time, three more generating stations — Jenpeg, Long Spruce, and Limestone — have been added to Manitoba Hydro's power system.

Limestone, the newest station, is the largest in the province with a total capacity of 1,340 megawatts (MW).

The generation system

Manitoba Hydro's predominantly hydroelectric generation system is backed up by the two thermal generating stations, which produce electricity using natural gas and coal. Located in Brandon and Selkirk, they are normally used in four ways: to help provide power when consumer demands for electricity are high especially during the winter months; to help provide basic electricity supplies during times of low water conditions;

to provide a reliable year-round alternative supply during short-term emergencies that may occur either at the hydroelectric generating stations or on the transmission line system and to guarantee long-range sales of electricity on the export market by providing backup generation should hydroelectric resources be restricted by unforeseen factors such as low water flows

The utility's generating stations located on the Winnipeg River are Pointe du Bois, Slave Falls, Great Falls, Seven Sisters, Pine Falls, and McArthur; on the Saskatchewan River is Grand Rapids; on the Nelson River are Jenpeg, Kelsey, Kettle, Long Spruce, and Limestone and on the Laurie River are two small plants, Laurie River I and Laurie River II.

The transmission and distribution systems

Delivering to customers the electricity produced at the generating stations is accomplished in three stages. First,

Manitoba Hydro's high-voltage transmission line system carries electricity from the generating stations in northern Manitoba to terminal stations in southern Manitoba where large transformers convert the high voltages to low voltages. Sub-transmission lines then feed the electricity into a distribution system where the voltages are again converted to lower levels.

Manitoba Hydro's major high voltage transmission lines operate at 115 kilovolts (kV), 138 kV, 230 kV, and 500 kV. At the terminal stations located in heavily populated areas, large transformers convert the voltages to 66 kV, 33 kV, or 24 kV.

The electricity is fed into a distribution system where, at various stages, transformers lower the voltages for distribution to Manitoba's cities, towns, and rural communities. The final stage occurs at the pole-top or underground transformers, which provide a 120/240 kV service into the customers' premises.

Interconnections

Of great value to Manitoba are the transmission line systems which connect the province with Ontario, Saskatchewan and the United States. These transmission lines have proved to be mutually beneficial as a back-up supply during emergencies or periods of high demand. They also provide access to out-of-province markets for selling surplus electricity. Such sales help to keep electricity rates for Manitobans lower than they would otherwise be.

Direct current transmission

As with most power systems in the world, Manitoba Hydro generates and transmits electricity as alternating current (AC) because of the relative ease of transforming voltages to the desired levels. But because of the exceptionally long distances between the Nelson River generating stations and southern Manitoba, where most of the electricity is used, it is more efficient and economical to transmit electricity as high voltage direct current (HVDC).

Manitoba Hydro's HVDC transmission system consists of two identical steel tower lines, Bipole I and Bipole II. From Gillam, they follow a 900-km route through the Interlake area to Rosser, located 26 km from Winnipeg on the northwest side. The other main components of the system are three converter stations: Radisson and Henday located in the north and Dorsey at Rosser in the south.

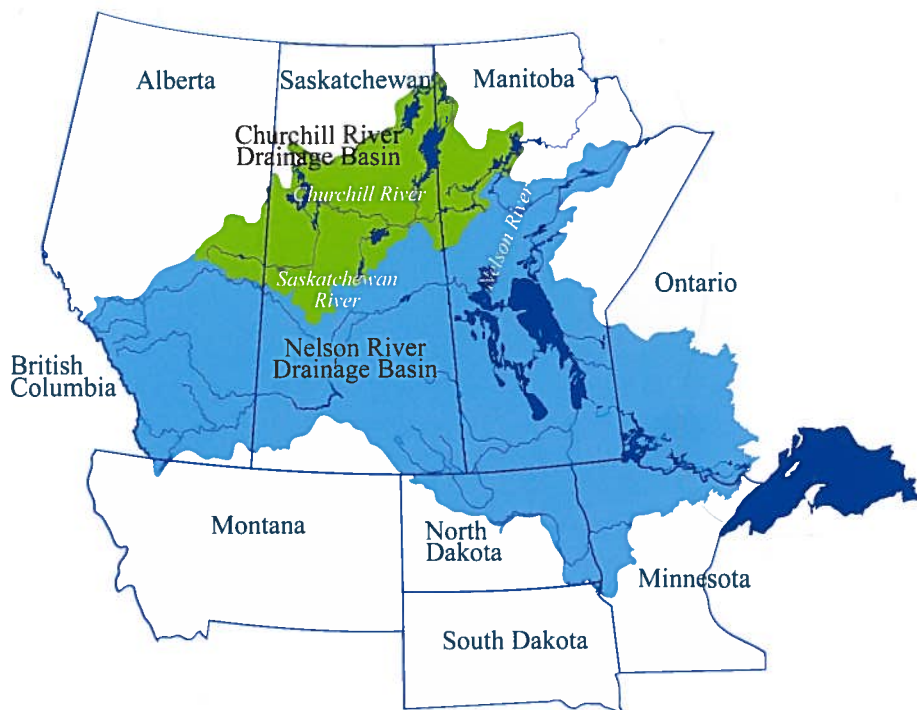
At Radisson and Henday, electricity is converted from AC to DC and is then transmitted along the DC lines to Dorsey where it is converted once again to AC and fed into Manitoba's southern power grid.

Customer service

Manitoba Hydro serves approximately 532,000 electric customers and 269,000 natural gas customers. To provide effective customer service in a territory of 650,000 km², Manitoba Hydro has over 70 offices located throughout the province with its head office in Winnipeg.

Finances

Manitoba Hydro's financial objective is to provide Manitobans with electricity at the lowest possible cost. Consumer



Nelson River and Churchill River drainage basins

The Nelson River drainage basin, covering an area of over one million square kilometres, is one of the main drainage areas in North America. The water draining from this vast area eventually empties into Lake Winnipeg, the source of the Nelson. The Churchill River drainage basin lies to the north of the Nelson River and Saskatchewan River drainage basins. In an overall plan for northern development, part of the Churchill River is diverted into the Burntwood River and Nelson River systems.

Manitoba Hydro currently has these interconnections:

Ontario

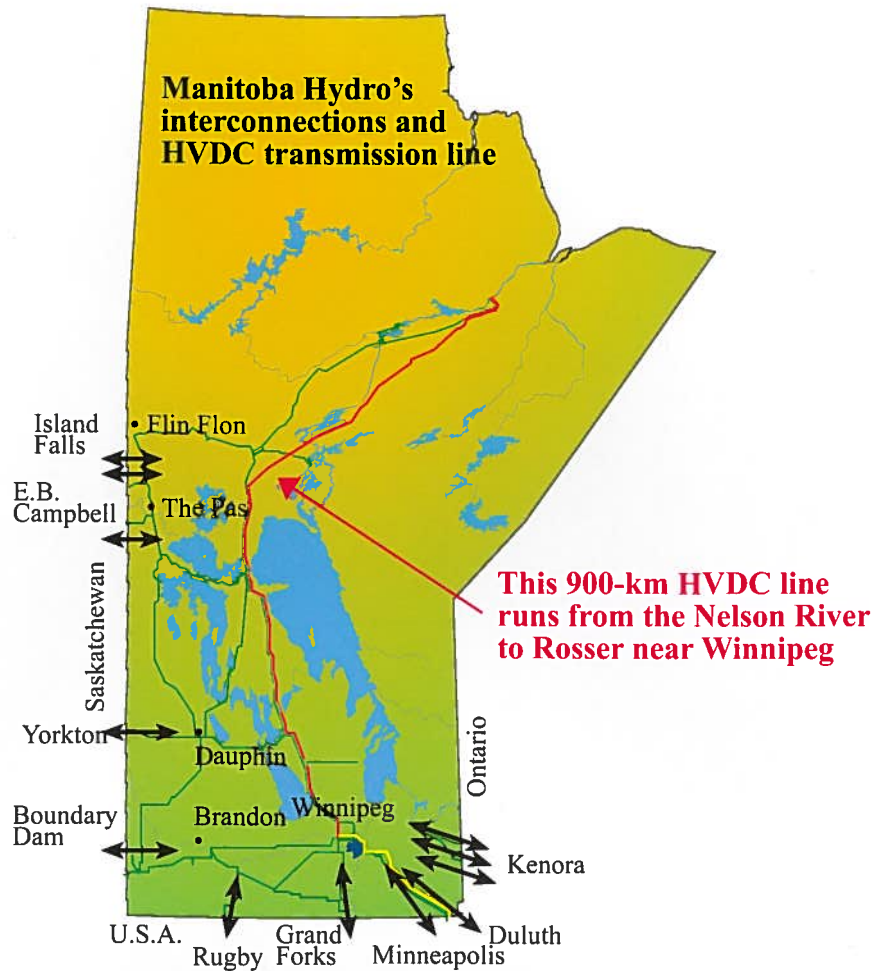
2 parallel 230-kilovolt (kV) lines: from Seven Sisters Generating Station to Kenora.
 1 - 115-kV line: from Seven Sisters Generating Station to Kenora.

Saskatchewan

1 - 230-kV line: from Dauphin to Yorkton.
 1 - 230-kV line: from Brandon to Boundary Dam.
 1 - 230-kV line: from The Pas to E.B. Campbell.
 2 - 115-kV lines: from Flin Flon to Island Falls.

United States

1 - 230-kV line: from Glenboro to Rugby, North Dakota
 1 - 230-kV line: from Winnipeg to Grand Forks.
 1 - 230-kV line: from Winnipeg to Duluth.
 1 - 500-kV line: from Winnipeg to Minneapolis.



rates are designed to recover the costs of operations, and to provide for an annual allocation to corporate reserves. Manitoba Hydro's reserves are intended to provide rate stability in years of fluctuating river flows, and to provide a measure of investor confidence in the financial well-being of the utility.

Manitoba Hydro must file an application with The Public Utilities Board (PUB) — an independent regulatory body representing ratepayers in Manitoba — for any proposed rate changes. Public hearings are conducted to provide an opportunity for the public to examine in detail the utility's rate application. Approval by the PUB must be obtained before new rates take effect.

Plans and projects

Manitoba Hydro must estimate the province's electricity needs many years into the future. It takes about 10 years to construct a hydroelectric generating

station and its associated transmission facilities.

Based on the current forecast of Manitoba's demands for electricity, the next source of generation will not be required until 2019. This depends on many factors, such as increases or decreases in economic activity in the province, prices of alternative sources of electricity, technological changes, how efficiently electricity is being used and sales of surplus electricity to energy markets in Canada and the United States. The forecast is constantly being reviewed. Currently, Manitoba Hydro is constructing the Wuskwatim Generating Station in northern Manitoba to take advantage of forecast export market opportunities. It is scheduled for a 2011 completion date.

Manitoba Hydro is committed to sustainable development, incorporating environmental aspects into the planning of all its projects. Additionally, it is working toward

reducing the forecasted increase in electrical load by 842-MW by 2018 through POWER SMART* programs that identify energy efficient products and provide guidelines on ways to reduce the consumption of electricity.

**Manitoba Hydro is a licensee of the Official Mark.*

For more information contact:

Public Affairs
 Manitoba Hydro
 P.O. Box 815
 Winnipeg MB
 R3C 2P4
 (204) 360-3233





Legend

- Manitoba Hydro generating stations
- Thermal generating stations
- Diesel-supplied communities
- ◆ Converter stations
- ▲ Control structures
- Diversion channels
- Potential future generating stations
- High Voltage DC transmission lines
- 500-kilovolt transmission lines
- 230-kilovolt transmission lines
- Other transmission lines

Total Manitoba Hydro installed hydroelectric capability: approximately 5,000 megawatts (MW)

Total hydroelectric potential still available in northern Manitoba: 5,000 MW

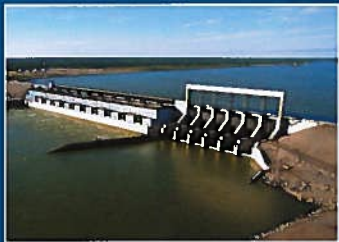
Manitoba Hydro's Generating Stations

Limestone G.S.



1,340 MW C 1992

Long Spruce G.S.



1,010 MW C 1979

Kettle G.S.



1,220 MW C 1974

Kelsey G.S.



223 MW C 1961 (1st stage)
C 1972 (2nd stage)

Jenpeg G.S.



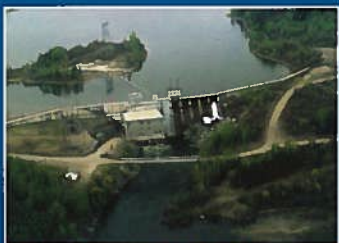
131 MW C 1979

Grand Rapids G.S.



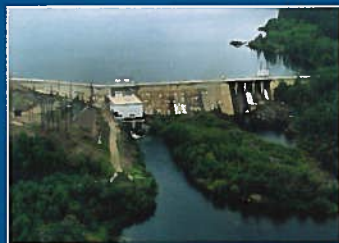
479 MW C 1968

Laurie River I G.S.



5 MW C 1952 (1st stage)
C 1970 (2nd stage)

Laurie River II G.S.



5 MW C 1958

Pine Falls G.S.



88 MW C 1952

Great Falls G.S.



133 MW C 1928

McArthur G.S.



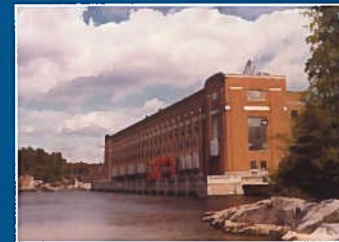
55 MW C 1955

Seven Sisters G.S.



165 MW C 1931 (1st stage)
C 1952 (2nd stage)

Slave Falls G.S.



67 MW C 1931

Pointe du Bois G.S.



78 MW C 1911

Selkirk G.S.



126 MW C 1961

Brandon G.S.



345 MW C 1958 (1st stage)
C 2002 (CT's)

Since November 1997, Manitoba Hydro has used Uniform Rating of Generating Equipment (URGE) to report the capability (MW) of its generating stations.

C = completed

Appendix D3

Open House Mapping Exercise
Results – Round 1

Open House Mapping Station Comments and Proposed Realignment

Date	Open House Location	Concern/Constraint	Segment ID Comment/Constraint Relates to	Preferred Alternative Route Segment Indicated?	Proposed Re-alignment ID
20-Aug-13	Dominion City	proposed realignment	S8	-	S8-1
20-Aug-13	Dominion City	proposed realignment	S8	-	S8-2
20-Aug-13	Dominion City	concerned about line encroachment on land	location, south of Dominion City, closest to S8	-	
20-Aug-13	Dominion City	general comment: upgrade roads people would be happier	location, south of Roseau River FN, closest to S8		S8-1
20-Aug-13	Dominion City	concerned with proximity to residence	S7	-	
20-Aug-13	Dominion City	prefers line farther from residence	S7	-	
20-Aug-13	Dominion City	continual flooding	S7 (closest to)	-	
20-Aug-13	Dominion City	flooding/why?!	S7 and S8 - west of Red River	-	
20-Aug-13	Dominion City	the option is not acceptable, spraying is not an option, GPS, mile roads better, splits 2 sections in half	S8	-	
20-Aug-13	Dominion City	no road access (whole section)	S8	-	
20-Aug-13	Dominion City	aerial applicator, safety concerns, person uses him and does not want applicator to be affected	S8	-	
20-Aug-13	Dominion City	proposed realignment	S8	-	S8-2
20-Aug-13	Dominion City	south of road quite wet, much drier on northern side of road (drainage)	S8	-	
20-Aug-13	Dominion City	line crosses in front of residence, would prefer not straight, has railway trail, why not parallel railway ROW, understands no one wants and shifting impacts to others.	S8	-	S8-3
20-Aug-13	Dominion City	railway, diagonal alignment, line affects spraying, has fungicides sprays, overall location disruptive for multiple reasons	S8	-	S8-3
20-Aug-13	Dominion City	proposed realignment	S8	-	S8-3
20-Aug-13	Dominion City	mixed grain and cattle, not too much impact, interested in footprint and cond?(can't read)	S7	-	
20-Aug-13	Dominion City	S.14 crossing, area prone to flood, stick to mile roads, coulee is 100' deep, operates as a whole, low part of valley	S8	-	S8-4
20-Aug-13	Dominion City	prefers road allowance, doesn't like 1/2 mile alignment, owns whole section, road allowance preferred if not S7 alternative, affects 3 miles of his land, flooded 2009-2011 7' of water	S8	S7	
20-Aug-13	Dominion City	prefers road allowance, doesn't like 1/2 mile alignment, owns whole section, road allowance preferred if not S7 alternative, affects 3 miles of his land, flooded 2009-2011 7' of water	S8	S7	
20-Aug-13	Dominion City	prefers road allowance, doesn't like 1/2 mile alignment, owns whole section, road allowance preferred if not S7 alternative, affects 3 miles of his land, flooded 2009-2011 7' of water	S8	S7	
20-Aug-13	Dominion City	straight lines, use highways, align routes in future, river development	S8 (closest to)	-	X-1
20-Aug-13	Dominion City	immediately across from Letellier Elevator, ?communication line underground through existing easement, existing easement current proposed line is ..(no more notes here), line should go between existing line and Highway, would lessen impact on his grain operation	S9	-	
20-Aug-13	Dominion City	passing too close to, go down the 1/2 mile line on to next road allowance	S3	-	X-2, S3-1
20-Aug-13	Dominion City	proposed realignment	S3	-	X-2, S3-1

Open House Mapping Station Comments and Proposed Realignments

Date	Open House Location	Concern/Constraint	Segment ID Comment/Constraint Relates to	Preferred Alternative Route Segment Indicated?	Proposed Re-alignment ID
20-Aug-13	Dominion City	would look at the line - very close proximity	S3	-	
20-Aug-13	Dominion City	proximity (E-W) alignment is in line with front window	S3, S1	-	
21-Aug-13	Mitchell	Landowners house & 7 other homes; perimeter shelter belt	S1	S2	
21-Aug-13	Mitchell	Preferred alignment	S2	S2	
21-Aug-13	Mitchell	house - very valuable land, concerns with aerial application	S3	-	
21-Aug-13	Mitchell	proposed realignment	S3	-	S3-2
21-Aug-13	Mitchell	proposed realignment	S3	-	S3-3
21-Aug-13	Mitchell	N2 acceptable	N2	N2	
21-Aug-13	Mitchell	route segments N4/N6 and N9/N8 not acceptable	N4, N6, N8, N9	-	
21-Aug-13	Mitchell	route segment N7 acceptable as compared to N8 and N9	N7	N7	
21-Aug-13	Mitchell	Discovery Centre at 52, not acceptable	N7	-	
21-Aug-13	Mitchell	not on 1/2 mile, preferred routing as opposed to N7	N9	N9	
21-Aug-13	Mitchell	dairy operations also numerous residences, safety, liability	N2	-	
21-Aug-13	Mitchell	land valued to do irrigation future expansion	N2	-	
21-Aug-13	Mitchell	preferred due to straight lines (less jogs), avoids liability shown on MMAP4 DOT ID 5	N3	N3	
21-Aug-13	Mitchell	future plans for subdivision	N3	-	
21-Aug-13	Mitchell	retired farms, live east-west, do not want in backyard, underground hydro power lines, not a hydro pole in sight so no worries about equipment, dramatic impact on resale of home, health concerns with line in close proximity, five total with underground wiring.	N5	-	
21-Aug-13	Mitchell	farms, live east-west, do not want in backyard, underground hydro power lines, not a hydro pole in sight so no worries about equipment (especially at this site), dramatic impact on resale of home, health concerns with line in close proximity, five total with underground wiring.	N5	-	
21-Aug-13	Mitchell	rural residential, live east-west, do not want in backyard, underground hydro power lines, not a hydro pole in sight so no worries about equipment, dramatic impact on resale of home, health concerns with line in close proximity, five total with underground wiring.	N5	-	
21-Aug-13	Mitchell	proposed realignment	N11	-	N11-1
21-Aug-13	Mitchell	proposed realignment	N11	-	N11-1
21-Aug-13	Mitchell	proposed realignment	N11	-	N11-1
21-Aug-13	Mitchell	known location of dairy farm	N2	-	
21-Aug-13	Mitchell	residence and neighbour's residences, if similar size to existing transmission line south of residence - no big concerns but if it is taller - concerns about visual impacts	N2 (closest to)	-	
21-Aug-13	Mitchell	preferred alignment - fewer yard sites affected, mile road preference	N6, N9	N6,N9	

Open House Mapping Station Comments and Proposed Realignments

Date	Open House Location	Concern/Constraint	Segment ID Comment/Constraint Relates to	Preferred Alternative Route Segment Indicated?	Proposed Re-alignment ID
21-Aug-13	Mitchell	residence under dot, concerned about residence and agricultural land being farmed in proximity to the line, own whole 1/2 section and farm it	N10	N9	
21-Aug-13	Mitchell	dairy farm located here and cluster of 4 residences surrounding	N10 (closest to)	-	
21-Aug-13	Mitchell	residences and cropping, concerned about routing N-S between these properties (MMA7 DOT ID 7 and 8) and health concerns	N10 (closest to)	-	
21-Aug-13	Mitchell	residences and cropping, concerned about routing N-S between these properties (MMA7 DOT ID 7 and 8) and health concerns	N10 (closest to)	-	
21-Aug-13	Mitchell	farming here, want line on De Salaberry side	N11	-	
21-Aug-13	Mitchell	dairy operation (tingle voltage concerns), high water table, tributary crossing	N11	-	N11-1
21-Aug-13	Mitchell	dairy operation (tingle voltage concerns), high water table, tributary crossing, and 3 residences and a farm yard	N11	-	N11-1
21-Aug-13	Mitchell	dairy farm location	N11	-	
21-Aug-13	Mitchell	proposed realignment	N11	-	N11-1
21-Aug-13	Mitchell	proposed realignment	N11	-	N11-1
21-Aug-13	Mitchell	subdivision, some visual concerns	N11 (closest to)	-	
21-Aug-13	Mitchell	residence on north side of 45N, 3 residences in a cluster here, SE 1/4, prefer to route on south side of road	N2	-	
21-Aug-13	Mitchell	proposed realignment	N2	-	N2-1
21-Aug-13	Mitchell	residence	N2, N5 (closest to)	N6-N9	
21-Aug-13	Mitchell	affecting ability to crop here, NW quarter transmission line passes 2 boundaries of land	N2, N7	N6-N9	
21-Aug-13	Mitchell	tree line, on the half mile line	N4	N6-N9	
21-Aug-13	Mitchell	residence and farm	N5	N6-N9	
21-Aug-13	Mitchell	tree line, on the half mile line	N6	N6-N9	
21-Aug-13	Mitchell	owns whole section - ability to farm "clean acres", already have their fair share of towers on land, GPS and wireless use effects, manure application - no where else to go	N7 (closest to)	-	
21-Aug-13	Mitchell	owns southern section - ability to farm "clean acres", already have their fair share of towers on land, GPS and wireless use effects, manure application - no where else to go	N7 (closest to)	-	
21-Aug-13	Mitchell	owns whole section except NW (100 acres) and NE (80 acres) - ability to farm "clean acres", already have their fair share of towers on land, GPS and wireless use effects, manure application - no where else to go	N7 (closest to)	-	
21-Aug-13	Mitchell	SW (80 acres) leased - ability to farm "clean acres", already have their fair share of towers on land, GPS and wireless use effects, manure application - no where else to go	N7 (closest to)	-	
21-Aug-13	Mitchell	N of 1/2 section line 240 acres leased - ability to farm "clean acres", already have their fair share of towers on land, GPS and wireless use effects, manure application - no where else to go	N7 (closest to)	-	
21-Aug-13	Mitchell	livestock operation (hog), concerned about manure management - within 1/2 mile of line is not as big a concern	N7 (closest to)	N7	
21-Aug-13	Mitchell	owns land, BPIII on south end of his lands and new line (aerial spraying concerns, number of lines on land concerns)	N8	N7-N10	

Open House Mapping Station Comments and Proposed Realignments

Date	Open House Location	Concern/Constraint	Segment ID Comment/Constraint Relates to	Preferred Alternative Route Segment Indicated?	Proposed Re-alignment ID
21-Aug-13	Mitchell	owns land, BPIII on south end of his lands and new line (aerial spraying concerns, number of lines on land concerns)	N8 and N9	N7-N10	
21-Aug-13	Mitchell	owns land, BPIII on south end of his lands and new line (aerial spraying concerns, number of lines on land concerns)	N8 and N9	N7-N10	
21-Aug-13	Mitchell	cropping here, concerned about pole locations because in the 1/2 section, agricultural operations impacts	N9	N7-N10	
21-Aug-13	Mitchell	cropping here, concerned about pole locations because in the 1/2 section, agricultural operations impacts	N9	N7-N10	
21-Aug-13	Mitchell	livestock operation (hog), manure management concerns, BPIII also here - concerns about more poles - hazards for equipment, agricultural operations impacts	N9	N7	
21-Aug-13	Mitchell	owns land, BPIII on south end of his lands and new line (aerial spraying concerns, number of lines on land concerns)	N9	N7-N10	
21-Aug-13	Mitchell	residence	N9 (closest to)	N7	
21-Aug-13	Mitchell	owns land, BPIII on south end of his lands and new line (aerial spraying concerns, number of lines on land concerns)	N9 (west of)	N7-N10	
21-Aug-13	Mitchell	quarters on either side of proposed alignment are annually cropped land, tower locations affecting agricultural operations	S1	-	N11-2
21-Aug-13	Mitchell	livestock operation (hog)	S1	-	N11-1
21-Aug-13	Mitchell	airstrip location, running east-west from this location to HWY 59	S1	S2	
21-Aug-13	Mitchell	airstrip location, running north-south from this location to MMAP7 DOT ID 36	S1	S2	
21-Aug-13	Mitchell	airstrip location, running north-south from this location to MMAP7 DOT ID 35, there is a buried line from MMAP7 DOT ID 36 to the east	S1	S2	
21-Aug-13	Mitchell	owns and farms here, effects on agricultural operations	S1, N11	S2 (on south side of road)	
21-Aug-13	Mitchell	hog barn location, farms between MMAP7 DOT ID 20 and 23, tower locations on annually cropped land,	S2	-	N11-2
21-Aug-13	Mitchell	annually cropped land, tower locations affecting agricultural operations	S2	-	N11-2
21-Aug-13	Mitchell	annually cropped land, tower locations affecting agricultural operations	S2	-	N11-2
21-Aug-13	Mitchell	farm	S2 (closest to)	-	N11-1
21-Aug-13	Mitchell	annually cropped land (quarter), tower locations affecting agricultural operations	S6	-	N11-2
21-Aug-13	Mitchell	annually cropped land (quarter), tower locations affecting agricultural operations	S6	-	N11-2
22-Aug-13	Winnipeg	3 houses and dairy	N11	-	N11-3
22-Aug-13	Winnipeg	5 acre lot; not in favour of route beside residence; aesthetics (view scape); radio frequency-electromagnetic fields or any interference (health); aerial application occurs here (safety concern); hot air balloons using this area too (landed to immediate east of proposed line near dot; to east of residence); humming (noise concerns)	N2	N3, Prefer to use any alternate route - alt. route to west is preferred; less zig zag	
22-Aug-13	Winnipeg	residence; not a big concern with exiting routes; not really affected	N2 and N4	-	

Open House Mapping Station Comments and Proposed Realignments

Date	Open House Location	Concern/Constraint	Segment ID Comment/Constraint Relates to	Preferred Alternative Route Segment Indicated?	Proposed Re-alignment ID
22-Aug-13	Winnipeg	N 1/4 farming as one whole block; affecting farming; crops across proposed alignment; spraying concerns, footprint of structure concern; biggest Concern-loss of land value because of permanent structure on land	N3	-	
22-Aug-13	Winnipeg	residence; biggest concern-loss of land value because of permanent structure on land	N3, N6	-	
22-Aug-13	Winnipeg	route falls on top of house (not sure who owns it)	N4	-	N4-1
22-Aug-13	Winnipeg	agricultural; no aerial applications; farmed as one unit (grain & hay), land goes from dot to N4 (edge of cropped land), cattle; dependent on tower placement (maneuver, planting, seeding, manure application)	N4 (closest to)	N6 or N2	
22-Aug-13	Winnipeg	farming	N4 (closest to)	-	
22-Aug-13	Winnipeg	farming north/south strip	N4 (closest to)	-	
22-Aug-13	Winnipeg	Cemetery is located here; can't see it from the road; PLAQUE ONLY	N6	-	
22-Aug-13	Winnipeg	3 houses & dairy	N11	-	N11-3
22-Aug-13	Winnipeg	house and horse farm; poles on land	N11	-	N11-3
22-Aug-13	Winnipeg	garbage dump	S1 (closest to)	-	
22-Aug-13	Winnipeg	road looks straight but in reality it is not; not concerned about the payments but the poles will be there for a long time; could the poles be moved further infield? Depends on where the route goes for when you determine the best alignment.	S2	-	
22-Aug-13	Winnipeg	new home	S2 (closest to)	-	
22-Aug-13	Winnipeg	route is too close to Dufrost	S6	-	
22-Aug-13	Winnipeg	land owners home	N2	-	
22-Aug-13	Winnipeg	big drain	N2	-	
22-Aug-13	Winnipeg	the Seine River	N2	-	
22-Aug-13	Winnipeg	Seine backs into the whole triangle	N2	-	
22-Aug-13	Winnipeg	proposed realignment	N3	-	X-3
27-Aug-13	Oak Bluff	40 year old shelter belt (drawn on map)	N8	-	N4-2
27-Aug-13	Oak Bluff	homestead and another house across from homestead;	N8	-	
27-Aug-13	Oak Bluff	aerial application concerns, manure spreading (circled on map); EMF concerns-son has a heart condition caused by any stress; GPS concerns with transmission line	N8	-	
27-Aug-13	Oak Bluff	Kleefield lagoon, recent expansion on dirt road	N10	-	
27-Aug-13	Oak Bluff	thick tree line; houses on east side would not see the transmission line	N10	-	
27-Aug-13	Oak Bluff	House; dairy farm; 3 residences/homes; Concerns-stray voltage & tingle voltage driving people out of business; looks of upgrades to deal with tingle voltage; but only deals with indoor cows; Main Concern-is with houses and production buildings	N11	-	
27-Aug-13	Oak Bluff	boarding stable; customers bringing in horses, worry about customers, indoor and outdoor rinks, riding stable; customer doesn't want to look at transmission line	N11	-	

Open House Mapping Station Comments and Proposed Realignments

Date	Open House Location	Concern/Constraint	Segment ID Comment/Constraint Relates to	Preferred Alternative Route Segment Indicated?	Proposed Re-alignment ID
27-Aug-13	Oak Bluff	dairy - tingle voltage	N11	-	
27-Aug-13	Oak Bluff	dairy - tingle voltage	N11	-	N11-4
27-Aug-13	Oak Bluff	house on Suncrest Road; a lot of farms on road (shown on map); east of Suncrest Road-land used for dairy (shown on map), west of Suncrest Road - land used for grain - very good agricultural land	N9	-	
27-Aug-13	Oak Bluff	aerial applicator, outside of corridor but services inside corridor	N9 (closest to)	-	
27-Aug-13	Oak Bluff	Suncrest Colony; from colony west, intensive grain land	N9, N10	-	
27-Aug-13	Oak Bluff	Suncrest Colony Lagoon (just built); preference on east route-no houses, some hog barns but no houses, worse agricultural land	N9, N10	east route-no houses, some hog barns but no	
27-Aug-13	Oak Bluff	St. Pierre/RM DeSalaberry landfill (no one will build near dump)	S1 (closest to)	-	
27-Aug-13	Oak Bluff	landfill expansion towards the lagoon (OBMAP3 DOT ID 2 lagoon site)	N3	N2	
27-Aug-13	Oak Bluff	existing lagoon	N3	N2	
27-Aug-13	Oak Bluff	future subdivision (homes); already gone through 80 acres south of diversion	N3	N2	
27-Aug-13	Oak Bluff	future lagoon expansion/site beginning this year	N3	N2	
27-Aug-13	Oak Bluff	residence, EMF and health concerns	N3	-	
27-Aug-13	Oak Bluff	no specific concerns - would prefer the route that is further away from house	N3, N6	N2	
27-Aug-13	Oak Bluff	Beef cattle, pasture rented north of home section, hog barns across road, lots of artesian wells, potential future yard site; road N/S is mud and unmaintained and is often used for hunt; livelihood vs lifestyle - undeveloped roads are undeveloped because are farmed - seems unfair; values of the people farming the land; preference for east of road, following a canal is recommended, would like to see 3D model and towers, concerned about induced current on existing infrastructure, has had damage to electric fences caused by surging lines	N9, N10	N10, follows a natural wood's edge, usually less disturbing to put it here	
27-Aug-13	Oak Bluff	Beef cattle, pasture rented north of home section, hog barns across road, lots of artesian wells, potential future yard site; road N/S is mud and unmaintained and is often used for hunt; livelihood vs lifestyle - undeveloped roads are undeveloped because are farmed - seems unfair; values of the people farming the land; preference for east of road, following a canal is recommended, would like to see 3D model and towers, concerned about induced current on existing infrastructure, has had damage to electric fences caused by surging lines	N9, N10	N10, follows a natural wood's edge, usually less disturbing to put it here	
27-Aug-13	Oak Bluff	location of high ridge (Winnipeg Ridge) shown, Willowridge Farms - find artifact in the area of the "Winnipeg Ridge" noted on map	N2, N4, N6, N3		

Appendix D4

Open House Comment Sheet
and Report– Round 1

St. Vital Transmission Complex COMMENT SHEET

August 2013

1. How did you hear about this Open House event? (Check all that apply.)

- Postcard Newspaper Website
 Letter Word of mouth Other

2. Do you live/work near an alternative route (optional)? Yes No
Where? _____

3. Do you have any concerns regarding the alternative routes? Yes No

(Note: Please indicate locations of concerns on maps provided.)

4. Are there any specific sites that you think Manitoba Hydro should be aware of along or near the proposed alternative routes? Yes No

5. What are your predominant concerns regarding this Project? (Check all that apply. Please explain your concerns below.)

- Access to the right-of-way Health & safety issues Impact on wetlands
 Aesthetics of the line Location of the line Impact on wildlife/birds
 Impact on agricultural activities Property issues Construction of the line
 Reclamation considerations Economic considerations Protection of vegetation
 Other:

6. Do you have any recommendations for Manitoba Hydro on minimizing/mitigating any potential effects of the Project? Yes No

7. What do you think of the EPRI methodology that was used in determining the alternative routes?

- Very Appropriate Not Appropriate
 Somewhat Appropriate Don't Know

APPENDIX D4

Open House Comment Sheet Responses – Round 1

Total attendees: 125

Numbers of attendees:

- Dominion City: 38 (estimated)
- Mitchell: 43
- Winnipeg: 33
- Oak Bluff: 11

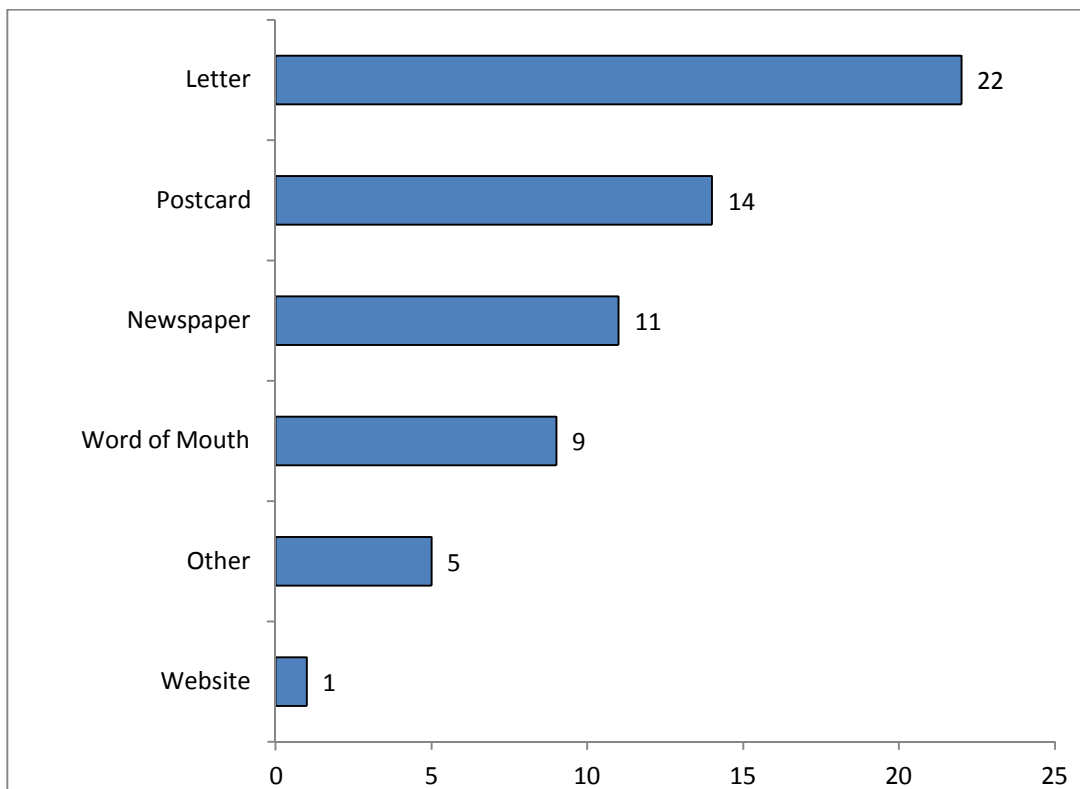
Response rate

In total 49 surveys were received from people who attended the Open House event.

Respondent Profile

Attendees were asked how they heard about the open house, as figure 1 below shows, the majority of people heard about the event from a letter (22 respondents) while 14 attendees said they received a postcard and 11 people heard about it through reading about it in a newspaper.

Figure 1 – How Attendees Heard About the Open House



Base= 50 (Figure totals more than 50 as respondents could give more than one answer)

- The majority of respondents lived near an alternative route – 36 out of 50 said this.

APPENDIX D4

Open House Comment Sheet Responses – Round 1

- When asked if they had any concerns regarding the alternative routes, 37 respondents said that they did (only one respondent, who said that they lived near an alternative route said that they did not have any concerns).
 - Key Concerns:
 - Agricultural Concerns – *“The west line (south of 52) runs through prime agriculture land and is close to farms, seeding, spraying and air application are impacted.”*
 - Tingle Voltage – *“Tingle voltage is a huge concern.”*
 - Locating it in an aerial applicator zone *“You're putting it in a flood zone and aerial applicator zone.”*
 - Visual impacts; and
 - Loss of land.

Alternative routes

When asked if there was any specific sites that Manitoba Hydro should be aware of along the proposed alternative routes, 24 respondents said that there were and 16 said that there were not (the remaining respondents did not give an answer).

- Specific locations given:
 - Generally by any residences;
 - Sage Creek Walking trails;
 - Sewer lagoons;
 - Mature shelterbelts of trees; and
 - Tourond Discovery Centre.

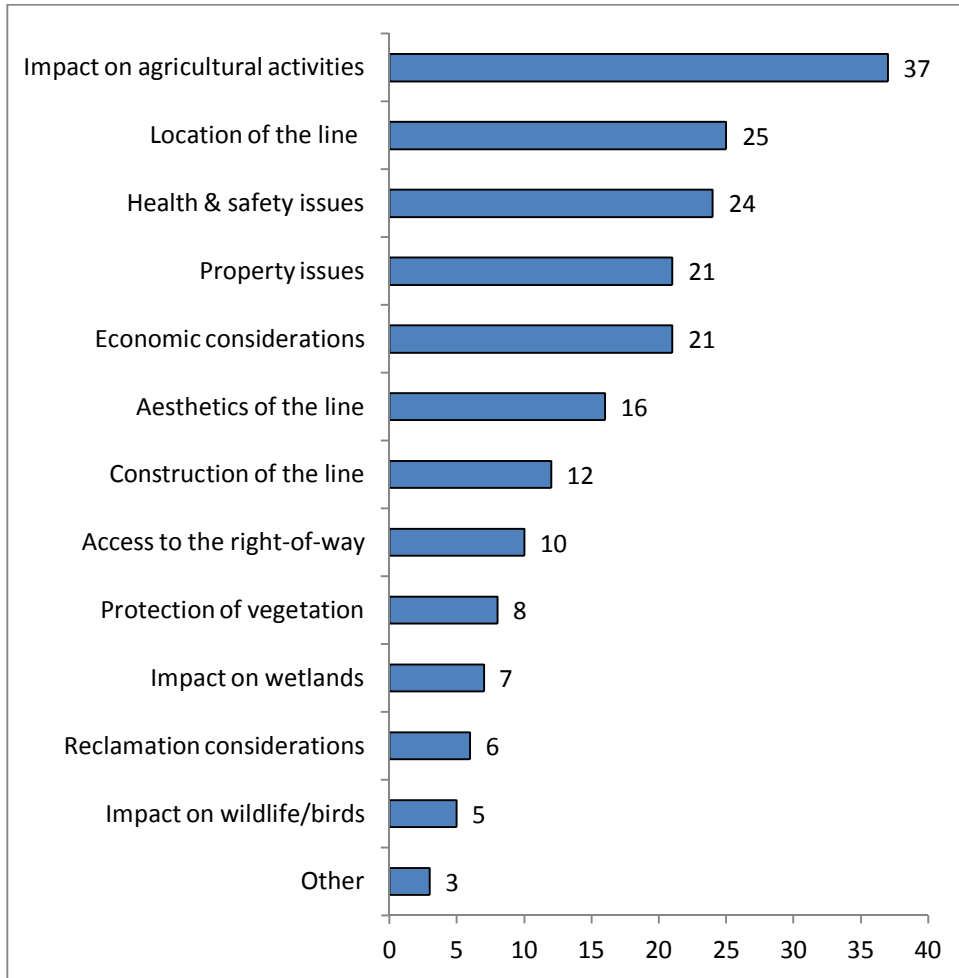
Concerns about the Project

Respondents were asked to select all the concerns they had about the project, these are shown in Figure 2 below.

APPENDIX D4

Open House Comment Sheet Responses – Round 1

Figure 2 – Concerns about the Project



Base=50 (respondents could give more than one answer)

As this shows, the biggest concern is impacts on agricultural activities (mentioned by 37 respondents), the location of the line (25 respondents) and health and safety issues (24 respondents).

When asked if they had any recommendations for Manitoba Hydro regarding mitigating/minimizing any potential effects of the project, 28 attendees said that they did.

- Suggestions for mitigation/minimizing effects
 - Go further east (east of IDC);
 - Put cables underground;
 - Locate lines along existing roads;
 - Minimize tower height in agricultural areas;
 - Move it further west; and

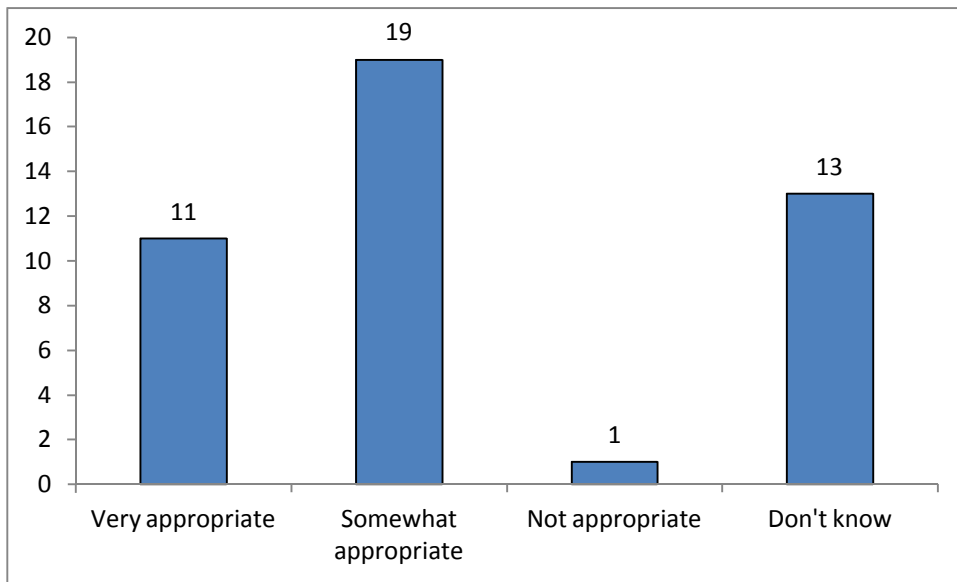
APPENDIX D4

Open House Comment Sheet Responses – Round 1

- o No construction work during crop season.

Figure 3 below shows people’s opinions on the appropriateness of the EPRI methodology used to determine the alternative routes; the majority of respondents thought that the methodology was either very or somewhat appropriate (30 respondents out of 44).

Figure 3 – Opinions on EPRI Methodology



Base= 44

Attendees were given a list of factors to rank in terms of their prioritization when it comes to siting the transmission line. Table 1 below shows the order of priority that respondents felt the factors should be given.

Ranking #	Factor
1	Parallel to existing transmission infrastructure
2	Follow existing roadways
3	Follow existing rail lines
4	Follow mile (Section) lines
5	Avoid forest and natural areas, e.g. wildlife management areas
6	Follow half-mile (quarter section) lines
7	Follow existing drainage ditches
8	Follow undeveloped roadways

(Overall ranking is based on greatest number of #1 rankings)

In addition to the answers given above six respondents gave “other” answers. This included two people who said that agricultural land should be avoided and said that this was the most important priority for siting the hydro lines.

APPENDIX D4

Open House Comment Sheet Responses – Round 1

Overall Comments

Finally, respondents were asked what general comments they had about the project. Some of these are noted below:

- Concerns over effects on farm land and agricultural practices:
 - *“Dairy cows are extremely tingle voltage sensitive. This can have a very substantial economic impact on an operation due to the effects on animal welfare and thereby animal health.”*
 - *“Will farmers be affected where they use aircraft for crop dusting and spraying?”*
 - *“This line will impact my farming practices along with the Bi Pole III. My way of farming will never be the same.”*
- Health and safety concerns;
 - *“Wherever you do a 90 degree turn in the line, residents face multiple exposures... Please go underground. Protect our health.”*
 - *“[I am] interested in reviewing the studies associated to this project for insight/gain more knowledge. Concerned about magnetic fields; increase in wireless devices; overall impact to health and safety.”*
- Make sure all of the community benefits from the project;
 - *“ATVMB has no position as to where the line is established. Our interest would be to have a multi-use trail that ORVs could use. There would be good value to the greater community as all user groups would need to develop a healthy working relationship.”*
- Gratitude for holding the open house
 - *“Thanks for putting this on. The people walking around were very helpful and patient answering our questions.”*

Key Words

Words	Frequency (Number of times appearing in Open House Comment Sheets)
a. Highway	11 (highway 59- 6 mentions, Highway 75 and Highway 23 – 2 mentions Each and Highway 201 – 1 mention.)
b. health	6 (5 human health, 1 animal (cow) health)
c. avoid	4 (avoid future problems, avoid sensitive dairy production facilities, avoid residential homes, avoid agricultural lands)
d. dairy farm	4
e. tingle voltage	3
f. Livestock	3
g. Environment	3
h. spraying	2
i. view /viewshed	2
j. water concern /wet area	2
k. aerial applicator/spraying	4
l. agricultural	1
m. property value	1
n. equipment	1
o. Roads	1
p. airstrip	0
q. cemetery	0
r. EMF	0

APPENDIX D4

Open House Comment Sheet Responses – Round 1

s.	Habitat	0
t.	hog barn	0
u.	irrigation	0
v.	land use	0

Round 2 Public Open Houses

Appendix D5

Open House Advertising –
Round 2



Proposed St. Vital Transmission Complex

Round 2 Preferred Route for the St. Vital to Letellier Line

What is it?

Manitoba Hydro is proposing construction of two 230-kilovolt (kV) transmission lines to improve system reliability and accommodate the growth in demand for electricity in southern Manitoba. Both lines will originate at the St. Vital Station, located in southeastern Winnipeg. One line will run west to the La Verendrye Station, located near Oak Bluff. The other will run south to the Letellier Station, located near Letellier.

The new transmission line between the St. Vital and La Verendrye stations will be situated on an existing Manitoba Hydro right-of-way, located south of Winnipeg, (see page 3) known as the Southern Loop.

The transmission line between the St. Vital and Letellier stations will be routed through southeastern Manitoba, near Steinbach in order to accommodate a potential future 230-kV station. Manitoba Hydro is seeking public input to finalize a route for this line that will be submitted for regulatory approval.

How do we choose a route for the St. Vital to Letellier line?

Our approach to developing a preferred route for the St. Vital to Letellier transmission line includes early stakeholder input and takes into account engineering considerations as well as the built and natural environment.

In the first round of public engagement, we shared information, including alternative routes, with landowners, First Nations, the Manitoba Métis Federation, municipalities and other stakeholders as well as the public. We received feedback on the alternative routes through stakeholder workshops, public open houses, meetings and email and telephone communications. This included completed comment sheets, workbooks, mapped issues and concerns and route preferences. Route selection information was compiled from these sources, along with general comments from key person interviews, and used in development of the preferred route.

In addition, discipline specialists evaluated cost, schedule, reliability and environmental considerations in determining the preferred route.



Project Timelines

Round 1 - August

- Introduce the project
- Present alternative routes
- Answer questions
- Identify and document concerns
- Use input to guide preferred route selection process

Round 2 - October / November

- Present findings of Round 1
- Present the preferred route
- Answer questions
- Identify and document outstanding concerns
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize effects

Next steps

- Submission of the Environmental Assessment Report
- Regulatory authorities review report
- Receipt of licence
- Construction
- In-service for St. Vital to Letellier line: Fall 2016
- Final project completion: 2017

We are here.

The preferred route for the St. Vital to Letellier line

The preferred route was determined by considering information supplied by specialists and feedback received throughout Round 1. Many alternative segments were presented by stakeholders, landowners and the general public. In total, four segments not initially presented during Round 1 are now considered part of the preferred route for the project. These have become part of the preferred route to address local concerns regarding aerial application, land use, current and future development, proximity to livestock operations and other concerns.

We are seeking comments and feedback on the preferred route in order to refine it further. Upon completion of Round 2, we will file a final preferred route with Manitoba Conservation and Water Stewardship.

What's next?

Information gathered during round two of the public engagement process will assist in the identification of a final preferred route that balances technical, biophysical, and socioeconomic considerations.

We will continue to:

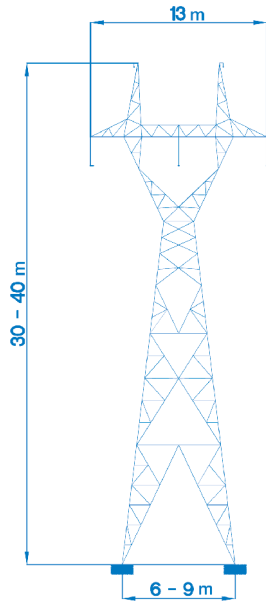
- inform the public regarding the project, timelines and route selection process.
- utilize a variety of mechanisms to receive and share information with interested individuals.
- gather feedback on the local environment to help finalize the route as well as the environmental assessment.
- discuss mitigation measures to minimize potential impacts.
- provide the public with the opportunity to have their questions answered and concerns addressed by Manitoba Hydro representatives.

Tower Design

For the St. Vital to La Verendrye transmission line, we will utilize a self-supporting steel lattice tower. These towers will be located on a 137 metre (m), (450 ft.) right-of-way and will vary in height from 30 to 40 m (98 to 131 ft.). They will be similar to existing transmission lines in the Sage Creek area of Winnipeg.

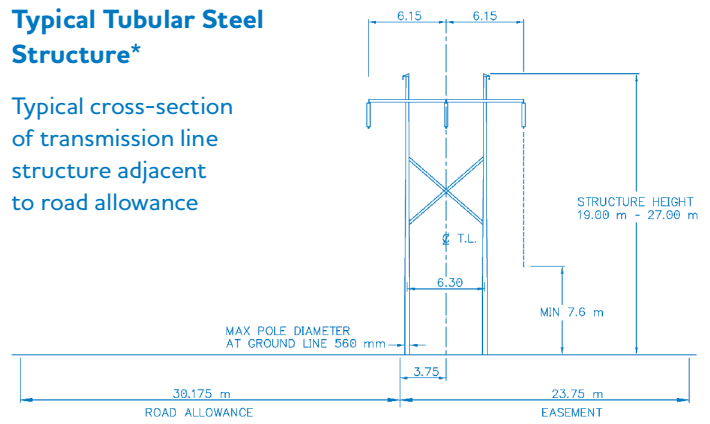
For the St. Vital to Letellier transmission line, we will utilize a tubular steel H-frame structure. These towers will be located on a 23.75 m (78 ft.) right-of-way when following a road or mile line, or 40 m (131 ft.) when placed in a field. These towers will vary in height up to 27 m (89 ft.), depending on terrain and road and river crossings.

Self Supporting Suspension Lattice Steel Structure*

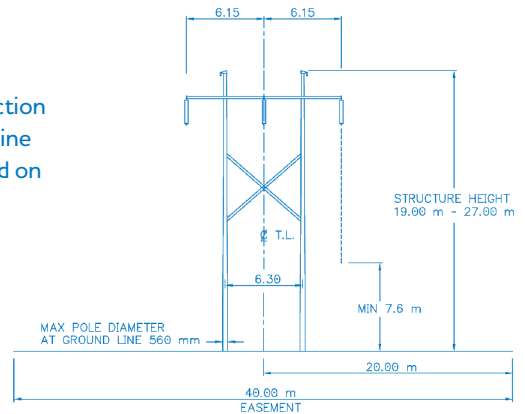


Typical Tubular Steel Structure*

Typical cross-section of transmission line structure adjacent to road allowance



Typical cross-section of transmission line structure located on 1/4 section line



* Tower height and design are estimations and are dependent on terrain and final placement of the transmission line.

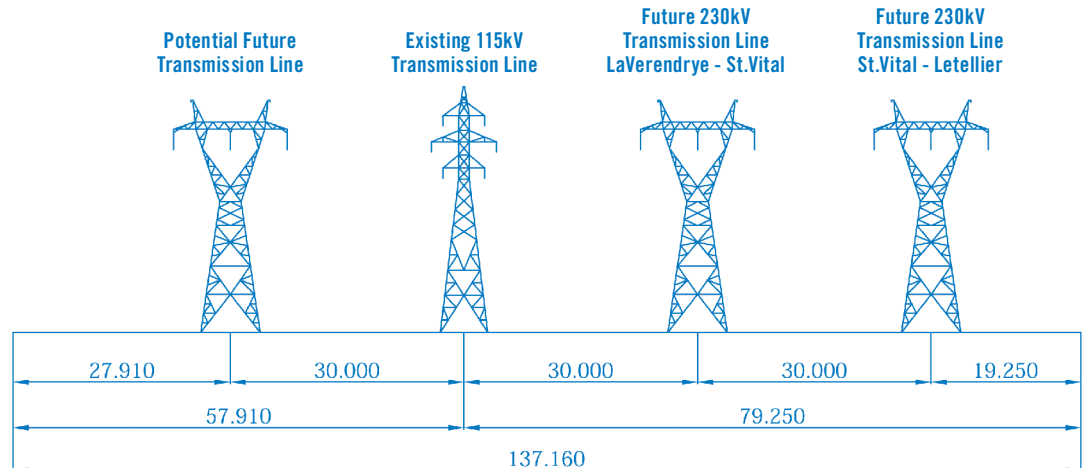
Southern Loop

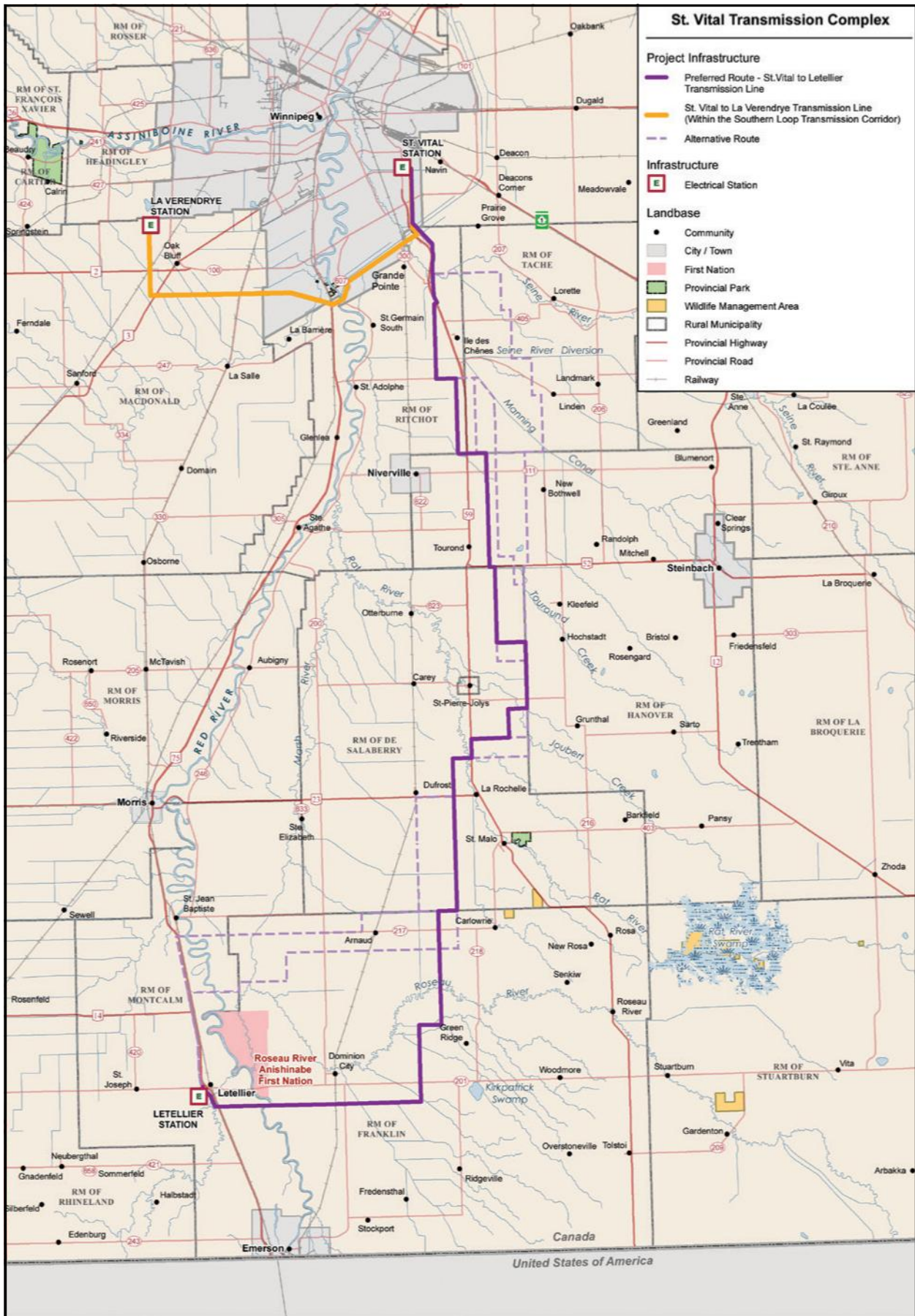
The Southern Loop is a dedicated transmission corridor that will accommodate the multiple transmission lines necessary to provide system reliability and to meet future energy demands. This corridor will reduce the number of independent rights-of-way on the landscape.

Situated between the Dorsey Converter Station (located near Rosser) and Riel Station (located east of Winnipeg), this transmission corridor follows the western and southern boundaries of the City of Winnipeg. It connects to the LaVerendrye Station, which is near Oak Bluff.

Sage Creek Transmission Corridor Cross section looking north

This cross section is based on matching existing tower locations and right-of-way width. The numbers (in metres) below the transmission lines indicate the complete right-of-way width for the transmission line in that area.



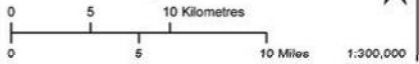


St. Vital Transmission Complex

- Project Infrastructure**
- Preferred Route - St.Vital to Letellier Transmission Line
 - St. Vital to La Verendrye Transmission Line (Within the Southern Loop Transmission Corridor)
 - - - Alternative Route
- Infrastructure**
- E Electrical Station
- Landbase**
- Community
 - City / Town
 - First Nation
 - Provincial Park
 - Wildlife Management Area
 - Rural Municipality
 - Provincial Highway
 - Provincial Road
 - Railway



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: October 16, 2013



Preferred Route

What we heard – Round 1

Comment/Concern	How was the feedback incorporated?
Potential impacts to aerial application.	<p>Structure height in agricultural areas will be minimized to the extent possible to mimic heights of distribution lines.</p> <p>Air strip locations were identified, incorporated into early planning and avoided as much as possible in final route selection.</p>
Impacts to agricultural operations.	<p>We will avoid half-mile (quarter section) alignments where possible. Guyed-wire structures are not being considered for this project. A tubular steel H-frame design, which has a smaller footprint than self supporting or guyed structures, will be utilized.</p>
Potential affect on livestock, particularly dairy cattle, e.g., tingle voltage.	<p>Tingle voltage tends to occur with faulted distribution lines as opposed to transmission lines. Livestock operators are encouraged to contact Manitoba Hydro if they notice tingle voltage occurring so that the source can be identified.</p>
Loss of high-quality farm land.	<p>We will route the line adjacent to road allowances to minimize the land area used for the transmission line and the related impact on farming activities.</p>
Will I be compensated if the transmission line is on my land?	<p>Manitoba Hydro provides a one-time compensation payment for transmission line easements (75 per cent of market value), as well as one-time structure payment related to loss of annual production. We also compensate landowners for any damages which may occur through the construction and operation of the line.</p>
Proximity to farmsteads and shelterbelts.	<p>During routing, we avoid residences and shelterbelts as to the extent possible.</p>
Many areas are flood prone.	<p>The potential for flooding was taken into account but does not hinder operation of the transmission line.</p>
Locate transmission lines within existing Hydro transmission line corridors.	<p>This is being done where feasible; a portion of the line passing through Sage Creek is in an existing Manitoba Hydro corridor as is the Southern Loop.</p>
Locate transmission line infrastructure adjacent to linear infrastructure such as provincial and municipal highways and roads and drains in order to reduce land requirements.	<p>Existing corridors and linear features were identified as routing opportunities in the route selection process and are being taken advantage of where possible. We will consult with Manitoba Infrastructure and Transportation (MIT) on future planning before developing alignments near PTH 75, PTH 59 and PTH 52.</p>
Minimize transmission line crossings of major highways and rail lines, as well as stream crossings. Concern that stream crossings impact riparian habitat.	<p>Such crossings, which require higher and more costly towers, were minimized.</p>

Comment/Concern	How was the feedback incorporated?
Avoid landfills, lagoons and cemeteries.	Locations of landfills, lagoons and cemeteries were noted. Structure placement will avoid these areas.
Transmission tower aesthetics.	Towers that will be placed adjacent to existing towers will have similar spacing and heights.
Potential impact on wildlife, including birds, vegetation, riparian area, endangered species and wetlands	The environmental assessment process will identify potential environmental sensitivities and will prescribe appropriate mitigation measures.
Concern that construction will disrupt fur-bearing animals and affect trapping.	The environmental assessment process will identify potential sensitivities related to fur-bearing animals and will prescribe appropriate mitigation measures such as modifications to construction scheduling.
Avoid heritage sites.	The environmental assessment process will identify heritage resources, including archaeological sites, which will be avoided.
Perceived health effects due to electric and magnetic fields (EMF).	Information will continue to be provided in the public engagement process and these concerns will be addressed in the environmental assessment process. Health Canada, the World Health Organization, and other international health entities have noted that no scientific evidence suggests that exposure to EMF will cause any negative health effects on humans, vegetation and wild or domestic animals.
Transmission line rights-of-way become areas for growth of noxious weeds and potential bio-security issues.	We will take necessary precautions as part of construction of the project to minimize the risk of invasive plants and diseases spreading. Manitoba Hydro is currently developing a bio-security policy.
Noise, dust and disruption of traffic, particularly related to emergency services, during construction.	Construction operations will minimize noise and dust. Construction traffic routes and detours will be identified and made available to local police, fire and emergency services.
City, municipal and business and industry stakeholders, in particular, noted beneficial effects of a more secure power supply on their operations and growth. Agricultural stakeholders also noted that they are impacted by electrical power system reliability.	The beneficial effect on power system reliability and capacity is a fundamental reason for this project.

What happens after a final preferred route is selected?

Following the determination of a preferred route and the filing of the environmental assessment report to Manitoba Conservation and Water Stewardship, we are planning to meet with affected landowners. These meetings will be held exclusively for affected landowners and will outline the following:

- Manitoba Conservation and Water Stewardship's public review process for the environmental assessment report submitted by Manitoba Hydro.
- Manitoba Hydro's compensation policy.
- What to expect during the land surveying process.
- What to expect throughout construction of the project.

We encourage all affected landowners to attend this meeting to learn:

- How the project will unfold after Manitoba Hydro files the environmental assessment report.
- How to participate in the regulatory review process.
- What to expect once a project is licensed.

The environmental assessment process

The development of both transmission lines requires a Class 2 licence under *The Environment Act* (Manitoba). The environmental assessment report for the project includes:

- documentation of public engagement activities.
- characterization of the environment.
- identification of potential effects on people and the environment.
- determination of ways to avoid or reduce potential adverse effects.

How can you participate?

There are a number of ways you can participate in a review of this project and provide your input:

- **Attend an open house**

You are invited to attend one of four open houses to gather project information and share your local knowledge. Your input will help us determine a final preferred route for the project. Manitoba Hydro and consultant staff will be available to provide project information and answer your questions. Refreshments will be provided.

Dominion City

November 4
4 to 8 p.m.
Dominion City
Community Hall
31 Mc Kercher St.

Winnipeg

November 7
4 to 8 p.m.
Winakwa Community
Centre
980 Winakwa Road

Ile des Chenes

November 6
4 to 8 p.m.
Trans Canada Centre
1 Rivard St.

St. Pierre Jolys

November 5
4 to 8 p.m.
Cabane a Sucre
432 Joubert St.

- **Submit a comment sheet, available at the open houses or on our website at www.hydro.mb.ca/stvital.**

- **Contact us directly:**

Trevor Joyal

Licensing & Environmental Assessment Department
Toll-free: 1-877-343-1631
In Winnipeg: 204-360-7888
email: LEAprojects@hydro.mb.ca
Website: www.hydro.mb.ca/stvital

St. Vital Transmission Complex Round 2 Public Open House

We want to hear from you

To improve system reliability and accommodate growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt transmission lines originating at the St. Vital Station in southeastern Winnipeg. One line will run west to the La Verendrye Station on an existing Manitoba Hydro right-of-way. The other will run south to the Letellier Station and a preferred route for this line has now been determined.

We encourage the public to attend an open house to share comments about this preferred route. Staff will be available to provide information and answer questions. Your feedback will help us finalize a route for regulatory approval.

Dominion City

November 4
4 to 8 p.m.
Dominion City
Community Hall
31 McKercher St.

St-Pierre-Jolys

November 5
4 to 8 p.m.
Cabane a Sucre
432 Joubert St.

Winnipeg

November 7
4 to 8 p.m.
Winakwa Community
Centre
980 Winakwa Rd.

Ile-des-Chenes

November 6
4 to 8 p.m.
TransCanada Centre
1 Rivard St.

For more information, please contact:

Trevor Joyal, Licensing & Environmental Assessment
Phone: **1-877-343-1631**
Email: LEAprojects@hydro.mb.ca
or visit: www.hydro.mb.ca/stvital

Complexe de transmission de St-Vital Journées portes ouvertes (série 2)

Nous voulons vous entendre.

Pour améliorer la fiabilité du réseau et répondre à la demande croissante d'électricité dans le sud du Manitoba, Manitoba Hydro propose la construction de deux lignes de transmission de 230 kilovolts à partir du poste de St-Vital dans le sud-est de Winnipeg. Une ligne se dirigera vers l'ouest jusqu'au poste de La Vérendrye sur une emprise existante de Manitoba Hydro. L'autre ligne se dirigera vers le sud jusqu'au poste de Letellier. Nous avons maintenant établi un tracé préféré pour cette ligne.

Nous encourageons le public à participer à une journée portes ouvertes pour nous faire part de ses commentaires sur le tracé préféré. Des membres du personnel fourniront des renseignements et répondront aux questions. Votre rétroaction nous aidera à déterminer le tracé final qui sera soumis pour approbation réglementaire.

Dominion City

4 novembre
16 h – 20 h
Salle communautaire
de Dominion City
31, rue McKercher

St-Pierre-Jolys

5 novembre
16 – 20 h
Cabane à sucre
432, rue Joubert

Winnipeg

7 novembre
16 h – 20 h
Centre communautaire
Winakwa
980, chemin Winakwa

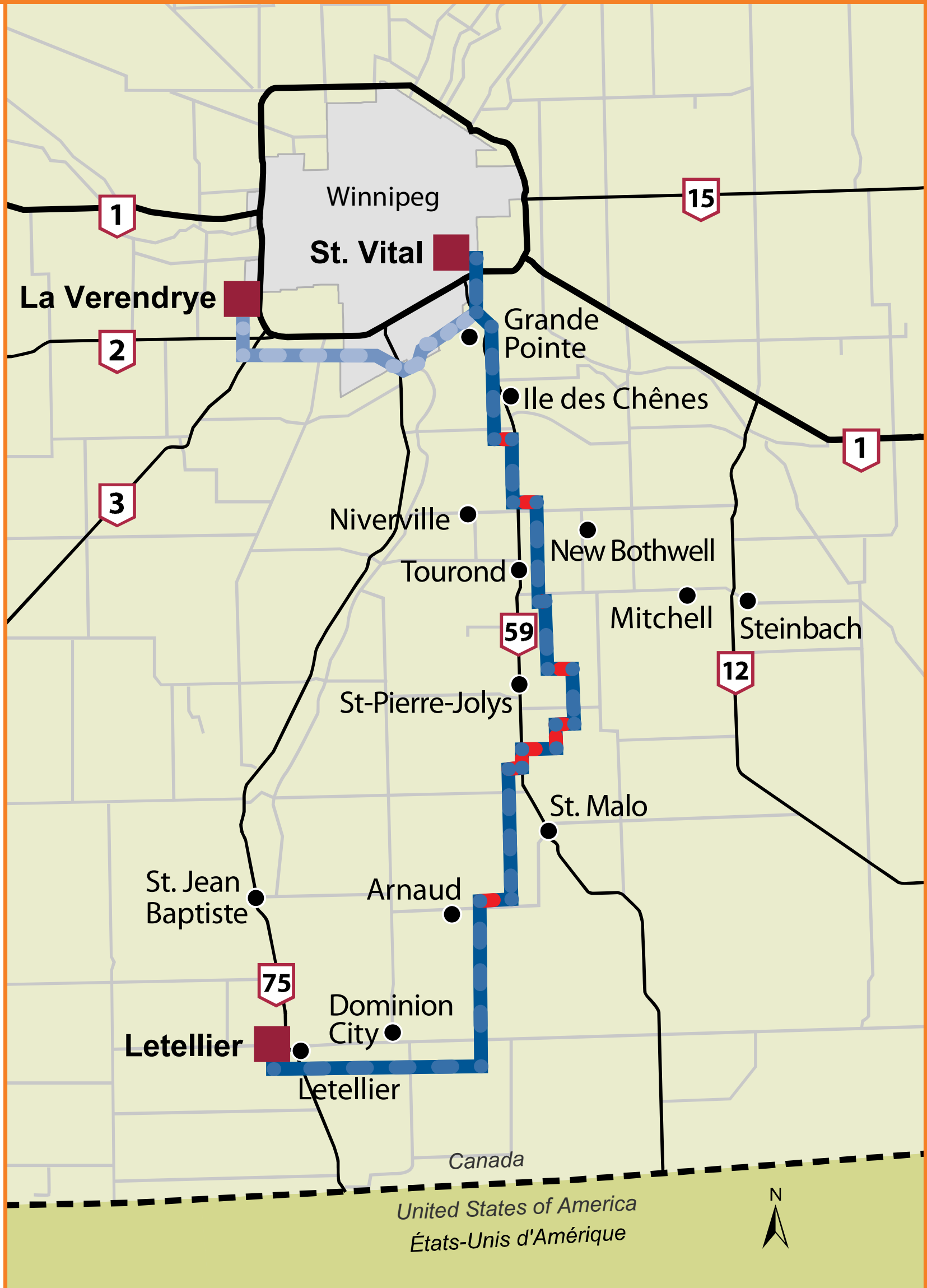
Île-des-Chênes

6 novembre
16 h – 20 h
Centre TransCanada
1, rue Rivard

Pour plus de renseignements, communiquez avec :

Trevor Joyal, Licences et Évaluations environnementales
Téléphone : **1 877 343-1631**
Courriel : LEAprojects@hydro.mb.ca
ou visitez
www.hydro.mb.ca/stvital





**Legend/
Légende**

- Major highways/Routes principales
- Electrical station/Poste d'électricité
- - - Canada - U.S. border/
Frontière Canada - États-Unis

- Preferred route for the St. Vital to Letellier transmission line/Tracé préféré pour la ligne de transmission de St-Vital à Letellier
- St. Vital to La Verendrye transmission line/
Ligne de transmission de St-Vital au poste de La Vérendrye

St. Vital Transmission Complex Round 2 Public Open House

We want to hear from you

To improve system reliability and accommodate growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt transmission lines originating at the St. Vital Station in southeastern Winnipeg. One line will run west to the La Verendrye Station on an existing Manitoba Hydro right-of-way. The other will run south to the Letellier Station and a preferred route for this line has now been determined.

We encourage the public to attend an open house to share comments about this preferred route. Staff will be available to provide information and answer questions. Your feedback will help us finalize a route for regulatory approval.

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November 7
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Cabane a Sucre
432 Joubert St.

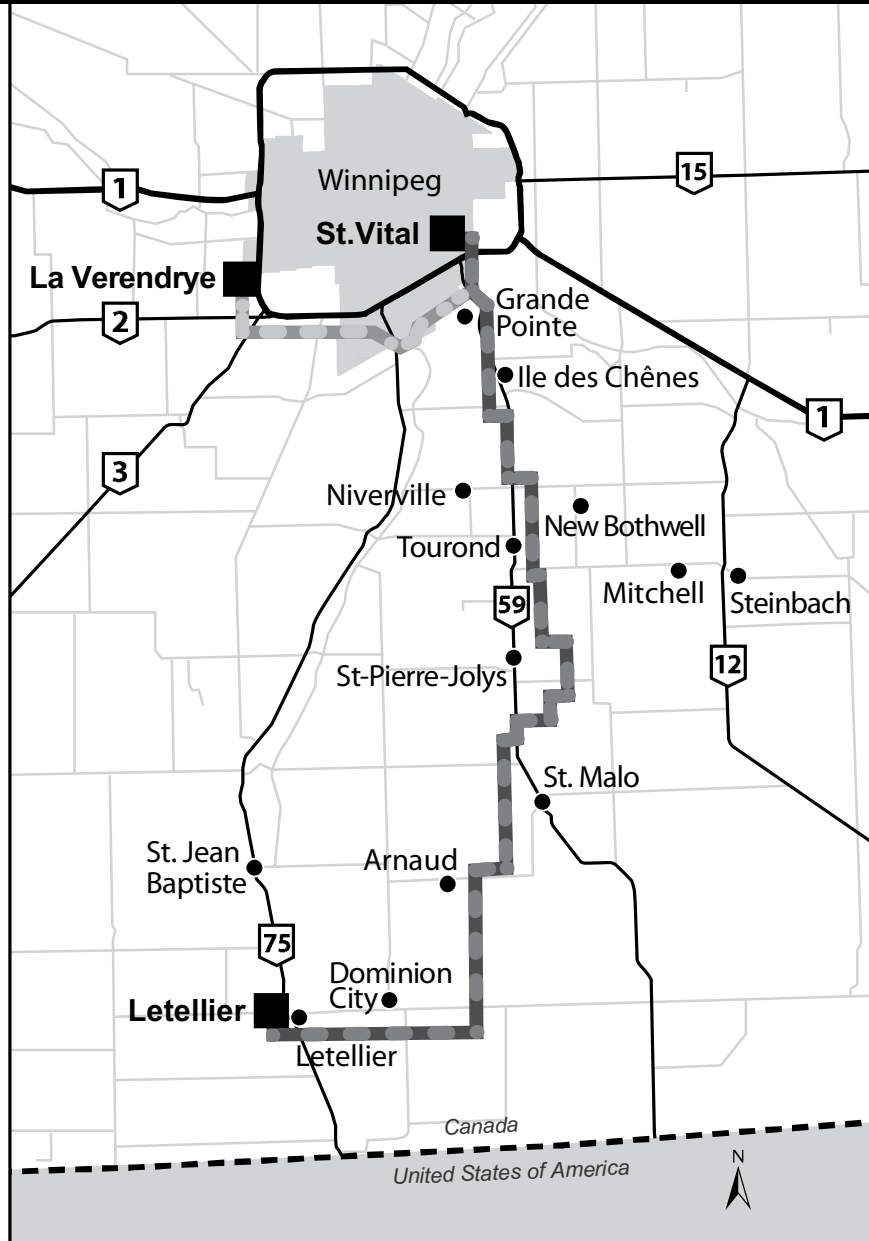
Ile-des-Chenes

November 6
4 to 8 p.m.
TransCanada Centre
1 Rivard St.

For more information, please contact:

Trevor Joyal, Licensing &
Environmental Assessment
Phone: 1-877-343-1631

Email: LEAprojects@hydro.mb.ca
or visit www.hydro.mb.ca/stvital



Legend

- Major highways
- Electrical station
- - - Canada - U.S. border
- ▬ Preferred route for the St. Vital to Letellier transmission line
- ▬ St. Vital to La Verendrye transmission line

Investing today for a powerful tomorrow.



Appendix D6

Open House Storyboards –
Round 2

Public Open House St. Vital Transmission Complex - Preferred Route

Welcome

Purpose of the Open House

- Present findings of Round 1 engagement process
- Present the preferred route
- Answer questions
- Address outstanding concerns
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize effects

Project Overview

The project includes the construction of two 230-kilovolt (kV) transmission lines, both originating at the St. Vital Station located in southeastern Winnipeg.

- One line will run south to Letellier Station
 - Required to accommodate growth
- One line will run west to La Verendrye Station
 - Required to improve reliability and performance

Environmental Assessment Process

Environmental assessment generally consists of:

- Characterizing the environment.
- Identifying potential effects on people and the environment.
- Determining methods to avoid or reduce potential adverse effects while enhancing beneficial effects.



Pasture located southeast of Rosa.



Unnamed wetland located near Tourond.

Environmental Assessment – VECs

The environmental assessment determines Valued Environmental Components (VECs).

- VEC definition: any part of the environment that is considered important by the proponent, public, scientists and government involved in the assessment process. Importance may be determined on the basis of societal or cultural values, scientific interest or concern. These are selected by:
 - Experience from other, similar projects.
 - Discipline specialists.
 - Input from interested stakeholders and the public.
- Some VECs being assessed include:
 - Human health.
 - Aboriginal lands.
 - Public safety.
 - Wildlife habitat .



Cairn, near Senkiw.

Environmental Assessment Findings

Discipline specialists have undertaken baseline evaluations:

Amphibians/ Invertebrates

- 3 species of concern (listed under Schedule 1, SARA (Species at Risk Act)).

Mammals

- Small mammals such as badger, ground squirrel and skunk are found throughout the study area.
- Large mammals confined to treed river valleys in eastern extreme of study area.

Birds

- Over 200 bird species in study area
- Limited high quality habitat
- 15 “at risk” species present in study area both provincially and federally.

Engagement Process

Round 1 - August, 2013

- Introduce the project.
- Present alternative routes.
- Answer questions.
- Identify and document concerns.
- Use input to guide preferred route selection process.



Round 2 - October/November, 2013

- Present findings of Round 1.
- Present the preferred route.
- Answer questions.
- Identify and document outstanding concerns.
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize effects.

Input was also gained through:

- Initial stakeholder meetings or discussions.
- Key person interviews (KPI).
- Workshops.
- Comments received by telephone, email and on the project web page.

Engagement Processes and Route Selection

- **Mapping stations and comment forms at public open houses and telephone line and project email:**
 - allowed people to indicate both their issues and concerns, and their preferred route segments.
 - some adjustments to routes were proposed.
- **Workshops:**
 - allowed participants to work together to identify issues and concerns, constraints, and opportunities related to alternative routes, as well as preferred routes.
 - some adjustments to routes were proposed.
- **Key Person Interviews and stakeholder meetings:**
 - participants indicated their issues and concerns.

Findings from the Engagement Process – Round 1

Comment/Concern	How was the feedback incorporated?
Potential impacts to aerial application	Structure height in agricultural areas will be minimized to the extent possible to mimic heights of distribution lines. Air strip locations were identified, incorporated into early planning and avoided as much as possible in final route selection.
Impacts to agricultural operations	We will avoid half-mile (quarter section) alignments where possible. Guyed-wire structures are not being considered for this project. A tubular steel H-frame design, which has a smaller footprint than self-supporting or guyed structures, will be utilized.
Potential affect on livestock, particularly dairy cattle, e.g., tingle voltage	Tingle voltage tends to occur with faulted distribution lines as opposed to transmission lines. Livestock operators are encouraged to contact Manitoba Hydro if they notice tingle voltage occurring so that the source can be identified.
Will I be compensated if the transmission line is on my land?	Manitoba Hydro provides a one-time compensation payment for transmission line easements (75 per cent of market value), as well as one-time structure payment related to loss of annual production. We also compensate landowners for any damages which may occur through the construction and operation of the line.
Locate transmission line infrastructure adjacent to linear infrastructure such as provincial and municipal highways and roads and drains in order to reduce land requirements.	Existing corridors and linear features were identified as routing opportunities in the route selection process and are being taken advantage of where possible. We will consult with Manitoba Infrastructure and Transportation (MIT) on future planning before developing alignments near PTH 75, PTH 59 and PTH 52.
Transmission tower aesthetics	Towers that will be placed adjacent to existing towers will have similar spacing and heights.
Potential impact on wildlife, including birds, vegetation, riparian area, endangered species and wetlands	The environmental assessment process will identify potential environmental sensitivities and will prescribe appropriate mitigation measures.
Avoid heritage sites.	The environmental assessment process will identify heritage resources, including archaeological sites, which will be avoided.
Perceived health effects due to electric and magnetic fields (EMF)	Information will continue to be provided in the public engagement process and these concerns will be addressed in the environmental assessment process. Health Canada, the World Health Organization, and other international health entities have noted that no scientific evidence suggests that exposure to EMF will cause any negative health effects on humans, vegetation and wild or domestic animals.
Transmission line rights-of-way become areas for growth of noxious weeds and potential bio-security issues	We will take necessary precautions as part of construction of the project to minimize the risk of invasive plants and diseases spreading. Manitoba Hydro is currently developing a bio-security policy.

Route Selection Process

EPRI-GTC methodology* includes:

- Earlier stakeholder input into the route selection process to help guide alternative route selection.
- Consideration of engineering, natural and built environments.

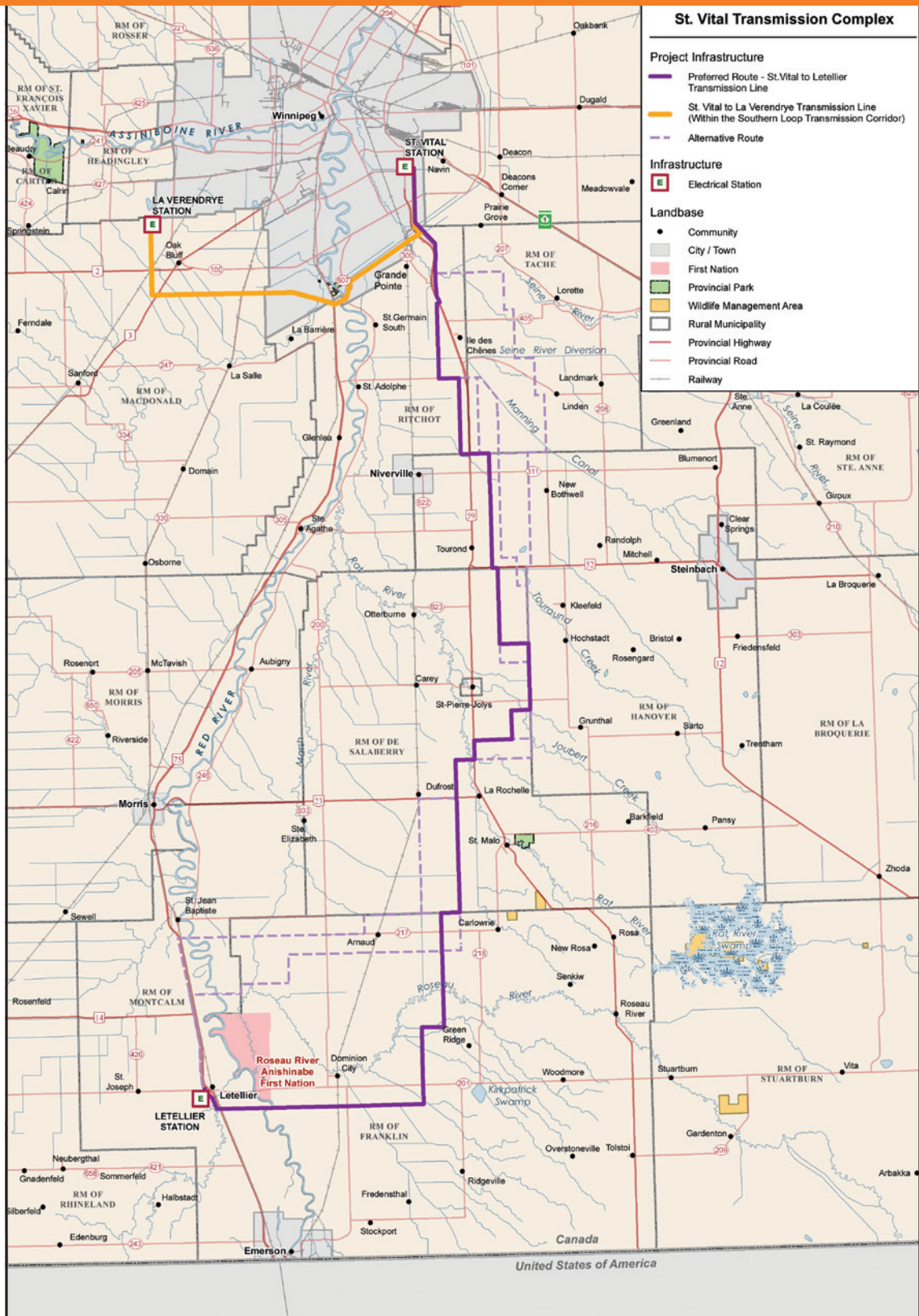
Some stakeholders included:

- Ducks Unlimited.
- MAFRI (Manitoba Agriculture, Food and Rural Initiatives).
- Conservation Districts.
- Manitoba Infrastructure and Transportation.
- Manitoba Trappers Association.

* Electrical Power Research Institute



Alternative Routes and Preferred Route



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvAMB, NRCAN
 Date Created: October 16, 2013



Preferred Route

Preferred Route Selection

- All route segments (existing and proposed) are evaluated.
- Incorporates input received from stakeholders in the routing phase, local residents and land owners.
- Four route segments provided by the public in Round 1 are part of the preferred route.
- Preferred route is then presented to the public for further adjustment to finalize for regulatory review.

Preferred Route Determination

- **Criteria were used to compare and select a preferred route for the St. Vital Transmission Complex.**
- **Criteria considered:**
 - Cost.
 - Community values.
 - Environmental concerns.
 - Schedule risk.
 - Reliability.

Timelines and Next Steps

**October/
November**

- Round 2 public open house events
- Ongoing design and environmental assessment

**January
2014**

- Anticipated submission of environmental assessment to Manitoba Conservation and Water Stewardship and posting on public registry

Mid-2016

- Anticipated in-service date for St. Vital to Letellier Transmission Project.
- Anticipated project completion is 2017.

The Project team wants to hear from you

- Manitoba Hydro representatives are available to answer questions.
- Please take a moment to complete a comment sheet so the study team can document your concerns.
- Display boards and the comment form are also available at **www.hydro.mb.ca/stvital**.

Public Open House St. Vital Transmission Complex

**Thank you for attending
and providing your feedback.**

Appendix D7

Open House Comment Sheet –
Round 2

St. Vital Transmission Complex - Round 2 Public Open House Comment Sheet

1. How did you hear about this open house? (Check all that apply.)

- Postcard Letter Newspaper Word of mouth Website
 Other _____

2. Do you live/work near the preferred route?

- Yes No

Where? _____

3. Have you attended any of the previous Manitoba Hydro open houses for this project?

- Yes No

4. What do you think of the preferred route? (Check one.)

- Like Somewhat Like Somewhat Dislike Don't Like Don't Know

Why? _____

5. Do you have any concerns regarding the preferred route?

- Yes No

6. Are there any specific sites that you think Manitoba Hydro should be aware of along this routes?

- Yes No

(Note: Please indicate specific locations for any constraints, if possible.

Please mark on maps provided.)

St. Vital Transmission Complex - Round 2 Public Open House Comment Sheet

7. Do you have any recommendations for Manitoba Hydro on minimizing/mitigating any potential effects of the project?

Yes No

8. What do you think of the methodology that was used in determining the alternative routes?

Very Appropriate Somewhat Appropriate Not Appropriate Don't Know

9. Please provide any general comments you may have regarding the project.

Please return your comment sheet to a Manitoba Hydro representative at the open house, or complete it at home and email, fax or mail your response to:

Don Hester, AECOM
99 Commerce Dr.
Winnipeg, MB R3P 0Y7
Fax: 204-284-2040
Don.Hester@aecom.com

You can also email Manitoba Hydro's Licensing & Environmental Assessment team at:
LEAprojects@hydro.mb.ca



Appendix D8

Open House Comment Sheet
Responses – Round 2

Manitoba Hydro – St Vital Open House Survey, Summary of Findings

Response rate

In total 57 surveys were received from people who attended the Open House event.

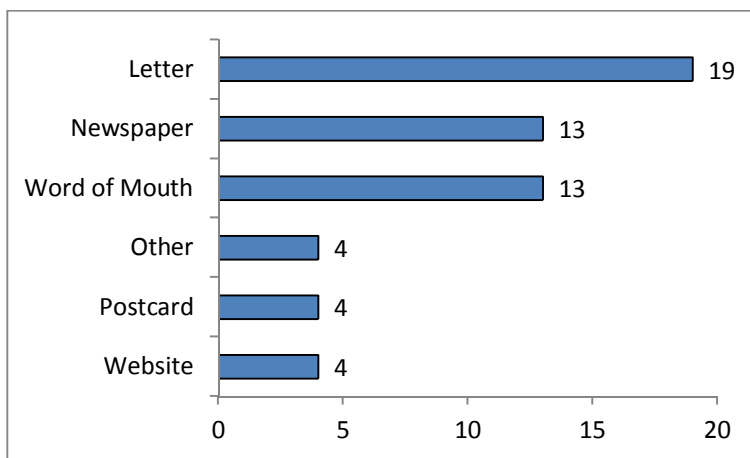
The table below shows the number of comment sheets received at each open house event, by date.

Date of event	Number of comment forms completed
November 4, 2013	4
November 5, 2013	11
November 6, 2013	10
November 7, 2013	7
November 13, 2013	1
November 20, 2013	1
November 21, 2013	1
November 22, 2013	2
November 25, 2013	1
November 28, 2013	1
December 09, 2013	14
December 10, 2013	3
December 11, 2013	1
Total	57

Respondent Profile

Attendees were asked how they heard about the open house, as figure 1 below shows, the majority of people heard about the event from a letter (19 respondents) while 13 attendees, each, said they heard about it through reading about it in a newspaper or via word of mouth.

Figure 1 – How Attendees Heard About the Open House



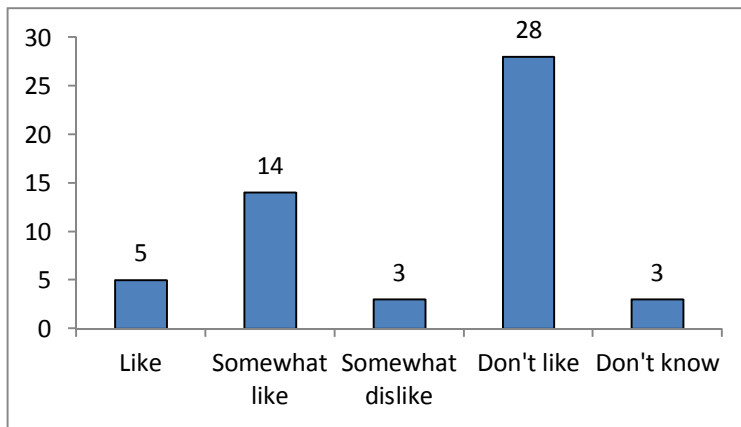
Base= 57 (Figure totals more than 57 as respondents could give more than one answer)

- Only 11 respondents out of 53 (who answered the question) had previously attended a Manitoba Hydro Open House event for this project.

Alternative routes

- The majority of respondents (over four fifths) lived near an alternative route – 48 out of 55 said this.
- Attendees were asked what they thought of the Preferred Route. As the figure below shows, 19 respondents out of 53 (who answered the question) said that they either liked it or somewhat liked it. A majority, 31, said they disliked or somewhat disliked it.

Figure 2 – Opinions on the Preferred Route



Base=53

Attendees were asked to elaborate on their reasons for this response; a summary is presented in the table below.

Opinion on the preferred route	Reasons
Like/Somewhat like	Good consideration of land uses
	Collaboration with wind farm projects in the area
	Maintains the Right of Way
	Avoids existing buildings and residential areas
	Avoids floodplains
	Fewer bends and turns
Somewhat dislike/Don't like	Loss of farmland
	Too close to residences
	Visual impacts
	Effects on agricultural practices
	Effects on land/property value
	Too many hydro lines in the area
	Not enough consultation on this route

When asked if they had any concerns regarding the Preferred Route, 37 respondents said that they did while 16 said that they did not. All 28 respondents who said that they did not like the alternative route said that they had concerns about it. Principal concerns include:

- Effects on health;
- Effects on livestock;
- Encroaching on personal property;
- Loss of farmland;
- Effects on agricultural practices (e.g. aerial spraying);
- Aesthetic impacts; and
- Effects on property values.

Twenty three respondents said that they thought there were specific sites along the proposed route that Manitoba Hydro should be aware of. Common locations included individuals' property, Sage Creek, Seine River, agricultural lands and RM Ritchot Landfill.

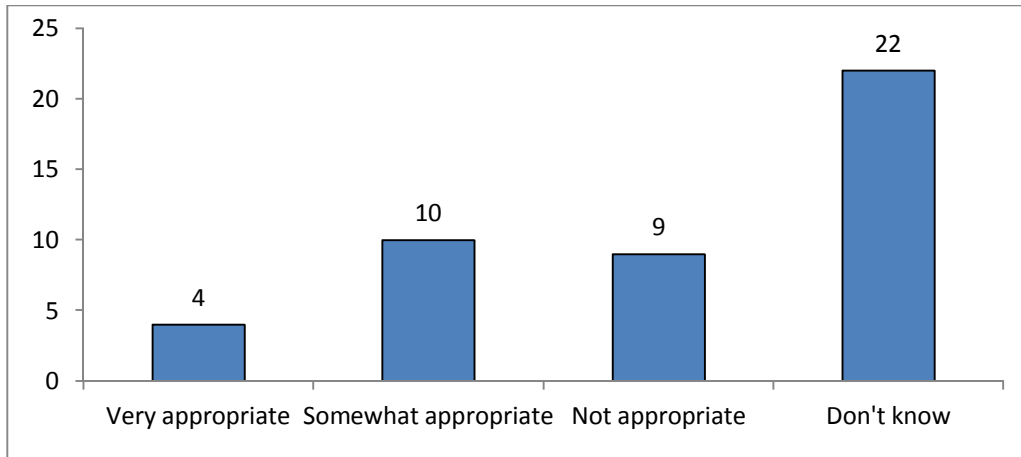
Project Effects

Twenty-four respondents said that they had recommendations for Manitoba Hydro on minimizing/mitigating potential effects from the project. These included:

- Keep trails open during construction;
- Keep the line straight and high to avoid agricultural operations;
- Provide financial compensation to landowners for inconvenience;
- Use existing rights of way, keep it away from residences;
- Go round Sage Creek;
- Run cables underground; and
- Try to avoid disturbing the soils.

Opinions on Methodology

Attendees were asked what they thought of the methodology adopted for determining the Alternative Routes. Fourteen respondents said that it was very or somewhat appropriate while 22 respondents said that they did not know.



Base=45

Of the nine respondents who said that the methodology was not appropriate, common reasons included a lack on consultation on the development of the proposed line, with one respondent calling the process “undemocratic”.

Overall Comments

Finally, respondents were offered the opportunity to provide some general comments on the project. Some of these responses are captured below.

“Very impressed with the information set-up...given a great deal of useful information. Thank you.”

“I hope this will help with power black outs and surges.”

“Much thought has gone into planning.”

“Thank you for inviting public input!”

“Please use right of ways as much as possible without going into people’s fields. You seem to be avoiding a lot of residences which is very appreciated.”

“Despite having gone to two meetings during round one, we were ignored and our concerns were not met.”

“Make the line big enough for taping in wind farms.”

“Landowner input will help direct the design of this project.”

“I have no problem with 1 or 2 hydro lines in the corridor ...but there are plans for 5 hydro lines in the corridor going through the middle of my property. This does not seem fair because the sacrifice I will have to make, in terms of decreased property values, the intangible cost of having to look at them every day and the potential health risks associated with 5 lines instead of one or two, is far greater than anyone else has to make.”

"We have beautiful, relatively untouched land in the Red River waterway area. Why do we continue to add these unsightly structures?"

"I am very concerned about EMF dangers, migratory bird strikes on lines and decrease property values."

"It seems like project wasn't presented to the community properly. [there will be] Negative effects on landscape with so many lines."

"We feel very disappointed in the non-disclosure of both MB Hydro and Qualico as to the possibility of this project and the ramifications to property owners."

Key word analysis

- Aerial applicator – 0 mentions
- Aerial spraying – 4 mentions
- Agricultural land – 1 mention
- Airstrip – 2 mentions
- Alternative route – 3 mentions
- Blind-sided – 0 mentions
- Bury line - 2 mentions
- Compensation payment(s) – 4 mentions
- Concerned – 8 mentions
- EMF – 8 mentions
- Environmental -3 mentions (2 as part of MidCanada Environmental Services)
- Expropriation – 0 mentions
- Happy – 1 mention (in a negative context)
- Houses(s) - 13 mentions
- Home – 10 mentions
- Hunting – 0 mentions
- Impacts - 9 mentions
- Lagoon – 0 mentions
- Landfill – 5 mentions
- Landing strip – 0 mentions
- Marginal land – 1 mention
- Property – 24 mentions (including 12 mentions of property value)
- New subdivision -1 mention
- Northern route – 0 mentions
- Other side – 0 mentions
- Relocate – 0 mentions
- Road – 6 mentions (5 in addresses)
- Route adjustment /change – 1 mention
- Runway – 0 mentions
- Southern route – 0 mentions
- Store hay – 0 mentions
- Swamps – 0 mentions
- Turning around structures – 0 mentions

- Underground lines – 6 mentions
- Weeds/ managing weeds -1 mention

Appendix D9

Landowner Information Forms –
Round 2

St. Vital Transmission Complex

LANDOWNER INFORMATION FORM

Location:	Manitoba Hydro Representative:
Date:	

Landowner Information	
Last Name:	Contact Phone Number (Optional):
First Name:	
Address:	Email (Optional):

Land Information
Name of Property:
Note (Section/Township/Range/Lot/Plan):
Associated Map Book: Map #_____


Please fill out the questions below		
1. Are you the sole owner or lessee of the property in question? Please choose one: <input type="checkbox"/> Owner <input type="checkbox"/> Lessee		
2. What is the current use of the land? <input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input type="checkbox"/> Residential <input type="checkbox"/> Pasture <input type="checkbox"/> Other If agricultural: What types of crops are you currently growing.		
	YES	NO
3. Are there any buildings/structures on the property in question?		
4. Do you use GPS for your farming practices?		
5. Are your crops dependent on aerial application?		
6. Are the farm practices on the parcel in question organically certified?		
7. Are you operating livestock facilities or do you have livestock on the property? Please describe:		
8. Is there a residence on this parcel of land? If so, how close is it to the preferred right of way? If 'yes', please sketch on back of sheet the approximate location.		
9. Are there any potential obstructions (shelterbelts, trees, structures, retention ponds) along the preferred right-of-way through your property? If 'yes', please sketch on back of sheet the approximate location.		
10. Are you spreading manure on the property in question? If 'yes', please sketch on back of sheet the approximate location.		
11. Is there any other Manitoba Hydro infrastructure on this property? If 'yes', please sketch on back of sheet the approximate location.		
12. Are there gas lines buried on this property? If 'yes', please sketch on back of sheet the approximate location.		
13. Is there a rail line, access road or airstrip adjacent to or on this property? If 'yes', please sketch on back of sheet the approximate location.		

St. Vital Transmission Complex

LANDOWNER INFORMATION FORM

Discussion Summary

Sketch Comments



Provide this form to a Manitoba Hydro representative or Mail or Fax this form to:

AECOM
99 Commerce Drive
Winnipeg, MB R3P 0Y7
Fax: (204)284-2040
Email: Don.Hester@aecom.com

Appendix E1

Other Consultation: Meetings,
Emails and Telephone Calls –
Round 2

Phone Call/Email	Date and Time of Call or Initial Email	Constraint/Constraint
Round 1		
Phone Call	8/9/2013 10:00	Call requesting images
Email	8/9/2013 Time unknown (AM)	Location of runway located 2.4 miles east of Hwy 200 near S-8and meeting request to discuss routing.
Phone Call	8/12/2013 11:00	Wanted to know what the route would entail. Noted that from her home the closest line would be 1mile north followed by 2 miles north. Wanted basic info and said she would try and attend the open house in DC or M. Woolrdige Rd. NW1-5-4 No concerns raised.
Phone Call	8/13/2013 15:00	Caller was opposed to project. Does not like options near where he owns land between New Bothwell and Tourond. Also upset about Bipole III. Expressed that land east of the Red is too densely populated for a transmission line.
Phone Call	8/13/2013 15:30	Information request, discussed routing. Noted he was 1 mile from the line. He thought it was paralleling 59 and the existing tline. Caller indicated the website needed more detailed mapping. No concerns with the Project and will try and attend the WPG OH.
Phone Call	8/14/2013 11:00	Requested a meeting with Manitoba Hydro
Phone Call	8/14/2013 11:00	Caller noted the route should follow highway 75 and not go through a deny populated area. Caller noted there will be a lot of anger from those in the area due to Bipole III and said there is a lack of trust. Manitoba Hydro outlined that it is their goal to rebuild that trust. Routes are not set in stone and can be modified (brought up Tourond as an example), discussed future plans and needs of the area. Caller noted that the routing methodology ignores human beings.
Phone Call	8/14/2013 13:00	Caller wanted to know which side of the road the routes around Arnold are going. Manitoba Hydro indicated south and east unless on a half mile. Caller questioned routing on half mile as it would bisect people's farms. Noted that moving it would cause pain to another. Manitoba Hydro noted they consider concerns and issues before adjusting and noted these are not set in stone.
Phone Call	8/15/2013 11:00	Caller wanted to know about general design. No expression of anger towards the project Caller requesting information relating to the proximity of the route to her home outside of Ile des Chenes. Caller is concerned about property values in proximity to transmission lines and she indicated that she and many others in the area are modifying development plans and subdividing their properties. She is located 1/2 mile from the western most alternative on Habitat Road. Caller and Manitoba Hydro discussed the routing methodology and the schedule for the Project. Caller will attend Mitchell Open House and if she believes it is too busy she will come to Winnipeg to talk one on one about her concerns.
Email	8/15/2013 15:09	Email thanking for the chance to comment on project. Recognizing the need for reliable energy and hoping Hydro can build what the need without delay.
Email	8/15/2013 15:09	Email informing Hydro of their airstrip on the NW corner of Sec 15-5-4-E1. Harv's Air Pilot Training also uses the strip for practicing.Hydro has previously buried a new power line at this location for airplane safety. Requesting the proposed transmission line keep a safe distance away from existing air traffic for airplane safety.
Email	8/16/2013 (time unknown)	Email to caller thanking her for call that morning. Provided snapshots of home quarter, write up on routing methodology and requested input on line locations and indicated input would be considered by the project team.
Phone Call	8/19/2013 9:00	Left a message to discuss the project. Called both numbers back. First number the VM was full. Left a message on the other.
Email	8/20/2013 10:20	Not impressed that the 1-877-343-1631 number doesn't work. As far as he's concerned - Hydro is already in breach of their Class 2 License. Indicates that not everyone has internet in rural areas.
Email	8/21/2013 10:10	Comment sheet indicates can fax in answers, however there is no fax number.
Email	8/21/2013 15:57	Requests to be called back to be provided further information on the letter received from Manitoba Hydro.
Email	8/22/2013 10:59	He attended the open house in Mitchell to voice his concerns about a portion of the route that travels down Hwy 59. Him along with 6 other families live there. His concern is with the line passing 7 houses and one of those houses are close to the hwy. His neighbour has an airstrip on the east side of the hwy which runs east-west. There are red and white balls on existing hydro lines on the west side of Hwy 59, so aircraft don't hit them. Suspects a new, taller line would be even more problematic. He hopes the line is built far, far away from him.
Phone Call	8/23/2013 15:00	Wanted to speak with AECOM to add to their discussions in Mitchell and Winnipeg.
Phone Call	8/26/2013 9:00	Wanted to know why we have no respect for agriculture as there are many people out in the fields and would not be able to attend. It was noted that even though people could not attend it does not mean they cannot participate in the process. Manitoba Hydro indicated that we would meet with him to discuss and that he would check his schedule and get back to me. He believes he is affected by 3.5 miles of line in the La Rochelle Area.
Email	8/27/2013 0:00	Information provided to Open House attendee by email from Manitoba Hydro '1. Regarding number of conductors on each line: 3 conductors (35 mm) in diameter, 2 skywires for lightning protection. One skywire will be OPGW (fibre optic) to double as a line of communication for the electrical system. 2. maximum capacity of the proposed line: 517 MVA, 3. Clearance of conductors over access to property and consideration of type of equipment: line will meet CSA standards, ground clearance will be 7.3 m, identifcaiton of specific individual struture locations will be part of the detailed design phase and will be influenced by obstacles in the field. 4. fences near the trans line must be properly grounded. MB Hydro has specifications for grounding of fences in proximity to lines that vary based on proximity to the outside conductor of the trans line and total length of the fence.
Phone Call	8/27/2013 13:00	Initially an email but responded by phone. Contact was concerned about the grass runway which is located 2-3 miles north of La Rochelle along 59. It makes an L shape and would not be visible as a runway if driving by. Noted that S1 is boxing the north and west side of the landing strip. He noted that distribution is underground in the area to accomodate. Based on his view of the location of the alternatives S2 makes much more sense for this landing strip and that it would give a mile of landing room. He noted a correlation of 1ft vertically needs 20 horizontally. Contact thanked Manitoba Hydro for getting back to him so quickly. Southern route in the area would be much better.
Phone Call	8/28/2013 8:00	Caller wanted real facts and not the awful coffee shop talk he has been hearing. He missed Dominion City Open House and wanted to know what the big deal is if there are no large towers and they will be along road allowances. He wanted a compensation estimate which went to Manitoba Hydro's Property Department. He believes the route is much less intrusive on the mile alignment. Wanted to know details on structures. No other concerns noted.
Phone Call	8/28/2013 13:00	Wanted an update on where we were. Noted we were still collecting information from many other interested parties. Noted that the structures would be under 20 m tall in the area whereas he thought they would be 90 ft or more. He said we should be showing more numbers for compensation and route the line on properties who would want the money. We are still waiting for a time to meet with him and his neighbours.
Phone Call	8/29/2013 9:00	Has called personal line 4 times this morning. Called him back twice and there is no voicemail. Will try again on the 30th.
Phone Call	8/29/2013 15:00	Caller wanted information on the line location as he has 12 acres on 205 heading to Grunthal. His home is 0.52 miles from the proposed location. Concerned about EMF. Noted that there was no other major concerns and was interested in what other people were saying about the Project.
Phone Call	8/30/2013 13:30	Wanted to chat about routing. He has some ideas. We are crossing his lands and he wanted an estimate on compensation. Gave him the estimate which was prepared by property. Caller requested a meeting.
Phone Call	9/10/2013 0:00	Caller wanted to inquire and become informed of the markers that are being placed along her roadway. She noted that the RM of Hanover told her it was because of St. Vital. Manitoba Hydro noted that Hydro does not survey until they have a preferred route which currently we do not have. Manitoba Hydro and caller discussed it could be distribution, a correction for Bipole III or a gas line. She forwarded an email from the RM regarding a coalition and that it was due to the St. Vital Project. No other concerns raised. Caller wants to be informed of the project because she understands the need for it.

Phone Call/Email	Date and Time of Call or Initial Email	Constraint/Constraint
Phone Call	9/10/2013 9:19	Information from call sent to AECOM
Phone Call	9/11/2013 9:00	Owns 80 acres on SE28-4-4E1 and SW28-4-4E1 and it runs east west. Currently has a distribution line on the southern side of his property and believes this line will be unsafe to maneuver around. Also aerial application (fungicide) will not be possible as he will be boxed in. Prefers the line further west, which runs south of Dufrost.
Phone Call	9/11/2013 9:00	Interfere with operations and limit ability for aerially spraying as he would be boxed in. Is located in the RM of Franklin near Arnaud (SW & NW34-3-3E1) - on segment S7. S8 more preferred. Northern portion of route biggest impact.
Email	9/23/2013 10:36	Manitoba Hydro provided a description of the project and a link to the project website if the Resident association requires further details. Manitoba Hydro will notify The Association as they advance through the environmental assessment process.
Round 2		
Phone Call	10/29/2013 10:00	Landowner lives south of Ile des Chenes and noted he has a farm and it will impact the spread of manure. Noted he would talk with us in Ile des Chense Open House.
Phone Call	10/29/2013 10:00	Information request
Email	10/29/2013 14:45	Information request
Phone Call	10/29/2013 15:00	No concerns
Phone Call	10/30/2013 11:00	No concerns
Email	10/30/2013 12:36	Requesting additional information for the Sage Creek area and is part of the Resident's Association.
Email	10/30/2013 11:55	Requesting additional information where the line will run near the Green Ridge area specifically relative to NE and NW quarters of 32-2-4 E1.
Phone Call	10/30/2013 15:00	Landowner sent an email regarding his airstrip along PTh59. He offered two adjustments. Project team has already been in discussion and will present two options in that area for consideration. He was not upset but wants to work together to determine a placement.
Phone Call	10/30/2013 16:00	Little interest in the project.
Email	10/31/2013 13:56	Requesting clarification on what side of the road allowances the line passes where the lines run north to south between the West side of section 5 - 3 - 4 E1, and the East side of section 6 - 3 - 4 E1 and where the line travels east to west between the South side of section 6 - 3 - 4 E1, and the North side of section 31 - 2 - 4 E1.
Phone Call	10/31/2013 16:00	Landowner wants an email once the final route is submitted. Property owner NW11-6-4 and acreage on SW11-6-4120 acres on NW12-6-4
Phone Call	10/31/2013 17:00	Information request
Phone Call	10/31/2013 17:00	Landowner lives close to St. Vital preferred route (180m) and we will cross existing south east of him at 380m. Discussed tower structure and EMF.
Phone Call	10/31/2013 17:00	Lives a mile north of Niverville and Stott Road. He is quite close to the line and MH does a deviation of the route to move away from his residence.
Phone Call	10/31/2013 18:00	Landowner is not happy about the placement and thinks Manitoba Hydro should have gone on the RM boundary between Hanover and De Salaberry because it is all slough grass.
Phone Call	11/1/2013 10:00	Wanted to know where the venues were going to be for St. Vital and he will come to Dominion City open house. Wanted to know where we were in relation to 201 and what side of the road we would be on from Dominion City north to St. PJ.
Email	11/1/2013 10:19	Initial email from MH providing individual, as requested during their phone conversation that day, a link to the project website and the newsletter. MH provides information regarding phases of construction and states MH will be glad to meet with the Residents Association and asks for dates that would work for potential meetings.
Phone Call	11/1/2013 12:00	Has the facebook page for Sage Creek Residents Association. Wanted information on the location of the towers and span and alignment. Indicated the towers will line up and we will match span. Noted hydro's ownership of the right of way and he noted people would be coming to the Winnipeg Open House. He will post something on their facebook page and provide the information line number.
Phone Call	11/5/2013 11:00	Resident's Association wanted to know if the tower placements will interfere with the walking trails (Sage Creek Corridor).
Phone Call	11/6/2013 9:00	Information request
Phone Call	11/6/2013 10:00	Wanted to note that he is opposed to the project location and should not be located on the 1/2 mile behind his home. He states it will devalue the property and his taxes are already going up. He would like to see the route located on PTH 3 or 75 and not where we are. He said there are many parcels around this line which have great potential for subdivision but who would do so with a transmission line behind it. He owns 40 acres.
Phone Call	11/6/2013 11:00	Wanted to know if the RM got taxes paid for the transmission line or if there is grants in lieu.
Email	11/6/2013 13:29	Compensation information
Email	Conversation during St. Pierre Jolys Open House 11/05/2013	Interested in the benefits and potential limitations of the project on wind development.
Phone Call	11/12/2013 12:00	Information request
Phone Call	11/12/2013 15:00	Information request
Phone Call	11/12/2013 17:00	Information request
Phone Call	11/13/2013 10:00	No concerns
Phone Call	11/14/2013 7:00	Wanted to know where the line was going in relation to Dufrost. Wanted to know if the angle structures would have guyed wires.
Phone Call	11/18/2013 17:00	Wanted to know what to expect from the structures as well as information related to MMTP. He wanted to know the regulatory process for St. V. Noted he had joined CAEPLA and was concerned about compensation for the impacts to his agricultural operation. SW26-7-4E1
Phone Call	11/20/2013 8:00	Concerned that the transmission line is too close to their home and that they have children and the exposure (to EMF) will hurt them. They built in the country to avoid this type of development.
Phone Call	11/20/2013 17:00	Wanted an update on timelines and wanted to ensure Manitoba Hydro documented his support for a routing change with regards to the airstrip which is located on PTH 59.
Phone Call	11/26/2013 11:00	Landowner lives in Grande Pointe and believes the lines will devalue her home.
Phone Call	11/26/2013 11:00	Information request
Phone Call	11/26/2013 10:00	Wanted to know where the line was going for St. V. Noted it was 1 1/2 mile west of the lands he owns and operates (30-6-5E1). He was happy it is not on his property and he noted a concern about stray voltage.
Email	11/26/2013 1:22	Information on EMF and health effects were provided by citizen.
Email	11/26/2013 0:45	Concerned about EMF (health concerns) and close proximity (within 200 m) to transmission lines through Sage Creek.
Email	10/23/2013 15:14	Council wants Manitoba Hydro to revise the alignment of the St. Vital transmission line, so that it avoids the Ritchot landfill and the Ile des Chenes lagoons.
Email	11/21/2013 12:04	Pinawa Game & Fish Association would like the dates of the submission of the reports and copies of the reports including the dates and locations of the public review of each of the reports and identified stages listed in the distributed public information and published on the website. 1. Confirmation of the preferred route; 2. Submission of the environmental assessment report; 3. regulatory authorities review report.
Email	11/20/2013 11:19	Landowner updated information in their Landowner Form.

Phone Call/Email	Date and Time of Call or Initial Email	Constraint/Constraint
Email	11/8/2013 11:20	Citizen of Sage Creek presented 5 questions to MH to respond to regarding the location of the transmission lines: 1) will they be in-line with one another or staggered 2) provide approximate location of the line in the photo provided 3) will the current recreational path in the Hydro Corridor remain in tacked or 4) will they be relocated and 5) what is the minimum distance a 230 kV line has to be from a residential property.
Email	11/20/2013 11:20	Information request
Email	11/20/2013 11:19	Information request
Email	11/19/2013 21:55	New Hydro lines will be across the road from home on Hwy 59. Don't understand what is to be expected or if anything has been written in stone as to where these proposed lines are actually going. Would appreciate some feedback with the facts about this undertaking.
Email	11/15/2013 11:36	Concerned about a potential line may be running right next to citizen's property - would like to get a more exact understanding of where it will go.
Email	11/13/2013 14:55	Information request
Email	11/13/2013 12:40	Citizen requested the newsletters from Round 1 and Round 2.
Email	11/12/2013 22:01	Information provided by citizen via Google Earth.
Email	11/10/2013 10:47	Meeting request with Manitoba Hydro
Email	11/8/2013 11:03	Information request
Email	11/8/2013 15:31	Alternative One or Two would satisfy most.
Email	11/7/2013 9:53	Information provided by Manitoba Hydro and a meeting request.
Email	11/7/2013 14:48	Concerns including EMF, real and/or perceived implications for safety, land value and long-term residential development merit careful review and consideration for the best possible long-term decision about the location of the Transmission Corridor.
Email	12/14/2013 13:00	Concerned about air strip located at NW 15-4-4-E1 might be obstructed by steel structures and wire. He also mention that there are alternate routes with less impact on agricultural land and of course the 30 year old air strip.

Record of Meeting

General Information

Title	
Project	St. Vital Transmission Complex
Community	
Round	
Date of Meeting	
Location	
In Attendance	
Recorded by	

Meeting Description

Description

Discussion

Item	Description	Manitoba Hydro Response	Category

Action Items

Action Title	Responsible	Date Completed

Appendix E2

Record of Meeting – Round 2

Minutes of Meeting

Date of Meeting	September 11, 2013	1:00 pm	Project Number	60290259 (404)
Project Name	Manitoba Hydro St. Vital Transmission Complex			
Location	RM Montcalm Office in Letellier, MB			
Regarding	St Vital Transmission Complex			
Attendees	Trevor Joyal - Manitoba Hydro Roger Vermette, Reeve – Rural Municipality (RM) of Montcalm Michelle Robert , CAO – RM of Montcalm 5 Councillors and Public Works Manager – RM of Montcalm Alison Weiss - AECOM			
(Distribution)	AECOM, Manitoba Hydro			
Minutes Prepared By	Alison Weiss			

PLEASE NOTE: If this report does not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

	Action
<p>1. Materials Provided</p> <ul style="list-style-type: none"> Manitoba Hydro provided electronic and paper copies of the attached presentation. One hard copy E-sized map and 11x17 hard copies of the Alternative Routes (Map 3) were provided to the RM (11x17 map attached). Hard copies of the attached newsletter were also provided. 	INFO
<p>2. Presentation to RM Council</p> <p>Trevor Joyal of Manitoba Hydro presented the provided materials to Council.</p> <p>Questions and responses that arose throughout the presentation were as follows: (please note that these notes do not constitute either a complete or an exact transcript of what was said; these notes represent a reasonable attempt to capture the substance of what was said.)</p> <p>Question (Q): Will this new line tie into the existing line along Highway 75? Response (R): No, this is a new line.</p> <p>Q: What will the towers look like? R: They will be a steel H-frame structure, approximately 16 m to 38 m in height. Within agricultural zones, structures will likely be in the 16 – 20 m range in height. Along Highway 75, structures will parallel existing structures.</p>	INFO

	Action
<p>Q: Will the new line be to the east or the west of the existing transmission lines on Highway 75? R: There is only room on the west side.</p>	
<p>Q: What will be the width of right of way? R: It will be approximately 40 m in width if not on a road allowance. If up against a road allowance, the right-of-way will be 23 m in width.</p>	
<p>Q: What will be the structure spacing? R: The span between structures will be approximately 300 m. This translates to approximately 3 to 4 structures per ½ mile, however, taller structures can be used to reduce the number of structures per ½ mile. If taller structures are used, this will increase their footprint and can limit aerial application in the area.</p>	<p>INFO</p>
<p>INFORMATION: A councillor indicated that south of St. Jean Baptiste between Highway 75 and the Red River, land has been purchased for a lagoon. Also, the last 5 miles of the line in this area is in the floodplain.</p>	
<p>Q: Why is Manitoba Hydro using ½ mile alignments in some places? R: For the Bipole III project, structures required offsets from roads. The Bipole III Coalition preferred the ½ mile alignment in this instance. For this project, the structure is an “H” frame, not a tower, so it can butt up against a road. Trevor indicated he had heard some concerns regarding the ½ mile alignments. From a routing perspective, it is preferable to cross roads and the Red River at 90° angles to avoid diagonal crossings. So near Letellier, the jogs shown on the map had to occur to achieve the 90° crossings with major roads and the river.</p>	
<p>INFORMATION: Trevor indicated he had been in discussions with a local aerial applicator about route locations. Trevor has asked the aerial applicator to recommend route adjustments. Trevor indicated that Manitoba Hydro was open to adjustments. To date, they have received a number of route adjustments to consider.</p>	
<p>Q: Do you have to come into Letellier Station from the north? R: Yes and no. There are a lot of lines into the station and the north side has some room to accommodate a new line. The south side of the station would require a lot of line crossings. This is not ideal, as Manitoba Hydro would want some separation with the line feeding Letellier, but is still possible. North out of the station, then east and south could be considered by Manitoba Hydro. The preference is for the new line to connect on the north side of the station. Trevor indicated that south of the 201, there are no houses, so routing here could be a preference. No comments were received from the RM of Montcalm regarding routing the transmission line north of Letellier, then east and south of town.</p>	

Action	
<p>Q: When using municipal road allowance with "H" frame, is one leg in the ditch? R: Both legs of the structure will be in the right-of-way. This way, the landowner will be compensated for the whole structure.</p>	
<p>Q: Will landowners receive yearly compensation payments? R: No, the compensation will be a one-time payment. Manitoba Conservation has recommended annual disbursements as part of the Bipole III Environment Act Licence.</p>	
<p>Q: How much will Hydro increase because of this project? R: This project is factored into Hydro's plans. Future plans also include a station near Grunthal. The transmission line is routed near Grunthal to connect to this future station. Further, this routing allows for some separation for redundancy from the line along Highway 75.</p>	



Alison Weiss, P.Eng.
Environmental Engineer



St. Vital Transmission Complex

Presentation to R.M. of Montcalm
September 11, 2013

Manitoba Hydro

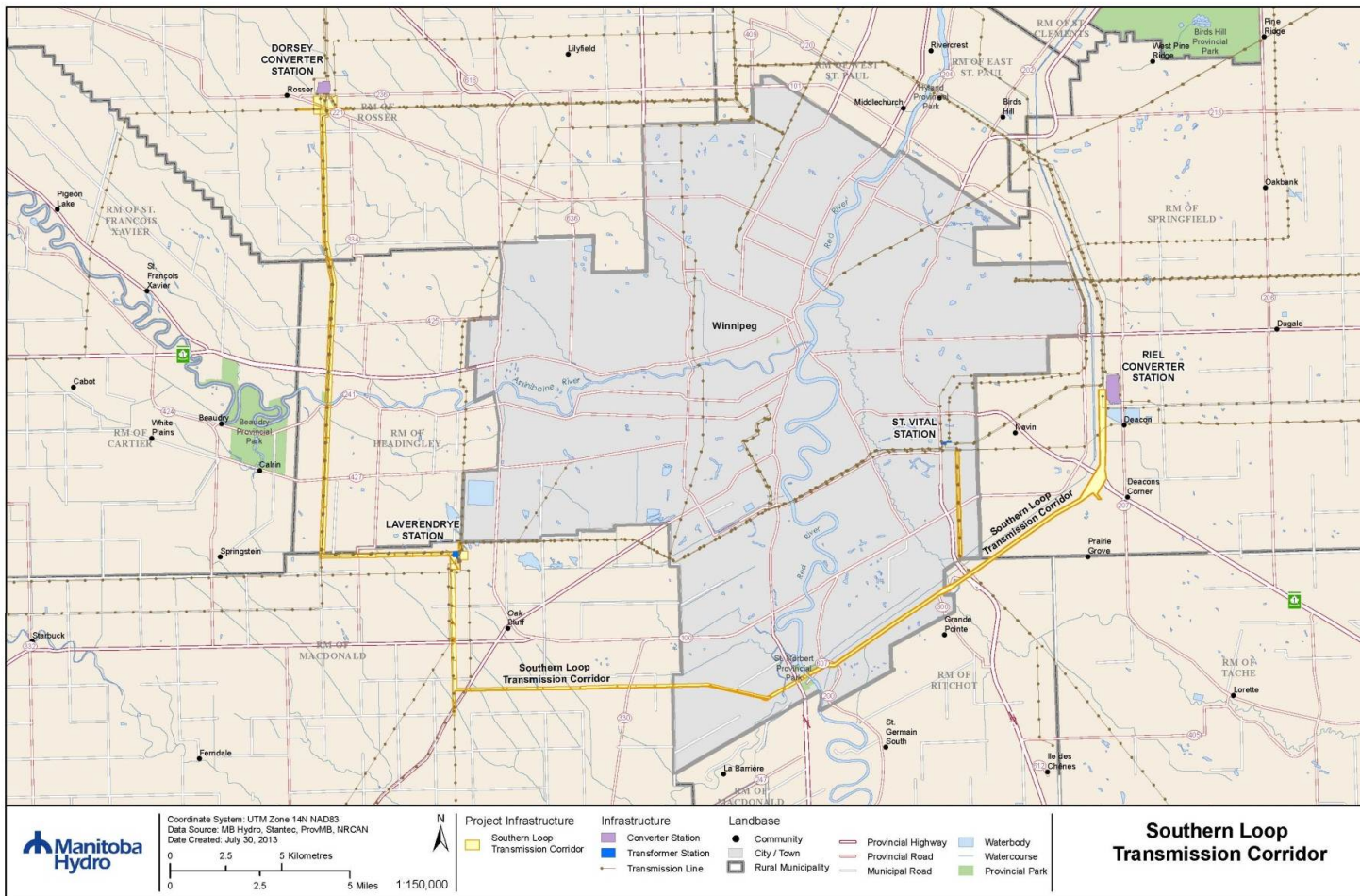
Presentation Overview

1. Project Overview
2. Routing Process
3. Environmental Assessment
4. Public Engagement
5. Timelines and Next Steps

1.0 Project Overview

- The Project includes the construction of two 230-kilovolt (kV) transmission lines, both originating at the St. Vital Station located in southeastern Winnipeg.
- One line will run south to Letellier Station.
 - Required to accommodate growth.
- One line will run to La Verendrye Station.
 - Required to improve reliability and performance.

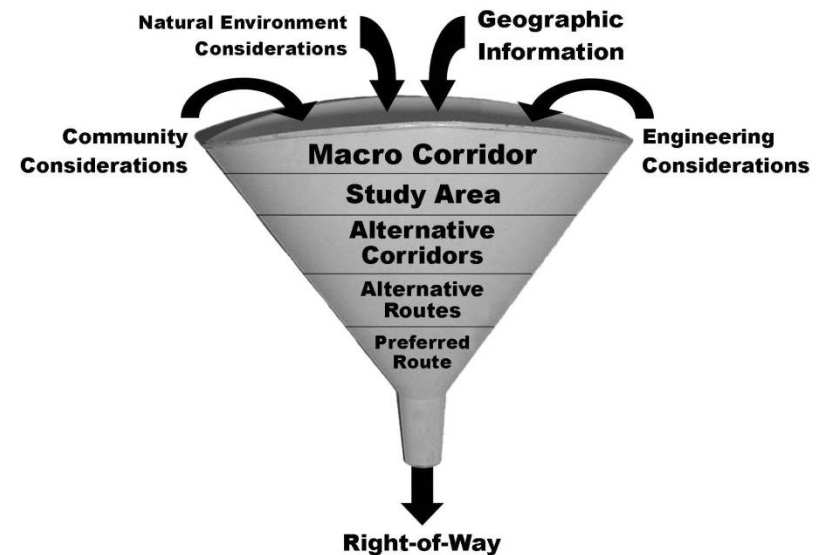
St. Vital to La Verendrye Transmission Line



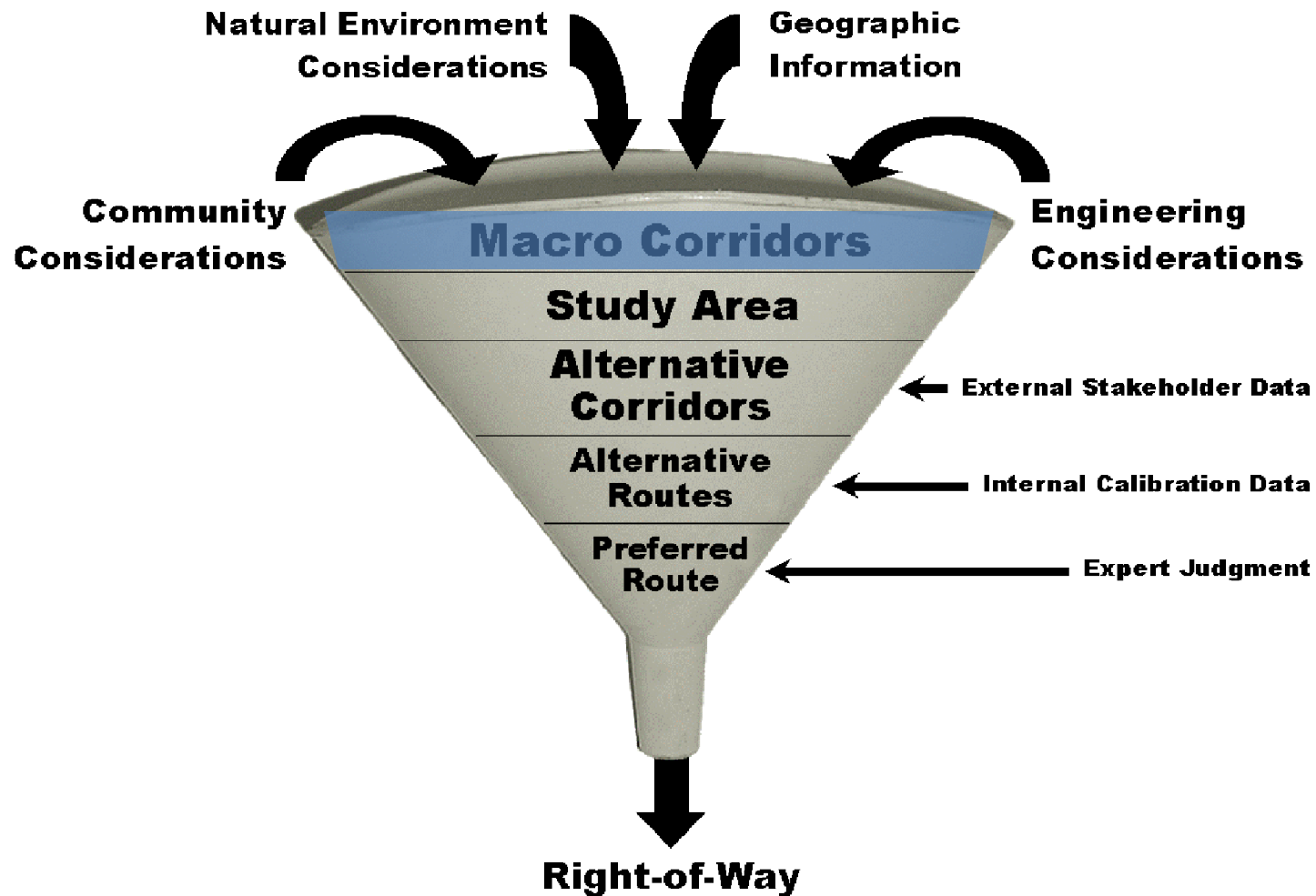
New line between the St. Vital and LaVerendrye stations will be located on an existing right-of-way known as the Southern Loop.

2.0 Routing Process

- Manitoba Hydro is piloting a new process to develop alternative routes for the St. Vital to Letellier transmission line.
- EPRI-GTC methodology* includes:
 - Earlier stakeholder input into the route selection process to help guide alternative route selection.
 - Consideration of engineering, natural and built environments.
- * Electrical Power Research Institute



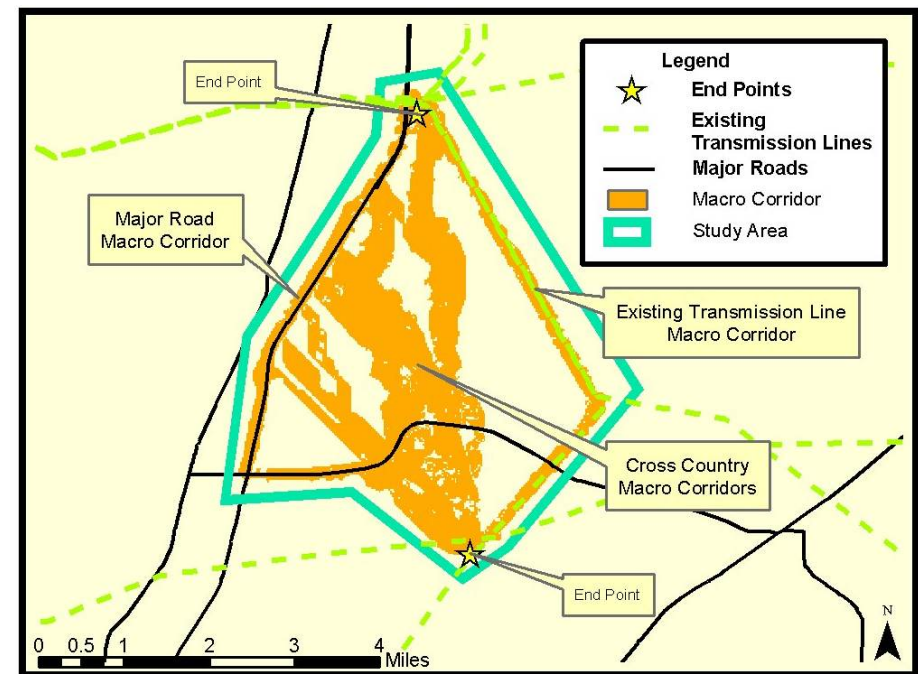
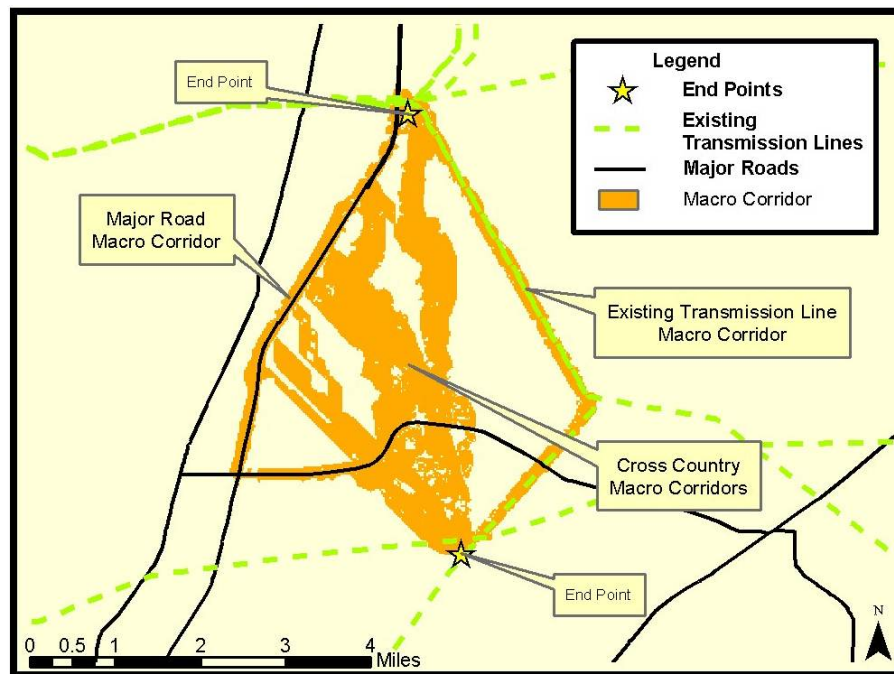
The EPRI-GTC Methodology Funnel



Macro Corridor Identification

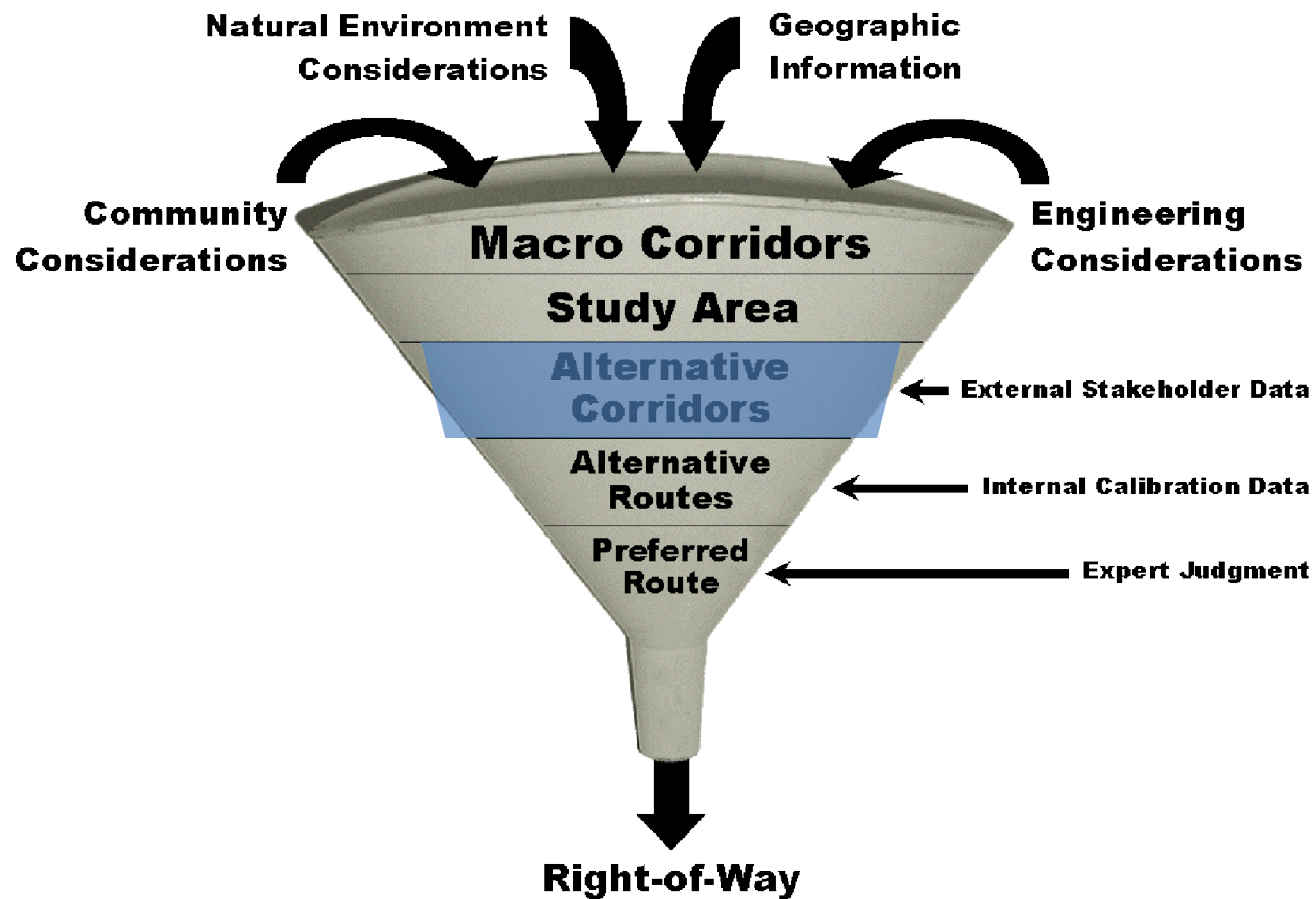
- Identifies broad areas with least environmental and community impacts.
- Identifies start and end points of the project, and one central point.
- Used to define the outer boundaries/limits of Project Study Area.
- Based on available provincial GIS data sets.

Marco-Corridor and Study Area



The top 5% of the best possible connections within the project area form the macro corridors

Alternative Corridor Identification



Alternative Corridor Identification

- External and internal stakeholders determine the relative suitability of different features for routing a transmission line.
- Focused on a regional scale, prior to application on a specific project.
- Examples of features include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Slope• Paralleling existing infrastructure• Span-ability of water bodies	<ul style="list-style-type: none">• Wetlands• Grasslands• Critical habitat• National parks	<ul style="list-style-type: none">• Agricultural• Recreational trails• Historic sites• View-shed

Alternative Corridor Identification

- Examples of external stakeholders
 - Trappers Association
 - Manitoba Conservation and Water Stewardship
 - Manitoba Infrastructure and Transportation
 - Manitoba Local Government
 - MAFRI
 - Manitoba Aerial Applicators
 - Manitoba Food and Rural Initiatives
 - Ducks Unlimited Canada
 - Keystone Agricultural Producers
 - Trails Association
 - Manitoba Nature Conservancy

Stakeholder Input

- External and internal stakeholder feedback and contribution was incorporated into the Routing Methodology
- Stakeholders identified features and suitability values, as well as relative weightings for routing based on Engineering, Natural and Built Environment perspectives
- This input was used to determine the Alternative Corridors within which Alternative Routes could be drawn

Stakeholder Input

- Areas of Least Preference are also determined
- Some examples include:

Engineering	Natural	Built
<ul style="list-style-type: none">• Non span-able water bodies• Active Mines and quarries	<ul style="list-style-type: none">• Wildlife refuge• Ecological reserves• National parks• Provincial Parks	<ul style="list-style-type: none">• Federal heritage sites• Airports• Known archeological sites

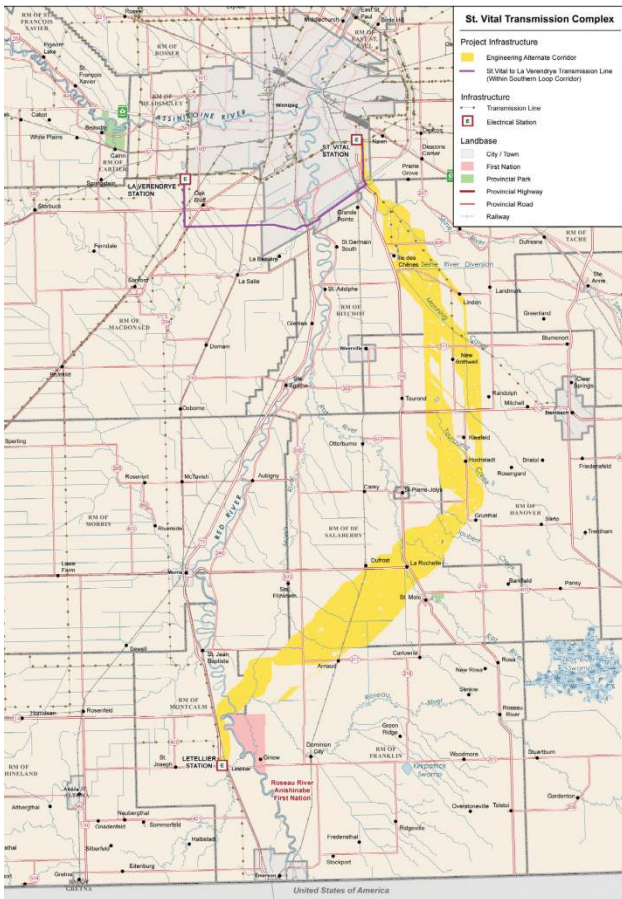
Southern Manitoba Alternate Corridor Siting Model

Engineering	Natural	Built
Linear Infrastructure 35.7%	Aquatics 10.0%	Proximity to Buildings 10.0%
Unutilized ROW (Manitoba Hydro Owned) 1	No Aquatic Feature 1.0	> 800 m 1
Parallel Roads ROW 2.6	Ephemeral Streams (Non-Fish Bearing) 4.9	400 - 800 m 2.7
Municipal Road Allowances 3.1	Spannable Waterbodies (Lakes & Ponds) 6.1	100 - 400 m 6.5
Parallel Provincial Highways ROW 3.4	Ephemeral Streams (Fish Bearing) 6.3	ROW - 100 m 9
Parallel Existing Transmission Lines 3.8	Swamps 6.8	Building Density 15.0%
No Linear Infrastructure 4.4	Ephemeral Streams (CRA Fish Bearing) 6.9	< 1 Building / Acre (Rural Agricultural) 1.0
Rebuild Existing Transmission & Sub-Transmission Line 5	Riparian Floodplain 7.1	1 Building per 1-5 acres 2.8
Parallel Oil / Gas Transmission Pipeline 5.6	Permanent Stream 7.5	1-3 Buildings / Acre (Rural Residential) 3.7
Parallel Railway ROW 5.6	Bogs 7.7	3-10 Buildings / Acre (Suburban Density) 7.2
Future MIT Plans 7.8	Fens 8.2	>10 Buildings / Acre (Urban) 9.0
>= 300 kV Transmission Line & Within Separation Buffer 8.5	Marsh 8.2	Proposed Development 3.7%
Within Road, Railroad, or Utility ROW 9	Permanent Stream (CRA Fish Bearing) 9.0	No Proposed Development 1.0
Spannable Waterbodies 10.4%	Special Features 42.4%	Proposed Development - Industrial Zoning 3.0
No Waterbody 1	No Special Land 1.0	Proposed Development - Agriculture Zoning 4.1
Non-Nav. Spannable Waterbody (Standard Structures) 2.8	Managed Woodlots 5.4	Proposed Development - Commercial Zoning 5.1
Nav. Spannable Waterbody (Standard Structures) 4.3	Crown Land With Special Code 7.0	Permitted Development 6.9
Non-Nav. Spannable Waterbody (Specialty Structures) 6	Community Pastures 7.3	Proposed Development - Rural Residential Zoning 6.9
Nav. Spannable Waterbody (Specialty Structures) 9	Flyways 7.5	Proposed Development - Urban Zoning 9.0
Geotechnical Considerations 30.2%	Areas of Special Interest (ASI) 7.8	Soil Capability & Agricultural Use 11.9%
Rock 1	Recreation Provincial Park (Non-Protected Portions) 8.0	Other 1.0
No Special Geotechnical Considerations 1.3	Conservation Easements 8.0	Class 6 & 7 (Low Productivity) 3.3
100 Year Floodplain 6.6	Wildlife Management Area (Non-Protected Portions) 8.2	Organic Soils / Peat Bogs / Sod Production 3.9
Wetland / Peatlands 9	Proposed Protected Areas 8.6	Artisanal Farms / Wild Rice 4.3
Mining Operations / Quarries 13.2%	Heritage Rivers 8.7	Class 4 & 5 (Forages, Transitional) 5.9
No Mining Operation 1	Important Bird Areas 8.7	Class 1-3 (Prime Agricultural & Cultivated Land) 9.0
Abandoned / Inactive Mines (Aggregate Piles, Pits, etc) 6.5	Heritage Marshes 8.9	Land Use 16.0%
Mine-Owned Land 9	Conservation Lands 8.9	Forest 1.0
Slope 5.4%	Natural Provincial Park (Non-Protected Portions) 9.0	Open Land (Sand & Gravel) 1.5
Slope 0 - 15% 1	Land Cover 10.2%	Industrial 1.6
Slope 1b - 30% 3.1	Exposed / Urbanized / Open Land 1.0	Burnt Areas 1.8
Slope > 30% 9	Agricultural (Forage) 2.5	Active Forestry Operation 2.3
Proximity to Future Wind Farms 5.1%	Agricultural (Crops) 2.8	Hunting / Trapping Locations 3.9
500m - 10k 1	Burnt Areas 4.9	Listed Trails (Existing & Planned) 4.6
> 10k 9	Grassland 5.0	Agricultural (Forage) 4.9
Areas of Least Preference 100.0%	Deciduous Forest 5.5	Organic Farming 5.5
Non-Spannable Waterbodies (300 m) 100.0%	Coniferous Forest 5.7	WMAs (Unprotected) 5.8
Mines and Quarries (Active) 100.0%	Mixed Forest 6.0	Out-of-Park Recreational Development 6.4
Wastewater Treatment Areas 100.0%	Non-Developed Sand Hills 8.1	Intense Development & Use 6.5
Buildings 100.0%	Native Grassland 9.0	Agricultural (Crops) 6.6
Oil Well Heads (100m) 100.0%	Wildlife Habitat 37.4%	500m Buffer of Irrigated Land 6.6
Waste Disposal Sites 100.0%	Other 1.0	Intensive Livestock 6.9
Towers and Antennae Area of Potential Affect (< 200m ²) 100.0%	Ungulate Habitat (High) 6.1	Institutional 7.4
Existing Wind Turbine Area of Potential Affect (< 500m) 100.0%	Waterfowl Habitat (High) 6.3	In-Park Recreational Development 7.9
Airports (Including Glide Paths - 2° Slope) 100.0%	Waterfowl Paired Density (High) 6.9	Agricultural (Crops Limited to Aerial Application) 8.9
Federal Park 100.0%	Waterfowl Hotspots (High) 7.0	Irrigated Land 9.0
Military Facilities 100.0%	Grouse Lek Area 7.7	National, Provincial, & Municipal Historic Sites 12.0%
	Rare Species Habitat 8.0	> 300 m 1.0
	Critical Habitat 9.0	200 - 300 m 9.0
	Endangered Species Habitat 9.0	Proximity to Heritage, Archaeological Sites, & Centennial Farms 12.0%
	Areas of Least Preference 100.0%	> 300 m 1.0
	Protected Areas 100.0%	200 - 300 m 9.0
	World Heritage Sites 100.0%	Landscape Character (Viewsheds) 7.8%
	Special Conservation Areas 100.0%	Other 1.0
	Ecological Reserves 100.0%	Recreational Trails 4.1
	Wildlife Refuge 100.0%	Cottage Subdivisions 6.1
	Natural Provincial Park (Protected Portions) 100.0%	Identified Scenic Provincial Trails & Roads 6.8
	Recreation Provincial Park (Protected Portions) 100.0%	Escarments (Timeless Topography) 7.5
	Wildlife Management Area (Protected Portions) 100.0%	Resort Lodges & Campgrounds 8.6
	National Parks 100.0%	Residential 8.9
	Provincial Park Reserves 100.0%	Designated Historic Sites 9.0
	Wilderness Provincial Park 100.0%	Edge of Field 11.7%
	Heritage Provincial Park 100.0%	Road Allowances 1.0
		Drains 1.8
		Quarter Section Lines / Half-Mile Section Lines 2.0
		Vacant Rail ROW 2.1
		Parallel Or Adjacent To Road Allowances 2.8
		Other (None of the Above) 9.0
		Areas of Least Preference 100.1%
		Indian Reserves 100.1%
		Treaty Land Entitlement Selection 100.1%
		Campgrounds & Picnic Areas (500 m) 100.1%
		Aircraft Landing Areas (STARS, Flying Farmers, Float Planes, etc) (3 Miles In-Line with Glide Path or Transport Canada Designation) 100.1%
		Recreational Centers (Golf, Skiing, etc) (500m) 100.1%
		Federal Heritage Sites (200m) 100.1%
		Provincial Heritage Sites (200 m) 100.1%
		Municipal Heritage Sites (200 m) 100.1%
		Heritage Plaques (200 m) 100.1%
		Day Care Parcels 100.1%
		Cemeteries / Burial Grounds 100.1%
		Schools 100.1%
		Past Military Installations 100.1%
		Contaminated Sites 100.1%
		Known Archaeological & Paleoarchaeological Site (300m) 100.1%
		National, Provincial, & Municipal Historic Site (200m) 100.1%
		Religious / Worship Site Parcels 100.1%

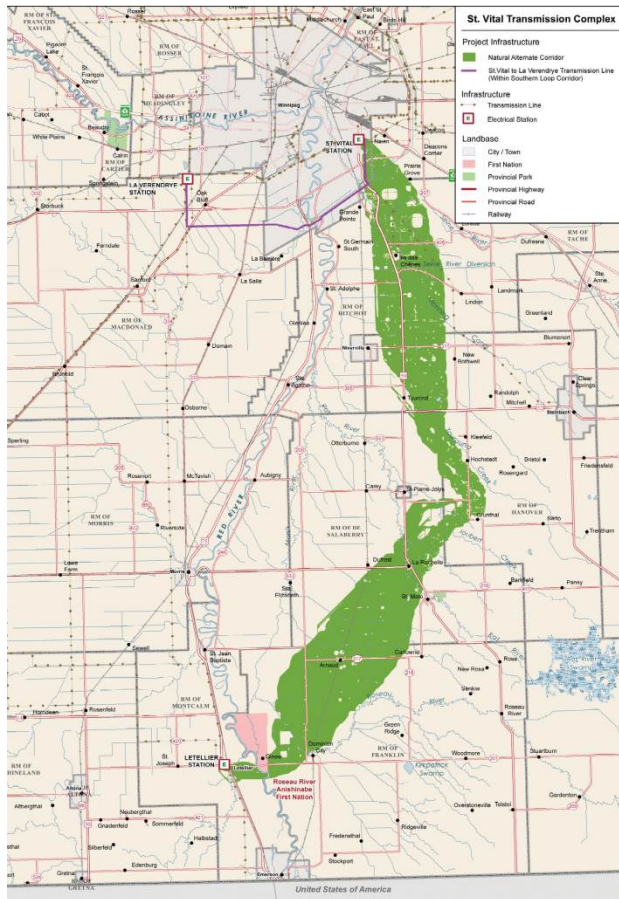
Engineering, Natural and Built Environment Features (Criteria), with Scores (1-9) and Weightings

Areas of Least Preference

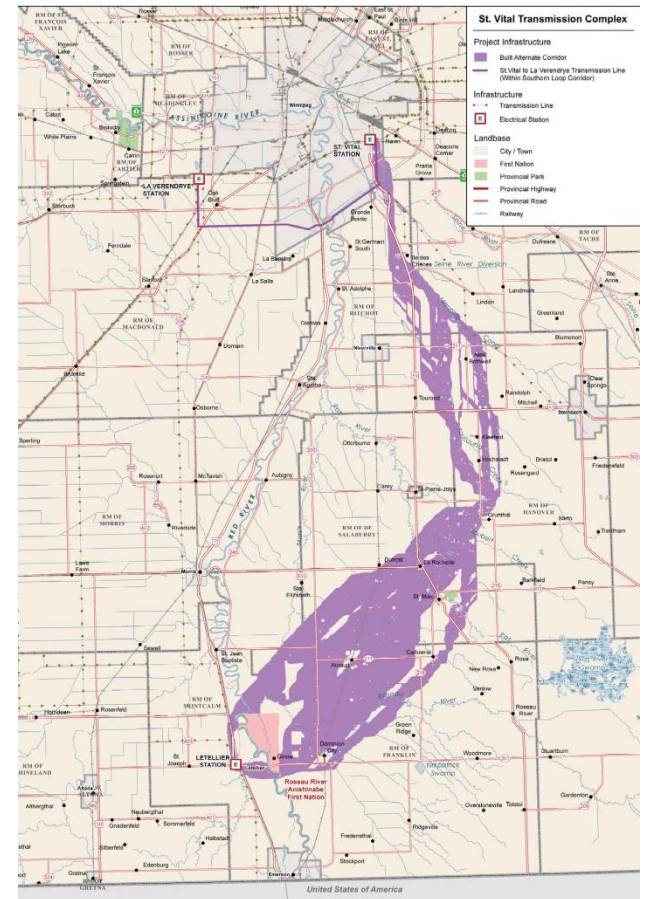
Alternative Corridors



Engineering Alternate Corridor
St. Vital Transmission Complex (V95L)



Natural Alternate Corridor
St. Vital Transmission Complex (V95L)



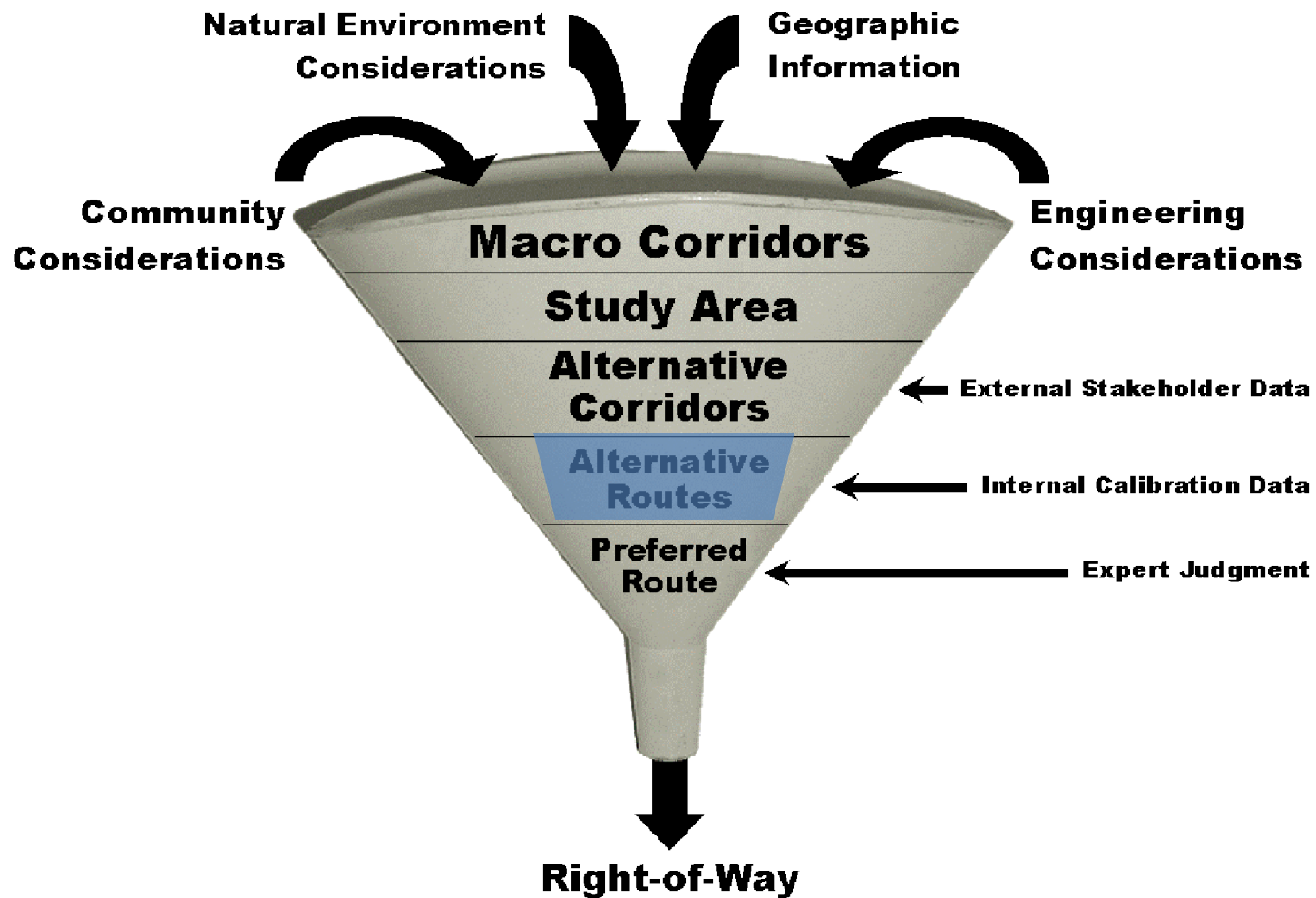
Built Alternate Corridor
St. Vital Transmission Complex (V95L)

Further Data Gathering



- Additional data collection for the Route Selection process occurs once corridors are developed.
- This includes existing sources of data, windshield surveys and site visits.

Alternative Route Selection

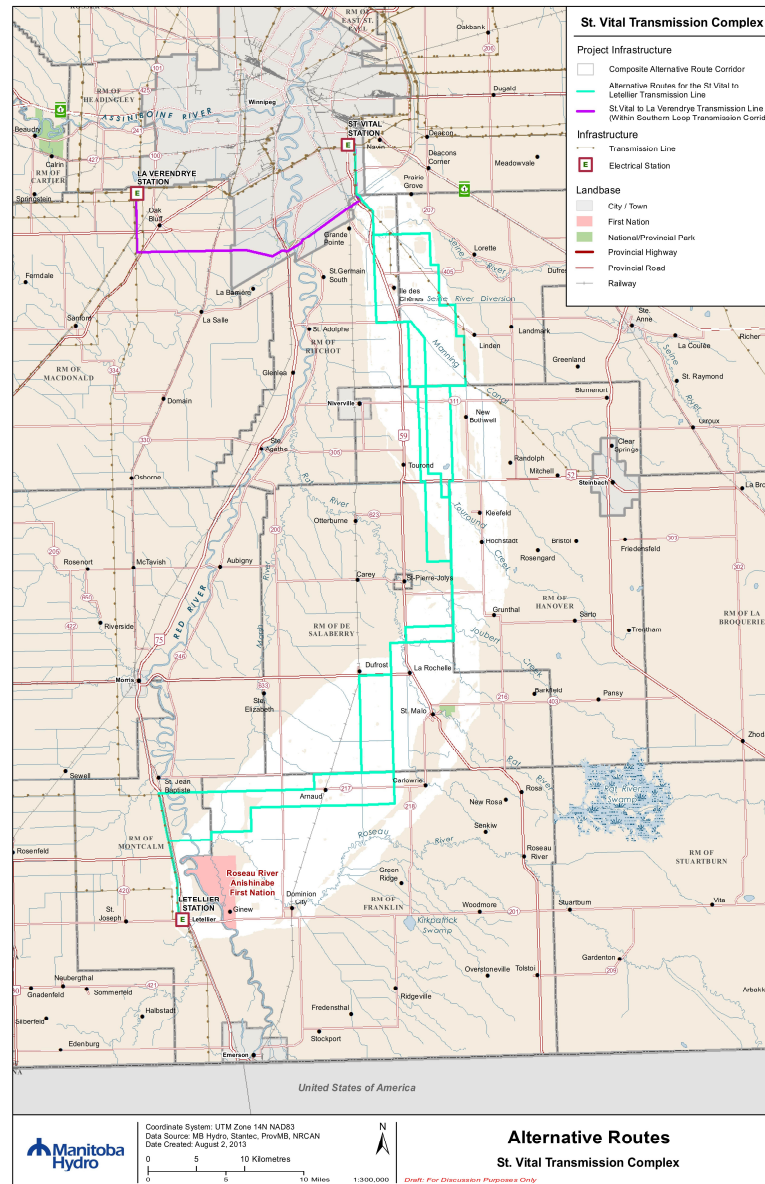


Alternative Route Selection

- Multiple routes are developed within the Alternative Corridors
- Developed by Project Team taking into account all information gathered to date



St. Vital Station to Letellier Station

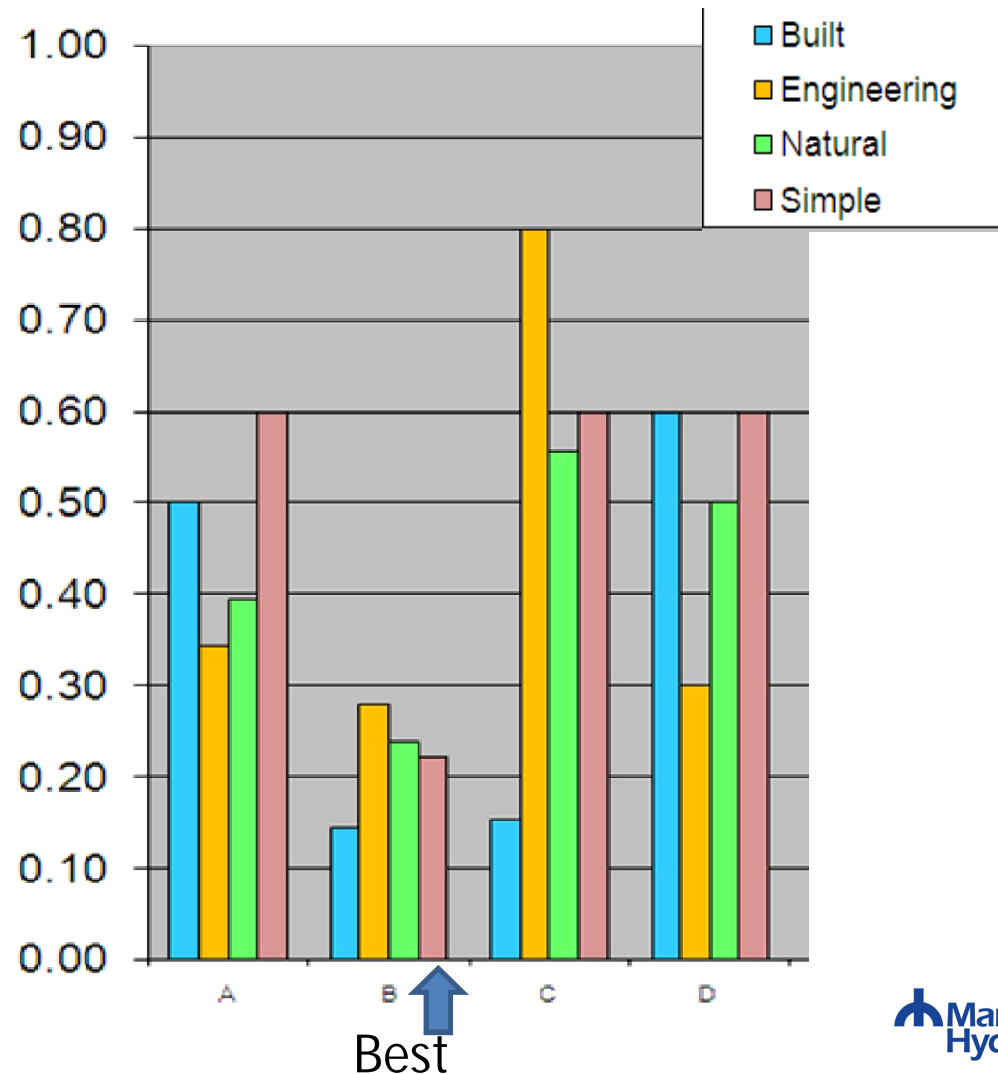


Review of Alternative Routes

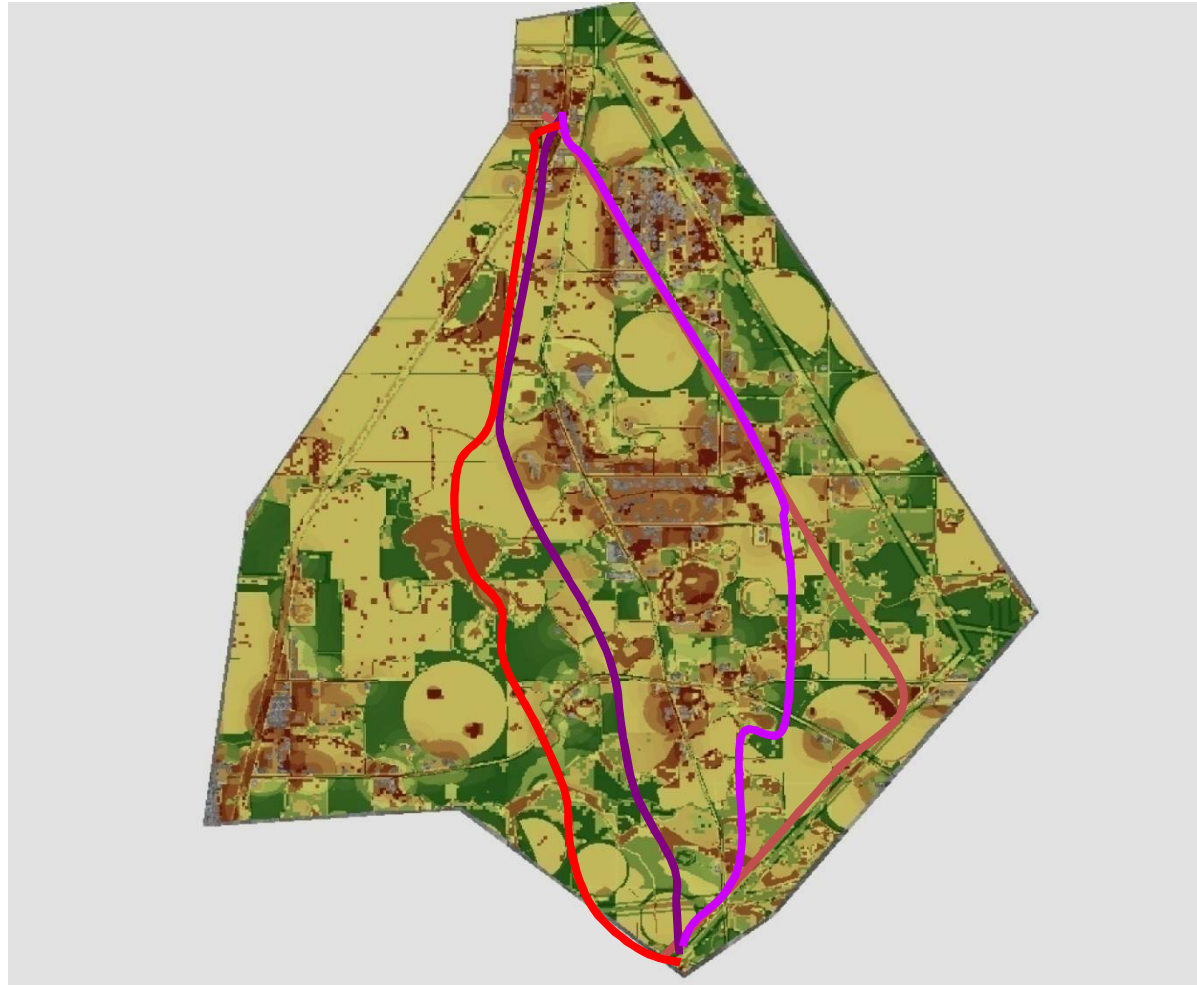
- Public and Stakeholders provide input into the Alternative Routes through various avenues, including:
 - Workshops
 - Open Houses
 - Interviews /meetings with project team members
 - Manitoba Hydro Project Website
 - Dedicated telephone number
 - Email address

Alternative Route Selection

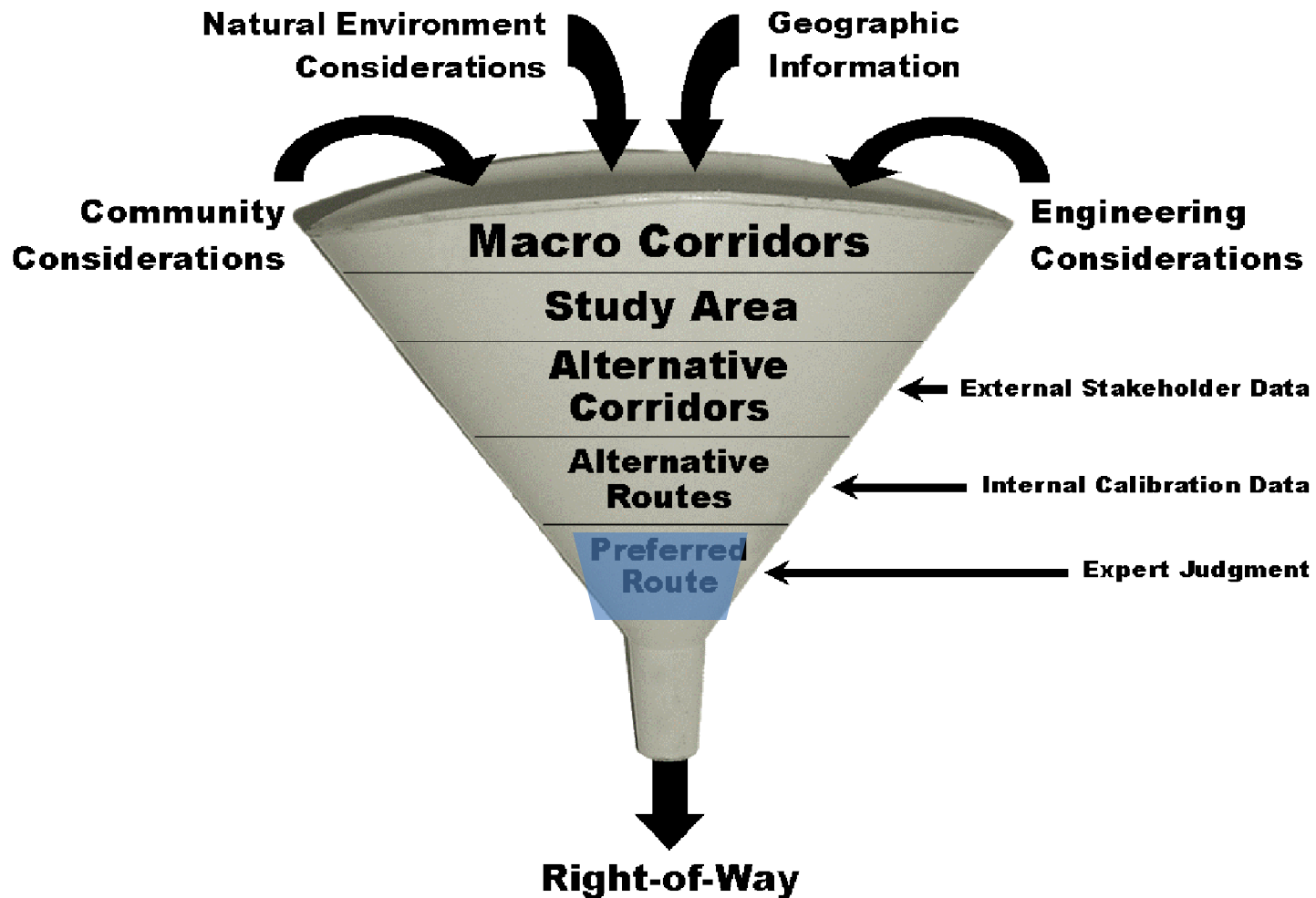
- An Alternative Route Evaluation Model is used to determine the relative strengths and weaknesses of each route.



Alternative Routes Determined



Preferred Route Selection



Preferred Route Selection

- Expert judgment is used to determine the Final Preferred Route.
 - Takes into account feedback from Round One engagement and preliminary assessment information.
- Round Two Public Open Houses will provide public feedback on the Final Preferred Route.

3.0 Environmental Assessment

- The Project is considered a Class 2 development under *The Environment Act* (Manitoba) and will require an Environmental Assessment Report to be completed and submitted to Regulators.
- Environmental Assessment generally consists of:
 - Characterization of the environment.
 - Identification of potential effects on people and the environment.
 - Stakeholder and public engagement process
 - Determination of methods to avoid or reduce potential adverse effects while enhancing beneficial effects.

Study Area Characterization

- The Environmental Assessment will include characterization of the following in the study area:
 - physical environment, e.g. climate, soils, surficial geology, hydrogeology.
 - aquatic environment, e.g. surface hydrology, water quality, fish and fish habitat.
 - terrestrial environment, e.g. vegetation, wildlife and habitat.
 - socio-economic environment, e.g. land use, infrastructure, agriculture and landowners, economy, heritage resources, general concerns/issues with the Project.

Environmental Assessment - VECs

The environmental assessment will determine valued environmental components (VECs).

- VEC definition: any part of the environment that is considered important by the proponent, public, scientists and government involved in the assessment process. Importance may be determined on the basis of societal or cultural values, scientific interest or concern.

- VECs are selected by
 - Utilizing experience from other, similar projects.
 - Getting input from specialists in the various disciplines.
 - Collecting input from interested stakeholders and the public.

Environmental Assessment - VECs

VECs currently being considered for the St. Vital Transmission Complex include:

- wildlife habitat
- native prairie
- employment and business opportunities
- property and residential development
- Aboriginal lands
- agricultural productivity
- agricultural land uses
- communication and transportation
- human health
- public safety
- aesthetics

Environmental Assessment – Examination of Effects

To assess the potential environmental effects of the project, the following will be undertaken:

- identification and assessment of potential environmental effects of the project on VECs.
- identification of mitigation measures for environmental effects on VECs.
- identification of methodology for determining significance of environmental effects on VECs.
- identification of measurable parameters to quantify and evaluate the significance of environmental effects on VECs.
- an assessment of cumulative effects on identified VECs.

4.0 Public Engagement

Round 1 - August

- Introduce the Project.
- Present Alternative Routes.
- Answer questions.
- Identify and document concerns.
- Use input to guide Preferred Route selection process.

Round 2 - October

- Present findings of Round 1.
- Present the Preferred Route.
- Answer questions.
- Identify and document outstanding concerns.
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize effects.

Input will also be gained through:

- Initial stakeholder meetings or discussions.
- Key person interviews (KPI).
- Workshops.
- Comments received by telephone, email and on the Project website.

5.0 Timelines and Next Steps






- Preferred Route identified and site specific field work to continue
- Round 2 Public Open House Events
- Ongoing design and environmental assessment
- Anticipated Submission of Environmental Assessment to Manitoba Conservation and Water Stewardship and posting on public registry
- Anticipated in-service date for St. Vital to Letellier Transmission Project. Anticipated project completion in 2017.

Questions?


- Additional project information is available at:
www.hydro.mb.ca/stvital
- Phone Licensing & Environmental Assessment at 1-877-343-1631 toll-free or 204-360-7888 in Winnipeg
- Email project team at:
LEAprojects@hydro.mb.ca

St. Vital Transmission Complex










Project Infrastructure

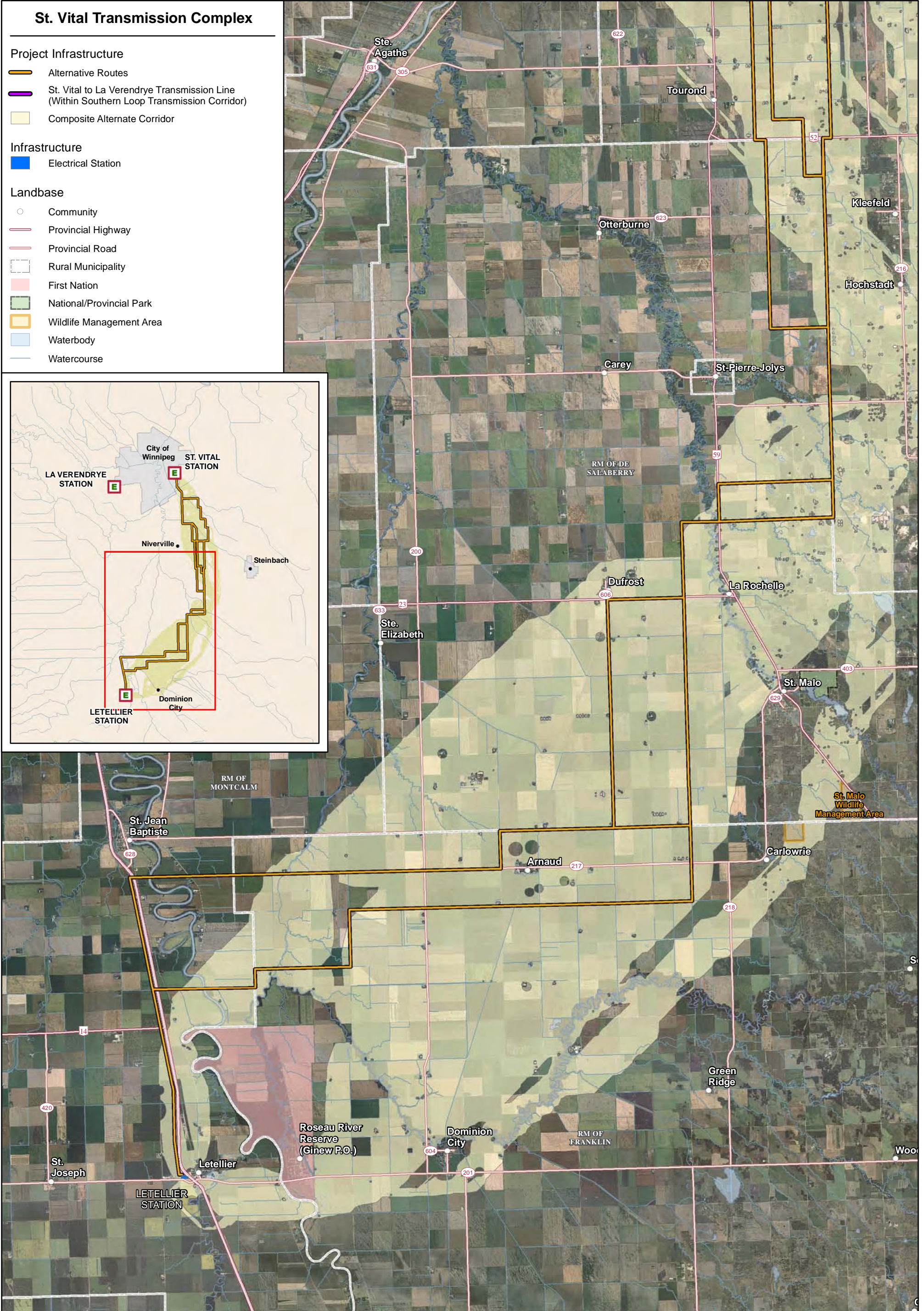
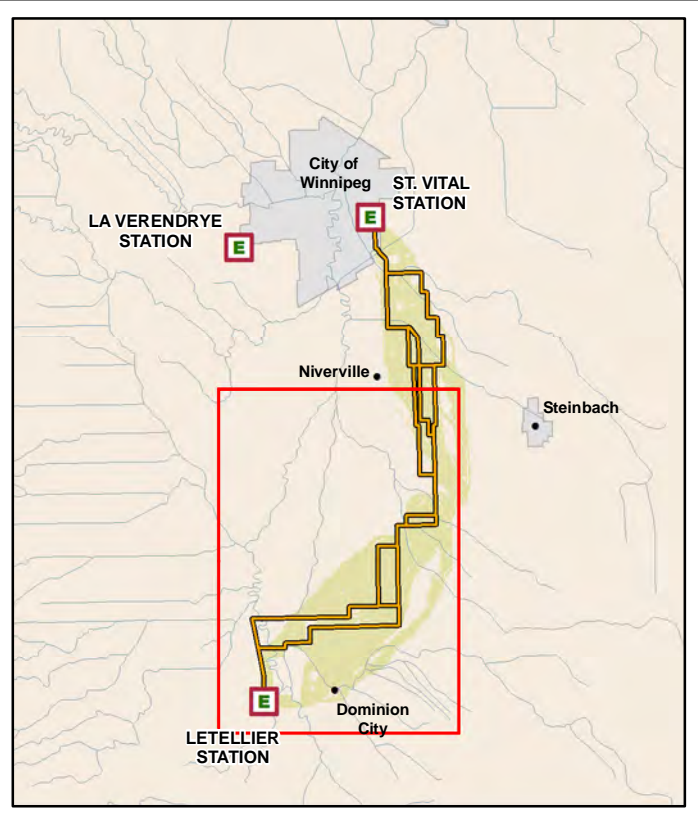
-  Alternative Routes
-  St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)
-  Composite Alternate Corridor

Infrastructure

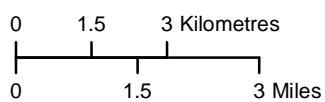
-  Electrical Station

Landbase

-  Community
-  Provincial Highway
-  Provincial Road
-  Rural Municipality
-  First Nation
-  National/Provincial Park
-  Wildlife Management Area
-  Waterbody
-  Watercourse



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, Stantec, PGS, ProvMB, NRCAN
 Date Created: August 19, 2013



1:150,000

Composite Corridor and Alternative Routes St. Vital Transmission Complex

Draft: For Discussion Purposes Only



Proposed St. Vital Transmission Complex Round 1 - Alternative Routes

Round 1 - Alternative Routes

Project need

In order to improve system reliability and accommodate the growth and demand for electricity in southern Manitoba, Manitoba Hydro is proposing construction of two 230-kilovolt (kV) transmission lines, both originating at the St. Vital Station, located in southeastern Winnipeg. One line will run south to the Letellier Station and the other will run west to the La Verendrye Station located near the community of Oak Bluff.

Project description

The new line between the St. Vital and La Verendrye stations will be located on an existing Manitoba Hydro right-of-way south of Winnipeg known as the Southern Loop. This portion of the Project will enable the Winnipeg electrical network to withstand various severe outages, improve performance during normal operation and promote the reliability of the power system in southern Manitoba.

Project location

The new line between St. Vital Station and the Letellier Station will be routed through south central Manitoba, near Steinbach, to accommodate a potential future 230-kV station. This portion of the Project is required to address load and voltage concerns in the south central area of Manitoba due to load growth.

Environmental characterization underway

Manitoba Hydro has begun to collect information that will contribute to the selection of a transmission line route and environmental assessment of the Project. Once a route is determined, this information will help the Project team understand the landscape in order to determine any potential effects the Project may have on:

- physical, terrestrial and aquatic environments.
- heritage resources.
- land use.
- socio-economic environment.

Project Facts

The proposed St. Vital Transmission Complex includes two 230-kV transmission lines. Both will start at the St. Vital Station located in southeastern Winnipeg:

- One new line will run south to the Letellier Station, passing close to Steinbach.
- The other new line will run to La Verendrye Station, within an existing right-of-way known as the Southern Loop.

The engagement process includes:

- Round 1, August 2013: presentation of alternative routes.
- Round 2, October 2013: presentation of preferred route.

The Project's Environmental Assessment Report is scheduled to be submitted in December 2013.

The anticipated Project completion date is 2017.

Route Selection and Environmental Assessment Processes

Manitoba Hydro is piloting a new process to develop alternative routes for the St. Vital to Letellier transmission line. Known as EPRI-GTC Methodology, this process allows for early stakeholder input and incorporates engineering, built and natural environment considerations. The process involves stakeholders identifying, weighting and scoring alternative corridor selection factors, leading to the identification of alternative corridors to begin siting alternative routes. Feedback provided will assist in the identification of a preferred route for the new transmission line.

The development of the proposed transmission lines will require a Class 2 licence under *The Environment Act* (Manitoba). An environmental assessment generally consists of:

- characterization of the environment.
- identification of potential effects on people and the environment.
- determination of methods to avoid or reduce potential effects while enhancing beneficial effects.

The environmental assessment, including the public engagement process, will be documented in an Environmental Assessment Report and is anticipated to be submitted to regulatory authorities by end of 2013.



Engagement Process

Manitoba Hydro will undertake two rounds of engagement to gather feedback at different stages in the transmission line and assessment processes. The engagement process will include discussions with landowners, First Nations, the Manitoba Metis Federation, municipalities and other stakeholders.

Manitoba Hydro will:




- inform the public regarding the Project, timelines and route selection process.
- utilize a variety of mechanisms to receive and share information with interested individuals.
- gather feedback on the local environment to assist routing the transmission lines as well as the environmental assessment.
- provide opportunities to have questions answered and concerns addressed by Manitoba Hydro representatives.

Manitoba Hydro will undertake stakeholder workshops, open houses and meetings to collect information which will assist with determining a route that minimizes the impact on people and the environment.



Alternative Routes

St. Vital Transmission Complex







Project Infrastructure

-  Composite Alternative Route Corridor
-  Alternative Routes for the St. Vital to Letellier Transmission Line
-  St. Vital to La Verendrye Transmission Line (Within Southern Loop Transmission Corridor)

Infrastructure

-  Transmission Line
-  Electrical Station

Landbase

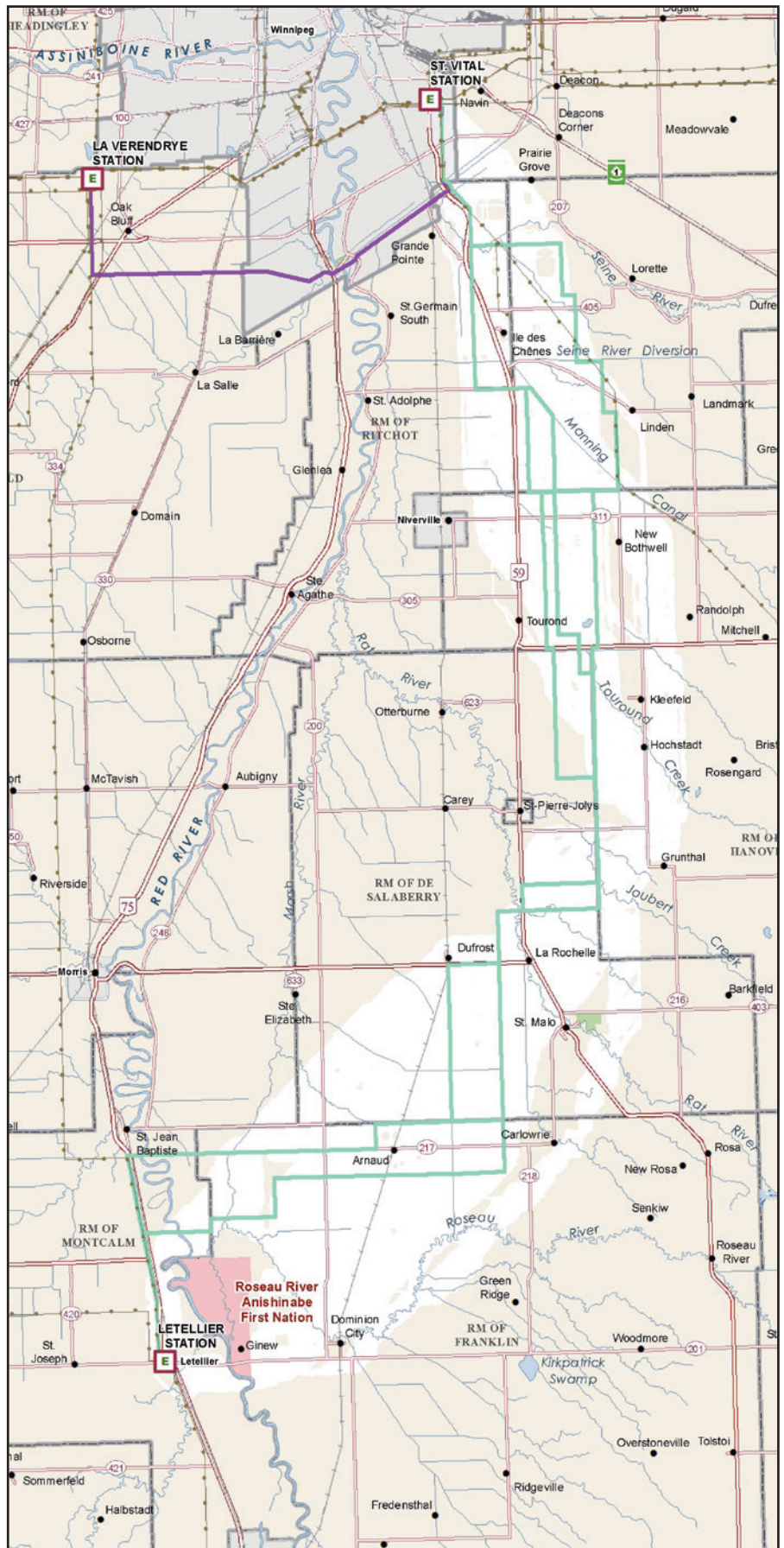
-  City / Town
-  First Nation
-  National/Provincial Park
-  Provincial Highway
-  Provincial Road
-  Railway

Southern Loop Transmission Corridor

The Southern Loop is a dedicated transmission corridor that will accommodate multiple transmission lines necessary for system reliability and to meet future energy demands.

Located between the Dorsey Converter Station (near Rosser) and the Riel Station (east of Winnipeg), the transmission corridor follows the western and southern boundaries of the City of Winnipeg. It connects to the LaVerendrye Station, near Oak Bluff.

Manitoba Hydro has been acquiring property rights for the Southern Loop for many years. The Southern Loop will allow for multiple transmission lines within a single corridor, which would reduce the number of independent rights-of-way on the landscape. The St. Vital to La Verendrye transmission line will take advantage of this right-of-way.



Project Timeline

Round 1 - August 2013

- Introduce the Project.
- Present alternative routes.
- Answer questions.
- Identify and document concerns.
- Use input to guide preferred route selection process.

Round 2 - October 2013

- Present Round 1 findings.
- Present the preferred route.
- Answer questions.
- Identify and document outstanding concerns.
- Provide opportunity to discuss potential effects and possible mitigation measures to minimize or avoid effects.

Next Steps

- Submit the Environmental Assessment Report.
- Regulatory authorities review report.
- Receipt of licence.
- Construction.
- Complete in-service date 2017.

We are here.



We would like to hear from you.

There are a number of ways that you can participate in the review of this project and provide your input:

- attend an Open House.
- submit a comment sheet, available at the Open Houses or on our website (see address below).
- contact us directly.

Questions or comments?

Please contact:

Trevor Joyal

Licensing & Environmental Assessment Department

Phone: **1-877-343-1631**

Email: LEAprojects@hydro.mb.ca

www.hydro.mb.ca/stvital.

Appendix F

Photo Science Route Segment
Numbering Key

