

Environmental Report

Errata and Supplement

Hollydale 115 kV Transmission Project

In the Matter of the Certificate of Need Application for the Hollydale 115 kV Transmission Line Project in
the Cities of Plymouth and Medina, Hennepin County

PUC Docket No. E002, ET2/CN-12-113



Minnesota Department of Commerce

Energy Environmental Review and Analysis

85 7th Place East, Suite 500

Saint Paul, MN 55101

November 4, 2013



Environmental Report: Hollydale 115 kV Transmission Project

Errata and Supplement

November 4, 2013

The Minnesota Department of Commerce Energy Environmental Review and Analysis (EERA) staff submits this errata and supplement to the Environmental Report prepared in the Matter of the Application for a Certificate of Need for the Hollydale 115 kV Transmission Line Project in the Cities of Plymouth and Medina, Minnesota Public Utilities Commission Docket No. E002, ET2/CN-12-113. The *Environmental Report: Hollydale 115 kV Transmission Project* was filed on February 6, 2013.¹

A public hearing on the proceeding was held on March 6 and 7, 2013; public comments on the proceeding were accepted through March 25, 2013. After reviewing the public comments, EERA staff believes that certain corrections and clarifications of information provided in the Environmental Report are necessary.

Subsequent to the public hearing, and after legislation on the Project, Northern States Power Company doing business as Xcel Energy(Xcel) and Great River Energy (collectively, the Applicants) filed *Appendix H: Supplement to the Application for Certificate of Need for the Hollydale 115 kV Transmission Line Project in the Cities of Plymouth and Medina* (herein after Applicants' Appendix H).² EERA staff believes that the information provided the Applicants' Appendix H does not fundamentally change the analysis provided in the Environmental Report. EERA staff does believe, however, that it would be helpful to provide a summary of how the alternatives identified in the Applicants' Appendix H relate to the alternatives evaluated in the Environmental Report.

Errata to Environmental Report

In reviewing the comments on the Environmental Report, EERA staff identified three issue areas that require correction or clarification: potential locations of the proposed Pomerleau Lake Substation; sources of information used in the discussion of potential impacts to property values; and levels of magnetic fields described in Table 22 in the Environmental Report.

¹ Department of Commerce, *Environmental Report: Hollydale 115 kV Transmission Project*, February 6, 2013, eDocket ID: [20132-83588-01](#)

² Northern States Power Company, doing business as Xcel Energy and Great River Energy (herein after "Applicants"), *Appendix H: Supplement to the Application for a Certificate of Need for the Hollydale 115 kV Transmission Line Project in the Cities of Plymouth and Medina*, October 28, 2013, eDocket ID: [201310-93010-01](#), [201310-93010-02](#) (public version filed on August 19, 2013 eDocket ID: [20138-90409-03](#) contains redacted trade secret information on costs)

Siting of Proposed Pomerleau Lake Substation:

Several commenters at the public hearing and in written comments expressed confusion and concern that the maps in the ER designate the proposed Pomerleau Lake Substation as one site located at the southwest intersection of Schmidt Lake Road and Interstate 494. In contrast, maps and documents related to the routing docket that has been open since 2011 have consistently shown two potential substation sites, a preferred and alternate site, for the proposed Pomerleau Lake Substation.

The designation of a single substation site on the ER maps was an unintentional oversight on the part of EERA staff. EERA staff regrets any confusion that may have resulted from the maps included in the Environmental Report and wishes to correct the information in the record of this. **Attachment 1** contains revised maps of ER Figures 1-4 and Maps 1-4 that more properly show a substation siting area with the sites that Applicants have identified as preferred and alternative substation sites.

EMF

Justin Michlig in his rebuttal testimony dated March 1, 2013, stated that the calculated magnetic fields shown in Table 22 of the Environmental Report were incorrect and appear to have been transposed; Mr. Michlig provided new EMF levels as Schedule 4 of that testimony.³ EERA staff has reviewed Mr. Michlig's testimony and agrees with his correction. **Attachment 2** contains a corrected version of Table 22.

Property Values

Section 4.9.1 of the Environmental Report summarizes research on effects of transmission lines on property values and provides a bulleted list of 11 generalizations from the research. The first 10 bullets are adapted from a 2001 publication of the Wisconsin Public Service Commission, while the final item in the list is from a 2009 article published in the *Appraisal Journal*. Although the footnotes accompanying the list do refer to the correct sources, the lack of transition between these two sources is potentially confusing to the reader. EERA believes that changes to the format to move the first footnote to the paragraph introducing the bulleted list and to reformat the last bullet to a paragraph with its own footnote, as shown in **Attachment 3**, will improve clarity.

Using ER Information in Evaluation of Supplement Alternatives

The Applicants' Appendix H identifies 11 alternatives to the Proposed Project. EERA staff reviewed these alternatives to identify any clarifications to the Environmental Report that would be useful in evaluating the environmental impacts of the alternatives. **Attachment 4** represents EERA staff's attempt to cross reference the alternatives identified in the Applicants' Supplement to alternatives evaluated in the ER. In summary:

³ Applicants, *Rebuttal Testimony of Justin Michlig*, March 1, 2013, eDocket ID: [20133-84361-04](#), at p. 10 and Schedule 4

The Hollydale Project: the Hollydale Project described in the Applicants’ Supplement is the same as the Hollydale Project described in the ER. The ER provides an analysis of potential human and environmental effects of a 115 kV transmission line connecting the existing Medina and Hollydale substations with a proposed new substation in the vicinity of Interstate 494 and Schmidt Lake Road. The ER does not provide a detailed evaluation of routes that such a 115 kV transmission line may follow. A more detailed review of the impacts of various routes would be included in an Environmental Impact Statement if the Commission determines that a 115 kV transmission line best addresses the need evaluated in this proceeding.

Distribution Alternatives: Supplement alternatives S1, S4, S5, S6, S7, S8, S9, and S10 involve construction of 13.8 kV and 34.5 kV distribution lines in the 2015 – 2020 timeframe. The ER addresses potential human and environmental effects of 34.5 kV and 13.8 kV distribution lines in the Distribution Alternative, and EERA staff believes that the information in the ER remains relevant, but the maps shown in Section 7 of Applicants’ Appendix H are helpful in understanding the relative location of anticipated impacts. Alternatives S1, S6, and S9 also include expansion of the Parkers Lake Substation; EERA staff comments on information relative to expansion of that substation are included below.

69 kV Rebuild Alternatives: Supplement alternatives S2 and S3 involve a rebuild of the existing 69 kV line with either a single conductor (Alternative S2) or a bundled conductor (Alternative S3), consistent with the 69 kV Rebuild Alternative in the Environmental Report.

HVTL Alternative: Alternative S11 is the same as the HVTL Alternative described in the ER.

Components in Applicants’ Appendix H not Included in Environmental Report

Although EERA staff believes that the alternatives identified in Applicants’ Appendix H are generally addressed in the alternatives evaluated in the Environmental Report, each of the alternatives included in the Applicants’ Appendix H includes at least one project components not described in the Environmental Report. EERA staff addresses these components not previously addressed below.

Re-build of Gleason Lake- Parkers’ Lake 115/115 kV transmission line: All of the alternatives described in the Applicants’ Supplement include a rebuild of the existing Gleason Lake – Parkers Lake 115/115 kV transmission line in the 2020 – 2038 timeframe. The rebuild of the existing 115 kV double circuit transmission line was not addressed in the Environmental Report. Although Xcel has not initiated detailed design for the rebuild of the existing double circuit 115 kV line, Xcel has stated that their preliminary assessment is that the rebuild could be installed along the existing alignment without expansion of the right-of-way. The structure dimensions and 75-foot right-way width are assumed to be the same as the double circuit structures described in Table 2 of the Environmental Report. As this component is associated with all alternatives, the only difference between the alternative would be the timing of construction.

3rd Gleason Lake-Parkers' Lake 115 kV transmission line: Alternatives S2, S3, and S4 include construction of a 115 kV transmission line connecting the Gleason Lake and Parkers Lake substations in the 2026 to 2033 timeframe. Although the addition of a transmission line between the Gleason Lake and Parkers Lake substations was not addressed in the Environmental Report, impacts would be similar to those described for the 115 kV transmission lines in the Hollydale Project and HVTL Alternatives described in the Environmental Report, although in a different area. Permitting of a new 115 kV transmission line would fall under the Commission's routing jurisdiction unless the Applicants seek local approval for routing.

Parkers Lake Substation Expansion: Alternatives S6 and S9 identify an expansion of Xcel Energy's existing Parkers Lake Substation in 2015, Alternative S1 would expand the Parkers Lake Substation in 2020. Changes to the Parkers Lake Substation were not included in any of the alternatives addressed in the ER.

The Parkers Lake Substation is owned by Xcel and located in an industrial area of Plymouth. The existing site is bordered to the west by Interstate 494, to the north by a wetland and commercial buildings, to the east by a parking lot, and to the south by the Union Pacific Railroad, Luce Line Trail, and 13th Avenue North. Although design of a substation expansion has not commenced, Xcel Energy anticipates that the substation would need to expand by approximately one acre to accommodate the type of 34.5 kV yard anticipated in the alternatives. Design for a substation expansion has not commenced, but Xcel anticipates that any expansion would be to either the north or the east. Xcel does own some land to the north of the existing fenced area, but expansion of the substation into the existing wetland would require wetland permits. Expansion to the east would require additional land acquisition.⁴

New Substation along Medina – Gleason Lake 115 kV Transmission Line: Alternative S10 includes construction of a new substation along the Medina – Gleason Lake 115 kV Transmission Line in the 2026 timeframe. Applicants propose a new substation to house capacitor banks that Applicants believe will be necessary to maintain voltage in the area with this alternative. Applicants anticipate that the new substation would require approximately four acres.

⁴ Xcel Energy, personal communication, October 29, 2-13, see Attachment 5 to this document.

Figure 1: Hollydale Project Area (Revised November 4, 2013)

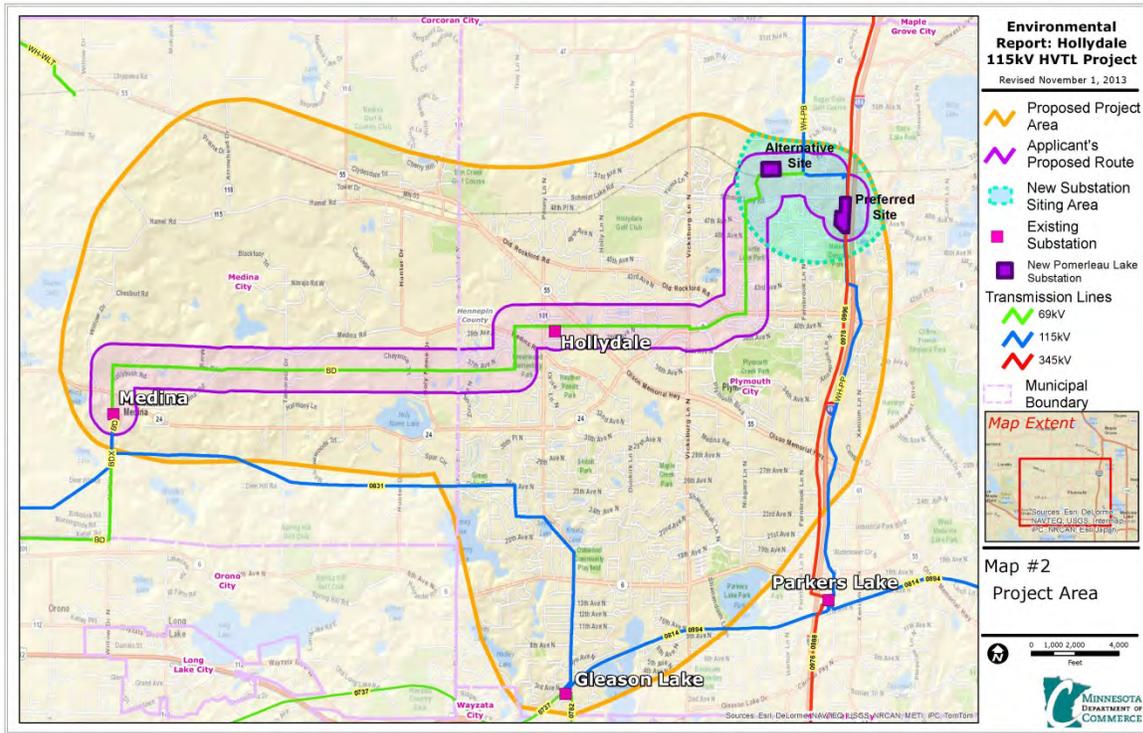


Figure 2: HVTL System Alternative (Revised November 4, 2013)

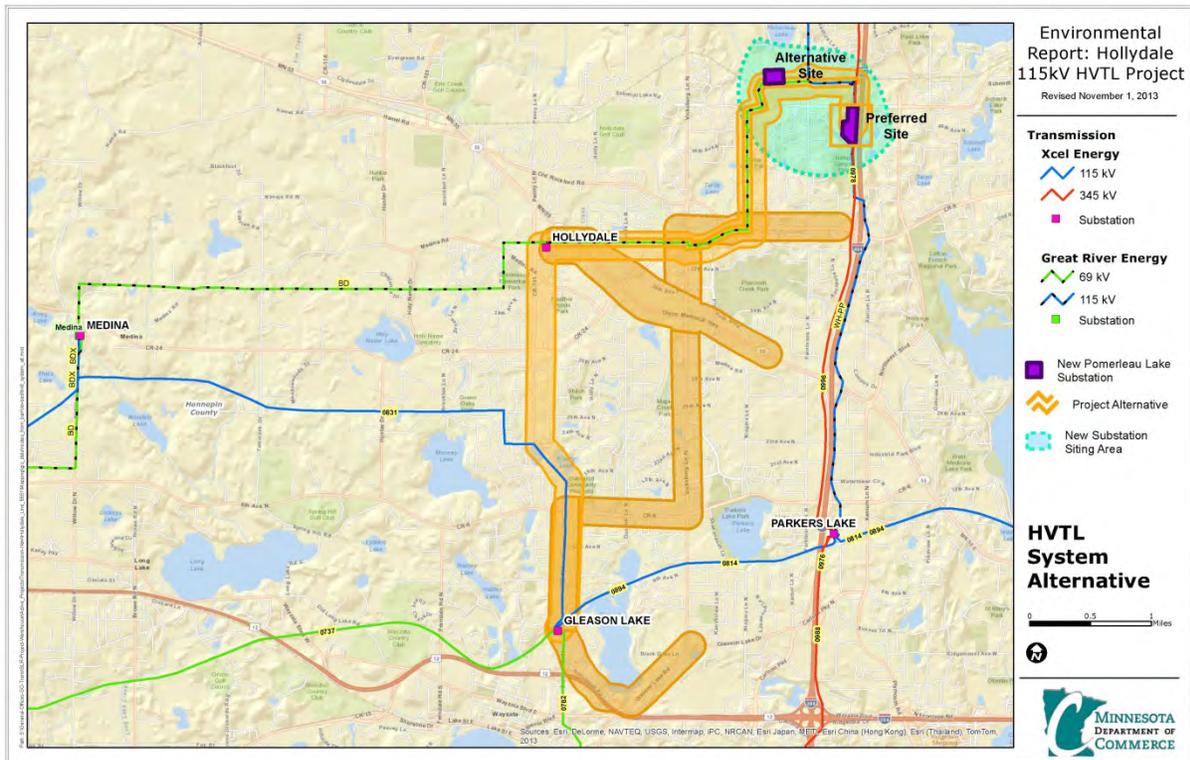


Figure 3: 13.8 kV Distribution Alternative (Revised November 4, 2013)

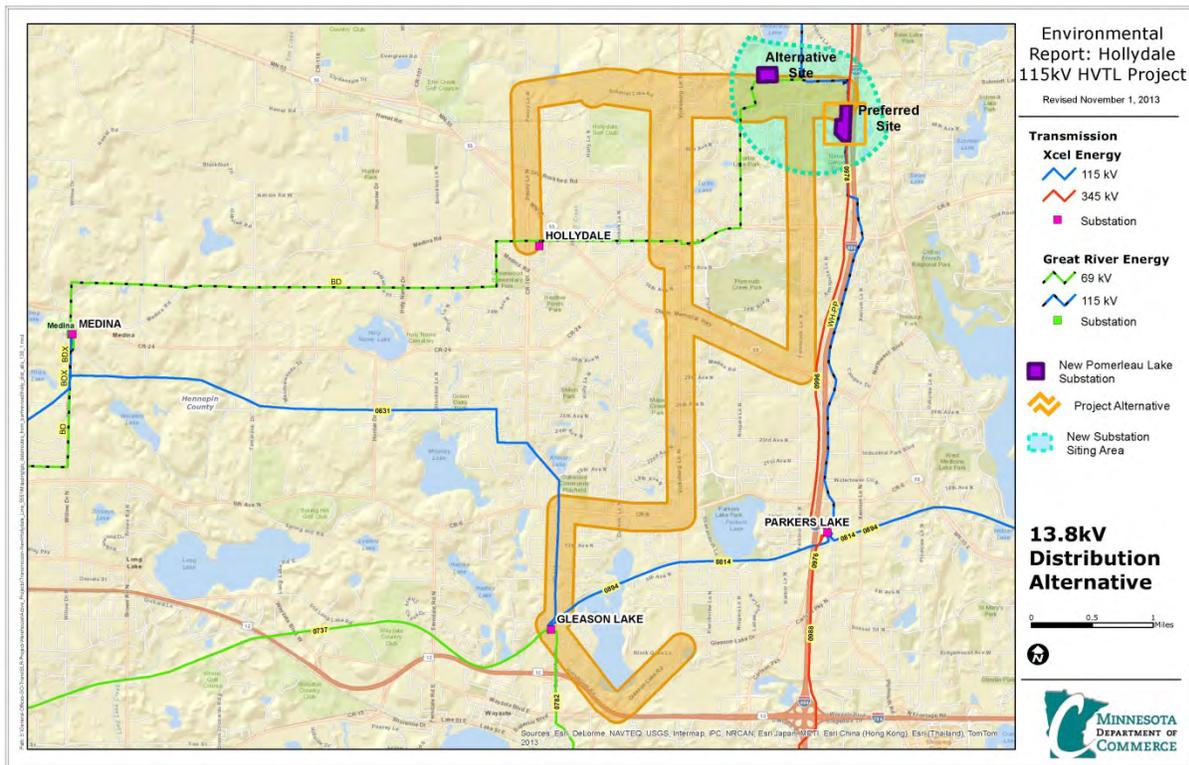
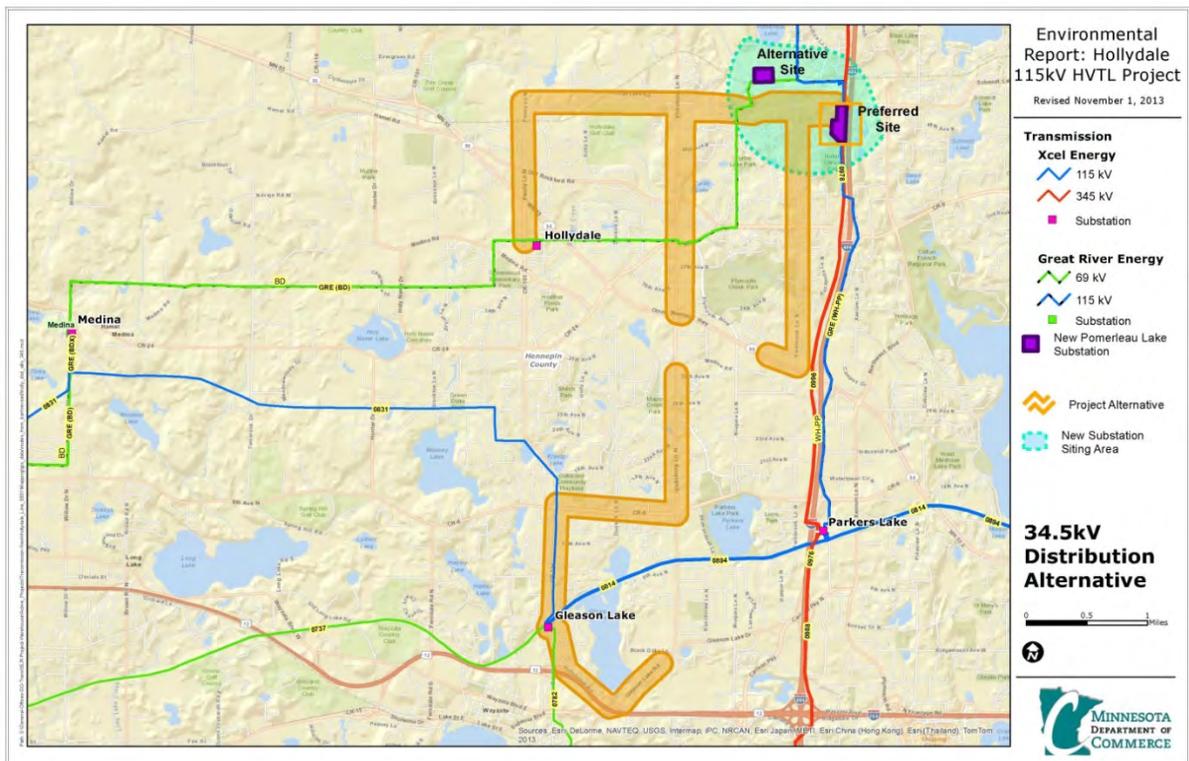
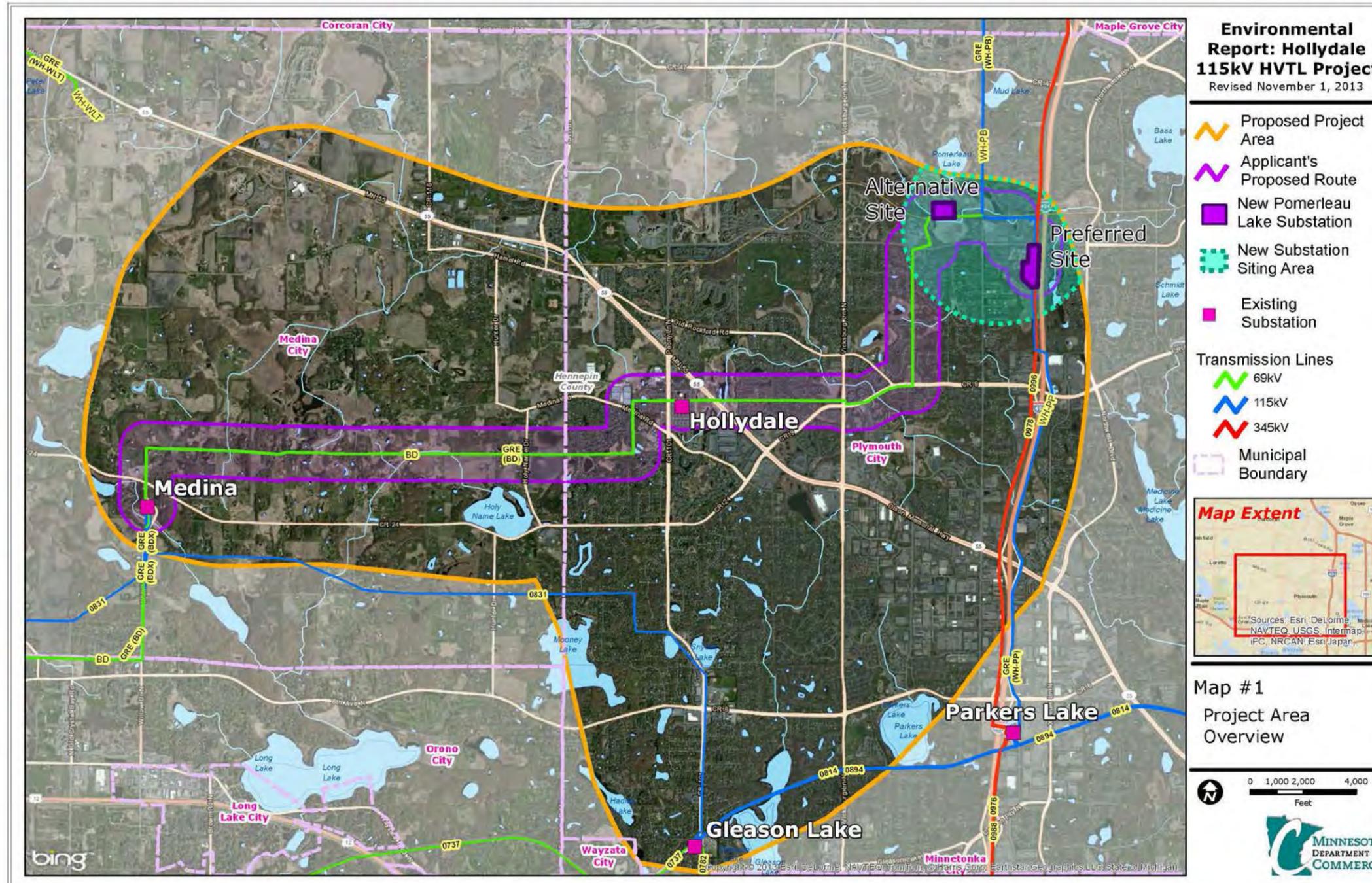


Figure 4: 34.5 kV Distribution Alternative (Revised November 4, 2013)





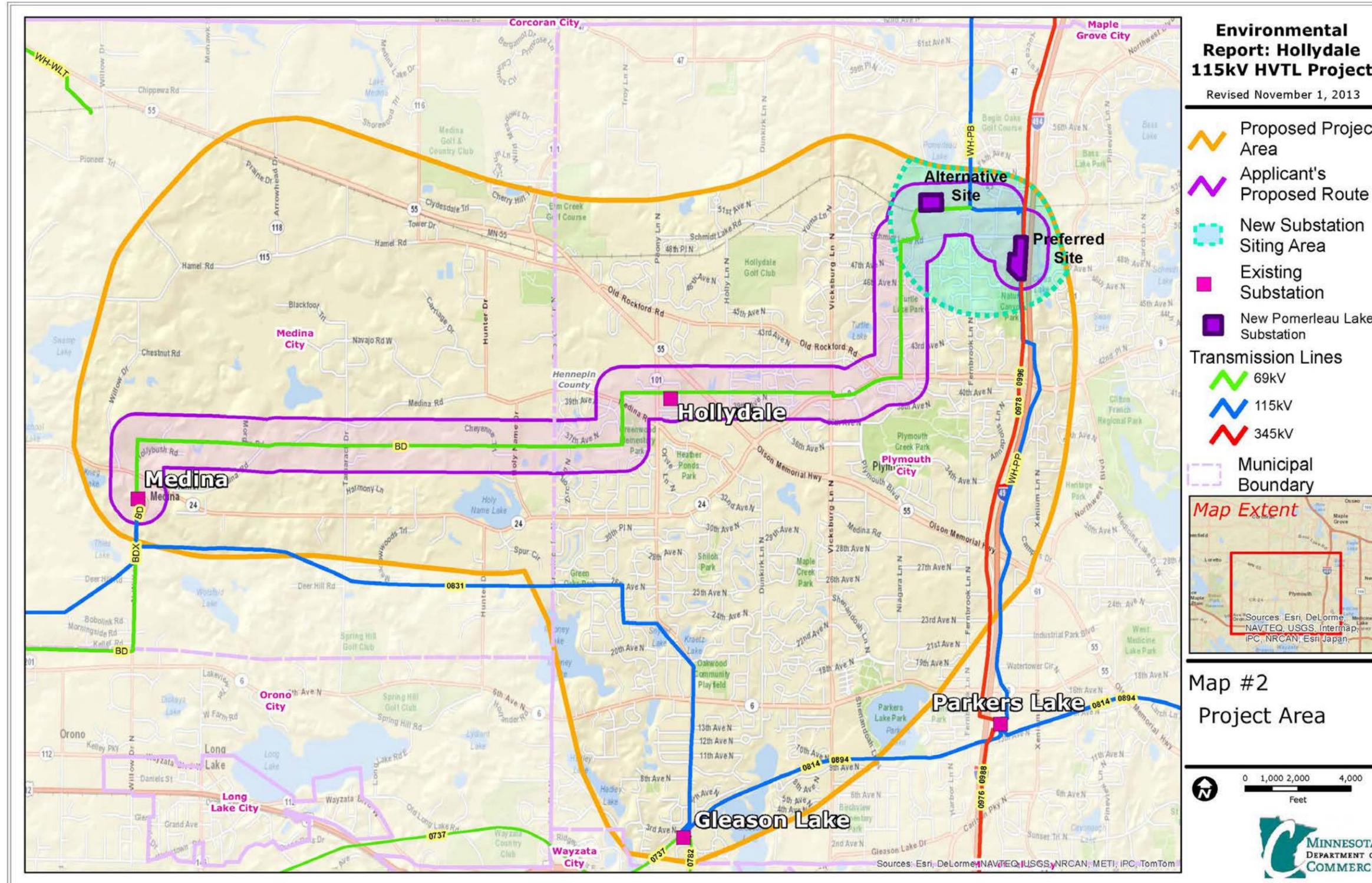
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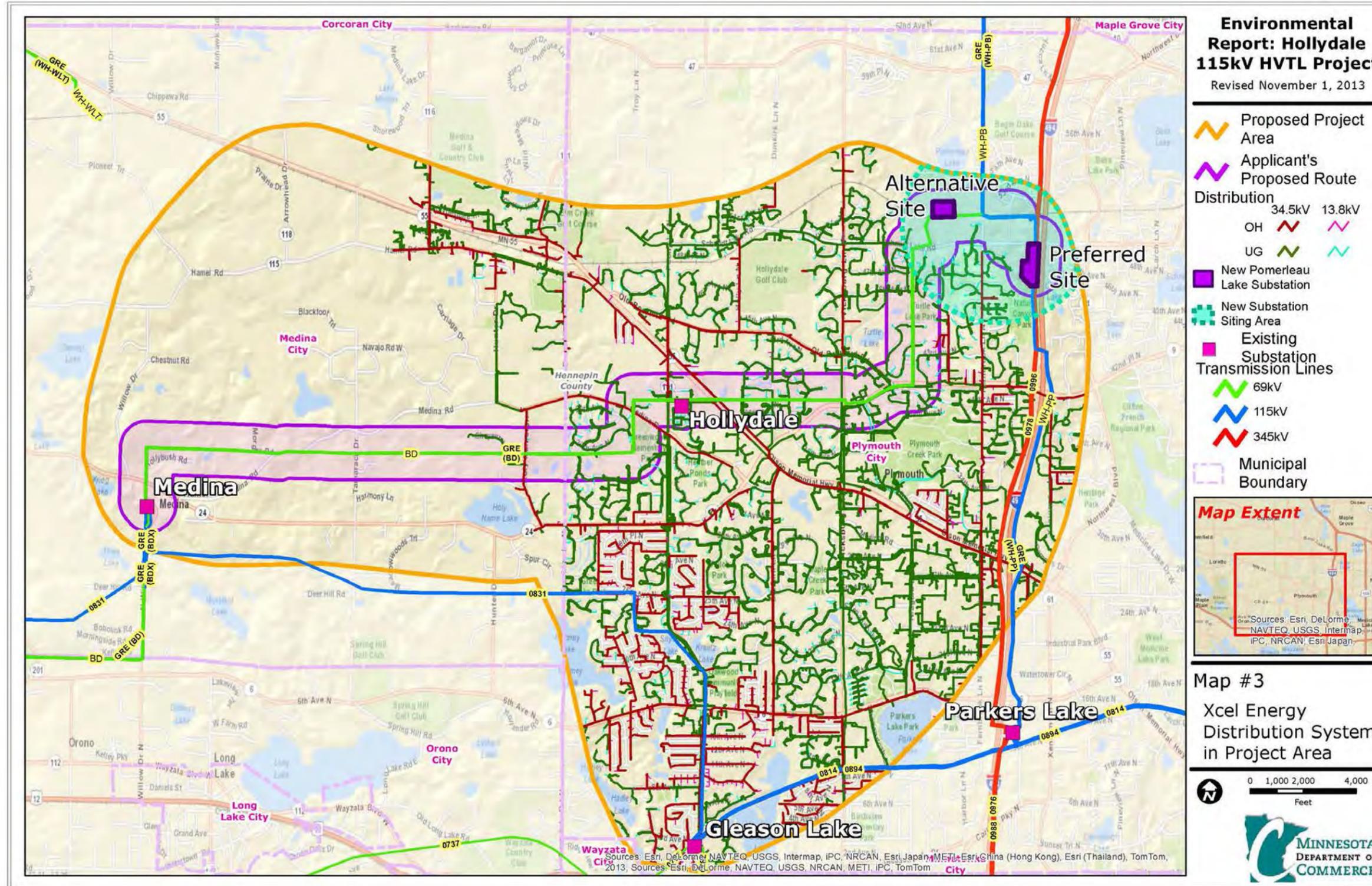
- Proposed Project Area
 - Applicant's Proposed Route
 - New Pomerleau Lake Substation
 - New Substation Siting Area
 - Existing Substation
- Transmission Lines
- 69kV
 - 115kV
 - 345kV
- Municipal Boundary

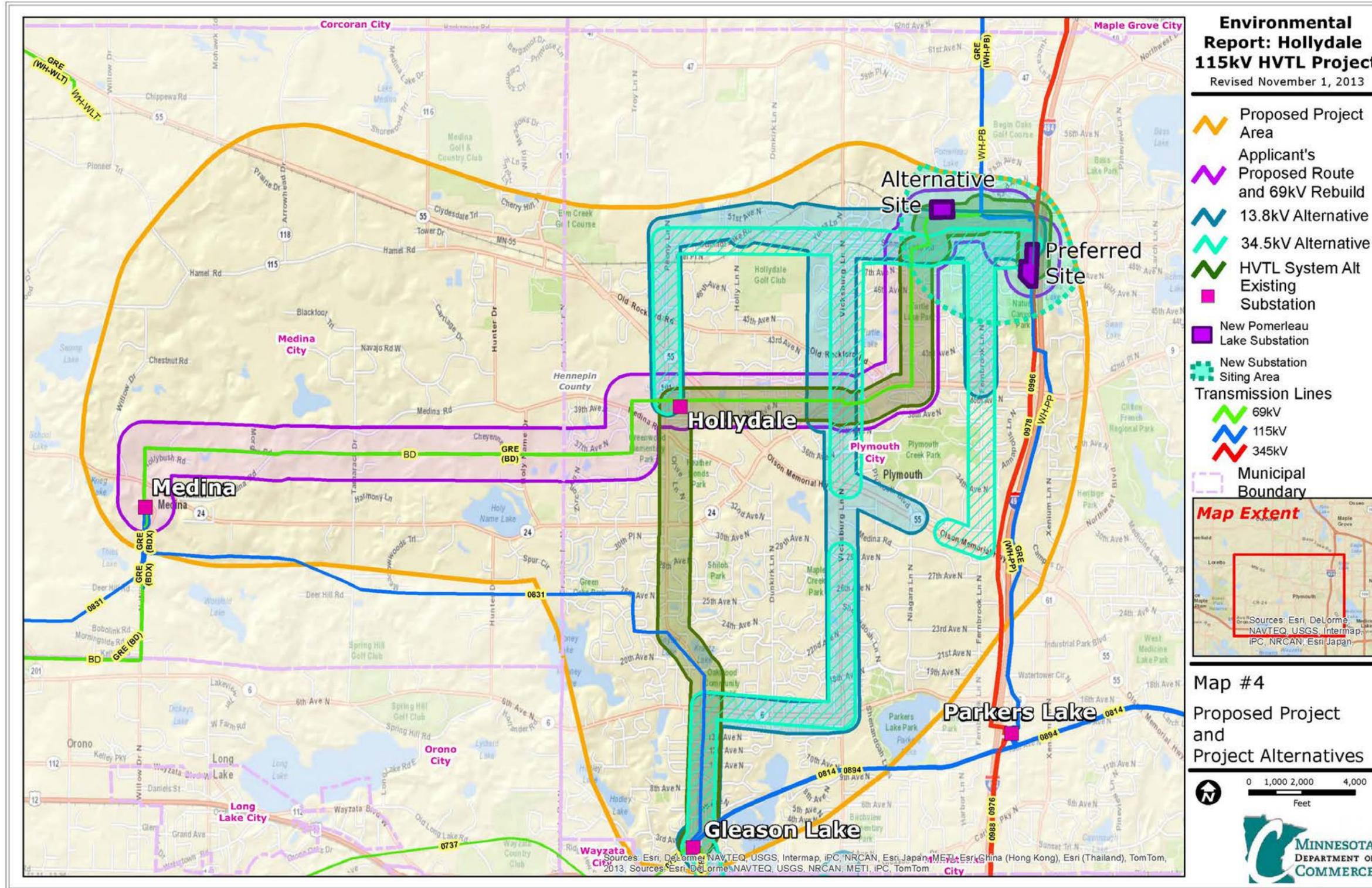


Map #1
 Project Area Overview







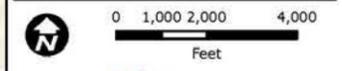


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 Revised November 1, 2013

- Proposed Project Area
- Applicant's Proposed Route and 69kV Rebuild
- 13.8kV Alternative
- 34.5kV Alternative
- HVTL System Alt Existing
- Substation
- New Pomerleau Lake Substation
- New Substation Siting Area
- Transmission Lines**
- 69kV
- 115kV
- 345kV
- Municipal Boundary



Map #4
 Proposed Project and Project Alternatives



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013. Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, IPC, TomTom

**Table 22: Calculated Magnetic Fields (mG) for 13.8 kV and 34.5 kV Distribution Lines
 Revised November 1, 2013**

(3.28 feet above ground)⁵

Segment	System Condition	Current (Amps)	Distance to Proposed Centerline (feet)														
			-300	-200	-100	-75	-50	-37.5	-25	0	25	37.5	50	75	100	200	300
Single Pole, Tangent 3-Phase 13.8 kV	Typical Operating Condition ^a	171 201	0.20 0.24	0.33 0.38	0.84 0.99	1.33 1.56	2.58 3.03	4.07 4.78	7.17 8.42	18.82 22.12	7.44 8.74	4.29 5.04	2.75 3.23	1.44 1.69	0.92 1.08	0.35 0.41	0.21 0.25
	Peak Operation	285 335	0.34 0.40	0.54 0.64	1.40 1.65	2.21 2.60	4.30 5.05	6.78 7.97	11.94 14.04	31.37 36.87	12.39 14.57	7.14 8.40	4.58 5.39	2.40 2.82	1.53 1.80	0.58 0.68	0.36 0.42
Single Pole, Tangent 3-phase 34.5 kV	Typical Operating Condition ^a	171	0.20	0.33	0.84	1.33	2.58	4.07	7.17	18.82	7.44	4.29	2.75	1.44	0.92	0.35	0.21
	Peak Operation	285	0.34	0.54	1.40	2.21	4.30	6.78	11.94	31.37	12.39	7.14	4.58	2.40	1.53	0.58	0.36
Single Pole, Tangent 3-Phase 13.8 kV	Typical Operating Condition ^a	171	0.20	0.33	0.84	1.33	2.58	4.07	7.17	18.82	7.44	4.29	2.75	1.44	0.92	0.35	0.21
	Peak Operation	285	0.34	0.54	1.40	2.21	4.30	6.78	11.94	31.37	12.39	7.14	4.58	2.40	1.53	0.58	0.36

⁵ Xcel Energy, Personal Communication, January 11, 2013; Xcel Energy and Great River Energy, *Rebuttal Testimony of Justin Michlig*, March 1, 2013, eDocket ID: [20133-84361-04](#), at Schedule 4.

Property Values text, pp. 65-66

Revised November 4, 2013

EERA staff wishes to provide the following clarification to the bulleted list that appears on pages 65 – 66 of the Environmental Report:

Based on the research that has been ongoing since at least the 1950s, several generalizations about the effect of transmission lines on property values can be made:⁶

- Studies have found a potential reduction of sale price for single-family homes of between 0 to 14 percent. Studies conducted in the upper Midwest (Minnesota, Wisconsin, and the Upper Peninsula of Michigan) have shown an average decrease of 4 to 7 percent.
- Although proximity to a transmission line does not appear to affect appreciation of a property, it can sometimes result in increased selling time.
- Property characteristics such as the neighborhood, proximity to schools, lot size, square footage of the house, and other amenities, tend to exert a greater effect on sales price than the presence of a power line.
- High-value properties are more likely than lower-value properties to experience a reduction in sales price.
- The sales price of smaller properties could be more adversely affected than for larger properties.
- For upgrade projects, the level of opposition may affect the size and duration of any reduction in sales price.
- Adverse effects on property prices tend to be greatest immediately after a new transmission line is built and diminish over time.
- The sales price for properties crossed by or immediately adjacent to a transmission line appear to be more adversely affected than prices for homes that are not adjacent to the transmission line right-of-way or are greater than 200 feet from the transmission line right-of-way.
- Mitigation measures such as setback distance, landscaping and integration of the right-of-way into the neighborhood, and visual and noise shielding have been shown to reduce or eliminate the impact of transmission structures on sales price.
- Impacts to the value of agricultural property can be reduced by placing structures to minimize disruption to farm operations.⁷
- ~~Interviews with residents along existing transmission lines show that a high proportion of residents were aware of the lines at the time they purchased their home and between one-half and three-fourths expressed concerns about the lines. The concerns were related to health effects, aesthetics, and effects on property values. Despite the concerns expressed, 67 to 80 percent of survey respondents with negative feelings about transmission lines reported that~~

⁶ Adapted from Wisconsin Public Service Commission, June 2001. *Environmental Impacts of Transmission Lines*. <http://psc.wi.gov/thelibrary/publications/electric/electric10.pdf>, p. 17

⁷ Adapted from Wisconsin Public Service Commission, June 2001. *Environmental Impacts of Transmission Lines*. <http://psc.wi.gov/thelibrary/publications/electric/electric10.pdf>, p. 17.

~~their decision to purchase the property and the price they offered to pay was not affected by the lines.⁸~~

Interviews with residents along existing transmission lines show that a high proportion of residents were aware of the lines at the time they purchased their home and between one-half and three-fourths expressed concerns about the lines. The concerns were related to health effects, aesthetics, and effects on property values. Despite the concerns expressed, 67 to 80 percent of survey respondents with negative feelings about transmission lines reported that their decision to purchase the property and the price they offered to pay was not affected by the lines.⁹

⁸-Chalmers, James A. and Frank A. Voorvaart. "High-Voltage Transmission Lines: Proximity, Visibility, and Encumbrance Effects." *The Appraisal Journal*. Summer, 2009.

http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/2009_HVTLs_and_Property_Values.pdf

⁹ Chalmers, James A. and Frank A. Voorvaart. "High-Voltage Transmission Lines: Proximity, Visibility, and Encumbrance Effects." *The Appraisal Journal*. Summer, 2009.

http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/2009_HVTLs_and_Property_Values.pdf

Attachment 4

Appendix H Alternatives - Environmental Report Alternatives Cross Reference

Appendix H Name	Environmental Report Name	New 13.8 kV and 34.4 kV (total length/average length in miles)	Substations – New, Expanded, Re-built				Transmission Lines – New and Rebuild			
			New Pomerleau Lake Substation	Parkers Lake Sub Expansion	New Sub along Medina – Gleason Lake Line	Rebuilt Gleason Lake Sub	Medina – Pomerleau Lake line	New Gleason Lake – Pomerleau Lake 115 kV line	Gleason Lake – Parkers Lake 115/115 kV Rebuild	New Gleason Lake – Parkers Lake 115 kV line
Hollydale Project	Hollydale Project	10.8/1.8	2015	N/A	N/A	N/A	2015	N/A	2025	N/A
S1	34.5 kV Distribution Alternative	24/3.0	2015	2020	N/A	N/A	N/A	N/A	2038	N/A
S2	69 kV Rebuild (unbundled conductor)	10.8/1.8	2015	N/A	N/A	N/A	2015, as 69 kV line	N/A	2020	2031
S3	69 kV Rebuild (bundled conductor)	10.8/1.8	2015	N/A	N/A	N/A	2015, as 69 kV line	N/A	2020	2033
S4	13.8 kV Distribution Alternative	19.3/2.4	2015	N/A	N/A	2026	N/A	N/A	2020	2026
S5	13.8 kV Distribution Alternative	19.3/2.4	2015	N/A	N/A	N/A	2026 (no Hollydale Connection)	N/A	2020	N/A
S6	34.5 kV & 13.8 kV Distribution Alternatives	17.7/3.0	2026	2015	N/A	N/A	2026 (no Hollydale Connection)	N/A	2021	N/A
S7	34.5 kV & 13.8 kV Distribution Alternatives	16.3/2.7	2015	N/A	N/A	N/A	2026 (no Hollydale Connection)	N/A	2020	N/A

Appendix H Name	Environmental Report Name	New 13.8 kV and 34.4 kV (total length/average length in miles)	Substations – New, Expanded, Re-built				Transmission Lines – New and Rebuild			
			New Pomerleau Lake Substation	Parkers Lake Sub Expansion	New Sub along Medina – Gleason Lake Line	Rebuilt Gleason Lake Sub	Medina – Pomerleau Lake line	New Gleason Lake – Pomerleau Lake 115 kV line	Gleason Lake – Parkers Lake 115/115 kV Rebuild	New Gleason Lake – Parkers Lake 115 kV line
S8	34.5 kV & 13.8 kV Distribution Alternatives	27.6/2.7	2015	N/A	N/A	N/A	2026 (no Hollydale connection)	N/A	2020	N/A
S9	34.5 kV & 13.8 kV Distribution Alternatives	26.8/2.7	2026	2015	N/A	N/A	2026 (no Hollydale connection)	N/A	2021	N/A
S10	13.8 kV Distribution Alternative	19.3/2.4	2015	N/A	2026	N/A	2037 (no Hollydale connection)	N/A	2020	N/A
S11	HVTL Alternative	10.8/1.8	2015	N/A	N/A	2015	N/A	2015	2025	N/A

From: [Asah, Raelynn S](#)
To: [Steinhauer, Suzanne \(COMM\)](#)
Subject: FW: Parkers Lake Sub expansion - Eds Comments
Date: Tuesday, October 29, 2013 4:44:41 PM
Attachments: [pkI sub map.bmp](#)

Suzanne,

Please see an attached aerial image of the Parkers Lake substation and our answers to your questions below.

Please let me know if you have any further questions.

Thanks much.

RaeLynn S. Asah
Xcel Energy | Responsible By Nature
o: 612-330-6512

1. Who is the owner of the Substation (e.g. Xcel, GRE, or some other utility)?

[Xcel Energy owns the Parkers Lake Substation site.](#)

2. Which utility would design and seek approvals for the substation expansion?

[Xcel Energy would design and seek necessary approvals for the Parkers Lake Substation addition.](#)

3. Could you please describe the anticipated size range of the expansion (e.g. 2 acres, 10 acres)

[A newly graded and fenced 34.5kV yard \(approximately 200' x 200' or 1 acre\) would be installed along the substation fence. A 6' tall retaining wall approximately 300' long would be needed since the newly graded area would be cutting onto a hill.](#)

4. Would additional land be required for the anticipated substation expansion?

[Yes, additional land would be needed for a substation expansion. If the substation is expanded to north, it may be able to stay mostly within Xcel Energy property, but would need wetland permits. Should it be expanded to the east it would be off Xcel Energy property.](#)

5. Are there any environmental or land use constraints known at this time that may affect the design of the expansion?

[The Parkers Lake Substation is bound by a wetland and commercial buildings to the North, a parking lot to the east, a railroad and commercial buildings to the South and Interstate 494 to the west. While the ultimate design details are not known at this time, should an alternative that required expansion of the Parkers Lake substation be selected, it is anticipated that it may be expanded to the north or east of the existing location.](#)

From: Steinhauer, Suzanne (COMM) [mailto:suzanne.steinhauer@state.mn.us]
Sent: Friday, October 25, 2013 10:57 AM
To: Asah, Raelynn S
Subject: Parkers Lake Sub expansion - re-send

RaeLynn --

I received a message that an e-mail I'd sent to you yesterday was delayed do to some system fault on our end. I understand that the problem has been resolved and that everything has been delivered, but just in case:

I'm looking for some information on the potential expansion of the Parker's Lake Substation that is part of the Alternatives S1, S6, & S9.

1. Who is the owner of the Substation (e.g. Xcel, GRE, or some other utility)?
2. Which utility would design and seek approvals for the substation expansion?
3. Could you please describe the anticipated size range of the expansion (e.g. 2 acres, 10 acres)
4. Would additional land be required for the anticipated substation expansion?
5. Are there any environmental or land use constraints known at this time that may affect the design of the expansion?

Thanks,
Suzanne

