OAH Docket No. 15-2500-20599-2
PUC No. ET2/TL-09-38

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application for a Route Permit for the Hiawatha Transmission Line Project

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FINDINGS OF FACT, CONCLUSIONS AND RECOMMENDATION

This matter was assigned to Administrative Law Judge (ALJ) Beverly Jones Heydinger to conduct a contested case hearing on the application by Northern States Power Company (Xcel Energy or Applicant) for a route permit for the proposed Hiawatha Transmission Line Project (Hiawatha Project or Project).

Public hearings were held on April 5 and April 6, 2010, at 2:00 p.m. and 7:00 p.m. at Plaza Verde, 1516 East Lake Street, Minneapolis, Minnesota.

An evidentiary hearing was held on April 12-21, and April 26-30, 2010, at the Public Utilities Commission, 121 Seventh Place East. Suite 350, St. Paul, Minnesota.

Post-hearing submissions were filed. The record closed upon receipt of the final reply briefs on August 13, 2010.

Appearances:

Lisa M. Agrimonti and Valerie Herring, Attorneys at Law, Briggs and Morgan, P.A., and Jennifer Thulien Smith, Assistant General Counsel, Xcel Energy Services, Inc., on behalf of Applicant, Xcel Energy;

Paula Maccabee, Attorney at Law, Just Change Law Offices, on behalf of Midtown Greenway Coalition;

Gregory Sautter and Corey Conover, Assistant City Attorneys, on behalf of the City of Minneapolis;

Howard Roston and Bradley Gunn, Attorneys at Law, Malkerson Gunn Martin, LLP, on behalf of Crew2;

Charles Salter, Assistant County Attorney, on behalf of Hennepin County and the Hennepin County Regional Rail Authority (Hennepin County);

Lori Ellis on behalf of Little Earth of United Tribes (Little Earth);

Joanna Solotaroff and Eric Hart on behalf of Longfellow Community Council (Longfellow);

Sheldon Mains on behalf of Seward Neighborhood Group, Inc. (Seward);

Eric Gustafson on behalf of Corcoran Neighborhood Organization (Corcoran);

Elizabeth H. Schmiesing and Rhyddid Watkin, Attoneys at Law, Faegre & Benson LLP, and Leslie M. Hayashida, Senior Counsel, on behalf of Wells Fargo, N.A. (Wells Fargo);

Shirley Heyer on behalf of Midtown Phillips Neighborhood Association, Inc. (Midtown Phillips);

Carol Pass on behalf of East Phillips Improvement Coalition (East Phillips);

Richard Savelkoul, Attorney at Law, Felhaber, Larson, Fenlon & Vogt, P.A., on behalf of Primary Surgical, Inc., d/b/a Zimmer Davis (Zimmer Davis);

Karen Finstad Hammel, Assistant Attorney General, and William Storm, on behalf of the Department of Commerce – Office of Energy Security, Energy Facility Permitting (OES);

David Seykora attended on behalf of the Minnesota Department of Transportation (MnDOT);

Bob Cupit, Bret Eknes and Patricia DeBleeckere, planning directors, attended on behalf of the Public Utilities Commission.

STATEMENT OF ISSUES

Should the Commission issue a route permit to the Applicant Xcel Energy and, if so, for which of the routes and substations under consideration and under what conditions?

Based on information in the Route Permit Application to the Commission, the testimony at the public hearing, public comments and the record of this proceeding, the ALJ makes the following recommendation:

That the Public Utilities Commission issue a Route Permit for Route D with a route width of 80 feet, terminating at proposed substation sites Hiawatha West and Midtown North, subject to certain conditions more fully set forth below.

FINDINGS OF FACT

Procedural History

1. Xcel Energy is a Minnesota corporation headquartered in Minneapolis, Minnesota. It is a wholly owned subsidiary of Xcel Energy Inc.[1]

2. On April 24, 2009, Xcel Energy submitted a Route Permit Application (Application) for the Hiawatha Project, as required by Minnesota Rules Chapter 7850 and Minnesota Statutes Chapter 216E. The Project includes two new substations and 115 kV transmission lines in South Minneapolis:

- Construction of a new Hiawatha Substation between 26th Street and Lake Street near Hiawatha Avenue;
- Construction of a new Midtown Substation between 26th Street and Lake Street and between Chicago Avenue and Interstate 35W; and
- Construction of two new looped 115 kV transmission lines connecting the two new substations.[2]

3. Unless specifically exempt, no high voltage transmission line may be sited in Minnesota until the Commission issues a Certificate of Need.[3] At the time that the Application for a route permit was filed, the Applicant was not required to obtain a certificate of need for a 115 kV line that is less than 10 miles in length.[4] The Applicant's preferred route and route alternatives were less than 10 miles in length.

4. Following the close of the evidentiary hearing, the Legislature enacted the following:

> A high-voltage transmission line longer than one mile with a capacity of 100 kilovolts or more that is located in a city of the first class in a zone within one mile of the transmission line in which population density exceeds 8,000 persons per square mile, and that runs parallel to and is within one-half mile of a below-grade bike and walking path that connects with other bike paths along a river, is subject to [the Certificate of Need requirement].[5]

5. Since the Hiawatha Project meets the definition of this section, it will require a Certificate of Need before a route permit may be issued.

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[1] Exhibit (Ex.) 1A at 9 (Application).
[2] Ex. 1A at 2 (Application).
[3] Minn. Stat. § 216B.243, subd. 2. Except as otherwise noted, Minnesota Statutes are cited to the 2008 Edition; Minnesota Rules are cited to the 2009 Edition.
[4] Minn. Stat. § 216B.2421, subd. 2 (2) and (3).
[5] Minnesota Laws 2010, ch. 361, art. 5, §19; *see* Minn. Stat. § 216B.243, subd. 5.

6. The Application included four possible routes for the transmission line – a preferred route with two possible alignments, one overhead and one underground, and three alternate routes, two overhead and one underground.

7. On May 26, 2009, the Commission issued an Order, accepting the Application as complete and authorizing OES staff to process the Application under the full review process in Minn. R. 7850.1700 to 7850.2700. The Commission also authorized OES staff to name a public advisor and to establish an advisory task force (ATF).[6]

8. The ALJ issued a Notice of Prehearing Conference on July 2, 2009.

9. On August 4, 2009, the ALJ held a prehearing conference at the Public Utilities Commission in St. Paul, Minnesota.

10. On August 11, 2009, the ALJ issued a Prehearing Order establishing the schedule and procedures for intervention, prefiled testimony, hearing and other matters. A Revised Scheduling Order was issued on December 7, 2009; a Second Prehearing Order and Schedule Revisions was issued on February 1, 2010,

11. The Prehearing Order specified an intervention deadline of December 14, 2009, which was subsequently extended to January 27, 2010. Petitions to Intervene were granted to the following, in the order listed, Midtown Greenway Coalition, City of Minneapolis, Crew2, Hennepin County, Little Earth of United Tribes, Longfellow Community Council, Seward Neighborhood Group, Inc., Corcoran Neighborhood Organization, Wells Fargo Bank, Midtown Phillips Neighborhood Association and East Phillips Improvement Coalition.

12. On February 8, 2010, the Applicant mailed a project update newsletter to landowners and residents within the Project Area, community leaders, elected officials of the Project Area, members of the media, and others who requested to be on the mailing list. The newsletter included information regarding the date, time and location of the meeting on the DEIS, the DEIS public comment deadline, the contested case public hearing dates, times and location, the contested case evidentiary hearing dates, times and location, and the contested case hearing public comment deadline.[7]

13. Following the deadline for intervention, a Petition to Intervene was filed by Primary Surgical, Inc. d/b/a/ Zimmer Davis, which operates a regional sales and distribution facility at a location under consideration as an alternate substation site. No party opposed the Petition and an Order Granting Intervention to Primary Surgical, Inc. d/b/a Zimmer Davis was issued on March 15, 2010.

14. The parties prefiled testimony as follows: Direct Testimony, February 18, 2010; Rebuttal Testimony, March 15, 2010; Surrebuttal Testimony, March 26, 2010.

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[6] *In the Matter of the Route Permit Application for a High Voltage Transmission Line Route Permit for the Hiawatha Transmission Project*, Docket No. ET2/TL-09-38, Order (May 26, 2009).

[7] Ex. 8, Schedule (Sched.) 2 (Mirzayi Direct).

15. At the request of the Applicant and without opposition, the Second Prehearing Order and Schedule Revisions was modified on March 25, 2010, to allow the Applicant to file rebuttal testimony of Will Stark by March 26, 2010, and for other parties to respond to that testimony by April 9, 2010.

16. On March 29, 2010, the ALJ issued an Order to Show Cause establishing April 2, 2010, as a deadline for the Seward Neighborhood Group, Inc., and Phillips West Neighborhood Organization to "file a statement explaining why it should not be dismissed as a party, or notifying the [ALJ] of its intention to withdraw as a party." Neither party had prefiled testimony in the proceeding.

17. By letter dated April 2, 2010, Phillips West Neighborhood Organization gave notice that it did not intend to continue as a party. Its letter of April 2, 2010, stating its position concerning the Project, joining in the position taken by the Midtown Greenway Coalition, was added to the record at the evidentiary hearing.[8]

18. On April 2, 2010, Seward Neighborhood Group, Inc. filed a statement explaining why it should not be dismissed as a party.

19. An Order Dismissing Phillips West Neighborhood Organization as a Party was issued on April 6, 2010.

20. Public hearings were held on April 5 and 6, 2010, at Plaza Verde, 1516 East Lake Street, Minneapolis, Minnesota.

21. The evidentiary hearing commenced on April 12, 2010, and continued on twelve additional days. It adjourned on April 30, 2010.

22. Following the close of the evidentiary hearing, the Applicant requested that the document marked for identification as Exhibit 148, an overview map of the routes and substations to be considered in this proceeding, be admitted into the record. Exhibit 148 was provided to all parties at the hearing and was the subject of testimony, but its admission was inadvertently overlooked. There was no objection to its receipt, and Exhibit 148 was received into the hearing record.

23. Members of the public had the opportunity to file written comments concerning the Application until May 11, 2010. All written comments were reviewed and filed by the Office of Administrative Hearings with the Department of Commerce e-docket system.

24. The Applicant filed its initial post-hearing brief on June 15, 2010; responsive briefs were filed on July 12, 2010; all reply briefs were filed by August 13, 2010. The following parties filed no post-hearing briefs: Little Earth of United Tribes, Longfellow Community Council, Corcoran Neighborhood Organization and Zimmer Davis.

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[8] Ex. 150.

25. OES must provide certain notice to the public throughout the Route Permit process.[9]

26. OES published notice of the contested case hearing in the Star Tribune, a legal newspaper of general circulation, on March 15, 2010.[10]

27. OES sent notice of the contested case to persons on the project contact list maintained by the Commission on March 12, 2010.[11]

28. Minnesota Statute § 216E.03, subd. 6, and Minn. R. 7850.2600 set out the notice requirements for the contested case hearing on the routing for a proposed high voltage transmission line. The content of the notices issued in this matter fully complied with Minn. R. 1405.0500 and the applicable rules and statute.

OES Environmental Review

29. Minnesota statutes and rules require OES to prepare an Environmental Impact Statement (EIS) for the Project.[12]

30. The scoping process is the first step in developing an EIS. OES "shall provide the public with an opportunity to participate in the development of the scope of the environmental impact statement by holding a public meeting and by soliciting public comments." During the scoping process, alternative routes may be suggested for evaluation in the EIS.[13]

31. The scoping process "must be used to reduce the scope and bulk of an environmental impact statement by identifying the potentially significant issues and alternatives requiring analysis and establishing the detail into which the issues will be analyzed."[14]

32. At the conclusion of the scoping process, OES must issue a scoping decision that addresses the following: 1) the issues to be addressed in the environmental impact statement; 2) the alternative sites and routes to be addressed in the environmental impact statement; and 3) the schedule for completion of the environmental impact statement.[15]

33. On May 29, 2009, OES mailed a Notice of Public Information and EIS Scoping Meetings to people on the Project's mailing list.[16] On June 2, 2009, OES published a Notice of Public Information and Environmental Impact Statement (EIS) Scoping Meetings to provide information to the public about the Proposed Project in the

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[9] *See* Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2; Minn. R. 7850.2500, subps. 2, 7-9.
[10] Ex. 146 (Affidavit of Publication).
[11] Ex. 145.
[12] Minn. R. 7850.2500, subp. 1.
[13] Minn. R. 7850.2500, subps. 1 and 2.
[14] Minn. R. 7850.2500, subp. 4.
[15] Minn. R. 7850.2500, subp. 4.
[16] Ex. 133.

Minneapolis Star Tribune.[17] The purpose of the Scoping Meeting was to receive public comment and input on the draft site permit issued by the Commission, and to take public comment and input on the scope of the EIS that would be prepared for the Application. The public was invited to review the Application, learn more about the Commission review process, offer comments and ask questions.[18]

34. OES staff held public information and scoping meetings for the Proposed Project in Minneapolis, Minnesota, on June 18, 2009. Approximately 100 people attended the public meetings; 24 individuals spoke on the record. The public comment period on the EIS scoping for the Proposed Project was open until July 10, 2009. Members of the public submitted 91 comments to OES regarding the scoping of the EIS.[19]

35. In accordance with Minn. R. 7850.2500, subp. 2, on September 3, 2009, OES issued its EIS Scoping Decision. OES responded to the public comments on the scope of the EIS and determined the matters to be addressed in it. The EIS Scoping Decision specified that an analysis of the potential environmental and socio-economic impacts of the Applicant's proposed routes and substation location alternatives would be performed, and, based on the ATF Report issued on August 28, 2009,[20] it added one route, identified as Route E1, five Hiawatha substation alternatives, G-1 through G-5, and two Midtown Substation alternatives, Midtown Substation 28-North (Mt-28N) and Midtown Substation 28-South (Mt-28S).[21]

36. Route E1, an overhead route originally proposed by the ATF, runs generally along Hiawatha Avenue, Interstate 94 and Interstate 35W. After the Scoping Decision was issued, the Applicant determined that Route E1 presented significant permitting and design challenges because the transmission line structures would be constructed within the interstate right-of-way. The Applicant therefore developed a substitute route for E1, referred to as Route E2. Route E2 generally follows the pathway of Route E1, but it minimizes the use of interstate easements by following secondary roadways. Route E2 was included in the OES analysis[22]

37. On January 8, 2010, OES issued the Draft EIS (DEIS) for the Proposed Project. On January 11, 2010, OES mailed Notice of the Availability of the DEIS and Notice of the Public Meeting on the DEIS to all people on the Project's mailing list and to State Agency Technical Representatives. In addition, copies of the DEIS were available in six public libraries within the Project area, and on the Commission's website.[23] OES published Notice of the Availability of the DEIS and Notice of the Public Information Meeting in the EQB Monitor on January 11, 2010.[24] OES published and mailed notice

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[17] Ex. 134.
[18] Ex. 133.
[19] Ex. 138 (EIS Scoping Decision).
[20] Ex. 137.
[21] Ex. 138 (EIS Scoping Decision).
[22] Ex. 141 (DEIS) at 40.
[23] Ex. 139.
[24] Ex. 140.

of the availability of the DEIS for review and notice of the public meeting on the DEIS in accordance with Minn. R. 7850.2500, subps. 7-8.[25]

38. As a result of the initial evaluation, Route E1 and Hiawatha Substation alternatives G-1 – G-5 were not deemed technically feasible and were not analyzed in the DEIS.[26] The DEIS considered Routes A, B, C, D and E2, and six substation alternatives, Hiawatha West, Hiawatha East, Midtown North, Midtown South, Mt-28N, and Mt-28S.[27]

39. Minnesota rules require OES to "respond to timely substantive comments received on the draft environmental impact statement consistent with the scoping decision and prepare the final environmental impact statement." OES may "attach to the draft environmental impact statement the comments received and its response to comments without preparing a separate document."[28]

40. On February 10, 2010, OES staff conducted a public information meeting at the Plaza Verde, 1516 East Lake Street, Minneapolis, to obtain comments on the DEIS. Over 100 people attended the meeting; 28 people made oral comments. Written comments were received through March 10, 2010. Seventy eight individuals submitted written comments on the DEIS during the comment period.[29]

41. During the DEIS comment period, a third alignment of Route A (Route A3), an underground alignment running under the existing bike trail within the Midtown Greenway, was analyzed. To accommodate this alignment, the Applicant's requested route width for Route A increased from 125 feet to 200 feet.[30] Also, the Zimmer Davis Substation site was identified as a possible alternative for the Hiawatha Substation.[31]

42. On June 4, 2010, OES issued the Final Environmental Impact Statement (FEIS).[32]

Description of the Proposed Project

43. Xcel Energy has proposed the Hiawatha Project to meet increasing demands for electricity in South Minneapolis and to tie the distribution system that serves South Minneapolis to the overall electrical system.[33]

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[25] Ex. 139; Ex. 140; Ex. 141 (DEIS).
[26] Ex. 141 (DEIS) at 390-93.
[27] Ex. 141 (DEIS) at 3.
[28] Minn. R. 7850.2500, subp. 9.
[29] FEIS at Appendix (Appx.) F.
[30] FEIS at 3.
[31] FEIS at 3-4.
[32] https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=20106-51326-01 (text and figures, excluding attached appendices).
[33] Ex. 1A at 1 (Application).

44. The Project Area is bordered by 26th Avenue South on the east, Interstate 35W (I-35W) on the west, East 31st Street to the south, and East 26th Street on the north.[34]

45. Prior to the design of the Hiawatha Project, the Applicant conducted a study of significant overloads on the distribution system within an approximately 22-square mile area of South Minneapolis, referred to as the Focused Study Area.[35] The distribution study analyzed the existing distribution system capacity in South Minneapolis by evaluating historical load data and load forecasts. The study concluded that the highest load density was located along Lake Street, Hiawatha Avenue, Chicago Avenue and Park Avenue.[36]

46. The Project Area is currently served by three substations. Approximately 60 percent of the needed power comes from the Southtown Substation located at Hiawatha Avenue and 38th Street. The Aldridge Substation, located north of Interstate 394 near Interstate 94, and the Elliot Park Substation, located east of the Metrodome, also provide power to the Project Area. Each of these substations provides the power to the Project Area through a long series of distribution feeder circuits that traverse many neighborhoods to reach the Midtown area.[37]

47. The distribution study found that the feeder circuits in the Focused Study Area are loaded above maximum equipment limits under system intact and first contingency conditions during peak loading. The study further found that substation transformers are loaded above maximum equipment limits during all first contingency configurations.[38] The Applicant determined that two new distribution sources were needed to ensure adequate system support in the Hiawatha and Midtown areas in the near term.[39]

48. The Applicant proposes two 115kV transmission lines running from Hiawatha Avenue to Oakland Avenue in South Minneapolis, connecting to two new proposed substations, Hiawatha Substation and Midtown Substation. The Applicant proposes routing the transmission lines through an area known as the Midtown District. The Hiawatha Substation would be located at the eastern terminus of the Project, and the Midtown Substation would be located at the western terminus of the Project.[40]

49. The Project will provide an additional 120 MW of load serving support to the distribution system in the Focused Study Area, including the Project Area[41] Approximately ninety percent of the power from the proposed Midtown and Hiawatha Substations will serve load along Lake Street, Chicago Avenue, and Hiawatha

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[34] Ex. 1B at Appx. B.1 (Application, Project Area Aerial Map).
[35] Ex. 1A at 15-16 (Application); Ex. 1B at Appx. D.3 at 7-13, and at Appx. D.4 at 5 (Application).
[36] Ex. 1B at Appx. D.3 at 24 (Application).
[37] Ex. 23 at 4 (Zima Direct); Transcript Volume (Tr. Vol.) 6 at 60 (Zima).
[38] Ex. 23 at 5 (Zima Direct).
[39] Ex. 23 at 7-8 (Zima Direct).
[40] Ex. 1A at 2 (Application).
[41] Ex. 23 at 8 (Zima Direct).

Avenue.[42] The Project will also provide support for further demand growth in the Project Area.[43]

50. The Applicant is prepared to construct the Hiawatha Project either overhead or underground, with appropriate cost recovery. It asserts that, from an engineering perspective, either method would meet the identified need for increased electrical distribution within the Project Area.[44]

Description of the Project Area

51. The Project Area's urban demographics are significantly different than the demographics of the rural areas typically affected in a routing proceeding. Foremost is the density of the population of the area. All of the route alternatives pass through densely populated areas. There are approximately 8,000 people located within 500 feet of Route A, the Applicant's preferred route.[45] The Project Area has been adversely affected by high unemployment, pollution, crime and homelessness, but in recent years has made progress toward addressing these challenges.[46]

52. Because of its density, the Project Area includes many businesses, social service agencies, schools, churches, hospitals, residences, transportation routes and pedestrian traffic. In recent years, the Midtown District has seen significant residential and commercial development and further population growth is anticipated. Since 2000, there have been seven development projects in the Project Area, including the Midtown Exchange, Abbott Northwestern Hospital, Wells Fargo Home Mortgage campus, Christo Rey High School, the Midtown Medical Clinic, the Corridor Flats, and the Hi-Lake Shopping Center. From 2000 to 2009, 66 residential building permits were issued in the Project Area.[47] A number of development plans call for residential and commercial development in the Project Area and the redevelopment of the Project Area is expected to continue.[48]

53. While the City of Minneapolis lost jobs between 2000 and 2008, this part of the city gained over 2000 jobs.[49]

54. The Midtown District is culturally, racially and economically diverse. According to the 2000 Census, Hennepin County is 80.5 percent Caucasian. The neighborhoods within the Project Area range from 25.7 to 65.1 percent Caucasian. Per capita incomes within the neighborhoods in the Project Area are generally lower than

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[42] Transcript Volume (Tr. Vol.) 12 at 197, 202 (Zima).
[43] Tr. Vol. 5 at 180-81 (Zima).
[44] Xcel Energy's Post-Hearing Brief at 2-3.
[45] Tr. Vol. 1 at 156-159 (Asah).
[46] Tr. Vol. 8 at 157, 163, 200-201 (Berkholtz); FEIS at 206, 224; Tr. Vol. 11 at 119-122 (Heyer).
[47] Ex. 91 at 9-10 (Berkholtz Direct).
[48] Tr. Vol. 8 at 108-116 (Mogush); Ex. 185.
[49] Ex. 91 at 10 (Berkholtz Direct).

those found throughout Hennepin County and the percentage of population below the poverty level is higher than the county average.[50]

55. The Project Area includes several historical resources, including the Chicago Milwaukee & St. Paul (CM&St.P) Railroad Grade Separation Historic District, which is an old railroad trench. The CM&St.P Historic District is parallel to 29th Street between Humboldt Avenue, which is west of the Project Area, and 20th Avenue, which is within the Project Area and just west of Hiawatha Avenue. The trench was constructed between 1912 and 1917. It is approximately 22 feet deep and has a steeply sloped earthen wall on the north and south sides. The Hennepin County Regional Railroad Authority (HCCRA) purchased the railroad property in 1993. Today the Historic District is used as a multi-use trail, a portion of the Midtown Greenway, managed by the City of Minneapolis.[51] Ramps from the street level allow access to bicycle and pedestrian trails in the center of the railroad trench. The Midtown Greenway extends 5.7 miles from the Saint Louis Park city limits on the west through the Project Area to the West River Parkway near the Mississippi River on the east.[52]

56. The Applicant has not constructed a 115 kV transmission line in such a densely populated urban area since 1957.[53]

Preferred Route and Route Alternates

57. In the Application, the Applicant identified four proposed routes for the Hiawatha transmission line – Route A (overhead or underground), Route B (overhead), Route C (overhead) and Route D (underground). Route A is the Applicant's preferred route, constructed either overhead or underground. Two alignments, Route A1, overhead along East 29th Street, and Route A2, underground along East 29th Street, were included in the Application.[54] Route A3, an underground alignment within the Midtown Greenway trench, was added during the DEIS comment period at the request of Hennepin County.[55] References herein to Route A apply to all three alignments. Where a distinction is made among the alignments, references to Route A1, Route A2 or Route A3 will be used.

Route A

58. Route A begins at the Hiawatha Substation and crosses Hiawatha Avenue to the west. It continues parallel to East 28th Street, near Minneapolis Pioneers and Soldiers Memorial Cemetery, and heads west along 29th Street for approximately 1.4 miles, connecting to a new Midtown Substation. The two looped lines would follow the same path, either aboveground on poles, or underground in parallel ducts.[56]

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[50] Ex. 1A at 82 (Application); Ex. 10 at 4 (Asah Direct).
[51] Ex. 10 at 11 (Asah Direct); Ex. 102 at 3 (McLaughlin Direct); Ex. 105 at 6 (Michalko Direct).
[52] Ex. 1A at 84 (Application).
[53] Ex. 52.
[54] Ex. 1A at 13-14 (Application).
[55] Ex. 10 at 7 (Asah Direct).
[56] Ex. 10 at 7 (Asah Direct); Ex. 1A at 13 (Application).

59. Route A1 and Route A2 are located primarily along 29th Street, outside the Midtown Greenway but along its south rim. Underground alignment Route A3 runs along the bottom of the Midtown Greenway, at the edge of its northern earthen slope, parallel to, and in some sections under, the existing bike path.[57]

60. Detailed segment maps of Route A1, including possible pole placement, are included in the Application, Appendix B.2.1 through B.2.4. Similar maps of Route A2, including possible manhole access points, are included in the Application, Appendix B.3.1 through B.3.4. A map depicting Route A3 is included in Ex. 18, Schedule 6. Maps depicting the location of Route A3 within the Midtown Greenway are included at Ex. 18, Schedule 15, at 7 through 12.

61. Generally, all of the alignments for Route A would run in close proximity to the Midtown Greenway. The distance from the proposed line location of each alignment to the center of the Midtown Greenway trail at 19 measuring points ranges from 3 to 298 feet. At most of the measuring points, Route A3 would be within 10 to 14 feet of the center of the Midtown Greenway trail.[58]

62. All three Route A alignments are located within public road rights-of-way or the Midtown Greenway.[59]

Route B

63. Route B would require two overhead single-circuit lines. Because of the space limitations along Route B, there is insufficient clearance for double-circuit structures. Thus, each of the two lines would run along a different city street. One of the lines would follow 26th Street between the Hiawatha and Midtown Substation sites. The second line would follow East 28th Street between the substations.[60] The estimated route lengths of the two lines are 1.8 and 1.4 miles respectively. To minimize the right-of-way needed for safe operation of the facilities, the lines would be cantilevered over the streets.[61]

64. The first line would exit the Hiawatha Substation and proceed north along the east side of Hiawatha Avenue. The line would cross Hiawatha Avenue near the intersection of East 26th Street and continue west along the south side of East 26th Street. The line would then proceed south along the west side of Oakland Avenue South and end on the west end at the Midtown Substation.[62]

65. The second line would exit the Hiawatha Substation, cross Hiawatha Avenue and the Hiawatha Light Rail Line near the intersection of East 28th Street, and continue west along the north side of East 28th Street to 10th Avenue South. The line

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[57] Ex. 10 at 7 (Asah Direct).
[58] Ex. 18, Sched. 15 at 13 (Gallay Direct).
[59] Ex. 1A at 33 and Figure (Fig.) 11 (Application).
[60] Ex. 10 at 8 (Asah Direct).
[61] Ex. 1A at 35 (Application).
[62] Ex. 1A at 35 (Application).

would diagonally cross East 28th Street between 10th Avenue South and Elliot Avenue South and continue west along the south side of East 28th Street. The transmission line would continue south along the west side of Columbus Avenue South and then west along the north side of 29th Street, ending on the west end at the Midtown Substation.[63]

66. Route B is located primarily where existing overhead distribution lines parallel the streets. Where the transmission line structures would be located near an existing distribution line structure, the distribution line structure would be removed and the distribution line would be supported by the new transmission line structure. If Route B is selected, the transmission line facilities would be located within public rights-of-way.[64]

67. Detailed segment maps of Route B, including possible pole placement, are included in the Application, Appendix B.4.1 through B.4.8.

Route C

68. Because of the insufficient clearance to run a double-circuit line, Route C, like Route B, would have two single-circuit transmission lines, running on two streets. One of the two lines would follow East 28th Street between the Hiawatha and the Midtown Substation sites. The second line would parallel 31st Street. The estimated route lengths of the two lines are 1.5 and 2.3 miles.[65]

69. The first line would exit the east side of the Hiawatha Substation, cross Hiawatha Avenue and the Metro Transit Hiawatha Light Rail Line near the intersection of East 28th Street, and continue west along the north side of East 28th Street to 10th Avenue South. The transmission line would diagonally cross East 28th Street between 10th Avenue South and Elliot Avenue South and continue west along the south side of East 28th Street. The transmission line would continue south along the west side of Columbus Avenue South and then west along the north side of the Midtown Greenway, ending on the west end at the proposed Midtown Substation.[66]

70. The second line would exit the Hiawatha Substation to the south and travel along the east side of Hiawatha Avenue. The line would cross both Hiawatha Avenue and the Hiawatha Light Rail Line near the intersection with East 31st Street and then proceed west along the north side of East 31st Street. The line would cross East 31st Street at the intersection of Chicago Avenue South and continue west along the south side of East 31st Street. The line would then proceed north along the east side of Portland Avenue South. The line ends on the west end at the Midtown Substation.[67]

71. Route C is located primarily where existing overhead distribution lines parallel the streets. This route would require special construction arrangements to

[63] Ex. 1A at 35 (Application).
[64] Ex. 1A at 35 and Fig. 12 (Application).
[65] Ex. 1A at 37 (Application); Ex. 10 at 8-9 (Asah Direct).
[66] Ex. 1A at 37 (Application).
[67] Ex. 1A at 37 (Application).

accommodate for the narrow to nonexistent boulevard along 31st Street. Special structures with narrower than normal bases would be used for the route. At approximately eight corner or street crossing locations, larger base structures would be necessary. Some right-of-way may need to be obtained from private landowners to accommodate for the larger structures. If Route C is selected, the transmission line facilities would be located largely within public rights-of-way.[68]

72. Detailed segment maps of Route C, including possible pole placement, are included in the Application, Appendix B.5.1 through B.5.9.

Route D

73. Route D is an underground route approximately 1.5 miles long that would run along the northern half of East 28th Street between the Hiawatha and Midtown Substations. The street is approximately 80 feet wide, with an adjoining boulevard two to four feet wide, and an adjoining sidewalk three to six feet wide. The two transmission lines would be placed in a concrete duct system approximately 30 inches below ground. Manholes would be placed periodically along the route to allow for line placement. The lines would begin on the east end at the proposed Hiawatha Substation and cross under Hiawatha Avenue and the Hiawatha Light Rail Line near the intersection of East 28th Street. The transmission lines would proceed west under East 28th Street, then turn and go south under Oakland Avenue South, ending on the west end at the proposed Midtown Substation. If Route D is selected, it would be located within public road rights-of-way.[69]

74. If Route D is chosen, the lines would be put either under the sidewalk or under the street.[70]

75. A detailed segment map of Route D, with possible manhole access points, is included in the Application, Appendix B.6.1. through B.6.4.

Routes E1 and E2

76. The Advisory Task Force suggested Route E1, generally to start at the Hiawatha substation, go north along Hiawatha Avenue to I-94, west along the I-94 corridor to I-35W, and south along I-35W to roughly 28th Street East, ending at the Midtown Substation. However, because of significant permitting and design challenges within the MnDOT right-of-way, Route E1 was not carried forward for analysis in the DEIS.[71]

77. An alternate route, designated as E2, was developed by the Applicant. It generally follows E1, but minimizes the use of interstate easements by following

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[68] Ex. 1A at 37-38 and Fig. 13 (Application).
[69] Ex. 1A at 38 and Fig. 14 (Application); Tr. Vol. 13 at 78, 103 (Asah); Tr. Vol. 1 at 207 (Asah); Ex. 10, Sched. 3 at 7(Asah Direct).
[70] Ex. 54 (Xcel Response to MGC IR No. 17).
[71] FEIS at 41.

secondary roadways along a similar path.[72] It would begin at the Hiawatha Substation site, cross both Hiawatha Avenue and the Hiawatha Light Rail Line near the intersection of East 28th Street and travel north along the west side of Hiawatha Avenue toward I-94. At I-94, the route turns west and follows along the south side of I-94 toward I-35W. At I-35W, the route turns south and follows the east side of I-35W until approximately West 26th Street. The route then turns west, crosses I-35W, turns south, and continues along the west side of I-35W to 28th Street. The route then crosses I-35W again and connects to the Midtown Substation on the east side of I-35W. Route E2 is approximately 3.2 miles long.[73]

78. A map depicting Routes E1 and E2 is included in the DEIS at Figure 1-6 and FEIS at Section 7.

79. Since no evidence was offered in support of Route E1, and because of MnDOT's position that no permit could be issued for that route, it will not be analyzed in this report.

Structure Type and Spans

80. For overhead Route A1 and Route E2, the Applicant proposes to use galvanized, double-circuit structures with davit arms bolted to concrete pier foundations. The average height will be 75 feet for the tangent structures, with a maximum of 100 feet, and slightly higher for dead-end structures.[74]

81. At locations where Route A1 and Route E2 would cross existing and future transit, streets and pedestrian paths, the structures would be custom-designed, based on the requirements at each location, with an additional arm to support crossings without an additional structure, similar to dead-end structures.[75]

82. For overhead routes B and C, the Applicant proposes to use galvanized, single-circuit structures with davit arms, under built to support distribution lines. As with proposed routes A1 and E2, routes B and C will require custom-designed structures to cross existing and future transit, streets and pedestrian paths. The average height of the proposed structures averages 75 feet for tangent structures and 80 feet for dead-end structures, with maximum heights of 110 to 115 feet.[76]

83. Depending on the tower type, the towers for all overhead routes would be 36 to 58 inches in diameter at the base.[77]

84. The average span between the overhead structures will be approximately 500 feet on all overhead routes, but may vary from 300 feet to 1,000 feet to accommodate existing and future development.[78]

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[72] FEIS at 41.
[73] Ex. 10 at 9, Sched. 3 at 7 (Asah Direct).
[74] Ex. 1A at 42, Fig. 15, Table 5 (Application); Ex. 18 at 4 (Gallay Direct); FEIS at 74.
[75] Ex. 1A at 42, Fig. 16 (Application); Ex. 18 at 4 (Gallay Direct).
[76] Ex. 1A at 45, Figs. 17, 18, Table 6 (Application); Ex. 18 at 4-5 (Gallay Direct).
[77] FEIS at 26, Table ES-1.

85. The Applicant's towers are designed to withstand extreme wind and weather and meet or exceed the requirements of the National Electrical Safety Code (NESC).[79]

86. For the underground alternatives, Route A2, Route A3, and Route D, each of the two transmission lines would be placed underground in identical concrete duct banks. Each duct bank would contain four 6-inch polyvinyl chloride (PVC) conduits for the transmission circuits, and two 2-inch PVC conduits for grounding and communication. If feasible, the duct banks would be installed adjacent to each other in the same trench. One spare conduit would be installed in each duct to allow installation of a new cable if one of the original cables failed.[80]

87. Cable vaults with manhole access would be placed approximately every 1500 feet and at major changes in direction along the underground route to facilitate installation, inspection and repair of cable. A typical vault with manhole access would be approximately 24 to 25 feet in length by 14 feet in width by 7 to 10 feet in height.[81]

88. The Applicant anticipates that along most of the route, the underground lines would be installed using a surface-cut open trenching system. Horizontal directional drilling may be necessary to install underground transmission lines under Hiawatha Avenue and the Hiawatha Light Rail Line. This method involves boring a hole for each conductor and installing conduit or pipe. Two double circuit 115 kV transmission lines would require six borings plus boring and installation of an additional spare conduit.[82]

89. The diameter of high voltage underground cables is determined by the conductor that carries the load current, the insulation, and the cable's shield system. Generally, the conductor of an underground transmission line will be twice the size of an equivalent overhead transmission line to assure sufficient heat dissipation and below grade encasement.[83]

90. Routes A2, A3 and D would be buried approximately 30 inches below the surface.[84]

Conductors

91. For the overhead lines, the Applicant proposes to use 795 kcmil, 26/7 Aluminum Conductor Steel Reinforced cables or conductors of comparable capacity per phase.[85] For the underground designs, the Applicant proposes to use a high voltage

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[78] Ex. 1A at 42, 45 (Application); Ex. 18 at 5 (Gallay Direct); Ex. 19 at 4 (Gallay Rebuttal).
[79] Ex. 18 at 5 (Gallay Direct).
[80] Ex. 1A at 54-56 (Application); Tr. Vol. 3 at 137-38 (Gallay); FEIS at 84-86.
[81] Ex. 1A at 55 (Application).
[82] Ex. 1A at 54-56 (Application); Ex. 18 at 7-8 (Gallay Direct).
[83] Ex. 1A at 54-55 (Application); Ex. 18 at 7-8 (Gallay Direct).
[84] Ex. 18, Sched. 4 (Gallay Direct); Ex. 50 (Xcel Response to MGC IR No. 29).
[85] Ex. 1A at 42, Table 6 (Application); Ex. 18 at 6 (Gallay Direct).

extruded dielectric cable, 3000 kcmil copper cross-linked polyethylene type or conductors of comparable capacity.[86]

92. For the underground lines, there are two conductor options, 1250 kcmil and 3000 kcmil. The choice of conductor is dictated by the physical space available in the duct bank and how placement of the conductor within the duct bank affects the magnetic field.[87]

Route Width and Right of Way

93. The Power Plant Siting Act authorizes the Commission to designate a route with a variable width of up to 1.25 miles.[88]

94. The "route width" is the width included in the Route Permit to allow the Applicant to vary the alignment of the transmission line placement to accommodate construction conditions. Applicant requested a route width of 200 feet for Route A, to encompass all three alignments; and a route width of up to 80 feet for Routes B, C and D.[89] Applicant requested a route width of up to 970 feet for Route E2, primarily to accommodate placement of the transmission line on either side of existing interstate highway right-of-way.[90]

95. The "right-of-way" is the distance on each side of the center line of the final alignment that is necessary for the Applicant to access the transmission line for repair and maintenance.

96. For overhead lines, the right-of-way assures sufficient clearance from the transmission line to trees, buildings and other objects, and takes into account the lateral movement of the lines due to wind. Adequate right-of-way also allows for safe tree maintenance. For underground lines, the right-of-way requirements allow for construction and maintenance of the concrete duct and splice vaults within which the transmission lines are installed. In addition, the clearance limits the planting of vegetation that could interfere with installation or maintenance. Some activities and installations, including sidewalks or roads, are allowed within the right-of-way.[91]

97. All route alternatives, both overhead and underground, are located primarily within public street right-of-way or the Midtown Greenway. Where a transmission line is adjacent to a street, the line would share the existing road right-of-way, requiring less easement from adjacent landowners, depending on road configuration and structure requirements.[92]

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[86] Ex. 1A at 55 (Application); Ex. 18 at 9 (Gallay Direct).
[87] Ex. 1A at 68, Table 8 (Application); Exs. 48 and 48A (Xcel Response to MGC IR No. 30, and Table 3).
[88] Minn. Stat. §§ 216E.01, subd. 8; 216E.02, subd. 1.
[89] Ex. 10 at 9 (Asah Direct).
[90] Ex. 10 at 9 (Asah Direct); FEIS at 52.
[91] Tr. Vol. 13 at 10-12 (Gallay); Ex. 172; FEIS at 51-52.
[92] FEIS at 52. Minn. Stat. § 216E.03, subd. 7 (e) (Minn. Laws 2010, ch. 288, §3, effective May 1, 2010) states that, for route permits filed after May 1, 2010, the Commission must consider locating a route on an

98. For Routes A1, B, C and E2, the Applicant requests right-of-way of 50 feet, or 25 feet on each side of the transmission structure for access to and maintenance of the structures and conductors. Routes B and C would have a cantilevered design, placing the conductors over the street side of these routes.[93]

99. Because Route B and Route C are cantilevered over the street and some buildings along those routes are not set back from the sidewalk, the distance from the transmission line to some buildings could be as little as 15 to 20 feet.[94] The Applicant anticipates that, in those locations, it would seek a 10 foot easement for right-of-way around the structures, and 25 feet on the street side.[95] NESC clearance requirements dictate a 25-foot right-of-way clearance on the conductor side (street side) of the structures on Route B and Route C. There is no NESC safety clearance minimum required for the side of the pole without the cantilevered arms and conductors.[96]

100. The Applicant requests a right-of-way of 30 feet, 15 feet on each side of the transmission line centerline, for underground alternatives Route A2, Route A3 and Route D.[97]

Substations

101. This Project requires two new substations. One of the substations, the Hiawatha Substation, would be located at the eastern end of the transmission line. The other, the Midtown Substation, would be located at the western end of the transmission line. The Applicant has proposed three locations for the Hiawatha Substation (Hiawatha West, Hiawatha East, and Zimmer Davis), and two locations for the Midtown Substation (Midtown North and Midtown South). The ATF identified five alternative locations for the Hiawatha Substation (G-1, G-2, G-3, G-4, and G-5), and two alternative locations for the Midtown Substation (Mt-28N and Mt-28S). The Applicant's preferred substation locations are Hiawatha West and Midtown North.[98] The Applicant determined that G-1 and G-5 are technically feasible, but not prudent alternatives, and that the remaining three sites, G-2, G-3 and G-4, are not technically feasible.[99] OES determined that sites G-1 through G-5 did not warrant further evaluation,[100] but some of the community groups expressed interest in them.

102. All substation locations are shown in Figure 1-1 of the FEIS.

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existing high voltage transmission route and parallel existing highway right-of-way. Although this Application was filed prior to the effective date of the amendment, in this case, all routes, except Route A1, follow road rights-of-way and the purpose of the Project is to bring high voltage transmission directly to a number of distribution lines within the Project Area.

[93] Ex. 172.

[94] Tr. Vol. 2 at 197 (Asah).

[95] Tr. Vol. 13 at 12-13 (Gallay); Ex. 172.

[96] Tr. Vol. 7 at 83-84 (Asah); Tr. Vol. 13 at 12-13 (Gallay).

[97] Ex. 1 at 59 (Application).

[98] FEIS at 42.

[99] Ex. 20 at 4 (McNelly Direct).

[100] Ex. 141 (DEIS) at 390.

Hiawatha Substation

103. The plan for the Hiawatha Substation includes: 1) four 115 kV transmission line dead-end structures and related substation equipment and structures; 2) one 13.8 kV transformer termination structure; 3) one 50 MVA, 118-14.4 kV, Load Trap Changer, LTC distribution transformer; 4) one switchgear enclosure containing six 13.8 kV distribution feeders with associated equipment; and 5) one electrical equipment enclosure containing all electrical controls, protective relaying and auxiliary equipment for the operation of the substation.[101]

104. The Applicant proposed a low-profile design for the Hiawatha Substation with 12-foot-high architecturally-designed walls on all four sides, a chain-link gate and a driveway.[102] In response to requests from community groups during the evidentiary hearing for increased green space around the substation, the Applicant offered a high-profile design, with four 20-foot architecturally designed walls.[103]

105. The proposed substation low-profile design would have a dimension of 253 feet x 392 feet, or 2.25 acres.[104] A high-profile design would have a smaller footprint, 233 by 261 feet.[105]

106. With a low-profile design, the substation's highest structure, a lightning pole with protection spike, would be 100 feet tall. The 115 kV low-profile structure would measure 57-67 feet. The 115 kV switch mounted on transmission line termination structure would measure 42 feet. All other structures on the substation site would measure between 14 and 22 feet in height.[106]

107. For a substation site to be adequate, it must be large enough to accommodate the substation equipment, the distribution duct bank systems and overhead or underground transmission lines.[107] For the Hiawatha Substation, four underground distribution duct lines are needed to house 15 feeder circuits that will be used to serve customer load. Each duct line route requires a minimum of 15 feet in width. If two ducts are co-located, 20 feet is required.[108]

108. The Applicant determined that the Hiawatha West, Hiawatha East and Hiawatha Zimmer Davis were technically feasible and prudent.[109]

(a) Hiawatha West Site – Applicant's Preferred Location

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[101] Ex. 20 at 6-7 (McNelly Direct).
[102] Ex. 20 at 6-7 (McNelly Direct); Tr. Vol. 6 at 101 (McNelly), FEIS at 79.
[103] Tr. Vol. 13 at 70-72 (Asah); Tr. Vol. 6 at 100 (McNelly); Ex. 169 (aerial depictions of alternative high-profile designs on the Hiawatha West site); Ex. 171.
[104] Ex. 1 at 24 (Application).
[105] Ex. 64 at 3-4 (Xcel Response to MGC IR No. 2); Tr. Vol. 5 at 14-15 (McNelly).
[106] FEIS at 77; *see also* FEIS at Figures 3-8 and 3-9 (proposed design layouts for Hiawatha West and Hiawatha East).
[107] Tr. Vol. 12 at 174-176 (Zima).
[108] Ex. 24 at 4 (Zima Rebuttal).
[109] Ex. 20 at 4 (McNelly Direct).

109. The Applicant prefers the Hiawatha West site for the Hiawatha Substation. The site is on the east side of Hiawatha Avenue, north of the intersection with East 28th Street.[110] The site is along the existing Elliot – Southtown 115 kV transmission line and would share that line's right-of-way. The Hiawatha West site abuts the Midtown Greenway.[111]

110. The site consists primarily of an undeveloped lot owned by MnDOT. MnDOT has stated that the property could be considered as surplus and sold, subject to the agency's statutory limitations for conducting a land sale. A small portion of the land is owned by Zimmer Davis and a small portion is owned by the Soo Line Railroad. The Applicant has not determined whether Zimmer Davis and the Railroad are willing to sell their property,[112] but Zimmer Davis has expressed its preference for the Hiawatha West site over the Hiawatha Zimmer Davis site.[113] Substation access would require an easement over the Zimmer Davis driveway on the south side of that property, or on railroad property, to Minnehaha Avenue. No demolition or business relocation would be required to construct the substation on the Hiawatha West site.[114]

111. The Hiawatha West site may be contaminated with arsenic related to the Heartland Superfund site, but no Phase II study, test wells or borings have been done to determine the extent of the contamination and the potential cost of cleanup.[115]

112. The Hiawatha West site contains existing underground fiber optic cables, a fiber optic control facility, and a rail spur used by the Metropolitan Council for delivery of light rail cars. The Metropolitan Council indicated in May 2010 that the rail spur track will be needed for future deliveries. The spur track may need to be relocated if the Hiawatha West location is chosen.[116]

113. Many neighborhood and community organizations have identified the Hiawatha West Substation site for redevelopment as a green space. In 2001, the Longfellow Community Council and the Corcoran Neighborhood Organization identified the need for additional green space and they also established the need for "brownfields to greenfields" conversion in the area. Its East End Revival Plan called for planting trees, establishing community gardens and making other green space improvements in the area. The Seward Longfellow Greenway Area Land Use and Pre-Development Study was completed in 2004 and approved by the Minneapolis City Council in 2007. It also identified the need for additional trees and green space in the industrial area near Hiawatha Avenue. The Minneapolis Park and Recreation Board Comprehensive Plan,

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[110] Ex. 20 at 3 (McNelly Direct).
[111] *See* FEIS at Figure 1-1.
[112] Tr. Vol. 13 at 94-96 (Asah).
[113] Ex. 130 (Davis Direct).
[114] FEIS at 44; Ex. 1 at 24-26; Ex. 118 at Sched. 10 (Hart Direct – Xcel Response to Longellow IR No. 1); Ex. 173.
[115] Tr. Vol. 12 at 20-22 (Seykora).
[116] OES Letter, May 27, 2010 (David Seykora).

passed in 2007, identified the area around the proposed location of the Hiawatha Substation as a redevelopment area in need of future park land.[117]

114. In 2007, the Martin Sabo Midtown Greenway Bridge was completed, giving bicyclists and pedestrians a safe route across Hiawatha Avenue. The Midtown Community Works Partnership, a coalition of government entities, the Midtown Greenway Coalition, and private businesses, developed plans and began to convert the area between 26th Street and 28th Street into a community green space. In April 2008, the area closest to the Sabo Bridge was planted with 234 trees and shrubs by over 200 volunteers. In April 2009, approximately 150 volunteers participated in planting 258 trees and shrubs covering about two thirds of the Hiawatha West site.[118] The majority of trees planted at the Hiawatha West location would be removed for substation construction.[119]

115. The plantings have been funded in part by grants to Hennepin County from MnDOT's Community Roadside Landscape Partnership Program.[120] MnDOT retains ownership of the property, but both MnDOT and the local community benefit from the plantings, which improve the view for drivers on the highway and the community members. At the present time there are no improvements such as restrooms, picnic tables, bike racks or a play area on the property and there are no plans to turn the area into a public park.[121]

116. If the current route of the Midtown Greenway bicycle trail is affected by the substation construction, the Applicant has agreed to reroute the trail.[122]

117. The Midtown Greenway Coalition plans to build a leg of the bicycle trail to connect to Lake Street on the western edge of the proposed site.[123] The Applicant has agreed that, if the Hiawatha site is selected, the substation design will include space for the possible expansion of the bicycle trail.[124]

118. Increased community interest in improving the area is reflected in the City's Pedestrian Overlay District, which includes a portion of the Hiawatha West site, and is incorporated into the City's zoning ordinances.[125]

(b) Hiawatha East Site

119. The Hiawatha East site is located at 2650 Minnehaha Avenue, northeast of the Hiawatha West site.[126] Its low-profile design would cover a footprint of

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[117] Ex. 118 at 2-5 (Hart Direct).
[118] Ex. 118 at 5-6 and Sched. 6 (Hart Direct).
[119] FEIS at 44.
[120] Exs. 230, 231, 233; FEIS at 113-14 (detailed explanation of the program).
[121] Tr. Vol. 7 at 189-91 (Springer).
[122] Ex. 118 at Sched. 10 (Hart Direct, Xcel Response to Longfellow Community Council IR No. 1).
[123] Ex. 36 at 30 (Springer Direct).
[124] Ex. 10 at 18 (Asah Direct).
[125] Ex. 234; Ex. 237 at 8. *See also* Minneapolis Code of Ordinances, §§ 551.110-551.175.
[126] Ex. 20 at 3 (McNelly Direct).

approximately 284 feet by 481 feet, or approximately 3.15 acres.[127] The headquarters of Crew2, a home services installation company that conducts business in 14 states, has been located on the Hiawatha East since 2003. Crew2 purchased the property and invested nearly $3,500,000 in construction costs for a 53,352 square foot building designed specifically to meet its needs. Crew2 also has two subtenants at the location.[128]

120. Crew2 employs 161 employees including many women and minority group members; 107 of them work at this site. Many of the employees live in or near the City of Minneapolis.[129]

121. No party offered evidence in support of the Hiawatha East site as a reasonable and prudent alternative to the Hiawatha West site.

(c) Zimmer Davis Site

122. In its Application, the Applicant identified the Hiawatha Zimmer Davis site at 2700 Minnehaha Avenue, east of the Hiawatha West Site, as a potential expansion area for the Hiawatha Substation to accommodate a 345 kV transmission line into the substation.[130] However, the 345 kV line is no longer part of the Applicant's 10-year plan nor is expansion of the substation.[131] In pre-filed testimony, the Applicant confirmed that there are no current plans to expand the Hiawatha Substation and that the Zimmer Davis site should be considered as an alternative Hiawatha Substation site.[132]

123. Zimmer Davis is an orthopedic implant sales and distribution company. It distributes its products to Minnesota, North Dakota, South Dakota, Nebraska and part of Wisconsin. Zimmer Davis's annual sales are approximately $90,000,000 and it employs approximately 55 people at the proposed substation site. Zimmer Davis moved to its current location in February 2006 from previous locations in Edina and Roseville. The site is important to its delivery system because it is centrally located with easy access to Hiawatha Avenue. Proximity to the Hiawatha Light Rail Line helps attract and retain its workforce. The Zimmer Davis building at the site is 50,400 square feet, which accommodates all of its operations with room for anticipated growth. The building has a 24-foot clearance that facilitates drive-in delivery truck loading and allows for efficient storage. Zimmer Davis purchased the building for $2,900,000, and made improvements totaling $1,250,000. Its total purchase price plus cost of improvements is $4,150,000. Zimmer Davis estimates that its moving expenses would total $200,000, and its business reestablishment expenses would total $50,000.[133]

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[127] Ex. 141 (DEIS) at 43.
[128] Ex. 98 at 1-3 (Firkus Direct); Ex. 101 at 5-6 (Nordness Direct).
[129] Ex. 99 (Evangelist Direct).
[130] Ex. 1A at 12 (Application).
[131] Ex. 10 at 6 (Asah Direct); Ex. 26 at 5 (Standing Direct).
[132] Ex. 20 at 4 (McNelly Direct); Ex. 11 at 1-2 (Asah Rebuttal).
[133] Ex. 130 at 1-6 (Davis Direct); Ex. 131 at 3 (Davis Surrebuttal).

124. Since it acquired the property in 2004, Zimmer Davis has cleaned up the property and attempted to make it environmentally sound for the surrounding community.[134]

125. The Zimmer Davis warehouse also houses three other businesses; it is fully occupied and utilized. Primary Holdings, Inc., a commercial leasing company operates out of the Zimmer Davis facility. Zimmer Davis and Primary Holdings, Inc., share employees but own separate assets for maintenance of the facilities and management of the properties. Primary Aviation, LLC, is a separate entity and airplane leasing business that operates from the site. [135]

126. Beginning in March 2010, Zimmer Davis signed a seven-year lease with Local Motion for 21,500 square feet at the Zimmer Davis facility. Approximately 45 full-time Local Motion employees work at the site.[136]

127. No party offered evidence in support of the Hiawatha Zimmer Davis site as a reasonable and prudent alternative to the Hiawatha West site.

(d) Five Substation Sites Proposed by the ATF

128. The ATF identified five possible alternative locations for the Hiawatha Substation, denominated G-1 through G-5. Sites G-1, G-2 and G-4 were originally considered by the Applicant but excluded from the Application because the sites were not large enough. OES did not consider any of the five alternatives to be viable, and did not include them in the DEIS.[137] There was little evidence offered about the sites, but the community organizations expressed interest in evaluating them, particularly Site G-4.

129. Site G-1 is located on vacant property on the southwest corner of Minnehaha Avenue and East 26th Street, approximately one-half block north of the Hiawatha East site. Although the site may be large enough to accommodate a modified high-profile substation design, the overall space may be insufficient to incorporate underground distribution facilities.[138]

130. No party offered evidence in support of G-1 as a reasonable and prudent alternative to the Hiawatha West site.

131. Site G-2 is located on the west side of 21st Avenue South, south of a building on East 28th Street. The G-2 site is approximately one block west of the Hiawatha West site. It is bordered on the west by the Pioneers and Soldiers Memorial Cemetery. The site is currently used as a parking lot. The site may be able to

[134] Ex. 131 at 3 (Davis Surrebuttal).
[135] Ex. 131 at 2 (Davis Surrebuttal).
[136] Ex. 131 at 1-2 (Davis Surrebuttal).
[137] Ex. 141 (DEIS) at 43; FEIS at 45-47, 430-33.
[138] Ex. 20 at 5 and Sched. 5 (Xcel Response to City IR No. 15) (McNelly Direct); FEIS at 45.

accommodate a high profile design, but the land is contaminated and is not large enough to be a technically viable alternative for the Hiawatha Substation.[139]

132. No party offered evidence in support of G-2 as a reasonable and prudent alternative to the Hiawatha West site.

133. Site G-3 is located on a triangular-shaped vacant property, located on the east side of Hiawatha Avenue and north of Lake Street. The site is adjacent to the south of the Hiawatha West site. The Soo Line Railroad occupies the site and has railroad tracks running through it.[140] MnDOT also owns a portion of the land and considers it surplus.[141] According to the Applicant, the site is not large enough to accommodate a low or high-profile substation design. To use the site for the smaller, high-profile design, the present railroad tracks would need to be removed entirely and all of the space between 2510 Lake Street East and Hiawatha Avenue would need to be available.[142]

134. No party offered evidence in support of G-3 as a reasonable and prudent alternative to the Hiawatha West site.

135. Site G-4 is located north of 32nd Street on Hiawatha Avenue. A portion of the site is owned by the Applicant and includes a building formerly used by the Applicant as a substation. Site G-4 also includes adjacent vacant land owned by MnDOT and the Soo Line Railroad. The Soo Line Railroad operates active rail lines adjacent to the G-4 site.[143] MnDOT leases its portion of the site to the Metropolitan Council, which uses it for parking associated with the Hiawatha Light Rail Line.[144] The Applicant has determined that the G-4 site is not adequate to route both transmission and distribution lines into and out of the site or to house the required substation equipment, even if the adjoining Soo Line Railroad land or the land owned by MnDOT were acquired.[145] This assessment was premised on accommodating three potential 50 MVA transformers and 15 distribution lines at the Hiawatha Substation.[146]

136. The Midtown Greenway Coalition, Longfellow, Seward, East Phillips, and Midtown Phillips favor the G-4 site if, during the Certificate of Need proceeding, it is determined that a smaller substation would be sufficient to meet the Applicant's need, and that the G-4 site would be adequate to accommodate the smaller substation.[147] The neighborhood associations believe that the use of the G-4 site would prevent the

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[139] Ex. 20 at 5 and Sched. 5 (Xcel Response to City IR No. 15) (McNelly Direct).
[140] Ex. 20 at 5 and Sched. 5 (Xcel Response to City IR No. 15) (McNelly Direct).
[141] Ex. 228 at 11.
[142] Ex. 141 (DEIS) at 44; FEIS at 432.
[143] Tr. Vol. 13 at 98 (Asah); Ex. 158 (Xcel Response to MGC IR No. 25); Ex. 212 A - I (Photos of G-4 site).
[144] Ex. 228 at 11.
[145] Tr. Vol. 13 at 20-21 (Gallay); Ex. 24 at 4 (Zima Rebuttal); Tr. Vol. 5 at 13 (McNelly); Ex. 20 at Sched. 3 (Xcel Response to MGC IR No. 25).
[146] Tr. Vol. 12 at 174 (Zima); FEIS at 432.
[147] Ex. 36 at 5, 30 (Springer Direct); Ex. 111 at 7 (Hart Direct); Ex. 209 at 10 (Mains Direct); Tr. Vol. 11 at 136 (Pass); Tr. Vol. 11 at 126 (Heyer).

loss of greenspace and the aesthetic problems and exposure to electromagnetic fields created by placement of the substation near the Midtown Greenway at the Hiawatha West site.[148]

137. In light of MnDOT's ownership of a portion of the G-4 site and its lease to the Metropolitan Council, the site may not be available to the Applicant for a substation.

138. Site G-5 is a long narrow strip of land adjacent to and east of Hiawatha Avenue and the light rail tracks, and north of 26th Street East. Although its total area is comparable to the Hiawatha West site, the shape precludes space for the four required distribution duct lines to exit the site toward the Project Area to the west.[149] It would require modification to the Applicant's standard switching and development of special operations and maintenance procedures. The Applicant is concerned that atypical or unfamiliar designs are riskier for the utility crews. Also, the current use of adjoining properties, including light rail transit and Hiawatha Avenue, makes access to the site more difficult.[150]

139. MnDOT previously owned a portion of the property but deeded it to the Metropolitan Council to support light rail operations along Hiawatha Avenue. The Metropolitan Council has spent $750,000 to prepare the site for planned construction of a building within the next 12 months.[151]

140. Due to its shape, location, and the Metropolitan Council's planned use for the property, the site may not be available to the Applicant for a substation.[152]

141. No party offered evidence in support of G-5 as a reasonable and prudent alternative to the Hiawatha West site.

Midtown Substation

142. The Midtown Substation would include the following facilities: 1) two 115 kV transmission lines and related substation equipment and structures; 5) one 70 MVA, 118-14.4 kV, LTC distribution transformer; 2) one electrical equipment enclosure containing 13.8 kV distribution switchgear with associated equipment or outdoor high profile steel box structures for the distribution transformer breaker position and feeders; and 3) one electrical equipment enclosure initially containing nine 13.8 kV distribution feeders with associated equipment, all electrical controls, protective relaying, and auxiliary equipment for the operation of the substation.[153]

143. There are four potential locations for the Midtown Substation, two identified by the Applicant and two identified by the ATF.[154] The Applicant determined

[148] *See e.g.*, Tr. Vol. 11 at 56 (Hart); Tr. Vol. 11 at 136 (Pass); Tr. Vol. 11 at 126 (Heyer).
[149] Ex. 24 at 4 (Zima Rebuttal).
[150] Ex. 21 at 2 (McNelly Rebuttal); Ex. 24 at 4-5 (Zima Rebuttal).
[151] Tr. Vol. 11 at 184-85 (Seykora); Public Ex. 8 (Letter from Metropolitan Council).
[152] FEIS at 433.
[153] FEIS at 47; Ex. 20 at 9-10 and Sched. 4 (McNelly Direct).
[154] FEIS at 48.

that the Midtown North and Midtown South sites were technically feasible and prudent, but that Mt-28N and Mt-28S are not.[155]

(a) Midtown North Site - Applicant's Preferred Location

144. The Applicant's preferred Midtown Substation site is the Midtown North site. It is located at the following addresses: 2840 Oakland Avenue (owned by the Applicant, and the former site of the Applicant's Oakland Substation, now razed); 2833 Portland Avenue (currently occupied by a condemned duplex); and 2841 Portland Avenue (vacant land owned by Brown Campbell, formerly owned by the Applicant).[156] The Applicant prefers the Midtown North site because it does not require removal or relocation of any ongoing businesses or occupied residences.[157]

145. The substation would be designed as a high-profile substation covering a footprint of approximately 145 feet by 238 feet, or approximately 0.8 acres. The site would be landscaped on the south, east, and west sides as practical and walled on four sides with a 20-foot wall with an architectural design.[158] The Applicant would install solid wood gates on both Oakland Avenue and Portland Avenue to allow access for construction and maintenance.[159]

146. Two of the properties at the site (2840 Oakland Avenue and 2841 Portland Avenue) include a 43-foot slope down to the Midtown Greenway.[160]

147. One of the stated objectives of the Midtown Greenway Land Use and Development Plan is the development of a premier public edge along both sides of the Greenway. A promenade and pedestrian walkway to access the Midtown Greenway are planned at the Midtown Substation location.[161] The Applicant has agreed to design the Midtown Substation to accommodate a pedestrian walkway along the south side of the substation. The design of the promenade and walkway would be determined once the design of the substation is finalized.[162]

148. During the public hearing on the DEIS, many landowners expressed concerns about the potential noise caused by the Midtown North Substation because this site is located near residential homes and the Midtown Greenway. In response, the Applicant commissioned a Noise Assessment to determine the existing ambient sound levels in the vicinity of the proposed Midtown North Substation site and to assess the potential noise impacts on the surrounding residential area and the Midtown Greenway when the Midtown Substation is operational. The study concluded that noise levels will

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[155] Ex. 20 at 8-9 (McNelly Direct); Ex. 11 at 6 (Asah Rebuttal).
[156] Ex. 10 at 18 (Asah Direct); *see also* FEIS Fig. 5.8-17 – 5.8-21 (simulated views of Midtown North Substation).
[157] Ex. 20 at 9 (McNelly Direct).
[158] Ex. 20 at 9 (McNelly Direct); *see also* FEIS Fig. 3-10 (Midtown North Substation Design).
[159] Tr. Vol. 4 at 136 (McNelly).
[160] Ex. 20 at 7 (McNelly Direct).
[161] FEIS at 144-145.
[162] Tr. Vol. 7 at 56 (Asah); Ex. 20 at 9 (McNelly Direct).

be in compliance with the State of Minnesota noise standards and will have a minimum impact on existing sound levels.[163]

149. The Phillips West Neighborhood Organization, which is the official citizen participation group for the area, opposes the Midtown North substation site.[164]

(b) Midtown South Substation Site

150. The Midtown South site is located across the Midtown Greenway from the Midtown North site on the southwest corner of Oakland Avenue South and 29th Street, an area that includes 2907 Portland Avenue and 2915 Portland Avenue, both owned and occupied by Brown Campbell Enterprises.[165]

151. The Applicant proposes a low-profile substation of about 245 feet by 249 feet (1.4 acres). There would be some difference in the design, as compared to the Midtown North substation. Because of the small size of the site, the Midtown North location would use metal clad switchgear installed inside of an electrical enclosure, while the larger Midtown South location would use outdoor distribution feeders.[166]

152. The height of the tallest structure at the Midtown North and Midtown South sites would be approximately the same, 56 to 67 feet.[167]

153. No party offered evidence in support of the Midtown South site as a feasible and prudent alternative to the Midtown North site.

(c) Midtown Substation Site Mt-28N

154. Site Mt-28N was proposed by the ATF and included in the EIS scoping.[168] Mt-28N is located at 2701 Wells Fargo Way, on the east side of I-35W, at 28th Street, four blocks west of the Midtown North and South Substations. A substation at this site would require expanded route lengths for Routes A, B, C, and D.[169]

155. Mt-28N is currently a private green space owned by Wells Fargo.[170] The space is more than five acres in size and is used for recreation by Wells Fargo employees. Access to the green space is available from Honeywell Plaza.[171]

156. Wells Fargo opposes selection of the Mt-28N site. The company is committed to its South Minneapolis campus, which employs approximately 4500 people, and it has plans to further develop the site.[172]

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[163] Ex. 12 at 3 and Sched. 14 (Asah Surrebuttal).
[164] Ex. 150 (Phillips West Neighborhood Organization Letter).
[165] Ex. 1A at 31 (Application); FEIS at 78.
[166] Ex. 20 at 11 (McNelly Direct).
[167] Ex. 64 at 4 (Xcel Supplemental Response to MGC IR No. 2); FEIS at 70, Table 3-3.
[168] Ex. 138 at 2, 5 (EIS Scoping Decision).
[169] Ex. 141 (DEIS) at 46.
[170] Ex. 127 at 2-3 (Olson Direct).
[171] Ex. 141 (DEIS) at 46.

157. The Applicant eliminated Mt-28N from its consideration because Wells Fargo and the public would oppose the development of the green space; high winds blowing from the west could deposit road salt on substation equipment and increase the risk of equipment corrosion and electrical equipment flashovers; the site may be needed for a possible expansion of I-35W; the Applicant would need to purchase more land in comparison to the Midtown North substation alternative; and the transmission line and distribution lines would need to be longer.[173]

158. Selection of the Mt-28N site may interfere with MnDOT's plans to expand I-35W near 28th Street.[174]

159. As compared to the Midtown North site, Mt-28N would require longer transmission lines along Routes A, B, C or D and there would be fewer options for locating the feeders.[175]

160. No party offered evidence in support of the Mt-28N site as a feasible and prudent alternative to the Midtown North site.

(d) Midtown Substation Site Mt-28S

161. Substation site Mt-28S, located at 2840 4th Avenue South, was proposed by the ATF. Mt-28S is located on the east side of I-35W, bordered to the north by East 28th Street and to the south by East 29th Street. The Mt-28S Substation would be located four blocks west of the Midtown North and South sites and would require expanded route lengths for Routes A, B, C and D. The site is owned by Wells Fargo and used as a parking lot.[176]

162. Wells Fargo opposes the Mt-28S site and has plans to expand its existing parking ramp onto the site, near 28th Street.[177]

163. The Mt-28S site was analyzed in the DEIS, but the Applicant rejected it for the same reasons that weighed against the Mt-28N site.[178]

164. As with the Mt-28N site, the Mt-28S site may interfere with MnDOT's plans to expand I-35W near 28th Street.[179]

165. No party offered evidence in support of the Mt-28S site as a feasible and prudent alternative to the Midtown North site.

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[172] Ex. 127 at 2-4 (Olson Direct).
[173] Ex. 20 at Sched. 3 (Xcel Response to MGC IR No. 25); Ex. 141 (DEIS) at 78-79; *see also* FEIS at 46-47.
[174] Tr. Vol. 12 at 28-29 (Seykora); Ex. 238.
[175] Tr. Vol. 6 at 26-29 (Zima).
[176] Ex. 141 (DEIS) at 47; Ex. 127 at 2-3 (Olson Direct).
[177] Ex. 127 at 2-3 (Olson Direct).
[178] Ex. 141 (DEIS) at 47-48.
[179] Tr. Vol. 12 at 28-29 (Seykora); Ex. 238.

Project Schedule and Costs

166. At the time the Application was filed, the Applicant intended to begin preconstruction activity in the fourth quarter of 2010 and to complete the Project in the first quarter of 2012.[180]

167. In light of the legislation enacted in 2010, the Applicant must obtain a Certificate of Need for this Project. If the Applicant is granted a Certificate of Need and obtains the necessary state and local permits by the fourth quarter of 2011, preconstruction activities would begin in the first quarter of 2012 and the Project would be completed in the second quarter of 2013.[181]

168. The Applicant's estimated total cost for the Project, depending on route selection, is between $28.2 million and $40.9 million. The cost estimates include materials, construction, right-of-way acquisition and project management.[182]

169. The costs break down as follows:

Route A1	$2,800,000	
Route A2	$13,600,000	
Route A3	$12,700,000	
Route B	$4,600,000	
Route C	$5,700,000	
Route D	$15,500,000	
Route E2	$4,700,000	
Hiawatha Substation		$14,270,000
Midtown Substation		$11,120,000[183]

170. The costs are subject to change with the final route and site selection, timing of construction, availability of crews, cost of land, relocation costs, and mitigation, including substation design.

171. Route A1 is the least expensive alternative; it is less expensive than the other overhead alternatives because it covers the shortest distance. All aboveground alternatives are less expensive than any of the underground alternatives; Route D is the most expensive alternative.

Position of the Parties

172. The Applicant maintains its preference, as stated in its Application, for Route A and the Hiawatha West and Midtown North substation sites. It finds any of the three proposed alignments for Route A acceptable. In its Post-Hearing Brief, it added

[180] Ex. 9.
[181] Ex. 9.
[182] Ex. 18 at 10 (Gallay Direct).
[183] Ex. 18 at 11 (Gallay Direct). These numbers differ from the FEIS at 54, which appear to be taken from Ex. 1A at 18 (Application). Since Mr. Gallay's testimony was filed after the Application, his figures are the basis for this finding.

that if an underground design best satisfies the routing criteria, Route D would be a reasonable and prudent alternative for consideration.[184]

173. The Midtown Greenway Coalition represents an area encompassed by the Midtown Greenway and surrounding areas. Its board of directors includes one representative from each of the 17 neighborhoods along Lake Street/Midtown Greenway.[185] It favors selection of Route D, as close to the center of the street as feasible. It supports treating the underground transmission line as a "standard facility," with costs charged to the Applicant's Midwest rate base. If the Commission determines that the need for future additional transformers at the Hiawatha Project substation is not established in the Certificate of Need proceedings, the Midtown Greenway Coalition's position is that the Hiawatha substation should be located at the G-4 site. If the need for future transformers is established, it favors the Hiawatha West site, and the Midtown North site, subject to certain conditions that address the design of the substations, the protection of historic resources, the restoration or replacement of green space, and that will further community development plans and minimize the impact on land use, human settlement and natural resources.[186]

174. The City of Minneapolis favors selection of underground Route D. It supports treating the underground transmission line as a "standard facility." It takes no position on the location of the two substations.[187]

175. Crew2 supports the Hiawatha West location for the Hiawatha Substation. It takes no position on the transmission line route, the location of the Midtown Substation or whether the transmission facilities should be overhead or underground.[188]

176. Hennepin County objects to all of the overhead routes and supports any of the underground alternatives, Route A2, Route A3 and Route D. It takes no position on the location of either substation.[189] On June 2, 2009, HCCRA adopted a resolution opposing placement of overhead transmission lines on its Midtown Greenway property and requested that the underground transmission lines be treated as "standard facilities" and the costs spread across the Applicant's Minnesota rate base.[190]

177. Little Earth is located within the East Phillips neighborhood, bounded by E.M. Stately Street on the south, 18th Avenue South on the west, 24th Street East on the North, and Hiawatha Avenue on the east.[191] It played a limited role in the proceeding. The testimony of Lori Ellis was received into the record, stating that Little Earth does not support any overhead route, and that Route D is the least objectionable. It supports treating the underground transmission line as a "standard facility." It is concerned that

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[184] Xcel Energy's Post-Hearing Brief at 3.
[185] Petition to Intervene, Midtown Greenway Coalition (June 19, 2009).
[186] Ex. 36 at 28-29 (Springer Direct); Ex. 8, Sched. 3 at 20-22 (Mirzayi Direct); *See also* Post-Hearing Brief of the Midtown Greenway Coalition at 2-4.
[187] City of Minneapolis's Post Hearing Brief.
[188] Intervenor Crew2 Inc.'s Proposed Supplemental Findings of Fact and Conclusions of Law at 1.
[189] *See* Post-Hearing Brief of Hennepin County at 1.
[190] Ex. 8, Sched. 3 at 70-71 (Mirzayi Direct); *see also* Ex. 143 at 70 (Comments to DEIS).
[191] *See* Tr. Vol. 11 at 44 (Ellis).

the need for the Hiawatha project has not been demonstrated and that the age and condition of the existing distribution system should be examined to determine if upgrading it will address the Applicant's claimed need.[192] Its attendance at the contested case hearing was limited to the presentation of Ms. Ellis's testimony. Some members of Little Earth testified at the public hearings in opposition to an overhead transmission line.

178. Longfellow is a nonprofit, citizen participation group for the Longfellow, Cooper, Howe and Hiawatha neighborhoods of South Minneapolis. It is bordered by the Mississippi River on the east, the northern boundary of Minnehaha Park on the south, Hiawatha Avenue on the west, and the 27th Street railroad tracks on the north.[193] Longfellow played a limited role in the proceeding. The testimony of Eric D. Hart was received into the record, stating that Longfellow took a position only on the location of the Hiawatha Substation, and not on the other components of the Project. Longfellow opposes the Hiawatha West site and favors the G-4 site, if it is feasible, largely because its selection would be consistent with Longfellow's support for increased green space within its boundaries.[194] Its attendance at the contested case hearing was limited to the presentation of Mr. Hart's testimony. Some members of the Longfellow neighborhood testified at the public hearings.

179. Seward neighborhood is bounded by I-94 to the north, the Mississippi River to the east, 27th Street East on the south, and Hiawatha Avenue on the west.[195] Seward supports selection of Route D, as close to the center of the street as feasible, and supports treating the underground transmission line as a "standard facility." Like Midtown Greenway Coalition, Seward prefers the G-4 site for the Hiawatha substation if it is determined during the Certificate of Need process that it is large enough. If not, it favors the Hiawatha West site with certain conditions to reduce the impact on the Midtown Greenway and adjacent green space and to enhance the substation's design.[196]

180. Corcoran neighborhood is bounded by 36th Street East on the south, Cedar Avenue South on the west, Lake Street East on the north, and Hiawatha Avenue on the east.[197] Corcoran played a limited role in the proceeding. The testimony of Eric Gustafson was received into the record stating that Corcoran opposes Route C or routing through the Midtown Greenway.[198] Its attendance at the contested case hearing was limited to the presentation of Mr. Gustafson's testimony, and some members of the public stated their opposition to Route C.

181. Wells Fargo takes no position on the transmission line route, except that it agrees with the Applicant that Route E2 is not a reasonable and prudent alternative to

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[192] Ex. 203.
[193] Petition to Intervene, Longfellow Community Council (Sept. 30, 2009).
[194] Ex. 118; Ex. 8, Sched. 3 at 13-16 (Mirzayi Direct).
[195] Petition to Intervene, Seward Neighborhood Group, Inc. (Dec. 14, 2009).
[196] Ex. 209 (Mains Direct); *See also* Seward Neighborhood Group Incorporated's Post Hearing Brief.
[197] Petition to Intervene, Corcoran Neighborhood Organization (Dec. 23, 2009).
[198] Ex. 152; Ex. 8, Sched. 3 at 17 (Mirzayi Direct).

Route A. It takes no position on the location of the Hiawatha Substation site. It agrees with the Applicant that Midtown Substation sites Mt-28N and Mt-28S are not reasonable and prudent alternatives to the Midtown North site.[199]

182. Midtown Phillips neighborhood is bounded by Lake Street East on the south, Chicago Avenue on the west, 24th Street East on the north, and Bloomington Avenue South on the east. Midtown Phillips supports selection of Route D. Like Midtown Greenway Coalition, Midtown Phillips prefers the G-4 site for the Hiawatha substation if it is determined during the Certificate of Need process that the G-4 site is large enough. If not, it favors the Hiawatha West site with certain conditions to reduce the impact on the Midtown Greenway and adjacent green space and enhance the substation's design. It supports the selection of the Midtown North site, subject to certain conditions that address the design of the substation, protection of historic resources, the restoration or replacement of green space, and that will further community development plans and minimize the impact on land use, human settlement and natural resources. It also proposes a condition to require the Applicant to develop additional energy conservation efforts for the Phillips neighborhoods.[200]

183. East Phillips neighborhood is bounded by Lake Street East on the south, Bloomington Avenue South on the west, 24th Street East on the north, with some extension north to 22nd Street east, and Hiawatha Avenue on the east.[201] East Phillips supports selection of Route D, located as close to the center of the street as possible. Like the Midtown Greenway Coalition, East Phillips prefers the G-4 site for the Hiawatha substation if it is determined during the Certificate of Need process that it is large enough. If not, it favors the Hiawatha West site with certain conditions to reduce the impact on the Midtown Greenway and adjacent green space and enhance the substation's design. East Phillips supports treating the underground transmission line as a "standard facility," with the costs spread across the Applicant's Midwest rate base. It opposes any encroachment by the Midtown Substation site on the Midtown Greenway trench. East Phillips joins Midtown Phillips in support of a condition to require the Applicant to develop additional energy conservation efforts for the Phillips neighborhoods.[202]

184. Zimmer Davis opposes use of the Zimmer Davis property as a site for the Hiawatha Substation because of the disruption and expense to its business and employees and because of the negative impact on the City's economy and development efforts. It prefers the Hiawatha West, G-1 and G-5 sites because those sites are vacant.[203]

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[199] *See* Wells Fargo Bank N.A.'s Proposed Findings of Fact and Conclusions of Law at 2.
[200] Ex. 8, Sched. 3 at 31 (Mirzayi Direct); *See also* Midtown Phillips Neighborhood Association Proposed Findings of Fact, Conclusion of Law and Recommendations.
[201] Petition to Intervene, East Phillips Improvement Coalition (Jan. 21, 2010).
[202] Ex. 149 at 15 (Pass Direct); *see also* East Phillips Improvement Coalition Proposed Findings of Fact, Conclusions of Law and Recommendations.
[203] Ex. 130 (Davis Direct).

Minnesota Department of Transportation

185. A utility must obtain a MnDOT Utility Permit to occupy highway right-of-way, including interstate right-of-way, for crossings and longitudinal installations. Applicant's proposed routes require utility permits because they cross or parallel highway right-of-way.[204]

186. On March 10, 2010, MnDOT provided comments concerning the DEIS to OES. MnDOT expressed concerns regarding the proximity of the proposed transmission lines to highway right-of-way and how the proximity would affect MnDOT's maintenance and reconstruction or new construction of roads and interchanges. MnDOT also expressed concern that it would be required to pay relocation costs if utilities within the interstate highway right-of-way must be moved in the future.[205]

187. Each of the preferred and alternate route proposals would need to cross Hiawatha Avenue (Trunk Highway 55). The Applicant will need a permit from MnDOT to complete this crossing. MnDOT routinely grants utility permits and the crossings rarely pose insurmountable difficulties. With the exception of Routes E1 and E2, MnDOT does not anticipate any difficulties that would prevent it from being able to grant a permit for this Project, with appropriate conditions, for the crossing of Hiawatha Avenue.[206]

188. MnDOT would not grant a permit for Route E1 because it would run down the center of I-94. As noted in the DEIS, the permitting of Route E1 would be inconsistent with Minn. Rules part 8810.3300, subpart 4, and the MnDOT Accommodation Policy.[207]

189. It is also unlikely that MnDOT would grant a permit for Route E2. Route E2 runs parallel to I-35W and I-94 and a portion of Hiawatha Avenue north of Cedar Avenue that has been constructed to freeway standards. Normally, the poles and arms of poles must be located outside the right-of-way boundary line. If the poles or arms are located to occupy a portion of the right-of-way, the Applicant would need to seek an exception to the standard rule and concurrence by the Federal Highway Administration (FHWA) would be necessary for any exception that may be granted. Some of the locations along I-35W and I-94 associated with Route E2 are narrow and noise walls have been installed along most of the route. There are also a number of bridges over and under the freeways along Route E2 and the location of the transmission line would significantly impact future maintenance and construction activities on the bridges. It is unlikely that MnDOT would be able to grant the exceptions required for the line to occupy portions of the interstate right-of-way parallel to I-35W or I-94.[208]

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[204] *See* Ex. 228 (Letter from David Seykora, Mar. 10, 2010, revised).
[205] Ex. 228.
[206] Ex. 228.
[207] Ex. 228.
[208] Ex. 228.

190. MnDOT owns portions of the properties located at the Hiawatha West, G-3, G-4, and G-5 substation locations. MnDOT indicated that if any of those properties were selected for the substation, MnDOT would request that the property be investigated for possible contamination before the sale. If cleanup would be required as part of the site development, MnDOT would request that the purchaser of the property provide a Response Action Plan for site development and a letter of approval from the MPCA under the Voluntary Investigation and Cleanup Program before transfer of ownership to ensure that contaminated materials would be managed by the purchaser during and after site development.[209]

191. MnDOT considers the property at the Hiawatha West and G-3 sites as surplus and those parcels may be available for sale, but asserts that Site G-4 and Site G-5 are not available because of agreements in effect with the Metropolitan Council.[210]

Public Comments

192. Many individuals submitted comments in this proceeding. The ALJ received more than 100 written comments. Approximately 75 people spoke at four public hearings held on April 5 and 6, 2010, and 16 written exhibits were offered at those hearings. The comments fall into general areas, summarized below.

Certificate of Need and the Use of Alternative and Renewable Energy Sources

193. Many people questioned the need for the Project.[211] Janet Nye, a member of the West Phillips Neighborhood Group, objected to the entire project because the need has not been established. She stated that the population and economy in Minneapolis are not growing and there are many unoccupied condominiums in the Phillips neighborhood that use energy without benefiting anyone.[212]

194. Crystal Trutnau, on behalf of the Phillips West Neighborhood Organization, stated that the proposed transmission line will not alleviate the blackouts and outages and that she believes that the Applicants have misled the affected residents.[213]

195. Amanda Dlouhy commented that the project is a waste of resources because it is outdated. Instead, she suggested that the Applicants should implement a smart grid to upgrade the distribution system.[214]

196. Many people commented that more research into the use of alternative sources of energy is needed before the project goes forward.[215] Liza Guerra O'Reilly

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[209] Ex. 228; FEIS at 86.
[210] Ex. 228.
[211] Comment, Lynn Balfour, Apr. 21, 2010.
[212] Tr. Apr. 5, afternoon, p. 92-93; *see also* Test. of Jim Cook, Tr. Apr. 5, afternoon, p. 94-96 (questioning whether need has been established).
[213] Tr. Apr. 5, afternoon at 66.
[214] Tr. Apr. 6, afternoon at 48-54.

urged the Commission to require a study of alternative energy systems that includes the implementation of conservation and local electricity generation as a condition of any route permit.[216] Angelina Matias-Vazquez stated that the EIS is deficient because it does not address renewable energy, energy efficiency or energy conservation.[217]

197. Sarah Graham spoke on behalf of Little Earth. She requested upgrades to the distribution system and compensation to the neighborhood. She accompanied a group of children from Little Earth who explained their preference for an underground transmission line.[218]

198. Liza Guerra O'Reilly requested an analysis of the number of "green" jobs that could be created with the money spent on this project. Five jobs using new and "green" technology could be created for every one in the traditional energy sector.[219]

199. Some people questioned whether this is one project, or just a portion of a larger project that is yet to be proposed. The commenters suggested that the Applicant's plans for expansion of the proposed line should be more thoroughly assessed.[220]

200. Numerous people questioned why the lines should be run through the Midtown area when the line will serve other areas of the city.[221]

Health Effects and Electromagnetic Fields

201. Many people opposed the proposed overhead lines because of the ill-health effects, or the potential for ill-health effects.[222] Kathy Nixon commented that the Phillips neighborhood is so densely populated that it would be irresponsible to put overhead lines through it because of the potential health effects.[223]

202. Ben Colla, who lives at 3100 23rd Avenue, stated that Route C along 31st Street would run approximately 20 feet from his bedroom window. There are houses all along 31st Street that would be in close proximity to the lines. He supported undergrounding the lines to avoid any ill-health effects from the electromagnetic fields.[224]

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[215] *See e.g.*, Tr. Apr. 5, evening, Peggy McKenna at 39; Tr. Apr. 6, evening, James Brown at 76; Tr. Apr. 6, evening, Sean Gosiewski at 84-85; Comment, V. Bruce Stenswick, received Apr. 29, 2010; Comment, Doug Hill, Apr. 14, 2010; Comment, Lee Penn, Apr. 6, 2010.
[216] Tr. Apr. 6, evening at 78.
[217] Tr. Apr. 5, afternoon at 74.
[218] Tr. Apr. 6, evening at 68-69.
[219] Tr. Apr. 6, evening at 79.
[220] *See e.g.*, Tr. Apr. 5, evening, Cam Gordon at 44-45; Tr. Apr. 5, afternoon, Carol Overland at 96-117.
[221] *See e.g.*, Comment, Ben Colla, Apr. 16, 2010.
[222] *See e.g.*, Tr. Apr. 6, evening, Joe Hesla at 85-86; Comment, Karolyn Redoute, Apr. 5, 2010.
[223] Comment, Apr. 14, 2010.
[224] Comment, Apr. 16, 2010.

Area Demography and Revitalization

203. Many people commented that the Project Area is densely populated, multiracial, multicultural and low-income.[225] State Representative Karen Clark stated that she was concerned about the environmental justice issues, and she was disappointed that the DEIS paid minimal attention to them. Low-income people and people of color are disproportionately impacted by exposure to environmental contamination. The Phillips neighborhood may be the only residential Superfund site in the country, contaminated by arsenic left from an old pesticide plant. People and children in the area also have higher concentrations of lead and higher rates of asthma than people and children in nearby communities. Before the Hiawatha Project proceeds, Representative Clark believes that a cumulative health impacts analysis should be conducted.[226]

204. Angelina Matias-Vazquez commented that children comprise forty percent of her neighborhood population, and that the project will therefore disproportionately affect women and children.[227]

205. Cam Gordon, Minneapolis City Council Member, stated that he is concerned about the health effects of the high-voltage line, especially because there is a growing consensus that the lines are associated with childhood cancers and leukemia. The area is densely populated and there are many children in the area under the age of five. Even the perception that the lines cause ill-health effects will have a serious impact on where people choose to live and where they choose to go for recreation. The Midtown Greenway has been successfully redeveloped into a linear park and the entire Midtown area has become revitalized. If the lines go in overhead, there will be reduced investment in the area.[228]

206. Gray Schiff, Minneapolis City Council Member, stated that in the last forty years, the Midtown area has struggled with violent crime, gangs, poverty, environmental pollution, slum lords, and human trafficking. Now the City Council and Met Council have approved many land use plans to revitalize the area. The Applicant's preferred route follows a transit corridor with a bike route and future streetcar alignment. The proposed transmission lines could jeopardize the transit-oriented development. The City of Minneapolis has spent millions of dollars to clean up polluted industrial land over the last several decades. Schiff supported Route D and Hiawatha Substation sites G3, G4 and G5. In his opinion, the low-income neighborhoods in East Phillips and Midtown Phillips are not causing the need for new energy infrastructure. Rather, the population growth in South Minneapolis has increased the need. Council Member Schiff expressed concern that the Applicant chose the Midtown area, not because the area

[225] *See e.g.*, Tr. Apr. 5, evening, Peggy McKenna at 39.
[226] Tr. Apr. 6, evening at 87-97; Public Ex. 15.
[227] Tr. Apr. 5, afternoon at 71.
[228] Tr. Apr. 5, evening at 41-43; *see also* Tr. Apr. 6, evening, Linda Jensen at 73 (noting aesthetic feature of Greenway and successful housing and commercial redevelopment of Midtown area and Hiawatha corridor).

has the highest need, but because the poverty ratio in the Midtown neighborhoods would blunt opposition. Council Member Schiff opposes construction of the transmission lines over an inner-city neighborhood that has embraced revitalization.[229]

207. Robert Lilligren, Vice President of the Minneapolis City Council, represents two neighborhoods in the Midtown area – Ventura Village and Phillips West. He stated that his ward is the most densely populated of all the wards in Minneapolis, and that his community should not be required to bear the costs for a project that benefits so many people. Over forty percent of his constituents are foreign-born; about seventy percent are people of color; about forty percent live in poverty; approximately forty percent are children. These segments of the population are vulnerable to environmental injustice and they need special consideration and protection. The Midtown community has emerged from economic blight into a thriving community. Lilligren supports undergrounding the lines and requiring the substations to have a low profile on the smallest footprint possible.[230]

208. Elizabeth Glidden, Minneapolis City Council Member, stated that if homes are in the "fall zone," the residents might be unable to qualify for FHA insurance on their mortgages. The area impacted by the proposed lines faces livability challenges and much effort has gone into attracting development into the area. She fears the lines would deter development and "redline" an entire area of the city.[231]

209. Many people commented that overhead lines would demoralize the people who live and recreate in the area and have contributed to its revitalization.[232] Carole Patrikakos commented that the progress the Phillips residents have made and the ownership they feel in the revitalized community are threatened by the lines. She is afraid that if the lines go overhead, the residents who are able will leave. The newfound community pride should not be jeopardized by this project.[233]

Route A

210. Pat Christensen supported placing the transmission lines underground along Route A2. He opposed overhead lines or underground lines in the Greenway because they would inhibit future use. He stated that the Greenway corridor should be reserved for bus, light rail, bike and pedestrian traffic.[234]

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[229] Tr. Apr. 6, evening at 38-45; *see also* Tr. Apr. 6, evening, Richard Sandford at 57 (opposing the placement of the lines near the Greenway because of future transportation plans).
[230] Tr. Apr. 6, evening at 48-53; *see also* Tr. Apr. 6, evening Elizabeth Glidden at 62-63 (noting that area of impact is densely populated).
[231] Tr. Apr. 6, evening at 61-65.
[232] *See e.g.,* Comment, Mary Novak, Apr. 20, 2010; Comment, Lynn Balfour, Apr. 21, 2010.
[233] Comment, undated.
[234] Comment, Apr. 5, 2010.

Route C

211. Kris Schafer opposed Route C because it runs through a residential neighborhood and because 31st Street is narrow.[235]

Undergrounding Generally and Route D

212. Many people supported undergrounding the lines for aesthetic, health, and economic development reasons.[236] Clark Hauschildt requested that the lines be placed underground as part of a concerted effort to place all the utility lines within the city underground.[237]

213. Jim Baker stated that undergrounding is essential because of the future transit that will be installed near the Greenway. He stated that if the lines are put overhead and then transit is installed, the corridor could easily become a utility corridor rather than the peaceful corridor with minimal infrastructure that it is now.[238]

214. Peter Eichten, President of Midtown Phillips and board member of Midtown Phillips Neighborhood Association, supported Route D, and stated that the Route should run under the street, not the sidewalk. He stated that the residents in the area have been successful in creating affordable and livable housing for lower and middle class residents. Putting power lines overhead through the populated neighborhood would decrease the value and negatively affect its beauty.[239] Kevin Loecke supported Route D and stated that the lines should go underneath the street as opposed to the sidewalk to increase the distance from the lines to adjacent residences and minimize the potential negative health impacts of magnetic fields.[240]

215. Linda Jensen supported Route D because her daughter bikes to South High School everyday on the Greenway. Transportation is not provided to students who live within two miles of school, so many students bicycle along the Midtown Greenway. It is much safer to ride along the Greenway than along Lake Street or any other thoroughfare.[241]

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[235] Tr. Apr. 5, evening at 45.
[236] *See e.g.,* Comment, Brook Lemm-Tabor, Apr. 2, 2010; Comment, Reuben Collins, Mar. 29, 2010; Comment, Candace Carlson, Apr. 2, 2010; Comment, Joani Essenburg, Apr. 5, 2010; Comment, Ilana and Mike Favero, Apr. 15, 2010, Comment, Sarah Heggestuen, Apr. 2, 2010; Comment, Sonia Meade, Apr. 16, 2010; Comment, Kate Sterner, Apr. 8, 2010; Comment, Ami and Jon Thompson, Apr. 10, 2010; Comment, Margaret Vaillancourt, Apr. 17, 2010; Comment, Crystal Rance, Apr. 16, 2010.
[237] Comment, Apr. 5, 2010.
[238] Comment, Apr. 15, 2010.
[239] Tr. Apr. 5, afternoon at 60-61; *see also*, Tr. Apr. 5, afternoon, Crystal Trutnau at 67 (supporting Route D, under the street); Tr. Apr. 5, afternoon, Amanda Dlouhy at 68 (supporting Route D, under the street); Tr. Apr. 5, evening, Steve and Rachel Maves at 32-34 (supporting Route D); Tr. Apr. 5, evening Peggy McKenna at 39 (supporting undergrounding); Tr. Apr. 6, evening, Mark Jensen at 56 (supporting undergrounding); Tr. Apr. 6, evening, Jose Carter at 62 (supporting undergrounding); Tr. Apr. 6, evening, Will Thomas at 71.
[240] Comment, Apr. 12, 2010.
[241] Tr. Apr. 6, evening, at 72-73.

216. The East Phillips Improvement Coalition submitted a petition opposing the overhead lines. The Petition stated, in English and Spanish, "We oppose and will fight any overhead power lines in our community. This is dangerous, unfair and wrong!! They must go underground or not at all!!!" The petition was signed by 161 people.[242]

217. State Senator Linda Berglin, who represents the constituents affected by the proposed routes and substations, supported Route D. She stated that an overhead line would negatively affect the health and welfare of the low income population that she represents, and that the line would benefit people of higher incomes who do not live in the area but use more power. The affected area is densely populated, and largely low income, people of color, and children. A disproportionate number of the children suffer health effects including asthma and lead poisoning. The possibility of discharges and electric and magnetic fields could complicate the environmental health of the neighborhood. An overhead line could create fear, make the neighborhood an undesirable place to live and work and discourage investment in housing and businesses. The health, economic and environmental considerations require the line to be placed underground with the cost should be allocated statewide.[243]

218. Ruth Jones supported Route D. She is a NSP shareholder, but she supports the underground line, despite the expense, because it is the better policy choice and because she believes there will be further development and expansion of the lines to the west.[244]

219. Rosemary Frazel supported Route D. She stated that much of the need for electricity is because of the medical establishments in the area, and those are organizations that people from around the metro and state use for specialized medical services. Thus, in her opinion, the cost of undergrounding should be spread to all the ratepayers.[245] Linda Jensen also commented that the cost to bury the lines should be borne by all ratepayers rather than restricting the financial impact only to neighborhoods that would be affected by overhead lines.[246] Joyce Vincent supported undergrounding and commented that the cost should be spread over the seven county metro area so that ratepayers closest to the transmission lines do not have to bear the full burden.[247]

220. V. Bruce Stenswick, a resident of Eden Prairie, stated that if the people of South Minneapolis want an underground line, the people of Minneapolis, and not other ratepayers, should pay for it. He stated that he has a high voltage overhead line in his neighborhood and it does not bother anyone.[248]

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[242] Comment and Petition, Carol Ann Pass, May 10, 2010.
[243] Tr. Apr. 5, afternoon at 62-64.
[244] Tr. Apr. 5, afternoon at 64-66.
[245] Tr. Apr. 6, evening, p. 67-68.
[246] Tr. Apr. 6, evening, p. 75.
[247] Apr. 2, 2010.
[248] Comment, V. Bruce Stenswick, received Apr. 29, 2010.

The Midtown Greenway

221. Many people commented that the perception that overhead lines pose health problems would prevent people from living in the area and inhibit future residential, industrial or recreational development.[249]

222. Michael Hogan commented that if the lines run overhead near the Midtown Greenway, recreational users will choose to bike in other areas of the Twin Cities, and Minneapolis will lose the revenue that the bikers generate.[250]

223. Brian Finstad commented that the Midtown Greenway is an amazing amenity in the city and that it was created by the hard work and dedication of many. To install the line and degrade it would demoralize those who contributed to its success and stimulated revitalization along the corridor.[251]

224. James Howitt, on behalf of the Soo Line Community Garden (SLCG), opposed any overhead lines near the Midtown Greenway. The SLCG has 115 members who garden allotment plots and maintain public green space between Garfield and Harriet Avenues, immediately north of the Midtown Greenway, but west of the Project Area. SLCG predated the Greenway, and its members have witnessed a dramatic transformation of the entire corridor from urban blight to a linear chain of green spaces through a part of the city that has little public green space or personal yard space. Each year SLCG members volunteer over 500 hours to maintain the public areas of SLCG. High voltage power lines running through the corridor would ruin the aesthetics and be reminiscent of its former blighted appearance. The lines should be underground to protect the work of the volunteers who are attempting to beautify and revive this part of the city. The PUC must not set a precedent that urban recreation space can be used at will for industrial purposes.[252]

225. Many others commented that they are proud of the Midtown Greenway and concerned that overhead lines would detract from its use and enjoyment.[253] The Greenway is a heavily used city park and routing power lines through other city parks, like Rice Park or Loring Park, would never allowed.[254] Sarah Wineke who lives in the Corcoran neighborhood commented that she and her family use the Midtown Greenway as a connection to the Grand Rounds bike trail.[255] Christine Tuhy commented that

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[249] *See e.g.*, Tr. Apr. 5, afternoon, Amanda Dlouhy at 68-69; Tr. Apr. 5, evening, Gwen Steel at 34-35; Tr. Apr. 6, evening, Pam Barnard at 36-37; Tr. Apr. 6, evening, Steve Sando at 45; Comment, Dan Cohen, Apr. 2, 2010; Comment, Steve Gjerdingen, Apr. 9, 2010.
[250] Comment, Apr. 16, 2010.
[251] Comment, Apr. 5, 2010.
[252] Apr. 14, 2010; *See also* Tr. Apr. 5, evening, Leslie Everett at 30; Comment, Mark Ambroe, Apr. 6, 2009; Comment, Steve Gjerdingen, Apr. 9, 2010.
[253] *See e.g.*, Comment, Dianne Carlson, received May 11, 2010; Comment Carole Patrikakos, Apr. 13, 2010; Comment, Nick Bissen, Apr. 7, 2010; Comment, Dave Donovan, Apr. 5, 2010; Comment, Jason Edmonds, Apr. 23, 2010; Comment, Dave Donovan, Apr. 5, 2010.
[254] *See e.g.*, Comment, Michael Hogan, Apr. 16, 2010; Comment, Mary Mortenson, Apr. 7, 2010.
[255] Comment, Apr. 5, 2010; *see also* Comment, Apr. 7, 2010.

when she bikes the Greenway with her family she is proud of her city and state and that the Greenway represents taking life at a healthy pace, connecting to the community, respecting the environment and caring for the body. Because of the associated health risks, she would feel uncomfortable biking near transmission lines.[256]

226. Joseph Spangler urged the Commission to require the Applicant to study the lines' adverse effects on the Midtown Greenway because it is a national historic district.[257]

227. Jim Howitt stated that he bikes along the Midtown Greenway every day, nine months out of the year. He does not support putting the lines over or under the Greenway because construction along the trail will lead to restrictions and closures and unlike drivers, bikers cannot use alternative routes. Past construction detours have interfered with the Greenway's safety or convenience.[258]

Substations Generally

228. State Senator Linda Berglin stated that the substations should be placed on vacant land to avoid disrupting existing businesses.[259]

229. Many people commented that the substations should be designed with aesthetic considerations in mind so they blend into the surroundings as much as possible.[260]

Hiawatha Substation

230. Peter Eichten, on behalf of Midtown Phillips, opposed the Hiawatha West site because neighbors have planted more than 250 trees and shrubs near the site in the last year.[261] Kevin Loecke also opposed the Hiawatha West site because of the plantings. He stated that urban green space is too limited and the community planting should not be thought of as conveniently disposable.[262]

231. Rosemary Frazel supported the use of the Hiawatha G-4 Site.[263]

232. Minneapolis City Council Member Cam Gordon stated that the City has determined that the industrial area on the east side of Hiawatha Avenue should be set aside as an employment zone. He opposes forcing any of the existing businesses to move.[264]

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[256] Apr. 14, 2010.
[257] Tr. Apr. 6, evening, p. 47-48.
[258] Tr. Apr. 6, evening, p. 53-55.
[259] Tr. Apr. 5, afternoon, p. 64.
[260] *See e.g.*, Tr. Apr. 5, evening, Rachel Maves at 33-34; Comment, Lee Penn, Apr. 6, 2010.
[261] Tr. Apr. 5, afternoon, p. 61; *see also* Tr. Apr. 6, evening, Pam Bernard at 37.
[262] Apr. 12, 2010.
[263] Tr. Apr. 6, evening at 67.
[264] Tr. Apr. 5, evening at 44.

Midtown Substation

233. Crystal Trutnau, on behalf of Phillips West Neighborhood Organization, opposed the Midtown Substation because it is not supported by the Organization's land use plan.[265]

234. Amanda Dlouhy, who lives and works within blocks of the proposed Midtown Substation site, opposed the Midtown Substation because it would require the demolition of homes that are available for rehabilitation, and it would be near homes that have been rehabilitated by community groups. She is concerned that the substation would pose a safety hazard because it would be a vacant structure in the middle of a residential neighborhood, and fears that construction of the substation would interfere with plans to develop a walkway access to the Midtown Greenway. She also opposes any site that would take away employment in the neighborhood.[266]

Advisory Task Force

235. Liza Guerra O'Reilly took umbrage with the composition of the OES Advisory Task Force. She stated that OES provided for three groups that included local units of government, political subdivisions, and non-governmental organizations (NGOs). The NGOs selected by the OES failed to include any members of the groups disproportionately impacted by the proposed lines. There were no persons selected from the American Indian, Latino, African or African-descent communities. There were no women in the NGO representation. The makeup of the Advisory Task Force discriminated against people of color, indigenous people and women. She believes that the Commission should reconvene the Task Force so that the communities that were arbitrarily excluded can be included.[267]

Notice

236. Brenda Probasco opposed the lines because there was insufficient notice to the non-English speakers who live, work or recreate in the proposed area. There was little or no representation of the Hispanic or Somali population at the public hearings. She asked that the power lines not be built until further awareness of the project and negative impacts is developed.[268]

Criteria for Route Permit

237. The Power Plant Siting Act requires that route permit determinations "be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric

[265] Tr. Apr. 5, afternoon at 66-67.
[266] Tr. Apr. 6, afternoon at 48-54.
[267] Tr. Apr. 6, evening, p. 81-83.
[268] Comment, Apr. 12, 2010.

energy security through efficient, cost-effective power supply and electric transmission infrastructure."[269]

238. Under the Act, the Commission and ALJ must be guided by the following responsibilities, procedures and considerations:

> (1) evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;
>
> (2) environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;
>
> (3) evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;
>
> (4) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;[270]
>
> (5) analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;
>
> (6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;
>
> (7) evaluation of alternatives to the Applicant' proposed site or route proposed pursuant to Section 216E.03, subdivisions 1 and 2;
>
> (8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;
>
> (9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;
>
> (10) evaluation of future needs for additional high voltage transmission lines in the same general area as any proposed route, and the advisability of ordering

[269] Minn. Stat. § 216E.03, subd. 7.
[270] This subfactor is inapplicable because Applicant has not applied for a route permit for a large electric generating plant.

the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;

(11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved; and

(12) when appropriate, consideration of problems raised by other state and federal agencies and local entities.[271]

239. In addition to the Power Plant Siting Act, Minn. R. 7850.4000 provides that no route permit may be issued in violation of site selection criteria and standards found in Minnesota Statutes or Public Utilities Commission Rules. Power line permits must be consistent with state goals to minimize environmental impact and conflicts with human settlement and other land use. The Commission and ALJ are governed by Minn. R. 7850.4100, which provides for the following factors to be considered when determining whether to issue a route permit for a high voltage transmission line:

A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

B. effects on public health and safety;

C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

D. effects on archaeological and historic resources;

E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;

F. effects on rare and unique natural resources;

G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

I. use of existing large electric power generating plant sites;[272]

J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

K. electrical system reliability;

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[271] Minn. Stat. § 216E.03, subd. 7.

[272] This criterion is inapplicable because the Applicant has not applied for a permit for a large electric generating plant.

L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;

M. adverse human and natural environmental effects which cannot be avoided; and

N. irreversible and irretrievable commitments of resources.[273]

240. State agencies are required to consider environmental factors before making decisions, including the routing of high voltage transmission lines, that potentially have significant environmental effect, and shall not make a decision that is likely to cause pollution, impairment, or destruction of a natural resource so long as there is a feasible and prudent alternative consistent with the public health, safety and welfare.[274]

241. It is the State's policy to preserve important historic, cultural and natural aspects of our heritage and diversity.[275]

242. There is sufficient evidence in the record for the ALJ to assess the proposed routes and alternatives using the criteria set out above.

Application Of Statutory And Rule Criteria

Effects on Human Settlement

243. Minnesota statutory and rule criteria require consideration of the proposed route's effect on human settlement, including displacement of residences and businesses, noise created during construction and by operation of the Project, and the routes' impact on aesthetics, cultural values, recreation and public services.[276]

Socioeconomic characteristics

244. The following table summarizes the population and economic characteristics of the proposed area, based on the 2000 U.S. Census data.[277] Minority groups constitute a large percentage of the total population. Per capita incomes within the neighborhoods in the Project Area are, in general, lower than those found throughout Hennepin County and the City of Minneapolis, and the percentage of population below poverty level is generally higher than those found throughout the County and City.

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[273] Minn. R. 7850.4100.
[274] Minn. Stat. § 116D.04, subd. 6; *People for Environmental Enlightenment and Responsibility, Inc. (PEER) v. Environmental Quality Council*, 266 N.W. 858, 864 (Minn. 1978).
[275] Minn. Stat. § 166D.02, subd. 2.
[276] Minn. Stat. § 216E.03, subd. 7(b); Minn. R. 7850.4100(A).
[277] Ex. 1A at 82, Table 13 (Application).

Population and Economic Characteristics

Location	Population	Minority Population (Percent)	Caucasian Population (Percent)	Per Capita Income	Percentage of Population Below Poverty Level
State of Minnesota	4,919,479	10.6%	89.4%	$23,198	7.90%
Hennepin County	1,116,200	19.5%	80.5%	$28,789	8.30%
City of Minneapolis	382,618	34.9%	65.1%	$22,685	16.92%
Central Neighborhood	8,150	74.3%	25.7%	$11,400	29.49%
Corcoran Neighborhood	4,228	47.1%	52.9%	$15,700	15.70%
Longfellow Neighborhood	4,972	28.7%	71.3%	$19,100	9.36%
Phillips Neighborhood	19,805	68.4%	31.6%	$10,200	32.33%
Powderhorn Park Neighborhood	8,957	50.1%	49.9%	$8,957	14.56%
Seward Neighborhood	7,174	34.9%	65.1%	$19,200	26.99%

245. Few jobs will be created by construction of the transmission lines. Approximately four to six workers can construct the transmission lines in approximately 15 weeks.[278]

Economic Development

246. Several neighborhoods within the Project Area have development plans, incorporated into the City of Minneapolis's comprehensive plan.[279] These include the Midtown Greenway Land Use and Development Plan; the Midtown Minneapolis Land Use and Development Plan; the Phillips West Master Land Use Plan; the Seward Longfellow Greenway Area Land Use and Predevelopment Study; and the Hiawatha/Lake Station Area Master Plan.[280] Each of the area plans calls for increased development along the Midtown Greenway.[281] In recent years, there has been significant economic growth and reinvestment in the Project Area.[282]

247. The City of Minneapolis and Hennepin County are concerned that the proposed overhead lines may adversely affect the ability of potential homeowners and

[278] Ex. 1A at 83 (Application).
[279] Ex. 97 at 3-4 (Mogush Direct).
[280] Exs. 40, 85 - 88.
[281] Tr. Vol. 8 at 108-116 (Mogush).
[282] Ex. 185; Tr. Vol. 8 at 157 (Berkholtz); FEIS at 206.

developers to obtain financing. Specifically, Federal Housing Administration (FHA) and Housing and Urban Development (HUD) guidelines may preclude financing for development along the streets where an overhead transmission line is routed.[283]

248. FHA guidelines, as specified in the HUD Handbook, prohibit mortgage support for homes in the fall zone of high voltage transmission towers or support structures. To qualify for FHA mortgage insurance on loans made by FHA-approved lenders for single-family or multi-family homes, the dwelling may not be located within the "fall distance" of a transmission line pole, interpreted by the FHA to be a distance equivalent to the transmission pole height.[284] A property might be outside the engineered fall distance if the tower structures are designed to fall so that the fall distance is actually less than the tower height, for example by collapsing inward, or if the tower structures are designed to fall in a certain direction.[285]

249. As part of the FHA appraisal, the appraiser must indicate whether the dwelling is located within the easement serving a high-voltage transmission line. If it is located within the easement, the underwriter must obtain a letter from the owner of the tower that the dwelling is not located within the tower's engineered fall distance to waive this requirement. If the dwelling is located outside the easement, the appraiser must note and comment on the effect on marketability resulting from the proximity to site hazards and nuisances. The property must be free from site hazards that could affect the health and safety of the occupants or affect the structural soundness of the improvements, including high voltage transmission lines.[286]

250. Although the Applicant is not aware of an instance where an FHA loan was denied for a single family home due to proximity to a transmission line, it acknowledged that it has provided assurance letters to the FHA in some instances that the transmission line construction meets all applicable codes and requirements.[287] It also asserts that a homeowner or developer can seek a waiver, but the FHA has the discretion to deny financing if its concerns about location are not met.[288]

251. The City has had difficulty obtaining FHA financing for the Longfellow Station Apartments, a project near 38th Street and Hiawatha Avenue. One of the issues raised by HUD, among many, was the proximity to the existing power lines along Hiawatha Avenue.[289] The proposed Longfellow Station Apartments would be approximately 14 feet from the 115 kV Hiawatha - Southtown line.[290]

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[283] FEIS at 224; Ex. 92 at 5 (Berkholtz Rebuttal); Ex. 117 at 5 (Cramer Direct); Tr. Vol. 10 at 74-76; (Cramer); Tr. Vol. 9 at 148-49 (McLaughlin); Ex. 10 at 25-26 (Asah Direct).
[284] FEIS at 224; Ex. 74, Sched. 8 (Berkholtz Direct).
[285] FEIS at 225.
[286] FEIS at 225.
[287] Ex. 10 at 26 (Asah Direct).
[288] Tr. Vol. 8 at 169-171 (Berkholtz).
[289] Ex. 10, Sched. 8 (Asah Direct) (Letter from HUD, June 24, 2009); Ex. 187 (Letters from HUD, Jan. 15, 2010 and Mar. 25, 2010).
[290] Tr. Vol. 8 at 161-162 (Berkholtz); Exs. 186 and192 (aerial photo of location of proposed Longfellow Station apartments).

252. The underground alternatives, Route A2, Route A3 and Route D, are not subject to the concerns regarding FHA and HUD financing.[291]

253. The Applicant claims that residential development has occurred in suburban areas after or at the same time that transmission lines were installed.[292] However, the photographs offered into the record do not depict residential areas with the density or small lot size of the Project Area.[293] Most of the pictured transmission lines run well behind the residences or with sufficient space for landscaping to screen the transmission lines, and none of the lines are within 20 feet of the front façade of the pictured homes.[294] Other photos depict a transmission line running through a light industrial setting, at some distance from the highlighted business, more similar to the area to the east of Hiawatha Avenue.[295]

254. Steve Cramer is the current Executive Director of Project for Pride in Living, a non-profit organization that provides low and moderate income individuals and families with services to become self-sufficient, including affordable rental and home ownership programs. Previously, Mr. Cramer served on the Minneapolis City Council, he was Executive Director of the Minneapolis Community Development Agency and Director of Housing, Community Works and Transit for Hennepin County, and also served as a member of the Fannie Mae National Housing Impact Advisory Committee.[296] In his positions, he has worked on many development projects in Minneapolis and is very familiar with the Project Area and its neighborhoods. In his opinion, based on his experience and knowledge, installation of an overhead transmission line would have a detrimental impact on redevelopment and investment in the Area. Overhead transmission lines would crowd and overwhelm adjoining land because of their size and stigmatize the area as less desirable, detracting from further redevelopment and investment. Much of the impact would be avoided with placement of the transmission line underground.[297]

255. Retail stores, museums, theaters, restaurants and the Midtown Greenway attract visitors to the Project Area. None of the alternatives would directly affect these resources, except as addressed in the section on aesthetics.

Economic Justice

256. The neighborhoods within the Project Area are some of the City's most challenged for housing, economic development, poverty and contamination. The Project Area has become increasingly ethnically diverse, and has low per capita

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[291] FEIS at 224.
[292] Tr. 13 at 56-66 (Asah).
[293] Ex. 11 at 5 (Asah Rebuttal) (comparison of Minneapolis population density with Maple Grove and Arden Hills).
[294] Ex. 198; Ex. 93 at 2-6 (Berkholtz Surrebuttal); Tr. Vol. 13 at 135 (Berkholtz).
[295] Ex. 188 A and B.
[296] Ex. 117 at 1-2 (Cramer Direct).
[297] Ex. 117 at 4-6 (Cramer Direct).

income.[298] The area contains arsenic contamination, and high rates of lead poisoning and asthma hospitalizations, tied to environmental contamination.[299]

257. The planning study that led to the Proposed Project examined a 22-square mile area of South Minneapolis, including areas of high load density along Lake Street, Hiawatha Avenue, Chicago Avenue and Park Avenue.[300] The benefits of the Proposed Project will extend throughout South Minneapolis, including the area in closest proximity to the proposed transmission lines and substations.[301]

258. The burden of the Proposed Project will fall on the persons who live and work closest to the Project Area, a narrow corridor that runs north and south of Lake Street, between Hiawatha Avenue and I-35W.

259. The Midtown Greenway is an overwhelmingly popular improvement to the Project Area that benefits the diverse neighborhood and provides its residents with a recreational amenity. By placing the transmission line underground, the negative impact of placing an unattractive, large-scale transmission line can be avoided. Because of its proximity to the Midtown Greenway, the Applicant's preferred route A1 would have the greatest negative impact on the people living throughout the Project Area. All of the overhead routes would place the overhead transmission line in close proximity to hundreds of people. The underground alternatives, Route A2, Route A3 and Route D, would have a significantly smaller impact on the area residents. Also, although the effect of overhead transmission lines on home values may be difficult to measure, close proximity (within 200 to 300 feet) is one of the factors that deflates home value.[302]

260. Generally, in the densely populated Project Area, longer overhead routes affect more residential neighborhoods and more residential structures.

261. Selection of an underground alternative will mitigate the harm to the neighborhood that may be caused by overhead transmission lines.

Displacement

262. In a dense area, such as the Project Area, any of the alternatives will come quite close to many single-family and multi-family residences, as reflected in the following chart.[303]

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[298] Tr. Vol. 9 at 49-52 (Berkholtz); Ex. 92 at 4-5 (Berkholtz Rebuttal); FEIS at 209, Table 5.4-9, Income Characteristics.
[299] Tr. Apr. 6, evening, Rep. Karen Clark at 87-97; Public Ex 15.
[300] Ex. 1B, Appx. D3 at 8, Fig. 3.1; D3 at 24, Fig. 4.3 (Application).
[301] Ex. 1B, Appx. D3 at 65, Fig. 7.1 (Application); Tr. Vol. 5 at 164 (Zima); Tr. Vol. 1 at 76-77 (Mirzayi).
[302] FEIS at 210-12.
[303] EX. 257 (Xcel Energy 2nd Supp. Resp. to MGC IR No. 3); *see also* FEIS at 93, Table 5.1-1, "Properties in Proximity to Overhead Transmission Structures."

Hiawatha Project Residences Near Transmission Line Routes						
Transmission Line Route	Type of Structure	0-25 Feet[304]	25-50 Feet	50-100 Feet	100-200 Feet	200-500 Feet
Route A (Aboveground)	Single Family Multi-Family	0 3	2 6	13 14	56 37	169 157
	Total Estimated Dwelling Units[305]	245	262	439	575	968
Route A2 (Underground)	Single Family Multi-Family	0 2	0 4	13 15	58 47	176 161
	Total Estimated Dwelling Units	219	263	333	606	975
Route A-Alignment A3	Single Family Multi-Family	0 0	3 1	6 9	41 42	171 152
	Total Estimated Dwelling Units	0	7	373	655	1094
Route B	Single Family Multi-Family	35 48	39 56	119 111	203 171	438 348
	Total Estimated Dwelling Units[2]	335	356	1084	1352	2114
Route C	Single Family Multi-Family	31 46	47 61	135 130	238 214	532 389
	Total Estimated Dwelling Units	206	190	540	787	1702
Route D (Center of Street)	Single Family Multi-Family	0 0	40 35	52 47	95 86	193 183
	Total Estimated Dwelling Units	0	189	254	421	1023
Route D (North Sidewalk)	Single Family Multi-Family	15 15	20 17	55 48	89 93	197 183
	Total Estimated Dwelling Units	83	93	256	416	1012
Route D (Northern side of 28th Street)	Single Family Multi-Family	13 15	18 16	48 45	89 86	161 164
	Total Estimated Dwelling Units	69	77	230	391	943
Route E-2	Single Family Multi-Family	24 75	28 82	40 90	62 132	124 343
	Total Estimated Dwelling Units	730	723	1032	1404	2203

[304] Structures and associated dwelling units may be included in more than one cell of the chart. Thus, values from each cell cannot be summed to estimate an aggregate number of structures or dwelling units.
[305] Estimates are based on Hennepin County parcel data, customer records of Northern States Power Company, and other data.

263. Routes A, B, C and D would not displace any homes. Route E2 would require the removal or displacement of 63 structures, including apartment buildings, houses, mixed use structures and garages.[306]

264. While it is unlikely that Route B and Route C would require displacement of residences, both would have a greater impact on human settlement than either Route A or Route D because both Route B and Route C require construction of two single-circuit transmission lines along separate rights-of-way. There are approximately 483 landowners located on or adjacent to the proposed right-of-way for Route B and 312 landowners located on or adjacent to the proposed right-of-way for Route C. In comparison, Route A1 has approximately 54 landowners located on or adjacent to the proposed right-of-way and Route D has 180 landowners. Route B is also located within 200 feet of two places of worship and one school and Route C is located within 200 feet of eight places of worship and one school.[307] Routes B, C and E2 have a greater impact on human settlement than Route A or Route D.[308] After construction, the underground routes would have the least effect on human settlement.

265. Along Route D, the distance from the centerline to adjacent residences would be approximately 12 to 115 feet, depending on the selected alignment.[309]

Noise

266. The Minnesota Pollution Control Agency (MPCA) has established standards for the regulation of noise levels. For residential, commercial and industrial land, the MPCA noise limits are 60-65 A-weighted decibel (dBA) during the day and 50-55 dBA during the night.[310]

267. The City of Minneapolis has established a noise ordinance that incorporates by reference the MPCA's noise standards and prohibits activities that generate sound, regardless of frequency, more than 10 dBA above the ambient noise level when measured within any dwelling unit.[311]

268. The Applicant will design the transmission line to conform to the noise limits established by the MPCA and the City of Minneapolis.[312]

269. There will be a barely perceptible hum from the transmission lines, particularly in damp weather. The noise would be eliminated if the transmission lines were placed underground.[313]

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[306] Ex. 10, Sched. 3 at 1 (Asah Direct).
[307] Tr. Vol. 1 at 173 (Asah).
[308] Ex. 10, Schedule 3 at 2 (Asah Direct); Ex. 11 at 8 (Asah Rebuttal).
[309] Ex. 54 (Xcel Response to MGC IR No. 17).
[310] Minn. R. 7030.0040-7030.0050.
[311] Ex. 1A at 78 (Application).
[312] Ex. 10, Sched. 3 (Asah Direct).
[313] Tr. Vol 2 at 16 (Asah); FEIS at 380, 387.

Aesthetics

270. Placement of an overhead high voltage transmission line through a heavily populated area will have a significant aesthetic effect.

271. The Midtown District is characterized by industrial and transportation uses. However, the transmission structures would introduce modern features out of size and scale to the existing buildings and distribution lines in the area. The majority of the building structures in the Project Area range from one to three stories; with some taller commercial and residential buildings. The tallest building in the Project Area is the 16-story central tower of the Midtown Exchange, approximately 210 feet in height.[314]

272. In 2006, HCRRA completed a study to determine how transit development might affect the CM&St.P Historic District. The *Cultural Landscape Management and Treatment Guidelines for the Chicago Milwaukee and St. Paul Grade Separation Historic District of the Midtown Corridor, Minneapolis, Minnesota*, is based in part on the National Park Service's and Secretary of the Interior's Standards and Guidelines for Historic Preservation. The guidelines can be applied to proposed projects to determine the potential impact.[315]

273. In most respects, Route A1, Route A2 and Route A3 will meet the guidelines, but there are some exceptions. Route A2 may have an impact on the granite retaining wall at two locations, depending on the final construction design. Construction of Route A2 and Route A3 would altar the slopes of the trench during construction. Care would need to be taken to adequately document the slopes so that they could be restored.[316]

274. Route A1 would introduce new structures that would not be compatible with the Historic District's character. Unlike modern light standards and the historic wood utility poles, the proposed transmission line is not comparable in scale to the trench or to the surrounding buildings. The proposed structures would be several times taller and much wider in girth than the existing or historical utility lines, and out of scale with the surrounding setting. The height of the proposed transmission line greatly exceeds the height of nearly all nearby structures, with the exception of the Midtown Exchange and the South Side Destructor smoke stack. The transmission line would compromise the views from the street and from the CM&St.P Historic District trench.[317]

275. To attempt to mitigate the aesthetic effect of the transmission poles, the Applicant will consider using rust-colored structures or wood poles.[318] Also, the

[314] Ex. 1A at 80 (Application).
[315] Ex. 15, Sched. 10 at 76 (Stark Surrebuttal).
[316] Ex. 15, Sched. 10 at 77-94, 96-97 (Stark Surrebuttal).
[317] Ex. 15, Sched. 10 at 68-69, and Fig. 49 (Stark Surrebuttal) (Visual representation of transmission line from the Midtown Greenway at 17th Avenue).
[318] Tr. Vol. 4 at 117-118 (Gallay); Ex. 10 at 13 (Asah Direct).

Applicant would relocate the existing distribution lines along 29th Street and place them underground if Route A1 is chosen [319]

276. The mass and material of the transmission structures, along with the proximity of the structures to the sidewalk, would not be consistent with the streetscape that pedestrians typically encounter in the city. Although the materials used for the transmission structures may be consistent with the materials used for some of the light industrial buildings along 29th Street, the scale would not be consistent with these structures, nor would it be consistent with the Art Deco style of the tallest building, the Midtown Exchange. The potential alignment of Route A1 along the north side of the Midtown Greenway between Chicago Avenue and the Midtown Substation would not be separated from the adjacent parcels by a street. Transmission structures would not be consistent with a pedestrian promenade or residential housing.[320]

277. The structures and transmission lines would distract from the enjoyment and appreciation of views of the Midtown Greenway. Placing them above the Midtown Greenway trench would be contrary with the historical purpose of lowering the trench below street level to remove the industrial use from view. Adding transmission structures would compromise the "integrity of setting, feeling and association and result in an adverse effect to views from the historic property."[321]

278. Placement of a pole along Route A1 at the southwest corner of Park Avenue would also obstruct important views from the Zinsmaster building along Park Avenue.[322] The Applicant agreed that the pole could be shifted to the east, away from Park Avenue, to eliminate the obstruction.[323]

279. Along Route B, existing overhead distribution lines parallel the streets. In some places, the distribution line structure would be removed and that line would be supported by the new transmission line structure. This may lower the height of some lines, increasing the number of buildings where the distribution lines will pass through the field of vision for the building residents. Also, the larger transmission structures would take up much of the boulevard. Along Route B, many of the existing two-story homes have shallow front and side yards and a street that is pedestrian-scaled and residential in character. The mass and materials of the transmission structures, along with the proximity of the structures to the sidewalk, would not be consistent with the streetscape typically encountered by pedestrians.[324]

280. Route B would also pass on the north edge of a park, within 10 feet of a church, along the campus of Abbott Northwestern Hospital and past large, historic mansions. The material and scale of the transmission lines would not be consistent

[319] Ex. 1A at 81 (Application); FEIS at 327-28.
[320] Tr. Vol. 3 at 26-27 (Stark); Tr. Vol. 10 at 100-01 (Mathis); FEIS at 326-27 and Fig. 5.8-3 and 5.8-5.
[321] Ex. 15, Sched. 10 at 69 (Stark Surrebuttal).
[322] Ex. 15, Sched. 10 at 98 (Stark Surrebuttal).
[323] Ex. 12 at 1 (Asah Surrebuttal).
[324] FEIS at 330-31 and Fig. 5.8-11 and Fig. 5.8-12.

with those settings.[325] Of special note, Route B would come within 10 feet of the west-facing façade of the American Swedish Institute. While not the primary entrance to the building, this façade has high quality architectural detailing. Route B would also pass within 40 feet of the Institute's north side, and approximately 10 feet from its ornamental fencing.[326]

281. Like Route B, there are existing distribution lines along Route C. Where the proposed transmission lines would be located near the existing distribution line structure, the distribution line structure would be removed and the line supported by the new transmission line structure. This will effectively lower the height of the distribution line and increase the number of buildings, including residential buildings, that have lines within the residents' field of vision.[327]

282. Along 28th Street, the transmission structures would be placed in the boulevard; along 31st Street, the structures would be placed in or behind the sidewalk. The diameter of the transmission structures at the street level will be 2.5 feet to 3.5 feet. Because of the narrow to nonexistent boulevard along 31st Street, Route C would require special construction with narrower than normal structure bases. The structures would significantly alter the sidewalks, and as with Route B, many of the houses have small front or side yards, which brings the buildings close to the street. The mass and materials of the transmission structures, in close proximity to the sidewalks, would be inconsistent with the residential character of the street or with the streetscape that pedestrians typically encounter. Also, the existing trees would be trimmed to a height of 15 feet, with a severe impact on their form and aesthetics.[328]

283. On 31st Street, the transmission structures and lines would pass the YWCA, South High School and the high school's athletic fields. Along both 31st Street and 28th Street, the route would pass many homes and a number of churches. Route C would also pass along a portion of the north side of the Midtown Greenway.[329]

284. The aesthetic impact of Route D will depend on its alignment. If it runs under the street, it will have no long-term impact. If it runs under the adjoining sidewalk, trees and other vegetation in the boulevard will be lost along the north side of 28th Street and the west side of Oakland Avenue, and the large trees could not be replaced.[330]

285. The aesthetic impact of Route E2 may be minimal if the alignment would fall on the highway side of the noise barrier walls. However, in light of MnDOT's concerns about use of the right-of-way, it is more likely that the transmission lines would be placed on the residential side of the noise barrier walls. As with Routes B and C, such lines would not be consistent with the pedestrian-scaled and residential character of the neighborhoods. The transmission structures may also interrupt the residents'

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[325] Ex. 1B Appx. B.4.6 (Application); FEIS at 331-33.
[326] FEIS at 331-32.
[327] FEIS at 333-34.
[328] FEIS at 334-36.
[329] FEIS at 334-35.
[330] FEIS at 336.

view of the downtown skyline, particularly for residents on the upper floors of apartment buildings.[331]

286. Underground alternatives Route A2, Route A3 and Route D would have less visual or other aesthetic impact after construction than the overhead options.[332] Routes A2 and A3 could alter the retaining walls in the Midtown Greenway; Route D could require removal of trees along the north side of 28th Street if the alignment were placed under the sidewalk.

287. The visual effect of the overhead lines on residences in the Project Area would not be comparable to the photographs of existing transmission lines that the Applicant offered into the record.[333] All of the residential areas depicted in the photographs were less dense, the lines were farther away from the residences than they will be from residences nearest the transmission lines in the Project Area, and most of the transmission lines pictured ran behind the residences and not in front of them.

Cultural Values

288. The Midtown area in South Minneapolis is rich in cultural diversity. It is diverse not only in ethnicity but age, class and race. Lake Street, which runs through the heart of the midtown area, hosts businesses including East and West African, East Asian, Latino, Scandinavian, small-scale ethnic enterprises and large American chain stores. Large and small early turn-of-the-twentieth-century homes are co-located with recent large-scale multi-unit housing. Public schools, private religious and art schools, museums, and the Swedish Institute are located in the area, along with major employers, including Abbott Northwestern Hospital, Childrens Hospital, Wells Fargo Mortgage and Allina.

289. The proposed transmission lines are intended to serve the region with a stable power supply without compromising the area's cultural values. However, there was a great deal of concern about the effect that the Project could have on the adjoining neighborhoods, regardless of the route selected.

Recreation

290. The greatest potential impact of Route A on recreation would be on the Midtown Greenway, a popular bicycle and pedestrian trail. The Midtown Greenway is a 5.7 mile shared bicycle and pedestrian path that travels through the City of Minneapolis from the St. Louis Park border on the west to West River Parkway near the Mississippi River on the east, and connects to many more miles of bicycle trails.[334]

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[331] FEIS at 337-38; Ex. 11, Scheds. 11 and 12, showing possible pole placements (Asah Rebuttal).
[332] Ex. 15, Sched. 10 at 68-69 (Stark Surrebuttal).
[333] Ex. 198 (photographs).
[334] Ex. 102 at 4 (McLaughlin Direct).

291. Between 1993 and the present, Hennepin County, the City of Minneapolis and the federal government invested over $20 million to develop and build the Midtown Greenway bike trail and the Sabo Bridge, which allows bicycles and pedestrians to safely pass over Hiawatha Avenue and the Hiawatha Light Rail Line.[335]

292. Bicycle use along the Midtown Greenway varies with the seasons but is generally increasing for both recreation and commuting. Average daily use exceeded 4000 bikers in July 2008; year-around bike traffic averages about 2,000 trips per day, and continues to rise. Greenway bike usage exceeds the auto traffic on 80 percent of all city streets. [336]

293. Route A1 and Route A2 run along the top slope of the Midtown Greenway, on or adjacent to the Midtown Greenway at street level.[337]

294. As proposed, Route A3 would run along the north side of the Midtown Greenway trench. It would run directly under the bicycle and pedestrian paths between 10th Avenue and 12th Avenue.[338] Construction of A3 would be done in short segments of 100 to 150 feet. Two segments are opened at once to allow for adjustment and alignment of the line. Thus, 200 to 300 feet of the trench would be open at one time. It typically takes one to two days to open a segment, prepare the segment for the duct bank, pour concrete and close the segment. The Applicant would construct a temporary path for the bicycle traffic elsewhere in the trench or on adjacent streets.[339] Temporary closing or rerouting of the bicycle trail may be required for occasional maintenance or repair of A3.[340]

295. Routes A1, A2, B, C and D would cross only a small segment of the Midtown Greenway, which may require brief bike trail relocation during construction.

296. The presence of a high voltage transmission line may affect the use of the Midtown Greenway because of the perceived health risks as well as the aesthetic effect of overhead lines.[341] There are several places throughout the metropolitan Twin Cities where bicycle trails run along or near transmission lines, but there was insufficient evidence to compare the Midtown Greenway to the population density along, and proximity of, other lines.[342] Route A1 would be more likely to deter use of the bicycle and pedestrian trail than the alternative routes because of its proximity to and visibility along the Midtown Greenway.

297. There are several parks within a half mile of the Project Area, including Powderhorn Park, Stewart Park, Cedar Avenue Field, and East Phillips Park.[343] Apart

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[335] Ex. 102 at 5 (McLaughlin Direct).
[336] Ex. 36 at 10 (Springer Direct); Ex. 102 at 4-5 (McLaughlin Direct).
[337] Ex. 1A at 84-85 (Application).
[338] Ex. 19 at 6 (Gallay Rebuttal).
[339] Tr. Vol. 4 at 127 (Gallay); Ex. 18, Sched. 4 (Xcel Response to MGC IR No. 29).
[340] Ex. 10, Sched. 3 at 3 (Asah Direct).
[341] FEIS at 314; Ex. 36 at 16 (Springer Direct); Tr. Vol. 7 at 155 (Springer).
[342] Ex. 1B at Appx. B.15, map showing Metro Area bikeways and transmission lines (Application).
[343] Ex. 1A at 84 (Application); FEIS at 302, 314 and Fig. 5.7-1.

from the visual effect and some noise and possible inconvenience during construction, Routes A, B, C and D would not disturb the parks. Route C runs near Powderhorn Park, which is the site of two large annual events. Construction in the area could disrupt those events.[344] Route E2 runs closer to more parks and may be visible from East Phillips Park, Franklin Steele Park, Clinton Field, Little Earth Village and green space adjacent to Minneapolis American Indian Center, and poles would likely be placed within East Phillips Park.[345] Route E2 would have the greatest impact on the parks.

Public Services

298. The City of Minneapolis provides water, sewer and storm water management to the community. Construction will require coordination with the City and private providers of cable and other services to assure that the location, construction and operation of the transmission lines does not disrupt service. Road closings will be required during construction. However, neither construction nor operation of the Project along any route is expected to impair the operation of existing public services in the vicinity of the Project area.[346]

299. Public utilities run under the Midtown Greenway, north to south, diagonally and longitudinally within the corridor.[347] A number of existing utilities also run under 28th Street. Typically, transmission lines can be constructed underground to be compatible with existing infrastructure, but the location of the utilities may affect the alignment.[348] Despite the location of the utilities, and the disruption to traffic during construction, the City of Minneapolis prefers Route D and believes that installation of underground transmission is compatible with the existing utilities.[349]

300. Placement of the transmission structures may affect sidewalks along Route B and Route C, but the construction must conform to City of Minneapolis standards and the requirements of the Americans with Disabilities Act.

Transit Development

301. A distinct aspect of Route A is that it is located adjacent to or within the CM&St.P Historic District, which has been redeveloped as the Midtown Greenway and intended for future transit development.[350] Transit within the corridor is part of a larger plan by the County and City to invest in overall development between 28th Street and Lake Street, and to protect the historic character of the corridor. The Midtown Greenway replaces an unsightly, relatively unsafe former rail trench with a recreational

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[344] FEIS at 302-07, 312-18.
[345] FEIS at 302-07; 312-18; Ex. 10, Sched. 3 at 3 (Asah Direct).
[346] Ex. 1A at 85 (Application).
[347] Tr. Vol. 9 at 75 (Michalko).
[348] Ex. 19 at 7-8 (Gallay Rebuttal).
[349] Ex. 94 at 6-13 (Ogren Direct); Tr. Vol.8 at 18-19 (Ogren).
[350] Ex. 102 at 3 (McLaughlin Direct); Ex. 105 at 6 (Michalko Direct); Tr. Vol. 9 at 104 (Michalko).

amenity, open space and connection to the chain of lakes, Hiawatha Light Rail Line, and the Mississippi River.[351]

302. Hennepin County's near-term plan, 0-5 years, is to allow the City of Minneapolis to continue operating the bicycle and pedestrian trail along the Midtown Greenway, and to preserve the area for future transit use.[352] The County's long-term plan is to use the Midtown Greenway as a transit connection between the future Southwest Corridor Light Rail Line and the Hiawatha Light Rail Line.[353]

303. Several studies have been conducted regarding the feasibility of different forms of transit in the Midtown Greenway, including the 29th Street and Southwest Corridors Bus Feasibility Study – February 2000; the Minneapolis Streetcar Feasibility Study, Final Report – 2007; and the 29th Street Vintage Rail Trolley Study. All of these studies call for transit to be constructed and operated within the trench of the Midtown Greenway with transit stations located at several locations along the route to provide access to the street above.[354]

304. Hennepin County has not determined what type of future transit will be installed along the Midtown Greenway – rapid bus, light rail, or street car transit – or the specific time frame for implementation. However, Hennepin County expects that it will develop transit along the corridor. In so doing, it will attempt to avoid reconstructing the bike route and will attempt to preserve the historic character of the Midtown Greenway.[355]

305. The Applicant's transmission engineer reviewed each of the transit studies and determined that Xcel Energy could construct the proposed transmission lines overhead or underground so that they would not interfere with future transit use if the County's future plans were sufficiently detailed. He also opined that the transmission lines can be designed so that future light rail or trolley systems would not experience electrical interference caused by their proximity to the high voltage transmission lines.[356]

306. At this time, there is no detailed plan for the type of transit or its design, including the location and design of stations that will be placed along the Midtown Greenway, nor is there likely to be such a plan within the timeline for construction of the Project. Overhead transmission lines could hinder the design, or the lines may need to be relocated. Moreover, the transmission lines could interfere with restoration and maintenance of the historic retaining walls and bridges along the Midtown Greenway.[357]

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[351] Ex. 18, Sched. 9 (Gallay Direct); Ex. 102 at 4, 6-7 (McLaughlin Direct).
[352] Ex. 10 at 13 (Asah Direct); Ex. 18 at Sched. 9 (Gallay Direct).
[353] Ex. 105 at 6 (Michalko Direct).
[354] Ex. 18 at Scheds. 10-12 (Gallay Direct).
[355] Ex. 10 at 13 (Asah Direct); Ex. 102 at 7 (McLaughlin Direct); Ex. 103 at 1 (McLaughlin Surrebuttal); Ex. 105 at 7-8 (Michalko Direct); Tr. Vol. 9 at 78 (Michalko); Ex. 107 at 1 (Michalko Surrebuttal).
[356] Ex. 18, Sched. 14 (Gallay Direct) (Xcel Response to City IR No. 17, Dec. 29, 2009); Tr. Vol. 4 at 65-67 (Gallay).
[357] Ex. 105 at 7-9 (Michalko Direct); Ex. 106 at 1 (Michalko Rebuttal); Tr. Vol. 9 at 93, 113-19 (Michalko); Ex. 193 (Hennepin County Response to Xcel Energy IR No. 4).

307. Hennepin County's position is that overhead transmission lines along the Midtown Greenway are incompatible with the corridor's planned use for transit, that it will suppress residential and commercial development along the corridor, and that it may interfere with rebuilding the historic bridges that cross the Greenway.[358]

308. If it were necessary to remove and relocate all or a part of the underground transmission to accommodate transit facilities, the cost and time to do so would be roughly equivalent to the cost of initial installation and would be borne by the transmission line owner, and ultimately by its ratepayers.[359]

309. The City of Minneapolis completed the Midtown Corridor Historic Bridge Study in 2007. As part of an agreement with the Federal Highway Administration and Minnesota State Historic Preservation Office, the City reviewed the deterioration and expected life spans of the twenty six remaining historic bridges that cross the corridor. Seventeen of the bridges cross the Midtown Greenway within the Project Area.[360] They are an important linear element to the aesthetics of the Midtown Greenway.[361]

310. The historic bridges are approaching 100 years old. Many of them need repair and replacement, which requires both aerial space over the bridge for a crane and extensive excavation near bridge abutments. Either an overhead or underground alignment along Route A may hinder the rebuilding of the bridges.[362]

311. Route A will have the greatest effect on the development of transit and the anticipated repair and restoration of the historic bridges along the Midtown Greenway. None of the other routes will affect future transit or the repair of bridges. Routes B and C may conflict with pedestrian traffic. Route D will disrupt auto and pedestrian traffic during construction and require coordination with the City to accommodate existing public utilities running beneath 28th Street, but it will have no long-term impact on public services, including transit.

312. Overall, Route A will have a significant impact on human settlement, but less than Routes B, C and E2. Route D will have less impact on economic development, aesthetics, recreation and transit development than Route A. Route D will come within 25 feet of fewer dwelling units than the other routes, except Route A3. Selection of an underground alternative outside the Midtown Greenway will mitigate the harm to the neighborhood.

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[358] Ex. 193 (Hennenpin County Response to Xcel Energy IR No. 4).
[359] Tr. Vol. 3 at 156-57 (Gallay); *see also Northern States Power Co. v. Federal Transit Admin.*, 358 F.3d 1050 (8th Cir. 2004).
[360] Ex. 43 (Midtown Corridor Historic Bridge Study).
[361] Ex. 43; Ex. 44, Photos 6-18, 20-23.
[362] Tr. Vol. 9 at 73-74, 108-10, 113-14 (Michalko); Ex. 193 (Hennepin County Response to Xcel Energy IR No. 4); *see also* Ex. 51 (Bridge reconstruction photo).

Effects on Public Health and Safety

313. The Commission must consider effects of the proposed high voltage transmission line on public health and safety.[363]

Magnetic Fields

314. The World Health Organization (WHO) has evaluated scientific evidence of the relationship between chronic low-intensity exposures, such as those from power lines, and adverse health effects. The WHO reported in 2007 that scientific evidence suggesting that everyday, chronic low-intensity magnetic field exposure poses a health risk is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia. Although the evidence failed to demonstrate causation, the WHO concluded that the evidence is sufficiently strong to remain a concern.[364]

315. Epidemiological studies have consistently shown an association between magnetic fields above 3 to 4 milligauss (mG) and childhood leukemia.[365]

316. Magnetic fields are a function of current; if current in a power line increases over time as load grows, magnetic fields would also increase. The Applicant estimates the peak current level for the lines to be 230 amps, and the average current level to be 138 amps. The Applicant expects that load will grow in the area to be served by the Hiawatha Project, with corresponding increases in current and magnetic fields.[366]

317. Magnetic fields are also a function of the distance from the transmission line. Unlike electric fields, magnetic fields are not easily shielded or weakened by objects or materials.[367]

318. There are no state or federal guidelines for magnetic fields generated by high voltage transmission lines. However, agencies have established guidelines for the general public's continuous exposure. The International Commission on Non-Ionizing Radiation Protection has established 833 mG as its guideline and the Institute for Electronic and Electrical Engineers has a 9,040 mG guideline.[368]

319. At a distance of 25 feet, the maximum magnetic field for Routes B and C would be 123.14 mG at a height of 16 meters (approximately 52 feet) above the ground,

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[363] Minn. Stat. § 216E.03, subd. 7(b)(1); Minn. R. 7850.4100(B).
[364] WHO Report, Environmental Health Criteria 238, Extremely Low Frequency Fields, 2007, at 11-20, Rep. Clark Letter and Attachments, eDocket Doc. No. 20105-50442-01 (May 10, 2010).
[365] Ahlbom, A., et al., A Pooled Analysis of Magnetic Fields and Childhood Leukemia, British Journal of Cancer (2000), 83(5), 692-698 at 58-65; Greenland, S., et al., A Pooled Analysis of Magnetic Fields, Wire Codes and Childhood Leukemia, Epidemiology (Nov. 2000), Vol. 11, No. 6, 624-634, at 66-76; Rep. Clark Letter and Attachments, eDocket Doc. No. 20105-50442-01 (May 10, 2010).
[366] Tr. Vol. 3 at 105-108 (Gallay).
[367] Tr. Vol. 3 at 109 (Gallay); FEIS at 274.
[368] Ex. 18 at 19 (Gallay Direct).

while the maximum magnetic field for Route A1 would be 108.04 mG at 12 meters (approximately 40 feet) above the ground.[369]

320. Average current conditions would most closely reflect chronic, everyday conditions. Because the overhead lines would be constructed near multi-unit dwellings that have multiple floors, the Applicant estimated the magnetic fields of average current at 25 feet from the proposed centerline at varying distances from the ground to better approximate the exposure for people living on the second story or higher.[370] The findings are summarized below:

Calculated Magnetic Flux Density (Milligauss)

Overhead Route	Current	Distance from Centerline	1 meter (3.28 feet)	4 meters (13.12 feeet)	8 meters (26.24 feet)	12 meters (39.36 feet)
Route A1 and E2	138 amps (average)	25 feet	13.82/13.66	26.15/26	55.31/55.39	64.63/64.82
Routes B and C	138 amps (average)	25 feet	7.63/16.54	6.41/11.59	8.86/23.93	11.30/55.03

321. Hundreds of families in South Minneapolis would be exposed to the magnetic fields reflected in the table above, because there are 245 dwellings within 25 feet of Route A1, 335 dwelling units within 25 feet of Route B, 206 dwelling units within 25 feet of Route C, and 730 within 25 feet of Route E.[371] Magnetic field levels for persons living on the second or third floor (from 6 to 10 meters above ground) of a dwelling within 25 feet of Route A1 are 10 to 15 times the level of concern identified by the WHO and epidemiological literature associating transmission lines with childhood leukemia.

322. Users of the Greenway would also be exposed to magnetic fields if Route A1 were selected. Route A1 comes within 8 feet of the center of the Greenway; approximately the last third of the line is within approximately 20 feet of the center of the trail.[372]

323. Magnetic fields are reduced in underground applications because of "phase cancellation." Magnetic fields decrease with distance more quickly for the underground alternatives than for overhead lines. Fifteen feet away from the proposed centerline of the underground routes, at one meter above the centerline, magnetic fields drop to approximately one mG.[373]

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[369] Ex. 246; FEIS at 289.
[370] Ex. 246; Tr. Vol. 13 at 112 (Gallay).
[371] Ex. 247 (Xcel 2nd Supp. Response to MGC IR No. 3); Tr. Vol. 1 at 161-162 (Asah).
[372] Ex. 18, Sched. 15 at 13 (Gallay).
[373] Tr. Vol. 3 at 125-128 (Gallay); Ex. 48A.

324. There are two conductor options, 1250 kcmil and 3000 kcmil, for underground construction.[374] The 1250 kcmil conductor has two conductors for each of the three phases, which can be arranged to cancel out magnetic fields, resulting in a lower magnetic field reading than the 3000 kcmil conductor, which has one conductor for each phase.[375] Within ten feet of the centerline, average magnetic fields for the 3000 kcmil conductor are higher than the magnetic field for the 1250 kcmil conductor.[376]

325. The Applicant has agreed to select the conductor size, spacing and orientation that will produce the lowest possible magnetic fields.[377]

Electric Fields

326. The maximum electric field associated with Applicant's proposed routes, measured at one meter above the ground, is calculated to be 4.6 kilovolt per meter (kV/m).[378] The Commission has imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground.[379]

327. The proposed single circuit lines along Route B or Route C would have an electric field of approximately 1.12 kV/m at the centerline of the structure, measured at one meter above ground. The maximum level measured for the single circuit structure is 2.55 kV/m at 25 feet from the centerline, 14 meters (approximately 45 feet) above the ground. The proposed overhead double circuit along Route A or Route E2 would have an electric field of 0.56 kV/m at the centerline, one meter above ground. The maximum level measured for the double circuit structure is 4.05 kV/m at the centerline, 8 meters (approximately 26 feet) above the ground. The proposed underground double circuit along Route A or Route D would have a maximum electric field of approximately 4.6 kV/m at the centerline, one meter above ground. The electric fields created by underground transmission cables will be blocked by objects such as concrete and soil and drop sharply from the centerline.[380]

328. Underground transmission alternatives with lower magnetic and electric fields would reduce the safety and health impacts of the Hiawatha Project. If Route D is constructed, an alignment closer to the center of East 28th Street would place the transmission line farther from residential homes, children and other pedestrians.[381]

329. The Applicant will comply with all safety requirements during the construction and operation of the proposed transmission line and associated facilities. The Project will be designed and constructed according to local, State and NESC

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[374] Ex. 1A at 68 (Application).
[375] Tr. Vol. 3 at 114-116.
[376] Ex. 48A, Table 3 Electric and Magnetic Field Calculations (Xcel Resp. to MGC IR No. 30); Ex. 246; Tr. Vol. 3 at 115 (Gallay).
[377] Ex. 48 at 2, 5 (Xcel Resp. to MGC IR No. 30).
[378] Ex. 1A at 67 (Application).
[379] Ex. 1A at 63 (Application).
[380] Ex. 1A at 67 (Application); Ex. 18 at 19 (Gallay Direct); Ex. 48A; Ex. 246.
[381] FEIS at 29, 424-25 and Table 6-3.

standards regarding ground clearance, crossing utilities clearance, building clearance, strength of materials, and right-of-way widths.[382]

Storm Damage

330. The Applicant's transmission poles and towers are designed to withstand extreme wind and weather conditions and to meet or exceed the requirements of the NESC. In the past five years, no steel poles have failed in Minnesota due to tornados or other weather conditions. Two of the Applicant's 10,350 structures failed during a tornado in Colorado. In Minnesota, an F3 tornado with wind speeds of up to 150-200 miles per hour passed through the Hugo, Minnesota area, but the wood pole structures and conductors did not fall.[383]

331. The proposed transmission lines will be equipped with protective breakers and relays to safeguard the public in the event of an accident or if the structure or conductor falls to the ground.[384]

332. Although the risk is small, because of the high density in the Project Area, flying debris could damage the transmission structures or lines and, if a structure should fall, the risk of hitting a building would be high. Underground lines are not susceptible to wind or ice damage.[385]

333. Although health risks associated with the transmission lines are small, they can be largely avoided by selection of an underground alternative. This is particularly significant in a high-density area that has a population with an increased health risk.

Effects on Land-Based Economies

334. The Commission must consider the effect of the Project on land-based economies, including agriculture, forestry, tourism and mining.[386]

335. Because of the urban setting, the Project will not affect commercial agriculture, forestry or mining.[387]

336. There are several community gardens in the Project area. Neither Route A nor Route D is located adjacent to any community garden.[388] Route B is adjacent to the Prairie Oaks Community Garden; Route C is adjacent to the Walker Church

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[382] Ex. 1A at 71 (Application).
[383] Ex. 18, Sched. 2 (Gallay Direct) (Xcel Response to City IR No. 1, includes photo of Hugo tornado damage).
[384] Ex. 1A at 71 (Application).
[385] Tr. Vol. 9 at 192-93 (Schedin); Tr. Vol. 10 at 45-46 (Schedin).
[386] Minn. Stat. § 216E.03, subd. 7(b)(5); Minn. R. 7850.4100(C).
[387] Ex. 1A at 87; FEIS at 213-16.
[388] The Soo Line Community Garden mentioned in the public comments is located west of the proposed route alternatives.

Community Garden and its associated programming. Other community gardens are within a few blocks of Routes B and C.[389]

Effects on Archaeological and Historical Resources

337. The Commission must consider the proposed route's effect on archaeological and historic resources.[390]

338. The Applicant reviewed numerous documents regarding the historic designation of the CM&St.P Historic District, including the *Cultural Landscape Management and Treatment Guidelines for the Chicago Milwaukee and St. Paul Grade Separation Historic District of the Midtown Corridor,* prepared by the HCRRA in 2006; the Midtown Corridor Historic Bridge Study prepared by the City of Minneapolis Public Works Department in 2007; the Phase I Architectural History Survey Summary Report for the Proposed Midtown Greenway prepared by The 106 Group Ltd. in 2001; the Phases I and II Architectural History Survey Summary Report for the Proposed Midtown Greenway prepared by The 106 Group Ltd. In 2002; the National Register of Historic Places Registration Form for the Chicago Milwaukee and St. Paul Railroad Grade Separation prepared by The 106 Group Ltd. in 2004; and the November 4, 2009, letter from The 106 Group Ltd. to Charles Salter.[391]

339. In response to concerns raised about the potential effect of construction along Route A on historic architectural and archaeological resources, the Applicant commissioned a "Cultural Resources Analysis of Effects for the Xcel Energy Hiawatha Project" (Effects Study).[392]

340. In 2001, the study's author, William Stark conducted a Phase I Architectural History Survey Summary Report for the Proposed Midtown Greenway for Hennepin County. Its purpose was to identify the "area of potential effect" (APE), and the properties within it that could potentially be eligible for listing on the National Register of Historic Places (NRHP). Mr. Stark was also the principal investigator and report author of a Phase I and II Architectural History Survey Summary Report for the Proposed Midtown Greenway prepared by his employer, The 106 Group, in 2002. The reports were used to support the NRHP listing for the CM&St.P Historic District. He was also one of the persons who completed the NRHP Registration Form for the CM&St.P Historic District in 2004 that led to the district's listing on the NRHP on June 1, 2005.[393]

341. The CM&St.P Historic District is parallel to 29th Street between Humboldt Avenue and 20th Street. The trench was constructed between 1912 and 1916 for rail use by the Chicago, Milwaukee, and St. Paul Railroad. It is approximately 22 feet deep and has a steeply sloped earthen wall on the north and south sides. Each north-south block over the trench features a bridge that was built in and around 1912 to 1916. The

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[389] Ex. 1A at 87 (Application); FEIS at 214-15.
[390] Minn. Stat. § 216E.03, subd. 7(b)(1); Minn. R. 7850.4100(D).
[391] Ex. 10 at 11-12 (Asah Direct).
[392] Ex. 15, Sched. 10 (Stark Surrebuttal).
[393] Ex. 13 at 4 (Stark Direct).

trench, bridges, retaining walls and two adjacent properties were listed on the NRHP in 2005. Several minor features also contribute to the character of the historic district. These include wooden utility poles along the southern side of the trench and a system of small patches of granite block, limestone and concrete retainers with mortar placed near the bridge abutments near the upper portion of the slope.[394] The CM&St.P Historic District is a historical resource under the Minnesota Environmental Rights Act (MERA).[395]

342. The Effects Study evaluated known historic properties within at least one block or 800 foot radius around Route A and five substation sites. Mr. Stark identified seven properties in the APE that met the definition of "historic properties," and concluded that Route A1 would have no direct impact on them. However, the overhead design had the potential to cause indirect visual effects to two historic properties, the CM&St.P Historic District and the Zinsmaster building.

343. Route A1 would have 14 properties of historic or architectural significance located within 0.1 miles of the route centerline, including 9 properties on the NRHP list and 4 properties eligible for listing on the NRHP. The majority of the route is adjacent to, or near, the CM&St.P Historic District. There would be 15 pole structures along Route A1 within the CM&St.P Historic District. The structures would not change the configuration or dimensions of the trench but would adversely affect the visuals and aesthetics of the Historic District because of their size and scale as compared to existing and historical utility lines.[396] Pole placement or changes in pole material could reduce, but would not eliminate, the impact of the overhead lines and poles.[397]

344. Route A1 would also cross the CM&St.P Historic District twice, near 18th Avenue and between 10th and Chicago Avenues. A third crossing may be needed if the Midtown South Substation site is selected.[398]

345. There could be adverse visual effects to the Zinsmaster building along Route A1. If a pole is placed at the southwest corner of Park Avenue and the railroad corridor it would obstruct important views of the Zinsmaster building along Park Avenue. This impact could be eliminated by moving the transmission structure to the east away from Park Avenue.[399]

346. The likelihood of encountering previously unidentified archaeological resources along Route A1 is low.[400]

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[394] Ex. 15, Sched. 10, at 57-59 (Stark Surrebuttal); Ex. 10, Sched. 4, at 14 (Asah Direct).
[395] Ex. 15, Sched. 10 at 18 (Stark Surrebuttal).
[396] Ex. 15, Sched. 10, at 68-69; Ex. 96 at 14-15 (Byers Direct); Ex. 113 at 18-19 (Mathis Direct).
[397] Tr. Vol. 3 at 50-51 (Stark); *see also* Tr. Vol. 10 at 100-101 (Mathis); FEIS at 180-182.
[398] Ex. 15, Sched. 10, at 68 (Stark Surrebuttal).
[399] Ex. 15, Sched. 10 at 98 (Stark Surrebuttal); Ex. 12 at 3 (Asah Surrebuttal).
[400] Ex. 15, Sched. 11 (Stark Surrebuttal); Tr. Vol. 3 at 12 (Stark). The Application and Ex. 10, Schedule 3 (Asah Direct), contain numbers different from those provided in Ex. 15, Schedule 11 (Stark Surrebuttal). Ex. 15, Schedule 11, as modified by Stark at, Tr. Vol. 3 at 11, is the most current data available.

347. Routes A2 and A3 would be located on or adjacent to the CM&St.P Historic District.[401] Because Routes A2 and A3 are underground designs, substantial earth moving may be required and could result in excessive vibrations to adjacent historic properties, including the historic bridges of the CM&St.P Historic District, Sears Roebuck and Company building (now the Midtown Exchange), and Zinsmaster building. The bridges and buildings should be monitored during construction to ensure that historic properties are not damaged by these vibrations.[402]

348. The Cultural Effects Study underestimated the likely impact of construction vibrations on the historic properties along Route A and underestimated the negative effect of the overhead route on the historical attributes of the CM&St.P Historic District.[403]

349. Underground Routes A2 and A3 may have an adverse effect on the historic retaining walls east of the 10th Avenue bridge where the line transitions from 29th Street to the base of the trench, and to the retaining walls west of the 18th Avenue bridge, where the line transitions from the trench to the 29th Street grade.[404] The Applicant has stated that it will avoid the destruction or removal of historic retaining walls along Route A2, and presumably A3.[405]

350. All three alignments of Route A will have a negative impact on the CM&St.P Historic District.[406]

351. Route A may also have an impact on the Pioneers and Soldiers Cemetery, the oldest existing cemetery in Minneapolis, listed on the NRHP.[407]

352. While Route B and Route C would not affect the CM&St.P Historic District, each one has the potential to impact a greater number of historic or architecturally significant sites than Route A has.

353. Within 0.1 miles of Route B there are 25 sites of historic or architectural significance, including nine properties on the NHRP and five properties eligible for listing on the NRHP.[408]

354. Route B would also run adjacent to two sides of the American Swedish Institute and require a pole placement on the property, with a likely adverse effect on the American Swedish Institute.[409]

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[401] Ex. 15, Sched. 11 at 1 (Stark Surrebuttal).
[402] Ex. 15, Sched. 10 at 98 (Stark Surrebuttal).
[403] Ex. 200 (Mathis Rebuttal in Response to Stark, April 9, 2010).
[404] Ex. 15, Sched. 10 at 33, 98-99 (Stark Surrebuttal); Tr. Vol. 3 at 26-27 (Stark).
[405] Ex. 12 at 2 (Asah Surrebuttal). The Applicant's agreement to avoid the adverse effect on Route A3 is not clear from the record.
[406] Tr. Vol 3 at 26-27 (Stark).
[407] Ex. 96 at 16-20 (Byers Direct); FEIS at 165-66.
[408] Ex. 15, Sched.11 at 2-3 (Stark Surrebuttal); Tr. Vol. 3 at 12 (Stark).
[409] Tr. Vol. 3 at 31-32 (Stark); Ex. 11 at 9 (Asah Rebuttal).

355. Route C includes 21 sites of historic or architectural significance within 0.1 miles, including seven properties on the NRHP and five properties eligible for listing on the NRHP.[410]

356. Route D has no impact or potential impact on historic resources, including the Historic District. The segment of East 28th Street within the Route D project area is not included in any federal, state or locally-designated historic district and contains no historic properties. There are no known archeological resources underneath East 28th Street.[411]

357. There are 48 sites of historic or architectural significance located within .1 miles of Route E2, including 7 properties on the NRHP and 27 properties eligible for listing on the NRHP.[412]

358. An initial analysis of the archeological resources was included in the Application for Routes A1 and A2.[413] The potential effects on archeological resources, specifically sewer lines and streetcar lines, for Routes A1, A2 and A3 were further evaluated in the Effects Study. The conclusion of the Effects Study was that neither the streetcar lines nor sewer lines in the study area were of particular significance nor would they have particular research potential.[414] Route A2 could potentially cross abandoned streetcar tracks in three locations, at Chicago, Bloomington, and Cedar Avenues,[415] but, because of the years of work along the streets, it is unlikely that any intact streetcar tracks remain or would be of value.[416]

359. Route A has the potential to impair the historic attributes of the CM&St.P Historic District and Route A1 would have a negative effect on the visual attributes of the Historic District and nearby historic buildings. Route D avoids potential impacts to archaeological and historic resources. There are no known historic or architectural resources along East 28th Street. Route D would also avoid any impact to the CM&St.P Historic District since the Midtown Greenway crossings will occur underground and east of the trench.[417]

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[410] Ex. 15, Sched. 11 at 3-4 (Stark Surrebuttal).
[411] Tr. Vol. 2 at 44 (Asah); Tr. Vol. 3 at 17 (Stark); Ex. 13 at 6 (Stark Direct); Tr. Vol. 10 at 84 (Mathis); Tr. Vol. 8 at 79-80 (Byers); Tr. Vol. 79-80 (Bielakowski).
[412] Ex. 15, Sched. 11 at 4 (Stark Surrebuttal).
[413] Ex. 1B at Appx. E (Application).
[414] Ex. 15, Sched. 10, at 20-22 (Stark Surrebuttal); Ex. 17 at 3-4 (Bielakowski Rebuttal).
[415] Tr. Vol. 3 at 77-78 (Bielakowski) (correcting prior testimony that there were four possible streetcar crossings, Ex. 17 at 2).
[416] Ex. 17 at 3 (Bielakowksi Rebuttal).
[417] *See* FEIS, Appx. B.5.1 (Route D, Map 1 of 4).

Effects on Natural Environment

360. The Commission is required to consider the proposed route's effect on the natural environment, including effects on air and water quality resources and flora and fauna.[418]

361. There are known or potential contaminated soils and groundwater within 200 feet of each route alternative and substation location: Route A – 15; Route B – 34; Route C – 26; Route D – 21; Route E – Not Provided. The majority of the contaminated sites are associated with petroleum releases.

362. Construction of the underground routes will disturb more soil than construction of the overhead routes. The Applicant will be required to continually monitor for possible soil contamination during construction, and if contamination is identified, to take necessary steps to protect worker health and safety and segregation and disposal of contaminated soils.[419]

363. There are different methods for construction of an underground transmission line, each of which has a different environmental impact. The Applicant would prefer to use the trenching method because it is the most easily controlled and cost effective. The trenching method requires extensive soil disturbance along the entire line length. Depending on the natural features in the Project Area, the trench may need to be shored, dewatered if there is shallow groundwater, backfilled with selective fill material to improve heat transfer, and landscaped after construction.[420]

364. The alternative construction method is "horizontal directional drilling" (HDD). This method requires excavation and working areas at each end of a bore, with temporary disturbance to soils and vegetation that can be restored following construction. Other possible effects are the escape of drilling mud, tunnel collapse or the rupture of mud to the surface with the risk of releasing drilling fluid.[421]

Air Quality

365. During construction, vehicle emissions and dust created by right-of-way clearing will have a temporary impact on air quality. Exhaust emissions, primarily from diesel equipment, will vary according to the phase of construction, but will be minimal and temporary. Adverse impacts to the surrounding environment will be minimal because of the short and intermittent nature of the emission and dust-producing construction phases.[422]

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[418] Minn. Stat. § 216E.03, subd. 7(b)(1) and (2); Minn. R. 7850.4100(E).
[419] Ex. 1A at 74-75 (Application); FEIS at 282-83 296-97.
[420] Ex. 10 at 10 (Asah Direct).
[421] Ex. 10 at 10-11 (Asah Direct); FEIS at 84-85.
[422] Ex. 1A at 95 (Application).

366. Underground construction will require more construction equipment and greater ground disturbance, so construction emissions will produce more related air emissions.[423]

367. The only potential air emissions from a 115 kV transmission line result from corona and are limited. Corona consists of the breakdown or ionization of air in a few centimeters or less immediately surrounding the conductors, and can produce ozone and oxides of nitrogen in the air surrounding the conductor. All portions of the Project Area are designated to be within the National Ambient Air Quality Standards and the Minnesota Ambient Air Quality Standards.[424]

368. The Project will not have any material long-term impact on air quality.

Water Quality and Resources

369. There are no water bodies located within the Project Area. The waterbody nearest to the Project Area is Powderhorn Lake, located approximately 0.2 miles south of the 31st Street portion of Route C. There are no wetlands located within the Project Area.[425] The Project Area is located within the Minnehaha Creek Watershed District (MCWD).

370. The Project is subject to the requirements of the NPDES Construction Stormwater General Permit. The Applicant will obtain the permit from the MPCA and comply with all applicable requirements. The Project Area will disturb greater than 5,000 square feet of top soil and is therefore subject to the City of Minneapolis Erosion and Sediment Control for Land Disturbance Activities Ordinance and the MCWD rules. The Applicant will obtain an Erosion and Sediment Control Permit from the City of Minneapolis. The Company will also obtain an Erosion Control Permit from the MWCD and comply with all applicable requirements.[426]

371. The Project will not materially impact water quality or water resources.

Flora

372. The impact to existing vegetation for all transmission line routes would be relatively minor. The number of trees that would need to be removed or significantly impacted is relatively small: Route A – 2 to 5, depending on alignment; Route B – 8; Route C – 19; Route D - 0 to 43, depending on alignment; Route E2 - 4.[427]

373. Along Route B and Route C, many existing trees would be trimmed to a height of 15 feet, with a severe impact on their form and aesthetics.[428] Route C also requires the removal of mature American elms on the block of Portland from Lake to

[423] Ex. 10, Sched. 3 at 5 (Asah Direct).
[424] Ex. 1A at 94 (Application).
[425] Ex. 1A at 95 (Application); Ex. 10, Sched. 3 at 5 (Asah Direct); Ex 1B, Appendix B.13 (Application).
[426] Ex. 1A at 96 (Application).
[427] Ex. 1A at 104-105 (Application); Ex. 10, Sched. 3 at 5 (Asah Direct).
[428] FEIS at 335-36.

31st Street. If the trees were trimmed, as opposed to removed, they would be vulnerable to disease.[429]

374. Route D could result in the loss of 43 trees if the route were aligned under the north sidewalk of East 28th Street. There would be no trees lost if Route D were aligned near the center of the street.[430]

375. Routes A2 and A3 would likely disturb the most vegetation other than trees.[431]

376. The applicable permits could require restoration and re-vegetation to return disturbed areas to their existing condition, but trees would not be replaced.[432]

Fauna

377. Because the Project Area is located in a highly developed urban setting, the fauna generally present with the Project Area are adapted to high levels of anthropogenic disturbance. Therefore it is unlikely that the construction, operation and maintenance of the Project would have an effect on fauna present in the Project Area.[433]

378. The Project Area does not include any protected state or federal scientific natural areas, wildlife management or protection areas, or significant ecological areas, nor does it include any Metro Conservation Corridors.[434]

379. Wildlife that inhabit trees removed for the Project will be temporarily displaced. Comparable habitat is nearby. No permanent impact to wildlife is likely; no long-term population level effects are anticipated.[435]

380. Raptors, waterfowl and other bird species may be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of lines in areas where there are wetlands and open water. The nearest open water is Powderhorn Lake, approximately 0.2 miles south of the 31st Street portion of Route C. Additionally, the electrocution of large birds such as raptors can be a concern with transmission lines. The Applicant's transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution.[436] In 2002, the Applicant entered into a Memorandum of Understanding with the U.S. Fish and Wildlife Service to address avian issues throughout its service territories. The

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[429] Tr. Vol. 2 at 134 (Asah).
[430] Tr. Vol. 1 at 168-169 (Asah); Ex. 54 at 1, 7-10 (Xcel Resp. to MGC IR No. 17); FEIS at 29, Table ES-2, at 359.
[431] FEIS, Table ES-1 at 24.
[432] FEIS at 358.
[433] Ex. 1A at 97 (Application).
[434] FEIS at 360.
[435] Ex. 1A at 97-98 (Application).
[436] Ex. 1A at 97 (Application).

Memorandum of Understanding includes the development of avian protection plans for each state the Applicant serves, including Minnesota.[437]

381. It is unlikely that the construction, operation and maintenance of the Project would have a significant effect on fauna present in the Project Area, regardless of the alternative selected.[438] The underground alternatives would present no risk to birds.

382. None of the route alternatives will have a significant effect on the natural environment. Overhead transmission lines are a greater risk to birds. An alignment of Route D under the north sidewalk of 28th Street would cause the greatest tree loss.

Effects on Rare and Unique Natural Resources

383. The Commission must consider the proposed routes' effect on rare and unique natural resources.[439]

384. The Applicant checked the Minnesota Department of Natural Resources (DNR) Natural Heritage Database to identify any rare or unique resources within the Project Area. No known occurrences of rare or unique resources were identified within or near the Project Area.[440]

385. There are nine known occurrences of rare species or special communities identified within one mile of the Project Area. With the exception of the Blanding's Turtle, all rare species are located along the Mississippi River approximately one mile to the north and east of the Project Area. Because of the distance from the river, the construction of the proposed Project would not have an impact on these resources.[441]

386. The Blanding's Turtle was last observed one-half block south of the Project Area on May 14, 1986. No subsequent sightings of this species have been recorded. Blanding's Turtles need both wetland and upland habitats to complete their life cycle.[442] The construction activities are unlikely to have an impact on the Blanding's Turtle.

387. No impact to rare and unique natural resources is anticipated, regardless of the alternative selected.

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[437] Ex. 1A at 98 (Application).
[438] Ex. 1A at 97 (Application); FEIS at 361.
[439] Minn. Stat. § 216E.03, subd. 7(b)(1); Minn. R. 7850.4100(F).
[440] Ex. 1A at 98-100 (Application); Ex. 10, Sched. 3 at 6 (Asah Direct).
[441] Ex. 1A at 100 (Application).
[442] Ex. 1A at 100 (Application).

Application of Various Design Considerations

388. The Commission must consider the Project's applied design options that maximize energy efficiency, mitigate adverse environmental effects, and accommodate expansion of transmission or generating capacity.[443]

389. Each of the route alternatives is designed to meet existing and anticipated distribution load in the Midtown area.[444]

Use of Existing Right-of-Way, Survey Lines, Natural Division Lines and Agricultural Field Boundaries

390. The Commission is required to consider the proposed route's use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries.[445] Because of the urban setting, survey lines, natural division lines and agricultural field boundaries are not relevant.

391. All route alternatives have been proposed generally within existing transportation right-of-way. Routes B, C and E2 may require additional right-of-way from private properties adjacent to the proposed routes.[446] Additional right-of-way, approximately 10-20 aerial feet, may be required to allow for line maintenance and tree trimming within private property adjacent to the proposed overhead routes.[447]

Use of Existing Transportation, Pipeline, and Electrical Transmission System Right-of-Way

392. The Commission must consider the proposed route's use of existing transportation, pipeline and electrical transmission system right-of-way.[448]

393. All route alternatives generally run within existing transportation rights-of-way, with the exception of Route A3, which runs within the Midtown Greenway.[449] Utilities can ordinarily be constructed within a public road.[450] Although Hennepin County prefers Route A3 to any of the overhead routes, alignment under the Midtown Greenway could require the Applicant to compensate Hennepin County for use of that alignment.[451]

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[443] Minn. Stat. § 216E.03, subd. 7(b)(3) and (10); Minn. R. 7850.4100(G).
[444] Ex. 1A at 1-4 (Application); Ex. 1B, Appx. D3 (Application); Ex. 26 at 3 (Standing Direct).
[445] Minn. Stat. § 216E.03, subd. 7(b)(9); Minn. R. 7850.4100(H).
[446] Tr. Vol. 4 at 49-50 (Gallay); Tr. Vol. 7 at 90-91; Ex. 10, Sched. 3 at 1 (Asah Direct).
[447] Ex. 1A at 105 (Application); Ex. 10, Sched. 3 at 6 (Asah Direct).
[448] Minn. Stat. § 216E.03, subd. 7(b)(8); Minn. R. 7850.4100(J).
[449] Ex. 1A at 105 (Application); Ex. 10, Sched. 3 at 6 (Asah Direct).
[450] Minn. Stat. § 222.37, subd. 1.
[451] Post-Hearing Brief of Hennepin County at 24.

Electrical System Reliability

394. The Commission is required to consider the Project's impact on electrical system reliability.[452]

395. The Project is designed to increase electrical system reliability in South Minneapolis, with two new distribution sources, the Hiawatha and Midtown Substations.[453]

396. The reliability of Route A1 was questioned because the two transmission lines will run parallel on the same supporting transmission towers and could be subject to a single event that could cause the loss of both lines, and because of its location in a high density area.[454]

397. Hennepin County witness Larry Schedin recommended altering the radial design of the transmission lines to create an Elliot Park-Midtown-Hiawatha-Southtown substation path, rather than the Applicant's proposed loop design between the Midtown and Hiawatha substations. Although the Applicant conceded that such a design was technically feasible, the Applicant did not believe that it would offer the same level of reliability. Mr. Schedin's proposal would require opening two breakers at the Hiawatha Substation but the Applicant explained that breakers are designed to operate in the closed position. The Applicant contends that a fault on the connection between the Midtown and Southtown Substations could limit the flow of electricity to the Midtown Substation and, with a breaker failure, cause the loss of both the Hiawatha and Midtown Substations. This would be less reliable than the Applicant's proposal.[455]

398. Since the proposed lines are radial and not part of the bulk transmission system, NERC requirements for transmission reliability would not apply.[456] In the unlikely event of a simultaneous outage of both lines, the load at the Midtown Substation could, for a short period of time, be served by the distribution system components.[457]

399. Two underground transmission lines would be sufficiently independent to meet Mr. Schedin's concerns.[458]

400. All of the proposed routes are designed to provide 120 MW of load-serving support in the South Minneapolis Focused Study Area, which would meet the current distribution needs and further demand growth in the area; and would be necessary to

[452] Minn. Stat. § 216E.03, subd. 7(b)(10); Minn. R. 7850.4100(K).
[453] Ex. 1A at 16, 41 (Application); Ex. 24 at 2 (Zima Rebuttal); *accord* Ex. 109 at 7 (Schedin Direct).
[454] Ex. 109 at 809 (Schedin Direct); Tr. Vol. 9 at 186, 198-200 (Schedin).
[455] Ex. 22 at 1-2 (McNelly Surrebuttal).
[456] Ex. 26 at 4 (Standing Direct).
[457] Ex. 24 at 2-3 (Zima Rebuttal).
[458] Tr. Vol. 9 at 186 (Schedin).

support future transportation in the Midtown Greenway.[459] The level of projected demand growth will be subject to review in the Certificate of Need proceeding.

401. Typically, underground transmission lines have fewer outages than overhead lines. Although underground transmission lines are very reliable, their repair time is typically longer. Studies by the Electric Power Research Institute (ERPI) show that, on average, an overhead transmission facility will fail once every 17.8 years and is repaired in about 9 hours. An underground facility will fail once every 50.5 years and will return to service in three weeks, on average.[460] However, the calculations included both oil-filled underground transmission lines and lines with solid dielectric cable.[461]

402. Here, the Applicant proposes to use solid dielectric cable for an underground route. It currently has 2.5 miles of the cable installed in its service area, as portions of both underground and overhead lines. There have been some outages on those lines, but none were attributable to the solid dielectric cable.[462] The Applicant plans to construct a spare conduit for the cable. The time to repair an outage of a dielectric cable will depend in part on the time it takes to acquire the spare cable, but the repair would be less labor-intensive than repair of an oil-filled underground transmission line.[463]

403. Although the Applicant has had outages of underground lines, none of the outages were directly connected to failure of the underground portion of the cable itself. All of them occurred on above-ground elements.[464]

404. Although it is extremely rare that a tornado or other severe weather will topple a transmission structure or conductor, an underground transmission line would be less susceptible to damage than an overhead line.[465]

Costs of Constructing, Operating and Maintaining the Facility

405. The Commission is required to consider each proposed route's cost of construction, operation and maintenance.[466] The costs of the route alternatives are set forth above.

Cost Allocation

406. There is a significant incremental cost difference between the overhead Route A1 cost of $28,390,000 and the underground alignments, ranging from $38,364,000 for A3 to $42,002,250 for Route D.[467]

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[459] Ex. 23 at 8-9 (Zima Direct).
[460] Ex. 160; Ex. 18, Sched. 7 (Gallay Direct).
[461] Tr. Vol. 3 at 179-183 (Gallay).
[462] Ex. 160; Ex. 18, Sched. 7 (Gallay Direct).
[463] Tr. Vol. 3 at 139, 183-84 (Gallay); Tr. Vol. 10 at 26, 53-54 (Schedin).
[464] Ex. 160; Tr. Vol. 3 at 142-43 (Gallay).
[465] Tr. Vol. 3 at 195-96 (Gallay); Tr. Vol. 10 at 44-45 (Schedin).
[466] Minn. R. 7850.4100(L).

407. Several parties, including the City of Minneapolis and Hennepin County, want the costs of placing the transmission lines underground to be treated as "standard facilities," spread through the Applicant's rate base, rather than "special facilities," assigned to the rate payers within a smaller geographic area.

408. As defined in the Applicant's Minnesota Electric Rate Book,

> "Standard Facilities" are those facilities whose design or location constitutes the reasonable and prudent, least-cost alternative that is consistent with the existing electric system configuration, will meet the needs of the Company's customers and will maintain system reliability and performance under the circumstances. In determining the design or location of a "Standard Facility," the Company shall use good utility practices and evaluate all of the circumstances surrounding the proposal...[468]

409. "Special Facilities" are non-standard facilities or the non-standard design or location of facilities. The Rate Book states general rules concerning Special Facilities.

> When the Company is requested by a customer, group of customers, developer, or Municipality to provide types of service that result in an expenditure in excess of the Company designated standard service installation ... the requesting customer, group of customers, developer, or Municipality will be responsible for such Excess Expenditure, unless otherwise required by law.[469]

410. In some instances, underground transmission lines are considered to be "standard facilities" but in some instances underground distribution lines are considered to be "special facilities."[470]

411. The Commission asked the Applicant to estimate the monthly charges associated with allocating the incremental costs of undergrounding to a variety of customer bases including the City of Minneapolis, Hennepin County, the Applicant's entire Minnesota service territory, and an additional subset of customers that the Applicant deemed appropriate. The Applicant prepared several charts in response, including one that applied the surcharge to the seven-county metropolitan area.[471]

412. The applicable surcharge to residential customers if the costs were spread across all customers within the State and recovered over 5 years would be $0.15 for 58 months for Route A3 and $0.20 for 60 months for Route D. If the costs were spread

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[467] FEIS at 54.
[468] Ex. 27, Sched. 2 at 2 of 13 (Lehman Direct).
[469] Ex. 27, Sched. 2 at 3 of 13 (Lehman Direct).
[470] *See* Ex. 27, Sched. 2 at 3 of 13 (Lehman Direct).
[471] Ex. 27, Sched. 5 (Lehman Direct) (Xcel Response to PUC IR No. 1, attached to Xcel Response to Hennepin County IR No. 15), reprinted in FEIS at 56-67.

throughout the seven-county metropolitan area, they would rise to $0.10 per month for 58 months for Route A3 and $0.26 for 60 months for Route D. If the costs were borne solely by ratepayers in the City of Minneapolis, the applicable surcharge for residential customers would rise to $1.02 for 60 months for Route A3 and $1.39 for 60 months for Route D.[472]

413. The City of Minneapolis, Hennepin County and several other parties assert that the incremental costs should be treated as standard facilities and spread throughout the Minnesota service territory because the Project's placement underground is the reasonable and prudent alternative, as dictated by the routing criteria.

414. The Applicant acknowledged that if underground installation was dictated by local conditions, it would ordinarily be treated as standard construction and not subject to the surcharge. In this instance, if the Commission determined that an underground alternative was the best alternative, the Applicant would not expect the cost to be treated as a special facility.[473]

415. The Applicant has not sought cost recovery for the incremental costs of previously installed underground transmission lines in Minnesota, including an underground transmission line in the Cedar-Riverside area of Minneapolis.[474]

416. If an underground alternative is selected, treatment as standard facilities will reduce the negative impact on the low-income persons over-represented in the Project Area.[475]

Adverse Human and Natural Environmental Effects That Cannot be Avoided

417. For each proposed route, the Commission is required to consider the adverse human and natural environmental effects that cannot be avoided.[476]

418. Trenching to install an underground transmission line will have a temporary effect on the natural environment that cannot be avoided. However, overhead transmission lines will have a continuous effect on humans, particularly along Route B and Route C, and may also affect economic development for the foreseeable future. Selection of Route A will have a permanent effect on the historical attributes of the Midtown Greenway and may impair future transit development and bridge restoration.

419. Route D has fewer unavoidable human and natural environmental effects than Route A, Route B, Route C or Route E2.

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[472] FEIS at 55-62.
[473] Tr. Vol. 6 at 200-01 (Lehman). Tr. Vol. 7 at 42 (Lehman); *accord* Ex. 109 at 6 (Schedin Direct); Tr. Vol. 9 at 189 (Schedin).
[474] Tr. Vol. 6 at 192-93 (Lehman); Tr. Vol. 2 at 33-34, 171-72 (Asah); Ex. 55 at 5 (Xcel Resp. to MGC IR No. 26).
[475] FEIS at 28, 269, 424.
[476] Minn. Stat. § 216E.03, subd. 7(b)(5) and (6); Minn. R. 7850.4100(M).

Irreversible and Irretrievable Commitments of Resources

420. The Commission must consider the irreversible and irretrievable commitments of resources that are necessary for each proposed route.[477]

421. There are few commitments of resources associated with this Project that are irreversible and irretrievable, but those few resources primarily relate to Project construction. Only construction resources, such as concrete, steel and hydrocarbon fuels, will be irreversibly and irretrievably committed to this Project.

422. Route A1, which is the shortest route, would require less commitment of resources than the other overhead routes because it requires fewer poles and less cable. Underground Routes A2 and A3 would require less commitment of resources than Route D because they are slightly shorter.

Consideration of Issues Presented by State and Federal Agencies

423. The Commission must consider issues raised by state and federal agencies when appropriate.[478]

424. MnDOT has stated that no route except E2 presents an insurmountable obstacle to permitting, provided there is enough flexibility within the route to accommodate crossing Hiawatha Avenue.[479]

Application of the Routing Criteria To The Hiawatha Substation

Effect on Human Settlement

425. None of the proposed Hiawatha sites are within 200 feet of a residence except that Hiawatha Zimmer Davis is within 100 to 200 feet of one 80-unit residence.[480]

426. Hiawatha West will not require the removal and relocation of an existing business or any residences. It is currently vacant land owned by MnDOT, which considers the property to be surplus and is willing to sell it for use as a substation. The relocation of a rail spur may be necessary.[481]

427. The Hiawatha East site will require the removal of Crew2's warehouse complex and company headquarters. Crew2 pays approximately $104,000 annually in local property taxes.[482]

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[477] Minn. Stat. § 216E.03, subd. 7(b)(11); Minn. R. 7850.4100(N).
[478] Minn. Stat. § 216E.03, subd. 7(b)(12).
[479] Ex. 228.
[480] Ex. 155 (Xcel Response to MGC IR No. 32, Attach. 1 at 1).
[481] Ex. 228; Tr. Vol. 11 at 172-74 (Seykora).
[482] Ex. 1A at 27 (Application); Ex. 10 at 18 and Sched. 3 (Asah Direct); Ex. 98 at 1-3, 5 (Firkus Direct); FEIS at 44.

428. Construction of a substation on the Zimmer Davis site will require the demolition of the building and displacement of the businesses located there.[483] Zimmer Davis's total purchase price plus improvements is $4,150,000. Zimmer Davis estimates that its moving expenses would total $200,000, and its business reestablishment expenses would total $50,000.[484] For its tenant Primary Aviation, LLC, Zimmer Davis estimates small moving expenses but reestablishment expenses of approximately $50,000. For its tenant, Primary Holdings, Inc., it also estimates reestablishment costs at $50,000. For Local Motion, Zimmer Davis estimates relocation costs of $150,000 and reestablishment expenses of $50,000. Its total estimated replacement costs, moving expenses and business reestablishment expenses for the four businesses located on the property is $4,725,000.[485]

429. Zimmer Davis pays approximately $102,000 annually in local property taxes.[486]

430. The G-1 site is a vacant lot and would not require displacement.[487]

431. The G-2 site includes several addresses and is used as a parking lot.[488]

432. The G-3 site would require removal of existing railroad tracks owned by the Soo Line Railroad and the acquisition and possible displacement of adjacent property. A portion is owned by MnDOT, which considers the land surplus and available for sale.[489]

433. A portion of the G-4 site is owned by the Applicant.[490] A portion is owned by MnDOT, which leases the land to the Metropolitan Council.[491] Because use of the G-4 site would require displacement of the lessee, MnDOT does not consider the property to be available for a substation.

434. The G-5 site is owned by the Metropolitan Council and used to support light rail transit.[492] Use of the property as a substation would require displacement of the Metropolitan Council's facilities.

435. The design of the wall surrounding the substation will aid in mitigating noise. The substation is designed to meet the noise standards set by the MPCA and adopted by the City of Minneapolis.[493]

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[483] Ex. Ex. 130 at 1-2 (Davis Direct); Ex. 11 at 1-2 (Asah Rebuttal); FEIS at 45.
[484] Ex. 130 at 1-6 (Davis Direct); Ex. 131 at 3 (Davis Surrebuttal).
[485] Ex. 131 at 2 (Davis Surrebuttal).
[486] Ex. 130 at 5 (Davis Direct).
[487] Ex. 20 at 5 (McNelly Direct).
[488] FEIS at 431.
[489] Ex. 20, Sched. 5 (McNelly Direct); Ex. 228 at 11; FEIS at 432.
[490] Ex. 20, Sched. 5 (McNelly Direct).
[491] Ex. 228 at 11.
[492] T. 11 at 184-85 (Seykora); Ex. 228 at 11; Public Ex. 8 (Letter from the Metropolitan Council).
[493] Ex. 1A at 78 (Application).

436. In its application, the Applicant proposed a low-profile substation with 12-foot walls on all sides. During the proceeding, in response to the comments of parties, the Applicant prepared a high-profile design for the Hiawatha West site with 20-foot walls.[494]

437. Portions of the Hiawatha West substation equipment are approximately 40 feet high and will extend above the wall. The substation will have a more industrial appearance than the adjacent buildings. The east side of the substation would include a galvanized metal chain-link fence gate with an additional vertical foot of barbed wire at a 45 degree angle.[495]

438. The footprint of the Hiawatha West substation would be comparable to the existing light industrial buildings and retail buildings in the area.[496]

439. The Hiawatha West substation would be visible to vehicle drivers, bicyclists and pedestrians along Hiawatha Avenue and to bicyclists and pedestrians traveling on the Midtown Greenway. The substation would be visible from a five-story multi-family building located east of the substation, from the service entrances of the adjacent light industrial and retail buildings, and from the light industrial buildings located west of Hiawatha Avenue.[497]

440. The Hiawatha West substation would terminate the view of eastbound traffic on 28th Street, increasing the importance of the architectural design of the wall and associated landscaping at this site.[498]

441. Community groups are concerned about the aesthetics of a substation, particularly at the Hiawatha West site, because of its proximity to the Midtown Greenway and the recent plantings of trees and shrubs on two-thirds of the site. Also, there are plans to extend the bicycle path along the west side of the property, near Hiawatha Avenue.

442. The Applicant offered two possible wall designs for the Hiawatha site, consisting of an architecturally designed wall with brick accents and a pre-cast concrete wall, and provided examples of wall designs at other Xcel substations.[499] The Applicant has agreed to seek the community's input and feedback on the design and layout of the substation, including architectural design to complement the character of the Project Area.[500]

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[494] Tr. Vol. 6 at 100-01 (McNelly).
[495] Tr. Vol. 5 at 32-33 (McNelly); FEIS at 339, Fig. 5.8-14 (Simulated view of Hiawatha West from Hiawatha Avenue with Architectural Wall).
[496] FEIS at 339.
[497] FEIS at 339.
[498] FEIS at 339.
[499] Ex. 20, Sched. 4 at 6-11 (McNelly Direct); FEIS at 338, Fig. 5.8-14 and 5.8-15.
[500] Ex. 1A at 81 (Application). Ex. 21 at 3, and Sched. 8 (McNelly Rebuttal) (examples of substation wall designs at other Xcel facilities); Tr. Vol. 7 at 60-61 (Asah).

443. The Hiawatha East substation would have a low-profile design with a 12-foot wall on three sides, and dimensions of 284 feet by 481 feet, a larger footprint than the existing light industrial buildings in the area.[501] As with Hiawatha West, the architecture would be similar to the light industrial buildings in the area. However, the substation equipment would be visible above the walls. The substation will have a more industrial appearance than the nearby buildings have. The south side would include a galvanized metal chain-link fence with an additional foot of barbed wire at a 45 degree angle. A galvanized metal chain link gate, 20 feet wide and 12 feet tall with an additional vertical foot of barbed wire, would be located along the southern end of the east facing wall near the existing southern driveway into the site.[502] Structure heights at the installation would range from 14 feet to 57 feet, with one lightning pole rising to 100 feet.[503]

444. The Hiawatha East substation would be visible to vehicle drivers, bicyclists and pedestrians along Hiawatha Avenue, Minnehaha Avenue, and the Midtown Greenway, LRT passengers, and from the light industrial buildings located immediately north and south of the site, from light industrial buildings located on the east side of Minnehaha Avenue, from a 5-story multi-family building located south of the substation, from the service entrances of the adjacent retail buildings and from the Green Institute and a light industrial building located west of Hiawatha Avenue. The substation's south side would be approximately 15-20 feet away from the Midtown Greenway.[504]

445. The Hiawatha East substation setback would be approximately 85 feet closer to Minnehaha Avenue than the current building, disrupting the uniform setback along the street, and would be approximately 65 feet closer to the north property than the existing building.[505]

446. The proposed Zimmer Davis substation would have a low-profile design with four 12-foot walls.[506] As with the other sites, the substation equipment would extend above the substation walls, contributing to a more industrial appearance than is characteristic of nearby buildings.

447. Since acquiring the property, Zimmer Davis has cleaned up the area and invested in landscaping. If the substation is constructed at this location, the landscape plantings may help screen the substation from Hiawatha Avenue.[507]

448. No designs were offered for substation construction on sites G-1 through G-5.

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[501] Ex. 1A at 29 (Application); Ex. 64 (Xcel Response to MGC IR No. 2).
[502] FEIS at 339-40.
[503] Ex. 64 (Xcel Response to MGC IR No. 2).
[504] FEIS at 339-40.
[505] FEIS at 340.
[506] Ex. 20 at 6 (McNelly Direct).
[507] FEIS at 341; Ex. 131 at 3 (Davis Surrebuttal).

449. There is no evidence that the selection of the Hiawatha Substation site will have an impact on cultural values.

450. The alternative sites for the Hiawatha Substation are adjacent to the Midtown Greenway and within 0.5 miles of Cedar Avenue Field.[508] Construction of the substation may have a temporary impact on the Midtown Greenway, but apart from the aesthetics, the Hiawatha Substation is not likely to have a long-term or direct impact on recreation in the Midtown Greenway or the Cedar Avenue Field.

451. The proposed Hiawatha substations would require between 2.25 acres (Hiawatha West, low-profile) to 3.24 acres (Zimmer Davis).[509] A high-profile design on the Hiawatha West site would require about one-third less land than the low-profile design.[510] The smaller footprint would allow the substation to be placed farther away from the Midtown Greenway on the Hiawatha West site.

452. None of the proposed Hiawatha substation sites are expected to disrupt roadway, bus transit, railway, airport or emergency services.[511] Construction on Hiawatha West, Hiawatha East or Hiawatha Zimmer Davis would temporarily disrupt use of the Midtown Greenway trail. Selection of the Hiawatha West site may require relocating a portion of the trail.[512]

453. Despite its proximity to the Midtown Greenway and the loss of the community planting, the Hiawatha West site will have the least effect on human settlement. The impact of the site selection can be mitigated by thoughtful site design that includes community involvement.

454. Selection of the high profile design will reduce the substation footprint by about one third and placement of the substation toward the south end of the site will increase the substation's distance from the Midtown Greenway.[513] However, even with the high profile design, the substation will be clearly visible from the Sabo Bridge that crosses Hiawatha Avenue and from the Midtown Greenway.

455. Given its proximity to the Midtown Greenway and Hiawatha Light Rail Line, the design of the substation walls, selection of gate materials and landscaping can reduce or soften the industrial appearance of the substation, with attention to replacing community plantings that are removed during construction. The Elliot Park – Southtown 115 kV transmission towers currently run along the west side of the Hiawatha West property, adjacent to Hiawatha Avenue. Placing the Hiawatha Project's transmission

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[508] Ex. 1A at 84-85; FEIS at 303.
[509] FEIS at 44. The Hiawatha West high-profile design may require less land because of its smaller footprint.
[510] Tr. Vol. 6 at 100-02 (McNelly).
[511] Ex. 1A at 85 (Application).
[512] FEIS at 408-09.
[513] Tr. Vol. 6 at 100-02 (McNelly); Ex. 169 (three possible high-profile substation locations on the Hiawatha West site).

lines underground will eliminate the aesthetic impact of adding transmission towers crossing Hiawatha Avenue to the site.[514]

Effects on Public Health and Safety

456. The Hiawatha Substation will be designed and constructed in compliance with local, state, NESC and Xcel standards. It will be fenced and access limited to authorized personnel. Signs will warn the public of the risk of coming into contact with the substation equipment.[515]

457. Some members of the public expressed concern about EMF exposure from the Hiawatha Substation. The highest projected magnetic field level during peak operation at zero feet from the proposed wall or fence of the Hiawatha Substation is 13.09 mG. At 25 feet from the wall or fence, the highest projected level is 2.02 mG, which is below the WHO recommendation of 3 to 4 mG. It is not likely that any person would have continuous exposure to the Hiawatha Substation site.[516]

458. There is no indication that the electromagnetic fields from the Hiawatha Substation will have any significant impact on human health and safety.

Effects on Land Based Economies

459. There are no existing forestry, mining or commercial agricultural activities in the Project Area.[517]

Effects on Archaeological and Historical Resources

460. All of the Hiawatha Substation alternatives are located in a significantly redeveloped area that was heavily disturbed during the construction of Hiawatha Avenue and multiple railroad tracks.[518]

461. The City of Minneapolis has identified the Hiawatha sites as lying within an area known to have contained the CM&St.P Railyard Car Shop (roundhouse) and Railyard Freight Yards.[519] However, there is no other evidence of investigation or plans to seek historic designation.

462. There is no evidence that the selection of a site will impact any known historic resources.

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[514] *See* FEIS at 345-46.
[515] Ex. 1A at 71 (Application).
[516] Ex. 155 (Xcel Response to MGC IR No. 32).
[517] Ex. 1A at 87 (Application).
[518] Ex. 15, Sched. 10 at 19, 97 (Stark Surrebuttal); Ex. 1A at 91-94 (Application).
[519] Ex. 81 at 8 (City of Minneapolis Comments on DEIS).

Effects on the Natural Environment

463. During the construction of the Hiawatha Substation, there will be limited emissions from vehicles and other construction equipment and fugitive dust.[520]

464. There are no surface water bodies, wetlands or floodplains located at the Hiawatha sites.[521]

465. MnDOT has stated that the soil at the Hiawatha West site has not been tested.[522] There may be arsenic-contaminated soils, lead-based paint and asbestos-containing materials at the Hiawatha East site. Lead-based paint dust and airborne friable asbestos fibers can pose serious health and safety risks. The Applicant would be required to continually monitor for possible soil contamination during construction and take necessary steps to protect worker health and safety and to segregate and dispose of contaminated soils.[523] Soil sampling will be required and where contamination is identified, the Applicant will be required by the MPCA to take necessary precautions to contain and control emissions and construction waste.[524]

466. Wildlife in the area includes species adapted to life in the urban environment. The Hiawatha Substation will have little impact on fauna and the impact would be similar for all sites.[525]

467. Selection of the Hiawatha West site would require removal of the trees and shrubs recently planted by community groups. Selection of the Hiawatha East or Hiawatha Zimmer Davis sites would also require landscape replacement.

Effects on Rare and Unique Natural Resources

468. There are nine known occurrences of rare species or special communities within one mile of the Project Area, but it is not anticipated that any of the Hiawatha substation sites would impact those resources.[526]

Application of Various Design Considerations

469. The Applicant has presented low-profile and high-profile designs for the Hiawatha West substation. The community groups favor the high-profile design because its higher walls will screen more of the equipment. They also urge the Commission to require the Applicant to work with community representatives to design

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[520] Ex. 1A at 95 (Application).
[521] Ex. 1A at 96 (Application).
[522] Ex. 228.
[523] Ex. 1A at 74-75 (Application); FEIS at 282-83, 296-97.
[524] FEIS at 297.
[525] FEIS at 361; Ex. 1A at 97-99 (Application); Ex. 10, Sched. 3 at 6 (Asah Direct).
[526] Ex. 1A at 99-100, 105 (Application).

the substation in a manner that best fits the community where it will be located, with due regard for the lighting, landscaping and the Midtown Greenway.[527]

470. The Hiawatha Substation site is designed for three 50 MVA distribution transformers; only one would initially operate, allowing for expansion of the distribution system.[528] The community groups urge the Commission to evaluate whether the level of need justifies the proposed size of the facility, and, if not, if other sites would accommodate the necessary equipment.

Use of Existing Right-of-Way, Existing Sites, Transportation, Pipeline, and Electrical Transmission Systems or Right-of-Way, or Natural Divisions

471. These criteria do not strictly apply to the substation siting, but are addressed in displacement and costs.

Costs of Constructing, Operating, and Maintaining the Facility

472. The construction costs for the Hiawatha Substation are projected to be $14,270,000.[529]

473. The Hiawatha West site has less cost for land acquisition and relocation than either the Hiawatha East or Hiawatha Zimmer Davis sites because the latter sites are currently occupied by on-going businesses. The Applicant's estimated land acquisition cost for the Hiawatha West site is $900,000 compared to $5 million for Hiawatha East and Hiawatha Zimmer Davis. The Applicant's estimated relocation costs of the railroad spur on the Hiawatha West site are $625,000.[530] Crew2 estimated the fair market value of its property to be $4.1 million and its costs to relocate to be approximately $650,000.[531] Zimmer Davis's cost to acquire and improve the property was $4,150,000, and its estimated costs to relocate its business and its tenants from the site are approximately $575,000.[532] Neither Crew2 nor Zimmer Davis is willing to sell its property because of the costs and disruption to their businesses as well as to their employees, suppliers, subcontractors and customers.

474. The Applicant conducts periodic inspection and maintenance of its substations. The frequency and required maintenance and costs may vary, but there is no significant difference among the sites.[533] The Applicant would monitor the substations remotely through a control system that is staffed at all times, and maintenance staff is available to respond to an emergency.[534]

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[527] Midtown Greenway Coalition Post Hearing Brief at 80; Seward Post Hearing Brief.
[528] Ex. 1A at 41 (Application).
[529] Ex. 1A at 18 (Application); Ex. 18 at 10 (Gallay Direct).
[530] Ex. 165.
[531] Ex. 98 at 5-6 (Firkus Direct).
[532] Ex. 131 at 1-2 (Davis Surrebuttal).
[533] Ex. 1A at 20 (Application).
[534] FEIS at 80-81.

Underground Hiawatha Substation

475. The Applicant conducted a preliminary assessment of an underground substation at the Hiawatha West site with three-stories underground and a landscaped green space on its surface. The substation would include a 115-kV four-bay breaker-and-a-half Gas Insulated Substation, four 115-kV transmission lines, three 115-13.8kV 30/40/50 MVA transformers, and three lineups of 13.8-kV switchgear. The substation would consist of a cast-in-place, reinforced, concrete underground enclosure of approximately 38,000 square feet.[535]

476. The Applicant commissioned a study of the costs to construct such a substation. In comparison to the estimated cost of $14.3 million to construct the Hiawatha substation above ground, the estimated cost to place the substation underground would be approximately $86 million, with a 40 percent margin of error. The underground substation would take approximately 28 months to design and construct. No study has evaluated the water table depths, soil contamination or other factors that could affect construction costs.[536]

477. The Applicant currently operates one underground substation, at 414 Nicollet Mall, in downtown Minneapolis, beneath the plaza between 5th Street and the Xcel Energy building. The Fifth Street Substation is 154 feet by 103 feet, plus a mezzanine, with three 115 kV transmission line terminations, three 115 kV circuit breakers, one 115 kV circuit switcher, four transformers and 35 12.5 kV feeders. It connects 115 kV transmission lines with 13.8 kV distribution lines. The equipment is of the type typically placed above ground and is air insulated. Although the substation is below the street, the Applicant does not consider it to be a "typical" underground substation because it is connected to and partially in the basement of its building.[537]

478. The Fifth Street Substation was constructed between 1963 and 1970. Its total initial cost was $4.1 million, in 1970 dollars. The Applicant has insufficient information to calculate the incremental cost of putting that substation underground. Its costs were treated as a standard facility. The substation was placed underground for operational and technical reasons, and not in response to concerns raised by customers or the community.[538]

479. From the Fifth Street Substation, the three 115kV transmission lines extend underground for several blocks. One line extends underground to a point on the western side of downtown, north of the intersection of I-94 and I-394. The other two extend east through downtown to a point near the Guthrie Theatre where they go above ground to cross the Mississippi River.[539]

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[535] FEIS at 51 and Appendix D.
[536] Ex. 20 at 12-13 (McNelly Direct); Ex. 64 at 5-6 (Springer Surrebuttal Schedule 27); FEIS Appx. D.
[537] Ex. 67.
[538] Ex. 67.
[539] Ex. 20, Sched. 6 at 6. (This map, which was attached to Xcel's Response to Midtown Greenway Coalition IR 27, was not included in Ex. 67.)

480. The Applicant has identified only one substation underground that is not connected to, or in the basement of a building, the Anaheim Public Utilities, Park Substation, in Anaheim, California, completed in 2006, at a cost of $19.5 million. The Anaheim Park Substation includes five 69kV lines, twelve 12.5 kV feeders and associated equipment typically found in a gas-insulated substation. The gas and conductors are contained in pipes that allow close spacing. Gas-insulated substations are typically more expensive and more compact than air-insulated substations.[540]

481. The Anaheim Park Substation was built on a level site, slightly below existing grade, and then covered with dirt so that it appears to be built within the side of small hill. The top of the site was developed as a community park. One partially exposed section of wall includes a large door that provides access to the substation. Thus, its construction was more typical of a substation built within a building above ground. The costs of constructing the Anaheim Park Substation were paid from normal energy and demand-based charges, in the same way as typical substation construction costs.[541]

482. There is insufficient evidence to conclude that an underground design is a feasible and prudent alternative to the Hiawatha West substation.

Adverse Human and Natural Environmental Effects That Cannot Be Avoided

483. The effect on human settlement and the environmental effects are fully addressed in the prior findings.

Application of the Routing Criteria To The Midtown Substation

Effects on Human Settlement

484. The Midtown North site occupies 0.8 acres. It includes the former Xcel Energy Oakland Substation, a condemned triplex, and vacant land owned by Brown Campbell Enterprises. Only the condemned triplex would be displaced.[542]

485. The Midtown North substation would be a high-profile design with walls on four sides. A galvanized metal chain link gate or wood doors would be located on the east and west facing walls at driveway access points, similar to driveway entrances along Portland Avenue and Oakland Avenue.[543] The average height of the structures in the substation would be approximately 45 feet, but the tallest structure would extend to 56 to 66 feet in height.[544]

486. For Route A1, two transmission line pole structures would be located immediately outside and to the south of the Midtown North Substation, within the slope

[540] Ex. 67; Ex. 20 at 12-13 (McNally Direct); *see also* Ex. 66.
[541] Ex. 67.
[542] Ex. 1A at 29 (Application); Ex. 10 at Sched. 3 (Asah Direct); Ex. 20 at 10 (McNelly Direct); FEIS at 49 (2840 Oakland Ave., 2833 Portland Ave., 2841 Portland Ave.).
[543] FEIS at 341-42.
[544] FEIS at 78-79.

or trench of the Midtown Greenway. These structures would be up to 115 feet in height.[545]

487. The north and south walls of the substation would span the full width of the block between Portland Avenue and Oakland Avenue. The east and west facing substation walls would be much greater in scale than the nearby residential units. The wall lengths are of similar size to the adjacent industrial buildings located opposite the substation on the east side of Oakland Avenue and across the Midtown Greenway. The wall setback from Portland Avenue is not as deep as the housing units located further north on the block and would disrupt the uniform setback that currently exists along the street. The wall setback from Oakland Avenue is consistent with the setback of the housing along the block. The south substation wall would be closer to the Midtown Greenway than other adjacent buildings on the north side of the Greenway by approximately 25 feet.[546]

488. The industrial building east of Oakland does not have any windows facing the substation. The substation walls and chain link gates would be visible from a multi-family building located across Portland Avenue.[547]

489. There is one single-family and two multi-family residences, with a total of 6 dwelling units within 25 feet of the Midtown North site and 7 residences with 11 dwelling units within 100 feet.[548] The Applicant is not considering purchasing or displacing any additional homes for the Midtown North substation.[549] The Applicant is uncertain whether any of its existing substations are within 25 feet of occupied residences.[550]

490. The majority of the substation facilities would be oriented toward the southeast corner of the site. Because the facilities would extend about 40 feet above the substation walls, they would be visible from the Brown Campbell property, Midtown Greenway, and Oakland Avenue.[551]

491. In response to concerns raised about noise near the Midtown Substation, the Applicant conducted a Noise Assessment to determine the existing ambient sound levels in the vicinity of the site and the potential noise impact on the surrounding residential area and the Midtown Greenway.[552]

492. The Noise Assessment measured the existing ambient noise at nearby residences and in the Midtown Greenway, and compared them to the noise limits set by the MPCA, including the L50 level, which is the level of noise that is exceeded 50% of the time (30 minutes) of each hour. At most of the sites included in the investigation, the current ambient noise level was within the residential daytime standard (7 a.m. to 10

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[545] FEIS at 342; Ex.11, Sched. 13 at 16-17 (Asah Rebuttal).
[546] FEIS at 342-33.
[547] FEIS at 343.
[548] Ex. 155 (Xcel Supp. Response to MGC IR No. 32, Attach. 1, at 1).
[549] Tr. Vol. 7 at 76 (Asah).
[550] Tr. Vol. 1 at 166 (Asah).
[551] FEIS at 77, 342.
[552] Ex. 12 at 3 and Sched. 14 (Asah Surrebuttal).

p.m.), which is 60 decibels. It was exceeded during the 5 p.m. testing at one location. The addition of the substation will slightly increase the noise level.[553] With the planned 20-foot high perimeter wall and both gates fenced, the increase in the L50 noise level from the substation is not expected to exceed the L50 nighttime limit of 50 dBA.[554]

493. The Applicant plans to install low noise transformers, sound absorbing materials for the substation walls, and rubber matting under the substation transformers to mitigate the noise.[555] The Applicant's Noise Assessment shows that the addition of a north interior wall and ten-foot high solid wood gates would mitigate the increased noise from the Midtown North substation, particularly to the second floor of the residence at 2829/2831 Portland.[556]

494. The Midtown North site was previously zoned as "industrial" but the City of Minneapolis has rezoned it as "multi-family residential." The City is concerned that a substation at the Midtown North site will conflict with the land use plans for this site.[557] The proposed substation at the Midtown North site would be consistent with the prior use of the parcel for a substation site (the Oakland Substation), and other industrial uses present along the Greenway, but is not consistent with redevelopment plans for the Midtown Greenway rim.

495. One of the stated objectives of the Midtown Greenway Land Use and Development Plan is the development of a pedestrian promenade along the rim of the Midtown Greenway with access to the Greenway at the Midtown North site.[558] The substation could be designed to accommodate a walkway installation along the south side of the wall.[559]

496. The community organizations are concerned about the design of the Midtown North Substation because of its location in a dense area, close to residential units, and because of plans to develop the north slope of the Midtown Greenway as a pedestrian walkway. If an overhead route is selected, pole placement near the substation may be in or near the Midtown Greenway. A substation in this location would not be aesthetically pleasing.[560]

497. There would be space available on the east and west sides of the substation to plant a vegetated buffer. No space would be available for a vegetated

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[553] Ex. 12, Sched. 14 at 21 (Asah Surrebuttal).
[554] Ex. 12, Sched. 14 at iii, 21-23 (Asah Surrebuttal).
[555] Ex. 21 at 3 (McNelly Rebuttal).
[556] Ex. 12, Sched. 14 at iii, 17 (Asah Surrebuttal).
[557] Tr. Vol. 8 at 124 (Mogush).
[558] Ex. 40 at 48, 56-57 (City of Minneapolis, Midtown Greenway Land Use Development Plan, Feb. 23, 2007); Ex. 175 (drawings of proposed public walkway); FEIS at 144-45, 342.
[559] FEIS at 342.
[560] *See* FEIS, Fig. 5.8-18 -- 5.8-21 (simulated views of Midtown North Substation, with overhead transmission lines).

buffer on the north side of the substation, which would face onto a residential side yard.[561]

498. Construction on the Midtown North site may require alteration of the slope on the north side of the Midtown Greenway trench. Changes to the slope of the trench have been made in the past to accommodate the bicycle trail access and to maintain space within the trench for future transit development.[562] Use of the slope for the substation would require the removal of existing vegetation. If the existing vegetation were maintained along the slope, views of the substation walls could be screened from street-level pedestrians on the south side of the Greenway.[563]

499. The community organizations encouraged creative design of the substation to better complement the residential character of the neighborhood.[564] The aesthetic impact of the Midtown North Substation could be mitigated by attention to architectural design and input from community artists or organizations. Changing the material and design of the fences and gates could improve the character and still achieve the necessary access and security. Landscaping on all sides, especially the sides facing residences and the Midtown Greenway, could also mitigate the impact. Proper lighting may also minimize the industrial appearance of the substation.[565]

500. There was no evidence of whether the adjoining property owners to the north of the Midtown North site would be willing to sell their property to the Applicant, allowing a greater buffer to the north from any residential property and possibly allowing the substation to be moved to the north, away from the Midtown Greenway slope.

501. The Midtown South site is currently occupied by Brown Campbell.[566] There is one multi-family residence with a total of three dwelling units within 25 feet of Midtown South, and six residences with 46 units within 100 feet.[567]

502. The Midtown South substation would have a low-profile design, with walls on four sides, and an average height of approximately 45 feet, with the highest structure approximately 57 to 67 feet in height. There would be approximately 10 feet of landscaping on the east and west sides.[568] Galvanized metal chain link gates or wood doors would be located on the east and west facing walls at driveway access points, off of Portland Avenue and Oakland Avenue. While the proposed driveway entrances would be inconsistent with the remainder of the block, the overall substation design would reduce the number of driveway entrances.[569]

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[561] FEIS at 343.
[562] T. Vol 7 at 127-31 (Springer).
[563] FEIS at 343.
[564] *See, e.g.* Ex. 65 (Con Ed Substation Design).
[565] FEIS at 345-46.
[566] Ex. 1A at 31 (Application); FEIS at 48 (2907 Portland Ave. and 2915 Portland Ave.).
[567] Ex. 155 (Xcel Supp. Response to MGC IR No. 32, Attach. 1, at 1).
[568] Ex. 20 at 10 (McNelly Direct); FEIS at 78-79.
[569] FEIS at 343.

503. The footprint of the substation is comparable to the existing building on the site, but the substation would change the visual character along Portland Avenue and Oakland Avenue by replacing a two-story building and several one-story industrial buildings with a uniform wall. The existing two-story building faces onto Portland Avenue and is complementary in scale and form to the adjacent residential units. The new substation walls would provide more screening of industrial uses than the current site.[570]

504. The wall set-backs would be consistent with nearby housing units. The east facing wall would terminate eastbound views along 29th Street, which ends at Portland Avenue. Attention to the design of the wall segment and associated landscaping could enhance the aesthetics of the substation.[571]

505. Walls would also be constructed around the Mt-28N and Mt-28S sites, but the size and design were not specified.[572]

506. Mt-28N is a portion of green space owned by Wells Fargo, landscaped and used by its employees for passive recreation and screened from I-35W by mature trees and shrubs. The entire green space is 5 acres in size; the substation site would encompass the southern portion.[573] Locating the substation on the site would impede Wells Fargo's expansion plans.[574] There are no residences within 100 feet of Mt-28N.[575] A substation would not be compatible with the surrounding building materials and campus setting.[576]

507. The MT-28S site is a parking lot owned by Well Fargo and used by its employees.[577] Wells Fargo plans to expand on the site.[578] Mature trees and shrubs would partially screen the substation from the Midtown Greenway, but the materials and industrial character of the substation would not be compatible with the adjacent Wells Fargo campus. There are no residences within 100 feet of Mt-28S.[579] The site's relative isolation would not make the substation incongruent with the location.[580]

508. It is not likely that the Midtown Substation will impact cultural values, except to the extent that it is inconsistent with the plans to increase residential units and green space along the Midtown Greenway.

509. The Midtown North, Midtown South and Mt-28S sites are adjacent to the Midtown Greenway. All four Midtown Substation sites are within 0.5 miles of Stewart

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[570] FEIS at 343-44.
[571] FEIS at 344.
[572] Ex. 20, Sched. 5 at 2-3 (McNelly Direct).
[573] Ex. 124 (aerial photo of Wells Fargo park with Mt-28N superimposed).
[574] Ex. 127 at 7-8 (Olson Direct).
[575] Ex. 155, Attach. 1 at 1 (Xcel Response to MGC IR No. 32).
[576] FEIS at 344.
[577] Ex. 123 (aerial photo of Wells Fargo parking with Mt-28S superimposed).
[578] Ex. 127 at 5-7 (Olson Direct).
[579] Ex. 155, Attach. 1 at 1 (Xcel Response to MGC IR No. 32).
[580] FEIS at 344.

Park and the Lake Street Corridor; the Mt-28N site is within 0.5 miles of other parks, but those parks are located on the west side of 35W and would not be affected by the Mt-28N substation.[581]

510. Construction of the substation may have a temporary impact on recreation on the Midtown Greenway and other recreational facilities due to construction noise and access restrictions. Also, there would be some additional noise from the substation that could slightly affect the Midtown Greenway immediately adjacent to the substation site. There would be no significant permanent impact on recreation from selection of the Midtown North, Midtown South or Mt-28S sites. The Mt-28N site is used as a park for passive recreation and would be affected if that site were selected.[582]

511. Except for some possible temporary disruption during construction, there is no evidence that a substation in the vicinity of the Midtown Greenway would decrease its recreational use, but selection of the Midtown North site may interfere with the future development of a pedestrian promenade.

512. There is no evidence that construction and operation of the Midtown Substation at any of the alternative sites would permanently disrupt roadway, bus transit, railway, airport or emergency services facilities.[583] Construction of either the Midtown North or South Substations would temporarily disrupt the sidewalks. Construction of Midtown North may impede the planned Midtown Greenway pedestrian promenade between Portland Avenue and Cedar Avenue. Construction of the Midtown South Substation could prevent future reestablishment of 29th Street. Substation walls would exceed the Midtown Greenway planned height restrictions for fencing along the Midtown Greenway.[584]

Effects on Public Health and Safety

513. The Midtown Substation will be designed and constructed in compliance with local, state, NESC and Xcel Energy standards. It will be fenced and access limited to authorized personnel, with appropriate signage to warn the public of the risk of contact with energized equipment.[585]

514. The estimated level of magnetic fields at the substation does not significantly vary with the site. The highest level is typically near the gate. At the Midtown Substation site, the highest anticipated level would be 11.64 mG, at zero feet from the center of the wall or fence, decreasing to 1.21 mG at 25 feet.[586] Although there are some residential units within 25 feet of the substation site, it is not likely that any would be within 25 feet of the substation wall. It is not likely that there would be continuous exposure to the magnetic field at the substation wall.

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[581] FEIS at Figure 5.7-1 (Parks and Recreation Facilities Within 0.5 Miles of Project Area).
[582] FEIS at 320 (does not address the loss of park land at Mt-28N).
[583] Ex. 1A at 85 (Application).
[584] FEIS at 409.
[585] Ex. 1A at 71 (Application); FEIS at 408-10, 413.
[586] Ex. 155 (Xcel Response to MGC IR No. 32).

515. Although the community has some concern about the electromagnetic field associated with the Midtown Substation, there will be no significant effect along the Midtown Greenway.[587] The electromagnetic field at the Midtown South site is not likely to have any significant impact on human health and safety, regardless of the substation alternative that is selected.

Effects on Land Based Economies

516. There are no existing forestry, mining or commercial agricultural activies in the Project Area.[588] Selection of the Midtown South site will displace Brown Campbell. The Mt-28N and Mt-28 S sites are owned by Wells Fargo, which uses the land and has plans to develop the sites more intensively.

517. All of the Midtown Substation alternatives are inconsistent with the land use plans along the Midtown Greenway. Those plans emphasize pedestrian-friendly designs and transit-oriented development. The plans limit industrial and promote higher density residential development.[589] Recent zoning changes further this approach.[590] However, the City of Minneapolis takes no position on the location of the Midtown Substation.

Effects on Archaeological and Historical Resources

518. The Midtown North, Midtown South and Mt-28S sites are adjacent to the CM&St.P Historic District, and the Mt-28N site is nearby.[591]

519. The Applicant's property at the Midtown North substation site extends into the Midtown Greenway to the northernmost paved surface of the Greenway trail.[592]

520. Because additional space will likely be needed to accommodate all of the required substation equipment at the Midtown North site, a retaining wall and possibly a transmission structure may need to be constructed within the CM&St.P Historic District.[593] The Applicant's proposed design for the Midtown North substation would alter the trench slope and the grade separation by extending the site and building a retaining wall.[594] The design of the retaining wall and the placement of the pole have not been determined. The construction of the retaining wall will change the

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[587] Ex. 155 (Xcel Response to MGC IR No. 32).
[588] Ex. 1A at 87 (Application).
[589] FEIS at 144; Ex. 40 (Midtown Greenway Land Use Develoment Plan).
[590] *Compare* Ex. 235 *with* Ex. 236.
[591] Ex. 1A at 91-94 (Application); Ex. 20 at 7-9 (McNelly Direct).
[592] Tr. Vol. 2 at 156, 167-168 (Asah).
[593] Ex. 1A at 30 (Application); Tr. Vol. 5 at 83 (McNelly).
[594] Tr. Vol. 5 at 41-42 (McNelly); *see also* existing trench berm in Ex. 15, Sched. 10, Cultural Assessment Report, at 72, Figure 52 (Stark Surrebuttal) and simulated view of Midtown North Substation in FEIS, Figure 5.8-18.

embankment and slope of the CM&St.P Historic District.[595] Changing the grade of the slope will have a direct effect on the historical resource.[596]

521. The Midtown North substation site was historically occupied by a coal yard and then a substation. The site is unlikely to contain archaeological resources.[597]

522. The Midtown North site is across the Midtown Greenway from the historic Zinsmaster Building and may affect its views. The site was historically occupied by a coal yard and a substation. The site is unlikely to contain archaeological resources.[598]

523. The Midtown South site is adjacent to but will have no adverse visual effects on the nearby Zinsmaster Building, but vibration from the substation's construction could have an adverse effect. Additional testing may be required if the Midtown South site is selected and, if there is the potential for damage, construction techniques may need to be modified. No other effect on historic sites is expected at either substation site.[599]

524. The Midtown South site would be constructed on the site of a former auto sales and service building and curling club. The property was determined to be ineligible for the NRHP and it is unlikely that the site contains archaeological resources.[600]

525. The Midtown South site was determined ineligible for the NRHP, and has low potential for containing archaeological resources.[601]

526. The Midtown North site will have the greatest effect on the historic resources. The screening wall and landscaping should be designed to fit the historic character of the area and adjoining residential area, in accord with the HCRRA guidelines for the district. The design of the walls facing the historic district may differ from the design of the walls facing the residential neighborhood.[602]

Effects on the Natural Environment

527. During construction of the Midtown Substation, there will be limited emissions from vehicles and other construction equipment and fugitive dust.[603]

528. There are no surface water bodies, wetlands or floodplains located within the Project Area to affect the selection of the Midtown Substation, and no anticipated

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[595] Tr. Vol. 5 at 82-83 (McNelly).
[596] Tr. Vol. 3 at 73 (Stark).
[597] Ex. 15 at Sched. 10 at 19 (Stark Surrebuttal).
[598] Ex. 1A at 91 (Application); Ex. 15, Sched. 10 at 19 (Stark Surrebuttal).
[599] Ex. 15, Sched. 10 at 47-52, 97 (Stark Surrebuttal).
[600] Ex. 15 at Sched. 10 at 19 (Stark Surrebuttal); Ex. 1A at 91-94 (Application).
[601] Ex. 1A at 91 (Application); Ex. 15, Sched. 10 at 19 (Stark Surrebuttal).
[602] Ex. 15, Sched. 10 at 75,99 (Stark Surrebuttal).
[603] Ex. 1A at 95 (Application).

impact on these resources and the Midtown Substation will have no impact on water quality.[604]

529. Construction on either the Midtown North or Midtown South sites would require the removal of one tree.[605]

530. There are known or potential contaminated soils and groundwater at each substation site, including possible petroleum releases, lead-based paint and asbestos-containing materials. Soil sampling will be required and where contamination is identified, the Applicant will be required by the MPCA to take necessary precautions to contain and control emissions and construction waste.[606]

531. Routes Mt-28N and Mt-28S are located on Wells Fargo property. Mt-28 N is a heavily landscaped area used as a park. It is estimated that there are approximately 170 trees that would be affected at the Mt-28N site and approximately 17 trees that would be affected at the Mt-28S site.[607]

532. Wildlife in the area includes species adapted to life in the urban environment. The Midtown Substation will have little impact on fauna and would be similar for all sites.[608]

533. Selection of the Midtown North site will have no significant effect on the natural environment.

Effects on Rare and Unique Natural Resources

534. There are no rare or unique natural resources located on the Midtown Substation sites.[609]

Application of Various Design Considerations

535. Neither the Midtown North nor Midtown South substation sites allow for future expansion.

536. The Midtown Substation is designed for two 70 MVA distribution transformers. It is designed to allow for tie-in to an additional 115Kv line. Only one distribution transformer would initially operate, allowing for expansion of the distribution system. Neither the Midtown North nor Midtown South substation sites would allow for future physical expansion.[610]

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[604] Ex. 1A at 96 (Application); FEIS at 351.
[605] Ex. 1A at 97 (Application); FEIS at 358.
[606] FEIS at 282-83, 296-97.
[607] FEIS at 358.
[608] Ex. 1A at 97-98 (Application); FEIS at 361.
[609] FEIS at 367.
[610] Ex. 1A at 41 (Application).

537. The Applicant has not proposed a fully enclosed substation. An example of such a substation, located in a dense urban section of the Bronx, N.Y. was offered into evidence. The four-story, 125,000-square-foot building was designed to visually downsize its mass and to blend into the neighborhood.[611] Enclosing the substations would require design changes and increase construction costs to accommodate large ventilation systems. Those systems could increase the substation's noise level.[612]

538. There was no evidence offered about an underground Midtown Substation alternative.

Use of Existing Right-of-Way, Existing Sites, Transportation, Pipeline, Electrical Transmission Systems or Right-of-Way, or Natural Divisions

539. These criteria do not strictly apply to the substation siting, but are addressed in displacement and costs.

Costs of Constructing, Operating, and Maintaining the Facility

540. The construction costs for the Midtown North Substation are projected to be $11,120,000.[613]

541. The Applicant estimates that the land acquisition costs for the Midtown North site are $700,000, with no relocation costs. The land acquisition costs for the Midtown South site are estimated at $2,500,000, with estimated relocation costs of $750,000.[614] No figures were offered for the Mt-28N or Mt-28S sites.

542. The Applicant conducts periodic inspection and maintenance of its substations. The frequency and required maintenance and costs vary.[615] The Applicant would monitor the substations remotely through a control system that is staffed at all times, and maintenance staff is available to respond to an emergency.[616]

Adverse Human and Natural Environmental Effects That Cannot be Avoided

543. The effect on human settlement and the environmental effects are fully addressed in the prior findings.

Adequacy of FEIS

544. The Commission is required to determine the adequacy of the FEIS. To be adequate, the FEIS must, among other things, address the issues and alternatives identified in the Scoping Decision "to a reasonable extent considering the availability of information and the time limitations for considering the permit application."

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[611] Ex. 65.
[612] FEIS at 80.
[613] Ex. 1A at 18 (Application); Ex. 18 at 11 (Gallay Direct).
[614] Ex. 165.
[615] Ex. 1A at 20 (Application).
[616] FEIS at 80-81.

545. The evidence on the record demonstrates that the FEIS is adequate because it addresses the issues and alternatives raised in the Scoping Decision, provides responses to the substantive comments received during the DEIS review process, and was prepared in compliance with Minnesota Rules 7850.1000 to 7850.5600.

Based on these Findings of Fact, the Administrative Law Judge makes the following:

CONCLUSIONS

1. The Public Utilities Commission and Administrative Law Judge have jurisdiction to consider Applicant's Application for a Route Permit.[617]

2. The Commission determined that the Application was substantially complete and accepted the Application on May 26, 2009. The Applicant and other parties agreed to extend the twelve-month timeframe for a decision on the permit,[618] and the subsequent enactment of Minnesota Laws 2010, ch. 361, art. 5, sec. 19, will further delay the final decision.

3. OES conducted an appropriate environmental analysis of the Project for purposes of this route permit proceeding and the FEIS satisfies Minn. R. 7850.2500.

4. Applicant gave notice as required by Minn. Stat. § 216E.03, subd. 3a; Minn. Stat. § 216E.03, subd. 4; Minn. R. 7850.2100, subp. 2, and Minn. R. 7850.2100, subp. 4.

5. OES gave notice as required in Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2; Minn. R. 7850.2500, subp. 2; Minn. R. 7850.2500, subp. 7; Minn. R. 7850.2500, subp. 8; and Minn. R. 7850.2500, subp. 9.

6. Public hearings were conducted in the Project Area. Applicant and OES gave proper notice of the public hearings, and the public was given the opportunity to speak at the hearings and to submit written comments. All procedural requirements for the Route Permit were satisfied.

7. The CM&St.P Railroad Grade Separation Historic District is a protected natural resource.[619] Construction of Route A either overhead or underground has the potential to impair that resource. Although it is the least expensive alternative, cost, convenience and efficiency are not sufficient reasons to select a route that has the potential to impair a protected resource.[620]

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[617] Minn. Stat. §§ 14.57-.62 and 216E.02, subd. 2.
[618] *See* Minn. Stat. § 216B.243, subd. 5.
[619] Tr. Vol. 3 at 15-16 (Stark); Ex. 15, Sched. 10 at 18 (Stark Surrebuttal); *Powderly v. Erickson,* 285 N.W.2d 84, 87-88 (Minn. 1979); *Archabal v. County of Hennepin,* 495 N.W.2d 416, 421 (Minn. 1993).
[620] *Archabal v. County of Hennepin,* 495 N.W.2d 416, 423, 426 (Minn. 1993).

8. Route B, Route C and Route E2 are not feasible or prudent alternatives to Route A.

9. Based on an evaluation of the routing factors, set forth in Minn. Stat. § 216E.03, subd. 7(a) and 7 (b), and Minn. R. 7850.4000 and 7850.4100, Route D is a feasible and prudent alternative to the Applicant's preferred Route A. Route D does not present a potential for significant adverse environmental effect. Route D will minimize the effects on natural resources, including historic resources, and on persons living and working within the Project Area, and will better serve the public health, safety, and welfare. Route D will not hinder future transit development and will follow an existing transportation right-of-way. Although the cost of Route D is greater than the other alternatives, the factors favoring an underground transmission line in an urban area as densely populated as the Project Area justify the added expense to offset the human and environmental impact of the overhead alternatives.[621]

10. Route D is the best alternative on the record.

11. The Applicant has demonstrated that the Hiawatha West and Midtown North substation sites best meet the routing criteria. Although the Midtown North Substation has the potential to impair the CM&St.P Railroad Grade Separation Historic District, no party has presented a feasible and prudent alternative. The Midtown North Substation is reasonably required to promote the public health, safety and welfare.

12. The Hiawatha East and Hiawatha Zimmer Davis sites are not feasible and prudent alternatives to the Hiawatha West site. Based on this record, ATF Sites G-1 through G-5 are not feasible and prudent alternatives to the Hiawatha West site.

13. The Midtown South, Mt-28N and Mt-28S sites are not feasible and prudent alternatives to the Midtown North site.

14. The Route Permit should provide Applicant with a route width of up to 80 feet and 30 foot right-of way, with additional space for the substations, as set forth in the Application.

15. Any Findings more properly designated Conclusions are adopted as such.

Based upon these Findings of Fact and Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

That the Commission issue to Applicant the following permit for the Hiawatha Project:

[621] Minn. Stat. §§ 116D.02, subd. 2; 116D.04, subd. 6; 116D.09, subd. 2; 116B.04.

1. A route permit for a high voltage transmission line corridor up to 80 feet wide, underground along Route D, subject to the following condition to minimize the impact of the Project on the persons living and working in close proximity to Route D:

> The route alignment shall be developed in consultation with the City of Minneapolis, and shall be as close to the center of 28th Street as possible, with due regard for the existing infrastructure, in order to assure that the alignment is at the greatest reasonable distance from the sidewalk and residential structures, and minimizes the removal or destruction of mature trees along the adjacent boulevard.

2. The route permit shall include the Hiawatha West Substation, subject to the following conditions to minimize the impact of the Project on the persons living and working in close proximity to it:

> The Applicant shall consult with the City of Minneapolis about placement of the Hiawatha West Substation on the site to minimize disruption to the current and planned Midtown Greenway bicycle and pedestrian trails, and that the Applicant consult with the City of Minneapolis, MnDOT and the community groups concerning the substation's wall design, lighting and landscaping to minimize the aesthetic impact and be compatible with the surrounding structures.

3. The route permit shall include the Midtown North Substation, subject to the following conditions to minimize the impairment of the resources and to minimize the impact of the Project on the persons living and working in close proximity to it.

> The Applicant shall consult with the City of Minneapolis and Hennepin County about placement of the Midtown North Substation on the site to minimize impairment or destruction of the Midtown Greenway and retain flexibility for future transit development, and shall consult with the City of Minneapolis, Hennepin County and the community groups concerning the substation's wall design, lighting and landscaping to minimize the aesthetic impact, be compatible with the surrounding structures, reduce noise, and, to the degree practicable, conform with City development plans along the Midtown Greenway.

4. The route permit shall require the Applicant to obtain all required local, state, and federal permits and licenses, comply with the terms of those permits and licenses, and comply with all applicable rules and regulations.

Dated: October 8, 2010

BEVERLY JONES HEYDINGER
Administrative Law Judge

Reported: Shaddix & Associates

NOTICE

Under the PUC's Rules of Practice and Procedure, Minn. R. 7829.0100 to 7829.3200, exceptions to this Report, if any, by any party adversely affected must be filed with the Executive Secretary of the PUC, 350 Metro Square Building, 121 Seventh Place East, St. Paul, Minnesota 55101-2147. Exceptions must be specific, relevant to the matters at issue in this proceeding, and stated and numbered separately. Proposed Findings of Fact, Conclusions, and Order should be included, and copies thereof served upon all parties.

The PUC shall make its determination on the applications for the Certificate of Need and Route Permits after expiration of the period to file Exceptions or after oral argument, if oral argument is held.

Notice is hereby given that the PUC may accept, modify, condition, or reject this Report of the Administrative Law Judges and that this Report has no legal effect unless expressly adopted by the PUC.

MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS

600 North Robert Street
Saint Paul, Minnesota 55101

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October 8, 2010

To All Parties as Listed on the Attached E-Docket Service List

Re: *In the Matter of the Application for a Route Permit for the Hiawatha Transmission Line Project*
OAH Docket No. 15-2500-20599-2; PUC No. ET2/TL-09-38

Dear Parties:

Enclosed herewith and served upon you as listed on the Attached E-Docket Service List is the Administrative Law Judge's Findings of Fact, Conclusions, and Recommendation in the above-entitled matter.

Sincerely,

BEVERLY JONES HEYDINGER
Administrative Law Judge

Telephone: (651) 361-7838

BJH:nh

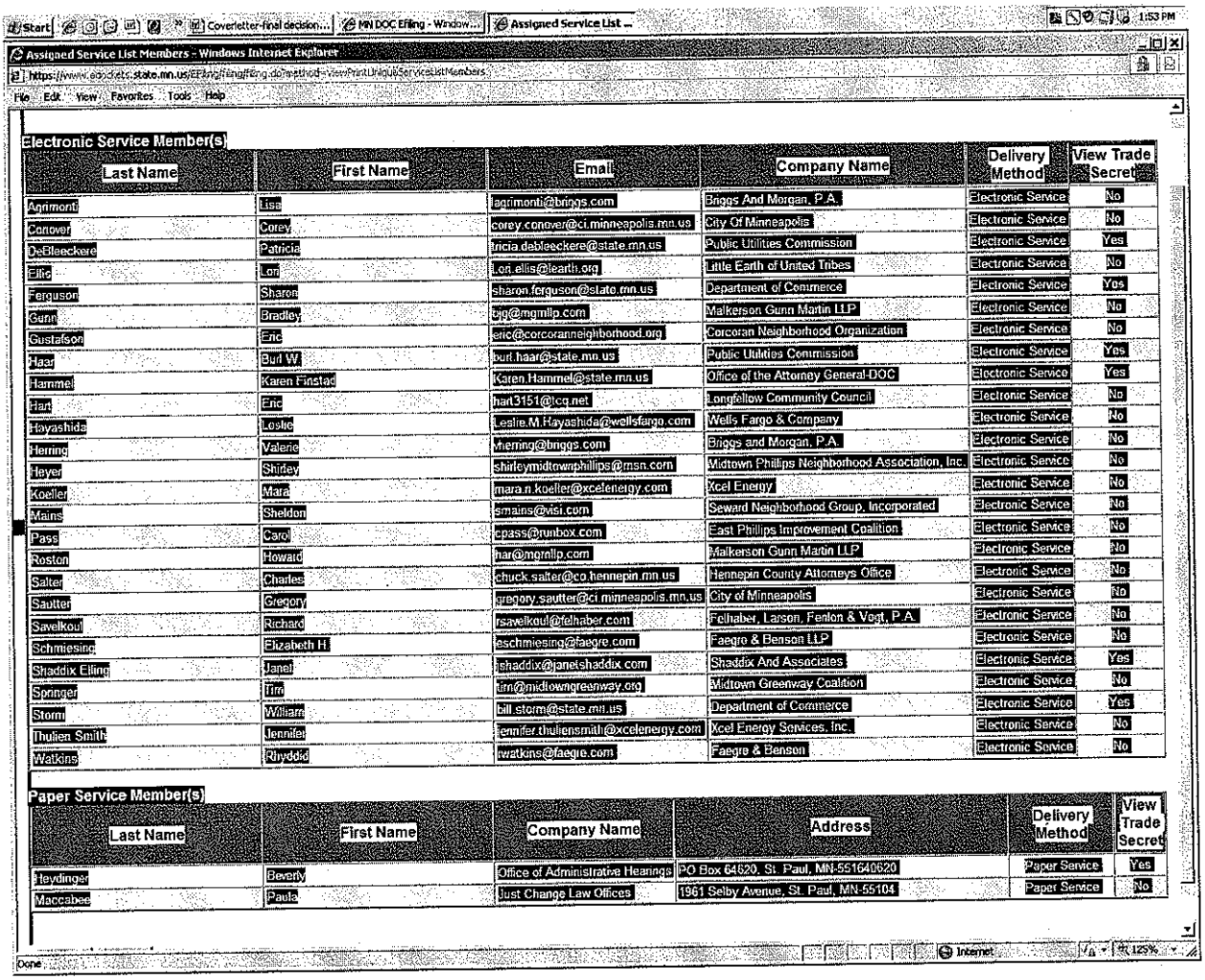
Enclosure

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
ADMINISTRATIVE LAW SECTION
600 NORTH ROBERT STREET
ST. PAUL, MN 55101

CERTIFICATE OF SERVICE

Case Title: *In the Matter of the Application for a Route Permit for the Hiawatha Transmission Line Project*	OAH Docket No. 15-2500-20599-2; PUC No. ET2/TL-09-38

Nancy J. Hansen certifies that on the 8th day of October, 2010, she served a true and correct copy of the attached Findings of Fact, Conclusions, and Recommendation by serving it as listed on the attached E-Docket Service List.



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