6.2 Huntley to Iowa Border Segment

Routes that proceed from the Huntley substation to the Iowa border could originate from the proposed Huntley substation site or the alternative southern Huntley substation site. In the discussion that follows the routes that proceed from the proposed Huntley substation site are denoted as routes A1-HI and B1-HI. The route alternatives that proceed from the alternative southern Huntley substation site are denoted as route alternatives A2-HI and B2-HI. In the analysis here, route A1-HI and route alternatives A2-HI will sometimes be referred to as the A ROW; and likewise, route B1-HI and route alternative B2-HI the B ROW.

This section first discusses the routes and route alternatives from the Huntley substation sites to the Iowa border, and then discusses the route variations in this segment. **Modified route A in this segment is very similar to route variation HI-1, and is discussed with the HI-1 route variation.**

Impacts of routes, route alternatives and route variations in the Huntley to Iowa border segment are closely related to transmission line ROW sharing. **Impacts to human settlements** are anticipated to be minimal with aesthetics being the only impact element that could be mitigated by routing – by avoiding residences and utilizing existing transmission line ROW. Because of its significant transmission line ROW sharing, the A ROW is anticipated to minimize aesthetics impacts. Two route variations in this segment minimize aesthetic impacts for residences near the A ROW – route variation HI-2 near the Faribault substation and route variation HI-5 near the Iowa border.

Impacts to transportation and public services and **public health and safety** are anticipated to be minimal. **Impacts to archaeological and historic resources** are anticipated to be minimal, except for a section of route A1-HI near the Blue Earth River. In this section there is a known archaeological resource and potential impacts to this resource would likely require mitigation measures.

Impacts to land-based economies are almost exclusively impacts to agricultural operations. This segment proceeds through an area that is, by land cover, approximately 98 percent agricultural. Thus, impacts to agricultural operations cannot be avoided; however, they can be mitigated and primarily by following existing transmission line ROW. The A ROW, because it follows an existing 161 kV line, minimizes agricultural impacts. Route variations in this segment typically have greater agricultural impacts than the sections of routes A1-HI and B1-HI that they would replace. In this sense, the route variations trade off greater agricultural impacts for fewer aesthetic impacts (HI-2, HI-5) and fewer impacts to the natural environment (HI-1, **MRA-HI1,** HI-4).

Impacts to the natural environment cannot be avoided, but these impacts are anticipated to be minimal. Route variation HI-1 **and modified route A (MRA-HI1)** likely minimize impacts to flora and fauna by placing the line at greater distance from the Blue Earth River. However, the impacts associated with following the existing 161 kV line across the river in this area (A-HI1) would be incremental.

All lakes, watercourses and wetlands would be spanned, with the exception of the wetland at the Pilot Grove Lake WPA. The A ROW follows the existing 161 kV line across this WPA, in a 345/161 kV double-circuit configuration. The impacts to flora and fauna from this crossing are anticipated to be incremental and minimal. Route variation HI-4 goes around the WPA and thus avoids crossing it. Route variation HI-4 is more expensive to construct than A-HI4. Impacts to avian species near the WPA will occur but can be mitigated by limiting these impacts to incremental impacts and the use of bird flight diverters. Impacts to rare and unique natural resources are anticipated to be minimal in this segment.

6.2.1 Routes and Route Alternatives

The discussion here of routes and route alternatives is organized by categories of potential impacts. For example, impacts on human settlements, on transportation and public services, on public health and safety, and so forth.

Impacts of routes and route alternatives in the Huntley to Iowa border segment are closely related to transmission line ROW sharing. Impacts to human settlements are anticipated to be minimal with aesthetics being the only impact element that could be mitigated by routing – by avoiding residences and utilizing existing transmission line ROW. There are fewer homes near the B ROW. This is because the B ROW proceeds, for most part, cross county. The A ROW follows the existing Lakefield to Border 161 kV line for its entire length. Of the two ROWs, it is anticipated that A's use of existing transmission line ROW would best minimize aesthetic impacts. Several route variations in this segment attempt to mitigate impacts to homes near the A ROW (Section 6.2.2).

Impacts to transportation and public services and to public health and safety are anticipated to be minimal. Impacts to archaeological and historic

resources are anticipated to be minimal, except for a section of route A1-HI near the Blue Earth River. In this section there is a known archaeological resource and impacts to this resource will require mitigation measures such as prudent pole placement, consultation with SHPO, and/or training of construction workers regarding handling of archaeological resources.

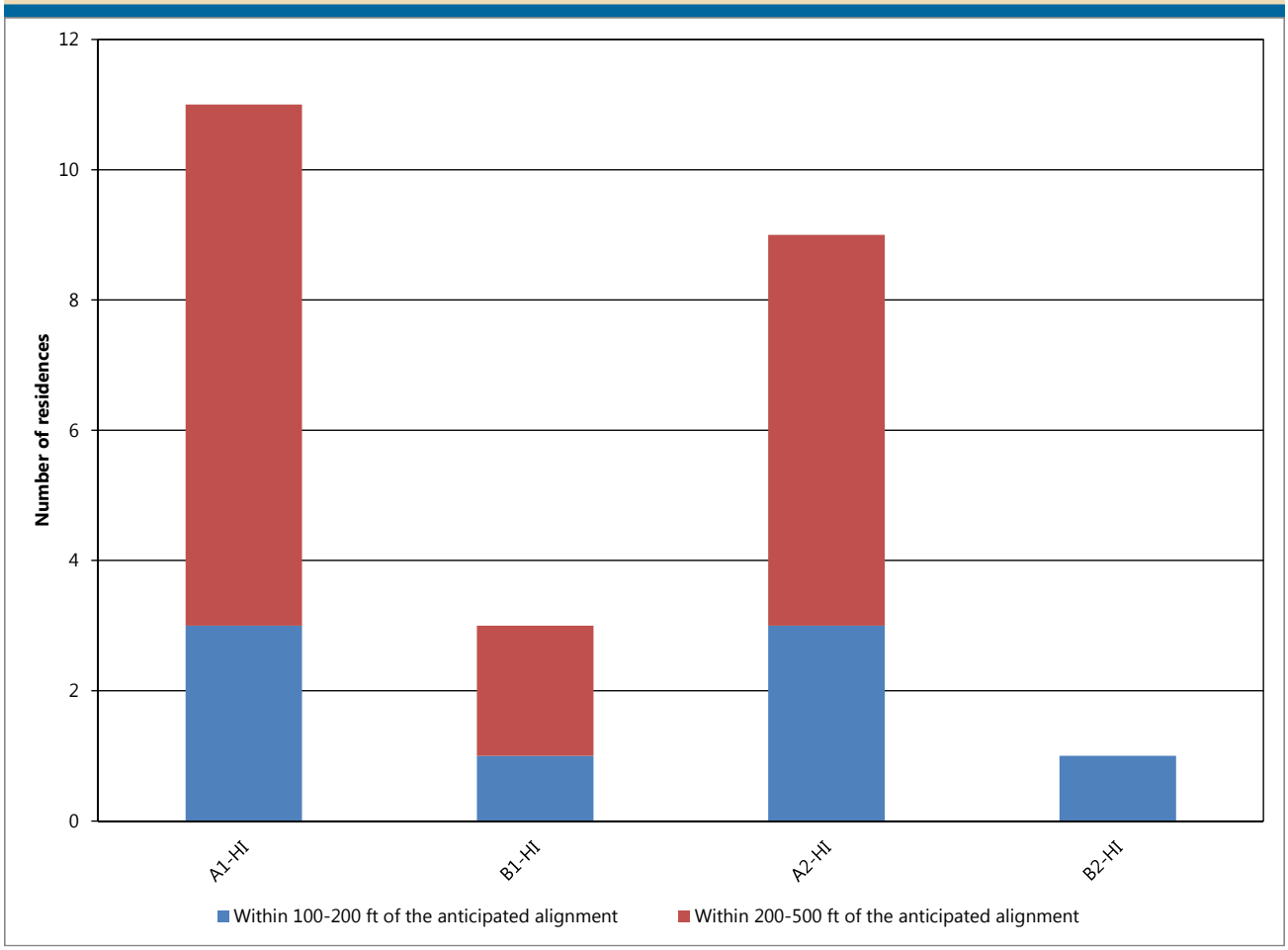
Impacts to land-based economies are almost exclusively impacts to agricultural operations. The project proceeds through an area that is primarily agricultural. Thus, impacts to agricultural operations cannot be avoided; however, they can be mitigated and primarily by following existing transmission line ROW. Because the A ROW follows an existing 161 kV line for its length, the A ROW is anticipated to have the least impact on agricultural operations. Impacts to the natural environment cannot be avoided, but these impacts are anticipated to be minimal. All lakes, watercourses and wetlands could be spanned, with the exception of the wetland at the Pilot Grove Lake WPA. The A ROW follows the existing 161 kV line across this WPA, in a 345/161 kV double-circuit configuration. The impacts to flora and fauna from this crossing are anticipated to be incremental and minimal. Indirect impacts – collisions of avian species with transmission line conductors – would occur but can be mitigated by limiting these impacts to incremental impacts and the use of bird flight diverters. Impacts to rare and unique natural resources are anticipated to be minimal.

Human Settlements

As discussed in the "Human Settlements" section of Section 6.1.1, impacts to human settlements are assessed by looking at a variety of specific elements of human settlement: aesthetics, displacement, noise, property values, zoning, land use compatibility and electronic interference. The only element of human settlements where impacts are anticipated to be non-minimal and to vary notably between routes and route alternatives in this segment of the project

Figure 6-30 Proximity of Homes – Huntley to Iowa Border

Route A1-HI and route alternative A2-HI are near the greatest number of homes.



Source: Barr Engineering. Residence Locations. Field Survey on 11/18/2013

is aesthetics. Routes that are located away from homes and share ROWs with existing infrastructure minimize adverse aesthetic impacts. In this segment, route A1-HI and route alternative A2-HI, because of their greater use of existing ROW, minimize impacts on aesthetic and human settlements.

Aesthetics

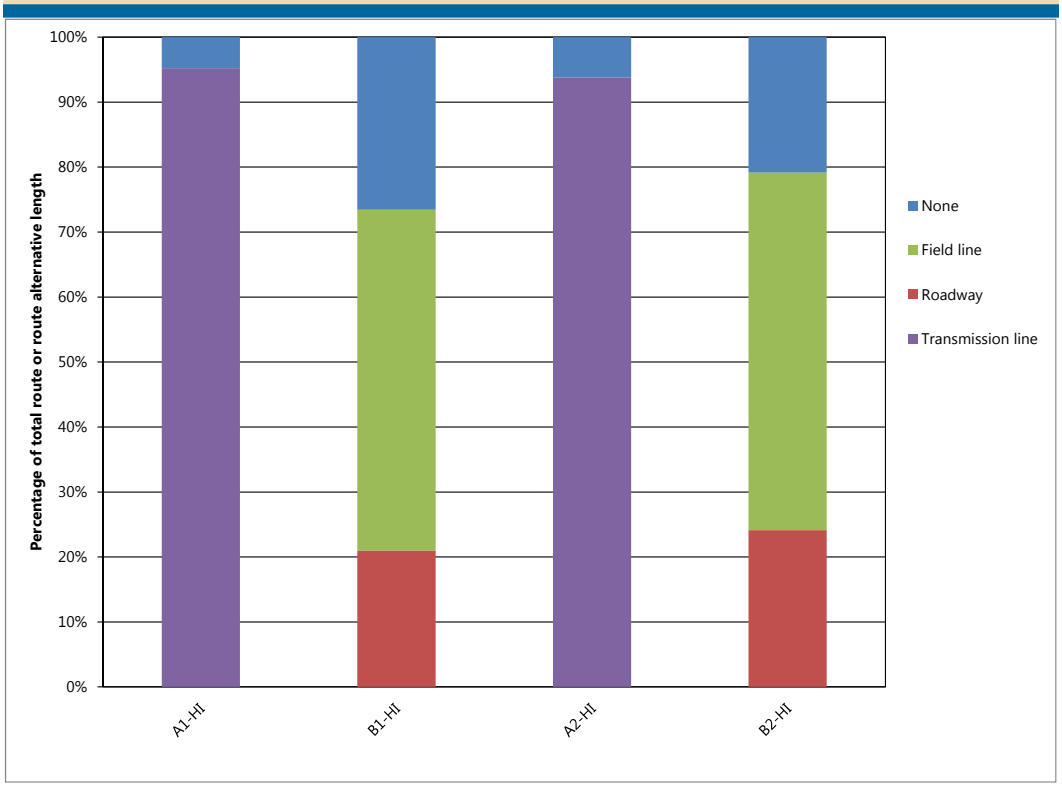
Figure 6-30 and Map 6-31 and Map 6-32 show the proximity of homes to routes and route alternatives in the Huntley to Iowa border segment. Figure 6-30 shows that route B1-HI route and route alternative B2-HI would minimize the number of homes in close proximity to the transmission line. Because route alternatives B2-HI and A2-HI are shorter (starting at the alternative southern Huntley substation site instead of the proposed Huntley substation site), they appear to affect fewer homes than their B1-HI and A1-HI counterparts. Aesthetic impacts from the associated facilities that would have to be routed from the Winnebago Junction substation to the alternative southern Huntley substation site, however, would offset this apparent difference. See "Associated Facilities" discussion in the "Human Settlements" section in Section 6.1.1.

Aesthetic impacts can also be minimized by using existing ROWs, where structures already define the viewshed, so adding a new transmission line would have an incremental aesthetic impact. Figure 6-31 provides a summary of ROW sharing or paralleling for routes and route alternatives in the Huntley to Iowa border segment.

While there are more homes along the A route, route A1-HI and route alternative A2-HI minimize new aesthetic impacts by using existing transmission line ROW. Homes along the existing 161 kV line in the Huntley to Iowa border segment can already see the 161 kV monopole structures. With route A1-HI and route alternative A2-HI, the existing structures would be replaced with new, taller structures supporting more conductors. While more homes are located along the A ROW than the B ROW, the incremental aesthetic effect along the A ROW is anticipated to be minimal. Because route B1-HI and route alternative B2-HI do not use existing transmission line ROW, use of these routing options would create a second transmission line ROW in the area. If the B routing options were used, homes along the 345 kV line would be affected, and homeowners along the existing 161 kV line would remain affected.

Figure 6-31 ROW Sharing – Huntley to Iowa Border

Route A1-HI and route alternative A2-HI share or parallel more than 90 percent of their length with transmission line ROW.



Source: Barr Engineering. December 2013

Transportation and Public Services

Impacts to transportation and public services in the Huntley to Iowa border segment are anticipated to be minimal. As discussed in Section 6.1.1, the one element of transportation and public services where impacts can vary notably between routing options is airports. No airports, however, are located within 500 feet of the anticipated alignments of any of the routes or route alternatives (Map 6-31 and Map 6-32).

Public Health and Safety

No impacts to public health and safety are anticipated from any of the routes or route alternatives in this segment, including potential impacts related to EMF, implantable medical devices, stray voltage, induced voltage and air quality. Based on MPCA's WIMN, there are no documented sites of environmental contamination within 500 feet of the anticipated alignments of any routes or route alternatives (Map 6-31 and Map 6-32). Thus, no public health impacts due to environmental contamination are anticipated.

Land-based Economies

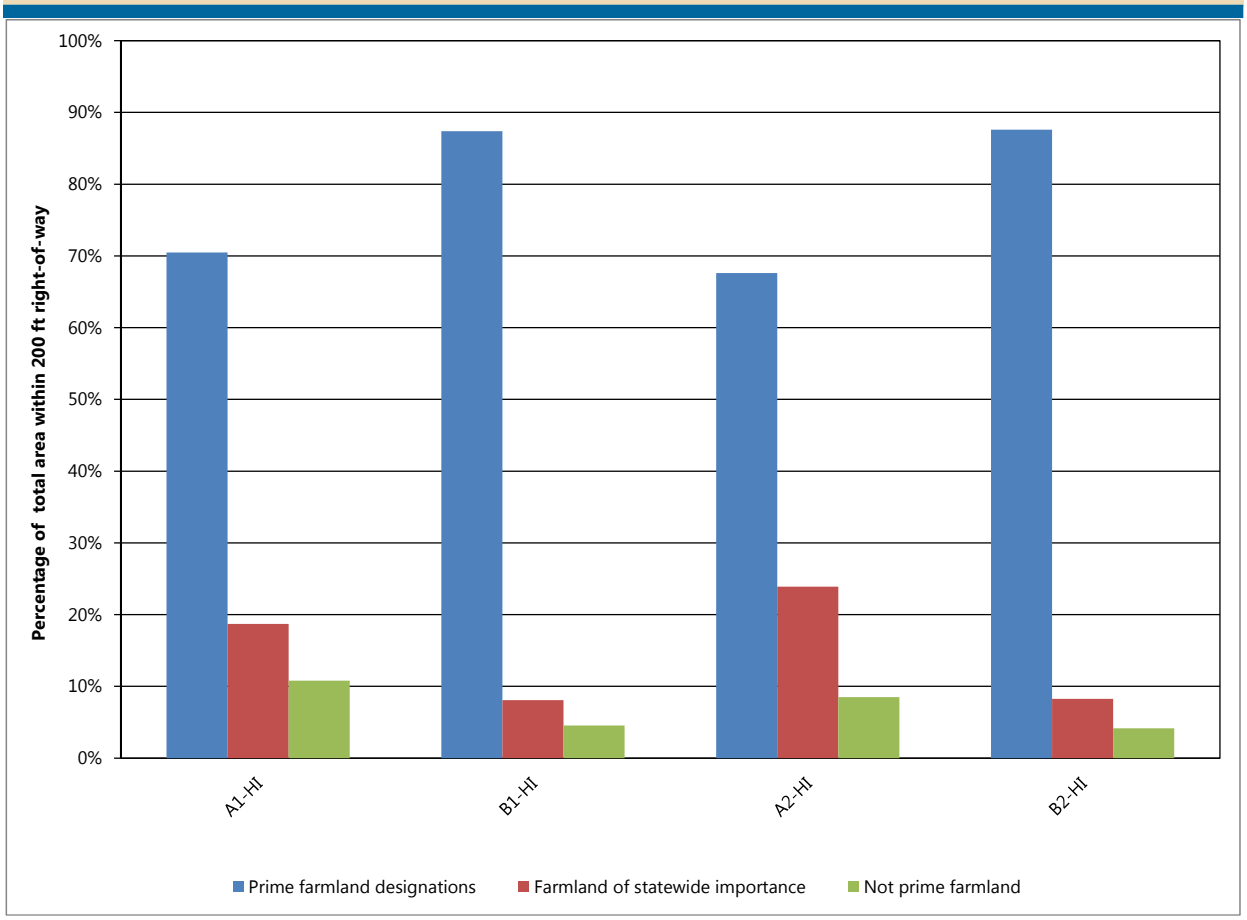
For this segment of the project, the only elements of land-based economies where impacts are anticipated to be non-minimal and could vary notably between routes and route alternatives are agriculture and recreation and tourism. The A ROW, route A1-HI and route alternative A2-HI, best minimize impacts to land-based economies in this segment.

Agricultural Land, Prime Farmland

Figure 6-32 shows the percentage of each route or route alternative's ROW that has been classified by NRCS as prime farmland or farmland of statewide importance. Figure 6-32 also identifies the remaining percent of each route or route alternative's ROW that does not fall under either of these designations. Portions of the ROW identified in Figure 6-32 as "not designated as prime farmland" may include, for example, developed areas, lakes and forest areas. Appendix J provides the total acreage of each route or route alternative's ROW that is designated as prime farmland or designated as farmland of statewide importance, and the total acreage of

Figure 6-32 Farmland Classifications – Huntley to Iowa Border

Route B1-HI and route alternative B2-HI contain relatively more prime farmland.



Source: Reference 58

each route or route alternative's ROW that doesn't fall into either category. Appendix J also provides total cropland acres within each route or route alternative's ROW based on USGS NLCS GAP data.

As shown in Appendix J, the longer routes that use the proposed Huntley substation site (A1-HI, B1-HI) have more total acres of farmland within their ROWs than the shorter route alternatives that use the alternative southern Huntley substation site (A2-HI, B2-HI), and there is more farmland within the B ROW in general (approximately 270-340 acres for the A ROW versus approximately 300-400 acres for the B ROW). As shown in Figure 6-32, route A1-HI and route alternative A2-HI have the least potential to affect prime farmland. The B ROW contains relatively more land classified as prime farmland, prime farmland if drained or prime farmland if protected from flooding. Furthermore, the B ROW does not follow existing transmission ROW and, unlike the A ROW, would introduce agricultural impacts along a ROW that is currently not impacted by transmission lines. General mitigation measures for farmland would follow those discussed in Section 5.4.1.

Recreation and Tourism

No WMAs, WPAs, state water trails or state, county or city parks are located within the ROWs of the Huntley to Iowa border routes and route alternatives (Map 6-31 and Map 6-32). The Sno Rovers/Stateliners snowmobile trail, however, crosses or parallels each of the routes and route alternatives (Map 6-31 and Map 6-32).

The A ROW would cross the trail – route A1-HI in two locations and route alternative A2-HI in one. Route B1-HI would cross the trail in two locations and route alternative B2-HI in one. The B ROW, however, would parallel the Sno Rovers/Stateliners Trail for approximately 1,900 feet (0.35 mile), and for that entire distance, the trail would be located within the ROW. General mitigation measures for recreation and tourism would follow those discussed in Section 5.4.4.

Archaeological and Historic Resources

Data from the Minnesota SHPO has been used to identify known archaeological and historic resources within half a mile of the anticipated alignments for each route and route alternative. These resources are listed in Appendix I.

Map 6-33 and Map 6-34 show archaeological and historic resources along the Huntley to Iowa border segment. The numbers of archaeological and historic resources within half a mile of the routes and route alternatives for the Huntley to Iowa border segment are shown in Table 6-13.

The majority of the archaeological resources are located a significant distance from the proposed ROWs and would not be affected by the project. Route A1-HI, however, has one identified archaeological resource that is located within 100 feet of its anticipated alignment (Table 6-14). This archaeological resource (21FA0042), which has not been evaluated for its eligibility to be listed on the NRHP, could potentially be affected by the

Table 6-13 Archaeological and Historic Resources within Half a Mile of Routes and Route Alternatives – Huntley to Iowa Border

Route Alternative	Archaeological Resources	Historic Resources
A1-HI	14	1
B1-HI	13	1
A2-HI	2	1
B2-HI	1	1

Source: Reference 59

Table 6-14 Archaeological Resources Within 100 Feet of the Anticipated Alignments of Routes and Route Alternatives – Huntley to Iowa Border

Route Alternative	Archaeological Resources	Comments
A1-HI	1	21FA0042 – Eligibility status for the NRHP has not been evaluated.
B1-HI	0	No known archaeological resources would be affected by this route.
A2-HI	0	No known archaeological resources would be affected by this route alternative.
B2-HI	0	No known archaeological resources would be affected by this route alternative.

Source: Reference 59

project. Impacts to this archaeological resource could be mitigated by pole placement, by measures designed in consultation with SHPO, and by training of construction workers regarding handling of archaeological resources (Section 5.5). No known archaeological resources are located within 100 feet of the anticipated alignments of route B1-HI or route alternatives A2-HI or B2-HI.

All of the routes and route alternatives are within half a mile of one known historic resource. Although it is unlikely that the project would have any adverse visual effect on this historic resource, the potential does exist.

Natural Environment

Analysis of natural resource elements along the Huntley to Iowa border segment indicates that potential impacts to the natural environment would be minor, with generally little variation in impacts between the routes and route alternatives.

Water Resources

As discussed in Section 5.6.1, potential effects on water resources are evaluated by assessing impacts to surface waters, floodplains, wetlands and groundwater. Proximity of the project to lakes, watercourses, floodplains, wetlands and groundwater wells and the necessity of crossing these features are the primary indicators of potential effects on water resources.

Surface waters, including lakes, watercourses (rivers, streams and ditches), PWI waters and impaired waters, FEMA-designated 100-year floodplains, NWI-mapped wetlands and County Well Index groundwater wells, exist within the ROWs and within 500 feet of the anticipated alignments of all routes and route alternatives in the Huntley to Iowa border segment of the project.

This section focuses primarily on surface waters and wetlands that are within the ROW or are crossed by the anticipated alignments. Additional data is provided in Appendix J and Appendix K. Map 6-35 and Map 6-36 identify the water resources near each route and route alternative in the Huntley to Iowa border segment of the project.

Surface Waters

Because no large lakes and only a couple of smaller lakes lie within this segment, potential effects on lakes are anticipated to be minimal and independent of the route or route alternative selected.. Route A1-HI would cross a small lake but would do so at the existing 161 kV line crossing.

Several watercourses are present in this segment of the project. The Blue Earth River is the main watercourse that flows through it, and additional watercourses within this segment include West Branch Blue Earth River, Badger Creek, Little Badger Creek, South Creek, a county and judicial ditch and many small unnamed watercourses. The Blue Earth River, West Branch Blue Earth River, Badger Creek, South Creek and Judicial Ditch 7 are all listed on the PWI (Map 6-35 and Map 6-36). The Blue Earth River is the only impaired watercourse within this segment.

The routes and route alternatives within this segment would cross several watercourses. Figure 6-33 summarizes the total number of watercourse, PWI watercourse and impaired stream crossings for each route and route alternative. The routes and route alternatives in this segment have between four and 12 watercourses within their ROWs (Appendix J) and would cross watercourses six to 19 times, with route alternative B2-HI crossing the fewest times and route A1-HI the most (Figure 6-33). Because route A1-HI and route alternative A2-HI follow an existing HVTL, however, these PWI crossings already exist and any impacts would be incremental. Route A1-HI would cross an impaired watercourse, the Blue Earth River, while the remaining route alternatives in this segment would not cross any impaired watercourses (Figure 6-33).

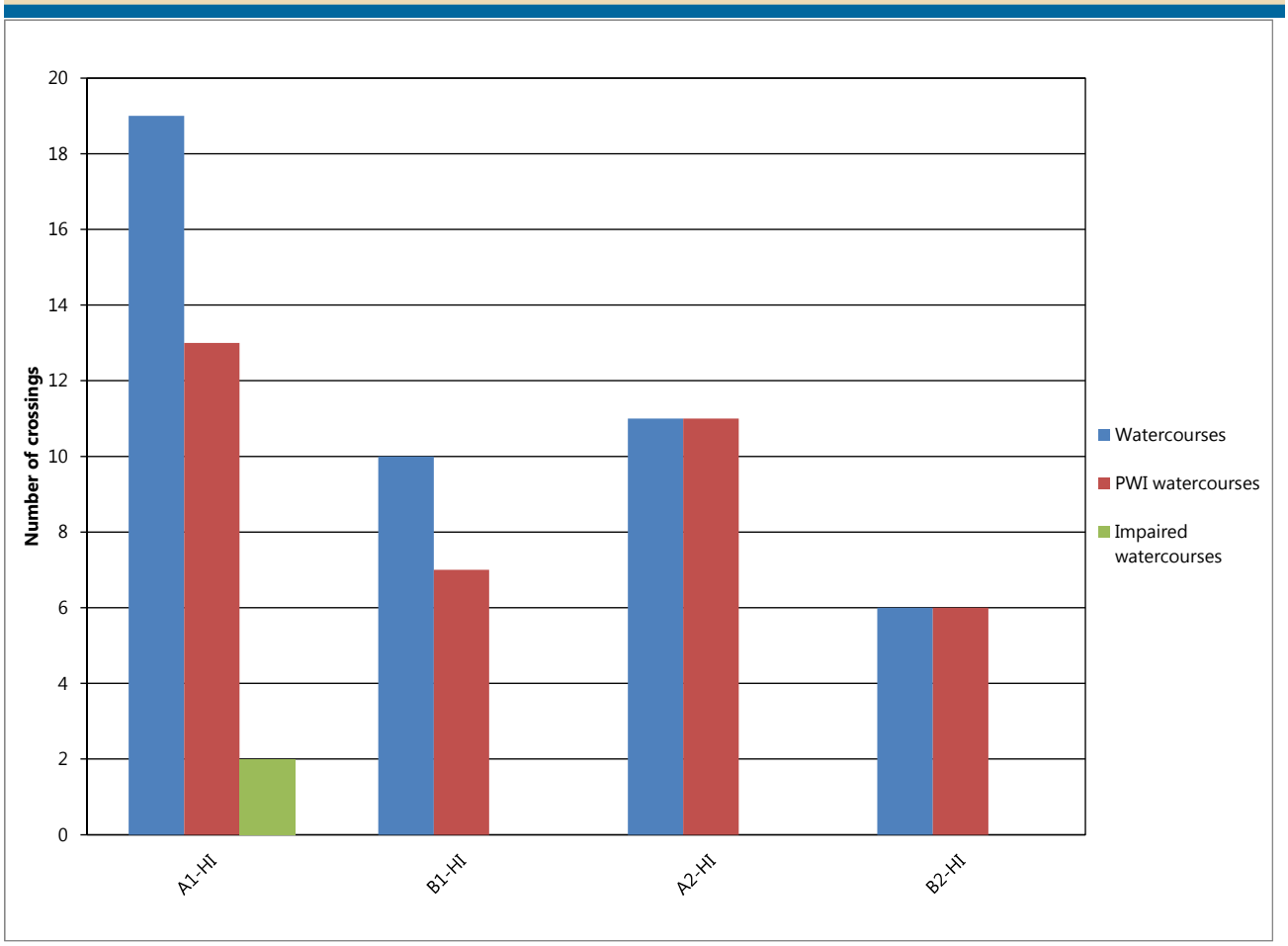
General mitigation measures for water resources are discussed in Section 5.6.1. Because all lakes and watercourses would be spanned, no structures would be placed within these features, and no direct impacts to lakes and watercourses are anticipated. Potential indirect impacts to these resources, such as increases in turbidity, could be minimized by using BMPs and by choosing a route alternative that is relatively farther away from lakes and watercourses.

Wetlands

Wetlands are not common within this segment of the project. Figure 6-34 shows the total area of non-forested and forested wetland present within the ROW of each route and route alternative in this segment. As shown on Figure 6-34, route A1-HI has significantly more total wetland and forested wetland than the other route and route alternatives in this segment, and just less than half the wetland area in route A1-HI is forested. However, because this route follows an existing HVTL, most of this forested wetland area has already been cleared of woody vegetation. Thus, impacts to forested wetland along route A1-HI are anticipated to be incremental and minimal.

Figure 6-33 Watercourse Crossings – Huntley to Iowa Border

Route A1-HI has the most watercourse crossings.



Source: Reference 60, Reference 41, Reference 61

Although not documented in the NWI, there is a large wetland associated with the Pilot Grove Lake WPA. Approximately 11 non-forested wetland acres associated with this WPA lie within the ROW of route A1-HI and route alternative A2-HI.

Based on NWI mapping, only route A1-HI and route alternative A2-HI would cross wetlands wider than 1,000 feet. Route A1-HI and route alternative A2-HI would both cross the wetland associated with the Pilot Grove Lake WPA. Currently, six single-pole structures for the 161 kV HVTL lie within the WPA wetland. Because this wetland is more than 2,000 feet wide at the point where it would be crossed, route A1-HI and route alternative A2-HI would require that as many as three structures be placed within the WPA.

Temporary impacts to wetlands could occur if they need to be crossed during construction. Using BMPs and choosing route B1-HI or route alternative B2-HI, which have the least amount of wetland within their ROWs, could minimize impacts to wetlands.

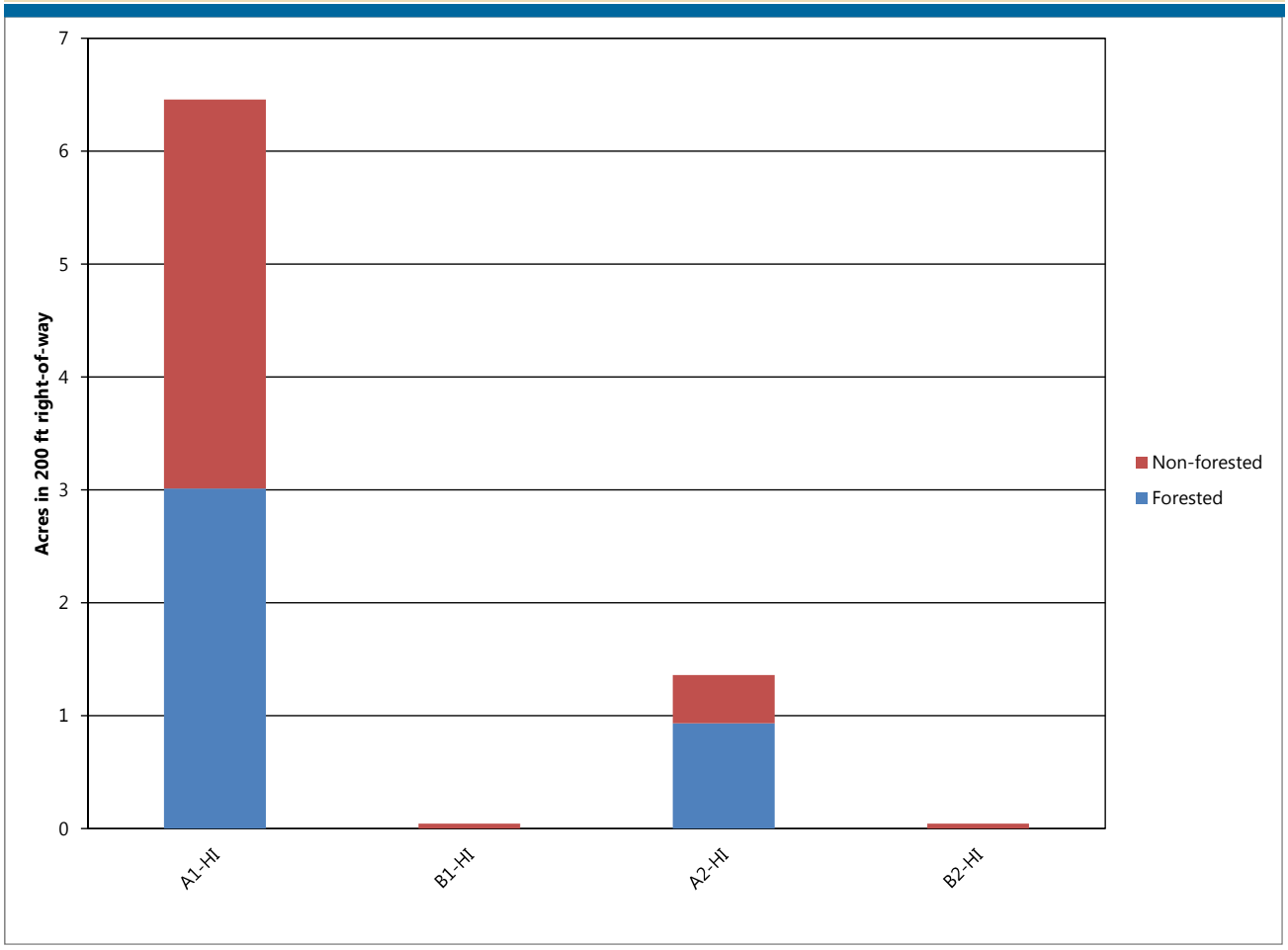
Permanent impacts to wetlands could also occur if the wetlands within the ROW are currently forested. Forested wetlands could change to non-forested wetlands because vegetation maintenance procedures under transmission lines would prevent trees from establishing. The B ROW has no forested wetland within it; the A ROW does have such wetlands, but as the woody vegetation in this wetland has already been cleared for the existing 161 kV line, there is no substantive difference between the B ROW and A ROW with respect to impacts to forested wetlands.

Flora

General impacts to flora, which are discussed in Sections 5.6.2 and in the "Natural Environment" section of Section 6.1.1, are assessed primarily by looking at vegetation cover mapping. For most of the elements discussed in Section 5.6.2, impacts from the project are anticipated to be minimal and independent of the route selected. One element that

Figure 6-34 Wetlands Within ROW – Huntley to Iowa Border

Route B1-HI and route alternative B2-HI contain no wetlands.



Source: Reference 46

varies slightly between routes and route alternatives is the effect on forested vegetation cover.

Loss of Forested Vegetation Cover

Trees or shrubs that interfere with the safe operation of the new 345 kV line would be removed. Permanent vegetative changes would take place at each new pole footprint (20 to 115 square feet) and within the ROW that lies in the forested communities. Effects on forested vegetation cover vary slightly among the routes and route alternatives, but in each case, the effects on forested vegetation cover are minor. Within 500 feet of the anticipated alignments of the routes and route alternatives, forested vegetation cover ranges from 10 acres (B2-HI) to 52 acres (A1-HI). Because cropland/grassland cover types dominate, the forested vegetation cover within the 500 feet of the anticipated alignments for all of the routes and route alternatives is less than 2 percent.

Within the ROW, forested vegetation cover is approximately five acres for route A1-HI, two acres for route B1-HI, and less than one acre for route alternatives A2-HI and B2-HI. This represents less than 1 percent of the vegetation cover within the ROWs of the routes and route alternatives.

Fauna

General impacts to fauna are discussed in Sections 5.6.3 and in the "Natural Environment" section of Section 6.1.1. For most of the elements discussed in Section 5.6.3, impacts from the project are expected to be minimal and independent of the route or route alternative selected. For a number of other elements, impacts could occur, but are not expected to vary notably from one route or route alternative to the next.

None of the routes or route alternatives for the Huntley to Iowa border segment cross WMAs or game refuges. Route A1-HI and route alternative A2-HI cross the Pilot Grove Lake WPA (Photo 6-13);

Photo 6-13 Pilot Grove Lake WPA

Route A1-HI and route alternative A2-HI cross the Pilot Grove Lake WPA.

Source: EERA photo
Looking north from 60th St across the Pilot Grove Lake Waterfowl Production Area

however, this crossing would occur at an existing 161 kV line crossing. Accordingly, direct impacts to flora in this segment are anticipated to be incremental and minimal.

Indirect impacts to wildlife can be generated by crossings of surface waters and proximity to surface waters. Waterfowl and birds are susceptible to collisions with transmission line conductors. All of the route and route alternatives in this segment parallel the Blue Earth River; however, they are at a distance from the river such that avian impacts are anticipated to be minimal.

If the new 345 kV line is placed on the A ROW, it would be double-circuited with the existing 161 kV line. This double-circuiting could incrementally increase avian impacts. If the new 345 kV line is placed on the B ROW, a new transmission line ROW would be introduced into the area. This second ROW could incrementally increase avian impacts. The magnitude of the avian impacts for these ROW scenarios is difficult to predict. However, it is likely that avian impacts would be fewer with one transmission line gauntlet to run (double-circuit along the A ROW) than two (using the B ROW), particularly when the B ROW is relatively nearer the Blue Earth River.

Rare and Unique Natural Resources / Threatened and Endangered Species

As discussed in Section 5.7, potential impacts to rare and unique natural resources are evaluated by assessing state and federally threatened and endangered species and rare communities. Proximity of the project features to threatened and endangered species documented in the DNR NHIS database, native plant communities, MBS SBS and railroad ROW prairies are the primary indicators of routes and route alternatives that would have the least effect on rare and unique natural resources.

Documented locations of state and federally threatened and endangered species and rare communities were identified within the ROWs, within 500 of the anticipated alignments and within one mile of all routes and route alternatives in the Huntley to Iowa border segment. Rare-community data provided in this section focuses on the presence of these resources within the ROW. Additional data is provided in Appendix J and Appendix K. Map 6-37 and Map 6-38 and the detailed maps in Appendix L identify the rare and unique natural resources near each route or route alternative in the Huntley to Iowa border segment. In order to protect rare resources from being exploited or destroyed, Map 6-37 and Map 6-38 and the maps in Appendix L do not indicate the names of species or communities identified within the NHIS database.

According to the DNR NHIS database, no records of state or federally threatened or endangered species **or state-special concern or tracked species** have been documented within one mile of the routes and route alternatives in this segment. Thus, no impacts on state and federally threatened and endangered species are anticipated, whichever route or route alternative is selected.

Rare Communities

No rare communities lie within the ROW of route B1-HI and route alternative B2-HI (Appendix J and Appendix K). Approximately 11 acres of the Pilot Grove Lake WPA, which is also designated as a MBS open water native plant community and an MBS SBS, lie within the ROW of route A1-HI and route alternative A2-HI, both of which would cross it. The existing 161 kV HVTL, however, already crosses the WPA. Currently, six single pole structures for the 161 kV HVTL lie within the WPA. Route A1-HI and route alternative A2-HI would require that as many as three structures be placed within the WPA. ITCM has consulted with the U.S Fish and Wildlife Service (USFWS) concerning crossing the Pilot Grove Lake WPA. The USFWS has indicated that a crossing may be possible if there is no change in the existing transmission line ROW, which is 100 feet. ITCM has indicated that for this short segment across the WPA, a 100-foot ROW could be used for the 345/161 kV double-circuit line (Reference 1).

No railroad ROW prairies are located within the ROW of any route or route alternative in this segment.

A colonial waterbird nesting site has been documented adjacent to the Blue Earth River in the southeastern part of the project area. This nesting site is located more than half a mile from route B1-HI and route alternative B2-HI. Potential impacts to the colonial waterbird nesting site could be minimized by choosing route A1-HI or route alternative A2-HI, which run along an existing HVTL alignment and are more than one mile from the site.

Effects on rare communities could be minimized by selecting the route alternative with the fewest documented records of native plant communities and MBS SBS and by spanning areas where these communities are present. Additionally, effects on rare communities can be minimized by placing the new line along the existing 161 kV HVTL (A1-HI, A2-HI) such that any impacts are incremental. Where placing structures in rare communities cannot be avoided, rare species associated with these habitats could be affected. Surveys for rare species might be necessary in such areas.

Use or Paralleling of Existing Rights-of-Way

Map 6-39 and Map 6-40 shows areas where the ROW for the proposed routes and route alternatives would share or parallel ROW with existing transportation, transmission line or other infrastructure. Figure 6-31 shows the percentage of total line distance where existing infrastructure ROW is shared or paralleled for each route and route alternative in this segment. Areas where routes and route alternatives would follow field lines (survey lines, natural division lines and agricultural field boundaries), or cut cross country through fields or pastures are also shown. In these areas, there is little opportunity to share ROW and minimize the amount of ROW that would have to be acquired from private land owners.

Route A1-HI and route alternative A2-HI make extensive use of existing transmission line ROW, while route B1-HI and route alternative B2-HI do not. Route B1-HI and route alternative B2-HI use roadways for approximately 25 percent of their lengths but do not use existing infrastructure ROW for the remainder of their lengths.

Electric System Reliability

As with the Lakefield to Huntley segment of the project, ITCM's analysis indicates that double-circuiting a new 345 kV line with the existing Lakefield to Border 161 kV line from the Huntley substation to the Iowa border would meet applicable NERC Category C reliability criteria. Thus, route A1-HI and route alternative A2-HI would meet these criteria. Route B1-HI and route alternative B2-HI, because they would route the 345 kV line independent of the existing 161 kV line, would also meet these criteria.

Costs that are Dependent on Design and Route

A summary of the costs associated with constructing the project along routes and route alternatives between the proposed Huntley substation or alternative southern Huntley substation and the Iowa border are provided in Table 6-15. These costs are only for constructing the 345 kV transmission line. Costs of the substations and associated facilities for these routes are accounted for in Section 6.1.1. Costs have a range of plus or minus 30 percent. .

Routes A1-HI and B1-HI (which connect to the proposed Huntley substation) would have similar costs, but would be more costly to construct than the route alternatives A2-HI and B2-HI (which connect to the alternative southern Huntley substation). These differences in cost are due to

Table 6-15 Summary of Costs for Routes and Route Alternatives – Huntley to Iowa Border

Route ID	Length (miles)	Estimated Costs ($ million)
A1-HI	15.6	36.7
B1-HI	17.6	37.2
A2-HI	12.1	28.5
A2-HI	13.4	28.3

the shorter lengths of route alternatives A2-HI and B2-HI.

6.2.2 Route Variations

In order to possibly avoid or mitigate the potential impacts of routes A1-HI and B1-HI and the route alternatives A2-HI and B2-HI, this EIS, consistent with the scoping decision, analyzes variations along these routes and route alternatives in five specific areas – route variations HI-1 through HI-5. This section analyzes the impacts of these route variations and those sections of routes A1-HI and B1-HI that they would replace. For these analyses, the routes and route alternatives associated with the A ROW (A1-HI, A2-HI) and B ROW (B1-HI and B2-HI) are referred to as routes A and B or the A ROW and the B ROW. A suffix is attached to routes A and B to denote the area being analyzed. Thus, for example, A-HI1 is route A in the area of route variation HI-1**; MRA-HI1 is modified route A in the area of route variation HI-1**. Common start points and end points for analyses are shown on the maps in Section 3.0.

The discussion here of route variations and their impacts is organized geographically and proceeds from north to south, discussing each route variation area in turn – HI-1 through HI-5.

In general, the route variations in this segment provide means to mitigate potential impacts associated with routes A and B. As with the routes and route alternatives in this segment, impacts are closely related to transmission line ROW sharing. Impacts to human settlements are anticipated to be minimal with aesthetics being the only impact element that could be mitigated by routing – by avoiding residences and utilizing existing transmission line ROW.

Impacts to public health and safety are anticipated to be minimal for all route variations. Impacts to archaeological and historic resources are anticipated to be minimal for all route variations except route variation HI-1 and route**s** A-HI1 **and MRA-HI1**. There is one known archaeological resource within the ROWs of route variation HI-1 and route**s** A-HI1 **and MRA-HI1**, and potential impacts to this resource would require mitigation measures

Impacts to land-based economies are almost exclusively impacts to agricultural operations. Impacts to agricultural operations cannot be avoided; however, they can be mitigated and primarily by following existing transmission line ROW. Impacts to the natural environment cannot be avoided, but these impacts are anticipated to be minimal. Direct impacts to fauna are anticipated to be minimal. Indirect impacts – collisions of avian species with transmission line conductors – would occur but can be mitigated by limiting these impacts to incremental impacts and the use of bird flight diverters.

In the area of route variation HI-1, near the Blue Earth River, route A-HI1 minimizes aesthetic and agricultural impacts by double-circuiting with the existing 161 kV line. Route variation HI-1 **and route MRA-HI1** likely minimize impacts to flora and fauna by placing the line further from the Blue Earth River. Route variation HI-1 and route**s** A-HI1 **and MRA-HI1** have the potential to impact a known archaeological resource.

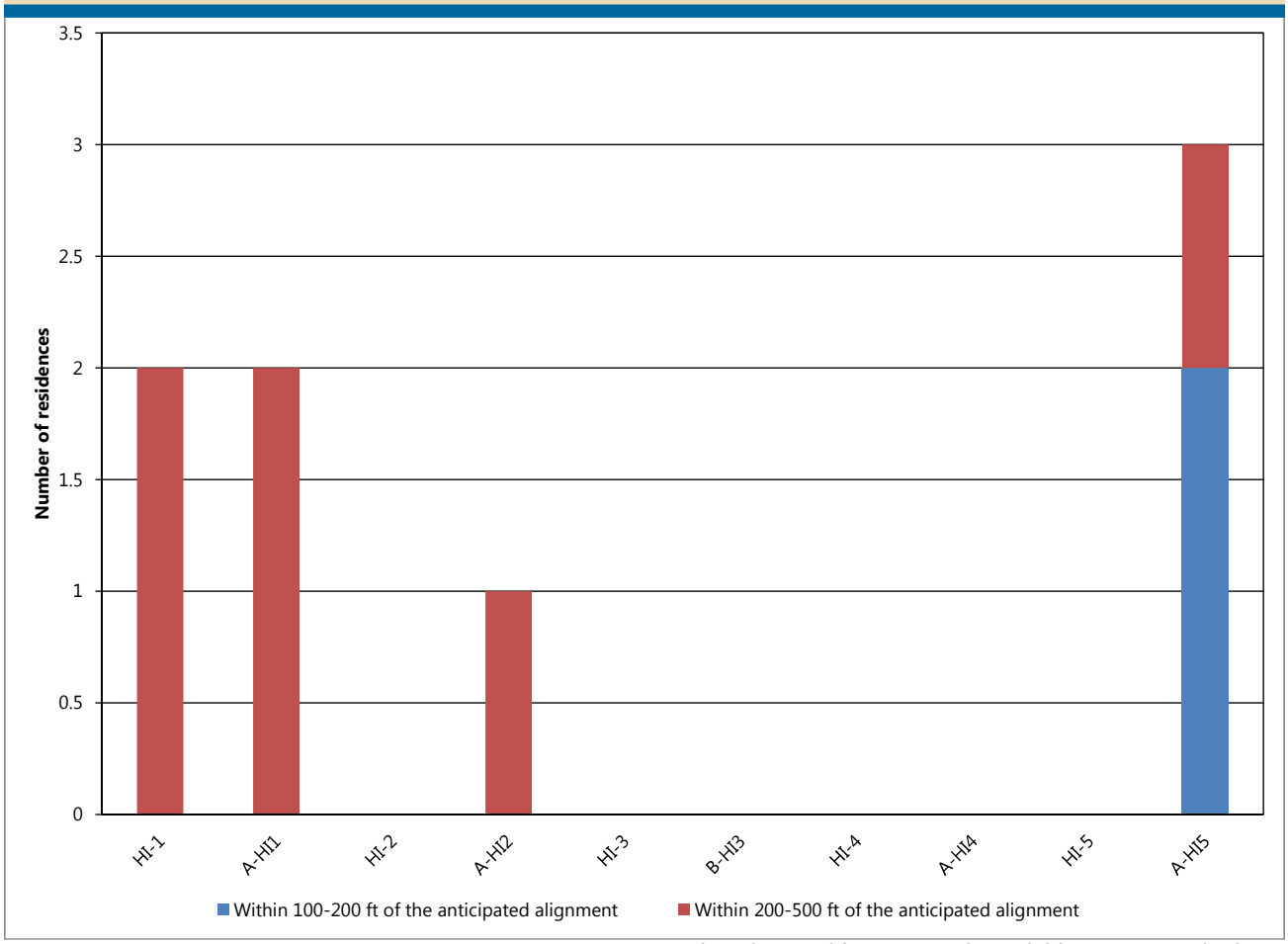
Route variation HI-2, just south of the Faribault substation, minimizes aesthetic impacts to a home along the existing 161 kV line. Route variation HI-3, northeast of the Pilot Grove Lake WPA, minimizes aesthetic impacts to a home near route B.

Route variation HI-4 and route A-HI4 provide two routing options at the Pilot Grove Lake WPA. Because it follows the existing 161 kV line in the area, route A-HI4 minimizes aesthetic and agricultural impacts. Route A-HI4 would cross the Pilot Grove Lake WPA along an existing crossing. The impacts associated with this crossing are anticipated to be incremental and minimal. Route variation HI-4, because it goes around the WPA is more expensive to construct than route A-HI4.

Near the Iowa border, route variation HI-5 minimizes aesthetic impacts to homes in the area. Route A-HI5 utilizes the existing 161 kV line in the area and thus minimizes agricultural impacts.

Figure 6-35 Proximity of Homes – Huntley to Iowa Border Route Variations

The number of homes along route variations and the sections of route that they would replace is similar except for route A-HI5.



Source: Barr Engineering. Residence Locations. Field Survey on 11/18/2013

HI-1 Route Variation

Route variation HI-1**,** route A-HI1 **and modified route A-HI1 (MRA-HI1)** are located near the Blue Earth River, just south of the proposed Huntley substation site **(Map 3-16)**. Route A-HI1 crosses the Blue Earth River following existing 161 kV line crossings. Route variation HI-1 **and modified route A-HI1** skirt to the west of route A-HI1 and crosses tributaries of the Blue Earth River. **Modified route A-HI1 hews more closely to forested areas along the Blue Earth River.** If route variation HI-1 **or modified route A-HI1** were selected as the route for the project, the existing 161 kV line be removed from the Blue Earth River and double-circuited with the 345 kV line **(Map 3-16)**.

Human Settlements

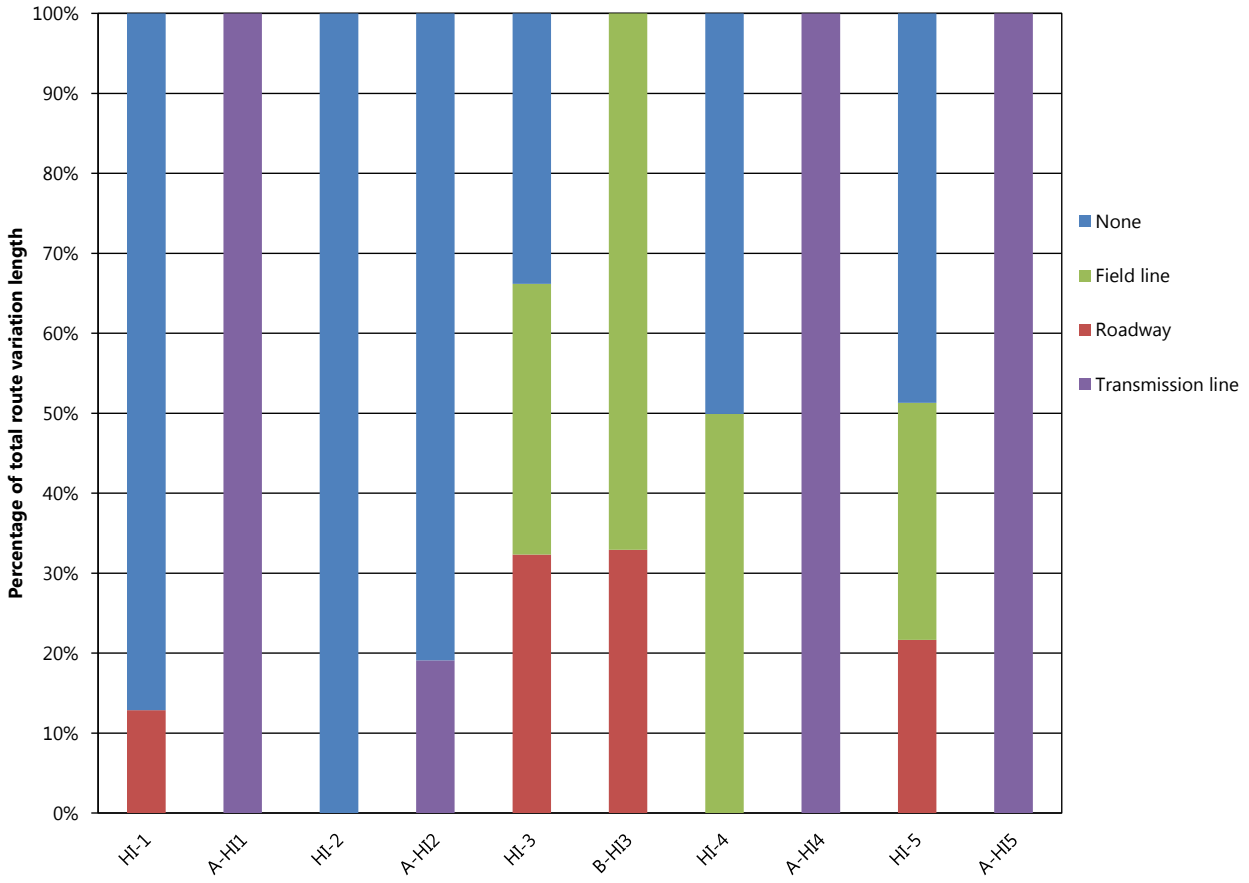
Route variation HI-1 is expected to have minimal impact on the human settlement elements discussed in Section 5.21. As discussed in Section 6.1.1, the one element of human settlements where impacts can vary notably between routing options is aesthetics. Figure 6-35 and Map 6-31 and Map 6-32 show the proximity of homes to route variations in the Huntley to Iowa border segment. Figure 6-36 analyzes ROW sharing or paralleling for all of the route variations in the Huntley to Iowa border segment. This data suggests that route A-HI1 would minimize aesthetic impacts to residents by following the existing 161 kV ROW. Though existing 161 kV transmission line structures would be replaced with taller structures supporting more conductors, the incremental aesthetic effects would be minimal.

Transportation and Public Services

Route variation HI-1 is expected to have no impact on the transportation and public service elements discussed in Section 5.2. As discussed in Section 6.1.1, the one element of transportation and public services where impacts can vary notably between routing options is airports. No airports, however, are located within 500 feet of any of

Figure 6-36 ROW Sharing – Huntley to Iowa Border Route Variations

Route variations share or parallel less existing ROW than the sections of route that they would replace.



Source: Barr Engineering. December 2013

the route variations in this area (Map 6-31 and Map 6-32). Thus, no impacts to transportation and public services are anticipated.

Public Health and Safety

Route variation HI-1 is expected to have minimal impacts on the public health and safety elements discussed in Section 5.3. As discussed in Section 6.1.1, the one element of public health and safety where impacts can vary notably between routing options is environmental contamination. Based on a review of MPCA's WIMN, there are no documented sites of environmental contamination within 500 feet of the anticipated alignments of route variation HI-1 or route A-HI1 (Map 6-31 and Map 6-32). Thus, no impacts to public health and safety are anticipated in this area.

Land-based Economies

For this segment of the project, the only elements of land-based economies where impacts are anticipated to be non-minimal and could vary notably between routes and route alternatives are agriculture and recreation and tourism.

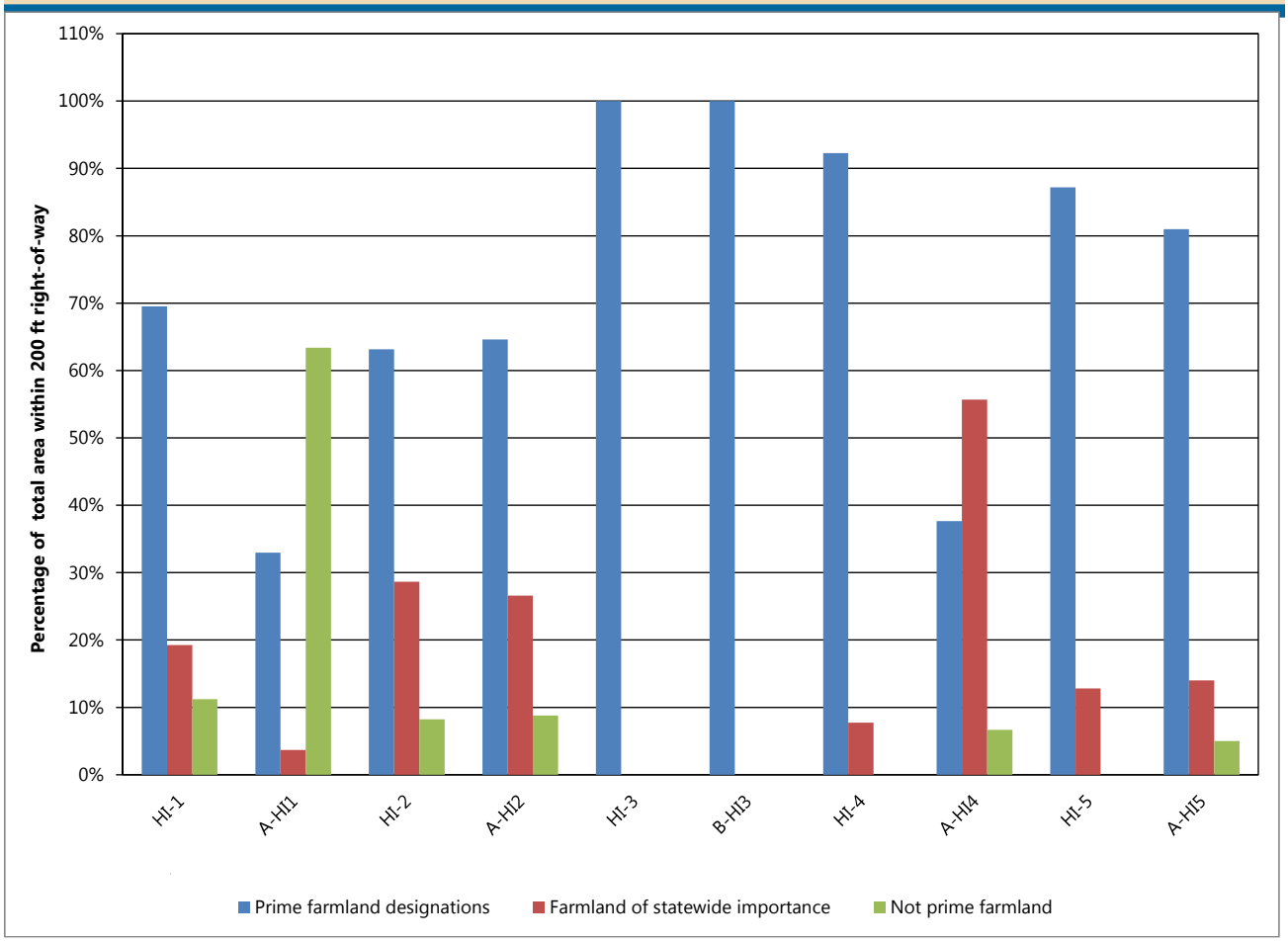
Agricultural Land, Prime Farmland

Figure 6-37 shows the percentage of each route variation's ROW that has been classified by NRCS as prime farmland or farmland of statewide importance. Figure 6-37 also identifies the remaining percent of each route variation's ROW that does not fall under either of these designations. Portions of the ROW identified in Figure 6-37 as "not designated as prime farmland" may include, for example, developed areas, lakes and forest areas. Appendix J provides the total acreage of each route variation's ROW that is designated as prime farmland or designated as farmland of statewide importance, and the total acreage of each route or route alternative's ROW that doesn't fall into either category.

According to Appendix J and Figure 6-37, route variation HI-1 would impact more farmland than

Figure 6-37 Farmland Classifications – Huntley to Iowa Border Route Variations

Routes A-HI1 and A-HI4 contain relatively less prime farmland.



Source: Reference 58

route A-HI1. Route variation HI-1 also has more prime farmland than route A-HI1. Thus, route A-HI1 minimizes impacts to farmland in this area. General mitigation measures for farmland would follow those discussed in Section 5.4.1.

Recreation and Tourism

No snowmobile trails lie within or cross the ROWs of route variation HI-1 (Map 6-31 and Map 6-32).

Route variation HI-1 was developed to avoid crossing the Blue Earth River and would have no effect on the Blue Earth River State Water Trail. Route A-HI1, however, would have to cross the Blue Earth River and the Blue Earth River State Water Trail three times. During construction, a portion of the river and surrounding area might need to be blocked off, which could restrict use of the water trail or require a detour. Once construction has been completed, the Blue Earth River State Water Trail would again be available for recreational activities.

It is possible that the increased number of conductors over the Blue Earth River would make recreating on the river relatively less pleasurable for citizens, due to aesthetic impacts. This indirect impact is uncertain and difficult to quantify. General mitigation measures for recreation and tourism would follow those discussed in Section 5.4.4.

Archaeological and Historic Resources

Map 6-33 and Map 6-34 show archaeological and historic resources along route variations in the Huntley to Iowa border segment. The number of archaeological and historic resources within half a mile of each of the Huntley to Iowa border variations is shown in Table 6-16.

No known historic resources are located within half a mile of the anticipated alignments of route variation HI-1 and route A-HI1. One known archaeological resource (21FA0096), whose eligibility to be listed on the NRHP has not been evaluated, is located within

Table 6-16 Archaeological and Historic Resources Within Half a Mile of Route Variations – Huntley to Iowa Border

Route Variation	Archaeological Resources	Historic Resources
HI-1	12	0
A-HI1	12	0
HI-2	0	0
A-HI2	0	0
HI-3	1	0
B-HI3	1	0
HI-4	1	0
A-HI4	0	0
HI-5	1	0
A-HI5	0	1

Source: Reference 59

Table 6-17 Archaeological Resources Within 100 Feet of the Anticipated Alignments of Route Variations – Huntley to Iowa Border

Route Variation	Archaeological Resources	Comments
HI-1	1	21FA0096 – Eligibility status for the NRHP has not been evaluated.
A-HI1	1	21FA0096 – Eligibility status for the NRHP has not been evaluated.
HI-2	0	No known archaeological resources would be affected by this route variation.
A-HI2	0	No known archaeological resources would be affected by this route variation.
HI-3	0	No known archaeological resources would be affected by this route variation.
B-HI3	0	No known archaeological resources would be affected by this route variation.
HI-4	0	No known archaeological resources would be affected by this route variation.
A-HI4	0	No known archaeological resources would be affected by this route variation.
HI-5	0	No known archaeological resources would be affected by this route variation.
A-HI5	0	No known archaeological resources would be affected by this route variation.

Source: Reference 59

100 feet of route variation HI-1 and route A-HI1 (Table 6-17). These routing options could adversely affect this archaeological resource. Impacts to this resource could be mitigated by pole placement, by measures designed in consultation with SHPO, and by training of construction workers regarding handling of archaeological resources (Section 5.5).

Natural Environment – Water Resources

Surface waters, including lakes, watercourses, PWI and impaired waters, FEMA-designated floodplains, NWI-mapped wetlands and County Well Index groundwater wells, were identified within the ROWs and within 500 feet of the anticipated alignments of the variations in the Huntley to Iowa border segment. This section focuses primarily on surface waters and wetlands within the ROWs or that are crossed by the anticipated alignments. Additional data is provided in Appendix J and Appendix K.

Map 6-35 and Map 6-36 identify the water resources in the Huntley to Iowa border segment.

Surface waters

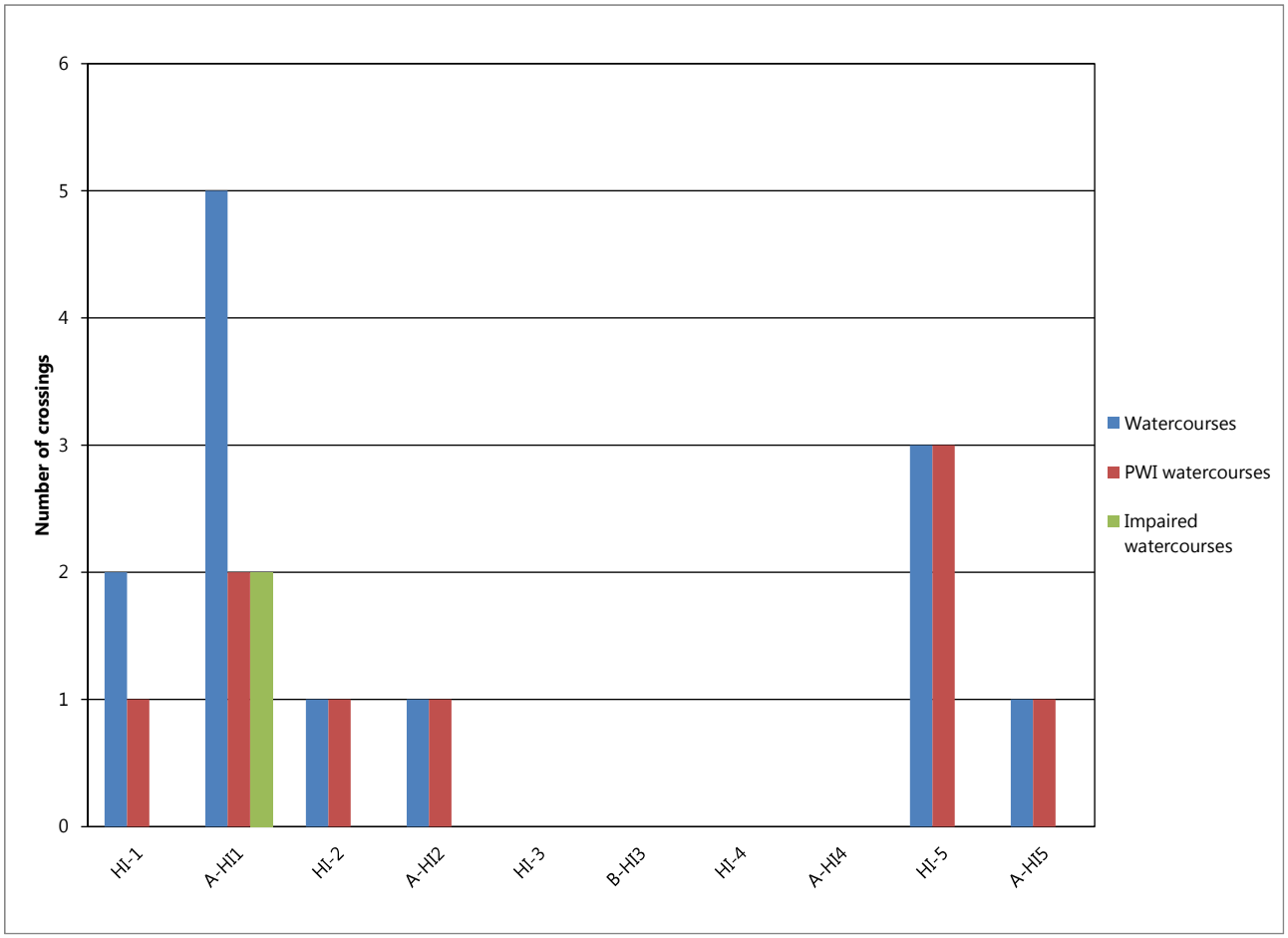
Route variation HI-1 minimizes impacts to surface waters as no lakes would be crossed or located within the ROW of this variation and route variation HI-1 requires fewer watercourse crossings than route A-HI1.

Route A-HI1 would cross one small lake, which is already crossed by an existing 161 kV HVTL. This small, unnamed lake, which is not listed on the PWI or designated as an impaired water, lies within the 200-foot ROW of route A-HI1 (Map 6-35 and Map 6-36).

The Blue Earth River, which is listed as a PWI and impaired stream, South Creek, which is listed

Figure 6-38 Watercourse Crossings – Huntley to Iowa Border Route Variations

Watercourse crossings are relatively few for all route variations.



Source: Reference 60, Reference 41, Reference 61

as a PWI stream, and an unnamed stream all flow through this area. Route A-HI1 would cross watercourses five times in this area (Figure 6-38). Two of these bodies are PWI watercourses (Figure 6-38) and two are designated impaired waters (Figure 6-38). In contrast, route variation HI-1 would only cross watercourses twice, neither of which bodies are listed on the PWI or are designated impaired waters.

General mitigation measures for water resources are discussed in Section 5.6.1. Because all lakes and watercourses would be spanned, no structures would be placed within these features, and direct impacts to lakes and watercourses are anticipated to be minimal. Potential indirect impacts to these resources, such as increases in turbidity, could be minimized by using BMPs and by choosing a route variation farthest from lakes and watercourses.

Wetlands

Wetlands are not common within the Huntley to Iowa border segment. Figure 6-39 shows the total amount of wetland and forested wetland that lies within the 200-foot ROW of each route variation in this segment.

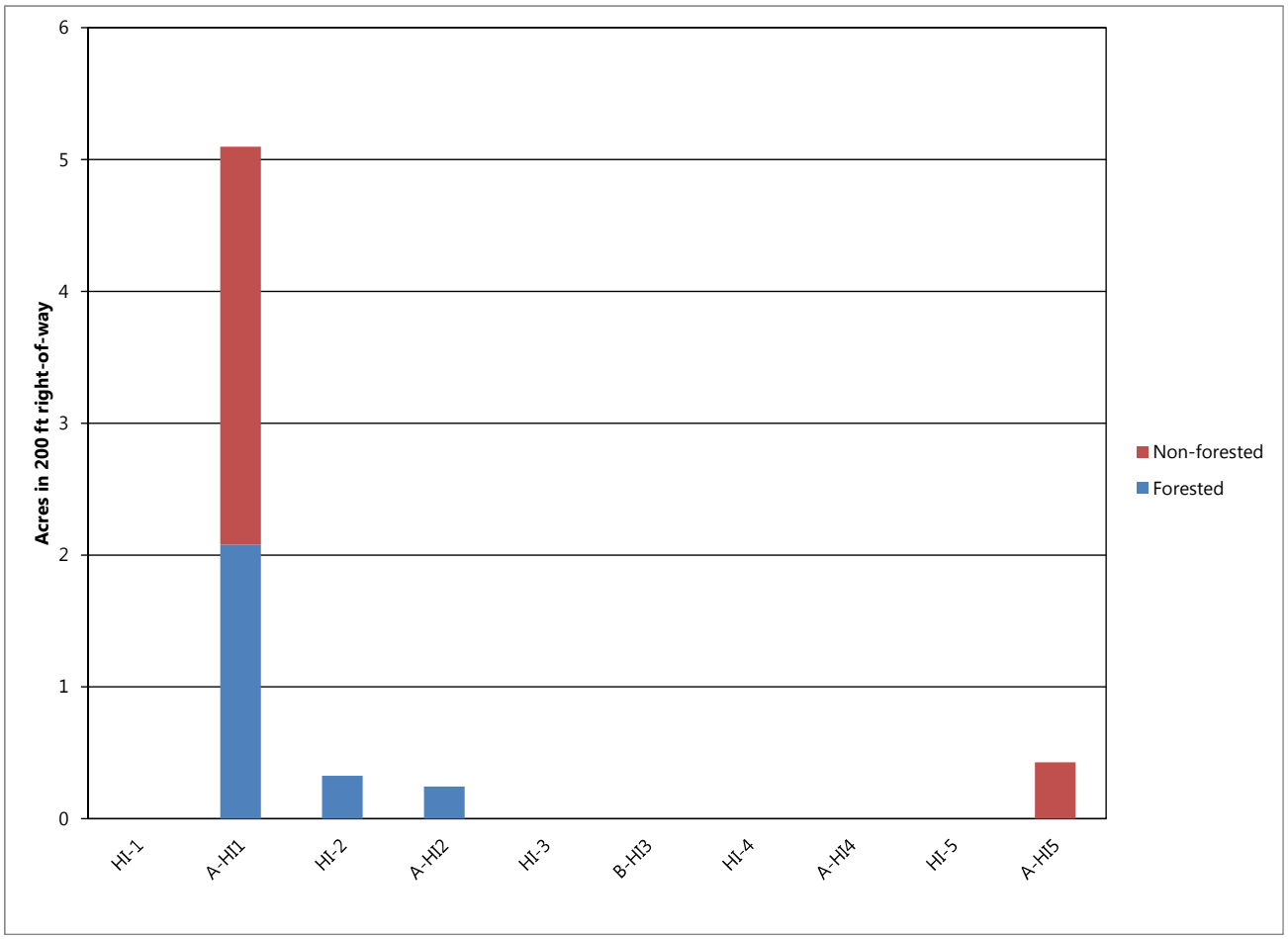
Route A-HI1 has approximately five acres of wetland, two of which are forested, within its 200-foot ROW, while route variation HI-1 does not have any wetland within its ROW (Figure 6-39). Based on NWI mapping, neither of the route variations in this area would cross wetlands wider than 1,000 feet.

Temporary effects on wetlands could occur if wetlands need to be crossed during construction. Using BMPs and choosing route variations with fewer acres of wetland within the 200-foot ROW could minimize these effects.

Permanent effects on wetlands could also occur if the wetlands within the 200-foot ROW are currently

Figure 6-39 Wetlands Within ROW – Huntley to Iowa Border Route Variations

All route variations contain a minimal amount of wetlands.



Source: Reference 46

forested. Forested wetlands could change to non-forested wetlands because vegetation maintenance procedures under transmission lines might prevent trees from establishing. Because route A-HI1 has two acres of forested wetland within its ROW and route variation HI-1 has none, following route variation HI-1 would minimize these impacts.

Natural Environment – Flora

General effects on the composition of vegetation communities for the Huntley to Iowa border variations are described in Section 5.6.2, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Route A-HI1 has approximately 29 acres of forested vegetation within 500 feet of its anticipated alignment, while route variation HI-1 has 23 acres. Thus, route A-HI1 would minimize impacts to flora in this area.

Natural Environment – Fauna

General impacts to wildlife and wildlife habitat for the Huntley to Iowa border route variations are described in Section 5.6.3, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Neither route variation HI-1 nor route A-HI1 would impact land managed for wildlife. Thus, direct impacts to fauna in this area are anticipated to be minimal.

Indirect impacts to wildlife can be generated by crossings of surface waters and proximity to surface waters. Waterfowl and birds are susceptible to collisions with transmission line conductors. In this area, both route A-HI1 and route variation HI-1 would be 345/161 kV double-circuit lines. Thus, avian impacts in the area are anticipated to be incremental and minimal. Both route A-HI1 and route variation HI-1 are very near the Blue Earth River. It is likely that incremental avian impacts for route variation HI-1,

because it is further from the Blue Earth River, would be less than those for route A-HI1.

Rare and Unique Natural Resources / Threatened and Endangered Species

Documented locations of state and federally threatened and endangered species and rare communities were identified within the ROWs, within 500 feet of the anticipated alignments, and within one mile of all Huntley to Iowa border route variations. Rare-community data provided in this section focuses on the presence of these resources within the ROW. Additional data is provided in Appendix J and Appendix K. Map 6-37 and Map 6-38 and the detailed maps in Appendix L identify the rare and unique natural resources near the route variations. In order to protect rare resources from being exploited or destroyed, Map 6-37 and Map 6-38 and the maps in Appendix L do not indicate the names of species or communities identified within the NHIS database.

According to the DNR NHIS database, no records of state or federally threatened or endangered **species or state-special concern or tracked species** species have been documented within the 200-foot ROWs, within 500 feet of the anticipated alignments or within one mile of the route variations in this area. Thus, potential effects on state and federally threatened and endangered species are unlikely and would be similar, whether HI-1 or A-HI1 is selected.

There are no rare communities within the 200-foot ROWs of the route variations in the HI-1 area. Thus, no impacts to rare communities are anticipated.

Use or Paralleling of Existing Rights-of-Way

Map 6-39 and Map 6-40 show areas where the ROW for the proposed route variations would share or parallel ROW with existing transportation, transmission line or other infrastructure. Figure 6-36 shows the percentage of total line distance where existing infrastructure ROW is shared or paralleled. In the HI-1 area, route A-HI1 shares the entirety of its length with existing transmission line ROW. Route variation share about 15 percent of its length with roadway ROW. Thus, route A-HI1 best utilizes existing ROWs in the area.

Costs that are Dependent on Design and Route

A summary of the costs associated with constructing the five route variations along the Huntley to Iowa border segment are provided in Table 6-18. Cost estimates have a range of plus or minus 30 percent.

Most of the route variations along the Huntley to Iowa border segment are similar in length to the equivalent segments along routes A or B that they would replace; thus the estimated costs are also similar. The costs of route A-HI1 and route variation HI-1 are nearly the same. The costs for route variation HI-1 are slightly higher due to the removal of the 161 kV line from its existing ROW and double-circuiting along HI-1.

Modified Route A

In the HI-1 route variation area, modified route A (MRA-HI1) is very similar to route variation HI-1. Thus, impacts associated with MRA-HI1 are anticipated to be similar to those for route variation HI-1.

HI-1 and MRA-HI1 both remove the existing 161 kV line from the Blue Earth River. The alignment for MRA-HI1 is relatively closer to the forested areas along the Blue Earth River. MRA-HI1 also follows, for a greater portion of its length, the

Table 6-18 Summary of Costs for Routes Variations – Huntley to Iowa Border

Route ID	Length (miles)	Estimated Costs ($ million)
HI-1	1.2	2.8
A-HI1	1.0	2.4
HI-2	0.39	0.8
A-HI2	0.41	0.9
HI-3	0.76	1.7
B-HI3	0.77	1.7
HI-4	3.0	7.1
A-HI4	1.0	2.4
HI-5	2.5	5.9
A-HI5	2.5	5.9

existing 161 kV ROW. These alignment features minimize impacts to agriculture in the area. Thus, the agricultural impacts of MRA-HI1 are anticipated to be relatively less than those associated with HI-1.

HI-2 Route Variation

Route variation HI-2 and route A-HI2 are located just south of the Faribault substation. In this area the existing 161 kV line connects to the Faribault substation. The new 345 kV line does not connect to this substation and proceeds independently around the eastern side of the substation and then rejoins the 161 kV line south of the substation. Route variation HI-2 brings the 345 kV line back to the 161 kV line at a location further south than the anticipated alignment for route A-HI2.

Human Settlements

Route variation HI-2 is expected to have minimal impacts on the human settlement elements discussed in Section 5.1. As discussed in Section 6.1.1, the one element of human settlements where impacts can vary notably between routing options is aesthetics. Figure 6-35 and Map 6-31 and Map 6-32 show the proximity of homes to route variations in the Huntley to Iowa border segment, and Figure 6-36 analyzes ROW sharing or paralleling for these route variations. Route variation HI-2 places the 345 kV line at a greater distance from a residence along the existing 161 kV line than does route A-HI2. Route A-HI2 best utilizes existing transmission line ROW (about 20 percent of its length). However, doing so brings the 345 kV line closer to the residence along the line. Thus, route variation HI-2 likely minimizes aesthetic impacts in this area.

Transportation and Public Services

Route variation HI-2 is expected to have minimal impacts on the transportation and public service elements discussed in Section 5.2. As identified in Section 6.1.1, the one element of transportation and public services where impacts can vary notably between routing options is airports. No airports, however, are located within 500 feet of the anticipated alignments of the route variations in this area (Map 6-31 and Map 6-32). Thus, no impacts to transportation and public services are anticipated.

Public Health and Safety

Route variation HI-2 is expected to have minimal impacts on the public health and safety elements discussed in Section 5.3. As identified in Section 6.1.1, the one element of public health and safety where impacts can vary notably between routes is environmental contamination. Based on a review of MPCA's WIMN, there are no documented sites of environmental contamination within 500 feet of the anticipated alignments of route variation HI-2 or route A-HI2 (Map 6-31 and Map 6-32). Thus, no impacts to public health and safety are anticipated.

Land-based Economies

For this segment of the project, the only elements of land-based economies where impacts are anticipated to be non-minimal and could vary notably between routes and route alternatives are agriculture and recreation and tourism.

Agricultural Land, Prime Farmland

Figure 6-38 shows the percentage of each route variation's ROW that has been classified by NRCS as prime farmland or farmland of statewide importance. Figure 6-37 also identifies the remaining percent of each route variation's ROW that does not fall under either of these designations. Appendix J provides the total acreage of each route variation's ROW that is designated as prime farmland or designated as farmland of statewide importance, and the total acreage of each route or route alternative's ROW that doesn't fall into either category.

Appendix J and Figure 6-38 show that route variation HI-2 and route A-HI2 could impact similar amounts of farmland and similar amounts of prime farmland. However, because route A-HI2 utilizes the existing 161 kV line for a relatively greater length, route A-HI2 minimizes impacts to farmland. General mitigation measures for farmland would follow those discussed in Section 5.4.1.

Recreation and Tourism

No snowmobile trails lie within or cross the ROWs of route variation HI-2 or route A-HI2 (Map 6-31 and Map 6-32). Route variation HI-2 and route A-HI2 have no other recreation or tourism areas located within their ROWs. Thus, no impacts to recreation and tourism are anticipated.

Archaeological and Historic Resources

Map 6-33 and Map 6-34 show archaeological and historic resources along route variations in the Huntley to Iowa border segment. The number of archaeological and historic resources within half a mile of each of the Huntley to Iowa border variations is shown in Table 6-16. No known historic resources are located within half a mile of route variation HI-2 and route A-HI2. No known archaeological resources are located within 100 feet of the anticipated alignments of route variation HI-2 and route A-HI2

(Table 6-17). Thus, no impacts to these resources are anticipated.

Natural Environment – Water Resources

Surface waters, including lakes, watercourses, PWI and impaired waters, FEMA-designated floodplains, NWI-mapped wetlands and County Well Index groundwater wells, were identified within the ROW and route width of variations in the Huntley to Iowa border segment. This section focuses primarily on surface waters and wetlands within the ROW or that are crossed by the proposed alignments. Additional data is provided in Appendix J and Appendix K. Map 6-35 and Map 6-36 identify the water resources near the Huntley to Iowa border segment.

Surface waters

There are no lake crossings in the HI-2 area. Badger Creek, which is listed on the PWI, lies within the 200-foot ROW of route variation HI-2 and route A-HI2, and both would have to cross it (Figure 6-38).

General mitigation measures for water resources are discussed in Section 5.6.1. Because all lakes and watercourses would be spanned, no structures would be placed within these features, and direct impacts to lakes and watercourses are anticipated to be minimal. Potential indirect impacts to these resources, such as increases in turbidity, could be minimized by using BMPs and by choosing a route variation farthest from lakes and watercourses.

Wetlands

Figure 6-39 shows the total amount of wetland and forested wetland that lies within the 200-foot ROW of each route variation in this segment. Route variation HI-2 and route A-HI2 have similar amounts of total wetland area (0.3 and 0.2 acre, respectively), all of which is forested within the 200-foot ROW. Based on NWI mapping, neither the route variation nor the route would cross wetlands wider than 1,000 feet.

Temporary effects on wetlands could occur if those wetlands need to be crossed during construction. Using BMPs and choosing route variations with fewer acres of wetland within the 200-foot ROW could minimize these effects.

Permanent effects on wetlands could also occur because the wetlands within the 200-foot ROW are currently forested. Forested wetlands could change to non-forested wetlands because vegetation maintenance procedures under transmission lines might prevent trees from establishing. Choosing route variation A-HI2 would minimize these impacts because it has the least forested wetland within the 200-foot ROW.

Natural Environment – Flora

General effects on the composition of vegetation communities for the Huntley to Iowa border route variations are described in Section 5.6.2, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Effects on forested vegetation within the ROW would be less than 5 acres for both HI-1 and A-HI2. Thus, impacts to flora are anticipated to minimal for route variation HI-2 and route A-HI2.

Natural Environment – Fauna

General impacts to wildlife and wildlife habitat for the Huntley to Iowa route border route variations are described in Section 5.6.3, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Neither the route variation nor the route in this area cross or pass within one mile of WMAs or game refuges. Thus, no impacts to fauna are anticipated.

Rare and Unique Natural Resources / Threatened and Endangered Species

Documented locations of state and federally threatened and endangered species and rare communities were identified within the ROWs, within 500 feet of the anticipated alignments and within one mile of all Huntley to Iowa border route variations. Rare-community data provided in this section focuses on the presence of these resources within the ROW. Additional data is provided in Appendix J and Appendix K. Map 6-37 and Map 6-38 and the detailed maps in Appendix L identify the rare and unique natural resources near the route variations.

According to the DNR NHIS database, no records of state or federally threatened or endangered species **or state-special concern or tracked species** have been documented within the 200-foot ROWs, within 500 feet of the anticipated alignments or within one mile of the route variations in this area. Thus, potential effects on state and federally threatened and endangered species are unlikely and would be similar, whether route variation HI-2 or route A-HI2 is selected.

There are no rare communities within the 200-foot ROWs for the route variations in the HI-2 area. Thus, no impacts to rare communities are anticipated.

Use or Paralleling of Existing Rights-of-Way

Map 6-39 and Map 6-40 show areas where the ROW for the proposed route variations would share or parallel ROW with existing transportation, transmission line or other infrastructure. Figure 6-36 shows the percentage of total line distance where existing infrastructure ROW is shared or paralleled. In the HI-2 area, route A-HI2 shares about 20 percent of its length with existing transmission line ROW. Route variation HI-2 proceeds cross country with no ROW sharing. Thus, route A-HI2 best utilizes existing ROW in this area.

Costs that are Dependent on Design and Route

A summary of the costs associated with constructing the five route variations along the Huntley to Iowa border segment are provided in Table 6-18. The costs of route variation HI-2 and route A-HI2 are approximately the same. Route variation HI-2 costs slightly less because it is, for the entirety of its length, a 345 kV single circuit line.

HI-3 Route Variation

Route variation HI-3 and a route B-HI3 are located just northeast of the Pilot Grove Lake WPA. In this area, route B-HI3 proceeds around the eastern side of a residence; route variation HI-3 proceeds around the western side of the residence. It appears that the primary reason for route variation HI-3 proceeding around the western edge of the residence is to limit aesthetic impacts of the line.

Human Settlements

Route variation HI-3 is expected to have minimal impact on the human settlement elements discussed in Section 5.1. As discussed in Section 6.1.1, the one element of human settlements where impacts can vary notably between routing options is aesthetics. Figure 6-35 and Map 6-31 and Map 6-32 show the proximity of homes to route variations in the Huntley to Iowa border segment, and Figure 6-36 analyzes ROW sharing or paralleling for these route variations. There are no homes within 500 feet of the anticipated alignments of route variation HI-3 and route B-HI3. However, it appears that the only residence in the area – the residence situated in the middle, so to speak, of route variation HI-3 and route B-HI3 – and its farmstead buildings and windbreaks are oriented to face the east. Thus, if route B-HI3 were selected, the line would be fairly visible at the residence. If route variation HI-3 were selected, the line would be much less visible, thus minimizing aesthetic impacts at the resiedence.

Transportation and Public Services

Route variation HI-3 is expected to have no impact on the transportation and public service elements discussed in Section 5.2. As discussed in Section 6.1.1., the one element of transportation and public services where impacts can vary notably between routing options is airports. No airports, however, are located within 500 feet of the route variations in this area (Map 6-31 and Map 6-32). Thus, no impacts to transportation and public services are anticipated.

Public Health and Safety

Route variation HI-3 is expected to have no impact on the public health and safety elements discussed in Section 5.3. As noted in Section 6.1.1., the one element of public health and safety where impacts can vary notably between routes is environmental contamination. Based on a review of MPCA's WIMN, there are no documented sites of environmental contamination within 500 feet of the anticipated alignments of route variation HI-3 or route B-HI3 (Map 6-31 and Map 6-32). Thus, no impacts to public health and safety are anticipated.

Land-based Economies

For this segment of the project, the only elements of land-based economies where impacts are anticipated to be non-minimal and could vary notably between routes and route alternatives are agriculture and recreation and tourism.

Agricultural Land, Prime Farmland

Figure 6-38 shows the percentage of each route variation's ROW that has been classified by NRCS as prime farmland or farmland of statewide importance. Figure 6-37 also identifies the remaining percent of each route variation's ROW that does not fall under either of these designations. Appendix J provides the total acreage of each route variation's ROW that is designated as prime farmland or designated as farmland of statewide importance, and the total acreage of each route or route alternative's ROW that doesn't fall into either category.

Appendix J and Figure 6-38 show that all of the farmland within the ROWs of route variation HI-3 and route B-HI3 is classified as prime farmland or prime farmland if drained. Thus, impacts to farmland are anticipated to occur with either route variation and to be equal in magnitude. General mitigation measures for farmland would follow those discussed in Section 5.4.1.

Recreation and Tourism

No snowmobile trails lie within or cross the ROWs of route variation HI-3 or route B-HI3 (Map 6-31 and Map 6-32). Route variation HI-3 and route B-HI3 have no other recreation or tourism areas located within their ROWs. Thus, no impacts to recreation and tourism are anticipated.

Archaeological and Historic Resources

Map 6-33 and Map 6-34 show archaeological and historic resources along route variations in the Huntley to Iowa border segment. The number of archaeological and historic resources within half a mile of each of the Huntley to Iowa border variations is shown in Table 6-16. No known historic resources are located within half a mile of route variation HI-3 and route B-HI3. No known archaeological resources are located within 100 feet of the anticipated alignments of route variation HI-3 and route B-HI3 (Table 6-17). Thus, no impacts to archaeological and historic resources are anticipated.

Natural Environment – Water Resources

Surface waters, including lakes, watercourses, PWI and impaired waters, FEMA-designated floodplains, NWI-mapped wetlands and County Well Index groundwater wells, were identified within the ROWs and within 500 feet of the anticipated alignments of variations in the Huntley to Iowa border segment. This section focuses primarily on surface waters and wetlands within the ROW or that are crossed by the proposed alignments. Additional data is provided in Appendix J and Appendix K. Map 6-35 and Map 6-36 identify the water resources in the Huntley to Iowa border segment.

Surface waters

Figure 6-38 shows surface water crossings for route variations in the Huntley to Iowa border segment. Route variation HI-3 and route B-HI3 would not cross any lakes or watercourses. Thus, no impacts to surface waters are anticipated.

Wetlands

Figure 6-39 shows the total amount of wetland and forested wetland that lies within the 200-foot ROW of each route variation in this segment. According to the NWI, no wetlands lie within the 200-foot ROW of route variation HI-3 and route B-HI3, thus no impacts to wetland resources are anticipated with these route variations.

Natural Environment – Flora

General effects on the composition of vegetation communities for the Huntley to Iowa border variations are described in Section 5.6.2, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Effects on forested vegetation within the ROW would be less than 5 acres for both route variation HI-3 and route B-HI3. Thus, impacts to flora in the area are anticipated to be minimal.

Natural Environment – Fauna

General impacts to wildlife and wildlife habitat for the Huntley to Iowa border route variations are described in Section 5.6.3, and are similar to those described the "Natural Environment" section of Section 6.1.1. Neither of the route variations in this area cross or pass within one mile of WMAs or game refuges. Thus, impacts to fauna are anticipated to be minimal.

Rare and Unique Natural Resources / Threatened and Endangered Species

Documented locations of state and federally threatened and endangered species and rare communities were identified within the ROW and route width and within one mile of all Huntley to Iowa border route variations. Rare-community data provided in this section focuses on the presence of these resources within the ROW. Additional data is provided in Appendix J and Appendix K. Map 6-37 and Map 6-38 and the detailed maps in Appendix L identify the rare and unique natural resources near the route variations.

According to the DNR NHIS database, no records of state or federally threatened or endangered **species or state-special concern or tracked** species have been documented within the 200-foot ROWs, within 500 of the anticipated alignments, or within one mile of the route variations in this area. Thus, potential effects on state and federally threatened and endangered species are unlikely and would be similar, whether route variation HI-3 or route B-HI3 is selected.

There are no rare communities within the 200-foot ROWs for either route variation HI-3 or route B-HI3. Thus, no impacts to rare communities are anticipated.

Use or Paralleling of Existing Rights-of-Way ROW

Map 6-39 and Map 6-40 show areas where the ROWs for the proposed route variations would share or parallel ROW with existing transportation, transmission line or other infrastructure. Figure 6-36 shows the percentage of total line distance where existing infrastructure ROW is shared or paralleled. In

this area, route variation HI-3 and route B-HI3 both share about 30 percent of the ROW with existing roadway ROW. Route B-HI3 proceeds for some of its length along field lines; route variation HI-3 does not utilize field lines.

Costs that are Dependent on Design and Route

A summary of the costs associated with constructing the route variations along the Huntley to Iowa border segment are provided in Table 6-18. The costs of route variation HI-3 and route B-HI3 are the same.

HI-4 Route Variation

Route variation HI-4 and route A-HI4 provide routing options at the Pilot Grove Lake WPA. Route variation HI-4 would leave route A north of the Pilot Grove Lake WPA, proceed east to route B, south on route B and then back west to rejoin route A south of the Pilot Grove Lake WPA. In this manner, route variation HI-4 goes around the WPA. In contrast, route A-HI4 crosses the WPA following the existing 161 kV line across the WPA. If route variation HI-4 were selected, the 161 kV line would be removed from the Pilot Grove Lake WPA and double-circuited with the 345 kV line around the WPA.

Human Settlements

Route variation HI-4 is expected to have minimal impact on the human settlement elements discussed in Section 5.1. As discussed in Section 6.1.1, the one element of human settlements where impacts can vary notably between routing options is aesthetics. Figure 6-35 and Map 6-31 and Map 6-32 show the proximity of homes to route variations in the Huntley to Iowa border segment, and Figure 6-36 analyzes ROW sharing or paralleling for these route variations.

There are no homes within 500 feet of the anticipated alignments of route variation HI-4 and route A-HI4. Route A-HI4 utilizes the existing 161 kV ROW for the entirety of its length. Route variation HI-4 proceeds cross country, using field lines for some of its length. Thus, route A-HI4 minimizes aesthetic impacts in the area by using existing transmission line ROW.

Transportation and Public Services

Route variation HI-4 is expected to have no impact on the transportation and public service elements discussed in Section 5.2. As discussed in Section 6.1.1, the one element of transportation and public services where impacts can vary notably between routing options is airports. No airports, however, are located within 500 feet of the route variation and route in this area (Map 6-31 and Map 6-32). Thus, no impacts to transportation and public services are anticipated.

Public Health and Safety

Route variation HI-4 is expected to have minimal impacts on the public health and safety elements discussed in Section 5.3. As noted in Section 6.1.1, the one element of public health and safety where impacts can vary notably between routing options is environmental contamination. Based on a review of MPCA's WIMN, there are no documented sites of environmental contamination within 500 feet of the anticipated alignments of route variation HI-4 or route A-HI4 (Map 6-31 and Map 6-32). Thus, no impacts to public health and safety are anticipated.

Land-based Economies

For this segment of the project, the only elements of land-based economies where impacts are anticipated to be non-minimal and could vary notably between routes and route alternatives are agriculture and recreation and tourism.

Agricultural Land, Prime Farmland

Figure 6-38 shows the percentage of each route variation's ROW that has been classified by NRCS as prime farmland or farmland of statewide importance. Figure 6-37 also identifies the remaining percent of each route variation's ROW that does not fall under either of these designations. Appendix J provides the total acreage of each route variation's ROW that is designated as prime farmland or designated as farmland of statewide importance, and the total acreage of each route or route alternative's ROW that doesn't fall into either category.

Appendix J and Figure 6-38 show that route variation HI-4 contains more farmland and significantly more prime farmland than route A-HI4. Route A-HI4 minimizes impacts to farmland by utilizing the existing 161 kV transmission line ROW. Thus, route A-HI4 minimizes impacts to agriculture in this area. General mitigation measures for farmland would follow those discussed in Section 5.4.1.

Recreation and Tourism

No snowmobile trails lie within or cross the ROWs of route variation HI-4 or route A-HI4 (Map 6-31 and Map 6-32). Route variation HI-4 was developed to avoid crossing the Pilot Grove Lake WPA. Route A-HI4 would traverse approximately 0.5 mile of the WPA. If route A-HI4 were selected for the project, construction at the WPA could affect access to the WPA, and game and other wildlife could leave the area. Once construction has been completed,

access to the WPA would be restored, and wildlife would likely return. This construction interruption at the WPA could make recreating in the area of the WPA less enjoyable for citizens. General mitigation measures for recreation and tourism would follow those discussed in Section 5.4.4.

Archaeological and Historic Resources

Map 6-33 and Map 6-34 show archaeological and historic resources along route variations in the Huntley to Iowa border segment. The number of archaeological and historic resources within half a mile of each of the Huntley to Iowa border variations is shown in Table 6-16. No known historic resources are located within half a mile of the route variation HI-4 and route A-HI4. No known archaeological resources are located within 100 feet of the anticipated alignments of route variation HI-4 and route A-HI4 (Table 6-17). Thus, no impacts to archaeological and historic resources are anticipated.

Natural Environment – Water Resources

Surface waters, including lakes, watercourses, PWI and impaired waters, FEMA-designated floodplains, NWI-mapped wetlands and County Well Index groundwater wells, were identified within the ROW and route width of variations in the Huntley to Iowa border segment. This section focuses primarily on surface waters and wetlands within the ROW or that are crossed by the proposed alignments. Additional data is provided in Appendix J and Appendix K. Map 6-35 and Map 6-36 identify the water resources near the Huntley to Iowa border segment.

Surface waters

Figure 6-38 shows surface water crossings for route variations in the Huntley to Iowa border segment. Route variation HI-4 and route A-HI4 would not cross any lakes or watercourses.

Wetlands

Figure 6-39 shows the total amount of wetland and forested wetland that lies within the 200-foot ROW of each route variation in this segment.

Although not documented in the NWI, a large wetland associated with the Pilot Grove Lake WPA lies within the HI-4 area. Approximately 11 acres of non-forested wetland associated with this WPA are present in the 200-foot ROW of route A-HI4. Currently, the 161 kV HVTL has six single pole structures within the WPA wetland. Because this wetland is more than 2,000 feet wide at the point where it would be crossed, route A-HI4 would require that as many as three structures be placed within the WPA.

Temporary effects on wetlands could occur if wetlands need to be crossed during construction. Using BMPs and choosing route variations with fewer acres of wetland within the 200-foot ROW could minimize these effects. ITCM has consulted with the USFWS concerning crossing the Pilot Grove Lake WPA. The USFWS has indicated that a crossing may be possible if there is no change in the existing transmission line ROW, which is 100 feet. ITCM has indicated that for route A-HI4's crossing of the WPA, a 100-foot ROW could be used for the 345/161 kV double-circuit line.

Permanent effects on wetlands could also occur if the wetlands within the 200-foot ROW are currently forested. Forested wetlands could change to non-forested wetlands because vegetation maintenance procedures under transmission lines might prevent trees from establishing. As there are no forested wetlands in the HI-4 area, no impacts to forested wetlands are anticipated.

Natural Environment – Flora

General effects on the composition of vegetation communities for the Huntley to Iowa border variations are described in Section 5.6.2, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Effects on forested vegetation within the ROW would be less than 5 acres for both route variations in the HI-4 area. Thus, impacts to flora are anticipated to be minimal in the area.

Natural Environment – Fauna

General impacts to wildlife and wildlife habitat for the Huntley to Iowa border route variations are described in Section 5.6.3, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Route A-HI4 crosses the Pilot Grove Lake WPA. Neither route A-HI4 nor route variation HI-4 pass within one mile of WMAs or game refuges.

As noted above, if route A-HI4 is selected for the project, construction in the WPA could cause wildlife to leave the area. However, this wildlife is anticipated to be able to leave the area and to return once construction is complete. Thus, direct impacts to fauna are anticipated to be minimal. Both route variation HI-4 and route A-HI4 would likely have indirect impacts on fauna, namely impacts on avian species due to collisions with transmission line conductors. Both routing options would add a second set of conductors in the area. Indirect impacts for both would be incremental, as the 161 kV line already proceeds through area. Route variation HI-4 would add conductors around (on three sides of) the WPA; route A-HI4 would add

conductors across the WPA. It is uncertain which addition would have the greater incremental avian impacts.

Rare and Unique Natural Resources / Threatened and Endangered Species

Documented locations of state and federally threatened and endangered species and rare communities were identified within the ROWs, within 500 feet of the anticipated alignments and within one mile of all Huntley to Iowa border route variations. Rare-community data provided in this section focuses on the presence of these resources within the ROW. Additional data is provided in Appendix J and Appendix K. Map 6-37 and Map 6-38 and the detailed maps in Appendix L identify the rare and unique natural resources near the route variations.

According to the DNR NHIS database, no records of state or federally threatened or endangered **species or state-special concern or tracked species** species have been documented within the 200-foot ROWs, within 500 feet of the anticipated alignments or within one mile of the route variations in this area. Thus, potential effects on state and federally threatened and endangered species are unlikely and would be similar, whether route variation HI-4 or route A-HI4 is selected.

Rare Communities

No railroad ROW prairies are located within the 200-foot ROW of either route variation in the HI-4 area. Route A-HI4 crosses the Pilot Grove Lake WPA and its ROW contains approximately 11 acres of wetland. The WPA and associated wetland are designated as an MBS open water native plant community and an MBS SBS. The existing 161 kV HVTL crosses this WPA, and currently six single pole structures for the 161 kV HVTL lie within the WPA. Route A-HI4 would require that as many as three structures be placed within the WPA.

As discussed above, ITCM has consulted with the USFWS concerning crossing the Pilot Grove Lake WPA. ITCM has indicated that for route A-HI4's crossing of the WPA, the ROW for the existing 161 kV HVTL (100 feet) could be used for the 345/161 kV double-circuit line. Thus, impacts to rare communities in and near the WPA are anticipated to be incremental.

Effects on rare communities could be minimized by selecting route variation HI-4 because this route variation does not have any documented records of native plant communities or MBS SBS within its ROW or within 500 feet of its anticipated alignment.

Effects on rare communities could also be minimized by spanning areas where these communities are present. Route A-HI4 cannot span the Pilot Grove Lake WPA. Effects on this WPA could be mitigated by following BMPs for working in wetlands (Section 5.6.1).

Use or Paralleling of Existing Rights-of-Way

Map 6-39 and Map 6-40 show areas where the ROW for the proposed route variations would share or parallel ROW with existing transportation, transmission line or other infrastructure. Figure 6-36 shows the percentage of total line distance where existing infrastructure ROW is shared or paralleled. Route A-HI4 shares the entirety of its length with existing 161 kV transmission line ROW. Route variation HI-4 proceeds cross country, using field lines for some of its length. Thus, route A-HI4 best utilizes existing ROW in the area.

Costs that are Dependent on Design and Route

A summary of the costs associated with constructing the route variations along the Huntley to Iowa border segment are provided in Table 6-18. Route variation HI-4, which would go around the Pilot Grove Lake WPA, is two miles longer than route A-HI4, and would cost about $4.7 million more to construct.

HI-5 Route Variation

Route variation HI-5 route A-HI5 provide routing options near the Iowa border. Route A-HI5 jogs east and then proceeds south to the Iowa border, following the existing Lakefield to Border 161 kV line. Route variation HI-5 proceeds south and then east to rejoin the existing 161 kV line. If route variation HI-5 were selected, the 161 kV line would be removed and double-circuited with the 345 kV line, eventually crossing into Iowa where the 161 kV line currently crosses into Iowa.

Human Settlements

Route variation HI-5 is expected to have minimal impact on the human settlement elements discussed in Section 5.1. As discussed in Section 6.1.1, the one element of human settlements where impacts can vary notably between routing options is aesthetics. Figure 6-35 and Map 6-31 and Map 6-32 show the proximity of homes to route variations in the Huntley to Iowa border segment, and Figure 6-36 analyzes ROW sharing or paralleling for these route variations. These indicators point in different directions. Route A-HI5 has three residences in close proximity to the line; route variation HI-5 has none. This is because

route variation HI-5 proceeds primarily cross country. Route A-HI5 minimizes aesthetic impacts by following the existing 161 kV line for it entire length. Because route variation HI-5 is at a greater distance from residences and would not create two transmission line ROWs in the area (due to double-circuiting), HI-5 likely best minimizes aesthetic impacts in this area.

Transportation and Public Services

Route variation HI-5 is expected to have no impact on the transportation and public service elements discussed in Section 5.2. As noted in Section 6.1.1, the one element of transportation and public services where impacts can vary notably between routing options is airports. No airports, however, are located within 500 feet of the route variation and route in this area (Map 6-31 and Map 6-32). Thus, no impacts to transportation and public services are anticipated.

Public Health and Safety

Route variation HI-5 is expected to have minimal impacts on the public health and safety elements discussed in Section 5.3. As noted in Section 6.1.1, the one element of public health and safety where impacts can vary notably between routing options is environmental contamination. Based on a review of MPCA's WIMN, there are no documented sites of environmental contamination within 500 feet of the anticipated alignments of route variation HI-5 or route A-HI5 (Map 6-31 and Map 6-32). Thus, no impacts to public health and safety are anticipated.

Land-based Economies

For this segment of the project, the only elements of land-based economies where impacts are anticipated to be non-minimal and could vary notably between routes and route alternatives are agriculture and recreation and tourism.

Agricultural Land, Prime Farmland

Figure 6-38 shows the percentage of each route variation's ROW that has been classified by NRCS as prime farmland or farmland of statewide importance. Figure 6-37 also identifies the remaining percent of each route variation's ROW that does not fall under either of these designations. Appendix J provides the total acreage of each route variation's ROW that is designated as prime farmland or designated as farmland of statewide importance, and the total acreage of each route or route alternative's ROW that doesn't fall into either category.

Appendix J and Figure 6-38 show that route variation HI-5 and route A-HI5 have similar amounts of farmland, and that route variation HI-5 has a slightly higher percentage of prime farmland. However, route A-HI5 follows existing transmission line ROW for its length, and thus impacts to farmland along A-HI5 would be incremental and minimal. Thus, route A-HI5 minimizes impacts to agriculture in this area. General mitigation measures for farmland would follow those discussed in Section 5.4.1.

Recreation and Tourism

No snowmobile trails lie within or cross the ROWs of route variation HI-5 or route A-HI5 (Map 6-31 and Map 6-32). Route variation HI-5 and route A-HI5 would each cross the west branch of the Blue Earth River and the Blue Earth River State Water Trail once. During construction, a portion of the river and surrounding area might need to be blocked off, which could restrict use of the water trail or require a detour. Once construction has been completed, the Blue Earth River State Water Trail would again be available for recreational activities. General mitigation measures for recreation and tourism would follow those discussed in Section 5.4.4.

Archaeological and Historic Resources

Map 6-33 and Map 6-34 show archaeological and historic resources along route variations in the Huntley to Iowa border segment. The number of archaeological and historic resources within half a mile of each of the Huntley to Iowa border variations is shown in Table 6-16. No known archaeological resources are located within 100 feet of the anticipated alignments of route variation HI-5 and route A-HI5 (Table 7-17). One historic resource is located within 500 feet of the anticipated alignment of route A-HI5. Although it is unlikely that the project would have any adverse visual effects on this historic resource, the potential for impact does exist.

Natural Environment – Water Resources

Surface waters, including lakes, watercourses, PWI and impaired waters, FEMA-designated floodplains, NWI-mapped wetlands and County Well Index groundwater wells, were identified within the ROWs and within 500 feet of the anticipated alignments of route variations in the Huntley to Iowa border segment. This section focuses primarily on surface waters and wetlands within the ROW or that are crossed by the anticipated alignments. Additional data is provided in Appendix J and Appendix K. Map 6-35 and Map 6-36 identify the water resources in the Huntley to Iowa border segment.

Surface waters

The West Branch Blue Earth River and Judicial Ditch Seven, both of which are listed on the PWI, lie within the 200-foot ROWs of route variation HI-5 and route

A-HI5. Route variation HI-5 would cross watercourses three times; route A-HI5 would cross watercourses once (Figure 6-38).

General mitigation measures for water resources are discussed in Section 5.6.1. Because all lakes and watercourses would be spanned, no structures would be placed within these features, and direct impacts to lakes and watercourses are anticipated to be minimal. Potential indirect impacts to these resources, such as increases in turbidity, could be minimized by using BMPs and by choosing a route variation farthest from lakes and watercourses.

Wetlands

Figure 6-39 shows the total amount of wetland and forested wetland that lies within the 200-foot ROW of the route variation and the route in this segment. Route A-HI5 has 0.4 acre of non-forested wetland within its 200-foot ROW, while route variation HI-5 does not contain any wetland (Figure 6-39). Based on NWI mapping, neither the route variation nor the route in this area would cross wetlands wider than 1,000 feet.

Temporary effects on wetlands could occur if wetlands need to be crossed during construction. Using BMPs and choosing route variations with fewer acres of wetland within the 200-foot ROW could minimize these effects.

Permanent effects on wetlands could also occur if the wetlands within the 200-foot ROW are currently forested. Forested wetlands could change to non-forested wetlands because vegetation maintenance procedures under transmission lines might prevent trees from establishing. As there are no forested wetlands in the HI-5 area, no impacts to forested wetlands are anticipated.

Natural Environment – Flora

General effects on the composition of vegetation communities for the Huntley to Iowa border variations are described in Section 5.6.2, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Effects on forested vegetation within the ROW would be less than 5 acres for both route variations in the HI-5 area. Thus, impacts to flora are anticipated to be minimal.

Natural Environment – Fauna

General impacts to wildlife and wildlife habitat for the Huntley to Iowa route variations are described in Section 5.6.3, and are similar to those described in the "Natural Environment" section of Section 6.1.1. Neither the route variation nor the route in this area crosses or passes within one mile of WMAs or game refuges. Thus, impacts to fauna are anticipated to be minimal.

Rare and Unique Natural Resources / Threatened and Endangered Species

Documented locations of state and federally threatened and endangered species and rare communities were identified within the ROWs, within 500 of the anticipated alignments and within one mile of all Huntley to Iowa border route variations. Rare-community data provided in this section focuses on the presence of these resources within the ROW. Additional data is provided in Appendix J and Appendix K. Map 6-37 and Map 6-38 and the detailed maps in Appendix L identify the rare and unique natural resources near the route variations.

According to the DNR NHIS database, no records of state or federally threatened or endangered **species or state-special concern or tracked** species have been documented within the 200-foot ROWs, within 500 feet of the anticipated alignments or within one mile of the route variation or route in this area. Thus, potential effects on state and federally threatened and endangered species are unlikely and would be similar, whichever route variation is selected.

There are no rare communities within the ROWs of route variation HI-5 and route A-HI5. Thus, no impacts to rare communities are anticipated.

Use or Paralleling of Existing Rights-of-Way

Map 6-39 and Map 6-40 show areas where the ROW for the proposed route variations would share or parallel ROW with existing transportation, transmission line or other infrastructure. Figure 6-36 shows the percentage of total line distance where existing infrastructure ROW is shared or paralleled. A-HI5 shares the entirety of its length with existing transmission line ROW. Route variation HI-5 shares approximately 20 percent of its length with roadway ROW; for the remainder it proceeds cross country. Thus, route A-HI5 best utilizes existing ROW in this area.

Costs that are Dependent on Design and Route

A summary of the costs associated with constructing the route variations along the Huntley to Iowa border segment are provided in Table 6-18. The costs for route variation HI-5 and route A-HI5 are the same.

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