

3.0 ALTERNATIVES

In considering Guardian's applications, the FERC will review both the environmental and non-environmental record in deciding whether it is in the public convenience and necessity to issue any authorization for the Project. The EIS addresses alternatives to the proposed actions before the FERC. The proposed action before the FERC is to consider issuing to Guardian a Section 7 Certificate for a new natural gas pipeline.

In accordance with NEPA and FERC policy, a number of alternatives to the G-II Project have been evaluated to determine if any are reasonable and environmentally preferable to the proposed actions. Alternatives described in the following sections include the no action alternative, system alternatives, and major and minor route alternatives, variations, and modifications.

The evaluation criteria for selecting potentially reasonable and environmentally preferable alternatives include whether they:

- are technically and economically feasible and practical;
- offer significant environmental advantage over the proposed Project or segments of it; and
- meet the project objectives of increasing the physical pipeline capacity serving Wisconsin and expand access to a competitive supply of natural gas for the benefit of the LDCs' utility customers in Wisconsin.

With respect to the first criteria, it is important to recognize that not all conceivable alternatives are technically and economically practical and feasible. Some alternatives may be impracticable because the sites are unavailable and/or incapable of being implemented after taking into consideration costs, existing technologies, constraints of existing system capacities, and logistics in light of the overall project objectives. In conducting a reasonable analysis, it is also important to consider the environmental advantages and disadvantages of the proposed action and to focus the analysis on those alternatives that may reduce impacts and/or offer a significant environmental advantage.

Through the application of evaluation criteria and subsequent environmental comparisons, each alternative was considered until it was clear that the alternative was not reasonable or would result in significantly greater environmental impacts that could not be readily mitigated. Those alternatives that appeared to be the most reasonable with less than or similar levels of environmental impact are reviewed below.

3.1 No Action or Postponed Action Alternative

The Commission has three courses of action in processing an application. It may: (1) deny the proposal; (2) postpone action pending further study; or (3) authorize the proposal with or without conditions.

If the Commission denies the proposal (effectively selecting the no action alternative), the short- and long-term environmental impacts identified in section 4.0 of this EIS would not occur. If the Commission postpones action on the application, the environmental impacts identified in

section 4.0 would be delayed, or if the applicant decided not to pursue the Project, the impacts would not occur.

If the Commission selects the no action alternative, the objectives of the proposed Project would not be met and Guardian would not be able to provide an expansion of pipeline capacity or a competitive supply of natural gas for the benefit of Wisconsin natural gas consumers.

To understand the potential effects of the no action or postponed action alternative, it is important to understand the source and use of natural gas in Wisconsin. Over the last 15 years, the state-wide consumption of natural gas has increased by more than 25 percent and now totals nearly 400 billion cubic feet annually (WDOE, 2005; WDOE, 2006). During this same period, the number of residential and commercial/industrial gas customers in Wisconsin has grown by approximately 40 and 43 percent, respectively (WDOE, 2005).

Although it would be purely speculative and beyond the scope of this analysis to attempt to predict what actions might be taken by policymakers or end users in response to the no action or postponed action alternatives, it is likely that potential end users would make other arrangements to obtain natural gas service (e.g., natural gas from another project), or make use of alternative fossil-fuel energy sources (e.g., fuel oil or coal), other traditional long-term fuel source alternatives (e.g., nuclear power or hydropower), and/or renewable energy sources, such as wind power, to compensate for the reduced availability of natural gas that would be supplied by the proposed Project. It is also possible that energy conservation practices would be used to offset the demand for natural gas in the markets that would be supplied by the proposed Project.

Denying or postponing a decision on the proposed Project would result in reduced natural gas availability in the targeted market regions. Such shortages would in turn lead to an increased reliance on fuel oil and other non-renewable fuel supply sources for power generating facilities. However, because petroleum product consumption is also projected to increase (EIA, 2006a), it is unlikely that fuel oil would provide a readily available or cost-effective alternative to natural gas. Further, natural gas is the cleanest burning of the fossil fuels. Relative to natural gas, reliance on coal or fuel oil to power electric generation would likely result in greatly increased emissions of pollutants, such as nitrogen oxide (NO_x), sulfur dioxide (SO₂), and carbon dioxide, and associated reductions in air quality. In addition, increased reliance on other fossil fuels would also result in secondary impacts associated with their production (e.g., coal mining and oil drilling), transportation (e.g., oil tankers, rail cars, and pipelines), and refinement. The use of fossil fuels like coal also results in higher emission of pollutants such as mercury into both the atmosphere and surrounding environment through deposition. In addition, unlike natural gas, other fuels result in spent fuel wastes (e.g., coal ash and nuclear waste) that require disposal and/or long-term management.

Other long-term fuel source alternatives to natural gas include nuclear power, hydropower, and the development of renewable energy sources. Although there has recently been renewed interest in nuclear power production, growth in nuclear generating capacity is expected to account for about 10 percent of total United States generating capacity by 2019, and is expected to remain at that level through 2030 (EIA, 2006a). Additionally, regulatory requirements, cost considerations, and public concerns make it unlikely that new nuclear power plants would be sited and developed to serve the markets targeted by the proposed Project within a timeframe that would meet the objectives of the proposed Project. The EIA (2006a) does not anticipate that any new nuclear power plants will begin operation before 2014.

Renewable energy projects and energy conservation measures would likely play an increasingly prominent role in meeting the United States' energy demands in the coming years. Though efficiency upgrades at existing hydropower facilities are expected to produce incremental additions of power production in the coming years, it is unlikely that new and/or significant sources of hydropower would be permitted and brought online as reliable, energy source alternatives to the proposed Project. Federal, state, and local initiatives would likely contribute to an increase in the availability and cost-effectiveness of non-hydropower renewable energy sources such as wind, solar, tidal, geothermal, and biomass. However, the percentage of electricity generated from non-hydropower renewable energy sources at the national level is only projected to increase to 3.2 percent by 2025 (EIA, 2006a), which would offset only a small part of the projected national energy demands.

In light of the preceding analysis, we do not recommend the no action or the postponed action alternative.

3.2 System Alternatives

System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems to meet the stated objectives of the proposed Project. A system alternative would make it unnecessary to construct all or part of the proposed Project, although some modifications or additions to other existing pipeline systems may be required to increase their capacity. These modifications or additions would result in environmental impacts that may be less than, similar to, or greater than those associated with construction of the proposed Project. The purpose of identifying and evaluating system alternatives is to determine whether or not potential environmental impacts associated with construction and operation of the proposed facilities would be avoided or reduced by using another pipeline system while still meeting the objectives of the proposed Project.

The analysis below examines the existing and proposed natural gas systems that currently serve or would eventually serve the markets targeted by the proposed Project, and considers whether those systems would meet the proposed Project objectives while offering an environmental advantage over the proposed Project. Specifically, the system alternatives considered in our analysis include:

- expansion of existing overland natural gas pipeline systems (Existing Pipeline System Alternatives); and
- construction of other natural gas pipeline systems (New Pipeline System Alternatives).

3.2.1 Existing Pipeline System Alternatives

Five existing pipeline systems operated by the ANR Pipeline Company (ANR), Natural Gas Pipeline Company of America (NGPL), Viking Gas Transmission Company (VGTC), Northern Natural Gas Company (NNG), and Great Lakes Gas Transmission Company (GLGT) occur in the general geographic area of the proposed Project. Using these systems or a combination of these systems as an alternative to the G-II Project are discussed in further detail below. Figure 3.2-1 depicts the location of these alternative pipelines in relation to the proposed G-II pipeline route.

ANR Pipeline Company (ANR)

ANR currently operates a pipeline system within the state of Wisconsin, including pipelines near the proposed G-II Project. ANR could be capable of providing the same or similar transportation capacity as the proposed Project; however, as ANR has historically and currently dominates much of the natural gas transmission market in eastern Wisconsin, doing so would not fulfill one of the objectives of the proposed Project, that of providing access to a competitive supply of natural gas for the benefit of the Wisconsin local distribution companies' utility customers.

For the ANR system to meet the energy market demands it would more than likely require the addition of compressor and meter stations, pig launcher/receiver facilities and beyond that, possible looping of the existing system, with a similar or greater environmental impact than the proposed G-II Project.

Several stakeholders have suggested that collocating the proposed G-II pipeline with the existing ANR Pipeline Route in eastern Wisconsin would decrease environmental impacts. To the extent possible, Guardian has collocated the proposed pipeline within existing utility rights-of-way (see section 2.2.1); however, to collocate the G-II pipeline solely within the ANR right-of-way from its proposed starting point at Guardian's existing Ixonia Meter Station in Jefferson County, Wisconsin would require the construction of over 30 miles of additional pipeline eastward towards the ANR system. Collocating the G-II pipeline with the ANR system would likely result in greater impacts on waterbodies, wetlands, and forest lands (see figure 3.2-2). In addition, the G-II pipeline has been strategically placed outside of the ANR pipeline corridor within Outagamie County, Wisconsin to address the concerns of the Oneida Nation on Reservation lands.

For the reasons discussed above, both the expansion of the ANR Pipeline System and/or collocation adjacent to its existing right-of-way corridor in eastern Wisconsin are not considered to be an environmentally preferable alternative to the proposed G-II Project and, therefore, the alternative has been eliminated from further consideration.

Natural Gas Pipeline Company of America (NGPL)

The NGPL system extends across Iowa and northern Illinois into the Chicago area. A portion of the system also extends northward to the Illinois/Wisconsin state line. To transport the volumes proposed by Guardian to eastern Wisconsin, NGPL would likely need to construct over 240 miles of new pipeline. It is likely that NGPL would also need to expand its existing system through looping and/or new compression. The required extension and expansion would result in a much larger project than the G-II Project and, as such, NGPL's system is not a viable system alternative and has been eliminated from further consideration.

Viking Gas Transmission Company (VGTC)

The existing VGTC system extends southeast from the Canadian border near Noyes, Minnesota, through the northern regions of Minnesota and Wisconsin, to an interconnection with ANR near Marshfield, Wisconsin, over 100 miles west of Green Bay. VGTC receives western Canadian gas from TransCanada Pipeline at the United States-Canada International Border and does not have direct access to the eastern Wisconsin markets. VGTC also does not have direct access to the diversity of supply and upstream service providers at the Chicago Hub. Access to the



Figure 3.2-1
Existing Pipeline System Alternatives

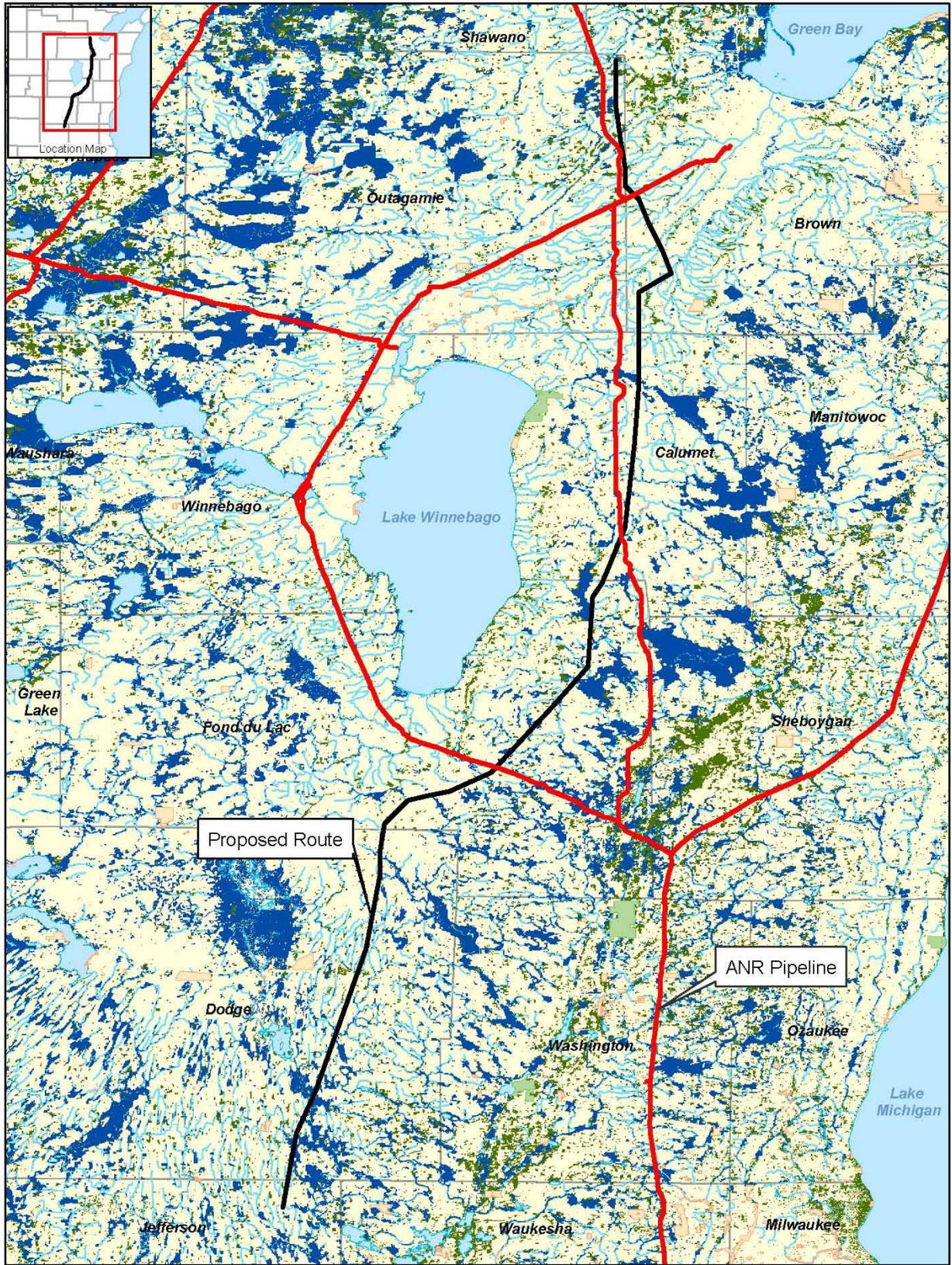


Figure 3.2-2
Existing ANR Pipeline System and
Proposed G-II Pipeline Route

Chicago Hub is a major benefit of the G-II Project. Without such access, a pipeline company cannot provide the same diversity of supply and access to upstream service providers as the G-II Project. To access Guardian's customers and proposed delivery points in eastern Wisconsin would likely require VGTC to construct more than 200 miles of new pipeline. In order to provide direct access to the same diversity of supply as the G-II Project, this new pipeline would also have to extend another 140 miles or so to the Chicago Hub in Illinois. In total, this new pipeline would be over 300 miles long. It is likely that VGTC would also have to expand its existing system through significant looping and/or new compression. The required extension and expansion would result in a much larger project than the G-II Project and, as such, VGTC's system is not a viable system alternative and has been eliminated from further consideration.

Northern Natural Gas Company (NNG)

NNG's existing system extends from the supply basins of the southwestern United States to western Wisconsin. The closest large diameter NNG pipeline to the market to be served by the G-II Project terminates near Bluff Creek, Wisconsin. NNG does not have direct access to the eastern Wisconsin markets or the Chicago Hub. To access Guardian's customers and delivery points in eastern Wisconsin would likely require NNG to construct about 140 miles of new pipeline. Additionally, NNG would need to construct another 100 miles or so of new pipeline to connect NNG's existing system to the Chicago Hub. It is also likely that additional looping or compression would be required on NNG's existing pipeline system to transport the volumes proposed by Guardian. The required extension and expansion would result in a much larger project than the G-II Project and, as such, NNG's system is not a viable system alternative and has been eliminated from further consideration.

Great Lakes Gas Transmission Company (GLGT)

The GLGT system consists of several large diameter pipelines that extend across northern Wisconsin from Superior to Hurley. At its closest point, this system is over 100 miles north of Green Bay. To serve the eastern Wisconsin market area, GLGT would need to construct over 200 miles of new pipeline from northern Wisconsin across the eastern half of the state. In order to provide direct access to the same diversity of supply as the G-II Project, this new pipeline would also have to extend another 140 miles or so to the Chicago Hub in Illinois. In total, this new pipeline would be over 300 miles long. It is likely that additional looping or compression would also be required on GLGT's existing pipeline system to transport the volumes proposed by Guardian. The required extension and expansion would result in a much larger project than the G-II Project and, as such, the GLGT system is not a viable system alternative and has been eliminated from further consideration.

Existing System Combinations

While it would be possible to achieve the desired capacity that the proposed Project would deliver through looping and additional compression of existing lines, the third project criterion—expansion of access to competitive supplies and services for the benefit of Wisconsin's utility customers—would remain unmet.

The most obvious system combination would be an interconnect between the GLGT and ANR pipeline systems. It is likely that a combination of the GLGT and ANR pipeline systems could transport the volumes proposed by Guardian to eastern Wisconsin with additional looping and/or compression (via GLGTs' system to its interconnect with ANR's pipeline system near Crystal

Lake, Michigan, and then via ANR’s system). However, the combination of these two systems would require no less construction and associated environmental impacts than the proposed Project.

Furthermore, the complexity of negotiations between joint project sponsors would inevitably delay a joint proposal, putting it on a slower timeline than the G-II Project, such that the new joint facilities would begin operations significantly after the time the marketplace desires the new capacity to be available. For these reasons, a combination of existing systems has been eliminated from further consideration.

3.3 Pipeline and Aboveground Facility Alternatives

3.3.1 Initial Siting

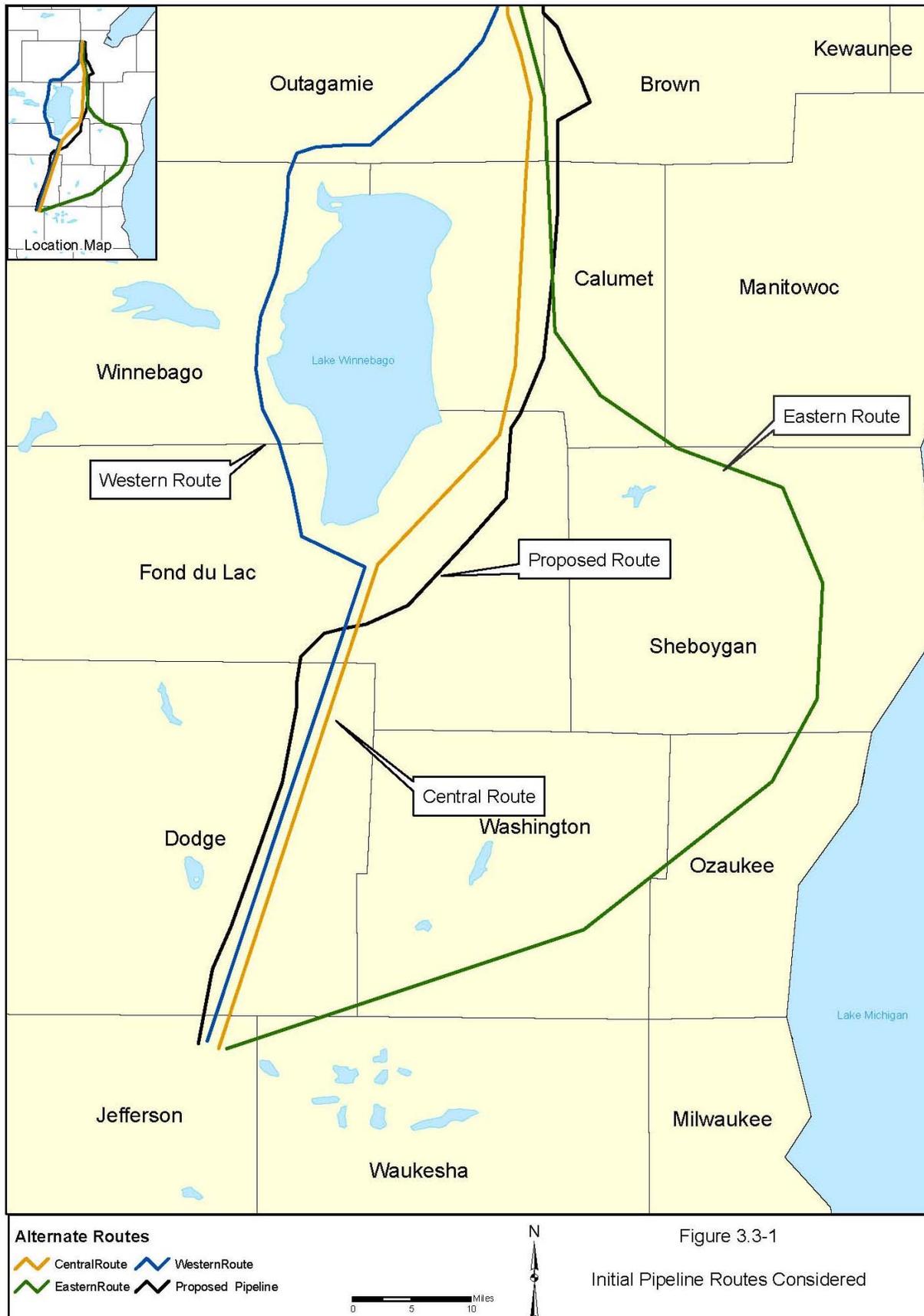
During its initial siting process Guardian evaluated three potential pipeline routes. The three routes considered include the Eastern Route, the Western Route, and the Central Route (see figure 3.3-1). These preliminary routes were evaluated with the intent to avoid or minimize potential impacts on environmentally sensitive resources and stakeholders. Table 3.3.1-1 contains a summary of the preliminary pipeline route options. Each is discussed in further detail below.

Environmental Factor	Units	Eastern Route	Western Route	Central Route
Route Length	(mi.)	124.2	111.2	103.5
Total Wetlands Crossed	(mi.)	2.1	2.9	3.0
Forested Wetlands	(mi.)	1.8	2.0	2.1
Waterbody Crossings	(no.)	95	97	84
Perennial Waterbody Crossings	(no.)	29	23	24
Forest Land Crossed <u>a/</u>	(mi.)	11.4	9.9	8.3
Agricultural Land Crossed	(mi.)	110.9	90.2	94.0
Open Land Crossed	(mi.)	1.0 <u>b/</u>	4.4	1.0 <u>b/</u>
Commercial/Industrial Land Crossed	(mi.)	0.1 <u>c/</u>	3.2	0.1 <u>c/</u>
Residential Land Crossed	(mi.)	0.4	2.8	0.1
Open Water Crossed	(mi.)	0.2	0.5	0.1

a/ Forest Land Crossed includes all Forested Wetland Crossed.
b/ The Eastern Route crosses 19 feet more Open Land than the Central Route.
c/ The Eastern Route crosses 34 feet more Commercial/Industrial Land than the Central Route.

Western Route

The Western Route was identified by Guardian in its application as one of the initial routes to be studied. This alternative was identified because it crosses fewer perennial waterbodies than either the Central Route or the Eastern Route. A comparison of the relevant environmental characteristics of the Western Route Alternative with the Eastern and Central Route Alternatives is included in table 3.3.1-1.



The Western Route Alternative would be shorter than the Eastern Route by 13.0 miles (118.2 fewer acres of construction disturbance) but longer than the Central Route by 7.7 miles (70.0 more acres of construction disturbance). The disadvantages of this alternative include higher impacts on forested wetlands, waterbodies and open water, open lands, commercial or industrial lands, and residential lands. For these reasons, Guardian did not select the Western Route. We agree that the Western Route is not the better alternative due to the greater environmental impacts.

Eastern Route

The Eastern Route was identified by Guardian in its application as one of the initial routes studied. This alternative was identified because it crosses fewer forested wetlands and fewer total wetlands than either the Central or Western Route Alternatives. A comparison of the relevant environmental characteristics of the Eastern Route with the Western and Central Route is included in table 3.3.1-1.

The Eastern Route is the longest of the three initial routes considered at a total length of 124.2 miles, with 1,129.1 acres of land disturbance, 118.2 acres more than the second longest route alternative (Western Route). In addition to the general environmental impacts of constructing and maintaining a longer pipeline, the disadvantages of this initial route were numerous, including more impacts on perennial waterbodies, forested lands, and agricultural lands. For these reasons Guardian did not select the Eastern Route. We agree that the Eastern Route is not the better alternative due to the greater environmental impacts.

Central Route

The third major route considered by Guardian was called the Central Route. This route proceeded generally north, northeast from Ixonia toward Fond du Lac, Wisconsin. From the Fond du Lac area, the pipeline route continues in a northeasterly direction toward Chilton, Wisconsin. From Chilton, the route proceeds generally north to the terminus of the Project at the West Green Bay Meter Station. The Central Route is the shortest of the studied routes, at 103.5 miles overall, with an estimated construction disturbance area of 940.0 acres, 70.0 acres less than the Western Route.

When it was identified, the Central Route was the most direct route between Guardian's existing pipeline terminus in Ixonia, Wisconsin and the final proposed delivery point west of Green Bay, Wisconsin. Guardian's engineering and economic analysis of the Central Route indicated that it was the most economically feasible. In addition, because it was the most direct route between Ixonia and Green Bay, it minimized the amount of land that would be disturbed, and reduced the crossing of residential areas, waterbodies, forested lands, open lands, commercial/industrial lands, and open water. It also avoided sensitive areas such as the extensive wetland areas within the Rock River floodplain. For these reasons, Guardian selected the Central Route as the Preliminary Route and we agree that this route has the least potential for environmental impact.

3.3.2 Preliminary Route

After the initial selection of the Central Route as the Preliminary Route, Guardian began the iterative process of conducting environmental evaluations and stakeholder outreach. As a result, numerous modifications were made to the Preliminary Route. These initial modifications were in response to environmental, stakeholder, and engineering concerns including the following:

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- avoidance of major wetland complexes including forested wetlands;
 - minimization of impacts on residential areas, planned developments, and incompatible zoning;
 - minimization of perennial waterbody crossings;
 - avoidance of national parks, state parks, forest, and scenic areas, specifically the Ice Age National Scenic Trail and Kettle Moraine State Forest; and
 - establishment of the most appropriate area for major waterbody crossing (greater than 100 feet), specifically the Fox, Rubicon, and Rock Rivers.

As a result of this initial siting process of the preliminary route, Guardian re-evaluated the proposed project area and established an alternative route (see figure 1-1 in section 1.0) as the Proposed Route, which was filed with the Commission on October 13, 2006.

3.3.3 Pipeline Route Alternatives

Route alternatives, within the context of the proposed Project, were identified to determine if impacts could be avoided or reduced on environmentally sensitive resources, such as population centers, scenic areas, and wildlife and natural habitat management areas that would be crossed by the proposed route. While the origin and delivery points of route alternatives are generally the same as for the corresponding segment of a proposed pipeline route, the alternatives could follow significantly different alignments.

FERC regulations (18 CFR 380.15[d][1]) give primary consideration to the use, enlargement, or extension of existing rights-of-way to reduce potential impacts on sensitive resources. Installation of new pipeline along existing, cleared rights-of-way (such as pipelines, powerlines, roads, and railroads) may be environmentally preferable to construction along new rights-of-way, and construction effects and cumulative impacts can normally be reduced by use of previously cleared and maintained rights-of-way. Long-term or permanent environmental impacts can be reduced by avoiding the creation of new rights-of-way through undisturbed areas.

We evaluated various route alternatives to determine if the alternatives would avoid or reduce impacts on environmentally sensitive resources that would be crossed by the proposed pipeline, as well as in response to suggestions by landowners and the public. Each of these major route alternatives is discussed further below.

Weber Alternatives A and B

Beginning at MP 1.2 and ending at MP 2.6, Guardian identified two potential routes, Weber Alternative A and Weber Alternative B.

As shown on figure 3.3-2, Weber Alternative A begins at approximately MP 1.2 and crosses County Highway CW slightly east of the entrance to the Summer Hill Subdivision. From there the variation continues northward, passing to the east of the Summer Hill Subdivision, until it returns to the proposed G-II Pipeline Route near MP 2.6. Weber Alternative B begins at approximately MP 1.2 and tracks generally north for approximately 1.1 miles close to a ridge-like hill just south of the Jefferson/Dodge County line, the route then turns northeast for an additional 0.2 mile and rejoins with the proposed G-II Pipeline Route at MP 2.6. A comparison of the relevant environmental characteristics of these two alternatives is included in table 3.3.3-1.

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Figure 3.3-2 Weber Alternatives A and B

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TABLE 3.3.3-1 Comparison of Weber Alternatives A and B		
Environmental Factor	Weber Alternative A (Proposed Route)	Weber Alternative B
Total Length (miles)	1.2	1.2
Length Adjacent to Existing Rights-of-way (miles)	0.0	0.0
Length of New Right-of-way (miles) <u>a/</u>	1.2	1.2
Construction Disturbance – Total (acres) <u>b/</u>	16.0	15.1
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (miles)	0.0	0.2 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	0.0	1.8
Landowners Crossed (number)	4	5

a/ For the purpose of this analysis new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and 110 feet in uplands.
c/ Estimated from WWI mapping.

As shown in table 3.3.3-1 the two Alternatives are virtually identical; however, Alternative A would avoid impacts on approximately 0.2 acre of wetland. In addition, Alternative A would satisfy a landowner’s request to site the pipeline along the eastern side of his property to avoid an area he plans to use as a future home site. The only disadvantage of Weber Alternative A is that it would cross one more landowner than Alternative B.

After reviewing the potential environmental impacts associated with these two alternatives, we believe that the environmental benefits of Weber Alternative A, including less impacts to wetlands and the avoidance of one less landowner, outweigh its limited disadvantages as well as the minor advantages of Alternative B. Therefore, we prefer that Weber Alternative A be incorporated as part of the Proposed Route as filed by Guardian.

Neuberg Alternatives A and B

Beginning at MP 16.4 and ending at MP 17.7, Guardian identified two potential routes, Neuberg Alternative A and Neuberg Alternative B.

As shown on figure 3.3-3, the Neuberg Alternative A begins at approximately MP 16.4 and proceeds generally northeast for approximately 0.5 mile, crossing the W&S Railroad and County Highway WS. It then proceeds generally north for another 0.8 mile, crossing County Highway S and paralleling a Wisconsin Wetland Inventory (WWI) mapped emergent wetland for several thousand feet before returning to the Proposed Route at approximately MP 17.7. Neuberg Alternative B also begins at about MP 16.4 and tracks northeast for approximately 1.1 miles crossing the W&S Railroad and then reconnecting with the proposed G-II Pipeline Route at MP 17.7. A comparison of the relevant environmental characteristics of these two alternatives is included in table 3.3.3-2.

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Figure 3.3-3 Neuburg Alternatives A and B

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TABLE 3.3.3-2 Comparison of Neuburg Alternatives A and B		
Environmental Factor	Neuburg Alternative A (Proposed Route)	Neuburg Alternative B
Total Length (miles)	1.3	1.3
Length Adjacent to Existing Rights-of-way (miles)	0.0	0.0
Length of New Right-of-way (miles) <u>a/</u>	1.3	1.3
Construction Disturbance – Total (acres) <u>b/</u>	17.3	17.3
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	0.0	0.0 <u>c/</u>
Construction Disturbance to Wetlands (acres) <u>b/</u>	0.0	0.0 <u>c/</u>
Roads Crossed (number)	1	2
Landowners Crossed (number)	3	4

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and 110 feet in uplands.
c/ Estimated from WWI mapping.

A comparison of Neuburg Alternative A and B reveals that the two routes are similar in many respects. Neither route crosses any mapped or delineated wetlands or forested lands. The primary differences between Neuburg Alternative A and B is that Alternative A addresses landowner concerns by reducing the potential impact on a future planned development and by avoiding two septic systems. Alternative A also crosses one less landowner and one less road.

After reviewing the potential environmental impacts associated with these two alternatives, we believe that the environmental benefits of Neuburg Alternative A, including the crossing of one less road and one less landowner, outweigh the advantages of Alternative B. Therefore, we prefer that Neuburg Alternative A be incorporated as part of the Proposed Route as filed by Guardian.

Byron Alternatives A and B

Beginning at MP 35.5 and ending at MP 37.8, Guardian identified two potential routes, Byron Alternative A and Byron Alternative B.

As shown on figure 3.3-4, Byron Alternative A begins on the west side of State Highway 175 at approximately MP 35.5 and proceeds east for approximately 0.8 mile, crossing the Wisconsin Central Railroad and U.S. Highway 41. Approximately 0.2 mile east of U.S. Highway 41, the route turns and proceeds generally northeast for 1.6 miles until it rejoins the Proposed Route at approximately MP 37.7. Byron Alternative B also begins at MP 35.5 and proceeds northeast for approximately 0.6 mile crossing the Wisconsin Central Railroad and then turning east over U.S. Highway 41 for an additional 0.3 mile. Alternative B then tracks northeast for another 1.3 mile before it once again returns to the Proposed Route at MP 37.7. A comparison of the relevant environmental characteristics of these two alternatives is included in table 3.3.3-3.

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Figure 3.3-4 Byron Alternatives A and B

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TABLE 3.3.3-3 Comparison of Byron Alternatives A and B		
Environmental Factor	Byron Alternative A (Proposed Route)	Byron Alternative B
Total Length (miles)	2.3	2.4
Length Adjacent to Existing Rights-of-way (miles)	0.0	0.0
Length of New Right-of-way (miles) <u>a/</u>	2.3	2.4
Construction Disturbance – Total (acres) <u>b/</u>	30.7	32.0
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Forest Land Crossed (feet)	<0.1	<0.1
Length of Wetland Crossed (feet)	0.0	0.0 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	0.0	0.0 <u>c/</u>
Agricultural Land Crossed (miles)	2.2	2.3
Landowners Crossed (number)	7	6

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and forest lands and 110 feet in uplands.
c/ Estimated from WWI mapping.

As shown in table 3.3.3-3, environmental impacts associated with Byron Alternatives A and B are substantially the same, with Alternative A only crossing about 25 feet more forest land and affecting only one more landowner. However, discussions with stakeholders in the Town of Byron indicated that Byron Alternative B could potentially conflict with planned development in the Town of Byron at MPs 35.5 through 36.2, and a permitted future gravel pit located at approximately MPs 36.3 through 36.5. Byron Alternative A avoids these potential impacts by proceeding east from State Highway 175 and passing to the north of a wetland complex bordered by U.S. Highway 41 and the railroad.

After reviewing the potential environmental impacts associated with these two alternatives, we believe that the environmental benefits associated with Byron Alternative A, including its reduced area of construction disturbance and length of new right-of-way, as well as its ability to minimize impacts on the planned development area and avoid a permitted gravel pit outweigh its minor disadvantages and the advantages of Byron Alternative B. Therefore, we prefer that Byron Alternative A be incorporated as part of the Proposed Route as filed by Guardian.

Lomira Alternatives A, B, and C

Guardian evaluated three potential routes for the G-II pipeline to traverse northeastern Dodge County between MPs 21.8 and 38.8, including Lomira Alternatives A, B, and C.

As shown on figure 3.3-5, Lomira Alternative A would begin at MP 21.8 and track northeast for just under 1 mile then turn north for an additional 4.8 miles. The route would then turn northeast for another 5.7 miles where it would rejoin with the Proposed Route at MP 33.8. In general, Lomira Alternative A would pass about 2 miles to the west of the Village of Theresa and about 2.5 miles to the west of the Village of Lomira. Lomira Alternative B travels in a north-northeasterly route similar to Alternative A; however, Lomira Alternative B would pass about 1.5 miles to the west of Theresa, and less than 1 mile to the west of Lomira.

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Figure 3.3-5 Lomira Alternatives A, B, and C

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Lomira Alternative C would also follow a similar north-northeasterly path as Alternatives A and B; however, Alternative C would pass about 1 mile to the west of the Towns of Theresa and Lomira. A comparison of the relevant environmental characteristics of Lomira Alternatives A, B, and C is included in table 3.3.3-4.

Environmental Factor a/	Lomira Alternative A (Proposed Route)	Lomira Alternative B	Lomira Alternative C
Total Length (miles)	16.1	15.2	15.5
Length Adjacent to Existing Rights-of-way (miles)	0.0	0.0	0.3
Length of New Right-of-way (miles) a/	16.1	15.2	15.5
Construction Disturbance – Total (acres) b/	214.2	199.6	201.2
Total Waterbodies Crossed (number)	8	9	14
Major Waterbodies (>100 feet) Crossed (number)	1	1	0
Length of Wetland Crossed (feet)	<0.1 c/	0.5 c/	0.7 c/
Construction Disturbance – Wetlands (acres) b/	<1 c/	4.5 c/	6.4 c/
Landowners Crossed (number)	52	58	59

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet and 110 feet in uplands.
c/ Estimated from WWI mapping.

As indicated in table 3.3.3-4, the Lomira Alternative A is 0.9 mile longer and would require 14.6 acres of additional disturbance during construction than the shortest Lomira Alternative (Lomira Alternative B). However, Lomira Alternative A has numerous advantages over Alternatives B and C. Specifically, Lomira Alternative A crosses 2,625 feet less wetland and 650 feet less forest land than Alternative B, and 3,525 feet less wetland and 2,700 feet less forest land than Alternative C, thereby substantially reducing the amount of potential wetlands and forest lands crossed by the Proposed Pipeline. Lomira Alternative A would also cross the fewest number of streams and would provide a better location to cross both Kummel Creek and the West Branch of the Milwaukee River. Unlike Alternative C, this alternative would also avoid a second crossing of the West Branch of the Milwaukee River. Additionally, Alternative A would avoid a tree nursery that would be crossed by Alternative B.

Several stakeholders expressed concerns that the proposed pipeline would interfere with the properties that have been designated for high density residential, commercial, or industrial development within the Villages of Lomira and Brownsville, Wisconsin. Based on a review of the Dodge County Planning and Development maps, Lomira Alternative A would avoid the future planned residential development in the Village of Lomira and would not likely interfere with the future development within the Village of Brownsville, which appears to be planned primarily on the northwest side of town.

Stakeholders also expressed concern over the G-II Proposed Pipeline’s potential impact on proposed wind farm projects. Two of the proposed Lomira Alternatives (Alternatives A and B) would cross the site of the Forward Wind Energy Center (Forward Energy) Project. However, as currently planned, all three alternatives would avoid locations of the proposed wind turbines.

Guardian has also indicated that through proper consultation and siting, the two facility structures would be able to collocate.

After reviewing the potential environmental impacts associated with these three alternatives, we believe that Lomira Alternative A is environmentally preferable to either Alternative B or C in terms of minimizing impacts to wetlands, waterbodies, forest lands and landowners. Therefore, we prefer that Lomira Alternative A be incorporated as part of the Proposed Route as filed by Guardian.

Fox River Trail Alternatives A, B, and C

Guardian evaluated three options for the G-II pipeline to utilize the existing Fox River State Recreational Trail (Fox River Trail) corridor, including Fox River Trail Alternatives A, B, and C. Fox River Trail Alternatives A and B would pass to the northwest of the Village of Forest Junction and then directly through the Village of Greenleaf. To clarify, Fox River Trail Alternatives A and B follow the same geographical path, but Alternative A runs adjacent to the existing Fox River Trail (except in a few locations where construction width requirements would require that the pipeline be placed within the trail itself), whereas Alternative B places the pipeline within the trail itself for a much longer distance, 1.5 miles and 10.4 miles, respectively. Because the two alternatives follow the same geographical route, they will be discussed here simultaneously.

Fox River Trail Alternatives A and B would begin at MP 78.5 where it would deviate from the Proposed Route and travel northeast for 1.1 miles to meet the Fox River Trail. Both alternatives would follow the Fox River Trail to the north-northeast for about 11.5 miles, at which point they would turn abruptly to the west and proceed for 2.1 miles to rejoin the Proposed Route at MP 84.0, just before crossing the Fox River (see figure 3.3-6). Fox River Trail Alternative C would run about 0.25 mile to the northwest of the Village of Holland, and then between the Villages of Wrightstown and Greenleaf, proceeding to the north-northeast until MP 84.0, ending at the southeast bank of the Fox River. A comparison of the relevant environmental characteristics of the Fox River Trail Alternatives is included in table 3.3.3-5.

Environmental Factor <u>a/</u>	Fox River Trail Alternative A	Fox River Trail Alternative B	Fox River Trail Alternative C (Proposed Route)
Total Length (miles)	17.3	17.3	13.6
Length Adjacent to Existing Rights-of-way (miles)	15.2	15.2	0.0
Length of New Right-of-way (miles) <u>a/</u>	2.1	2.1	13.6
Construction Disturbance – Total (acres) <u>b/</u>	191.5	116.0	140.5
Major Waterbodies (>100 feet) Crossed (number)	0	0	0
Length of Wetland Crossed (feet)	0.2	0.2	0.0
Construction Disturbance – Wetlands (acres) <u>b/</u>	1.8	0.7	0.0

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ The acreage calculations are based on standard right-of-way widths (110 or 80 feet) for the portions of each alternative that is not within the Fox River Trail. For portions of each route that is within the trail, a 30-foot right-of-way was utilized (even during wetland and forestland crossings). Alternative A is only within the trail for 1.4 miles (through Greenleaf), and Alternative B is within the trail for 11.0 miles. Additionally, this variation spans the Fox Valley Meter Station, therefore, some portions of each route's standard construction is 110 feet and 80 feet in width, respectively.
c/ Estimated from WWI mapping.

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Figure 3.3-6 Fox River Trail Alternatives A, B, and C

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Fox River Trail Alternatives A and B would be 3.7 miles longer than Fox River Trail Alternative C. Fox River Trail Alternative A would result in an additional 75 and 51.1 acres of disturbance than Alternatives B and C. The primary advantages of Fox River Alternatives A and B are that they would make significant use of an existing right-of-way, would affect fewer landowners, and would cross fewer properties in a diagonal pattern, which is opposed by local landowners. The primary disadvantage of these alternatives is the physical constraint of the trail (26 to 30 feet wide) for pipeline construction. Additional disadvantages are that more waterbodies, forest land, and open land would have to be crossed.

Given the physical constraints associated with the construction within the Fox River Trail as well as the additional environmental impacts on waterbodies, forest lands, and open lands associated with Fox River Trail Alternatives A and B, we believe that Alternative C is the environmentally preferable alternative. Therefore, we prefer that Fox River Trail Alternative C be incorporated as part of the Proposed Route as filed by Guardian.

3.3.3.1 Pipeline Route Variations

Route variations differ from system alternatives or route alternatives in that they reduce impact on specific localized resource issues, including individual residences or other structures, wetlands or infrastructure, such as roadways.

Commission regulations (18 CFR 380.15[d][1]) give primary consideration to the use, enlargement, or extension of existing rights-of-way to reduce potential impacts on sensitive resources. Installation of new pipeline along existing, cleared rights-of-way (such as pipelines, powerlines, roads, and railroads) may be environmentally preferable to construction along new rights-of-way, and construction effects and cumulative impacts can normally be reduced by use of previously cleared rights-of-way. Long-term or permanent environmental impacts can be reduced by avoiding the creation of new rights-of-way through undisturbed areas.

Rock River South Variations A and B

Between MPs 7.5 and 9.1 Guardian evaluated two potential route variations, Rock River South Variations A and B. Beginning at MP 7.5, Rock River South Variation A would travel in a relatively straight line towards the northeast for 1.6 miles, passing through the manmade wetland mitigation site and rejoining the Proposed Route at MP 9.1 (see figure 3.3-7). Rock River South Variation B would travel in a slightly more northeasterly direction for approximately 1.4 miles and then turn north for an additional 0.6 mile to rejoin with the Proposed Route. A comparison of the relevant environmental characteristics of Rock River South Variations A and B is included in table 3.3.3.1-1.

Rock River South Variations A and B would be about the same length overall, and would require a similar area of disturbance during construction. The advantage of Rock River South Variation A is that it would reduce impacts on the wetland mitigation area, which is composed of a manmade pond and emergent wetland fringe. In addition, an active quarry located near Rock River South Variation B would be avoided by utilizing Variation A. For these reasons, the environmental advantages of Rock River South Variation A outweigh the disadvantages; therefore, we believe that the Rock River South Variation A is the environmentally preferable variation and accept it as part of the Proposed Route as filed by Guardian.

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Figure 3.3-7 Rock River South Variation

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TABLE 3.3.3.1-1		
Comparison of Rock River South Variations A and B		
Environmental Factor	Rock River South Variation A (Proposed Route)	Rock River South Variation B
Total Length (miles)	1.7	1.6
Length Adjacent to Existing Rights-of-way (miles)	0	0
Length of New Right-of-way (miles) <u>a/</u>	1.7	1.6
Construction Disturbance – Total (acres) <u>b/</u>	22.7	21.3
Perennial Waterbodies Crossed (number)	1	1
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	0	0
Construction Disturbance – Wetlands (acres) <u>b/</u>	0	0
Landowners Crossed (number)	9	7

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and 110 feet in uplands.
c/ Estimated from WWI mapping.

Woodland Creek Variations A and B

Guardian evaluated two potential routes between MP 12.4 and 16.7, including Woodland Creek Variations A and B. Beginning at MP 12.4, Woodland Creek Variation B would travel towards the northeast for about 1.6 miles, at which point it would turn sharply to the north and travel an additional 2.7 miles, rejoining the Proposed Route at MP 16.7 (see figure 3.3-8). Woodland Creek Variation A follows a slightly more direct path, heading generally northeast from MP 12.4 to 16.7. A comparison of the relevant environmental characteristics of the Woodland Creek Variations is included in table 3.3.3.1-2.

TABLE 3.3.3.1-2		
Comparison of the Woodland Creek Variations A and B		
Environmental Factor	Woodland Creek Variation A (Proposed Route)	Woodland Creek Variation B
Total Length (miles)	4.1	4.2
Length Adjacent to Existing Rights-of-way (miles)	0.0	0.0
Length of New Right-of-way (miles) <u>a/</u>	4.1	4.2
Construction Disturbance – Total (acres) <u>b/</u>	54.2	54.7
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	0.1	0.3 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	0.9	2.7 <u>c/</u>
Agricultural Lands Crossed (miles)	4.1	3.9
Landowners Crossed (number)	11	17

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet and 110 feet in uplands.
c/ Estimated from WWI mapping.

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Figure 3.3-8 Woodland Creek Variations A and B

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As shown in table 3.3.3.1-2, the two route variations are similar in many respects. However, Woodland Creek Variation A is slightly shorter, avoids forested wetlands, and crosses two-thirds less total wetland and slightly less forest land than Variation B. The variation also reduces the number of affected landowners and avoids an archaeological site.

Another aspect of Woodland Creek Variations A and B is that they would also determine the location of the Rubicon Meter Station site (see figure 3.3-8). Because the meter station sites are situated along mutually exclusive routes (i.e., it is not possible to select the variation with the original meter station site), we have evaluated them in the context of the pipeline route comparison rather than in the analysis of aboveground facility alternatives in section 3.3.4. Table 3.3.3.1-3 compares the relevant environmental characteristics of Woodland Creek Variations A and B with respect to the potential locations of the Rubicon Meter Station.

Factor	Unit	Rubicon Meter Station – Alternative A	Rubicon Meter Station – Alternative B
County	(n/a)	Dodge	Dodge
Permanent Area a/	(acres)	0.5	0.5
Elevation b/	(feet)	935	900-910
Topography c/	(n/a)	Flat	Moderately Sloped
Visibility	(n/a)	Residence and Oaklawn Road	Butler Road
Site Access	(n/a)	Oaklawn Road	Butler Road
Vegetation	(type)	Crop	Crop
Land Use	(type)	Agriculture	Agriculture
Streams	(no.)	0	0
Wetlands	(acres)	0.0	0.0
Nearest Residence	(feet)	100	700
Prime Farmland d/	(acres)	0.5	0.0

a/ Permanent Area is defined as the total area permanently impacted by construction.
b/ Calculated from USGS topographic mapping.
c/ Topography: Flat 0 to 2 percent slope; Gently Sloping 2 to 5 percent slope; Moderately Sloping 5 to 10 percent slope; Steeply Sloping 10 percent or greater slope.
d/ Based on SSURGO data.

Table 3.3.3.1-3 shows that the proposed Rubicon Meter Station locations along Woodland Creek Variations A and B are very similar regarding most environmental factors. However, Woodland Creek Variation A would provide a more suitable location for the Rubicon Meter Station based on the flatter slope and reduced impacts of a new access road, which would be required to access the meter station.

After reviewing the potential environmental impacts associated with the two pipeline variations and meter station locations, we believe that environmental benefits associated with Woodland Creek Variation A, including its reduced impacts to wetlands, forested wetlands, forested lands, and landowners, outweigh those of Variation B. Therefore, we prefer that Woodland Creek Variation A be incorporated as part of the Proposed Route as filed by Guardian.

Brothers 4 Variations A and B

Guardian evaluated two potential routes for the G-II pipeline to traverse the agricultural fields between MPs 45.0 and 46.1. Beginning at MP 45.0, Brothers 4 Variation B would travel straight in a north-northeasterly directions for about 1.1 miles, rejoining the Proposed Route at MP 46.1 (see figure 3.3-9). In contrast, Brothers 4 Variation A would travel north-northeast for approximately 0.6 mile, and then would turn north for approximately 0.3 mile before rejoining the Proposed Route at MP 46.1. A comparison of the relevant environmental characteristics of Brothers 4 Variations A and B is included in table 3.3.3.1-4.

Environmental Factor	Brothers 4 Variation A (Proposed Route)	Brothers 4 Variation B
Total Length (miles)	1.1	1.0
Length Adjacent to Existing Rights-of-way (miles)	0	0
Length of New Right-of-way (miles) ^{a/}	1.1	1.0
Construction Disturbance – Total (acres) ^{b/}	13.9	13.0
Perennial Waterbodies Crossed (number)	0	0
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	900	400
Construction Disturbance – Wetlands (acres) ^{b/}	1.5	0.7
Landowners Crossed (number)	4	4

^{a/} For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
^{b/} Based on construction right-of-way width of 75 feet in wetlands and 110 feet in uplands.
^{c/} Estimated from WWI mapping.

As indicated in table 3.3.3.1-4, the Brothers 4 Variations A and B are similar in most respects (e.g., they cross the same type of land uses, affect the same number of landowners, etc.). The primary differences between the routes are that Variation A is approximately 0.1 mile longer and avoids crossing through the center of agricultural fields. The disadvantage to this route, however, is that Variation A would increase the crossing of mostly emergent wetlands by about 500 feet.

We believe the ability of Brothers 4 Variation A to avoid crossing through the center of agricultural fields, outweigh its minor impact to the emergent wetland. Therefore, we prefer that Brothers Variation A be incorporated as part of the Proposed Route as filed by Guardian.

Hass Variation

In order to avoid crossing a farmer’s extensive drain tile system in a field to the south of County Highway Q, Guardian evaluated two potential routes for the G-II pipeline to traverse the agricultural fields between MPs 54.9 and 56.3. Beginning at MP 54.9, Hass Variation B would deviate from the Proposed Route and travel straight towards the north-northeast for about 1.4 miles, rejoining the Proposed Route at MP 56.3 (see figure 3.3-10). Hass Variation A would head northwards at MP 54.9 until it crossed County Highway Q, then it would turn to the north-northeast to rejoin the Proposed Route at MP 56.3. A comparison of the relevant environmental characteristics of the Hass Variations is included in table 3.3.3.1-5.

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Figure 3.3-9 Brothers 4 Variations A and B

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Figure 3.3-10 Hass Variations A and

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TABLE 3.3.3.1-5		
Comparison of Hass Variations A and B		
Environmental Factor	Hass Variation A (Proposed Route)	Hass Variation B
Total Length (miles)	1.4	1.4
Length Adjacent to Existing Rights-of-way (miles)	0	0
Length of New Right-of-way (miles) <u>a/</u>	0	0
Construction Disturbance – Total (acres) <u>b/</u>	18.7	18.7
Perennial Waterbodies Crossed (number)	0	0
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	0	0
Construction Disturbance – Wetlands (acres) <u>b/</u>	0	0
Landowners Crossed (number)	5	5

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and 110 feet in uplands.
c/ Estimated from WWI mapping.

Overall, Hass Variation A would be about the same length as Variation B and would require a similar area of disturbance during construction. The advantage of Hass Variation A is that it avoids cutting diagonally across a drainage tiled field and would not complicate the siting of We Energies’ proposed substation in this area. In addition, Hass Variation A avoids the proposed substation site for We Energies’ Blue Sky Green Field Wind Farm Project. Hass Variation B has no substantial environmental benefits that could negate those of Hass Variation A.

Because the Hass Variation A avoids impacts to both a drainage tiled field and the siting of the We Energies proposed substation area, we believe that Variation A is the environmentally preferable variation and prefer the variation be incorporated as part of the Proposed Route as filed by Guardian.

Johnsburg Variations A and B

Prompted by public input, Guardian evaluated the potential for the G-II pipeline to utilize an existing power line and ANR corridors, resulting in two potential route variations between MPs 56.3 and 67.4. Beginning at MP 56.3, Johnsborg Variation B would travel towards the north-northeast for several miles and then turn towards the north after crossing Highway 151. Variation B would then trend to the north and rejoin the Proposed Route on the northeastern side of Stony Brook, at MP 67.4 (see figure 3.3-11). Johnsborg Variation A starts at MP 56.3 and travels north, then turns northeast for its duration, rejoining the Proposed Route at MP 67.4. A comparison of the relevant environmental characteristics of Johnsborg Variations A and B is included in table 3.3.3.1-6.

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Figure 3.3-11 Johnsburg Variations A and B

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TABLE 3.3.3.1-6		
Comparison of the Johnsburg Variations A and B		
Environmental Factor	Johnsburg Variation A (Proposed Route)	Johnsburg Variation B
Total Length (miles)	11.1	10.5
Length Adjacent to Existing Rights-of-way (miles)	8.9	0.0
Length of New Right-of-way (miles) <u>a/</u>	2.2	10.5
Construction Disturbance – Total (acres) <u>b/</u>	144.2	138.3
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	0.9	0.4 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	8.2	3.6 <u>c/</u>
Landowners Crossed (number)	39	32

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and 110 feet in uplands.
c/ Estimated from WWI mapping.

The Johnsburg Variation B would be about 0.6 mile shorter and would require about 5.9 fewer acres of disturbance during construction than Johnsburg Variation A. The advantage of Johnsburg Variation B is that it would cross fewer waterbodies and less wetlands, forest lands, and open lands. The primary disadvantage of this variation is that it would require the creation of all new rights-of-way, which is locally unpopular and would require more land disturbance.

Given the ability of Johnsburg Variation A to utilize an existing right-of-way and minimize the creation of new rights-of-way in response to local public concerns, we believe that Variation A is the environmentally preferred alternative and accept the variation as part of the Proposed Route as filed by Guardian.

ANR Corridor Variations A and B

Prompted by public input, Guardian evaluated the potential for the G-II Pipeline to utilize the existing nearby ANR corridor, resulting in two potential route variations for the Proposed Route between MPs 78.5 and 84.0. Beginning at MP 78.5, ANR Corridor Variation A would travel to the northeast for approximately 1.0 mile before turning to the north and traveling an additional 4.3 miles, including two right-angle jogs to the east. ANR Corridor Variation B would also begin at MP 78.5 and trend north-northeast for about 5.5 miles. Variation B would then rejoin the Proposed Route to the north of the Village of Holland, at MP 84.0 (see figure 3.3-12). A comparison of the relevant environmental characteristics of ANR Corridor Variations A and B is included in table 3.3.3.1-7.

As indicated in table 3.3.3.1-7, ANR Corridor Variation B would be 0.6 mile shorter and would require 12.8 fewer acres of additional disturbance during construction than ANR Corridor Variation A. The advantage of this ANR Variation A is that it would collocate the pipeline with an existing right-of-way, eliminating the need for a new greenfield corridor. Additionally, ANR Corridor Variation A would affect three fewer landowners. However, it would also cross more wetlands, forest lands, and agricultural lands.

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Figure 3.3-12 ANR Corridor Variations A and B

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TABLE 3.3.3.1-7		
Comparison of ANR Corridor Variations A and B		
Environmental Factor	ANR Corridor Variation A (Proposed Route)	ANR Corridor Variation B
Total Length (miles)	5.5	4.9
Length Adjacent to Existing Rights-of-way (miles)	3.9	0.0
Length of New Right-of-way (miles) <u>a/</u>	1.6	4.9
Construction Disturbance – Total (acres) <u>b/</u>	70.1	57.3
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	0.4	<0.1 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	3.6	0.8 <u>c/</u>
Forestland Crossed (miles)	0.3	0.1
Agricultural Land Crossed (miles)	4.9	4.6
Landowners Crossed (number)	16	19

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.

b/ Based on construction right-of-way width of 75 feet in wetlands and forest lands and 110 feet in uplands south of the Fox Valley Meter Station at MP 83.65 and 80 feet north of the Fox Valley Meter Station.

c/ Estimated from WWI mapping.

Another consequence of ANR Corridor Variation A is that it would relocate the Fox Valley Meter Station site about 0.6 mile to the northeast of the Town of Holland (see figure 3.3-12). ANR Corridor Variation B places the Fox Valley Meter Station just south of the community of Dundas, near MP 81.4. Because the meter station sites are situated along mutually exclusive routes (i.e., it is not possible to select the variation with the original meter station site), we have evaluated them in the context of the pipeline route comparison rather than in the analysis of aboveground facility alternatives in section 3.3.4. Table 3.3.3.1-8 compares the relevant environmental characteristics of the ANR Corridor Variation locations of the Fox Valley Meter Station.

TABLE 3.3.3.1-8			
Comparison of the Fox Valley Meter Station Sites Along ANR Corridor Variations A and B			
Factor	Unit	Fox Valley Meter Station – ANR Corridor Variation A (Proposed Route)	Fox Valley Meter Station – ANR Corridor Variation B
County	(n/a)	Brown	Calumet
Permanent Area <u>a/</u>	(acres)	1.2	1.2
Elevation <u>b/</u>	(feet)	780	825-830
Topography <u>c/</u>	(n/a)	Gently to Moderately Sloping	Gently Sloping
Visibility	(n/a)	Natural screening from nearest residence and Crestview Road (to the north), partially visible from Outagamie Road (to the west)	Visible from Dundas Road (to the north) and surrounding residences
Site Access	(n/a)	Outagamie Road	Dundas Road
Vegetation	(type)	Crop	Crop
Land Use	(type)	Agricultural	Agricultural
Streams	(no.)	0	0
Wetlands	(acres)	0.0	0.0
Nearest Residence	(ft.)	500	1,100

TABLE 3.3.3.1-8			
Comparison of the Fox Valley Meter Station Sites Along ANR Corridor Variations A and B			
Factor	Unit	Fox Valley Meter Station – ANR Corridor Variation A (Proposed Route)	Fox Valley Meter Station – ANR Corridor Variation B
Prime Farmland d/	(acres)	0.7 e/	1.2 f/
a/ Permanent Area is defined as the total area permanently impacted by construction. b/ Calculated from USGS topographic mapping. c/ Topography: Flat 0 to 2 percent slope; Gently Sloping 2 to 5 percent slope; Moderately Sloping 5 to 10 percent slope; Steeply Sloping 10 percent or greater slope. d/ Based on SSURGO data. e/ Prime only if drained. f/ 0.6 acre of the 1.2 acres is Prime only if drained.			

Table 3.3.3.1-8 shows that location of the Fox Valley Meter Station along ANR Corridor Variations A and B are very similar regarding most environmental factors. The main difference between the two is visibility. The ANR Corridor Variation A site would provide natural screening in the form of an upland forested area. The ANR Corridor Variation B site would be located in an area that is already visually impacted by an existing transmission line; however, this site would be over twice the distance from the nearest residence. Based on this analysis, the meter station location is not a significant factor in the overall pipeline route evaluation. For these reasons, paired with the benefit of a pipeline route that requires no greenfield disturbance, we believe that the ANR Corridor Variation A is the environmentally preferable alternative. Therefore, we accept ANR Corridor Variation A and the corresponding Fox Valley Meter Station as part of the Proposed Route as filed by Guardian.

Oneida Variations A and B

Prompted by meetings with the Oneida Nation, Guardian evaluated two potential routes for the G-II pipeline to pass through the Oneida Reservation between MPs 96.8 and 110.4 in order to reduce impacts on residences and properties. Oneida Variation B begins at MP 96.8 and would follow either a power line corridor or ANR’s pipeline corridor. The only area where Variation A would not follow the existing utility rights-of-way is in the vicinity of Dutchman’s Creek and Geneva Drive, where it would leave the power line corridor to avoid several houses and to minimize the crossing of a large forested wetland area south of County Highway U (see figure 3.3-13). Oneida Variation A was established in consultation with Oneida Nation representatives. This variation would generally follow the same route as Variation B; however, it would deviate in four locations (see figure 3.3-13). A comparison of the relevant environmental characteristics of Oneida Variations A and B is included in table 3.3.3.1-9.

As indicated in table 3.3.3.1-9, Oneida Variation A would be 2.1 miles shorter and would require 20.4 fewer acres of disturbance during construction than Oneida Variation B. Further advantages of Variation A is that it would require two fewer road crossings and require less crossing of agricultural and open lands. The primary disadvantage of Oneida Variation A is that it would require the creation of 0.6 mile of new right-of-way and would impact 11 additional landowners. Furthermore, it would use less favorable stream crossing locations.

Given the disadvantages associated with Oneida Variation A and the fact that Oneida Variation B, although longer, was developed with the direct input of the representatives of the Oneida Nation and generally achieves the primary objectives of the tribal representatives who worked with Guardian for this purpose, we concur and believe that the advantages of Oneida Variation B

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Figure 3.3-13 Oneida Variations A and B

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outweigh the disadvantages and is the environmentally preferable variation. Therefore, we prefer that Oneida Variation B be incorporated as part of the Proposed Route as filed by Guardian.

Environmental Factor	Oneida Variation A	Oneida Variation B (Proposed Route)
Total Length (miles)	11.7	13.8
Length Adjacent to Existing Rights-of-way (miles)	10.0	9.4
Length of New Right-of-way (miles) <u>a/</u>	1.7	4.4
Construction Disturbance – Total (acres) <u>b/</u>	112.4	132.8
Roads Crossed (number)	12	14
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	1.3	1.1 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	11.8	10.0 <u>c/</u>
Forest Land Crossed (miles)	1.4	1.0
Agricultural Land Crossed (miles)	7.4	8.0
Open Land Crossed (miles)	2.9	4.8
Landowners crossed (number)	35	24

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and forest lands and 80 feet in uplands.
c/ Estimated from WWI mapping.

Beginning at MP 102.7 and ending at MP 104.2, Guardian has identified two pipeline route options in order to utilize an existing right-of-way and move MLV 6 away from existing residences and structures. Beginning at MP 102.7 Vissers Variation A would collocate the proposed G-II pipeline with an existing pipeline right-of-way for approximately 1.3 miles, rejoining the Proposed Route at MP 104.2 (see figure 3.3-14). Vissers Variation B would follow a transmission line northwest starting at MP 102.7 for approximately 0.75 mile and then turn directly north for an additional 0.9 mile before rejoining the Proposed Route at MP 104.2. A comparison of the relevant environmental characteristics of Vissers Variations A and B is included in table 3.3.3.1-10.

Environmental Factor	Vissers Variation A (Proposed Route)	Vissers Variation B
Total Length (miles)	1.4	1.5
Length Adjacent to Existing Rights-of-way (miles)	1.4	0.8
Length of New Right-of-way (miles) <u>a/</u>	0.0	0.7
Construction Disturbance – Total (acres) <u>b/</u>	13.6	14.5
Major Waterbodies (>100 feet) Crossed (number)	0	0
Length of Wetland Crossed (feet)	<0.1	0.1 <u>c/</u>
Construction Disturbance – Wetlands (acres) <u>b/</u>	<1	<1 <u>c/</u>
Landowners Crossed (number)	5	6

a/ For the purpose of this analysis, new right-of-way is pipeline right-of-way that is not immediately adjacent to an existing utility or road easement or right-of-way.
b/ Based on construction right-of-way width of 75 feet in wetlands and 80 feet in uplands.
c/ Estimated from WWI mapping.

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Figure 3.3-14 Vissers Variations A and B

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As indicated in table 3.3.3.1-10, Vissers Variation A decreases the length of the pipeline by approximately 0.1 mile and increases the length of the route that is adjacent to existing right-of-way by about 0.6 mile. It also reduces wetland crossings by approximately 380 feet by reducing the crossing length of wetlands associated with Oneida Creek, and would also avoid two isolated farmed wetlands. In addition, the variation avoids one less landowner. For these reasons, we believe that Vissers Variation A is the environmentally preferable route. Therefore, we prefer that Vissers Variation A be incorporated as part of the Proposed Route as filed by Guardian.

Minor Variations

Following the submittal of Guardian’s application, Guardian evaluated and adopted a number of other minor variations. Except as noted below, these minor variations do not affect any new landowners and do not increase the impact on any known sensitive resources such as waterbodies or wetlands. Table 3.3.3.1-11 lists the locations and reasons why each of these minor variations was adopted.

Variation	County	Mileposts	Approximate Length (mi)	Reason for Variation
MV-Y	Dodge	10.7-11.0	0.3	This minor variation moves the alignment up to 140 feet northwest of the Proposed Route to avoid crossing approximately 180 feet of mapped emergent wetland. The variation adds approximately 40 feet to the overall length of the route and further refines MV-E.
MV-Z	Dodge	14.2-15.2	1.0	This minor variation shifts the alignment up to 250 feet west of the Proposed Route to avoid impacts on a drain tile system. The variation adds approximately 51 feet to the overall length of the route.
MV-AA	Dodge	18.9-19.3	0.4	This minor variation proceeds north from approximately MP 18.9 for approximately 1,475 feet, crossing the unnamed tributary to Lentz Creek approximately 360 feet west of the Proposed Route. The variation then proceeds northeast for approximately 800 feet before returning to the Proposed Route. The variation avoids crossing 42 feet of mapped wetland and avoids the clearing of woody vegetation associated with the wetland. The variation adds approximately 50 feet to the overall length of the route and further refines MV-J.
MV-AB	Fond du Lac	38.3-38.8	0.5	This minor variation was initiated at the request of a landowner to avoid impacts on two large oak trees on his property. The variation shifts the alignment approximately 250 feet to the east, adds approximately 65 feet to the overall length of the route, but decreases the crossing length of a wooded area by approximately 100 feet and avoids the two trees of concern.
MV-AC	Calumet	76.0-76.3	0.3	This minor variation moves the alignment of the pipeline approximately 100 feet to the east, and avoids approximately 140 feet of scrub / shrub wetland. The minor variation adds approximately 35 feet to the total length and further refines MV-S.
MV-AD	Calumet	77.3-77.8	0.5	This minor variation collocates the route with an ATC power line (up to 425 feet west of the Proposed Route) for an additional 1,200 feet and decreases wetland crossing by approximately 75 feet. The variation adds approximately 130 feet to the overall length of the route.
MV-AE	Outagamie	82.2–82.4	0.2	This minor variation continues north adjacent to the ANR pipeline for an additional 1,000 feet before turning east and rejoining the Proposed Route near MP 82.4. The variation adds approximately 110 feet to the overall length of the route.
MV-AF	Brown	90.6-93.0	2.4	This minor variation minimizes impacts on a proposed subdivision by aligning the route within the proposed roads of the subdivision. The variation does not increase the overall length of the route and is within 150 feet east or west of the Proposed Route.

3.3.3.2 Landowner Modifications

Baus Modification

A landowner between MP 49.0 and 50.0 of the Proposed Route raised a number of agricultural concerns, especially erosion, stones in agricultural soils, and drain tiles. Other concerns included impacts on fences, forest land, wetlands, and the economic impact of the pipeline on their land and farming operation. The property encompasses approximately 45 acres south of Cody Road. The Proposed Route would cross about 1,200 feet of the property between MPs 49.6 and 49.9.

Construction of the G-II Pipeline as proposed would temporarily impact about 3.0 acres of agricultural land. There are no residences or structures, wetlands, or known drain tiles in this area. The only trees that would be cut on the property are located in a narrow hedge row that borders the southern property line. A little less than half of the soils that would be affected on the property are listed as stony or highly erodible. The permanent easement would encompass about 1.4 acres, but would not preclude future farming operations. In addition, Guardian has proposed an AMP that would help mitigate potential impacts.

To address potential landowner concerns that might avoid the property, as well as measures that would minimize potential impacts, a route modification to the west was developed (see Baus Modification A on Figure 3.3-15). Baus Modification A would depart from the Proposed Route at MP 49.0 and travel in a north-northwesterly direction for approximately 0.57 mile. The modification would follow an existing tree line and property boundary quarter-section section line to Cody Road. The Proposed Route modification would then turn southeast along Cody Road whereby the pipeline would reconnect with the Proposed Route at about MP 49.85 (see Figure 3.3-15).

Potential disadvantages associated with the proposed Baus Modification is that the route would increase the pipeline length by approximately 0.1 mile, affect more acres of agricultural land, and have the potential to impact existing agricultural drainage tiles, although the modification would be located mostly along the edges of agricultural fields. This modification would also be about 200 feet from a residence near where the pipeline would intersect Cody Road.

Despite these disadvantages, more information and further analysis is necessary to determine whether Baus Modification A is environmentally preferable to the Proposed Route. We will finalize our review upon completion of a field investigation and further study of the modification. We will present our findings in the final EIS.

Tetzlaff Modification

Landowners between MPs 91.3 and 92.8 have expressed concern about the effect of the pipeline location on property value and future development. Following Guardian's filing on October 13, 2006, the Applicant evaluated and incorporated a minor route variation to address the concerns of the landowners along this portion of the proposed pipeline route (see table 3.3.3.1-11 and figure 3.3-16). This route variation was filed with the FERC in a supplemental filing on December 14, 2006. Upon our request, Guardian evaluated an additional route modification between MPs 90.8 and MP 92.8 (Tetzlaff Modification). This modification would begin at about MP 90.7 and proceed northward along property lines to the intersection of Meadowlark Road and Tetzlaff Road. The variation crosses through the intersection and proceeds north adjacent to Tetzlaff Road for approximately 1.5 miles, crossing County Highway ZZ. Directly north of

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Figure 3.3-15 Baus Modification A

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Figure 3.3-16 Tetzlaff Modification

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County Highway ZZ, the variation turns east following County Highway ZZ until it returns to the proposed route at approximately MP 92.6 (see figure 3.3-16).

As proposed, the Tetzlaff Modification is environmentally similar to the proposed route in most respects (e.g., both routes cross the same types of land uses and neither route crosses any identified wetlands or waterbodies). The primary advantage of the modification is it increases the length of the route adjacent to existing rights-of-way by approximately 1.7 miles. However, while the Tetzlaff Modification would increase collocation with existing rights-of-way, it poses a number of disadvantages. The modification would cross three new landowners, two more than the proposed route. The modification would also increase the overall length of the pipeline by approximately 600 feet, thus increasing overall impacts and costs. In addition, the modification is located within 100 feet of three existing structures (two of which are residences, including one of the Tetzlaff family residences), and within 150 feet of an additional three structures. Further, the proposed Tetzlaff Modification would impact more potential home lots than the proposed route, because it is not collocated with as many proposed subdivision roads as the proposed route. Lastly, the modification would necessitate relocating the Denmark Meter Station and would increase the length of WPS's interconnecting pipeline by about 800 feet.

Based upon the above analysis, the Tetzlaff Modification does not offer any significant environmental advantages over the proposed route and it has several disadvantages, including additional environmental impacts. Therefore, we believe the proposed modification is not a viable alternative to the proposed route and has been eliminated from further consideration.

VanRossum Modification

Landowners between MPs 89.0 and 91.5 have expressed a desire for Guardian to site its pipeline along existing rights-of-way and property boundaries. In response to landowner concerns, Guardian evaluated a potential route modification (VanRossum Modification) between MPs 89.0 and MP 91.5.

Beginning at about MP 89.1, the VanRossum Modification would proceed north following property boundary quarter-section lines for approximately 1.2 miles. At Meadowlark Road, the modification would turn and proceed east paralleling Meadowlark Road for approximately 0.7 mile, returning to the proposed route near MP 90.5 (see figure 3.3-17).

The primary advantage of the VanRossum Modification is that it would collocate the pipeline with an existing right-of-way for about 0.68 mile. The modification would also avoid a small farmed wetland (OS-W10) associated with the tributary to the East River near MP 90.3 of the proposed route. However, while the VanRossum Modification is similar with respect to some environmental factors (both routes cross the same types of land uses; both routes require a crossing of an unnamed tributary to the East River—albeit at different locations), the variation has a number of disadvantages relative to Guardian's proposed route. The variation adds approximately 2,360 feet to the overall length of the pipeline, which would result in greater overall impacts and cost. The modification would also affect three new landowners; one more landowner than the corresponding segment of the proposed route. Additionally, the modification would affect a significant area of drain tile located north and south of Mallard Road (see figure 3.3-17). The modification would also place the pipeline within 100 feet of an existing structure and within 150 feet of five additional structures (including one residence).

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Figure 3.3-17 Van Rossum Modification

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Based upon the above analysis, the advantages of the VanRossum Modification do not outweigh the disadvantages. Therefore, we believe the proposed modification is not a viable alternative to the proposed route and has been eliminated from further consideration.

3.3.4 Aboveground Facility Site Alternatives

Guardian proposes to construct two new compressor stations, seven new meter stations, six MLVs, and two sets of launcher/receiver stations as part of the proposed Project. We have evaluated the proposed locations of the aboveground facilities to determine whether environmental impacts would be reduced or mitigated by use of alternative facility sites. All of the proposed aboveground facilities are necessary to meet the purpose and need of the G-II Project.

The search for alternatives focused on sites that would require a minimum of environmental impact, choosing agricultural lands over woodlands or streams and wetlands. Whenever possible, Guardian selected meter station sites that collocated with existing or proposed We Energies and WPS facilities. The locations of meter and compressor stations would be linked to the location of the proposed Project (with the exception of the Sycamore Compressor Station, which would be situated along Guardian's existing pipeline in northeastern Illinois).

Meter Stations

As explained previously, the Rubicon and Fox Valley Meter Stations are discussed with their associated alternative or variation routes, because the two features must be collocated. The remaining proposed meter stations and their alternatives are discussed here.

Sheboygan Meter Station

The original meter station site is located at MP 45.3; the alternative meter station site is at MP 43.9 (see figure 3.3-18). The proposed and alternative sites are both located on 0.5 acre of private, prime farmland of different owners, at average elevations of about 1,105 feet and 1,155 feet, respectively, with gently sloping topography. No wetland, biological, or cultural resources would be affected on either site. Both sites would require access roads of comparable lengths and neither site would require any significant length of new transmission line to be constructed.

The differences between the two sites are minor. The nearest residence is 700 feet from the original site and 750 feet from the alternative site; therefore, noise impacts would be similar. Both sites would be visible from homes on County Highway UU and the alternative site would be visible from Grandview Road 0.25 mile to the east.

Because the original Sheboygan Meter Station site offers no clear environmental advantages, and because the alternative site would be collocated with another proposed facility, we recommend use of the Proposed Sheboygan Meter Station at MP 43.8.

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Figure 3.3-18 Sheboygan Meter Station Alternative

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Chilton Meter Station

The original Chilton Meter Station site is located on the north side of Quinney Road at MP 66.5, and the alternative Chilton Meter Station site is located on the south side of Quinney Road at MP 66.4 (see figure 3.3-19). The proposed and alternative sites are both located on 0.6 acre of private, prime farmland of different owners, each at an elevation of about 980 feet, with gently sloping topography. No wetland, biological, or cultural resources would be affected on either site. Both sites are visible only from Quinney Road, which could also provide a permanent access road to either site. Neither site would require any significant length of new transmission line to be constructed.

The differences between the two sites are minor. The nearest residence is 1,000 feet from the original site and 900 feet from the alternative site, creating similar noise impacts.

Because the original and alternative Chilton Meter Station sites are nearly identical in environmental respects, and because the alternative site would be WPS's preferred transmission tie-in location, we recommend use of the Proposed Chilton Meter Station at MP 66.4.

Denmark Meter Station

Both Denmark Meter Station sites are located at MP 91.6; the original site is on the north side of Wrightstown Road while the alternative location is directly across the street on the south side of Wrightstown Road (see figure 3.3-20). The original and alternative sites are both located on 0.5 acre of private, prime farmland, but the alternative site would collocate the meter station with WPS's proposed pipeline lateral interconnection. No wetland, biological, or cultural resources would be affected on either site. Both sites are visible from a residence off Wrightstown and Tetzlaff Roads, and no new access roads or significant length of transmission line would be required for either site.

The differences between the two sites are minor. The nearest residence is 100 feet from the original site and 150 feet from the alternative site, creating similar noise and visual impacts.

Because the original and alternative Denmark Meter Station sites are nearly identical in environmental respects, and because the alternative site would collocate the meter station with WPS's proposed interconnecting pipeline, we recommend use of the Denmark Meter Station on the south side of Wrightstown Road as proposed.

Southwest Green Bay Meter Station

Guardian collocated the Southwest Green Bay Meter Station with a proposed WPS interconnecting pipeline tie-in with minimal environmental impact, and therefore did not explore an alternative site. We were not able to identify an environmentally preferable alternative for this location.

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Figure 3.3-19 Chilton Meter Station Alternative

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Figure 3.3-20 Denmark Meter Station Alternative

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West Green Bay Meter Station

The original West Green Bay Meter Station site is located at MP 109.8, and the alternative meter station site is at MP 109.9 (see figure 3.3-21). The proposed and alternative sites are both located on 0.5 acre of agricultural land, each at about 760 feet in elevation, ranging from flat to gently sloping to moderately sloping topography. No wetland, biological or cultural resources would be affected on either site and no new access roads or significant length of transmission line would be required for either site.

Neither site would require new access roads. The primary difference between the two sites is the extent of visual screening. The nearest residence is 600 feet from the original site and 1,000 feet from the alternative site, and both sites would be visible from County Highway VV and Olson Road. While situated adjacent to an existing aboveground facility, the proposed site is highly visible from the highway, unlike the alternative site, which is situated near a forested area that provides some visual screening.

In addition, the proposed site would require an additional 0.5 mile to be added to the total pipeline length as well as any associated environmental impacts. Because the original West Green Bay Meter Station site offers no environmental advantages over the alternative site and in fact would create a greater environmental impact due to the additional pipeline length, we recommend use of the West Green Bay Meter Station as proposed.

Compressor Stations

Sycamore Compressor Station

As part of the proposed Project, Guardian would need to add two compressor stations to the already existing Guardian pipeline system in order to maintain pipeline pressure. The southern station would be the Sycamore Compressor Station. Guardian identified two sites for the proposed Sycamore Compressor Station (see figure 3.3-22). Given their adjacent proximity to each other, both sites are similar in most respects. Both sites are located on 12.5 acres of private land at an elevation of about 900 feet with mostly flat topography. No wetland, biological or cultural resources would be affected on either site. The land is regarded as prime farmland due to the soil type and drainage, and is planted with standard row crops of corn and soybeans in most years. Both sites would occupy more than 5 acres of prime farmland; however, because all of the soils in the project area constitute prime farmland soils, we were unable to identify entirely non-prime farmland alternative locations. Because of design requirements, the compressor station needs to be in this general location. The nearest residence is approximately 825 feet west of the proposed compressor station location, creating low stationary visibility impacts, but both sites are plainly visible from Story Road.

The differences between the two sites are minor. While the proposed site is 1,320 feet from the nearest sensitive noise receptor, the alternative site is 1,050 feet from the same receptor. The proposed site contains one intermittent stream, while the alternative site has no streams, but slightly more variation in topography. And finally, the length of the new power line required to link the compressor station with the existing 138 kV transmission line at Lloyd Road to the west varies by 0.1 mile, 2.6 miles for the proposed site and 2.7 miles for the alternative site.

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Figure 3.3-21 West Green Bay Meter Station Alternative

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Figure 3.3-22 Sycamore Compressor Station Alternative

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Both sites are very similar in most respects, but the slightly shorter length of the transmission line and the greater distance from the receptor make the location of the Sycamore Compressor Station the preferable location.

Bluff Creek Compressor Station

As part of the proposed Project, Guardian would need to add a compressor station to the existing Guardian pipeline system in order to maintain pipeline pressure. The northern station would be the Bluff Creek Compressor Station. Guardian identified one alternative site for the proposed Bluff Creek Compressor Station (see figure 3.3-23). Both sites considered for the Bluff Creek Compressor Station are located on 20.0-acre parcels of land, the proposed site is held by a farming operation, and the alternative site is owned by Guardian. No streams or other wetland, biological, or cultural resources would be affected on either site. The Kettle Moraine State Forest would suffer no impacts from the Bluff Creek Compressor Station.

There are several differences between the two sites. The proposed site has only three residences within 2,000 feet of it and is 1,160 feet from the nearest sensitive noise receptor, whereas the alternative site is 840 feet from its nearest sensitive noise receptor and has 19 residences within 2,000 feet of it. The proposed site would require no new transmission line to power the compressor station, as an existing transmission line, whereas the alternative site would require the construction of a new transmission line to access the nearest existing power line, which is located 0.8 mile to the southwest of the site. Both sites contain prime agriculture land due to the soil type and drainage; however, the proposed site contains 20 acres and the alternative site has 12 acres. Both sites would occupy more than 5 acres of prime farmland; however, because all of the soils in the project area constitute prime farmland soils, we were unable to identify entirely non-prime farmland alternative locations. Because of design requirements, the compressor station needs to be in this general location. While visibility from residences is expected to be low, both sites are visible by people in transit via Kettle Moraine Drive, McCabe Road, and County Highway O for the proposed site, and from Highway 12, as well as the Ice Age National Scenic Trail for the alternative site.

Possibly the biggest difference between the two sites occurs from topography and the environmental impacts that would stem from the preparation of the land for the compressor station (i.e., grading). The proposed site is flat (0 to 2 percent slope) whereas the alternative site has some steeply sloping area (greater than 10 percent slope). The soils on this steeper land would be more prone to erosion if disturbed, which could lead to additional cumulative environmental impacts after project completion.

Because of the disadvantages of the alternative site, we recommend the original site for the location of the Bluff Creek Compressor Station as proposed.

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Figure 3.3-23 Bluff Creek Compressor Station Alternative

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