

Executive Summary

THE PROJECT

What is the Line 3 Project?

Enbridge Energy, Limited Partnership (Enbridge, or Applicant) has submitted applications to the Minnesota Public Utilities Commission (Commission) to construct a new 340-mile, 36-inch-diameter pipeline in northern Minnesota to replace the aging 282-mile, 34-inch Line 3 oil pipeline (Line 3 Project, or Project). Line 3 is part of Enbridge's extensive Mainline system. Enbridge is proposing to abandon the existing Line 3 pipeline in place. (Figure ES-1 shows the existing Mainline system and Enbridge's proposed route for the new Line 3.)

Enbridge's Mainline system currently ships an estimated 2.4 million barrels of crude oil across northern Minnesota each day. The Minnesota portion runs from the Minnesota/North Dakota border to a terminal in Clearbrook, Minnesota, and then on to the Minnesota/Wisconsin border near Superior, Wisconsin. At the Clearbrook terminal, Enbridge transfers approximately 400,000 barrels per day (bpd) to the Minnesota Pipe Line Company, which supplies the oil to the two petroleum refineries in the Twin Cities. Nearly all of the heavy crude oil refineries in the Upper Midwest receive a portion of their oil, either directly or indirectly, from the Enbridge Mainline system.

The existing Line 3 pipeline has operated for approximately 50 years. It requires extensive maintenance and is currently restricted to a capacity of 390,000 barrels of crude oil per day. Enbridge's proposed new 36-inch-diameter pipeline would be capable of carrying up to 760,000 barrels of Canadian heavy crude oil per day, which was the original design capacity of the existing Line 3.

As proposed by Enbridge, the new Line 3 pipeline would generally parallel the existing Line 3 from the North Dakota-Minnesota border (in Kittson County) to the Clearbrook terminal in Clearwater County.

Between Clearbrook and the Minnesota/Wisconsin border, however, the proposed route moves outside the existing Mainline corridor. From Clearbrook, the proposed route first runs parallel to the Minnesota Pipe Line Company pipeline system to approximately Park Rapids, where it turns east. Enbridge estimates that between Park Rapids and the Minnesota/Wisconsin border, the proposed route is collocated with other utility or road rights-of-way for approximately 110 miles. The majority of the section between Clearbrook and the Minnesota/Wisconsin border runs parallel to existing rights-of-way, including high-voltage transmission lines and roads, before again joining the existing Mainline corridor to the Minnesota/Wisconsin border.

As shown in Figure ES-1, the existing six-pipeline Mainline crosses the Leech Lake Indian Reservation and the Fond du Lac Indian Reservation. Enbridge's proposed route for the new Line 3 avoids crossing the Leech Lake and Fond du Lac Reservations, but does cross a disputed section of the White Earth Indian Reservation, as well as ceded territory; tribal members use and value both the reservations and ceded lands for gathering (e.g., for wild rice), hunting, and fishing.

Chapter 2 provides a detailed description of the proposed Line 3 Project, construction methods, and the measures Enbridge proposes to avoid or reduce potential environmental effects.

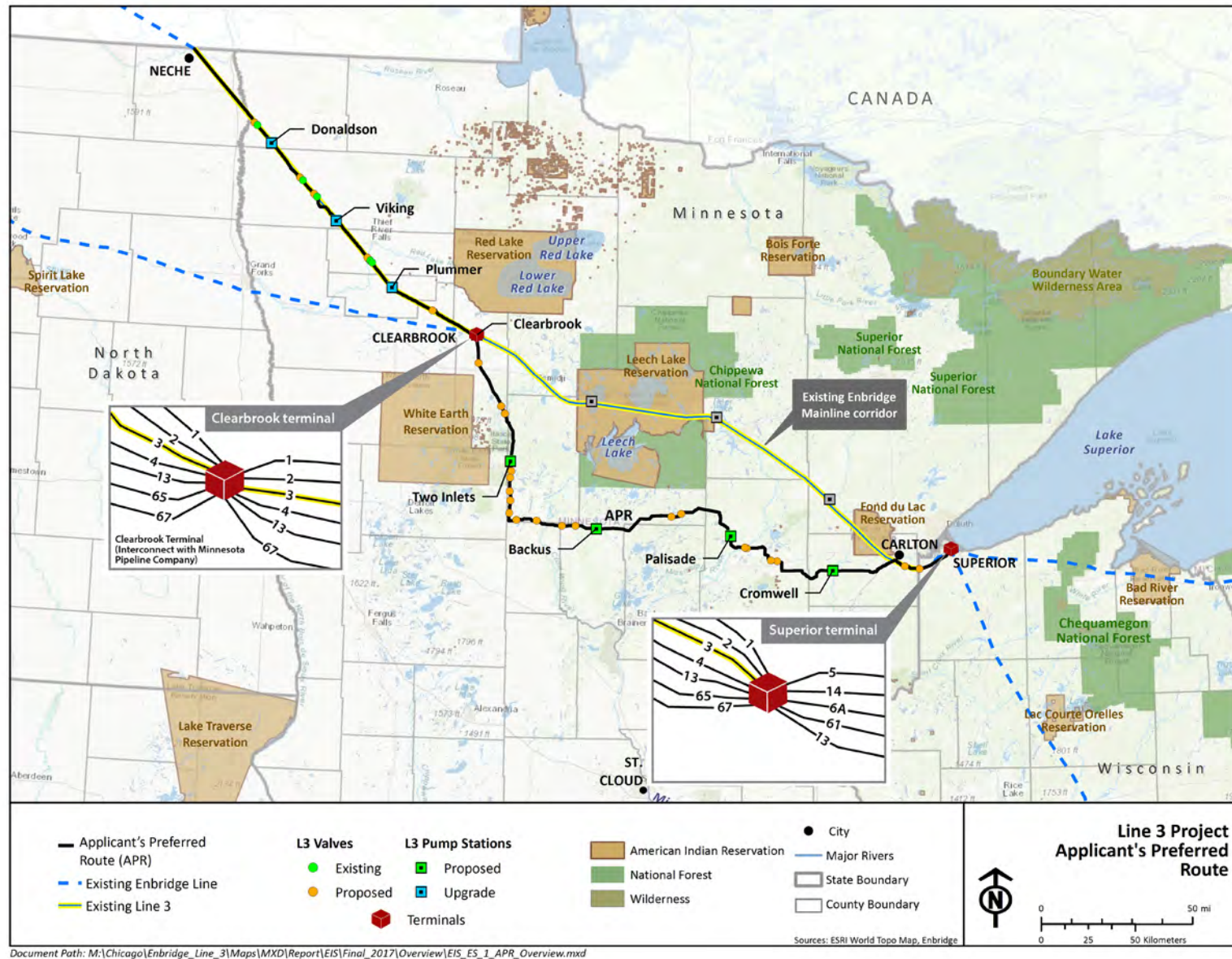


Figure ES-1. Overview of the Applicant's Preferred Route for the Line 3 Project

THE ENVIRONMENTAL IMPACT STATEMENT

What is the purpose of this Environmental Impact Statement?

The Minnesota Environmental Policy Act requires that “where there is potential for significant environmental effects resulting from a major governmental action, the action shall be preceded by a detailed environmental impact statement.” In this case, the “governmental action” includes two separate but related decisions by the Commission:

Whether to issue a Certificate of Need (CN); and

Whether to issue a route permit for the Project, and if so, with what conditions.

In addition, Enbridge needs numerous other state and federal approvals before it can build the Project.

Therefore, the purpose of and need for this Environmental Impact Statement (EIS) is to help inform the Commission’s decisions by evaluating the potential human and environmental effects of permitting the proposed Project, considering reasonable alternatives, and exploring methods for reducing adverse effects. In addition to the Commission, other permitting agencies, the public, and Enbridge can use the information in the EIS.

What decision-makers will use this EIS?

The Commission will use the EIS to help it decide whether to issue a CN and route permit. Other tribal, state and local agencies with permitting authority over the Project will also use the EIS.

In addition, the Line 3 Project will require permits from federal agencies, most notably the U.S. Army Corps of Engineers. Federal agencies must consider potential environmental impacts under the National Environmental Policy Act (NEPA). The federal agencies required to make decisions about the proposed Project may also use this EIS to inform their decisions or to help prepare their own environmental review documents. Chapter 3 describes the Commission’s process and summarizes the other federal, tribal, state, and local permits and approvals.

Who prepared the EIS?

The Commission must complete environmental review of the Project before deciding whether to issue the CN or the route permit. The Commission has ordered an EIS for the CN and route permit applications, to be prepared by the Minnesota Department of Commerce, Energy Environmental Review and Analysis (DOC-EERA) in consultation with the Commission’s Executive Secretary, and with assistance from the Minnesota Department of Natural Resources (Minnesota DNR) and Minnesota Pollution Control Agency.

What is a Certificate of Need, and how will “need” be determined?

The first approval Enbridge must obtain is a CN. As its name indicates, the CN is a decision by the Commission about whether a proposed project is in the State’s interest.

The Commission must consider each of the criteria in Minnesota Statutes § 216B.243 and Minnesota Administrative Rules Part 7853.0130 in determining need. Under the regulatory criteria, the Commission first considers the underlying economic need for the proposed pipeline. This analysis, conducted by

parties in a contested case hearing, will aid the Commission in making this evaluation. Then, if the Applicant establishes the underlying need, the environmental and socioeconomic analysis in the EIS will help the Commission weigh the advantages and disadvantages of alternative ways of meeting the need and decide whether to issue a CN for the proposed Project.

For the CN decision, the Commission has three options: (1) issue the CN for the Project as proposed; (2) deny the CN; or (3) issue a CN contingent on modifications.¹

What alternatives were considered in the EIS for the Certificate of Need decision?

Minnesota's regulations require that the EIS evaluate the environmental consequences of the No Action Alternative. In this case, a Commission decision to deny the CN is the No Action Alternative.

In analyzing the No Action Alternative, this EIS considers the human and environmental impacts associated with denying the CN, including a variety of CN Alternatives that correspond to each of the decision criteria. Table ES-1 provides an overview of the alternatives evaluated in the EIS for the CN decision and illustrates how the alternatives evaluated in the EIS align with the four major need-related criteria in the regulations.

As indicated in Table ES-1, the denial of the CN for failing to meet the criteria required under MN Rules 7853.0130 could result in continuing operation of the existing Line 3 at its current capacity (no change in the status quo). If underlying demand is present, denial of the CN could lead to other outcomes; for example, if the Commission denies the requested CN, the Applicant (or entities other than the Applicant) could reasonably be expected to meet shipper demand for the oil through other means, such as a different pipeline system, or by train or truck.

The CN section of the EIS, therefore, evaluates the impact of approving the CN and the following potential outcomes of denying the CN:

1. Continued use of existing Line 3 at its existing capacity.
2. Use of other pipelines.
3. System alternative SA-04 (a conceptual new pipeline that would deliver oil directly to Joliet, Illinois, bypassing Clearbrook and Superior, Wisconsin).
4. Use of rail as an alternative mode of transport.
5. Use of trucks as an alternative mode of transport.
6. Continued use of existing Line 3 supplemented by rail.
7. Continued use of existing Line 3 supplemented by truck.

¹ Minn. R. 7853.0800.

Table ES-1. Certificate of Need Alternatives and Criteria

Commission’s Decision	Would denial adversely affect future adequacy, reliability, or efficiency of energy supply?	If yes, is there a more reasonable and prudent alternative, such as different endpoints or a different transport method?	If no, are the consequences to society of granting the CN more favorable than denial? Does the project comply with other laws?	Certificate of Need Alternatives Evaluated for Environmental Impacts	
	Minnesota Administrative Rules Part 7853.0130 A	Minnesota Administrative Rules Part 7853.0130 B	Minnesota Administrative Rules Part 7853.0130 C, D		
Certificate of Need Not Granted (CN Alternatives)	No Keep using existing Line 3	—	—	CN Alternative 1 Continued use of existing Line 3	Line 3 operates at existing capacity, no supplemental oil transportation.
	Yes	Yes Use a different pipeline system	—	CN Alternative 2 Other pipelines	Other pipelines transport up to 760,000 barrels per day (bpd)
		Yes Use a different oil transportation mode		CN Alternative 3 System alternative SA-04	SA-04 transports up to 760,000 bpd
				CN Alternative 4 Transportation by rail	Trains transport up to 760,000 bpd
		CN Alternative 5 Transportation by truck	Trucks transport up to 760,000 bpd		
	Yes	No	No The consequences to society of granting the CN are not more favorable than denying it	CN Alternative 6 Existing Line 3 supplemented by rail	Line 3 operates at existing capacity; trains used to transport up to 370,000 additional bpd to market
				CN Alternative 7 Existing Line 3 supplemented by truck	Line 3 operates at existing capacity; trucks used to transport up to 370,000 additional bpd to market
Certificate of Need Granted	Yes	No	Yes	Applicant’s proposed Project	CN granted for the proposed Project or for a modified project (e.g., a new lower-capacity pipeline)

The purpose of the CN process is to determine whether the particular project being proposed is needed. There is no legal authority in a CN proceeding of a separate proposed project (at the state or with the Public Utilities Commission) to evaluate the ongoing need of an existing project. Once constructed, the safety and operation of an existing pipeline is regulated by the United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration. In this particular case, Enbridge has entered into a consent decree with the United States Environmental Protection Agency that allows for the continued operation of the existing Line 3 if a replacement for the line is not approved. In other words, if the proposed Line 3 project is not approved by the PUC, the continued operation of the existing Line 3 will be regulated by the Federal government, not the State of Minnesota. Accordingly, shutting down and removing existing pipelines in the mainline corridor is not included in the No Action Alternative.

Figure ES-2 shows the location of the existing Line 3, likely routes for the rail and truck alternatives, and an alternative pipeline system (system alternative SA-04).

What is a route permit and how will the route be determined?

If a CN is issued, the Commission then must decide whether to issue a pipeline route permit. The route permit is the Commission's approval to build the pipeline within a specific alignment and route width between two end points. Enbridge has identified its preferred 750-foot-wide route width and has identified a preferred alignment within this area (the Applicant's preferred route) (see the Applicant's preferred route in Figure ES-1).

The Commission cannot issue a route permit unless it first issues a CN. Enbridge has asked for approval of a route up to 750 feet, within which a maximum 120-foot-wide construction work area is requested, and a 50-foot-wide permanent right-of-way would remain after construction is complete. The permanent right-of-way allows Enbridge to monitor the pipeline and to conduct maintenance activities as required.

During the EIS scoping process, state agencies and citizens proposed alternative routes for the pipeline between Clearbrook and Carlton. The Commission approved four alternative routes to evaluate in this EIS. Chapter 4 describes these route alternatives (RAs). If the Commission issues a CN, it will compare the routes and determine which route to approve based on regulatory routing criteria. These criteria include the effects on human settlements, environmental resources, cultural resources, economics and cost, the amount of co-location with other infrastructure, and compliance with permitting requirements (Minn. R. 7853.1900, Subp. 3.)

Following a formal administrative contested case hearing on both the CN and route permit decisions, the Commission can approve Enbridge's proposed route or one of the alternatives if the Commission determines that an alternative route is in the best interest of the State. The Commission's route permit would confer the right of eminent domain on Enbridge should Enbridge need it to acquire the easements to build the Project. Chapter 3 describes the regulatory process. Chapter 4 describes the alternatives evaluated for the CN decision and the route permit decision.

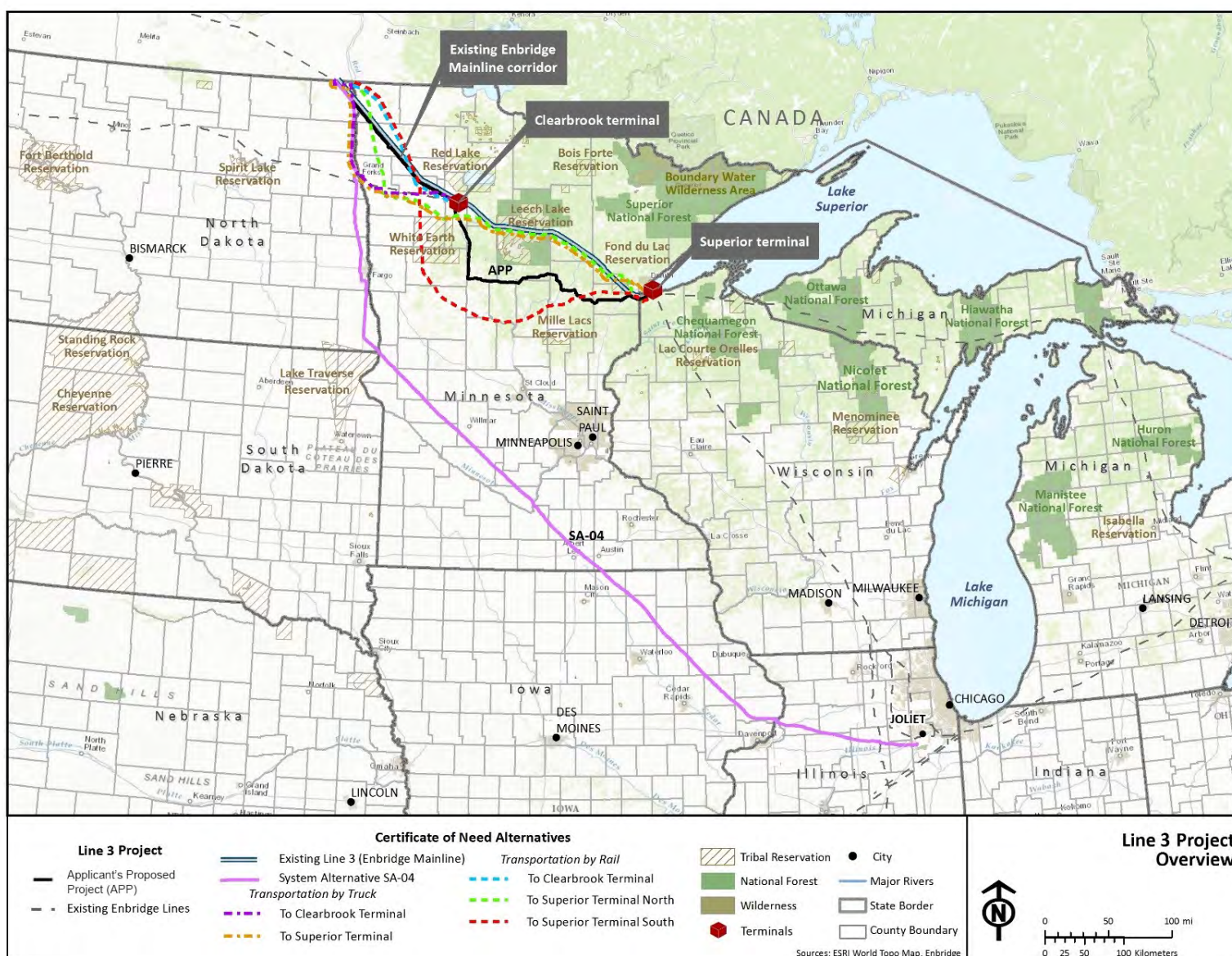


Figure ES-2. Certificate of Need Alternatives

How do the tribal and federal approvals affect the route decision?

Any routing option within the existing Mainline corridor (and some other routes) east of Clearbrook would require Enbridge to obtain permanent right-of-way across a large area of federal and state public lands and two American Indian reservations. Enbridge would need to acquire its easements in these locations through amicable agreements with tribal or federal landowners, because it cannot use eminent domain to acquire a pipeline right-of-way across these lands.

Enbridge has constructed pipelines through these areas in the past, going back to 1949 when it installed the first line from Canada to Superior, Wisconsin. Since then, Enbridge has completed several projects within the Enbridge Mainline right-of-way in Minnesota, which crosses the Chippewa National Forest, state public lands, and the Leech Lake and Fond du Lac Reservations. In its permit applications for Line 3, however, Enbridge maintains that the ability to obtain limited-term permits and easements is too uncertain.

During the EIS scoping process, however, some commenters requested that the option of installing the new pipeline within the existing Mainline corridor be evaluated in the EIS. These commenters seek to avoid opening a new oil pipeline corridor across northern Minnesota, which would be required for part of Enbridge's proposed route.

What route alternatives are the Commission considering?

The Commission approved the RAs included for evaluation in the EIS for the route permit. They include RA-03AM, the most southerly route; RA-06, the most northerly route; and RA-07 and RA-08, which generally follow the existing Enbridge pipeline corridor from Clearbrook to Carlton. RA-07 represents the option of installing the new Line 3 in the same trench as the existing Line 3. Figure ES-3 shows the RAs.

Are there other shorter route variations under consideration?

Yes. State agencies and the public proposed changes to Enbridge's preferred route during the EIS scoping process in order to avoid impacts or the threat of impacts on specific resources or other conflicts. Figure ES-3 shows the general locations of the route segment alternatives (RSAs). Most are relatively short; two, however, are more than 50 miles long.

Chapter 7 compares 24 individual RSAs to the segments of the Applicant's preferred route they would replace. Chapter 7 also analyzes a stand-alone segment: RSA-53. RSA-53 connects to RSA-21, making it possible for RA-06, RA-07, and RA-08 to avoid the Fond du Lac Reservation. Chapter 7 provides a discussion of the important variations between RSA-53 and the segment of the Applicant's preferred route it would replace.

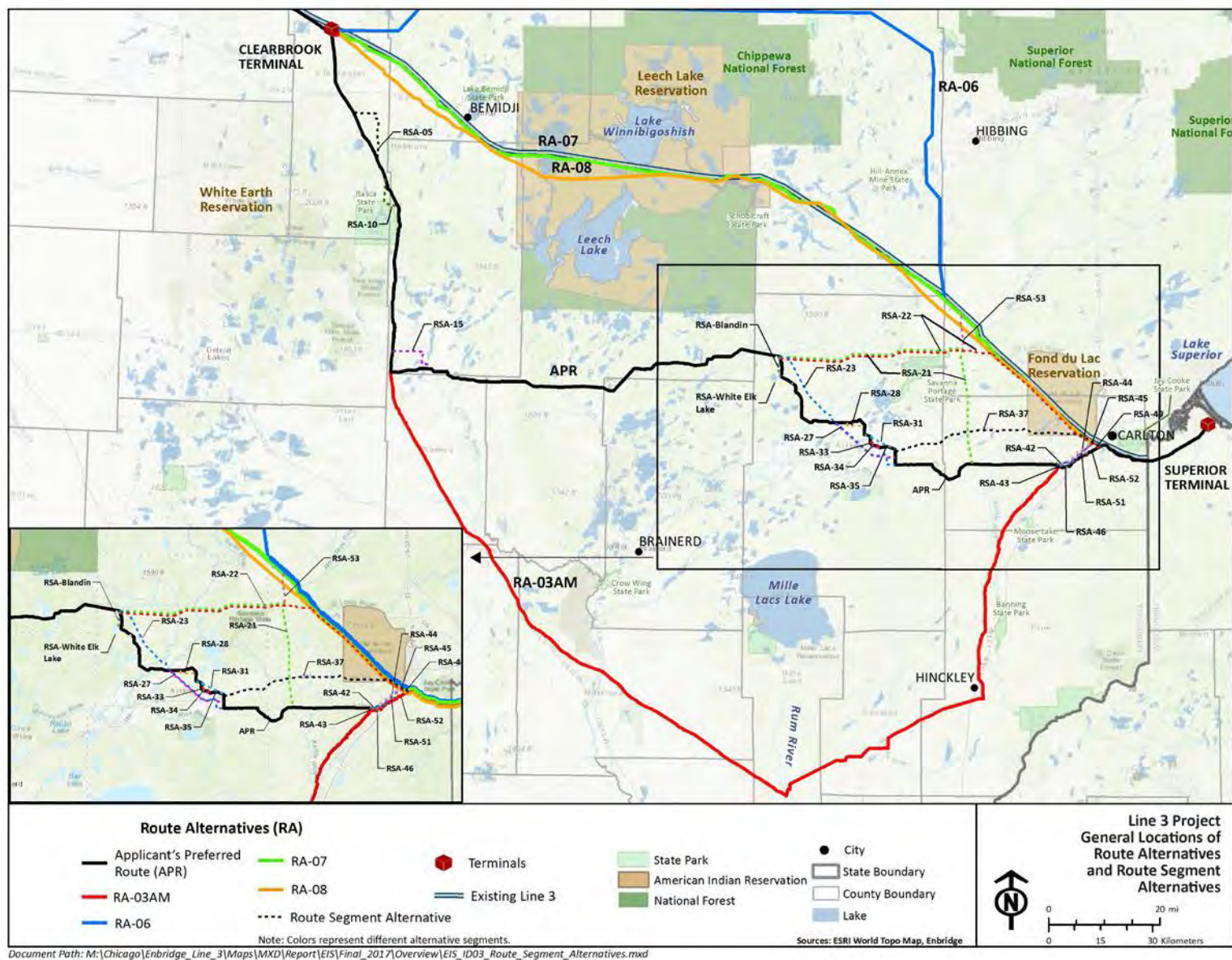


Figure ES-3. General Locations of Route Alternatives and Route Segment Alternatives

AGENCY DECISIONS, CONSULTATIONS, AND PUBLIC INVOLVEMENT

What was the role of federal agencies, tribal governments, and state and local governments in preparing the EIS; and how will they be involved in the final decision?

In addition to the Commission's CN and route permit, a number of other permits and approvals from different federal, tribal, state, and local jurisdictions will be required for the Project. A list of the possible "downstream" permits and approvals that might be required, depending on the specific route approved, is included in Chapter 3. At the federal level, for example, a U.S. Army Corps of Engineers permit must be obtained for certain water crossings. A special-use permit must be obtained from the U.S. Forest Service if the approved route crosses U.S. Forest Service land. State and federal agencies have participated in monthly conference calls for over a year, but these agencies have not been directly involved in preparing the EIS.

Enbridge would need tribal approval for the route to cross reservations. If the approved route were to cross tribal trust lands or lands under the jurisdiction of the Bureau of Indian Affairs, right-of-way easements would be required from these entities.

Department of Commerce staff and management have met with northern Minnesota tribal staff and have conducted formal government-to-government tribal consultations. Chapter 9 summarizes these efforts. Several tribes provided input on Chapter 9 (Tribal Resources) and on Chapter 11 (Environmental Justice).

How is the public involved in preparing the EIS, and how will they be involved in the final decision?

The EIS process and the Commission's decision-making process for the CN and route permit include four separate opportunities for public input and review. Chapter 3 includes a summary of the EIS scoping process. Other opportunities for public participation include:

- **Public Review and Comments on Draft EIS** – Release of the Draft EIS for public review and comment started an 8-week period during which the public, agencies, and American Indian tribes had an opportunity to comment on the Draft EIS. This period included 3 weeks of public information meetings. Based on the comments, appropriate changes or additions to the Draft EIS have been made as part of the process of preparing this Final EIS. A response to each substantive comment received during the public comment period is included in this Final EIS.
- **Public Review and Comments on Final EIS** – Upon release of this Final EIS, the public, agencies, and American Indian tribes will have another opportunity to comment on whether the Final EIS has adequately complied with the requirements of the Minnesota Environmental Policy Act. An Administrative Law Judge will consider these comments and make a recommendation to the Commission on the adequacy of the EIS.
- **Public Comments at Commission Public Hearing** – As part of its deliberation on the CN and route permit applications, the Commission will have a contested case hearing to receive input from the public.

What are the differences between the Draft EIS and the Final EIS?

The Draft EIS has been modified to respond to agency, American Indian tribe, and public (e.g., individuals and organizations) comments received during the comment period for the Draft EIS and to incorporate additional analysis to assist the Commission in evaluating the proposed Project. Key changes include the following:

- Additional discussion of socioeconomic impacts associated with the proposed Project (Chapters 5 and 6);
- Additional review of distances between existing Line 3 and adjacent pipelines (Chapter 8);
- Additional discussion of potential impacts on tribal resources (Chapter 9);
- Additional analysis of suitability of modeling of accidental oil release (Chapter 10);
- Additional discussion of potential impacts associated with accidental oil release and affected resources (Chapter 10);
- Additional discussion of the risk of explosion and fire associated with crude oil transport (Chapter 10);
- Addition of a discussion of existing conditions and potential impacts on environmental justice communities for the CN Alternatives (Chapter 11);
- Additional discussion of impacts on low-income environmental justice communities (Chapter 11);
- Additional reasonably foreseeable actions considered within the cumulative potential effects analysis (Chapter 12);
- Minor corrections to provide consistency between chapters and ensure references and web links are properly listed (throughout EIS); and
- Appendices have been added listing all agency, American Indian tribes, and public comments received during the comment period and providing responses to substantive comments.

The chapter notation provided herein denotes the primary location of the additions/revisions. Where appropriate, corresponding changes and/or references to the changes have been included throughout the EIS.

MAJOR ISSUES FOR THE CERTIFICATE OF NEED DECISION

The CN section of the EIS compares the environmental impacts of the Applicant's proposed Project to those of other alternatives, including:

- The Applicant's proposed pipeline to Superior, Wisconsin;
- Continued use of existing Line 3;
- Transport by train;
- Transport by truck; and

- System alternative SA-04, a conceptual pipeline to Illinois that bypasses Clearbrook and Superior.

The CN analysis in the EIS provides environmental information to aid the Commission in evaluating alternatives to the Applicant's proposed Project. Several key issues emerged:

- What are the advantages and disadvantages of continuing to use existing Line 3?
- How are the risks of accidental oil release different for pipelines, trucks, and rail?
- What are the impacts of the CN Alternatives on high-quality water resources?
- Will the proposed Project damage forests and wildlife habitat in northern Minnesota more than other alternatives?
- Will shipping the oil by rail or truck affect movement of other commodities?
- What are the greenhouse gas (GHG) and climate change implications?

What are the advantages and disadvantages of continuing to use existing Line 3?

The May 2017 revised Consent Decree entered between Enbridge and the U.S. Department of Justice on behalf of the U.S. Environmental Protection Agency and the U.S. Coast Guard (81 Federal Register 62536) requires Enbridge to seek all approvals necessary for the replacement of Line 3 and to replace Line 3 as expeditiously as practicable, pending approvals. The agreement provides a framework to allow ongoing operation of the existing Line 3,² which would require heightened integrity work and progressive decreases in operating pressure. The advantages and disadvantages of continuing to use existing Line 3 are evaluated in Chapter 5 of the EIS.

The primary benefits of continuing to use existing Line 3 instead of constructing the Applicant's proposed Project are that continuing to use existing Line 3 avoids:

- Impacts and risks of opening up a new oil pipeline corridor, and
- Impacts associated with construction of a new pipeline.

A significant portion of the Applicant's proposed Project would be located outside the existing Mainline corridor, and a portion of the route would require a new right-of-way, causing habitat fragmentation and expanding the total acreage of land and resources exposed to the risk of a potential accidental release from a pipeline. Continued use of existing Line 3 avoids these impacts. Continued use of existing Line 3 also avoids the construction impacts associated with clearing a 120-foot-wide right-of-way and trenching hundreds of miles across Minnesota.

Continuing to use the existing Line 3 has drawbacks, however, including:

- Ongoing direct impacts on tribal communities, as it passes through both the Leech Lake and Fond du Lac Reservations, and

² United States of America v. Enbridge Energy, Limited Partnership, Draft Revised Following Public Comment available at: <https://www.epa.gov/enbridge-spill-michigan/revised-enbridge-consent-decree>.

- Integrity issues that have arisen as the pipeline has aged and its coating has deteriorated, resulting in frequent maintenance work that causes disturbance to landowners.

Existing Line 3 goes through both the Leech Lake and Fond du Lac Reservations. The existing Mainline was constructed decades ago. As a result, it was not subject to state or federal environmental review or state procedures for CN and route permitting; it did not consider environmental justice issues. Tribal members who submitted comments during this EIS process and provided input for the Draft EIS reported that all of the proposed routes, including either keeping the current Line 3 in place or abandoning it, would add to the negative mental, spiritual, and physical health impacts already disproportionately suffered by American Indian populations.³

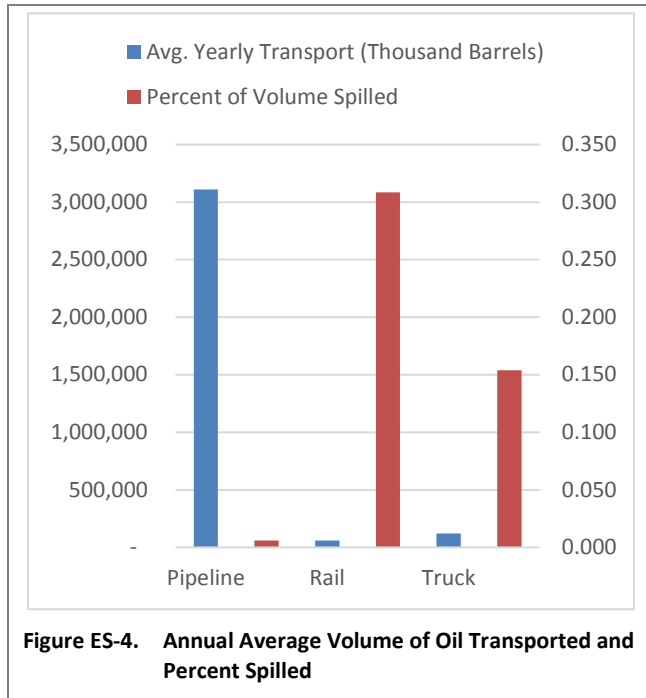
In addition, Line 3 is old and has integrity problems. Built in 1962 and 1963, Line 3 has corroded and cracked, necessitating more than 950 excavations in the last 16 years. Line 3 uses a coating popular at the time, which tends to dis-bond from the pipe. Line 3 has had 10 times as many anomalies per mile as any other pipeline in the Mainline corridor. The pipe was also flash-welded, which makes it more susceptible to defects. Line 3 thus requires an extensive amount of extra maintenance, and the intensity of the maintenance program to maintain pipeline safety would continue to increase. Since 1990, Line 3 has experienced 15 failures that released more than 50 barrels of oil during each incident, with seven of these failures occurring in Minnesota. Enbridge's use of pressure restrictions, intensive monitoring, and an extensive dig and repair program are so far preventing further releases. The program has required substantial investment, with no feasible technology or operational changes that can arrest or reverse the external corrosion on Line 3 or remove the defects that were inherent in the way the pipe was manufactured. Maintenance and repair activities and disturbance from successive integrity digs would continue to increase over time.

How are the risks of accidental oil release different for pipelines, trucks, and rail?

The risks posed by an accidental release are a function of a number of factors, including:

- The likelihood of an accidental release incident;
- The size and trajectory of the accidental release incident if one occurs; and
- The types and distribution of resources exposed along a pipeline, rail, or truck route.

³ See [Pember](https://www.tribaldatabase.org/wp-content/uploads/2017/01/ICMN-All-About-Generations-Trauma.pdf). 2016. Intergenerational Trauma: Understanding Natives' Inherited Pain. <https://www.tribaldatabase.org/wp-content/uploads/2017/01/ICMN-All-About-Generations-Trauma.pdf>. Accessed July 14, 2017. Historical trauma describes multigenerational trauma experienced by American Indians, because of continuous subjection to trauma, poverty, dislocation, and war, as cumulative and collective.



Trucks and trains are more likely than pipelines to have small to medium accidents and spills. This is because the number of transits required to transport crude oil is large, which increases the risk of human error. Tanker trucks also use major roadways and therefore present a greater risk of injuring or killing personnel or members of the public. Pipelines are less likely to have spills, but the amount of a pipeline's individual spill is likely to be greater. Figure ES-4 shows the average annual volume of crude oil transported and percent of transported crude oil spilled for different transportation modes.⁴

Even though the risk of an event occurring is higher for trains and trucks, the size of the release, if an incident occurs, is typically much smaller because the volume of a tanker truck or train car is smaller. The average size of crude oil from a truck incident is 16 barrels (687 gallons); from a train incident, 40 barrels (1,688 gallons);

and from a pipeline incident, 462 barrels (19,412) gallons. However, when total volume of releases is compared to the volume of crude oil transported, rail and truck transport release a significantly higher percentage of the volume transported, 0.309 percent and 0.154 percent respectively. Comparatively, pipeline transport releases an average of 0.006 percent of the volume of crude oil transported.

Length is a key component in calculating the probability of pipeline failure because a longer pipeline has a greater area that could be exposed to the primary pipeline threats, such as third-party damages, construction defects, manufacturing defects, corrosion, and equipment (e.g., valve) failure. In general, longer pipelines pose a greater total risk of incident.

The CN Alternatives cross a wide range of habitats and conditions, including a variety of land uses, human uses, and ecosystems. Each alternative, therefore, differs in terms of the types and distribution of resources exposed. Table ES-2 illustrates the resources within specific distances of each CN Alternative.

⁴ Average number of crude oil (49 CFR 171.15, 171.16 [Form F 5800.1]) transport incidents based on Pipeline and Hazardous Materials Safety Administration data. Average number of rail incidents per year based on data spanning the period 2007–2017. Average number of truck incidents per year based on data spanning the period 2007–2017. Average number of pipeline incidents per year based on data spanning the period 2010–2017. Average volume of yearly transport based on Energy Information Administration U.S. Refinery Receipts of Crude Oil by Method of Transportation data spanning the period 2010–2016.

Table ES-2. Summary of Potentially Exposed Resources of Concern from an Unanticipated Release of Crude Oil along the Applicant's Proposed Project and Certificate of Need Alternatives (acres)

Resources of Concern	Applicant's Proposed Project	Continued Use of Existing Line 3	System Alternative SA-04	Transportation by Rail	Transportation by Truck	Existing Line 3 Supplemented by Rail	Existing Line 3 Supplemented by Truck
HCA populated areas	10,959.8	25,697.9	25,128.7	41,579.2	44,431.8	67,277.1	70,129.6
HCA unusually sensitive ecological areas	12,318.0	27,527.8	20,378.4	27,578.6	37,272.0	55,106.4	64,799.8
HCA drinking water sources	2,443.9	4,521.9	24,468.7	14,787.2	27,941.9	19,309.1	32,463.8
Drinking water AOI	319.7	1,599.9	15,486.1	3,838.0	9,796.9	5,428.9	11,396.8
Cultural resources AOI	48.0	44,137.6	11,606.4	55,356.8	40,236.6	99,493.9	84,374.0
Biological AOI	102,426.2	99,970.3	369.4	96,325.3	87,205.8	195,007.8	187,166.2
Commodity production AOI	38,188.6	63,408.8	191.6	56,363.8	69,083.4	118,726.3	137,522.1
Recreation/tourism AOI	3,704.1	1,872.3	1,791.9	11,325.5	2,394.5	13,197.9	4,266.8
TOTAL	170,408.3	268,736.2	99,421.2	307,154.4	318,362.9	573,547.4	592,119.1



Notes: Acreages are the sum of acres within the 2,500-foot-wide and 10-mile-long downstream ROI for each metric, with the exception of Drinking Water AOI, which reflects drinking water supply management areas and Wellhead Protection Areas within a 1-mile ROI, and Hydrogeologic Sensitivity within a 0.5-mile ROI.

AOI = areas of interest (see Section 10.4.1 for descriptions of AOIs); HCA = high consequence area (see Section 10.4.1 for descriptions of HCAs); ROI = region of interest

Alternatives with a higher number of resources within the areas identified in Table ES-2 have a greater level of exposure and potential adverse effects following a release. This comparison of resources at risk assesses acres of sensitive resources within a 5,000-foot-wide (2,500 feet on each side of the centerline of the pipeline or train or truck route) corridor for releases on land. For waterbody exposure, acres of sensitive resources were calculated along a 10-mile-long, 1,000-foot-wide (500 feet on each side of the centerline of the waterbody crossed) corridor downstream of a release. Table ES-2 shows the magnitude of exposure to resources of concern along a color gradient (green to red), with red indicating the most exposure and green representing the least.

The risk of accidental release for the CN Alternatives is addressed in Chapter 10 of the EIS.

What are the impacts of the CN Alternatives on high-quality water resources?

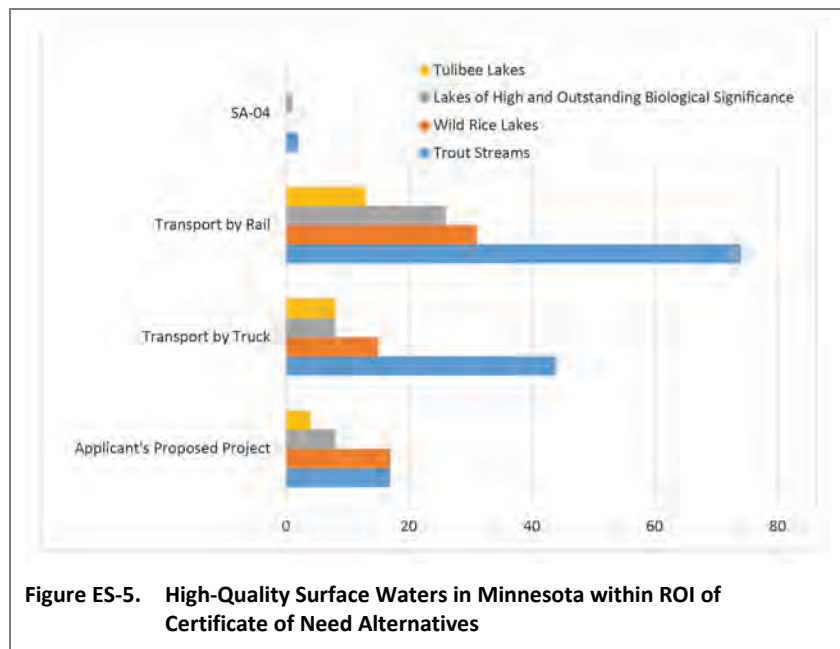
Surface Water

The Applicant's proposed Project (and to some extent transport by trucks and rail) would have construction impacts and introduce new risk of spills in northern Minnesota where the watersheds are in general very healthy and water quality is very good. System alternative SA-04 avoids northern Minnesota, instead routing through North Dakota and southern Minnesota. Impacts of the CN Alternatives on water resources are evaluated in Section 5.2.1 of the EIS.

There is no one way to measure the general region-wide or state-wide differences in surface water resource quality across Minnesota. The northcentral and northeastern portions of Minnesota, however, contain many water resources that are generally the highest quality water resources in the state.

Figure ES-5 provides a comparison of the high-quality water resources at risk for each alternative, including:

- **Trout streams:** Because their watersheds are generally unpolluted, and because of their location, soils, and geologic setting within the state, these streams often represent high-quality cold, oxygenated water necessary for trout survival.
- **Wild rice:** Minnesota has more acres of natural wild rice (*Zizania palustris*) than any other state in the country. Wild rice has been historically documented in 45 of Minnesota's 87 counties and in all corners of the state. Anecdotal information suggests an even broader distribution prior to



European settlement. Wild rice is a sacred plant for American Indian tribes and is an important social and cultural component for rural Minnesota communities.

- **Lakes of Biological Significance:** Lakes of Biological Significance are identified and classified by Minnesota DNR subject matter experts on objective criteria for four community types (aquatic plants, fish, amphibians, and birds). Unique plant or animal presence is the primary measure of a lake's biological significance.
- **Tullibee (cisco) lakes:** Minnesota has about 650 tullibee lakes, more than any other state in the lower 48. Many of these waters are prized by anglers because tullibee provides a high-energy feast for walleye, northern pike, muskellunge, and lake trout. Changes in land use and climate are causing many lakes to lose tullibee. Keeping forested land intact can help maintain water quality in lakes with tullibee and other coldwater species.

Groundwater

Rail and truck alternatives pose the highest total potential impact on groundwater resources because they cross the largest acreage of:

- **High water table vulnerability areas:** These are areas where groundwater is especially susceptible to contamination because the physical and biochemical characteristics of the geology tend to allow the transport of pollutants into the groundwater more easily.
- **Wellhead protection areas:** These are areas surrounding public water supplies through which contaminants are likely to move, both toward and into the well or well field.

System alternative SA-04 is the only CN Alternative that crosses vulnerable karst topography. A karst aquifer is a type of bedrock aquifer that usually consists of basic rock types that are prone to chemical weathering and dissolution from the slight acidity of precipitation and groundwater. This can result in the formation of fractures, joints, sinkholes, cavities, caves, and void spaces that allow the movement of large volumes of surface water into and through the aquifer. These characteristics also allow contamination to spread rapidly within the aquifer. Karst aquifers are susceptible to collapse of the aquifer matrix, which can be triggered by construction activities on the land surface. This can lead to the formation of sinkholes in unconsolidated sediments that overlie the bedrock.

Will the proposed Project damage forests and wildlife habitat in northern Minnesota more than other alternatives?

The Applicant's proposed Project would require that an approximately 120-foot-wide construction work area be cleared in upland areas and an approximately 95-foot-wide construction work area be cleared in wetlands. Forested uplands and woody wetlands within the permanent right-of-way through northern Minnesota would be permanently converted, thereby permanently affecting more forested land cover and wildlife habitat than any other CN Alternative. A total of 38 miles of the Applicant's proposed Project, for example, would cross and permanently fragment 21 large-block forested and woody wetland habitats (i.e., habitats larger than 100 acres). This would permanently impact approximately 2,202 acres of forest and woody wetlands. System alternative SA-04 avoids habitat fragmentation and permanent forest conversion in wooded northern Minnesota, but it still would permanently impact approximately 161 acres of forest and woody wetlands.

System alternative SA-04 passes instead through North Dakota and western and southern Minnesota where primary impacts would be on agricultural land, which can be restored to agricultural use after construction is complete. In addition, because SA-04 would be co-located with existing pipelines for much of its length, construction of the route would fragment less habitat than the Applicant's proposed Project. The effects of CN Alternatives on vegetation are evaluated in Section 5.2.3 of the EIS, and effects on habitat and fish and wildlife are addressed in Section 5.2.4.

System alternative SA-04, however, would affect the most acres because it travels the greatest distance. It would mostly affect agricultural lands, with 100 percent of the route adjacent to existing corridors. The Applicant's proposed Project would affect about half as much land as SA-04, but would primarily run through both forest and agricultural lands. Rail and truck alternatives would affect less land than either SA-04 or the Applicant's proposed Project because those alternatives would require only limited new infrastructure in Gretna, Clearbrook, and Superior. Continuing to use the existing Line 3 would not result in any construction effects on vegetation, but it would have ongoing effects because continuing to operate it would require hundreds of integrity digs each year to keep it safe, as well as periodic mowing and brush clearing to ensure safe operation and to allow for visual inspection of the permanent right-of-way.

Constructing and operating the Applicant's proposed Project would have the greatest long-term, major effects and would primarily affect forests. SA-04 would have the greatest short-term

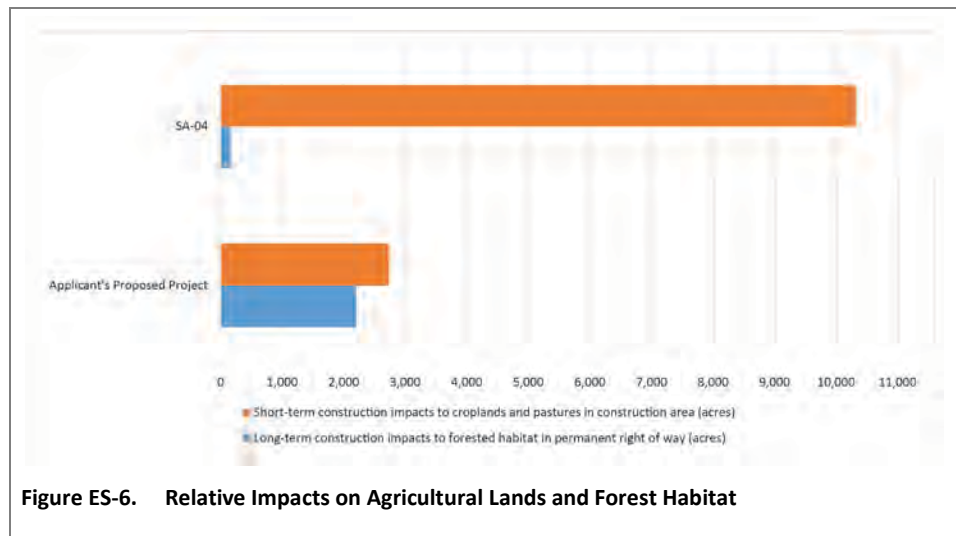


Figure ES-6. Relative Impacts on Agricultural Lands and Forest Habitat

and minor impacts and would primarily affect croplands (Figure ES-6). Construction of the Applicant's proposed Project would affect the largest area of sensitive vegetation categories. In terms of operation, the rail alternative would affect the most sensitive vegetation categories, including crossing 59 miles of railroad prairies and just over a mile of rare plant communities.

System alternative SA-04 would pose an ongoing risk of accidental release in areas with high-quality agricultural soils, while the Applicant's proposed Project would place more high-quality forested and aquatic habitats at risk.

Potential impacts on individual threatened or endangered species or other unique natural resources vary widely across all CN Alternatives. The truck and rail alternatives would potentially affect the fewest individual species, while the Applicant's proposed Project could potentially affect the most acres of disturbance of Minnesota Biological Survey Sites of Biodiversity Significance and Minnesota Wildlife Action Network Species in Greatest Conservation Need habitat. The effects of CN Alternatives on these unique resources are addressed in Section 5.2.5.

Will shipping the oil by rail or truck affect the movement of other commodities and pose safety risks?

Train and truck alternatives could cause congestion that would affect the transport of other commodities. Transporting crude oil from near Gretna to Clearbrook and Superior would involve loading and dispatching 10 unit trains (each train consisting of 110 rail cars) per day onto the rail network in Minnesota. These unit trains would be dedicated to a single service and would return empty from Clearbrook and Superior. Since the overall round trip to Clearbrook or Superior would take more than a single day, some multiple of the 10 trains per day loaded and dispatched would be required to provide the required service.

It is likely that the increase in traffic on the rail system would cause congestion that would affect commodity producers during certain periods. For example, the record 2008/2009 grain harvest in western Canada caused increased demand for rail cars, and shippers experienced delays in their cargos being delivered to ports. The U.S. Surface Transportation Board has also indicated a concern about rail congestion and its potential to affect agricultural production, and it has initiated an oversight proceeding.

Rail and truck alternatives also pose safety risks, including increased risk of incidents involving fatalities. Compared to pipelines, both truck and rail transportation alternatives have a higher likelihood of accidents and spills due to the number of transits required to transport the crude oil and the associated increase in risk due to human error. Tanker trucks use major roadways and present a greater risk of injury and fatalities to personnel and members of the public. Trains can interfere with emergency vehicles and personnel where at-grade crossings bisect small towns along the route. The impact of alternative transport modes on commodity production and population centers are addressed in Section 5.3.

What are the implications of greenhouse gases and climate change?

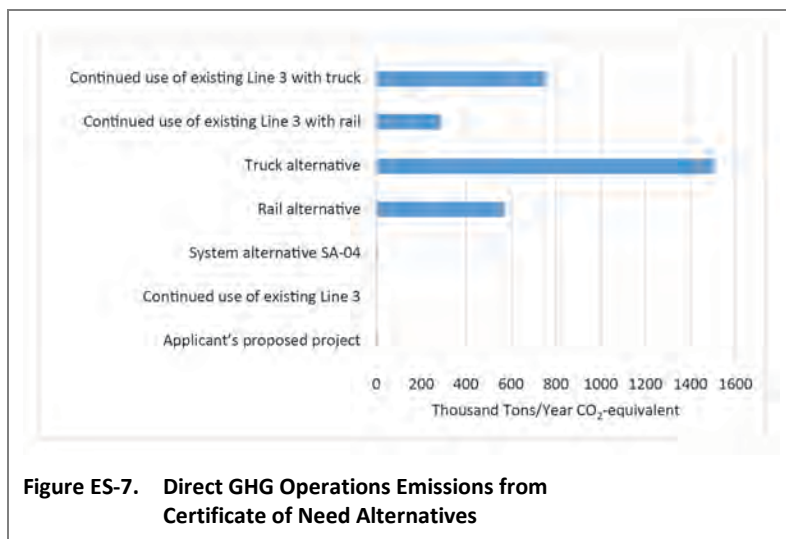
All GHG emissions contribute to cumulative climate change, so all of the alternatives would play a role in global climate change. Recognizing this fact, but acknowledging that current limitations in the science and earth systems modeling make it impossible to directly link the emissions from a single action to an incremental change in climate, the evaluation in the EIS focuses on three specific issues:

- Direct, indirect, and lifecycle GHG emissions from the proposed Project and alternatives;
- The impacts of climate change on the Project; and
- The cumulative impacts on resources as a result of both the Project and climate change.

GHG emissions of the CN Alternatives are addressed in Section 5.2.7, and climate change impacts are addressed in the cumulative effects discussion in Section 12.5.

Direct and Indirect Emissions

GHG operations emissions from the CN Alternatives differ, with pipelines causing the fewest direct GHG emissions because the pump stations are powered by electricity, which results instead in indirect GHG emissions from power generation (Figure ES-7). Pipeline operations result in small amounts of direct fugitive emissions of GHGs from storage tanks, pumps, piping components, and the like. In addition,



pipeline construction requires vegetation clearing, which would result in the release of stored carbon from trees and other vegetation. Maintaining the pipeline right-of-way would prevent woody vegetation from re-growing, and the conversion of forested land to a non-forested land use would result in a permanent loss of carbon sequestration.

Other transport modes result in direct emissions of GHGs as trains and trucks combust fossil fuels.

Table ES-3 compares estimated

direct and indirect GHG emissions and loss of carbon sequestration for the Applicant's proposed Project and all of the CN Alternatives. The table also presents the estimated cost to society arising from man-made emissions of CO₂ and other GHGs using the federal social cost of carbon to monetize impacts. The direct emissions in Table ES-3 show that the truck direct emissions contribute more to GHG than rail, and that both trucks and trains contribute more to GHG than the pipelines. They also show that the pipeline GHG emissions are dependent on the route distance. The current GHG emissions from continued use of Line 3 are ongoing and considered part of the existing environment. Air emissions associated with integrity digs for continued use of existing Line 3 have not been estimated. The Figure ES-7 and Table ES-3 show that there will be no increased GHG emissions due to continued use of Line 3.

Table ES-3. Summary of Greenhouse Gas Operations Emissions and Costs for Certificate of Need Alternatives

Certificate of Need Alternative	Direct GHG Emissions (tons per year)	Indirect GHG Emissions (tons per year)	30-Year SCC for Direct and Indirect GHG Emissions	Loss of Carbon Sequestration (tons per year)
Applicant's proposed Project	375.9	452,496.6	\$673,365,150	1,262.3
Continued use of existing Line 3	--	--	--	--
System alternative SA-04	850.3	946,670.5	\$1,408,845,737	74.3
Rail alternative	568,472.8	--	\$845,248,443	--
Truck alternative	1,506,291.3	--	\$2,239,688,011	--
Continued use of existing Line 3 with rail	284,236.4	--	\$422,624,221	--
Continued use of existing Line 3 with truck	753,145.6	--	\$1,119,833,958	--

GHG = greenhouse gas, SCC = social cost of carbon

Lifecycle Greenhouse Gas Emissions

The proposed pipeline is part of a larger crude oil extraction, production, refining, and consumption system that is affected by changes in the availability and price of transportation to get crude oil from the point of extraction to the refineries that process the oil. An increase in the availability of options for transport via pipeline, for example, could lower the overall cost of transporting crude oil to market, thereby improving its market prospects. Similarly, increased upstream activity induced by the Project could ultimately result in increased end-use of refined products—gasoline, for example, becomes more abundant and cheaper as additional oil is extracted, and pipeline transport becomes cheaper.

Changes in these upstream and downstream activities are accounted for by evaluating lifecycle GHG emissions—emissions of GHGs associated with all the steps in the extraction, upgrading, transport, refining, and end-use of the oil. The lifecycle GHG emission estimates presented in Figure ES-8 bookend the range of possible impacts of the Project on upstream and downstream activity and associated GHG emissions, including:

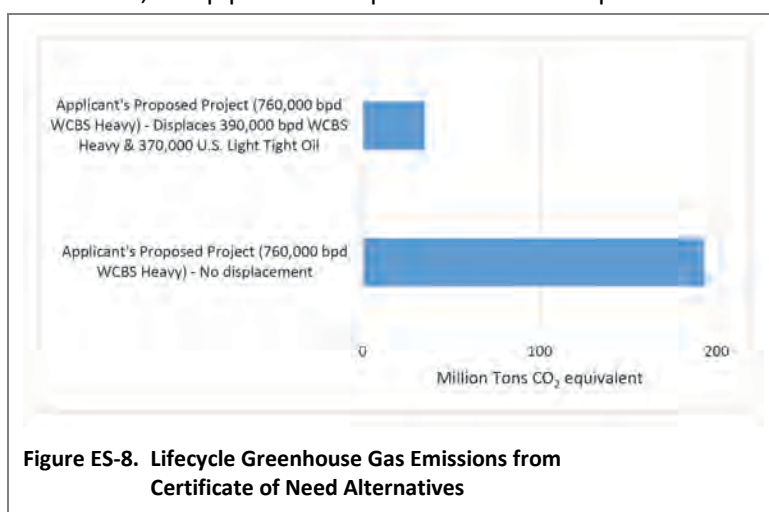


Figure ES-8. Lifecycle Greenhouse Gas Emissions from Certificate of Need Alternatives

- **Zero displacement:** Assuming that the Project creates worst-case throughput of 760,000 bpd of new production and consumption of Western Canadian Sedimentary Basin (WCSB) heavy crude, and no displacement of current 390,000 bpd of WCSB light crude occurs, causing GHG emissions from extraction, upgrading, transporting, refining, and consuming 760,000 barrels of WCSB crude oil each day.
- **Full displacement:** The Project does not create any new production or consumption of oil. However, a change in the emissions on the oil-production end could still occur if the heavy crude that the proposed Project would be capable of transporting replaces lighter crudes on the market. The process of extracting and upgrading heavy crudes requires much greater energy input (and GHG emissions) than extracting and upgrading light crudes, so the Project causes an incremental increase in extraction, upgrading, transport, and refining emissions over what would have occurred if demand was met instead with light crude oils.

Cumulative Impacts of the Project and Climate Change

Impacts of the Project and climate change could overlap for a number of resources, including aquatic species and other wildlife, threatened and endangered species, and tribal resources. For example:

- Increased water temperatures due to climate change could adversely affect aquatic species, and those effects could be exacerbated by the permanent loss of shading, nutrients, and habitat features for fish at some waterbody crossings, caused by removing vegetation along the permanent right-of-way. The use of pesticides and herbicides for maintenance during pipeline operation could also stress aquatic species.
- The changing composition of vegetation could affect resident wildlife unable to adapt to changing conditions. This could be worsened by the permanent loss of trees and shrubs, habitat fragmentation, and changes in vegetation cover in large blocks of forest habitats within the pipeline right-of-way.
- Some of the lands and resources affected by the Project are important to preserving the traditional ways of life, including fishing, hunting, wild rice farming, maple sugar gathering, and the collection of plants for medicines, spiritual and ceremonial purposes, shelter, and other needs. Project impacts on tribal resources would be further exacerbated by climate changes that affect tribal communities. These impacts, for example, include decreases in water quality and quantity in the Great Lakes region, threats to human health and safety, economic losses, loss of culturally important species, medicinal plants, cultural sites, and traditional foods, such as wild rice.

The Midwest's agricultural lands, forests, Great Lakes, industrial activities, and cities are all vulnerable to climate variability and climate change. Climate change will tend to amplify the existing risks that the climate poses to people, ecosystems, and infrastructure. Additional details on Minnesota and Midwest climate change trends are discussed in Section 12.5. The climate change impacts in Section 12.5 are assessed generically; the EIS does not attempt to directly link the emissions from a single action to an incremental change in climate.

The Effects of Climate Change on the Project

The primary impacts of climate change on the Project include severe weather, freeze-thaw cycles, and flooding, all of which could damage Project facilities. Climate change could also intensify the effects of a

spill. It could affect how spilled oil might move once there is a spill and could also affect how spilled oil might interact with the environment. Higher ambient temperatures, for example, could increase the volatilization of air contaminants from an accidental release, or flooding could cause spilled oil to be transported further downstream. In addition, heavy rain events have the potential to adversely affect spill response, including containment and clean-up actions.

The Applicant-proposed measures to minimize GHG emissions are discussed in Section 5.2.7.

MAJOR ENVIRONMENTAL ISSUES FOR THE ROUTE PERMIT DECISION

The route permit section of the EIS compares the environmental impacts of different routing options, including:

- The Applicant's preferred route,
- RA-03AM,
- RA-06,
- RA-07, and
- RA-08.

If the Commission issues a CN for the Project, it must determine the best route. Therefore, the routing analysis in the EIS provides environmental information to aid the Commission in making that decision. In addition, the routing analysis in the EIS addresses the environmental impacts of abandonment versus removal of the existing Line 3, so that the Commission can make an informed decision about the fate of the existing Line 3 if it determines that a new pipeline is needed.

The following key issues emerged in the routing analysis:

- What are the advantages and disadvantages of removing the old pipeline from the corridor, abandoning it in place, or removing the old pipeline and installing a new one in the same trench?
- How do the risks of an accidental release differ among the route options?
- Does the risk of damage to high-quality water resources vary between routes?
- Are there differences between the level of information available for the Applicant's preferred route and other alternatives?
- Which alternative would result in the least habitat loss, habitat fragmentation, and loss of timber resources?
- How were environmental justice and tribal resource impacts evaluated?

What are the benefits or drawbacks of corridor sharing versus opening a new corridor?

Using existing pipeline corridors, or even transmission corridors or roadways, can avoid new impacts and new risk exposures. Along existing corridors, resources have already been affected. New impacts occur at the margin of these previously disturbed and permanently altered areas, thereby minimizing further habitat fragmentation or degradation of aesthetics. Also, where pipeline corridors are shared, spill risk is

incrementally increased as the addition of a new pipeline in an existing corridor adds to the overall probability of an incident, but does not change the type or distribution of resources exposed if an accidental release does occur.

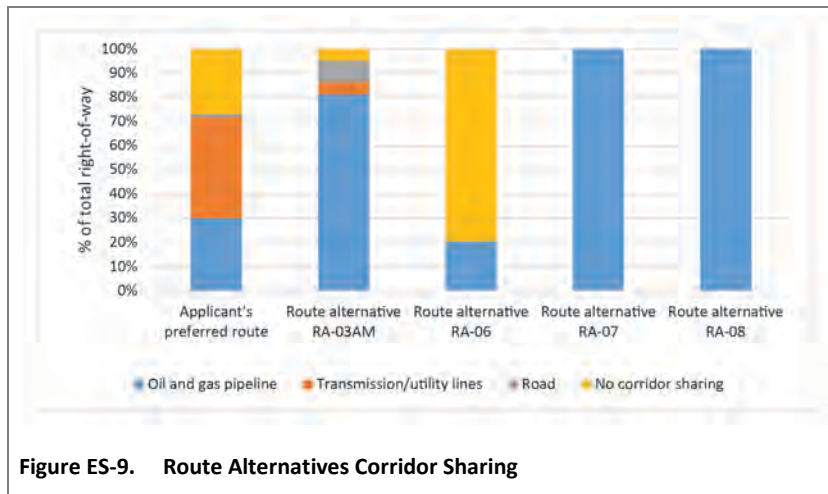


Figure ES-9. Route Alternatives Corridor Sharing

Between Clearbrook and Carlton, the Applicant's preferred route and most of the RAs would share or parallel existing rights-of-way for the majority of their lengths (Figure ES-9). RA-07 would parallel the Enbridge Mainline system right-of-way from the North Dakota border to the Wisconsin border and share the right-of way from Clearbrook to Carlton. RA-08 would share or parallel rights-of-way with existing pipelines

for its entire length. The Applicant's preferred route would share or parallel existing rights-of-way along 73 percent of its length between Clearbrook and Carlton. RA-06 has the lowest proportion of its route co-located with existing rights-of-way between Clearbrook and Carlton (20 percent).

The Commission is required to consider corridor sharing in determining which route to select and permit (Minn. R. 7852.1900, Subp. 2 F). If a new pipeline corridor is permitted for this Project outside of the existing Enbridge Mainline, the new corridor creates an opportunity for future corridor sharing that could ultimately result in an accumulation of multiple pipelines within the corridor chosen for the Line 3 Project. This would be particularly the case with the Applicant's preferred route, RA03-AM, and RA-06.

The eventual addition of another pipeline within a new pipeline corridor like the existing Mainline would require widening of the right-of-way and would introduce additional spill risk in an already at-risk area. In general, the widening of the corridor would incrementally increase the effects on the resources described for each of the routes in Chapter 6 of this EIS. In the case of RA-06, for example, adding another pipeline in the corridor would result in additional clearing of forest in what is otherwise a densely forested, relatively undisturbed area with high-quality habitat and relatively pristine watersheds, but in relatively few populated areas.

In the case of RA-03AM or the Applicant's preferred route, adding another pipeline in the corridor would result in additional clearing in forested areas with slightly more disturbed habitat and affected watersheds, but in relatively more populated areas.

What are the advantages and disadvantages of removing the old pipeline from the corridor, abandoning it in place, or removing the old pipeline and installing a new one in the same trench?

As part of the Project, Enbridge proposes to abandon the existing Line 3 in place, permanently removing it from service. Enbridge would continue to maintain Line 3 once it is out of service. Federal safety regulations outline the process and requirements for abandoning oil pipelines. Chapter 8 of the EIS discusses Enbridge's plan for abandonment and ongoing responsibility, including monitoring and

maintenance, as well as its relationship (distance) to other pipelines within the Mainline corridor. Chapter 8 also discusses the potential for removal of the decommissioned Line 3 as an alternative to abandonment.

Some potentially significant effects are associated with abandoning the existing Line 3. These longer-term impacts would be caused by the continued presence of undiscovered legacy contamination that could exist around the existing pipeline, as well as the potential hazards associated with the aging of the abandoned pipe. These impacts include soil and water contamination, the ability of the pipeline to serve as a contaminant/water conduit, subsidence due to the failure over time of the pipeline, and loss of buoyancy control for the pipeline. Four of the five routes considered in this EIS (the Applicant's preferred route, RA-03AM, RA-06, and RA-08) could be coupled with abandonment or removal of the existing Line 3. As discussed in Chapter 4, RA-07 specifically contemplates removal of the existing Line 3 with the new pipeline placed in the existing trench.

Major issues considered in the assessment of abandoning the existing Line 3 include:

- Potential environmental benefits of not disturbing the active pipelines located on either side of existing Line 3;
- Potential environmental risks and impacts of existing contamination surrounding the pipe that may never be discovered and remediated if the line were abandoned in place; and
- Potential environmental risks and impacts associated with ongoing deterioration of the abandoned pipeline.

Major issues considered in the assessment of abandonment and removal of the existing Line 3 include:

- Potential risk that pipeline removal activities could damage an active pipeline located on either side of existing Line 3, causing an oil leak;
- Potential impacts associated with disturbances at waterbody and roadway crossings;
- Potential environmental benefits associated with discovering and remediating existing contamination surrounding the pipe, as it is being removed; and
- Avoidance of potential environmental risks and impacts associated with the ongoing deterioration of an abandoned pipeline.

Enbridge's assessment of the risks and benefits of removal contemplated the use of timber mats over operating pipelines to create a work and travel surface for equipment. These mats would help disperse the weight of the equipment and minimize potential impacts on these pipelines. Enbridge also indicates that sheet piling would likely be required to isolate specific segments of the existing Line 3, particularly in wet soils and wetlands. They further note that it might not be possible to use typical excavation equipment to excavate portions of Line 3, due to the weight of the equipment and the proximity to operating pipelines. Enbridge notes that it would likely use a hydraulic vacuum or hand dig to minimize potential impacts on existing pipelines.

Certain segments of the existing Line 3 could not be removed using existing technology, like timber mats or sheet piling, without significant risk of damaging operating pipelines. If the existing Line 3 were removed in these areas and operating pipelines were damaged, the damaged pipelines would need to be excavated and repaired, with considerable risk of further damage and leakage.

Perhaps the primary challenge in removing Line 3 is that it is located in the middle of the Mainline system, between other active oil pipelines. The distance between pipelines within this corridor varies, but they are generally from 10 to 15 feet apart. Enbridge has indicated that there is a significant risk that pipeline removal activities could damage an active pipeline and cause an accidental release. Damage could be caused by striking a pipeline with equipment or by the weight of the equipment as it works above operating pipelines. This damage would be immediately apparent if equipment struck a pipeline, or observable later if the pipeline was damaged and eventually leaked in the future.

As noted above, in addition to the question of abandonment versus removal, the EIS evaluates the alternative of removing the existing Line 3 and placing the new Line 3 pipeline in the same trench. This alternative, RA-07, is evaluated in Chapter 6. It would require a larger construction area than the Applicant's preferred route and the other RAs (approximately 205 feet wide instead of 120 feet wide). With most of the construction occurring within the existing Mainline corridor or immediately adjacent to it, however, new impacts associated with clearing woody vegetation and wooded habitat would be minimal. Additionally, releases that were not previously discovered would be located and remediated. RA-07 is compatible with existing land use in the area and avoids new long-term exposures to spill risk, noise, aesthetic disturbance, and maintenance-related disruption as it would be placed within an existing corridor.

While some benefit may be present to using an existing corridor, Enbridge has identified a number of challenges presented by RA-07, including (1) the difficulties of securing long-term land use approvals from the Leech Lake Band of Ojibwe and the Fond du Lac Band of Lake Superior Chippewa; and (2) logistic difficulties of construction.

The Minnesota Chippewa Tribe, the Minnesota Indian Affairs Council (MIAC), the National Congress of American Indians, the Leech Lake Band of Ojibwe, and the Red Lake Band of Chippewa Indians have passed formal resolutions in opposition to the proposed Project (see Appendix P). In addition, staff and tribal members of the Leech Lake Band of Ojibwe have indicated during the public comment period for the Draft EIS that they would not approve the placement of Line 3 on tribal lands or trust lands within the Leech Lake Indian Reservation. Staff and tribal members of the Leech Lake Band of Ojibwe have indicated that in this manner, RA-07, along with RA-08, would have the greatest impact on tribal resources, as it crosses two reservations and various ceded lands.

With the existing Line 3 located in the middle of the Mainline corridor with pipelines on either side of it, removal and replacement raises safety risks and construction challenges such as those from cave-ins and adjacent pipe movement due to the varying depths of cover.

How do the risks of an accidental release differ among the route options?

Modeling, statistics, and resource mapping can help predict the probability of an accidental oil release, how crude oil would behave in the environment, and what resources could be at risk should there be an oil spill. It is impossible, however, to predict the location or magnitude of the spill, how far the impacts would extend, or what resources would be affected because there are so many incident-specific factors involved. The weather, time of year, water levels, human error, and even the type of wildlife present at the time a spill occurs all affect its probability and outcome. While the EIS does not predict specific spill outcomes, it highlights:

- The general likelihood of a spill occurring, and

- The resources exposed.

Length is a key component in calculating the probability of pipeline failure because a longer pipeline has a greater area that could be exposed to the primary pipeline threats (third-party damages, construction defects, manufacturing defects, corrosion, and equipment [e.g., valve]) failure. In general, longer routes have a higher probability of an incident occurring than shorter routes.

Sensitive resources at risk were compared among the Applicant's preferred route and the RAs from Clearbrook to Carlton. As described in detail in Chapter 10, the federally defined high-consequence areas (HCAs) and state-specific areas of interest (AOIs) were used to quantify potential resources of concern.

Acres of sensitive resources were calculated within a 5,000-foot-wide (2,500 feet on each side of the centerline of the pipeline or train or truck route) corridor for releases on land. In addition, a 10-mile-long, 1,000-foot-wide (500 feet on each side of the centerline of the waterbody crossed) downstream corridor for releases to water were established as areas within which oil could be present after a release. Table ES-4 summarizes the potentially exposed resources of concern in the regions of interest (ROIs). A more detailed listing of each HCA and AOI category is provided in Table 10.7-11.

Overall, the potential acreage and number of HCA and AOI resources that could be exposed as a result of a crude oil release is greatest for RA-08 due to the combined acreages (for the 2,500-foot-wide and 10-mile-long ROIs) of resources within the ROIs. A spill in the ROIs of RA-07 would expose a slightly smaller number and acreage of HCAs and AOIs than for RA-08. The differences among the Applicant's preferred route, RA-03AM, and RA-06 are relatively small; but the total acreage and numbers of HCAs and AOIs potentially exposed is smaller than for RA-07 and RA-08.

Based on the results of these comparisons, it appears that RA-07 and RA-08 may be the least favorable routes in terms of potentially affected resources that might be impacted if a spill were to occur. The Applicant's proposed route, RA-03AM, and RA-06, in that order, would have fewer potentially affected resources.

The risk of an accidental release of crude oil for the RAs is addressed in Chapter 10.

How were environmental justice and tribal considerations evaluated?

Environmental justice refers to the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income. In general, environmental justice is intended to ensure that all people have the same opportunities to participate in decisions that may affect their environment or health.

Minority or low-income communities are often concentrated in small geographical areas within the larger geographically defined population. Minority communities and low-income communities may represent a very small percentage of the total population, but may be concentrated in specific census tracts within a county.

Table ES-4. Summary of Potentially Exposed Resources of Concern from an Unanticipated Release of Crude Oil from the Applicant's Preferred Route and Route Alternatives (acres)

Resources of Concern	Applicant's Preferred Route	Route Alternative RA-03AM	Route Alternative RA-06	Route Alternative RA-07	Route Alternative RA-08
HCA populated area	4,814.1	12,829.2	3,230.0	20,806.6	17,363.7
HCA unusually sensitive ecological area	10,978.1	7,752.3	12,674.4	26,854.4	27,566.9
HCA drinking water source	501.1	2,399.1	718.0	2,942.0	2,998.3
Drinking water AOI	83,833.7	153,971.9	16,196.0	64,785.5	63,726.0
Cultural resources AOI	0.0	13.5	11,425.6	44,046.8	45,766.0
Biological AOI	94,053.5	65,287.5	58,822.3	88,764.0	92,613.0
Commodity production AOI	50,199.6	5,648.2	88,363.0	72,008.1	80,853.5
Recreation/tourism AOI	3,704.1	4,100.9	1,838.6	1,443.0	1,924.3
TOTAL	248,084.2	252,002.6	193,267.9	321,650.4	332,811.7



Notes: Acreages are the sum of acres within the 2,500-foot-wide and 10-mile-long downstream ROI for each metric, with the exception of Drinking Water AOI, which reflects drinking water supply management areas and Wellhead Protection Areas within a 1-mile ROI, and Hydrogeologic Sensitivity within a 0.5-mile ROI.

AOI = areas of interest (see Section 10.4.1 for descriptions of AOIs); HCA = high consequence area (see Section 10.4.1 for descriptions of HCAs); ROI = region of interest

Chapter 9 summarizes American Indian community values, uses, and attitudes toward their natural and cultural resources. It also briefly summarizes the challenges faced by tribal communities in general. American Indian communities and individuals have unique health issues associated with historical and current trauma and structural racism. Data from the Minnesota Department of Health indicates that American Indians in Minnesota have greater health disparities and poorer health outcomes compared to other racial or ethnic groups in Minnesota. Tribal impacts are magnified because (1) impacts would be associated with abandonment or removal of the existing Line 3; and (2) additional impacts would be associated with replacement of Line 3 in a new location.

Chapter 11 contains an analysis of the potential for disproportionate and adverse impacts on American Indian and low-income populations in the Project area. Each of the five route options would cross one or more census tracts with a meaningfully higher minority population than that of the surrounding county. The Applicant's preferred route bisects, and RA-03AM crosses, the edge of such a census tract in Clearwater County, where the minority population of 25.3 percent exceeds the county level by more than 10 percentage points. This census tract includes a portion of the White Earth Reservation, and the minority population in the tract is overwhelmingly American Indian (23.2 percent). RA-06, RA-07, and RA-08 also cross reservation land.

It is not possible, however, to determine which route option would cause the least amount of impacts from an environmental justice perspective when each option affects tribal resources, tribal identity, and tribal health. Based on the information on tribal resources and uses given in Chapter 9, any of the routes selected between North Dakota and Superior, Wisconsin, therefore, would have a disproportionate and adverse effect on tribal resources and tribal members, even if the route itself does not cross near residences.

Chapter 11 includes a preliminary list of potential mitigation measures for addressing any disproportionate adverse impacts on environmental justice communities.

Does the risk of damage to high-quality water resources vary between routes?

Surface Water

While the CN Alternatives differ significantly in their potential effects on water quality, the differences among the RAs are not as pronounced because all of the route options pass through the northcentral

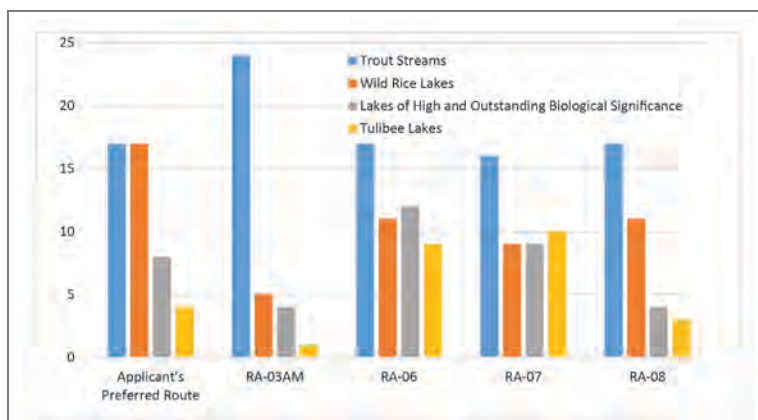


Figure ES-10. High-Quality Surface Waters within ROI of Route Options

and northeastern portions of Minnesota, which contain many of the highest quality water resources in the state. Effects of the route options on water resources are evaluated in Section 6.3.1 of the EIS. Figure ES-10 provides a comparison of the high-quality water resources at risk for each route option, including:

- Trout streams
- Wild rice lakes
- Lakes of Biological Significance

- Tullibee (cisco) lakes

Groundwater

In general, RA-06 would least affect groundwater resources, including highly vulnerable aquifers and groundwater resources with high contamination sensitivity, high pollution sensitivity, and high to very high bedrock sensitivity. RA-03AM is the only route alternative that crosses vulnerable karst topography.

Are there differences between the level of information for the Applicant's preferred route and the route alternatives?

Yes. Enbridge has already optimized the Applicant's preferred route and completed preliminary engineering, as well as cultural and biological surveys. If the Commission issues a route permit for one of the RAs, a similar level of survey and design work would be required prior to downstream permitting.

On the one hand, more detailed information was available for the EIS on some impacts (such as the extent of threatened or endangered species to occur) for the Applicant's preferred route. This additional information can sometimes make the magnitude of the impacts from the Applicant's preferred route appear greater, simply because detailed information is not available for the other routes.

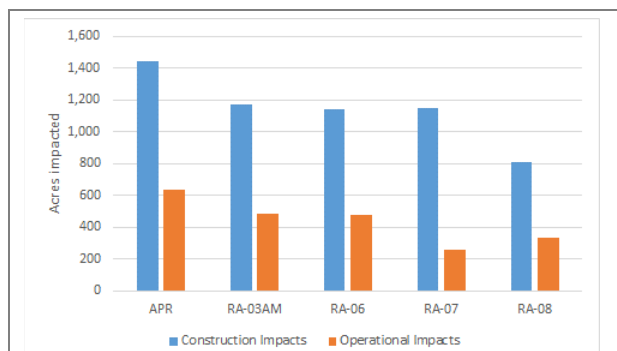
On the other hand, the predicted impacts of the RAs on some resources (e.g., displacement of homes or tree clearing) can appear to be greater than the impacts from the more optimized Applicant's preferred route, but these impacts could be reduced during optimization of the route if an alternative is chosen.

Which route option would result in the least habitat loss, habitat fragmentation, and loss of timber resources?

Habitat Loss

Vegetation management activities during pipeline operation would prevent trees and large shrubs from reestablishing within the permanent right-of-way. The greatest operational impact would be on 951 acres of previously forested and woody wetland areas (between Clearbrook and Carlton) within the permanent right-of-way for the Applicant's preferred route, and the least operational impact would be created by RA-07, where forest clearing would be minimal (478 acres) because the route uses the existing Mainline corridor, which is already devoid of trees (Figure ES-11).

The forested and scrub/shrub areas cleared from the construction work area and outside of the permanent right-of-way would be allowed to regenerate, but the process could take decades to



**The resolution of the NLCD landcover data does not provide accurate representation of land cover/land use to the scale of the Mainline corridor right-of-way. This limitation in the data creates some uncertainty about accuracy of the land cover types within the anticipated construction work area and permanent right-of way for RA-07. The numbers shown should be considered a very conservative estimate of forest and forested wetlands impacts; the actual numbers are likely to be much lower.*

Figure ES-11. Disturbance and Loss of Forested Habitat from Construction and Operation of Route Options (Clearbrook to Carlton)

reach full recovery. The impacts on vegetation from each route option are addressed in Section 6.3.3.

Habitat Fragmentation

Habitat fragmentation is caused when contiguous habitats are divided into separate fragments. Large-block habitats (i.e., habitats larger than 100 acres) are susceptible to fragmentation—particularly large, mature-core or interior forested areas that serve as habitat for migratory birds, large mammals, and other wildlife. Construction of linear projects such as pipelines can cause habitat fragmentation, as well as changes in vegetation cover. Potential effects of fragmentation on wildlife habitat include a decrease in total habitat area and the amount of interior habitat, biodiversity (richness), and connectivity. Fragmentation could also increase the amount of edge habitat, increase the risk of the spread of invasive species, and isolate some habitat types.

The reduction in habitat connectivity can disrupt the behavior and movement of species, alter population dynamics, reduce the chance of recolonization in extirpated island habitats, and decrease genetic diversity. Forest-nesting birds are particularly vulnerable to the habitat fragmentation effects of linear construction projects. Habitat fragmentation can lead to increased predation, increased competition by generalist species, and changes in microclimate and vegetation that could result in extirpation and reduced reproductive success for area-sensitive species.

Habitat fragmentation would be greatest for the Applicant's preferred route. The Applicant's preferred route is co-located with other pipelines, utilities, or roads along most of its length (75 percent). Between Clearbrook and Carlton, however, nine segments are not co-located with other infrastructure. Within this span, 21 large-blocks would be crossed and fragmented by construction of the Applicant's preferred route. This would occur along approximately 38 miles of the Applicant's preferred route, or approximately 11 percent of the route in Minnesota and 17 percent of the route between Clearbrook and Carlton. These large habitat "patches" that would be crossed include primarily forested and woody wetland habitats. The largest patch crossed is approximately 8,900 acres over 7 miles, and the smallest patch crossed is approximately 130 acres over less than 1 mile.

Impacts on Fish and Wildlife Habitats

Impacts on fish and wildlife habitats would vary only slightly among the Applicant's preferred route and RAs. Fish and wildlife impacts of the route options are addressed in Section 6.2.4. The acreage of wildlife habitat affected by construction of the route options ranges from 2,286 acres (RA-08) to 3,832 acres (RA-07). All of the routes would cross aquatic and wildlife management areas. The Applicant's preferred route, RA-06, and RA-07 would permanently convert the greatest number of acres to maintained pipeline right-of-way. Route alternatives RA-06, RA-07, and RA-08 would result in greater permanent habitat removal than RA-03AM or the Applicant's preferred route. RA-03AM and RA-06 would have the greatest number of stream crossings.

Potential impacts on individual species and other unique natural resources are highly variable across all route options. RA-03AM has substantially less potential than the other route options to affect Sites of Biodiversity Significance and Minnesota Wildlife Action Network Species in Greatest Conservation Need. Using the effects on these sites as proxies for impacts on rare species would also indicate a smaller potential impact from RA-03AM.

Which route option would result in the least amount of impact to American Indian reservations?

The existing Line 3 crosses two American Indian reservations, including that of the Leech Lake Band of Ojibwe and the Fond du Lac Band of Lake Superior Chippewa. RA-07 and RA-08 also cross these reservations, while RA-06 only crosses the Fond du Lac Reservation. Comments received as part of the public comment period for the Draft EIS by the Leech Lake Band of Ojibwe show their concern for these two alternatives and for the potential abandonment of the existing Line 3. Their comments indicate that they feel these two alternatives would cause the greatest impact on the Leech Lake Reservation.

Some dispute is present over the boundaries of the White Earth Reservation. For this reason, the Applicant's preferred route and RA-03AM also may impact this reservation by crossing a portion in the northeast corner. Route segment alternative RSA-05 would allow for the route to bypass this portion of land.

NEXT STEPS

What happens next?

A number of future steps must be taken before the Commission can reach a final decision on Enbridge's CN and route permit applications. Table ES-5 identifies the milestones (previous and upcoming) and dates for the next steps.

Table ES-5. Key Milestones and Dates for the Line 3 Project

Milestone	Dates
Draft EIS public notice	May 15, 2017
Draft EIS information meetings	June 6, 2017 – June 22, 2017
End of Draft EIS 60-day comment period	July 10, 2017
DOC-EERA releases the Final EIS to the public, tribes, and agencies	August 2017
Adequacy Determination and Contested Case Process	Fall 2017 – Spring 2018
Minnesota Public Utilities Commission Decision on Certificate of Need and route permit applications	Anticipated Spring 2018

How can I stay up to date as the process continues?

Interested parties can obtain information and follow the Project in four ways:

- Website – DOC-EERA maintains an internet website accessible by the public at:
<http://mn.gov/commerce/energyfacilities/Docket.html?Id=34079>
- Commission Docket – Persons interested in documents and information submitted to the Commission, including Enbridge's applications and related filings, can obtain them from the Commission's electronic docket library (eDockets) at:
<https://www.edockets.state.mn.us/EFiling/search.jsp>.

After connecting to eDockets, search the Line 3 Project Need docket number 14(year) - 916(number).

After connecting to eDockets, search the Line 3 Project Routing docket number 15(year) -137(number).

- Public Advisor – DOC-EERA has a public advisor that can help interested persons understand the process and advise them on how to effectively participate in the process. The public advisor's contact information is:

Ray Kirsch, Public Advisor
Department of Commerce, Energy Environmental Review and Analysis
85 7th Place East
St. Paul, Minnesota 55101-2198
651-539-1841 or raymond.kirsch@state.mn.us

- Mailing List – DOC-EERA maintains a mailing list of all interested parties for the Line 3 Project. Notices of key steps in the process are sent to all parties on the mailing list. Contact the public advisor to have your name and email address added to the list.

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