A Comparative Environmental Review of the Proposed Minnesota Pipe Line Reliability Project and the Alternatives Identified in the Certificate of Need Application

In the Matter of the Application of Minnesota Pipe Line Company, LLC for a Certificate of Need for the Minnesota Pipe Line Reliability Project to Increase Pumping Capacity on the Line 4 Crude Oil Pipeline in Hubbard, Wadena, Morrison, Meeker, McLeod and Scott Counties

Public Utilities Commission Docket no. PL-5/CN-14-320

Office of Administrative Hearings Docket no. 68-2500-31889

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Minnesota Department of Commerce
Energy Environmental Review and Analysis

Abstract

Minnesota Pipe Line Company, LLC (MPL) is proposing to install six new pumping stations and upgrade two others in order to increase the pumping capacity of the 305 mile-long MPL Line 4 that runs from Clearwater to Dakota counties. On August 29, 2014, MPL filed a complete Application with the Minnesota Public Utilities Commission (Commission) for a Certificate of Need (CN) for the Project.

The CN rules at Minn. Rule 7853.0130 require, in determining if a Certificate of Need should be granted, that consideration be paid to the "natural and socioeconomic environments compared to the effects of reasonable alternatives," and "the effect of the proposed facility, or a suitable modification of it, upon the natural and socioeconomic environments compared to the effect of not building the facility."

In the case of the Minnesota Pipe Line Reliability Project, the Commission concluded that an environmental analysis of the proposed Project and the alternatives identified by MPL in the CN Application would provide it with valuable information to be weighed along with other evidence while making its need decision. This document provides that analysis. It is intended for the use of any party who chooses to advocate for or against consideration of the proposal or an alternative in the Certificate of Need docket.

This document and all other documents related to the MPL Project CN proceeding are available on the Commission's website at http://mn.gov/puc. Select Search eDockets and enter the year (14) and docket number (320). This document is also available on the Department of Commerce website at http://mn.gov/commerce/energyfacilities/Docket.html?Id=34034.

David Birkholz

Department of Commerce
Energy Environmental Review and Analysis

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SUMMARY

This report has been prepared in response to a request made by the Minnesota Public Utilities Commission (Commission) of the Department of Commerce Energy Environmental Review and Analysis staff (EERA) to conduct an environmental review of the Project and the alternatives included in the Minnesota Pipe Line Company, LLC (MPL or Applicant) Certificate of Need Application[1] (CNA) for the Minnesota Pipe Line Reliability Project (Project). The Commission made the following request in its Order: [2]

> "As part of the evaluation of the proposed project, the Commission requests that the Department's Energy Environmental Review and Analysis (EERA) unit conduct an environmental review to analyze the potential effects of the proposed project, and alternatives identified in the application, on the natural and socioeconomic environment. The Commission requests that the EERA submit a report of its analysis into the record prior to the contested case hearings."

Proposed Project

The proposed Project would install six new pumping stations and upgrade two others in order to increase the pumping capacity of the 305 mile-long MPL Line 4, f/k/a the MinnCan Project. The Commission issued a route permit for the MinnCan Project on April 13, 2007,[3] and the newly installed pipeline went into operation before the end of 2008. MPL Line 4 has a designed capacity of approximately 350,000 barrels per day, but currently is limited to a throughput capability of approximately 165,000 barrels per day.

The proposed Project would optimize the throughput capacity without altering the actual pipeline by upgrading the existing pump stations in Clearbrook and Albany and installing new pump stations along the current MPL Line 4 route in rural areas of Hubbard, Wadena, Morrison, Meeker, McLeod and Scott counties (please see maps in **Appendix 1** for location detail). No new pipeline would be required and no new pipeline right-of-way would be acquired for the Project.[4]

Alternatives to the Proposed Project

MPL considered five alternatives to the Project to assess their ability to meet the need as stated in the Application. That stated need is to increase MPL's capacity for delivery of crude oil by approximately 185,000 barrels per day (bpd) in order to maintain a reliable supply to Minnesota refineries that produce the majority of transportation fuels in the state and to bolster fuel supplies in the surrounding states. MPL evaluated the following potential alternatives to (substitutions for) the Project in its CNA:

- Taking no Action
- Transporting by Truck
- Transporting by Rail
- Building a New Pipeline
- Reopening the Wood River Pipeline

[1] CNA, MPL, July 25, 2014, eDocket no. 20147-101765-10; August 29, 2014, eDocket no. 20148-102656-02
[2] "Order Finding Application Substantially Complete," Commission, October 17, 2014, eDocket no. 201410-103931-01
[3] "Order Granting Routing Permit," Commission, April 13, 2007, eDocket no. 4757564
[4] CNA at 2

EERA Assessment

EERA herein evaluated the comparative natural and socioeconomic environmental impacts of the Project and the system alternatives. The analysis is at a relatively high view compared with the level of granularity in a Comparative Environmental Analysis that evaluates pipeline route alternatives. The review is also not intended to provide a full assessment of the feasibility and availability of each alternative - look to the Department of Commerce Division of Energy Resources (DER) Direct Testimony[5] for additional information in that regard.

The level of evaluation is sufficient however, to determine that none of the alternatives is superior to the Applicant's proposed Project in meeting the stated need with the fewest environmental impacts. The "No Action" alternative ignores reliability issues and has potentially adverse economic impacts on Minnesota consumers; transporting the additional increment of crude oil by truck or by train creates significant impacts on transportation infrastructure, is more costly than the Project and presents several potential environmental impacts, including carbon emissions and increased opportunities for accidents and spills; building a new pipeline represents an unreasonable expense compared to the Project, has extensive potential for impacts on the natural environment and affects a large number of Minnesota residents that would be required to host construction of a new line; and finally, reopening the Wood River Pipeline does not have the capacity to be a viable means to satisfy the need described in the Application.

The proposed Project is designed to be built on MPL property in rural areas and does not require building any new pipeline, thus imposing the fewest natural and socioeconomic impacts on the environment and Minnesota residents. From the perspective of this analysis, the proposed Project is the low cost[6] and least impact option to achieve the stated need.

THE PROPOSED PROJECT

Minnesota Pipe Line Company, LLC has proposed to increase its potential supply capacity to Flint Hills and Northern Tier refineries by 185,000 bpd by building or upgrading eight pumping stations along MPL Line 4. The intent of this action is to allow MPL to provide a reliable volume of transported product through planned or unplanned outages on the other three MPL pipelines. Outage events would include planned maintenance shutting down one or more lines or unplanned mechanical or structural failure along another line. (See **Figure 2** for an overview of the MPL pipeline system and proposed upgrades.)

MPL Line 4 is a 24-inch diameter pipeline approximately 305 miles in length. The line starts at a pumping station in Clearbrook, Minnesota, passes through another pumping station midway near Albany, Minnesota, and ends at a receiving station in Rosemount, Minn. The line's designed capacity is approximately 350,000 bpd. However, as constructed with two pumping stations, the capacity is limited to 165,000 barrels per day. With the addition of six new stations, MPL Line 4 could utilize its designed capacity without adding new pipeline or requiring any additional private right-of-way.

[5] DER Direct Testimony, Laura Otis, January 9, 2015, eDocket no. 20151-106079-02
[6] Id.

Pumping Stations

Crude oil enters a pipeline with significant force; however, it loses forward momentum over time and distance. To overcome this loss of momentum, pumping stations are added throughout the length of a pipeline to "adjust the pressure, pump the product along the line and monitor flow and other information about the transmittal of the product."[7] Pumping stations also increase the throughput of a pipeline, in this case allowing the proposed Project to more than double the throughput capability of MPL Line 4 without expanding the pipeline itself.

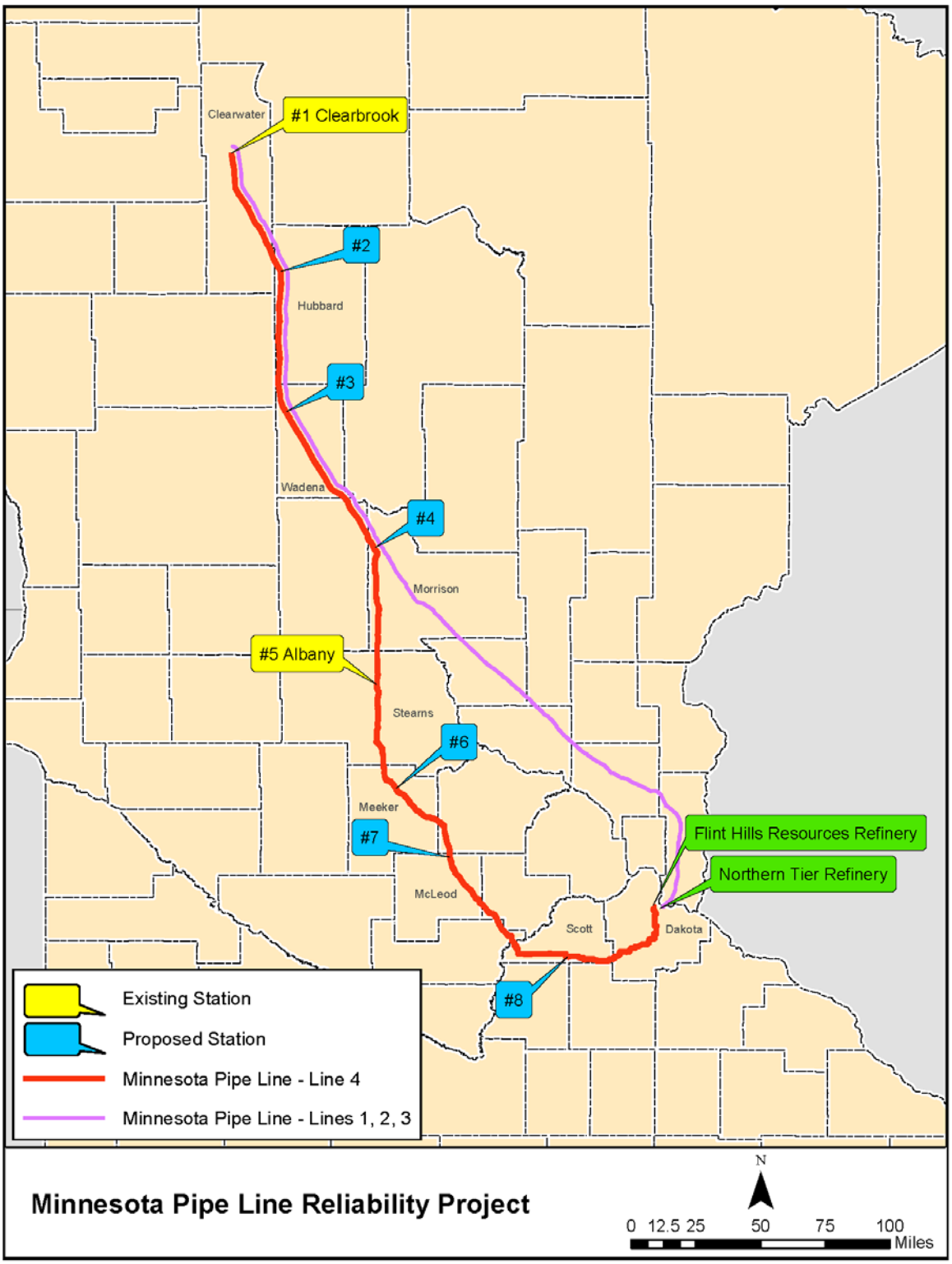
The pumping stations for the Project are positioned along MPL Line 4 to create similar flow and pressure requirements at each station. Initial engineering for the pumping stations along the line indicates that three (3) 4,000 horsepower API 610 centrifugal pumps, a total of 12,000 horsepower per station, will be required to achieve the desired throughput capacity with a maximum operating pressure of 1,470 psig.[8] When completed and operational, the stations may look roughly similar to the existing pumping station near the city of Albany in Stearns County (see **Figure 1**.)

Figure 1. Existing Pumping Station near Albany, Minnesota[9]

The following (**Figure 2** and **Table 1**) outline the general areas for the pumping stations. (See **Appendix 1** for overhead map views of the actual station locations.)

[7] https://www.rigzone.com/training/insight.asp?insight_id=344&c_id=19
[8] CNA at 28
[9] http://www.minnesotapipeline.com/minnesota-pipe-line-reliability-project/

Figure 2. Existing and Proposed Pumping Stations along MPL Line 4[10]



[10] Id.

Table 1. Pumping Station Locations

Station (#) Name	Location			
	County	Township	MPL Line 4 Milepost	Nearest City
(#1) Clearbrook	Clearwater	Leon	0	Clearbrook
(#2) Laporte	Hubbard	Lake Alice	36	Lake George
(#3) Sebeka	Wadena	Red Eye	74.5	Sebeka
(#4) Fish Trap	Morrison	Scandia Valley	113	Motley
(#5) Albany	Stearns	Krain	152	Albany
(#6) Forest City	Meeker	Forest City	191	Litchfield
(#7) Plato	McLeod	Helen	228	Plato
(#8) St. Patrick	Scott	Helena	264	New Prague

Environmental Impacts of the Proposed Project

The potential environmental impacts of the proposed Project are generally restricted to the areas within and surrounding the station locations themselves. The construction and operation of the pumping stations are the only changes to the existing line. No new pipeline would be installed, and the pump stations would be constructed directly adjacent the existing line.

All the pump station properties are located in rural areas. Therefore, the number of local residents impacted is limited. MPL noted the nearest population centers to the stations in its application.[11] However, the stations will not be located in any of those cities, but rather in less populated townships (see **Table 1** above). The areas in question are significantly less densely populated areas. For example, though one existing station is named Albany Station, the actual location is in Krain Township. According to the 2010 Census, [12] population density in Albany was 1,216.2 persons and 508.6 households per square mile. The density in Krain Township was 22.6 persons and 7.8 households per square mile.

Again, the maps in **Appendix 1** visually demonstrate the rural nature of the pump station locations. **Table 2** below describes the population characteristics of the areas surrounding each of the pumping station locations. In addition to verifying the generally rural nature of most of the affected townships (only Helena Township in Scott County has a population density above 25 persons per square mile), the Census numbers help demonstrate that the Project would not inordinately impact minority or low income populations.

[11] CNA at 50
[12] 2010 Census Summary File 1 (Table **GCT-PH1)**

Table 2. Socio-Economic Matrix of Proposed Pump Station Areas

Location	Population 2010[13]	Population per sq. mi. 2010[14]	Population 2013[15]	Percent Change 2010-2013	Minority Population (Percent) [16]	Median Household Income (Dollars)[17]	Poverty Level (Percent)[18]
Minnesota	5,303,925	66.6	5,417,838	2.1	16.9	59,836	11.5
Clearwater Cty	8,695	8.7	8,837	1.6	13.3	43,269	16.5
Leon Twn	345	9.7	360	4.3	2.9	(x)	(x)
Hubbard Cty	20,428	22.1	20,585	0.8	6.4	45,961	13.2
Lake Alice Twn	93	2.7	94	1.1	15.1	(x)	(x)
Wadena Cty	13,843	25.8	13,821	-0.2	4.2	36,928	16.9
Red Eye Twn	490	14.0	488	-0.4	1.8	(x)	(x)
Morrison Cty	33,198	29.5	32,877	-1.1	3.1	47,649	12.6
Scandia Valley T.	1,191	17.2	1,185	-.05	2.8	(x)	(x)
Stearns Cty	150,642	112.2	152,063	0.9	9.4	54,551	13.1
Krain Twn	981	22.6	988	0.7	1.3	(x)	(x)
Meeker Cty	23,300	38.3	23,109	-0.8	4.6	53,904	10.2
Forest City Twn	653	19.1	651	-0.3	2.3	(x)	(x)
McLeod Cty	36,651	74.6	36,095	-1.5	7.2	55,170	8.5
Helen Twn	863	24.6	829	-3.9	2.1	(x)	(x)
Scott Cty	129,928	364.5	136,926	5.4	15.5	86,112	5.5
Helena Twn	1,648	50.3	1,771	7.5	4.4	(x)	(x)

(x)=Estimates either not available at this level or not within acceptable margin of error.

[13] 2010 U.S. Census
[14] 2010 U.S. Census (Density calculated using land area.)
[15] Minnesota State Demographer Population Estimates, July 2014
[16] 2010 U.S. Census (Minority population includes all persons excluding single-race white, non-Hispanic.)
[17] U.S. Census Bureau 2008-2013 American Community Survey 5-Year Estimates
[18] Id.

According to the Applicant, the Project is expected to be a $125 million infrastructure investment. This would directly result in increased property tax benefits to the counties where the stations would be located. The Project would also create approximately 40 to 50 new construction jobs.[19] This may include jobs for local workers or temporary, additional input into the local economy from outside workers.

In response[20] to a query from EERA, MPL noted they also anticipate adding a minimum of two new permanent positions at the existing station offices. These workers would be employed to observe and operate the system as needed. Additionally, they would be trained to assist in emergency preparedness and response drills, and to oversee contractors performing maintenance work on the system.

The overall socio-economic impact of the Project would be positive. MPL is the sole source for crude oil supplied to Minnesota refineries. Northern Tier and Flint Hill refineries in turn are the source for most of the fuel and other refined products used in Minnesota. Minnesota consumers, including businesses, benefit from a reliably available source of petroleum products flowing into those two refineries. Disruptions of delivery to the refineries have a direct negative impact on end users due to fuel shortages and potential cost increases.

All natural environmental impacts, excluding some temporary construction impacts, will occur on MPL-owned land. The amount of land in question is small. Expansion at the existing Clearbrook and Albany stations would be within the existing developed area; and the six new stations would only require an additional 181 acres.[21] There would be no construction in residential or commercial areas. As evident in **Table 3**, two new locations are currently forested, and the other four are currently agricultural cropland.[22]

Table 3. Pump Station Site Acreage and Predominant Land Type

Pump Station	Acreage	Agricultural	Forested	Industrial
Clearwater	235			x
Laporte	10		x	
Sebeka	40	x		
Fish Trap	9		x	
Albany	5.5			x
Forest City	10	x		
Plato	38	x		
St. Patrick	74	x		

[19] CNA at 18
[20] MPL email response, December 17, 2014
[21] CNA at 27-8
[22] Id. at 53-55 (MPL determined land use for each site by reviewing aerial imagery and consulting standard land cover datasets, including USGS land cover data.)

The Project would have a direct impact on the above noted forested and cropland areas, converting a portion of each area into industrial use. However, the stations should not have a significant impact on wildlife. The forested areas are already a fragmented habitat, due to the existing pipeline ROW. The pump station would be in immediate proximity to the pipeline, creating a nominal, incremental effect.

To help determine potential impact on natural areas, MPL created maps according to EERA direction (**Appendix 1)**. These maps reveal the Project's proximity to protected or biologically significant areas. As the maps suggest, the construction and operation of the pumping stations should avoid encroaching on any of these areas. As MPL notes in the Application:

- The proposed pump station sites do not overlap with any national natural landmarks, national wilderness areas, national wildlife refuges, national wild and scenic rivers, national parks, national forests, national trails, or national waterfowl production areas.

- The proposed pump station sites do not overlap with state critical areas, state wildlife management areas, state scientific and natural areas, state wild, scenic, and recreational rivers, state parks, state scenic wayside parks, state recreational areas, state forests, state trails, state canoe and boating rivers, state zoo, or designated trout lakes. [23]

Another potential impact of pumping stations is the level of noise at local receptors, particularly residences. The Application notes a typical pump station produces approximately 100 A-weighted decibels (dBA) at the source. At 100 feet, noise is reduced to 65 dBA.[24]

Land use activities associated with residential, commercial, and industrial land are grouped together into Noise Area Classifications (NAC). Residences, which are typically considered sensitive to noise, are classified as NAC 1. Each NAC is assigned both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) noise limits for land use activities within the NAC. **Table 4** shows the Minnesota Pollution Control Agency (MPCA) daytime and nighttime limits in dBA for each NAC.[25] The limits are expressed as a range of permissible dBA within a one-hour period; L_{50} is the dBA that may be exceeded 50 percent of the time within an hour, while L_{10} is the dBA that may be exceeded 10 percent of the time within one hour.

Table 4. MPCA Daytime and Nighttime Noise Limits

Noise Area Classification	Daytime		Nighttime	
	L_{50}	L_{10}	L_{50}	L_{10}
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

[23] Id. at 58
[24] Id. at 61
[25] MPCA noise standards are established in Minn. Rule 7030.0040, subp. 2.

In response to a query[26] from EERA, MPL has calculated that the closest residence to any pump station is approximately .1 mile (over 500 feet); at that distance, noise should be well within the state standard. MPL also noted that as station designs are finalized, they will perform acoustic modeling to affirm that assumption or, failing that, to determine what provisions might be needed to be incorporated into designs to achieve compliance.

Associated Impacts. The Project would require high voltage transmission lines (HVTL) to provide the power necessary to operate the three 4000 horsepower pumps at each station. The pumps would require 115 kilovolt (kV) connections, which would need to be newly built in each of the six new station locations. This would be different in each instance, whether building a new line from an existing substation, tapping an existing line or as part of a larger HVTL project. Those projects would fall under the auspices of the supporting utility companies.

Regardless of utility company, the voltage of the lines would require each new HVTL to obtain a route permit under the Power Plant Siting Act (Minn. Statute 216E.04 and Minn. Rule 7850). These permits are typically issued through the Commission, although technically the lines could qualify for Local Review (Minn. Rule 7850.5300) by a local governmental unit with jurisdiction over the site. Regardless, each transmission line would require a review process that includes preparation of an Environmental Assessment (EA). The EA must contain information on the human and environmental impacts of the transmission and address mitigating measures for those impacts (Minn. Rule 7850.3700). Lines over 10 miles would also require a Certificate of Need (CN) and an Environmental Report (Minn. Statute 216B.243 and Minn. Rule 7849).

There are at least preliminary plans for each of the new pumping stations, with two projects already in the permitting process. Great River Energy (GRE) and Minnesota Power recently filed an application with the Commission for a 22.5 mile, 115 kV project in the Menahga area that would also feed the Sebeka Pump Station (ET2,E015/TL-14-797). GRE is also filing an application for a 14 mile, 115 kV project in the Motley area with a new substation that would feed the Fish Trap Pump Station. GRE is considering applying for Local Review of a six mile, 115 kV line in Meeker County that would feed the Forest City Pump Station. Additionally, GRE is developing a 115 kV project near New Prague that would feed the St. Patrick Pump Station south of Cedar Lake. Xcel Energy currently plans to feed the Plato Pump Station from a nearby, existing substation. Finally, the permitting plan is not clear yet, but Clearwater Polk Electric Cooperative would feed the Laporte Pump Station by building a new 8-9 mile, 115KV line.

The impacts of the transmission lines would be unique to place, but the types of impacts would likely be largely similar to those discussed about the rural, "southern area" in the recently permitted Elko New Market Cleary Lake Ares 115 kV Transmission Upgrade. Documentation for that project is available on the EERA website.[27] A copy of the EA is available at that site; it describes many of the types of issues that would be addressed in the permitting of transmission associated with the new pumping stations. The Commission Order for a permit (August 5, 2014), also available at that site, selected the lowest impact route and addresses mitigation for environmental concerns through permit conditions.

[26] MPL email response, December 17, 2014
[27] Elko New Market and Cleary Lake Areas 115 kV Transmission Upgrade Project Docket, http://mn.gov/commerce/energyfacilities/Docket.html?Id=32989

TAKING NO ACTION

Within a no action scenario, the proposed Project would not be built and operated as stated in the Project description. Therefore, technically, there would be no direct environmental impacts associated with construction and operation of the new pumping stations. However, MPL has indicated that the no action alternative would not meet the purpose and need for the proposed action. As the refineries have increased their operating capacities, and with the need for maintenance on aging lines, MPL states the status quo would result in disrupted supply to the refineries. MPL would also not be capable of transporting surplus supplies during periods of increased demand.[28]

Assuming confirmation of this need by the Commission, if the Project is not built, other crude oil transportation alternatives would be required to meet the need. The demand at the refineries might instead be fulfilled by tank trucks or rail, or by other yet-to-be proposed pipelines.

Environmental Impacts of Taking No Action
A true take no action alternative would likely have negative socioeconomic impacts. If MPL could not supply the anticipated demand to the two Minnesota refineries, that could result in shortages. Fuel prices are in no small part supply and demand driven. Shortages or higher prices could hamper Minnesota businesses that rely on a steady supply of fuel. There would be direct and indirect impacts on Minnesota consumers as well. If other more expensive transportation solutions were required to maintain a reliable source of crude oil to the refineries, that would also raise fuel prices for all Minnesota consumers and businesses.

The no action alternative may at first glance appear to have no natural environment impacts, as no Project related construction activity would occur. However, since the status quo does nothing to address the stated need, the no action alternative would require MPL to identify other transportation systems to deliver product to the refineries. Any of these other alternatives may result in environmental impacts that are equal to or greater than those of the currently proposed Project. So, the no action alternative would not necessarily reduce or eliminate impacts to the natural environment. The impacts of truck, rail and other pipeline alternatives are addressed separately below.

TRANSPORTING BY TRUCK

Transporting crude oil by tanker truck is a potential alternative to constructing the proposed pumping stations. Tanker trucks are commonly used to move crude oil from wellhead locations not served by pipeline gathering systems to aggregation points and storage facilities. Tanker trucks are not normally used to move product long distances, such as between Clearwater and the Twin Cities. To transport the 185,000 bpd supported by the proposed Project, MPL would need to construct new truck loading terminal facilities in Clearbrook, as well as new unloading facilities at the refineries in the Twin Cities. All oil loading and unloading operations are covered in Title 40, Code Federal Regulations (CFR) 112.7 (General Requirements for Spill Prevention, Control and Countermeasure Plans).

[28] CNA at 33

Loading and unloading facilities comprise loading and unloading bays, storage tanks, piping, containment facilities, catch basins, roads, water, wastewater systems and other associated facilities. Tank truck loading and unloading areas have a high probability for spills. Loading/unloading areas typically incorporate a secondary containment system. The loading/unloading containment system is a covered, curbed and graded area that drains to a sump. Drainage normally flows into retention ponds, catchment basins or treatment systems designed to retain oil or return it to the facility. These facilities may also include a method to clean or retain oily stormwater or return it to the loading/unloading area of the facility. The system should also minimize the volume of water, ice and show that enters the containment area. The facility should include a containment area for trucks that are parked overnight.

To match the incremental transport of crude oil that would be provided for by the pump station improvements, MPL estimates that 1,058 trucks[29] would be required every day, split between trucks driving full to the refineries and returning empty to Clearbrook (a 556 mile roundtrip). A more conservative estimate would be 972 trucks, if each truck were hauling 8,000 gallons of crude oil or approximately 190 barrels (one barrel=42 gallons). Still, that means between 486 and 539 tanker trucks could be added to existing traffic loads in each direction, each day.

Whether or not the full amount was transported every day throughout the year, MPL would need to maintain a fleet of trucks capable of meeting that peak demand. Obtaining a fleet of trucks of the size noted above, assuming an estimated cost of $200,000 per vehicle would require an initial capital investment between $194.4 and $211.6 million. With mileage that the trucks would incur in steady service, the economic life of a truck would be approximately five years; so that cost would be repeated four times throughout the equivalent 25 year lifespan of the proposed Project.

Transporting oil by truck is a very labor intensive operation. It would require a significant work force at the terminal locations to assist in loading and unloading. It could require a significant amount of time to obtain the services of a trucking fleet of the size estimated above and recruit and train the necessary drivers. Tanker truck drivers must possess a commercial driver's license with a hazardous materials endorsement. An oil tanker truck fleet would also require a large number of repair facilities and mechanics available to provide maintenance service and repair on the trucks as necessary. Annual wages, assuming drivers are on the road 365 days per year at the rate of $242 per day per driver, would be between $85.9 and $93.5 million.

Environmental Impacts of Transporting by Truck

Construction of truck terminals would result in construction and operations related impacts that would include loss of vegetation and habitat, displacement of wildlife, increased traffic congestion, noise, air emissions and spills, increased wear and tear on roads and accidents, possibly resulting in the loss of life.

This alternative would create point discharges to water at the loading and unloading facilities. Water discharges come from the washing of vehicles and tank trailers at the terminals and accidental water releases. The terminal facilities would be required to have an approved Environmental Protection Plan specifying steps that would be taken to ensure the proper

[29] CNA at 32

handling of site stormwater. In addition, a Spill Prevention Plan would identify the precautions and measures to be taken in the event of a release. The terminal facilities may also require an emergency response plan.

Fire and explosion hazards at crude oil terminals may result from the presence of combustible gases and liquids, oxygen and ignition sources during loading and unloading activities, and leaks and spills of flammable products. There are a number of design and construction standards that would need to be followed to minimize the risk of fire and explosion at these facilities. Safeguards during loading and unloading operations would include vapor control measures and containment barriers, as well as adherence to rigorous safety protocols.

Emissions of volatile organic compounds (VOCs) may result from evaporative losses during oil storage at the terminals (typically referred to as breathing, storage, or flash losses), and from operational losses such as loading and unloading, additive blending, leakage from seals, flanges and other types of equipment connections, referred to as fugitive losses. Additional emissions may occur from vapor combustion units and vapor recovery units. The drivers or terminal staff would be required to follow loading/unloading procedures in Title 49, CFR 171, 173, 174, and 177 to minimize such losses.

Increase in heavy truck traffic may increase wear and tear on the existing public highway infrastructure system, thereby requiring more maintenance and repairs on the existing roadways used for the truck alternative. Increased truck traffic would also result in additional noise levels to residents and communities along the truck routes used. It would also account for point sources of airborne emissions along the routes used, including hydrocarbons (HCs) or volatile organic compounds, carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO_2), particulate matter (PM_{10} and PM_{25}) and greenhouse gases (GHG). MPL calculated that the trucking alternative would require approximately 187,044,250 vehicle miles per year. Assuming the trucks average somewhere between 4 and 8 miles per gallon, the tanker truck fleet would consume anywhere from 23,380,531 to 46,761,062 gallons of fuel per year. This would result in the release of over 350,000 tons of greenhouse gas emissions (see **Table 5**) on an annual basis.

Table 5. Airborne Emissions from Transporting by Truck[30]

Emission Source Description	Pollutant Emissions in Tons Per Year						
	NO_X	CO	SO_2	HC	PM_{10}	$PM_{2.5}$	GHG (CO_2e)
On-road vehicle diesel combustion emissions	1,324	2,107	4	428	23	22	353,149
Particulate matter emissions from paved roads	-	-	-	-	7,130	1,750	-
Total	1,324	2,107	4	428	7,154	1,772	353,149

[30] MPL email response, December 8, 2014

- Truck emissions are calculated based on 187,044,250 vehicle miles traveled per year and EPA emission factors..
- Transport of crude oil in trucks will result in diesel engine emissions and particulate matter from the trucks driving on paved roads.
- The trucking emission only quantifies emissions from truck operation to Pine Bend, Minn. Emissions from truck idling and emissions from the loading of crude oil into the transport trucks have not been included.

The trucking alternative would be subject to safeguards and controls required of commercial drivers under U.S. Department of Transportation, Federal Motor Carrier Safety Administration Regulations and state laws. These include drug testing, special training, insurance requirements and mandatory driver rest periods. Additional safeguards would come through enforcement of traffic regulations and a vigorous maintenance program.

Even with all proper safeguards in place, which includes proper vehicle maintenance, extensive driver training, and following all applicable safety statutes, rules and regulations, the tanker truck option would not be as reliable as a train or pipeline due to weather conditions, mechanical failure, manpower (driver shortages) and other factors. Based on U.S. Department of Transportation statistics, reports by both the Fraser Institute ("Intermodal Safety in the Transport of Oil"[31]) and the Manhattan Institute for Policy Research ("Pipelines are Safest for Transportation of Oil and Gas"[32]) concluded that trucks have a significantly higher rate of accidents affecting driver and public safety than pipelines or rails. Hazardous material incidents are also higher with trucks than with trains or pipelines.

TRANSPORTING BY RAIL

The transport of oil by rail involves moving oil by truck or pipeline from where it is produced to temporary storage and subsequent transport by rail to the refineries where it may be processed into petroleum products. Oil terminal facilities for this process would need to be uniquely designed for unit or manifest train transportation.

When oil is transported by rail, it is normally carried on what is referred to as "unit trains" that typically comprise 100 to 120 individual tank cars. Unit trains are assembled at a single origin and disassembled at a single location, and only carry one commodity. Oil may also be shipped on smaller trains, referred to as "manifest trains." These trains typically comprise small blocks of mixed car types and cargoes that carry multiple commodities. Manifest trains may also have different points of origin as well as destinations. Manifest trains are more labor intensive and, therefore, more expensive than unit trains. They travel on non-dedicated tracks and take a longer time to deliver to their destination points. This review assumes the transporter would use the more efficient unit train.

[31] http://www.fraserinstitute.org/research-news/display.aspx?id=20490, October 2013
[32] http://www.manhattan-institute.org/html/ib_23.htm#.VID4yXv-lWI, June 2013

Crude oil transported by train requires the use of specialized tank cars that are designed to haul liquefied freight. Tank cars for crude oil and other similar products are designated by the United States Department of Transportation as DOT-111 tank cars. These cars may also be heated depending on what is being transported. These specialized tank cars, depending on size, may hold from 600 to 760 barrels of oil or 25,200 to 31,800 gallons. Consequently, a unit train can carry approximately 66,000 to 83,600 barrels of oil or 2.8 to 3.5 million gallons of crude oil. New rail safety regulations proposed in 2014 call for a two year phase-out of older DOT-111 tank cars, unless they have been retrofitted to comply with new tank car standards for shipments of flammable liquids, including most crude oil. Consequently, oil tank cars, due to domestic oil production increases, are not readily available, and the backorders for new tank cars that comply with new rail safety regulations exceed 15 months.[33]

To meet the stated need, MPL would need to transport up to 185,000 bpd from Clearbrook to the refineries on the south side of the Twin Cities. To carry an equivalent amount of oil on unit trains would require approximately 2-3 additional unit trains per day. MPL estimates that more than 2,357 rail tank cars[34] would be required to transport that amount of oil on a daily basis, given the number of cars loading, in transit, unloading and making return empty trips at a rate of four turns per month. Therefore, the capitalization necessary to amass such a fleet would be approximately $330 million, based on a per/car cost of $140,000.[35]

This cost estimate does not include new rail infrastructure, railway maintenance, labor costs, fuel or other associated expenses. In addition, MPL would need to contract with a rail service provider to operate the trains. It should be noted that there is no surety that rail carriers have availability or would provide a joint rail tariff(s) for the service contemplated.

The oil-by-rail alternative also requires construction of rail car loading and off-loading facilities referred to as terminals, as well as construction and maintenance of any new rail service lines to connect with the existing rail infrastructure. These facilities would need to be constructed at Clearbrook and Pine Bend respectively.

Figure 3. Example of a Loading Facility

[33] Wall Street Journal, July 18, 2013.
[34] CNA at 37
[35] http://www.rbnenergy.com/i-can-see-for-miles-and-miles-and-miles-and-miles-tank-cars, March 2013

Figure 4. Example of an Origination Terminal

The capital required for unit train terminal facilities (loading and off-loading) varies from $85 to $125 million. Uploading facilities require 200 or more acres of flat land for a full or complete loop for 120 cars (see **Figure 4**). Two complete loops may be required for Class 1 railroads for optimum design. Oil storage tanks will also be required, and the design norm is around three times daily transportation capacity of the loading facility. Covered loading facilities in northern climates are required due to operational concerns for safety and environmental conditions. A loading system may have from 10 to 18 loading stations (see **Figure 3**) to accommodate the unit trains. The time to load a unit train is approximately 12 hours.[36] (Note above that this review estimated 2-3 unit trains per day to meet the stated need of 185,000 bpd.)

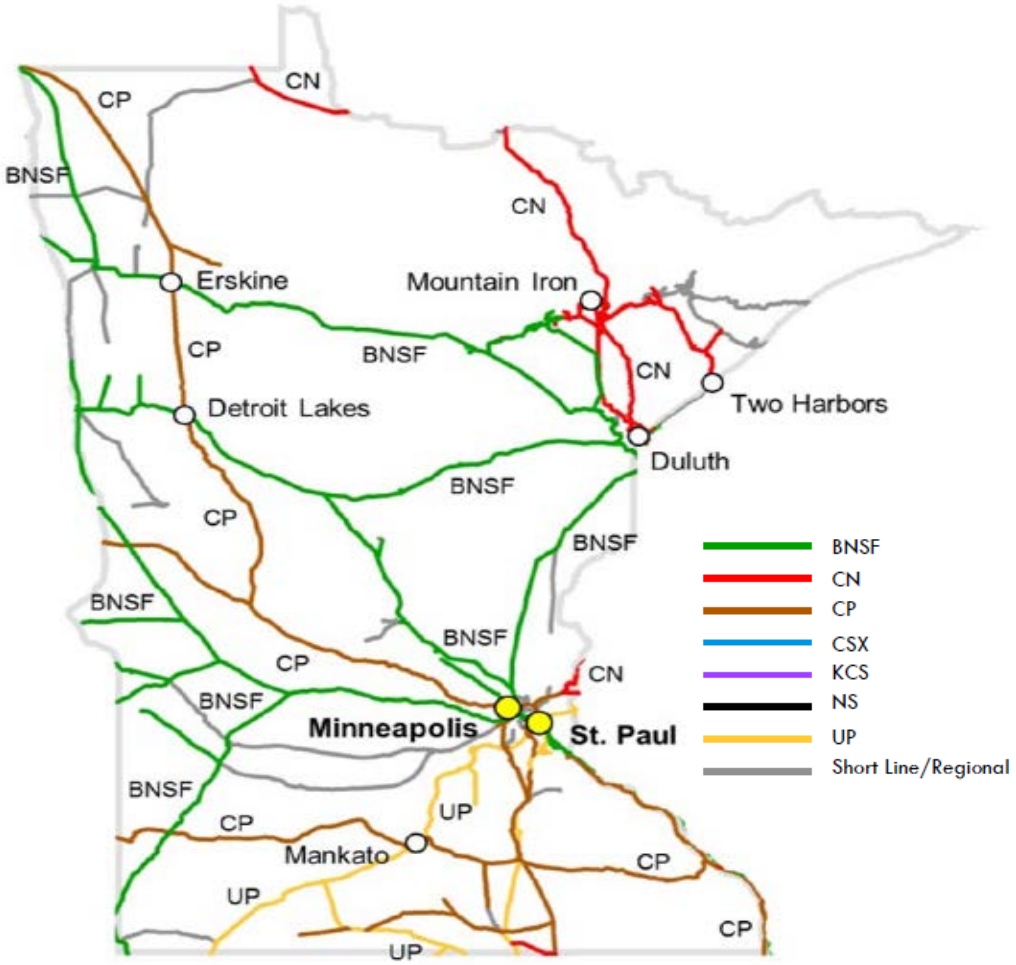
Loading terminal facilities must also provide for spur lines, railroad siding, metering equipment, underground piping, secondary containment and vapor control systems, catch basins, retention ponds, electric power, water and other associated facility requirements.

A crude oil unloading facility has similar requirements to loading facilities and includes an arrival and departure track, an enclosed transfer structure, an unloading area with two tracks and concrete containment area, repair facilities, support buildings, road connections, pumps, above and below ground pipelines to connect to the required storage tanks, electric power and associated substation facilities, stormwater infrastructure, sanitary sewer, water, and an oil/water separation area.

[36] "*Comparing the Economics of Using Unit Trains and Manifest Trains, Relative to Pricing at Destination, to Determine Which System is Most Effective in Increasing Netback*," presented by Jarrett Zielinski, TORQ Transporting.

Aside from the necessary spur lines needed at the required terminal facilities, it is expected that the unit trains would use existing Class 1 rail lines to move the oil from Clearbrook to the refineries, probably at Pine Bend. Rail lines are classified by owner revenues. Burlington Northern Santa Fe (BNSF), Canadian National (CN), Canadian Pacific (CP) and Union Pacific (UP) are the only Class 1 railroads providing service in Minnesota. BNSF and CP are likely candidates to carry the MPL product to the refineries (**see Figure 5**).

Figure 5. Major Rail Lines in Minnesota[37]



Environmental Impacts of Transporting by Rail

Construction of a rail loading terminal in Clearbrook and unloading terminal in the Twin Cities would result in construction and operation related impacts that would include, but not be limited to, loss of vegetation and habitat, displacement of wildlife, increased rail traffic, noise, air emissions, and the potential for accidents. Construction of the rail terminal loading and unloading facility and their respective associated facilities would require approximately 200 acres of land or more for each facility. The land would be graded and leveled as necessary and converted from its existing use to industrial land use for the life of the project.

[37] *Freight Railroads in Minnesota: Rail Fast Facts for 2012*, Association of American Railroads, July 2014

It should be assumed that these facilities would be located in areas that are relatively flat and open, outside of designated floodplains, and not located near areas associated with seismic hazards, landslides or subsidence. It is assumed that the land acquired for these facilities would be open agricultural land or industrial areas at the Clearbrook Terminal and near Flint Hills. Construction related impacts include soil erosion, loss of topsoil, soil compaction and soil contamination from fuel leaks. Many of these impacts may be mitigated by the use of standard erosion and sediment control methods (i.e., silt fences, sediment ponds) and as required by permit conditions from responsible governmental units.

Any potential surface and ground water impacts associated with terminal construction are expected to be related to releases of refined petroleum products used as fuel or lubricants. In addition, there is also the potential for releases or spills associated with the loading and unloading of railcars, derailments, and underground piping failure. Containment facilities within the terminal would need to be designed to limit the potential for impacts to water resources. The proper implementation of a Spill Prevention, Control and Countermeasure Plan (SPCC) would minimize the potential for releases of crude oil or other hazardous materials (diesel fuel, motor oil, lubricant, etc.) to reach water bodies during terminal construction and operation. Stormwater management plans would also help mitigate impacts to water quality and runoff volumes at the terminals.

Construction of the terminals would result in the short-term release of small amounts of criteria pollutants, including hydrocarbons (HCs) or volatile organic compounds, carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO_2), particulate matter (PM_{10} and PM_{25}) and greenhouse gases (GHG); however, because there is no terminal design data it is not possible to quantify the amount of those emissions. The emissions from operation of the terminals and trains would be an on-going source of significant pollutant emissions, producing approximately 167 thousand tons of GHG per year (see **Table 6**).

Table 6. Airborne Emissions from Transporting by Rail[38]

Emission Source Description	Pollutant Emissions in Tons Per Year						
	NO_X	CO	SO_2	HC	PM_{10}	$PM_{2.5}$	GHG (CO_2e)
Railroad diesel combustion emissions	4,451	438	53	164	110	106	167,440
• Emissions are calculated on 5,973,585,793 total rail car ton-miles/yr. • The table only quantifies emissions from rail operation to Pine Bend, Minn. Emissions from the loading/unloading of crude oil have not been included.							

[38] *Supplemental information –Alternative Shipment by Rail* ("MPL Response" to EERA data request), Barr Engineering through MPL, January 13, 2015

The numbers in **Table 6** are based on a hypothetical route using existing rail lines, aside from the need for a new segment of line to connect from Clearbrook to Bagley.[39] From Bagley, the imagined route would use the BNSF railroad west and connect with the Soo Line south to Detroit Lakes. The route would then reconnect with the BNSF through Sauk Rapids and into the Twin Cities Metro area. Ultimately, the route would connect from BNSF to UP rail lines in the Rosemount area to complete delivery to the Flint Hills Refinery. The total distance to transport is approximately 327 miles long (see **Appendix 1**, Supplemental Figure 1). Because the locations of any required terminal facilities are not identified, it is not possible to determine specific impacts on wetlands, vegetation, wildlife, threatened and endangered species and cultural resources.

Table 7 below describes the real and potential impacts on human settlement if the transport by rail alternative were employed. 1,145,369 people live in the cities and towns the route would pass through. The 1,285 at-grade crossings of roads and rail lines are major points of potential harm or inconvenience for residents and drivers; there are ten accidents and incidents at these crossings annually. The increased rail traffic from this alternative could presumably increase the number of incidents and injury.

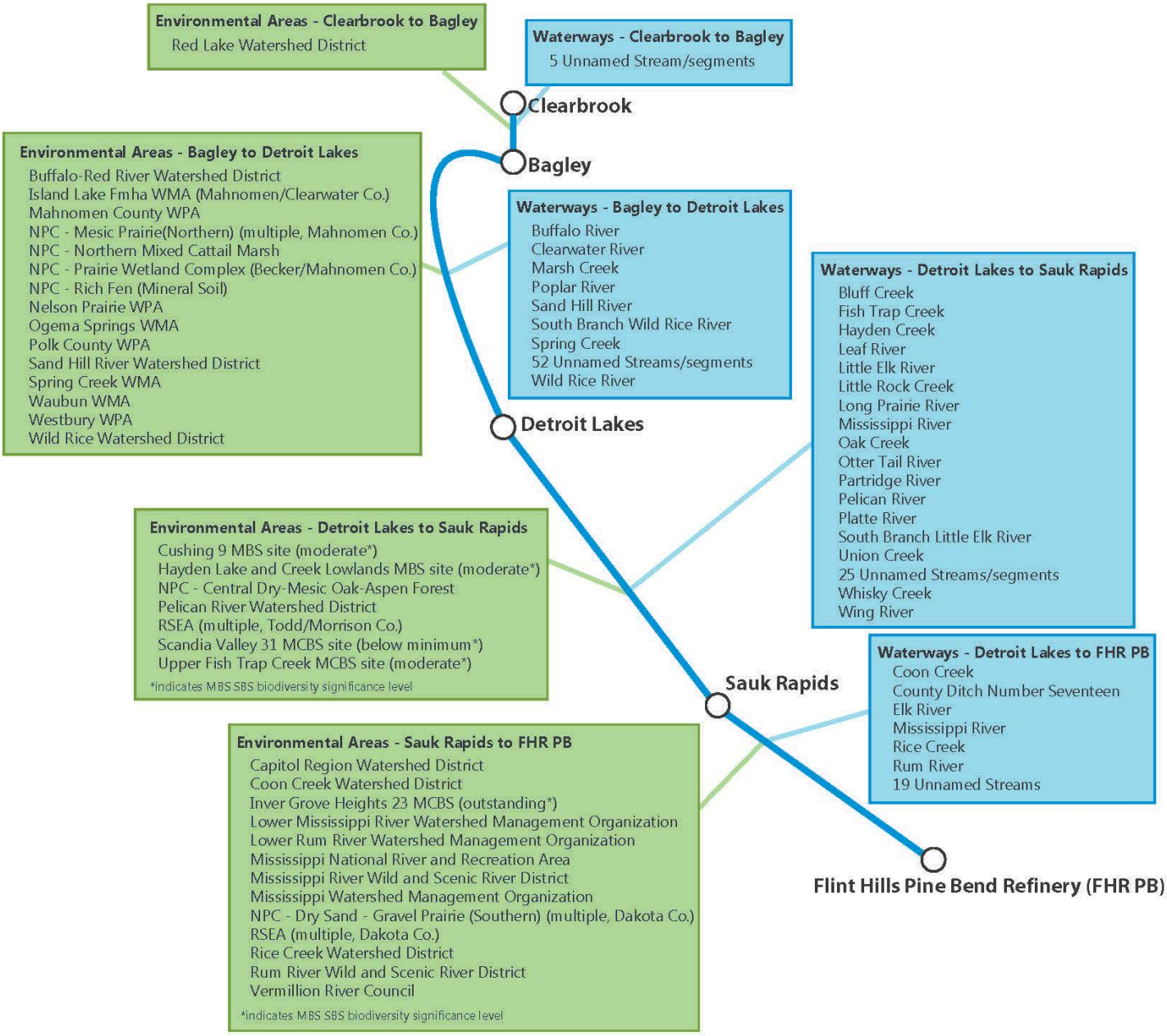
Table 7. Population and Recorded Impacts along the Transporting by Rail Route[40]

Segment	Number of Towns/Cities along Route	Population[41] Towns/Cities along Route	At-grade Crossings	Crossing Incidents (2009-2013)	Crossing Injuries (2009-2013)	Crossing Deaths (2009-2013)
Clearbrook to Bagley (new)	N/A	N/A	N/A	N/A	N/A	N/A
Bagley to Detroit Lakes	10	6,001	129	3	3	0
Detroit Lakes to Sauk Rapids	14	50,151	343	17	19	2
Sauk Rapids to Pine Bend	16	1,089,217	813	30	12	5

Transporting oil by rail carries with it the potential for minor spills (or major spills in the case of a significant accident). This carries the potential to despoil numerous environmentally important areas or waterways across the state. The route crosses 51 designated environmental sites; sites reviewed include Sites of Biodiversity Significance, State Forests, State Parks, Waterfowl Production Areas, Watershed Management Districts, Wildlife Management Areas, Wild and Scenic River Districts and others. The route also crosses 141 waterways, including lakes, rivers, streams, canals, etc. **Figure 6** below graphically depicts the environmental areas and waterway crossings along the route that could be subject to any incidences.

[39] The route to transport oil by rail has been imagined as the most reasonable route and for the purpose of calculating potential impacts. No discussion or arrangement has been made with any railroad company to determine if the actual route would be available to MPL or whether the required capacity exists on the lines.
[40] Information on accidents is maintained by the Federal Railroad Administration Office of Safety Analysis (http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/on_the_fly_download.aspx).
[41] Census Bureau, 2013 Estimates

Figure 6. Environmental and Waterway Areas along the Transporting by Rail Route[42]



[42] MPL Response

Associated Impacts. Transporting oil by train would require adding a number of unit trains each day to move oil from Clearbrook to Pine Bend. This solution begs the question of whether there is available space on exiting rails to transport the amount of oil equal to the stated need. Notwithstanding other goods competing for service, the BNSF line already brings 39 oil trains through the Twin Cities weekly, mostly from the Bakken oil fields; CP carries nine oil trains through the Twin Cities each week.[43] The MPL carrier would need to add at least 17-18 additional trains per week.

It is beyond the scope of this review to determine the extent of necessary rail build-out or the extensive human, economic and environmental impacts of significantly increasing the rail infrastructure in Minnesota. Considering the existing burden of transporting Bakken crude, the Minnesota Department of Transportation (Mn/DOT) already anticipates the need to spend $244 million to make at-grade safety improvements at rail-highway crossings. Their recent study[44] describes the problems of traffic delays, including emergency responder delays, and collision dangers from inadequate signaling and alerts. In some cases, these problems can only be solved by the high cost "grade separation" solution of building overpasses/underpasses to separate vehicle and train traffic on site.

BUILDING A NEW PIPELINE

Rather than increasing the flow of MPL Line 4 to its designed capacity by upgrading and installing pump stations, an alternative would be to build an additional new pipeline. Essentially, the alternative would add another line similar to MPL Line 4, a 24-inch diameter pipeline that would transport 165,000 bpd from Clearbrook to the Twin Cities. The stated need is for an additional 185,000 bpd capacity to provide available surplus under certain conditions or to compensate for normal capacity missing when lines are out of commission for repair or maintenance. The new pipeline would provide less than that capacity unless, ironically, it were built with additional pumping stations.

MPL has not submitted a proposal for a new pipeline, however a reasonable assumption is it would parallel the existing Line 4 (refer back to **Figure 2** for a high-level view). Building the new pipeline would require a Certificate of Need and a Route Permit from the Minnesota Public Utilities Commission, as well as any other required federal, state and local approvals. A Certificate of Need, notwithstanding exceptions, could be issued within six months of application acceptance (Minn. Rule 7851.0200 subp. 6). A Route Permit, notwithstanding extensions for cause, could be issued within nine months of application acceptance (Minn. Rule 7852.0800). Construction would presumably require a similar time period as the existing MPL Line 4, which received a Route Permit in April 2007, and completed construction in September 2008. The expected in-service date of the proposed Project is the first quarter of 2018.[45]

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[43] David Schaffer in StarTribune.com, December 13, 2014, http://www.startribune.com/business/285687401.html
[44] *Study on Grade Crossing and Rail Safety for Oil and other Hazardous Materials*, Mn/DOT, December 2014, http://dot.state.mn.us/govrel/reports.html
[45] CNA at 66

A new pipeline parallel to MPL Line 4 would be approximately the same length, 305 miles long. It would require acquisition of new land rights along much of that length, at considerable expense. Additionally, the initial capital expenditure for this major construction project would be over $600 million.[46]

Environmental Impacts of Building a New Pipeline
It is fairly straightforward to determine the potential socio-economic and natural environmental impacts of this hypothetical pipeline with some precision, given that we have the recent record of the original MPL Line 4 (PUC Docket no. PL-5/PPL-05-2003) it would be duplicating. EERA would refer the reader back to MPL's "*Environmental Assessment Supplement to the Pipeline Routing Permit Application*[47] submitted during the application process in January 2006. One could also preview the likely discussions that would occur around the route selection process by reviewing the actual record in then Administrative Law Judge Beverly Jones Heydinger's Report, especially detailing the Environmental Assessment at pp. 31-42.[48]

Suffice it to say here, as noted by MPL, "A new pipeline…would require major construction across a good portion of Minnesota, the impact of which would be significantly greater than that of the construction associated with the Project..."[49] EERA concurs.

REOPENING THE WOOD RIVER PIPELINE

The Wood River Pipeline is part of the Koch Pipeline system (which owns MPL). It is a 580-mile pipeline with a 90,000 bpd capacity running from Hartford, Illinois, to the Twin Cities. However, the line was deactivated in 2013. According to MPL, the crude and the transport costs were high compared to the MPL system, and the sources in Western Canada and the Rocky Mountain Region that supplied the Wood River Pipeline were unreliable.[50] Closing this line contributed to the shortfall sought to be filled by the proposed Project. However, even if it were reactivated, the capacity would still be less than half of the stated need. In addition, even though no construction costs would be incurred, MPL estimates an investment of over $100 million in initial line fill and other inventory.[51]

Environmental Impacts of Reopening the Wood River Pipeline
As in the no action alternative, this alternative would not meet the stated need and would therefore likely have negative economic impacts on Minnesotans. Also as in the no action alternative, reopening Wood River may at first glance appear to have no natural environment impacts, as no project-related construction activity would occur. However, since its capacity is 90,000 bpd, the Wood River alternative would require MPL to identify other transportation systems to deliver the balance of 95,000 bpd to the refineries.

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[46] Id. at 39
[47] *Environmental Assessment Supplement to the Pipeline Routing Permit Application*, MPL January 5, 2006, http://mn.gov/commerce/energyfacilities/documents/18339/Environmental%20Assessment%20Supplement_revised.pdf
[48] *Findings of Fact, Conclusions and Recommendation*, Beverly Jones Heydinger, November 17, 2006, eDocket no. 3566513
[49] CNA at 39
[50] CNA at 40-41
[51] Id. at 41

The impacts of truck or rail alternatives are discussed fully above. Even if the amount needed to be transported by truck or rail were reduced by 90,000 bpd, the initial dollar and environmental costs of building loading and unloading facilities would still be incurred, as well as the costs of acquiring necessary fleets. While reduced, the social and natural environmental impacts from operations of those alternatives would still be high. That effectively negates the value of employing the multiple option approach. Trying to solve the need by choosing some of each alternative incurs the cumulative, negative impacts of all of them.

CONCLUSION

EERA's analysis finds the proposed Project clearly superior to any of the alternatives presented by MPL in their CN Application. EERA did not look at any other alternatives, as the request from the Commission was to review the Project and alternatives in the Application. However, no other practical alternatives readily present themselves.

This analysis paid particular attention to the alternatives of transporting oil by truck or by rail rather than by pipeline, as these are the most feasible of the alternatives. Cost or human, economic and environmental impacts notwithstanding, the options could likely be realized. In addition, the rail option is of active interest in the state, given the increase in oil train traffic from the Bakken fields. The options to take no action or to reopen the Wood River Pipeline do not meet the stated need. In order for them to be viable as alternatives, they would need to incorporate elements of transporting crude oil by truck or by rail. They do not stand as solutions in and of themselves, and therefore a comparative analysis against the proposed Project is limited in scope and falls back to the alternative transportation options.

This analysis also did not spend extensive time reviewing a new pipeline option. The potential impacts of building a new major pipeline are familiar to the Commission. In particular, building the 300 plus-mile pipeline in this alternative, essentially a reproduction of the MPL Line 4, has well-known costs and potential environmental impacts. Installing pumping stations along an existing line already permitted and designed to support the additional capacity, versus building a duplicate pipeline to perform the same task would be impossible to justify from a socio-economic or environmental standpoint. As noted above, building a new pipeline would still not meet the stated need without also constructing addition pumping stations.

Table 8 displays a graphic generalization of what this report goes into in detail in the text. The graphic does not attempt to state the impacts as specific, but rather as a comparison of the relative impacts of one alternative as opposed to the others. The no action and the Wood River options are evaluated here on their own, as opposed to attempting to compensate for their inability to meet the need with complementary solutions. The trucking and rail hauling solutions are assessed as being unknown as to their ability to meet the need. There are too many unknowns, including limitations such as availability of rail space, to assume the alternatives can meet the stated need. Note that this graphic should be considered EERA's own subjective evaluation of the available data.

Table 8. Relative Impact Matrix for the Project and Alternatives

Alternative	Comparative Impacts					
	Initial Cost	Socio-economic	Natural Environment	Construction Impact	Operations Impact	Meets Need
Proposed Project	🟡	🟢	🟢	🟡	🟢	🟢
Taking no Action	🟢	🟡	🟢	🟢	🟢	🔴
Transporting by Truck	🔴	🟡	🟡	🔴	🔴	⚪
Transporting by Rail	🔴	🟡	🟡	🔴	🔴	⚪
Building a New Pipeline	🔴	🔴	🔴	🔴	🟡	🟢
Reopening Wood River Pipeline	🟡	🟡	🟢	🟢	🟢	🔴

🟢 Least Impact
🟡 Intermediate Impact
🔴 Greatest Impact
⚪ Unknown

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Appendix 1. Maps: Pump Stations;[52] Transporting by Rail Route

[52] The acronyms in the map legends refer to data from the National Wetland Inventory (NWI) from the US Fish and Wildlife Service; the National Hydrography Dataset (NHD) from the US Geological Survey; the Public Waters Inventory (PWI) from the Minnesota Department of Natural Resources; and Minnesota's Impaired Waters List (303d) from the Minnesota Pollution Control Agency.

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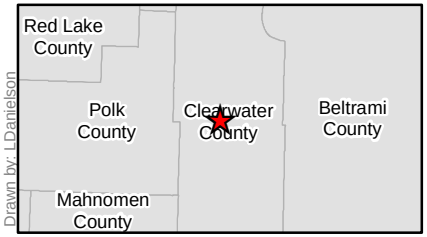


- Station Boundary
- MPL Line 4
- 303d Waterway
- PWI Waterway
- NHD Waterway
- NWI Wetland
- 303d Waterbody
- PWI Waterbody
- NHD Waterbody
- Wildlife Management Area
- Waterfowl Production Area
- State Land

MCBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below Threshold

N

0 250 500 1,000 Feet

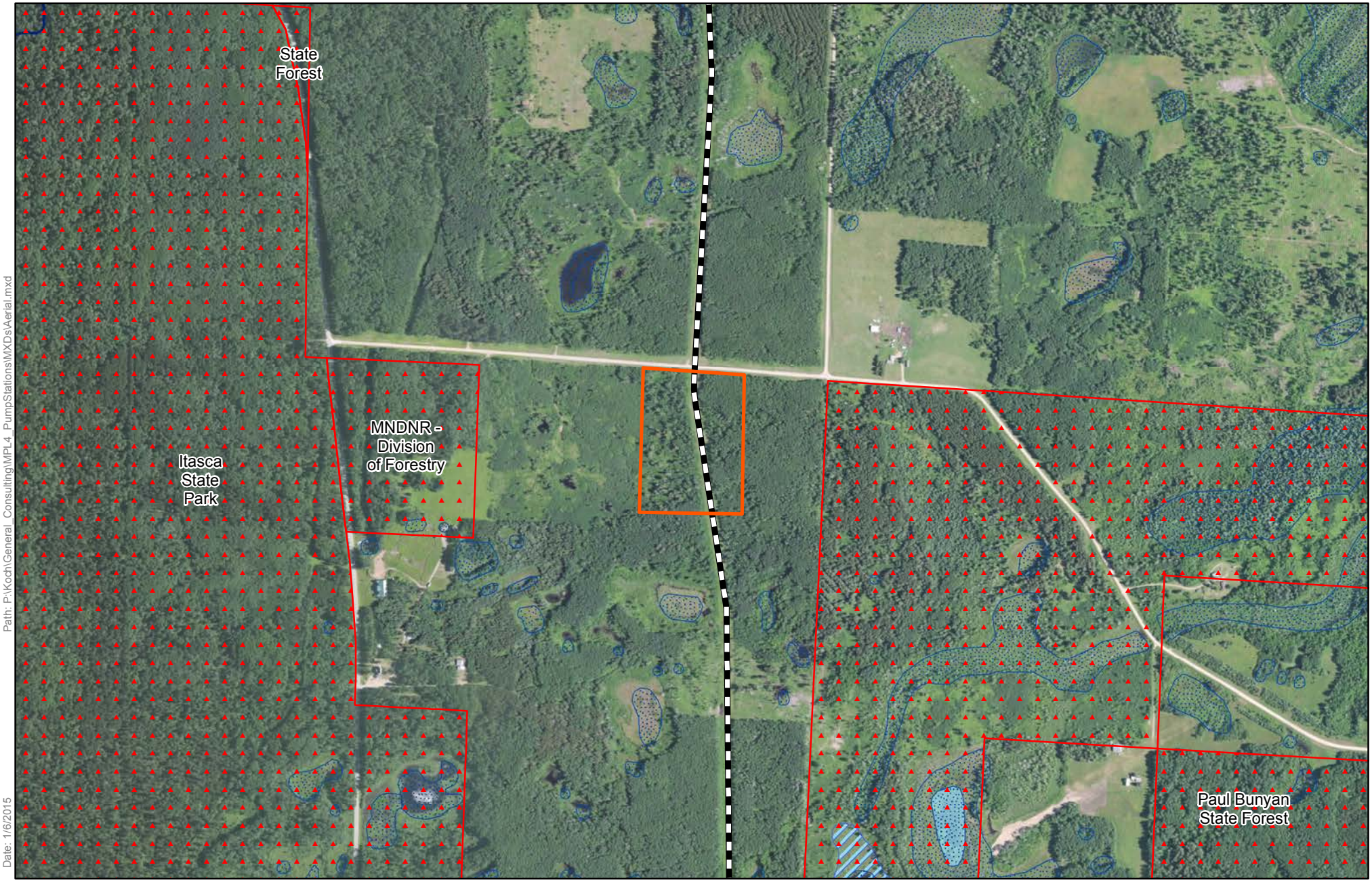
1:12,000

Minnesota Pipe Line Company, LLC

Reliability Project

Existing Pump Station - Clearbrook Station

Clearwater County, MN



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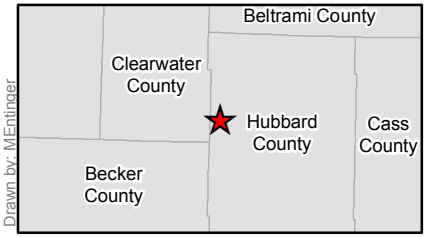

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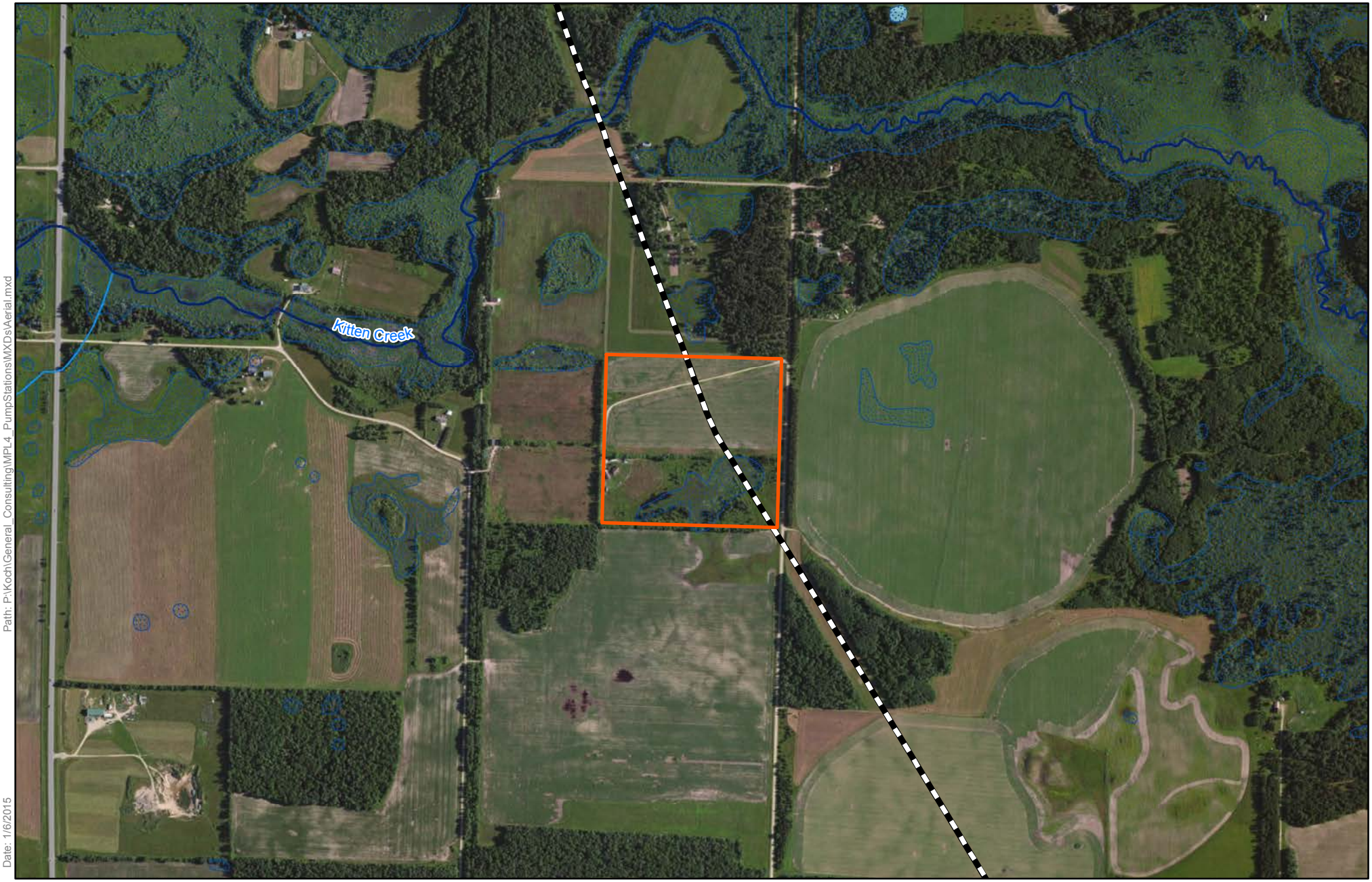
Minnesota Pipe Line Company, LLC

Reliability Project

Proposed Pump Station - Laporte Station

Hubbard County, MN



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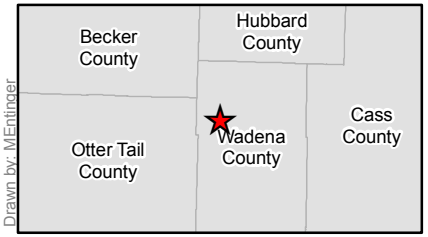

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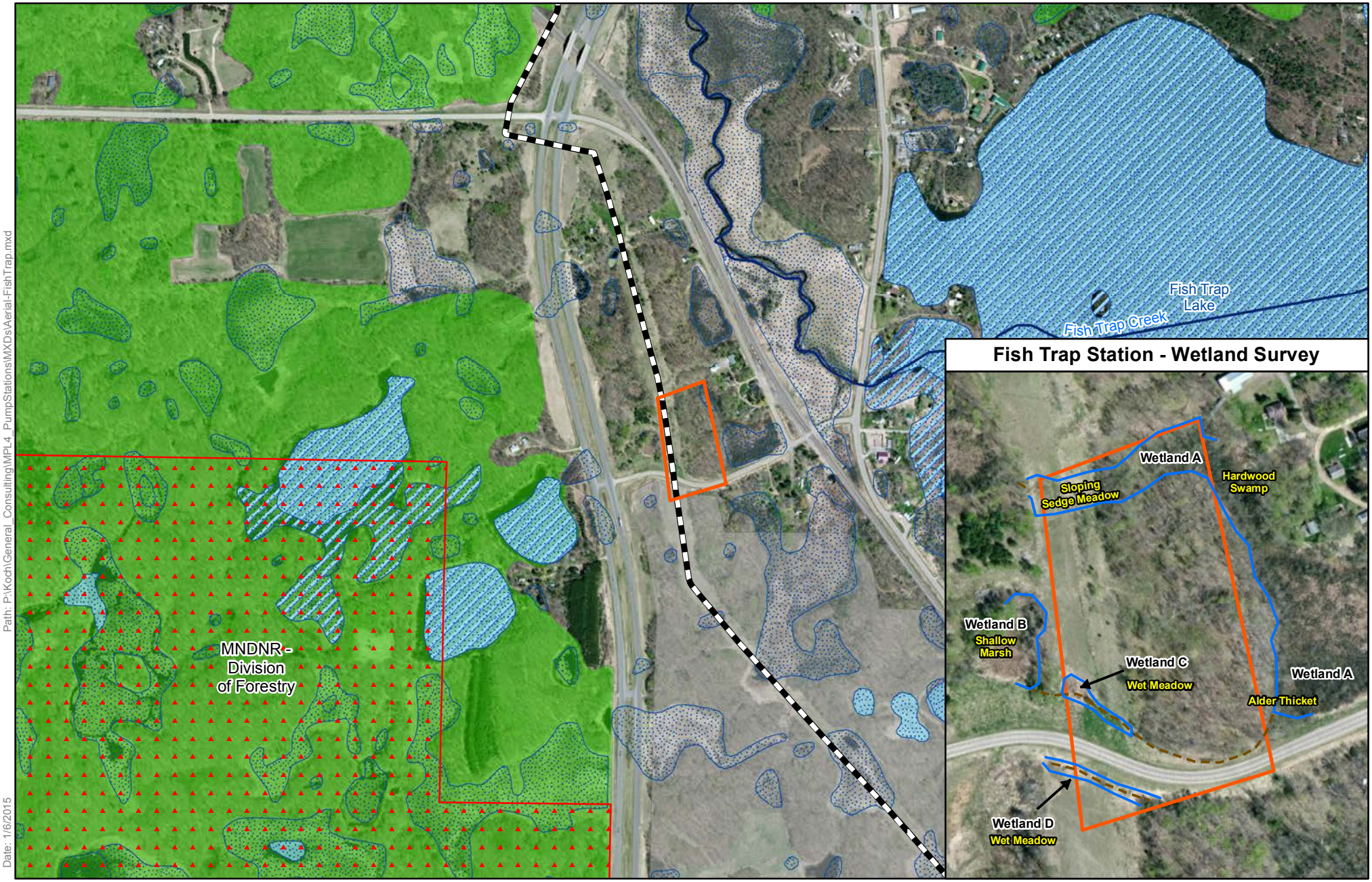
1:12,000

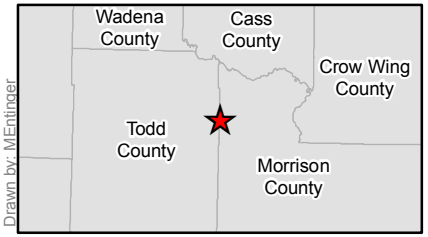
Minnesota Pipe Line Company, LLC

Reliability Project

Proposed Pump Station - Sebeka Station

Wadena County, MN





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1:12,000

Minnesota Pipe Line Company, LLC

Reliability Project

Proposed Pump Station - Fish Trap Station

Morrison County, MN

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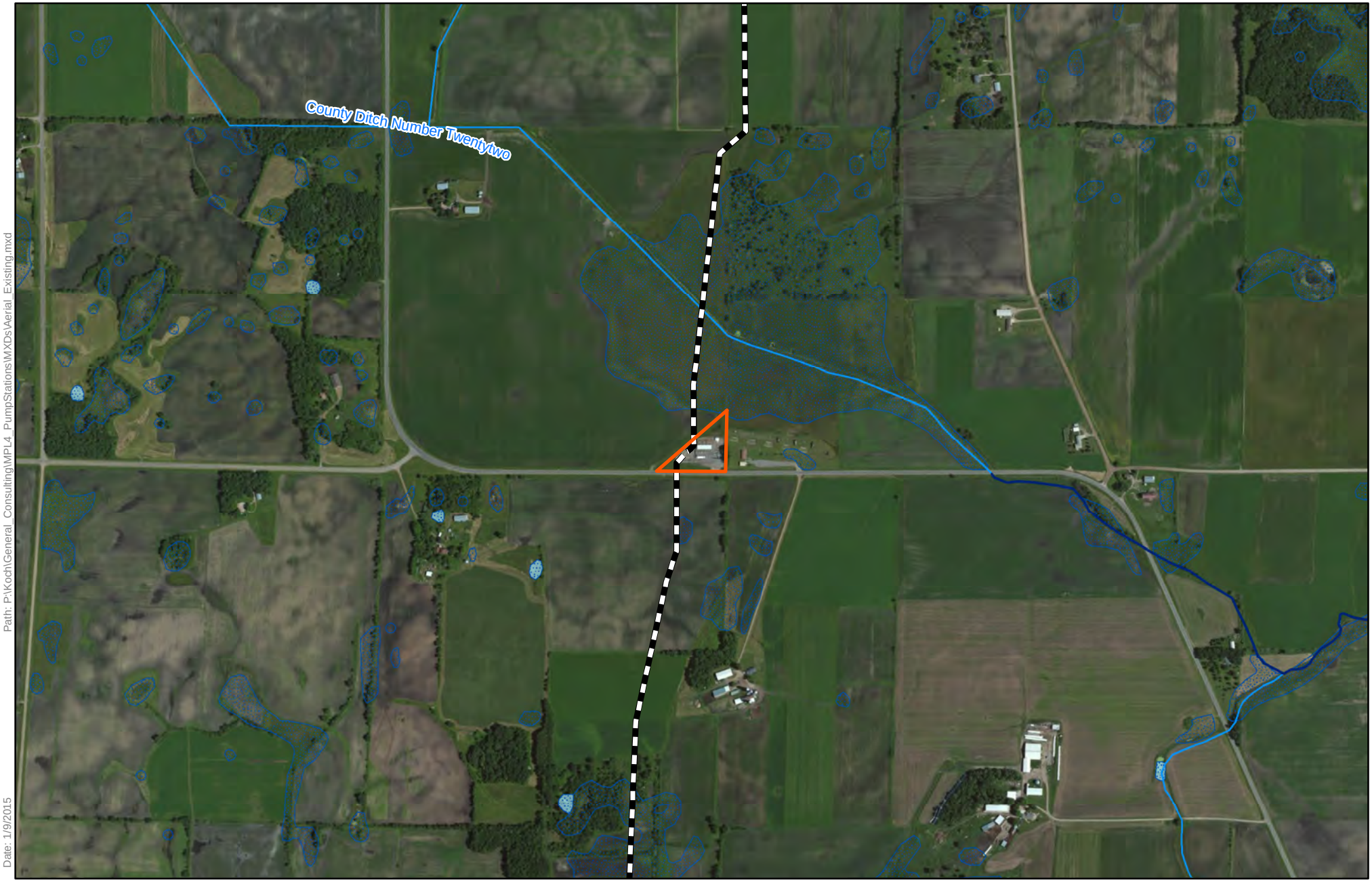

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1:12,000

Minnesota Pipe Line Company, LLC

Reliability Project

Existing Pump Station - Albany Station

Stearns County, MN

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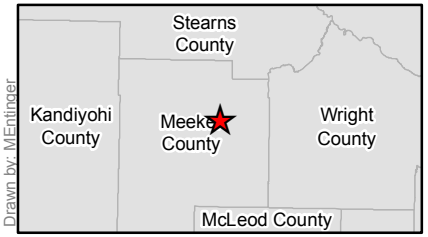

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- NHD Waterbody
- Wildlife Management Area
- Waterfowl Production Area
- State Land

MCBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below Threshold

N

0 250 500 1,000 Feet

1:12,000

Minnesota Pipe Line Company, LLC

Reliability Project

Proposed Pump Station - Forest City Station

Meeker County, MN

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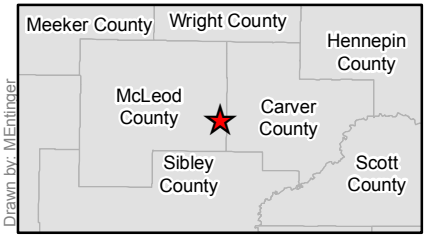
Date: 1/6/2015



Drawn by: MEntinger

- Station Boundary
- MPL Line 4
- 303d Waterway
- PWI Waterway
- NHD Waterway
- NWI Wetland
- 303d Waterbody
- PWI Waterbody
- NHD Waterbody
- Wildlife Management Area
- Waterfowl Production Area
- State Land

MCBS Sites of Biodiversity Significance

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- Below Threshold

N

0 250 500 1,000 Feet

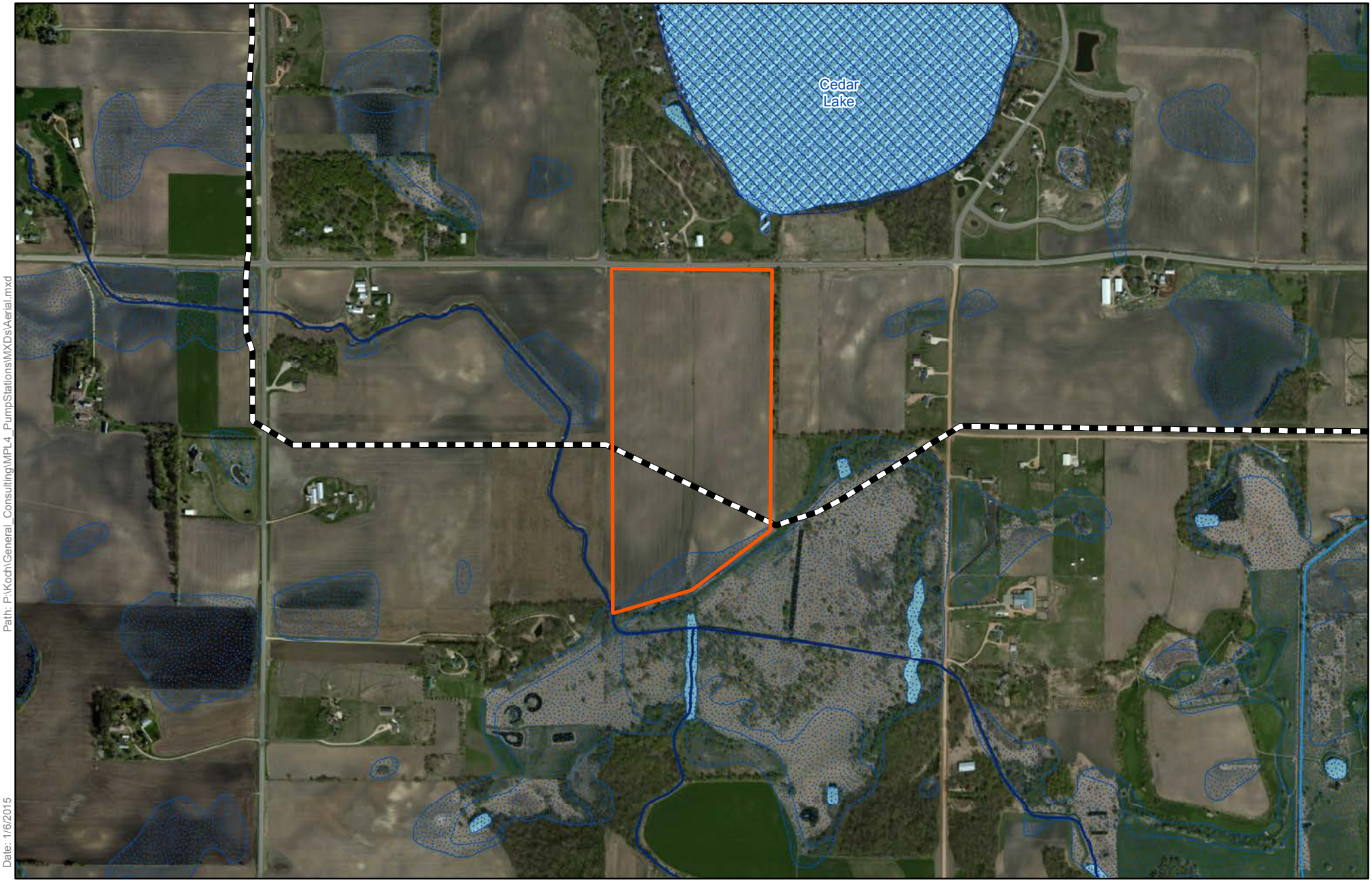
1:12,000

Minnesota Pipe Line Company, LLC

Reliability Project

Proposed Pump Station - Plato Station

McLeod County, MN



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Date: 1/6/2015

Drawn by: MEntinger

- Station Boundary
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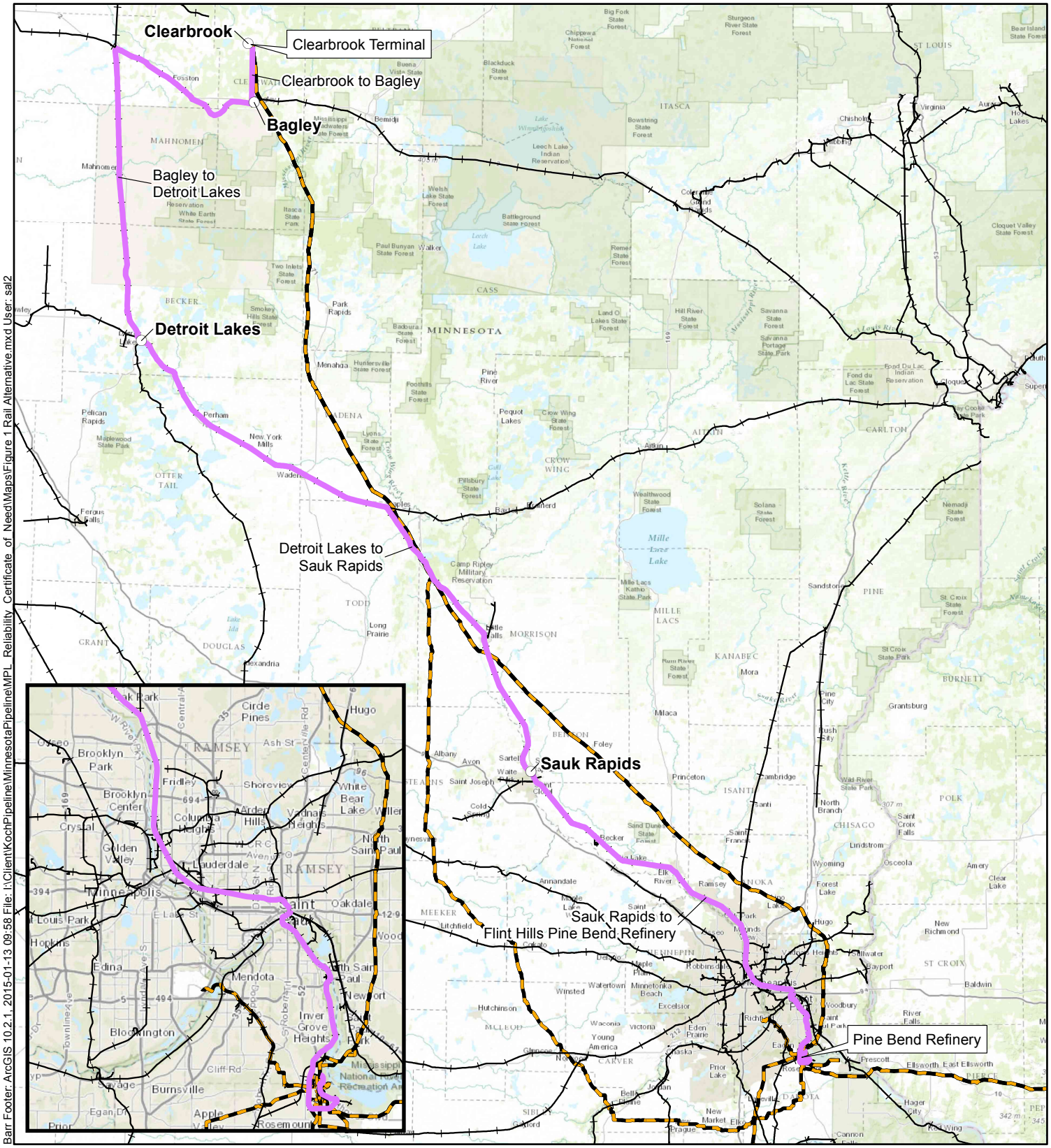
1:12,000

Minnesota Pipe Line Company, LLC

Reliability Project

Proposed Pump Station - St. Patrick Station

Scott County, MN



Potential Crude-By-Rail Route

Minnesota Rail Lines

Pipeline

Miles

30 0 30

Kilometers

50 0 50

MINNESOTA PIPE LINE RELIABILITY PROJECT
Certificate of Need –
Supplemental Data Figure 1
Transport by Rail Alternative