NORTH DAKOTA PUBLIC SERVICE COMMISION

Application for Certificate of Corridor Compatibility

Plains Pipeline, L.P.
Bakken North Pipeline Project

Prepared by E3 Environmental, LLC

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INTRODUCTION

The Bakken North Pipeline (BNP or Project) is a new 79-mile, 12.75-inch-outside diameter crude oil pipeline that will originate from the Plains Pipeline, L.P. (Plains) Trenton Station (Station) near Trenton, North Dakota, and will terminate at an interconnection to other existing Plains assets in Sheridan County, Montana near the town of Outlook. The North Dakota portion of the proposed pipeline is approximately 31.8 miles in length. From its origination at the Station, the proposed Corridor includes both private and public lands.

The Project will also require the installation of pumping equipment for the BNP at the Station. The pumping equipment will consist of two (2) 1,000 horsepower (hp) mainline pumps that will operate in series to provide the necessary pressure to operate the pipeline. In addition to the pumping equipment, a line integrity meter shall be installed and various appurtenant piping associated with BNP shall be sited at the Station.

Plains is submitting to the North Dakota Public Service Commission (Commission) a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the BNP.

The application provides the information required by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Chapter 49-22-08; and,
- North Dakota Administrative Code, Article 69-06-04, Certificate of Site or Corridor Compatibility.

The information presented in this application is organized according to the format prescribed in the Commission's Application Guidelines for a Certificate of Site or Corridor Compatibility, which divides the information into the following six main categories:

SECTION 1: DESCRIPTION

SECTION 2: STUDIES

SECTION 3: NEED FOR FACILITY

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SECTION 1: DESCRIPTION

1.1 PURPOSE OF FACILITY

The Bakken Formation is a rock unit from the Late Devonian to Early Mississippian age occupying about 200,000 square miles of the subsurface of the Williston Basin, covering parts of Montana, North Dakota, and Saskatchewan. The formation is entirely in the subsurface, and has no surface outcrop. Oil was first produced from the Bakken more than 50 years ago, but production at that time was primarily from a few vertical wells. In the late 1980's when horizontal technology became available, oil production significantly expanded.

The total recoverable amount of Bakken Shale oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources (NDDMR) in 2008 and 2010 indicate that 4.0 to 6.3 billion barrels of recoverable reserves are available in North Dakota's Bakken and Three Forks formations. Information from the NDDMR indicates that oil production has increased dramatically over the three years from nearly 110,000 barrels per day (bpd) in 2007 to nearly 386,600 bpd in June, 2010 (NDDMR, 2010). Oil production is expected to increase by approximately 200,000 to 300,000 bpd by 2015.

The major constraint in transporting oil from North Dakota to refining centers is the lack of pipeline capacity. Several major projects have been planned to address the growing volumes of crude oil, but pipeline capacity is not expected to keep pace with production until early 2013 leaving incremental volumes to find alternative transportation methods, primarily rail.

The Project would provide crude oil transportation service from Trenton, North Dakota to the Wascana Pipeline, located near Outlook, Montana. From there, the Wascana Pipeline will transport the crude oil to Regina, Saskatchewan. At Regina, Plains would connect into third-party carriers that would provide access to Cushing, Oklahoma and/or Petroleum Administration for Defense Districts (PADD II) delivery points. The Project has an initial design capacity of 48,000 bpd (expandable to 75,000 bpd).

Plains estimates that it will cost approximately $25 million to develop the North Dakota portion of the Project, which will occur entirely in Williams County, and would include the installation of 31.8 miles of new crude oil pipeline and related capital improvements. The estimated cost for the entire Project is expected to range from $160 million to $200 million, with final cost being driven by pipeline routing, materials and right of way procurement, as well as terminalling and connection arrangements.

1.2 TYPE AND SIZE OF FACILITY

1.2.1 TYPE

The BNP is a transmission pipeline. The steel pipeline will meet U.S. Department of Transportation (DOT) regulations, specifically the design, installation, pressure testing, operations and maintenance requirements as outlined in 49 CFR Part 195.

1.2.2 SIZE

The BNP will be a 12.75-inch outside diameter steel pipe. The pipe installed will meet the following minimum specifications: API 5L PSL 2 X52 line pipe with a nominal wall thickness of 0.250 inches; the nominal wall thickness will increase to 0.344 inches for specific locations such as road crossings. The maximum operating pressure (MOP) of the pipeline will be 1,468 pounds of pressure per square inch gauge (psig).

The proposed Project will include three (3) mainline block valves located in North Dakota. These valves will be installed to meet DOT regulations and will allow for the isolation of select segments of the pipeline for inspection and maintenance purposes.

The valves to be installed will be 12-inch ANSI 600, flange end by flange end, through conduit, slab gate valves with motor operators for remote actuation. All block valves installed in the pipeline will be manufactured in accordance with API Standard 6D. The MOP of each valve will be 1,468 psig.

1.2.3 LENGTH

The proposed BNP is approximately 79 miles in total length, of which approximately 31.8 miles will be located in North Dakota.

1.2.4 LOCATION

The Project will be located in Williams County, North Dakota, originating roughly 9.5 miles from Williston (following major roads), moving generally north and west and terminating roughly 2.5 miles north of Outlook in Sheridan County, Montana. Please refer to maps provided in Appendix B.

1.2.5 ABOVE GROUND FACILITIES

The Station is located north of Trenton, North Dakota, along Highway 1804, in the SW¼ of Section 33, T154N, R102W of Williams County, North Dakota. The Station is bisected by Highway 1804 and is comprised of Plains' existing Trenton Station, which is located to the west, and the recently constructed facility expansion located to the east. The pumping equipment to be installed at the Station includes:

- Two mainline pumps, approximately 1,000 hp each to be installed in series;
- One ultrasonic integrity meter for the BNP; and
- Miscellaneous appurtenant piping.

The BNP will originate at Mile Post (MP) 0.0 from the eastern portion of the station.

1.3 PROJECT SCHEDULE

1.3.1 CERTIFICATE OF CORRIDOR COMPATIBILITY

Plains is seeking a Certificate of Corridor Compatibility in or before October 2011.

1.3.2 ROUTE PERMIT

Plains is submitting the application for a Route Permit in August 2011, concurrently with this application for Certificate of Corridor Compatibility. The two applications have been combined to form this Consolidated Application.

Plains is seeking a Route Permit in or before October 2011.

1.3.3 CONSTRUCTION SCHEDULE

Plains has scheduled construction to commence in North Dakota as early as weather conditions permit in 2012. The second quarter is typically the earliest that construction activities can efficiently be conducted. Pipeline construction is expected to be completed in the late third or early fourth quarter of 2012. Restoration and commissioning activities will commence immediately after construction. Restoration will begin in 2012 and shall continue as long as seasonal conditions allow, these efforts shall be temporarily suspended as necessary during frozen or saturated conditions, resuming in 2013. Plains will continue restoration efforts until final restoration has been achieved which is anticipated to occur in 2013.

SECTION 2: STUDIES

2.1 CORRIDOR

Plains selected the proposed Transmission Facility Corridor (Corridor) based upon several criteria designed to conform with siting requirements and avoid and minimize socioeconomic and environmental impacts, while maximizing the benefits to local resource developers in the Williston Basin. The selection process was also influenced by the location of existing assets.

Plains has completed advance routing analysis as a function of the Project development. The planning narrowed potential alignments to that presented in this Consolidated Application. A benefit of this approach is to narrow the focus of supporting Corridor studies to the minimum required while demonstrating to the Commission that State siting criteria can be satisfied within the constrained study area. The proposed Corridor is a one-mile wide area that is centered upon the proposed pipeline alignment (*e.g.*, one-half mile on either side of the proposed pipeline). The proposed Corridor and preferred Route are illustrated on the maps located in the Appendix B.

A comprehensive desktop analysis of the Corridor was augmented with consultations with the Federal and State agencies identified below, as well as a Class I Cultural Resource Inventory. The results of this environmental analysis are summarized below. Records of consultations with the agencies listed below are provided in Appendix C.

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Farm Service Agency (FSA)
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation-Natural Heritage Program (NDPRD)
- North Dakota State Lands Department (NDSLD)
- North Dakota State Preservation Office (SHPO)
- North Dakota Department of Health (NDDoH)

2.2 ENVIRONMENTAL DESKTOP ANALYSIS

2.2.1 WILDLIFE INVENTORY

Regionally, approximately 160 wildlife species are resident or seasonal inhabitants. The Corridor is comprised primarily of agricultural lands (*e.g.*, cultivated crops or range land). The agencies listed above were consulted regarding the potential occurrence of protected or sensitive species and their critical habitats within the Corridor. Wildlife species inhabiting or present in the Corridor are those commonly

associated with the northwestern North Dakota region. The composition of mammals, birds, amphibian and reptiles that potentially occur in the Corridor is typical of a mixed grass, dry prairie system. While some species have increased with agricultural development, others have declined. The greatest degree of species richness can be expected to be associated with native prairie, wetlands, prairie potholes and lakes, and the riparian corridor along the waterways.

Species diversity associated with agricultural areas will be constrained by the lack of suitable native habitat and will often be limited to remnant habitats such as uncropped swales, or incised water courses. Species may also be found utilizing marginal habitats adjacent to active agricultural field areas, such as the edges of crop fields, road ditches, and on the uncut banks and beds of unimproved county roads. Quality wildlife habitat in the Corridor is limited and wildlife species composition reflects the extensively modified landscape.

Approximately 160 wildlife species are resident or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the mainstream and tributaries. Some of the animal species commonly found in the Missouri River Valley area include various mammals, such as muskrat, eastern cottontail, mule deer, white-tailed deer, and pronghorn; various song birds; waterfowl species, such as mallard and Canada goose; upland birds, such as crows, woodpeckers, and sharp-tailed grouse; water birds, including grebes, plovers, and yellow-headed blackbirds; and various raptors, including golden eagles and bald eagles.

Plains engaged various Federal and State agencies in Project-specific consultations to identify potential occurrences of sensitive species or their critical habit(s) (please see Appendix C for complete record of agency consultations). In addition to agency consultations and desktop analysis, Plains also commissioned field studies of the Corridor and more specifically the proposed Route to record the presence or absence of sensitive species or their critical habitats. The information gathered from these surveys will be used for final routing, permitting, and mitigation planning where necessary. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the application for a Route Permit.

2.2.2 WETLAND AND WATERBODIES ANALYSIS

Desktop analysis of aerial photography and National Wetland Inventory (NWI) maps was used to evaluate the location and extent of mapped wetlands and waterbody features within the Corridor. The majority of the Corridor lacked mapped wetland features. The inventory of waterbodies within the proposed Corridor found four (4) named waterways and their smaller unnamed intermittent tributaries: Painted Woods Creek, Sand Creek, Cow Creek, and East Fork Branch Mountain Creek. Routing has taken these features into consideration and has avoided direct impacts where practicable.

Plains commissioned additional field studies of the Corridor and more specifically the proposed Route to delineate wetland and waterbody boundaries. The information gathered from these surveys will be used for final routing, permitting, and mitigation planning where necessary. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the application for a Route Permit.

2.2.3 TREE/SAPLING/SHRUB ANALYSIS

Desktop analysis of aerial photography was used to evaluate the location and extent of woody vegetation within the Corridor. The density of the woody cover was sparse, and appears to be typically either associated with a cultivated windrow feature or a natural feature, such as waterbody, or more commonly with significant topographic relief, such as defined banks or incised drainage ways. Plains has commissioned additional studies of the Corridor and more specifically the proposed route to inventory woody vegetation, study avoidance mitigation and inventory proposed impacts for mitigation. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the application for a Route Permit.

2.3 AGENCY CONSULTATIONS

2.3.1 U.S. FISH AND WILDLIFE SERVICE

The USFWS administers several programs designed to identify and protect special status plant and animal species and critical habitats. E3 Environmental, LLC (E3), on behalf of Plains, requested a Project review of the Corridor by USFWS on May 25, 2011. An agency response is pending.

2.3.1.1 FEDERALLY PROTECTED SPECIES REVIEW

Under authority of the Endangered Species Act (ESA), the USFWS has identified and maintains a list of species and critical habitats that have been afforded protection under the ESA. The ESA provides a program for the conservation of threatened and endangered plants and animals and the habitats that they inhabit.

On behalf of Plains, E3 provided technical assistance with protected species review and subsequent consultations with the USFWS. E3 reviewed USFWS published data and identified the following listed species and the potential for the species to occur within the Corridor.

- Whooping crane (*Grus americana*) – Endangered
- Least tern (*Sterna antillarum*) – Endangered
- Piping plover (*Charadrius melodus*) – Threatened
- Pallid sturgeon (*Scaphirhynchus albus*) – Endangered

- Gray wolf (*Canis lupus*) – Endangered

E3 reviewed the available information that described the life history, critical habitats, and conservation measures associated with each species to assess the potential effects of the Project on these resources. The results of the assessment are provided below:

Whooping crane:

The Aransas Wood Buffalo Population of whooping cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. This species has been closely studied and monitored in recent years due to its small, fragile population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage.

Least tern:

The interior population(s) of the least tern has historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to breed in colonies, utilizing sandbar habitat common to larger rivers. The Missouri and Yellowstone Rivers are frequently cited by the USFWS as locations within the region that are known to host breeding populations of the least terns. The Project does not cross either river and the entire Project is more than 1 mile away from the Missouri River. The southern terminus, including the Station is located approximately 1.5 miles from the Missouri River. No suitable habitat is present within the Corridor, in North Dakota.

Piping plover:

The piping plover (plover) is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25 percent of the area. The Missouri and Yellowstone Rivers are frequently cited by the USFWS as locations within the region that are known to host breeding populations of the plovers. The Project does not cross either river and the entire Project is more than 1 mile away from the Missouri River. The southern terminus, including the Station, is located approximately 1.5 miles from the Missouri River. No suitable habitat is present within the Corridor, in North Dakota.

Pallid sturgeon:

In North Dakota, there are reaches of the Missouri River that have been cited as providing suitable habitat for the sturgeon. The Project does not cross the Missouri River and the entire Project is more than 1 mile away from it. The southern terminus,

including the Station, is located approximately 1.5 miles from the river. No suitable habitat is present within the Corridor, in North Dakota.

Gray wolf:

Since 1978, the gray wolf has been managed by the USFWS as an endangered species under the guidelines of the ESA. In North Dakota it is generally accepted that the wolf was extirpated in the 1920's or 1930's. Since that time there have been sporadic reports, which authorities attribute to individual animals dispersing from larger populations in Minnesota or Manitoba. Currently there are no known viable populations of wolves in the Corridor.

2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION

On May 25, 2011, E3, on behalf of Plains, initiated consultation with the USFWS with respect to several topics that fall under the purview of the USFWS including the Migratory Bird Treaty Act (MBTA). The management of MBTA concerns correspond with the regional timing associated with annual phenology of migratory species. In North Dakota, it is generally acknowledged that MBTA species of concern may be present in North Dakota from February 1 through July 15 annually. Hence, MBTA mitigation may be required if construction will take place during this timeframe. The current project schedule suggests that this may be the case. Plains will continue to consult with agencies as necessary regarding this subject and shall develop MBTA mitigation as required (see Appendix C for related consultations, and SECTION 4: Mitigative Measures of the Route Permit application for additional details regarding proposed mitigation).

2.3.1.3 BALD AND GOLDEN EAGLES ACT CONSULTATION

The Bald and Golden Eagle Act (BGEA) prohibits anyone without a permit from taking a bald or golden eagle, including their parts, nests, or eggs. The BGEA defines "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The BGEA also addresses impacts resulting from human-induced alterations occurring around previously used nesting sites.

On May 25, 2011, E3, on behalf of Plains, initiated BGEA consultations with the USFWS seeking confirmation of presence or absence of known nesting locations for either eagle species within the Corridor. A response from the USFWS is pending (see Appendix C for related consultations).

Plains augmented agency consultation with field surveys to confirm the presence or absence of eagle's nests within ½ mile of the proposed Route. These efforts were conducted between April and June of 2011. Field biologists confirmed the absence of active eagle nests within the surveyed corridor. The results of these studies are fully detailed in Appendix D.

2.3.1.4 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

On May 25, 2011, E3, on behalf of Plains, initiated consultations with the USFWS seeking confirmation of the presence or absence of USFWS managed lands within the Corridor. A response from the USFWS is pending (see Appendix C for related consultations).

2.3.2 U.S. FARM SERVICE AGENCY

On May 25, 2011, E3, on behalf of Plains' consulted with the local FSA office to confirm the presence or absence of Conservation Reserve Program (CRP) or Grassland Reserve Program lands within the proposed Corridor. The Williams County office of the FSA responded and confirmed that the agency has made CRP payments to three (3) individuals within the proposed Corridor, but declined to offer any additional details, citing confidentiality restrictions (see Appendix C for related consultations).

2.3.3 NORTH DAKOTA GAME AND FISH DEPARTMENT

The NDGFD exercises oversight and management of the state's game species and certain state-managed lands (*e.g.*, PLOTS Program). On May 25, 2011, E3 initiated Project-specific consultations with NDGFD and requested a Project review seeking confirmation regarding the presence or the absence of both state-managed lands and wildlife concerns within the proposed Corridor.

On June 23, 2011, NDGFD responded and confirmed the absence of state managed lands within the Corridor. The NDGFD response also assessed the potential impact to Species of Conservation Priority and their critical habitats and concluded the Project would have no negative impact provided disturbed areas are restored to pre-construction condition (see Appendix C for related consultations).

2.3.4 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

The NDPRD – Natural Resource Division's scope of authority and expertise covers recreation and biological resources (in particular rare species and ecological communities). The NDPRD also maintains a database comprised of the location and recorded occurrences of plant and animal species of special concern. The NDPRD authority includes management of state park lands and Land and Water Conservation Funded recreation projects.

On May 25, 2011, E3 initiated Project-specific consultations with NDPRD and requested a Project review seeking confirmation regarding the presence or the absence of managed lands, ecological resources, rare species or their critical habitats.

On June 6, 2011, NDPRD responded and confirmed the absence of state-managed lands or Land Water Conservation Fund recreation projects within the Corridor. The NDPRD response also included the results of the North Dakota Natural Heritage biological conservation database review and confirmed the absence of known plant or animal communities and their critical habitats within the Corridor. The NDPRD

recommended that Plains restore disturbed areas with native plant species (see Appendix C for related consultations).

2.3.5 NORTH DAKOTA STATE LANDS DEPARTMENT

The NDSLD is in charge of managing surface acres and mineral interests held in trust for various schools and institutions.

Plains is seeking a surface easement from NDSLD to cross Section 16, Township 156 North, Range 102 West, Williams County, North Dakota. The NDSLD has suggested co-locating the BNP with other pipelines. Easement negotiations are continuing (see Appendix C for a copy of the correspondence).

Consultations with NDSLD with respect to mineral interests were initiated on May 25, 2011. The NDSLD identified NDSLD mineral interests within the following sections in Williams County that are crossed by the Corridor:

- Section 32, Township 158 North, Range 103 West.
- Sections 5 and 9, Township 157 North, Range 103 West.

Plains is currently engaged in consultations with NDSLD regarding the mineral interests and the NDSLD's suggested routing alternatives. Please see Appendix B (SC 4 and SC6) for maps of these locations and Appendix C for a copy of related correspondence.

2.3.6 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The SHPO is responsible for managing the historic and archaeological resources of the state; as such, the SHPO maintains records of all previously recorded cultural resources within the state. Plains commissioned, SWCA, Inc. (SWCA), to conduct a Class I Cultural Resource Inventory of the Corridor, and background research was conducted on January 26, March 7 and 8, and April 12, 2011. The purpose of a Class I Cultural Resource Inventory is to review the existing records maintained by the SHPO. Research conducted by SWCA for the BNP identified 59 previously recorded cultural resource sites that are located within the proposed Corridor. These results were used to assess Corridor compatibility for routing and later for Route refinement and preparation for field studies.

Please refer to Appendix C for related agency consultations, Appendix E for Cultural Resource Survey Reports and SECTION 4: Mitigative Measures of the Route Permit application for proposed mitigation measures.

2.3.7 NORTH DAKOTA DEPARTMENT OF HEALTH

The NDDoH administers regulatory programs governing certain water discharges. Plains is currently in the process of preparing NDDoH permit application materials to acquire the requisite approval with respect to water discharges.

2.3.7.1 NDDOH POLLUTION DISCHARGE ELIMINATION SYSTEM

The NDDoH administers the North Dakota Pollution Discharge Elimination System (NDPDES) a regulatory program that regulates and issues permits for water discharges, such as construction stormwater, site dewatering and hydrostatic discharge permits. Plains will obtain the following NDPDES permits from the NDDoH.

Construction Stormwater: Plains will be seeking coverage under NDR10-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for construction sites as required when disturbing an area greater than five (5) acres. A project-specific erosion control plan referred to as Storm Water Pollution Prevention Plan (SWPPP) will be prepared and maintained on-site for the duration of the Project. Plains will properly implement the SWPPP which will be designed to manage run-off and trench dewatering discharges in a manner that will minimize exposure to chemicals, waste, and petroleum products, as well as describe erosion control measures designed to minimize off-site transfer of sediments.

Hydrostatic test water discharges: Plains will be seeking coverage under NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for various temporary discharges, including both construction site dewatering and hydrostatic test water discharges.

SECTION 3: NEED FOR FACILITY

3.1 ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks shale formations. The total recoverable amount of Bakken Shale and Three Forks oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources and U.S. Geologic Survey (USGS) in 2008 and 2010 indicate that 4.0 to 6.3 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. Oil production statistics from the Bakken and Three Forks formations indicate that oil production has increased dramatically over the past three years from nearly 110,000 bpd in 2007 to nearly 386,600 bpd in June, 2010. Oil production is expected to increase by an additional 200,000 to 300,000 bpd by 2015.

The major constraint in transporting oil from North Dakota to refining centers in the United States is the lack of pipeline capacity. Interstate pipelines offering delivery out of the Bakken Formation are few. To relieve the pipeline constraints, several major projects have been planned to address the growing volumes of crude oil, but pipeline capacity is not expected to keep pace with production until early 2013 leaving incremental volumes to find alternative transportation methods, primarily rail.

Enbridge Energy, Tesoro Logistics, LP, and True Companies, Inc., currently provide oil pipeline transport services from the Bakken Formation to refining centers and storage areas; however, only Tesoro Logistics, LP, and Enbridge Energy have existing pipeline systems in the Project area. Enbridge Energy and True Companies are also proposing construction of new pipeline facilities that are expected to be operational by 2013. These pipelines will connect to existing cross-country pipelines and will have a capacity of approximately 165,000 bpd when operational, which is well short of daily production that is expected by 2015.

Additional transportation of oil from the Bakken Formation is provided by tanker truck to railroads. Railroads are currently transporting approximately 20 percent of the Bakken Formation production to tank farms and refining facilities located in Oklahoma, Texas, Louisiana, California and other states. North Dakota has eight (8) railroad loading and unloading facilities, with an additional three sites planned for construction. Of these, the closest operating facility is located in Ross, North Dakota, approximately 63 miles east and north of Trenton, North Dakota (DMR 2011). Use of these facilities would involve considerable tank truck use.

Savage Services (Savage) and Rangeland Energy, LLC (Rangeland), have announced future railroad loading and unloading developments. Savage's proposal is to construct

a Trenton Railport Williston Basin Crude and Materials Multiuser Station near Trenton; however, the project is only in the development stage. The Savage proposal, although in the immediate vicinity of the Plains Station, will not provide service in the foreseeable future. Rangeland's project will be constructed in 2012 in Epping, North Dakota; however, it is located approximately 30 miles by tanker truck from the Plains Station. Use of Rangeland's development would involve significant movement of crude oil by tanker truck over public roadways, a public safety issue that the Project would avoid.

With the constraints to the existing transportation infrastructure in the Project area, construction of the Project would provide Plains with a mechanism to manage the crude oil transported so as to determine the schedule and destination in a way that will allow producers to obtain the highest market value.

3.2 DESCRIPTION OF FEASIBLE ALTERNATIVE METHODS OF SERVING THE NEED

The Project objective is to initially deliver up to 48,000 bpd of crude oil from the Plains Station to refineries in the Midwest or Southwest, with the necessary capacity to transport up to 75,000 bpd. Plains identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No Action Alternative;
- Trucking Alternative; and
- Rail Alternative.

No Action Alternative:

A No Action Alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil to markets. Overall, regional crude oil production would continue to be constrained by the limited transmission capacity to refining facilities and would continue to depress market pricing for crude oil regionally. This alternative is not desirable. For these reasons, Plains rejected a *No Action Alternative*.

Trucking Alternative:

This scenario was reviewed and eliminated due to the volumes of crude oil that will be shipped by BNP. The initial design capacity of BNP is 48,000 bpd or 2,016,000 gallons per day of crude oil. The typical load limit is approximately 10,000 gallons per truck. Thus, it will require 202 trucks per day to provide an equivalent shipping capacity, an average of 8.4 trucks every hour for 24 hours a day. This volume of truck traffic is not logistically feasible; it would cause an unacceptable amount of heavy vehicle traffic for the area residents, as well as additional wear and tear on the

infrastructure. Any disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather, or road repairs would immediately impact production in the region. This alternative is not desirable. For these reasons, Plains rejected a *Trucking Alternative*.

Rail Alternative:

Rail transportation of crude oil is generally an accepted alternative to other surface transportation alternatives. To exercise this option with the infrastructure that is currently available, Plains would need to employ tanker trucks to transport crude oil from the Station to the nearest rail terminal more than 30 miles away. The use of tanker trucks would diminish the potential gains that rail transportation would offer. The development of a rail terminal at Plains' Station would relieve the trucking burden, but there are several factors that dissuaded the pursuit of this alternative: first, there is not sufficient space available at the Station to site a rail loading rack; secondly the siting and construction of a minimum of 30 miles of rail spur would result in significant environmental impacts, including the permanent environmental impacts associated with the construction and operation of this above-ground feature; finally, the combination of financial, logistic, and timing constraints are not compatible with the proposed Project. This alternative is not desirable. For these reasons, rail was not considered a viable alternative to the proposed Project.

SECTION 4: LOCATION

4.1 CORRIDOR

Plains has identified a preferred Corridor, which is a one-mile-wide area centered upon the proposed pipeline Route. The selection of the proposed Corridor was a multi-disciplinary effort that included socio economic, environmental, logistics, engineering and financial considerations. The Corridor described in this application provides Plains with the opportunity to access existing operating assets, minimizes landowner impacts, and minimizes environmental impacts.

Plains owns and operates several assets in the region. The operations of these assets are conducted in a manner that maximizes overall value of the resource, which benefits regional stakeholders (producers, royalty owners, and the state, through tax revenues). Furthermore, the Corridor was developed to take advantage of available transmission capacity on Plains' Wascana Pipeline.

Plains has initiated agency consultations, and performed internet-based research and desktop analysis of the Corridor. These efforts were augmented by site visits, including biological and cultural resource field surveys. These results are discussed in detail in the application for a Route Permit.

4.2 IDENTIFY AND MAP CRITERIA

The information presented in this section was developed to demonstrate conformation with the Commission's siting criteria for transmission facilities. Plains has conducted a thorough inventory of the Corridor and evaluated the resources that occur within it to sufficiently assess the compatibility of the Project with the PSC's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Corridor. Where siting criteria are identified, the location of each is shown on the maps in Appendix B.

4.3 EXCLUSION AREA INVENTORY AND ANALYSIS

Exclusion areas are geographical areas that should be excluded from consideration when siting an energy transmission facility. A proposed corridor may contain exclusion areas, but may not encompass more than fifty (50) percent of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss exclusion areas identified within the Corridor.

Exclusion Area	Within Corridor
Federal	
National Parks or Memorial Parks	No
Historic Sites, Districts, or Landmarks	No
Natural Landmarks or Monuments	No

Exclusion Area	Within Corridor
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	
Areas Critical to the Life Stages of Threatened and Endangered Animal or Plant Species	No
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No

4.3.1 FEDERAL RESOURCE REVIEW

Plains has initiated consultations with various Federal agencies and has conducted a comprehensive review of published information. Plains has concluded that no national parks or memorial parks; natural landmarks or monuments; and no Federally designated wilderness areas will be crossed or will be affected by the Project. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Plains' consultations and Appendix C for reference.

Plains has completed a Class I Cultural Resource Inventory of the Corridor. A subsequent Class III Cultural Resource Inventory was conducted of the survey corridor. These efforts confirmed the absence of historic districts or landmarks of Federal interest. Several sites were identified and characterized as eligible or potentially eligible sites under the National Historic Preservation Act (NHPA). Plains' final routing will avoid impacts to these sites. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Plains' related consultations, and Appendices D and E for copies of field survey reports. Mitigation details are discussed in SECTION 4: Mitigative Measures of the Route Permit Application.

4.3.2 STATE RESOURCE REVIEW

Plains has confirmed through a combination of agency consultations, review of publicly-available information and field studies the absence of state parks, historic sites, monuments, historical markers, archaeological sites, or nature preserves within the proposed Corridor. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Plains' consultations and Appendices C (Consultations) and E (Cultural Resource Report) for reference.

4.3.3 COUNTY RESOURCE REVIEW

Plains has confirmed through a combination of agency consultations, review of publicly-available information and field studies the absence of county parks or recreation areas, municipal parks, or parks owned by other subdivisions of government bodies within the proposed Corridor. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Plains' consultations and Appendix C for documentation of agency consultations.

4.3.4 AREAS CRITICAL TO THE LIFE STAGES OF THREATENED AND ENDANGERED ANIMAL OR PLANT SPECIES

Plains has conducted a comprehensive desktop review of the Corridor; these efforts were augmented with agency consultations and additional Plains-commissioned field surveys of the proposed Corridor to confirm presence or absence of critical habitat.

Please refer to Appendix C for documentation of the agency consultation as well as SECTION 2: Route Analysis and Findings of the application for a Route Permit for details of the field studies.

4.3.5 AREAS WHERE ANIMAL OR PLANT SPECIES THAT ARE UNIQUE OR RARE TO THIS STATE WOULD BE IRREVERSIBLY DAMAGED

Plains has engaged in Federal and State agency consultations, reviewed published information regarding critical habitat, and conducted a desk top analysis of the Corridor for the purpose of assessing potential environmental impacts. Based on these studies, Plains has concluded that neither protected species nor their critical habitats are present within the Corridor. Please refer to SECTION 2: Route Analysis and Findings of the application for a Route Permit for a detailed description of the field studies, Appendix C for supporting documentation of agency correspondence, and Appendix D for complete survey results.

4.4 AVOIDANCE AREA INVENTORY AND ANALYSIS

Avoidance areas are geographical areas that shall not be considered in the routing of a transmission facility unless, under the circumstances, it is shown that there is no reasonable alternative. A proposed corridor may contain avoidance areas, but may not encompass more than fifty (50) percent of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the proposed Corridor.

Avoidance Area	Within Corridor
Federal	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No

Avoidance Area	Within Corridor
Grasslands	No
State	
Wild, Scenic, or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Areas	No
Grasslands	No
Other	
Other Historic Resources not meeting Exclusion Areas criteria	No
Areas of Known Geologic Instability	No
Areas within 500-Feet of a Residence, School, or Place of Business	Yes
Reservoirs and Municipal Water Supplies	No
Water Sources for Organized Rural Water Districts	No
Irrigated Land (does not apply to underground facilities)	Not Applicable
Areas of Recreational Significance which are not designated as Exclusion Areas	No

4.4.1 FEDERAL RESOURCE REVIEW

Plains managed a comprehensive review of publicly-available information, Project-specific agency consultations and field studies of the proposed Corridor, which indicated the absence of designated or registered historic districts, wildlife areas or refuges, grasslands, or wild, scenic, or recreational rivers within the Corridor. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Plains' consultations; Appendix C for supporting documentation of agency correspondence; and Appendix D for complete survey results.

4.4.2 STATE RESOURCE REVIEW

Plains conducted a review of publicly available information and has concluded that there are no designated or registered state game refuges, game management areas, management areas, forests, forest management lands, grasslands, or wild, scenic, or recreational rivers within the Corridor.

4.4.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

Plains commissioned a Class I Cultural Resource Inventory of the Corridor, and Class III Cultural Resource Inventory of the proposed pipeline Route. These studies identified and confirmed the presence of potential historical resources. Researchers searched relevant records at the State Historical Society of North Dakota and other available sources for information regarding previously recorded historic and prehistoric sites located within the Corridor. Background research was conducted on

January 26, March 7 and 8, and April 12, 2011. Based upon these efforts, Plains has concluded that there are no additional historical resources located within the Corridor that meet the avoidance criteria.

Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Plains' consultations. See also Appendices C and E. Mitigation details are discussed in SECTION 4: Mitigative Measures of the Route Permit Application.

4.4.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

A total of 1,853 landslides were identified by the North Dakota Geological Survey (NDGS) in the Watford City area, an area that occupies approximately 1,536 square miles and extends to the Montana state line. The landslide map covers the entire Project footprint. Many of these slides are complexes, consisting of multiple landslides that formed from a half dozen or more individual events. These slides cover an area of 28,700 acres or approximately 3 percent of the area; however, the landslides are well concentrated in the Little Missouri River Badlands. No landslides or topography that is susceptible to landslides is included in the Project Corridor.

Additionally, North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sink holes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. Plains has determined that no mining activities are located in the in the Corridor or proposed Route.

4.4.5 AREAS WITHIN 500-FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS

Plains utilized aerial photography to identify structures located within 500 feet of the proposed pipeline alignment. Field surveys were conducted of each structure to characterize the structure as rural residence, school or place of business. Plains has identified one (1) location where an occupied structure is located within 500 feet of the proposed alignment. See Appendix B (*i.e.*; SC3) for map depicting this location.

4.4.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

Plains has confirmed that the Corridor does not contain reservoirs or municipal water supply sources.

4.4.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Plains has confirmed that the Corridor does not contain water sources that are utilized by organized rural water districts.

4.4.8 IRRIGATED LAND

This criterion does not apply to underground transmission facilities; as such, it is not applicable to this Project.

4.4.9 AREAS OF RECREATIONANL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS

Plains has confirmed that the Corridor does not contain any other areas of Recreational Significance.

4.5 FACTORS TO BE CONSIDERED IN EVALUATING APPLICATIONS AND DESIGNATION OF SITES, CORRIDORS, AND ROUTES (SECTION 49-22-09, N.D.C.C.)

4.5.1 SELECTION CRITERIA

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the proposed Project. Plains has successfully avoided or minimized negative effects to the maximum extent practicable.

4.5.1.1 AGRICULTURAL IMPACT ASSESSMENT

Agricultural Production: The Project will temporarily impact approximately 270 acres of private land in North Dakota. Once the construction is complete, the land will be restored to its pre-construction contours and land use, to the extent practicable. Plains will provide payments to landowners for crop loss resulting from Project construction.

The installation of three (3) block valves will permanently impact an estimated 0.04 acres per site; as such, an estimated total of 0.12 acres of agricultural lands will be removed from agricultural production.

Family Farms and Ranches: The Project will temporarily impact approximately 270 acres of private land in North Dakota. Prior to clearing, landowner fences will be braced and cut to allow the passage and operation of equipment; temporary gates and fences will be installed to control livestock where necessary. Once construction is complete, the land will be restored to its pre-construction contours and land use to the extent practicable. Fences and gates impacted by the project will be replaced in accordance with landowner agreements. Plains will negotiate easements with all affected landowners.

The Project will have minimal impact to lifestyle or farm/ranch operations once construction has been completed. Buried pipelines will not impact typical farm or ranch operations, and those areas directly impacted by construction will be restored to their pre-construction condition to the extent practicable. Direct impacts are anticipated to be limited to approximately 0.12 acres associated for the block valve installation, as previously described.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (69-06-08-02.2h).

Surface Drainage: During restoration, those areas that were disturbed during construction shall be restored, the local topography shall be restored to its original contours, vegetation shall be reestablished, and impacts shall be minimal and temporary.

Ground Water: Groundwater resources in the Project Corridor include sedimentary rocks of the Fort Union Group of Tertiary age and glacial drift of Quaternary age. The Fort Union Formation which underlies the region includes the lower Tertiary aquifer consisting of alternating beds of sandstone, siltstone, and claystone. The thickness of the Fort Union Formation in the region is variable, but in most locations it is approximately 300 feet deep. The sandstone beds of the Fort Union are coarse-grained and permeable. Wells finished in bedrock typically yield up to 50 gallons per minute, and wells finished in glacial drift can yield 300 gallons per minute.

The majority of the region is covered by relatively thin drift and only very local aquifers exist above the Fort Union Group. Water levels in these local aquifers compare with the regional water table or piezometric surface, which parallels the land surface in a very general way. Groundwater divides are in the general areas of the surface-water divides. The piezometric surface generally slopes toward the large drainages, such as Bennie Peer Creek.

Well data has been recorded by the State Water Commission for the area. This data indicates that groundwater is located between 72-140 feet below the surface, with typical yields of approximately 10 gallons per minute or less.

Subsurface excavations associated with the Project will not extend to more than 10 feet below the ground surface. At that depth, the Project will not intersect the groundwater table, nor will the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, the lateral movement and groundwater quality will not be affected by construction of the Project.

Surficial aquifers along streams and wetlands may be affected, but surficial aquifers are localized and typically do not provide a domestic water supply. Impacts to surficial aquifers will be minor and short term.

4.5.1.2 THE IMPACTS UPON

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Once constructed and in-service, normal pipeline operations are not audible. A review of the Corridor found one (1) noise-sensitive resource, an inhabited structure, located within 500-feet of the proposed pipeline alignment.

Visual Effect on Adjacent Areas: The proposed Project will include three (3) mainline block valves located in North Dakota. Block valves are small above ground features. Each block valve assembly occupies approximately 0.04 acres with exposed piping and appurtenances that may be up to 6 feet in height. These facilities will be enclosed within fences that are padlocked shut against vandalism. Each location is clearly marked with a small placard that details ownership and contact information. Visible piping and equipment are finished and maintained with white painted surfaces. These features are common throughout the landscape and are not obtrusive; no other permanent above-ground features are to be installed for the Project.

Extractive and Storage Resources: This Project will not impact any extractive or storage resources.

Wetlands, Woodlands, and Wooded Areas: A comprehensive desktop review of published data, including aerial photography and NWI data, was conducted to assess the presence or absence of wetlands, woodlands, and wooded areas. The review of the proposed Corridor confirmed the presence of these resources. Plains commissioned field surveys to identify and record the locations of these resources along the proposed Route. The results of these field studies will be used to determine a preferred alignment to minimize impacts to wetlands, woodlands, and wooded areas. Please refer to SECTION 2: Studies of the Corridor Certificate Application for a comprehensive discussion of Plains' consultations. See also Appendices C and D. Mitigation details are discussed in SECTION 4: Mitigative Measures of the Route Permit Application.

Radio and Television Reception, and other Communication or Electronic Control Facilities: Plains does not anticipate that the Project will impact radio, television, or other electronic control facilities.

Human Health and Safety: Plains' corporate Health and Safety policy meets or exceeds Federal and State laws, rules and regulations and is enforced equally with respect to both Plains' and contractor employees. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Plains' assets.

The design of BNP has incorporated the use of block valves at regular intervals. The purpose of the block valves is to segment the system and allow for the isolation of select portions of the system to facilitate maintenance in a safe and controlled manner. Additionally, in the event of an abnormal operating condition, block valves can be closed as necessary to prevent an uncontrolled release of crude oil. Finally, the operation of the BNP will be continuously monitored via Plains' Supervisory Control and Data Acquisition system, which is designed to shut in any section that exhibits abnormal operating parameters.

Animal Health and Safety: The wildlife currently inhabiting the Corridor are common and are generally mobile. The local wildlife inhabitants will be temporarily displaced by the Project without a measurable impact to the viability of these populations. No species of special concern are anticipated to experience direct impacts due to construction or operation of the Project.

Plant Life: All impacts will be temporary in nature and disturbed areas will be returned to pre-construction conditions, to the extent practicable. No species of special concern will be impacted by the Project.

4.6 POLICY CRITERIA

4.6.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Plains will comply with requirements contained in the Corridor Certificate and Route Permit. Plains will conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to Plains are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations, and will be held accountable for their actions in that regard. Plains is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife, and natural resources.

4.6.2 LOCATION AND DESIGN

The North Dakota portion of the Project will be located entirely within Williams County, originating approximately 9 miles southwest of Williston. The routing of BNP would be oriented generally north and west terminating roughly 2.5 miles north of Outlook in Sheridan County, Montana. Please refer to maps provided in Appendix B.

The pipe will be a 12.75-inch outside diameter pipe. The pipe installed will meet the following minimum specifications: API 5L PSL 2 X52 line pipe with a nominal wall thickness of 0.250 inches; the nominal wall thickness will increase to 0.344 inches for specific locations such as road crossings. The MOP of the pipeline will be 1,468 psig.

The proposed Project will include three (3) mainline block valves located in North Dakota. These valves will be installed to meet DOT regulations and will allow for the isolation of select segments of the pipeline for inspection and maintenance purposes.

The valves to be installed will be 12-inch ANSI 600, flange end by flange end, through conduit, slab gate valves with motor operators for remote actuation. All block valves installed in the pipeline will be manufactured in accordance with API Standard 6D. The MOP of each valve will be 1,468 psig.

4.6.3 TRAINING AND UTILIZATION OF AVAILABLE LABOR IN THIS STATE FOR THE GENERAL AND SPECIALIZED SKILLS REQUIRED

The construction labor pool utilized by the Project will be primarily comprised of a non-local workforce because pipeline construction is a specialized niche construction market that relies extensively on skilled trades with specific knowledge of pipeline construction techniques. The primary contractor will be a non-local contractor, supplying specialized skilled labor. Plains will draw upon the local labor force to supply general laborers. The workforce is anticipated to reach a peak of approximately 100 personnel of which up to 10 percent could be local hires.

4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION

The Project represents a total investment of approximately $160-200 million of which an estimated $25 million will be spent in Williams County, North Dakota on the BNP pipeline and appurtenant facilities. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are expected to be minimal.

4.6.5 USE OF CITIZEN COORDINATING COMMITTEES

Through its long-term corporate presence in the region, Plains has established and maintains a good relationship with the local community officials and the local population. These relationships provide multiple grass roots communication channels to inform local residents regarding the developments associated with the Project. .

4.6.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE.

The proposed Project will interconnect with existing facilities. The products that are currently handled, transferred, and shipped at these facilities are currently delivered to markets located out of the state.

4.6.7 LABOR RELATIONS

Plains maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. The labor market in the Project area is supportive of the oil and gas industry.

4.6.8 THE COORDINATION OF FACILITIES

Plains owns and operates all of the affected facilities; thus, coordination will be seamless and executed from within Plains' internal management systems.

4.6.9 MONITORING OF IMPACTS

Plains has operated pipeline gathering and station assets in the area since 2004 and through these operations has established and maintained positive landowner and community relationships throughout the region. Plains' operations reflect its commitment to corporate citizenship standards that are founded on integrity. Plains will monitor landowner concerns, if any, through its Land Department and will

respond to all reasonable concerns. Similarly, Plains will monitor community concerns and will respond to all reasonable concerns brought to its attention by local community leaders. Plains is currently in the process of selecting a primary contractor for the construction of the Project, and will coordinate with this contractor with respect to the oversight responsibilities for construction activities. Environmental responsibilities shall be coordinated in the same manner.

4.6.10 UTILIZATION OF EXISTING AND PROPOSED RIGHTS-OF-WAY AND CORRIDORS

The BNP pipeline route will parallel existing or proposed pipelines for approximately 19% (6.0 miles) of the total 31.8 miles of pipeline right-of-way in North Dakota. See Appendix B for maps (*i.e.*; SC1, SC2, and SC4) depicting these locations.

4.6.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

The BNP was designed to allow for the increase of initial 48,000 bpd capacity to 75,000 bpd. Market conditions and demand for transmission capacity will be taken into consideration when evaluating future development timing. No other transmission facilities are currently planned. Appendix F contains Plains' 10-Year Plan.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The selection of the proposed Corridor was a multi-disciplinary effort that included socio economic, environmental, logistics, engineering and financial considerations. The Corridor described in this application meets the siting criteria, minimizes Project length, and utilizes existing Plains' assets, avoiding the need to build additional assets and thereby minimizing collateral environmental impacts.

Landowner considerations also factored into the Corridor selection. The proposed Corridor limits the number of potentially affected landowners while providing potential routing opportunities that would further minimize individual impacts to current land practices. All affected landowners will be compensated for Project impacts through negotiated easement agreements and payments for seasonal crop losses.

The proposed Corridor selection was influenced by environmental studies that suggested the area lacked sensitive features, such as critical wildlife habitat, major wetlands or waterbodies, or other unique environmental features. The proposed Corridor will allow routing options that will further minimize waterbody crossings and potentially avoid at least one waterbody crossing entirely. In addition to these routing considerations, compliance with environmental permits procured for the Project will serve to effectively mitigate the impacts of construction along the final approved route. Standard pipeline construction techniques will involve temporary impacts, but long-term or permanent impacts will be avoided through implementation of modern construction techniques, adherence to permit requirements, and avoidance of sensitive features identified during routing studies.

Plains owns and operates several assets in the region. Planning and development of these assets are conducted in a manner that maximizes the benefits to the region's resources. The proposed Corridor and Route will allow Plains to draw upon existing pipeline and facility assets in the region.

5.2 CONSTRUCTION

Construction of the proposed Project will be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required to safely prepare the site, install the pipeline and restore the areas disturbed by construction.

Construction is estimated to require a minimum of 90 days from initial clearing to commissioning, with restoration to immediately follow. Construction techniques will be employed that minimize the area of ground disturbance, off-site deposition of sediments and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit stipulations; these requirements are mandated by the agency and implemented by the Project sponsor for the purpose of minimizing impacts to the environment.

Restoration will immediately follow Project construction. Final grading will restore the original contours of the land, to the extent practicable. Disturbed areas will be prepared for re-seeding and restoration will be coordinated to meet landowner and applicable agency specifications.

5.3 OPERATION

Once constructed and put into service, the proposed Project will operate continuously, delivering crude oil from Plains' Trenton Station to an interconnection to other existing Plains assets in Sheridan County, Montana near Outlook. Normal pipeline operations are imperceptible to the general public, as they are silent, buried and therefore not visible, and require only minimal above-ground activity. Standard operating procedures will conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection; additionally, routine maintenance of the right-of-way will likely be required on a regular basis to remain in compliance.

SECTION 6: LIST OF PREPARERS

Mark Bordelon, P.E.

Senior Project Engineer
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M.S. Business Administration, University of Houston; and B.S. Civil Engineering, Louisiana State University – Baton Rouge. Mr. Bordelon is Senior Project Engineer with 27 years of experience in the pipeline industry. As a Senior Project Engineer he has managed various natural gas and crude oil pipeline construction projects. His experience and technical expertise includes ten years of experience with Williams Gas Pipeline divided between Pipeline Design and Operations Technical Support; three (3) years experience as a consultant in pipeline engineering and construction management; four years experience in terminal project engineering design, construction and project management; one year experience managing environmental, health and safety; and ten years experience in pipeline project engineering.

William McCarthy, C.W.B.

Senior Environmental Compliance Analyst
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst he has managed the environmental requirements for facility siting, pipeline routing, federal licensing, and various federal, state and local permits. Mr. McCarthy is a certified wildlife biologist and in this role conducts and coordinates field studies, agency consolations, mitigation and avoidance plans.

Katie Schmidt, EIT

Environmental Engineer and Compliance Analyst
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt has pursued a career focused on regulatory compliance. Her experience includes providing permitting and compliance support associated with maintaining assets for safe and reliable distribution and transmission of energy throughout the continent. Ms. Schmidt has developed a broad working knowledge of NPDES construction stormwater compliance by working with distribution systems located in MN, OK, TX, LA and AR. Ms Schmidt also has extensive experience working with transmission assets involving COE permitting, ESA and SHPO consultations.

Scott Slessman, M.A., RPA

Principal In Charge/Principal Investigator
SWCA, Inc., 116 North 4th Street, Suite 200, Bismarck, ND 58501

M.A. Anthropology, Colorado State University and B.A. Anthropology, Purdue University. Mr. Slessman has over 18 years of experience in North American archaeology and has been both directly involved and supervised as a Principal Investigator for survey, testing, and excavation projects in the Midwest, Great Plains, Southeast and Rocky Mountains. Mr. Slessman is well versed in all federal and state cultural resources laws and regulations, including NAGPRA and Section 106 of the National Historic Preservation Act. Mr. Slessman is a Registered Professional Archaeologist (RPA) and is permitted as a Principal Investigator for the BLM and for State permits in North Dakota, South Dakota, Minnesota, Montana, Wyoming, Colorado, Utah, Iowa, and Nebraska. He has strong relationships with SHPO and THPO in these same states and is an expert in Tribal Consultation laws and process. As the Principal Investigator and Office Director for the Bismarck, North Dakota SWCA office, Mr. Slessman provides direct oversight and quality assurance/quality control for all cultural resources projects and deliverables.