



Resource Report 10

Alternatives

Permian Basin Expansion Project

FERC Docket No. CP26-____-000

May 2026

RESOURCE REPORT 10 - ALTERNATIVES	
MINIMUM FILING REQUIREMENTS	
INFORMATION	DATA SOURCE
1. Address the “no action” alternative – 18 CFR § 380.12(1)(1)	Section 10.2
2. For large projects, address the effect of energy conservation or energy alternatives to the project – 18 CFR § 380.12(1)(1)	Sections 10.2.1 and 10.2.2
3. Identify system alternatives considered during the identification of the project and provide the rationale for rejecting each alternative – 18 CFR § 380.12(1)(1)	Section 10.3
4. Identify major and minor route alternatives considered to avoid impact on sensitive environmental areas (e.g., wetlands, parks, or residences) and provide sufficient comparative data to justify the selection of the proposed route – 18 CFR § 380.12(1)(2)(ii)	Section 10.4
5. Identify alternative sites considered for the location of major new aboveground facilities and provide sufficient comparative data to justify the selection of the proposed site – 18 CFR § 380.12(1)(2)(ii)	Section 10.5
ADDITIONAL INFORMATION OFTEN MISSING AND RESULTING IN DATA REQUESTS	
Ensure that project objectives that serve as the basis for evaluating alternatives are consistent with the purpose and need discussion in Resource Report 1.	Section 10.1
Identify and evaluate alternatives identified by stakeholders.	Not applicable
Clearly identify and compare the corresponding segments of route alternatives and route variations with the segments of the proposed route that they would replace if adopted.	Section 10.4

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Abbreviations and Acronyms

CFR	Code of Federal Regulations
Dth/day	dekatherms per day
ECAM	Energy Conservation and Management
FERC	Federal Energy Regulatory Commission
MP	milepost
NWI	National Wetlands Inventory
Northern Project	Northern Natural Gas Company Permian Basin Expansion Project
SIP	Solicitation of Interest for Service Proposals
SPS	Southwestern Public Service Company

10.0 ALTERNATIVES

Northern Natural Gas Company (Northern) owns and operates a natural gas transmission pipeline system and associated aboveground facilities in New Mexico and Texas. Northern is seeking a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) under Section 7(c) of the Natural Gas Act, as amended, for its Permian Basin Expansion Project (Project).

The Project includes constructing approximately 15.1 miles of 24-inch-diameter and 1.1 miles of new 16-inch-diameter pipelines, a new International Organization for Standardization-rated 7,700 horsepower compressor station, one interconnect with Transwestern Pipeline Company, LLC within the existing Phillips 66 Linam Ranch Plant, one bi-directional receiver within Northern's existing launcher facility, replacing a recycle valve at Northern's Plains compressor station, and one new delivery point for the customer at the Gaines County Generating Station.

In accordance with the FERC regulations at 18 Code of Federal Regulations (CFR) 380.12(1), *Resource Report 10 – Alternatives* describes alternatives to the project and compare the environmental impacts of such alternatives to those of the proposal. The discussion must demonstrate how environmental benefits and costs were weighed against economic benefits and costs, and technological and procedural constraints. The potential for each alternative to meet project deadlines and the environmental consequences of each alternative.

10.1 PURPOSE AND NEED

In November 2024, Southwestern Public Service Company (SPS) issued a Solicitation of Interest for Service Proposals (SIP) for firm natural gas transportation service to a new gas-fired generation facility. Northern participated in the SIP and SPS selected Northern's proposal to construct the necessary facilities for the Project and provide transportation service to the new gas-fired generation facility. Northern has executed a precedent agreement with SPS for firm transportation service for 361,000 dekatherms per day (Dth/day). Northern will construct the Project to meet SPS's firm transportation requirements. This Project achieves the necessary operating requirements and minimizes environmental impacts in comparison to other options. An alternatives analysis is included here as Resource Report 10.

10.2 NO ACTION ALTERNATIVE

Under the no-action alternative, Northern would not construct the Project and, consequently, would be unable to satisfy its objective to enhance the safety, security, and operational efficiency of its pipeline system to meet the natural gas requirements of its customers.

If no action is taken by Northern, SPS would not have the natural gas necessary for its planned new gas-fired generation facility. Thus, the no-action alternative is not a viable alternative because it does not satisfy the purpose and need for the Project.

10.2.1 Energy Conservation

In New Mexico, the Energy Conservation and Management Division (ECAM) administers energy security and efficiency at the industry level, as well as the residential level through the Community Energy Efficiency Development Program (ECAM, 2025).

Energy conservation is not considered a viable alternative to the Project because the entire volume of the natural gas product delivered as a result of the Project is subscribed by Northern’s customers to meet residential, commercial, and industrial growth demands, in spite of ongoing conservation efforts.

10.2.2 Energy Alternatives

Because the Project is intended to install new critical natural gas infrastructure, energy derived from renewable sources such as geothermal, hydropower, wind, nuclear power, solar energy, and cogeneration, and from petroleum and coal-based fuels are not viable alternatives. These alternative energy sources cannot supply the natural gas supply demand of Northern’s customer, SPS. Additionally, the costs of building these systems versus the natural gas pipeline Project makes them infeasible. Therefore, Northern does not view energy alternatives as a viable alternative to the transportation of natural gas.

10.3 SYSTEM ALTERNATIVES

System alternatives were not considered by Northern because the purpose and need of the Project is to add new critical natural gas infrastructure. While Northern cannot definitively speak to the specifics of alternative pipeline transportation companies, pipelines owned by other companies are not considered to be viable alternatives because of Northern’s operational flexibility to use multiple suppliers.

10.4 ROUTE ALTERNATIVES

The goal of the route selection analysis is to identify a Project alignment that represents a minimal and acceptable level of environmental impact coupled with attainment of the Project goals. Paramount in the development of routing criteria is the proximity of the proposed route to existing utility infrastructure. Ground reconnaissance, aerial photography, and National Wetlands Inventory (NWI) maps were used to study routing alternatives. The intent of the evaluation is to identify the most environmentally sound and efficient route and the route with the least impact on landowners and the least adverse impact on the environment. Route alternatives include alignments that differ from those of the originally designed Project. Both major route alternatives and minor routes variations were considered as part of the Project.

10.4.1 Major Route Alternatives

Major route alternatives are routes that deviate from the preferred route for an extended distance (e.g., for several miles) or are several miles away from the preferred route. New geographically different routes create new pipeline corridors and new impacts.

The following analysis describes the route alternatives identified during Project design and compares impacts of the alternative and proposed Project to a set list of resources (e.g., acres of wetlands to be crossed, number of nearby residences) and the magnitude of impacts is based on common assumptions (e.g., the same construction workspace widths and requirements). Publicly available desktop data (e.g., GIS data, aerial imagery) was used to ensure a fair and consistent comparison of the alternative to the proposed Project. Wetland data is derived from the National Hydrography Dataset which identifies the water drainage network across the United States including rivers, canals, lakes, and ponds.

As depicted on Figures 10.4.1-1 and 10.4.1-2, Northern evaluated two alternative routes for pipeline facilities. Table 10.4.1-1 compares the impacts of the alternative routes to the proposed route, which includes Segments 1 and 2.

Factor Considered (unit)	Proposed Route	Route Alternative Case 1	Route Alternative Case 2
Pipeline Length (miles)	16.2	15.5	13.2
Greenfield Construction (miles)	15.1	15.5	13.2
Collocated Construction (miles)	1.1	0.0	0.0
Total Land Affected (acres)	215.4	206.8	175.7
Agricultural Land (acres)	22.1	15.3	75.1
Open Upland (acres)	193.4	191.5	83.9
Forested Upland (acres)	0.0	0.0	0.0
Forested Wetland (acres)	0.0	0.0	0.0
Uncultivated, Non-Forested Wetland (acres)	0.0	0.0	0.0
Residential Land (acres)	0.0	0.0	3.3
Commercial/Industrial Land (acres)	0.0	0.0	13.4
Prime Farmland Soils (acres)	1.8	2.4	0.0
Perennial Waterbody Crossings (number)	0	0	0
Intermittent/Ephemeral Waterbody Crossings (number)	0	0	2
Public Road Crossings (number)	3	3	7
Railroad Crossings (number)	1	1	0
Private Landowners Crossed (number)	13	13	33
Residences within 150 feet of the Centerline (number)	0	0	2
Other Structures within 150 feet of the Centerline (number)	0	0	0
Private Road/Driveway Crossings (number)	13	9	14

Note: All acreages assume a 100-foot-wide construction workspace.

A comparison of Route Alternative Case 1 to the proposed route indicates that they are similar in the total affected land, public road crossings, water resources, and land use impacts, as well as interconnection with the existing NMM10101 B-line in Lea County, New Mexico. The benefits of the alternative route are a shorter pipeline length by 0.7 mile, 6.8 acres less agricultural land impacts, and four fewer private road crossings. The drawbacks of the alternative route are that it requires 0.4 mile more greenfield construction, results in 1.1 miles less collocated construction, and incurs 0.6 acre more prime farmland impacts. Additionally, Route Alternative Case 1 interconnects with the Gaines County Generating Station at an alternative location to the east of the proposed facility. The Gaines County Generating Station location and tie-in to the existing

system is driven by customer needs and therefore alternative sites considered are not discussed further.

Route Alternative Case 2 was considered as an alternative interconnection point with Northern's existing 26-inch-diameter NMM10101 B-line approximately 15 miles northeast of the proposed tie-in location. A comparison to the proposed route indicates that they are similar in private road and driveway crossings and wetland impacts. The benefits of the alternative route are that it affects 3.0 miles less greenfield land, 1.9 miles less of total land, 109.9 acres less open land, and 1.8 acres less of prime farmland. The drawbacks of the alternative route are that it crosses 53 more acres of agricultural land, requires four additional public road crossings, crosses 20 additional private landowners, and occurs within 150 feet of two residences.

The benefit of Northern's proposed route is it avoids an existing swale near the Lea County Regional Airport between mileposts (MP) 4.2 and 6.4, avoids the location of a proposed natural gas facility west of Highway 18 between MPs 10.0 and 11.2, avoids a cultural resource north of MP 11.4, and improves overall constructability. Additionally, the proposed route interconnects with Northern's existing NMM10101 B-line to the southwest of Route Alternative Case 2 in accordance with customer needs. With the reduction of impacts on cultural resources and proposed developments, and only minor increases in other land disturbance, Northern has selected the proposed route.

10.4.2 Minor Route Variations

Minor route variations are routes that differ from the proposed route but are near the proposed route and are geographically similar. Minor route variations are those that were considered but rejected during the selection of the proposed route because of environmental, economic or technical reasons. Table 10.4.2-1 describes the minor route variations considered and implemented for the proposed route.

Location (Mileposts)	Reason for Variation
MP 2.7 to 2.9	Proposed route shifted west to avoid existing access road
MP 2.9 to 4.2	Proposed route shifted south of existing utility to improve constructability
MP 6.4 to 7.6	Proposed route shifted north to improve constructability
MP 13.1 to 14.3	Proposed route shifted north to improve constructability

10.5 ALTERNATIVES TO ABOVEGROUND FACILITY SITES

Aboveground facility site alternatives were considered for the Hobbs compressor station facilities. Limited alternatives for the other above-ground facilities exist for the Project, as the majority of modifications are taking place at existing pipeline facilities and are subject to customer and existing facility operator requirements. Northern did not evaluate alternatives where construction is proposed at existing aboveground facilities or within the permanent easement because any alternative would require new construction, which fundamentally offers no environmental benefit over the proposed.

As with pipeline route alternatives, aboveground facility site analysis compares impacts of the alternative and proposed Project to a set list of resources (e.g., acres of wetlands affected, number

of nearby residences) and the magnitude of impacts is based on common assumptions (e.g., similar site sizes, workspace requirements). Publicly available desktop data (e.g., GIS data, aerial imagery) is used to ensure a fair and consistent comparison of the alternative to the proposed Project.

10.5.1 Hobbs Compressor Station Alternatives

As depicted on Figure 10.5.1-1, Northern evaluated two alternative sites for the Hobbs compressor station. A primary consideration in siting the Hobbs compressor station was the ability to interconnect with Northern's existing 26-inch-diameter NMM10101 B-line and the proposed pipeline facilities to serve the requested SPS incremental load. The alternative sites are approximately 1.0 mile southwest of the proposed site. Table 10.5.1-1 compares the impacts of the alternative sites to the proposed site.

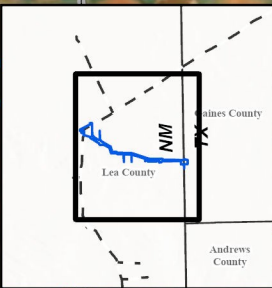
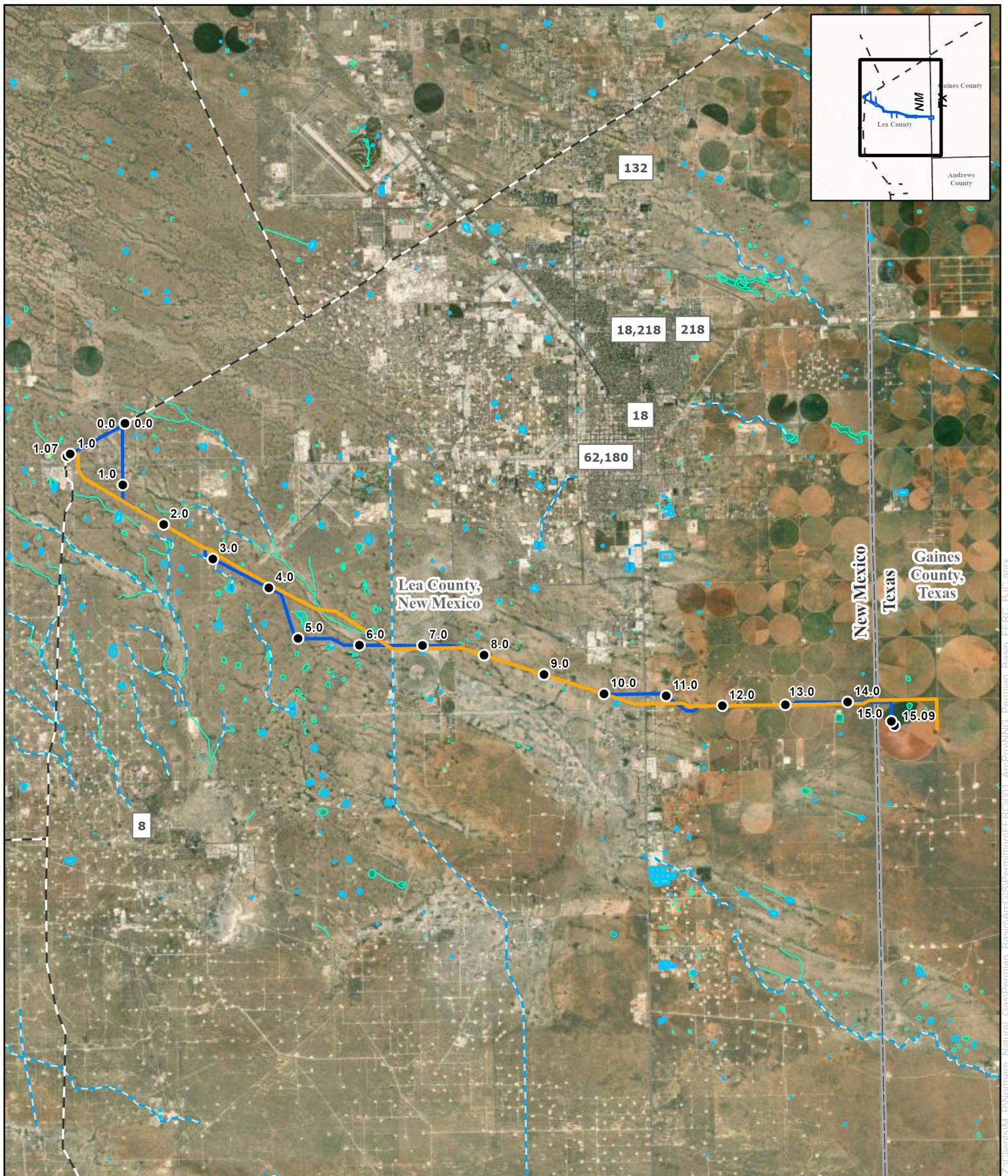
Factor Considered (unit)	Proposed Hobbs Compressor Station	Alternative Site 1	Alternative Site 2
Parcel Size (acres)	5.2	4.8	5.7
Agricultural Land (acres)	0.0	0.0	0.0
Open Upland (acres)	5.2	4.8	5.7
Forested Upland (acres)	0.0	0.0	0.0
Residential Land (acres)	0.0	0.0	0.0
Commercial/Industrial Land (acres)	0.0	0.0	0.0
Forested Wetland (acres)	0.0	0.0	0.0
Uncultivated, Non-Forested Wetland (acres)	0.0	0.0	0.0
Prime Farmland Soils (acres)	0.0	0.0	0.0
Perennial Waterbody Crossings (number)	0	0	0
Intermittent/Ephemeral Waterbody Crossings (number)	0	0	0
Nearest NSA (miles)	0.6	1.2	1.1
Residences within 1 Mile (number)	2	0	0
Non-residential NSAs within 1 Mile (number)	0	0	0
Note: NSA = noise sensitive area.			



Alternative sites 1 and 2 are located immediately adjacent to the Hobbs - Plains bi-directional receiver facility and interconnect with Segment 2 of the proposed pipeline. A comparison of the alternative sites to the proposed Hobbs compressor station indicates that they are similar in parcel size, land impacts, and water resources crossings. The proposed Hobbs compressor station is approximately 0.5-mile closer to the nearest NSA and within 1-mile of two additional residences. Due to the proximity of the existing facilities, the location of alternative sites 1 and 2 would require a shorter discharge line. However, alternative sites 1 and 2 are located on New Mexico State Trust Land and therefore the parcels were not available for purchase. Based on this analysis, Northern determined that there is little substantive difference between the proposed Hobbs compressor station and the alternative sites, and the alternative sites do not provide a material environmental advantage over the proposed location.

10.6 REFERENCES


New Mexico Energy, Minerals and Natural Resources Department, Energy Conservation and Management Division (ECAM). 2025. Community Energy Efficiency Development (CEED) Program. Available online at: <https://www.emnrd.nm.gov/ecmd/ceed/>. Accessed April 2026.

Figures



0 1 2 Miles
 1 inch equals 2 miles

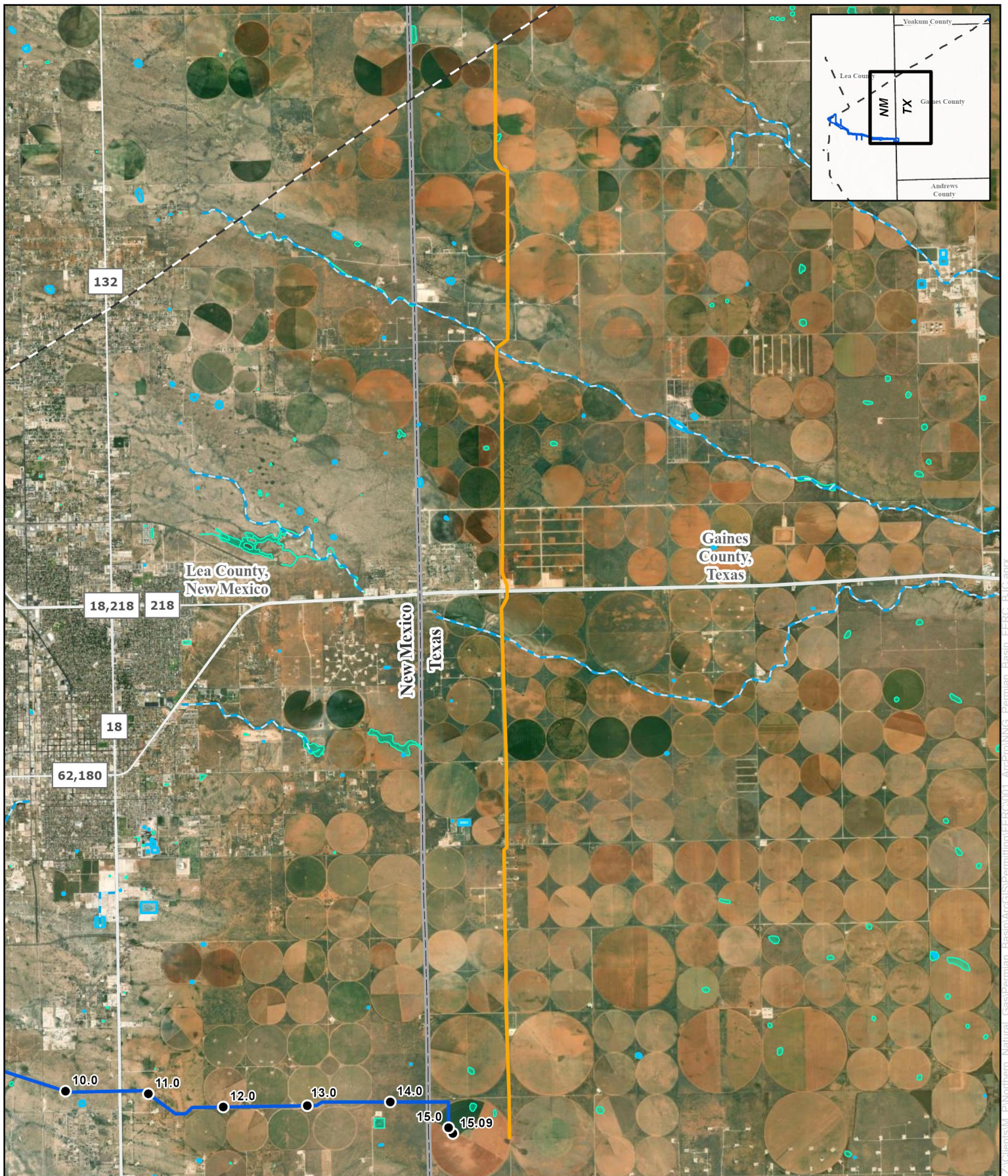


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Figure 10.4.1-1
Route Alternative Comparison for Case 1
Permian Basin Expansion Project
Northern Natural Gas
Lea County County, New Mexico
and Gaines County, Texas

- Milepost
- Proposed Pipeline
- Alternative Route
- - - Existing Pipeline
- NHD Waterway
- NHD Waterbody
- NWI Feature
- Field Delineated Wetland
- PEM
- PUB
- County Boundary

Date: 6/17/2026 Source: Z:\Clients\W_P\Northern_Natural_Gas\Permian_Basin\ArcGIS\Permitting\ER\0001_Arch\00\NNG_Permission_Basin_ER\0001.aprx

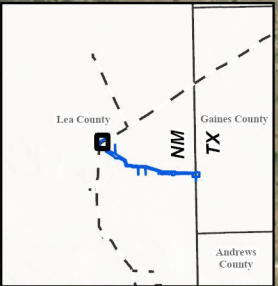
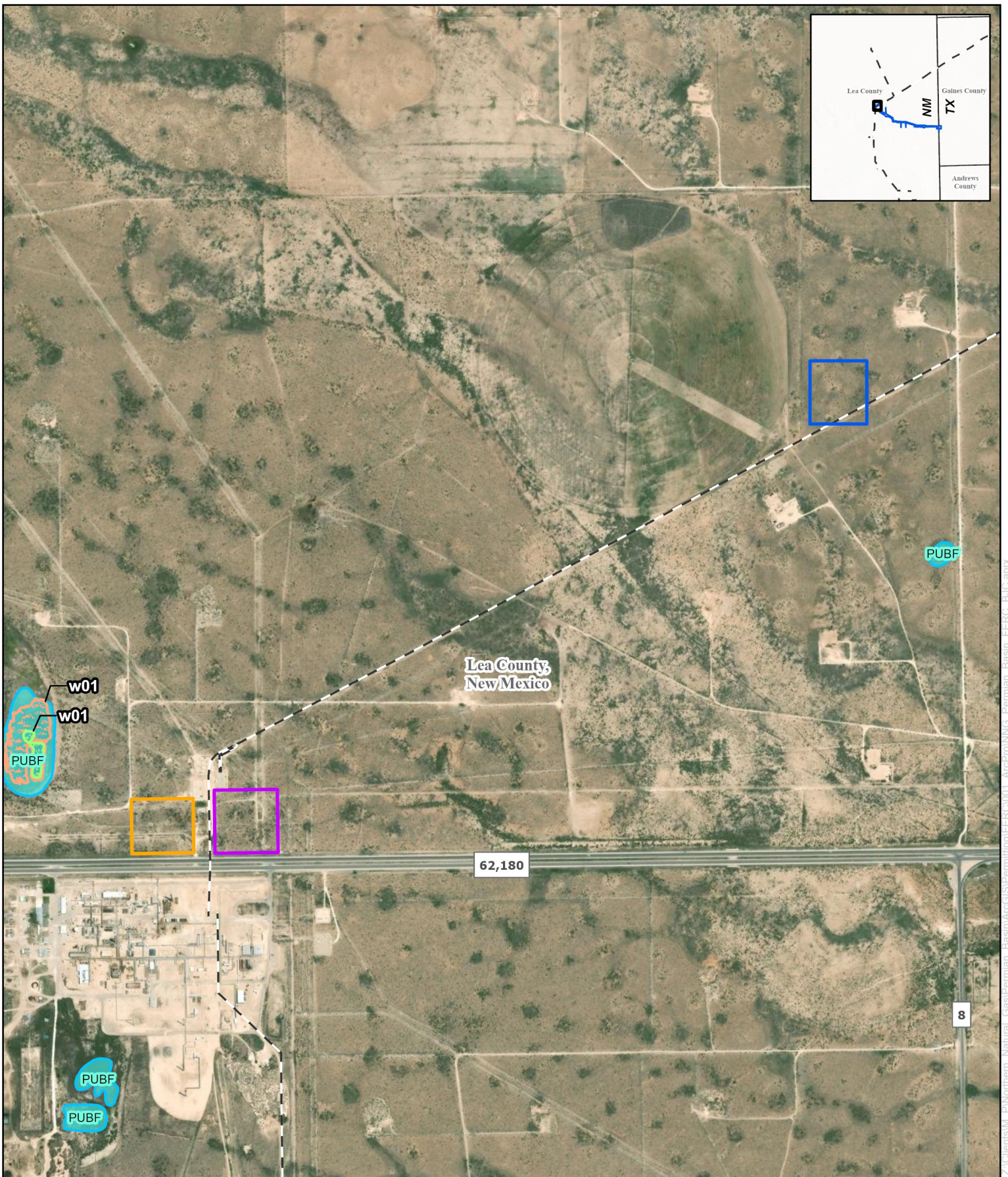


Northern Natural Gas. **merjent.**

0 0.75 1.5 Miles
1 inch equals 1.5 miles

Figure 10.4.1-2
Route Alternative Comparison for Case 2
Permian Basin Expansion Project
Northern Natural Gas
Gaines County, Texas

- Milepost
- Proposed Pipeline
- Alternative Route
- - Existing Pipeline
- NHD Waterway
- NHD Waterbody
- NWI Feature
- ▭ County Boundary
- tl_2022_us_state
- Trans_RoadSegment



Northern Natural Gas.

merjent.





0 500 1,000 Feet






1 inch = 1,000 feet

For Environmental Review Purposes Only



Figure 10.5.1-1
Comparison of Hobbs Compressor Station Alternatives
Permian Basin Expansion Project
Northern Natural Gas
Lea County, New Mexico

-  Proposed Hobbs Compressor Station
-  Alternative Site 1
-  Alternative Site 2
-  Existing Pipeline

-  NHD Waterbody
-  NWI Feature
-  Field Delineated Wetland
-  PEM
-  PUB