

4.0 ALTERNATIVES

As required by NEPA, we have evaluated several alternatives to the proposed Midcontinent Express Pipeline Project to determine whether they would be technically and economically feasible and environmentally preferable to the proposed action. We considered the no action and postponed action alternatives, system alternatives, major route alternatives, route variations, and aboveground facility site alternatives. Identification of alternatives to the proposed Project incorporated public comments and input received from federal and state regulatory agencies.

We used the following evaluation criteria to determine whether an alternative would be environmentally preferable:

- significant environmental advantage over the proposed Project;
- ability to meet the proposed Project objectives; and
- technical and economic feasibility and practicability.

MEP participated in the FERC's Pre-Filing Process during the preliminary design stage for the proposed Project (see Section 1.4). This process emphasizes identification of potential stakeholder issues early in the development of a project, as well as identification and evaluation of alternatives that may avoid or minimize these issues. As MEP conducted preliminary analysis of possible routes, it identified issues of concern; and multiple stakeholders provided MEP and the FERC with comments as the route planning process progressed.

4.1 NO ACTION AND POSTPONED ACTION ALTERNATIVES

The FERC has three alternative courses of action in processing an application for a Certificate: (1) grant the Certificate with or without conditions; (2) deny the Certificate; or (3) postpone action pending further study.

As discussed in Section 1.1, nationwide consumption of natural gas is projected to increase by approximately 19 percent by 2030 (EIA 2007). Much of this growth in demand is projected to occur before 2020, with much of the demand produced by electric generators (EIA 2007a). Onshore production of natural gas from unconventional sources (e.g., shale, tight sands, and coal bed methane) is expected to be a major contributor to future domestic natural gas supplies. The proposed Project would supply up to 1.5 Bcf/d of natural gas from unconventional sources (i.e., Barnett Shale, Woodford Shale, Fayetteville Shale, Anadarko and Aroma Basins, and Bossier Sand production areas) to eastern markets through 14 receipt and/or delivery interconnections with existing interstate and intrastate natural gas pipeline systems. MEP believes that the addition of incremental supply at the proposed interconnect locations would help meet growing energy demands, enhance reliability, and result in supply diversification by providing access to domestic natural gas supplies.

If the FERC denies MEP's application, the short- and long-term environmental impacts identified in this EIS would not occur. If the Commission postpones action on the application, the environmental impacts identified in this EIS would be delayed; if MEP decided not to pursue the Project, the impacts would not occur at all. However, if the FERC were to select the no action or postponed action alternative, the objectives of the proposed Project would not be met, and MEP would not be able to provide a new source of natural gas to markets that can be accessed through the proposed pipeline interconnects.

Although it would be purely speculative and beyond the scope of this analysis to attempt to predict what actions might be taken by policymakers or end users in response to the no action or postponed action

alternative, it is likely that potential end users would make other arrangements to obtain natural gas service (e.g., LNG-derived natural gas or non-LNG derived natural gas from another project) or make use of alternative fossil-fuel energy sources (e.g., fuel oil or coal), other traditional long-term fuel source alternatives (e.g., nuclear power or hydropower), and/or renewable energy sources (e.g., wind power) to compensate for the reduced availability of natural gas that would be supplied by the proposed Project. It is also possible that energy conservation practices would be used to offset the demand for natural gas in the markets that would be supplied by the proposed Project.

4.1.1 Energy Source and Conservation Alternatives

Denying or postponing a decision on the proposed Project would result in reduced natural gas availability in the targeted market regions. Such shortages would in turn lead to an increased reliance on fuel oil and other non-renewable fuel supply sources for power generating facilities. Because petroleum product consumption is also projected to increase (EIA 2007a), it is unlikely that fuel oil would provide a readily available or cost-effective alternative to natural gas. Further, natural gas is the cleanest burning of the fossil fuels. Relative to natural gas, reliance on coal or fuel oil to power electric generation would likely result in greatly increased emissions of pollutants, such as NO_x, SO₂, and carbon dioxide, and associated reductions in air quality. In addition, increased reliance on other fossil fuels would result in secondary impacts associated with their production (e.g., coal mining and oil drilling), transportation (e.g., oil tankers, rail cars, and pipelines), and refinement.

Other long-term fuel source alternatives to natural gas include nuclear power, hydropower, and the development of renewable energy sources. Several incentive and partnership programs aimed at promoting increased nuclear power generation infrastructure in the United States have recently been developed to promote fossil fuel alternatives for power generation (OMB 2007, EIA 2007a). Under the Global Energy Nuclear Partnership and Nuclear Power 2010 programs, the U.S. Department of Energy (DOE) aims to create a public-private partnership that would result in the construction and operation of a new nuclear power generating facility by 2014. With projected new nuclear generating facilities and upgrades to existing nuclear infrastructure, nuclear power generation is expected to grow 15 percent between 2005 and 2030 (EIA 2007a). Despite this projected growth in nuclear power generation, the EIA estimates that nuclear power will account for only about 15 percent of total U.S. generating capacity by 2030 (EIA 2007a). Additionally, regulatory requirements, cost considerations, and public concerns make it unlikely that new nuclear power plants would be sited and developed to serve the targeted markets within a timeframe that would meet the objectives of the proposed Project.

Renewable energy projects and energy conservation measures will likely play an increasingly prominent role in meeting the U.S. energy demands in the coming years. Though efficiency upgrades at existing hydropower facilities are expected to produce incremental additions of power in the coming years, it is unlikely that new and/or significant sources of hydropower would be a reliable alternative to the proposed Project; and non-tidal hydropower electricity generation is expected to remain steady through 2030 (EIA 2007a).

Federal, state, and local incentives and continuing research will likely contribute to an increase in the availability and cost effectiveness of non-hydropower renewable energy sources such as wind, solar, tidal, geothermal, and biomass. Several federal policies and energy initiatives (such as the Advanced Energy Initiative, Renewable Energy Production Initiative, and the Energy Policy Act of 2005 [EPAAct]) provide tax incentives, loans, and grants to promote the advancement of solar, wind, and biofuel energy production (EIA 2007a, 2007b; DOE 2007, 2006; NCSU 2007). Further, local utility rebate and loan programs, in conjunction with numerous state and local tax incentives and research initiatives, have increased the availability and cost effectiveness of renewable power for local consumers (NCSU 2007).

Fifteen states reported increased wind power generation in 2006 (EIA 2007c). The average annual expansion rate for the wind industry has averaged 28 percent between 2001 and 2005 (EIA 2007b) and wind farms are currently operating in 27 states, including some of those states that comprise the Project's target markets (EIA 2007b). Increased wind power production in these states helped wind power generation to increase by 45 percent (more than any other renewable generation source) in 2006. Due to the rapid increase in wind power generation, this renewable power source accounted for approximately 4 percent of all renewable power generation in 2006 (EIA 2007b, 2007c).

Biomass energy production (including biofuels, waste, and wood-derived fuels) has increased by nearly 19 percent between 2001 and 2005 and now accounts for 48 percent of all non-hydropower renewable resource energy production (EIA 2007b). Biofuels, such as ethanol, account for 23 percent of the biomass energy production. The increased use of ethanol due to federal and state policies has primarily driven a recent increase in biomass energy production. The continuation of federal mandates, such as those under the EPAct, to increase renewable fuel use through 2012 will continue the increase in biomass energy production throughout the United States (EIA 2007c).

Solar energy production accounted for approximately 1 percent of all non-hydropower renewable energy production in the United States in 2006 (EIA 2007c). The DOE's Solar America Initiative aims to promote the development of solar technologies to make solar power as cost efficient as other methods of energy production by 2015 (DOE 2007). If solar initiative goals are met, solar generation is projected to increase from 10 to 15 percent above current levels by 2015 (OMB 2006).

Tidal energy may serve as a predictable power source by using turbines that generate power from the daily tidal fluxes. There are currently no tidal power plants in the United States (DOE 2005), but one license is pending before the FERC for the construction of a tidal power generation unit in Washington State (FERC 2007b). Further, the FERC has issued 45 preliminary permits for tidal power plants, and issuance of an additional 15 preliminary permits is pending (FERC 2007b). Preliminary feasibility studies under the preliminary permits are being conducted off the western and northeastern U.S. coasts, as well as the Alaska and Florida coasts.

While renewable energy production is projected to increase in the future, the percentage of electricity generated from non-hydropower renewable energy sources is projected to remain level (at about 9 percent of total national energy production through 2030) given the increasing energy demands over the same period (EIA 2007a). Despite the current and future promotion of renewable energy use, as described above, renewable energy would offset only a small part of the projected national energy demands.

Energy conservation could help alleviate some of the nation's growing demand for energy and, therefore, offset the need for increased natural gas supplies. The EIA (2007a) expects that energy conservation will be induced by higher energy prices in the future. However, projections also indicate that energy demand, primarily for natural gas, will continue to outpace programs designed to stimulate energy conservation. Energy demand in the United States has been increasing steadily, with total energy consumption estimated to increase by 41 percent from 3,660 billion kilowatt hours in 2005 to 5,168 billion kilowatt hours in 2030 (EIA 2007a). To maintain pace with growing energy demands, the EIA anticipates that consumption of natural gas in the United States will grow from 22.0 Tcf per year in 2005 to 26.1 Tcf by 2030. The growth in natural gas demand is being driven primarily by increased use of natural gas for electricity generation and industrial applications. Although energy conservation measures will be important elements in addressing future energy demands, they would not be able to meet more than a small fraction of that demand within the foreseeable future. Thus, energy conservation would not preclude the need for natural gas infrastructure projects like that proposed by MEP.

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

4.2 SYSTEM ALTERNATIVES

System alternatives are alternatives to the proposed action that would make use of existing, modified, or proposed pipeline systems to meet the stated objectives of the proposed Project. Implementation of a system alternative would make it unnecessary to construct all or a part of the proposed Project, although some modifications or additions to existing or proposed pipeline systems may be required to meet the objectives of the proposed Project. These modifications or additions would result in environmental impacts that may be less than, similar to, or greater than those associated with construction and operation of the proposed Project. The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with construction and operation of the proposed Project could be avoided or reduced by using another pipeline system, while still meeting the objectives of the proposed Project.

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

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

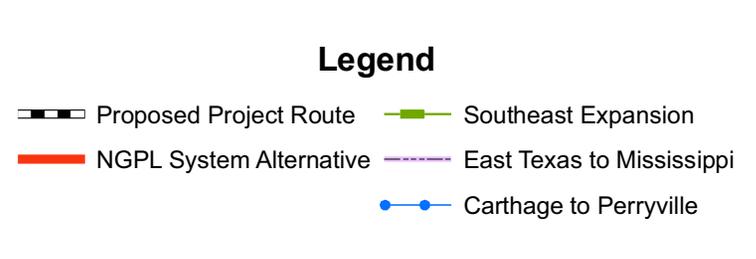
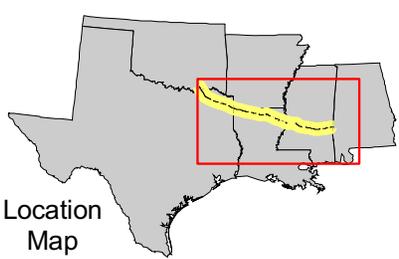
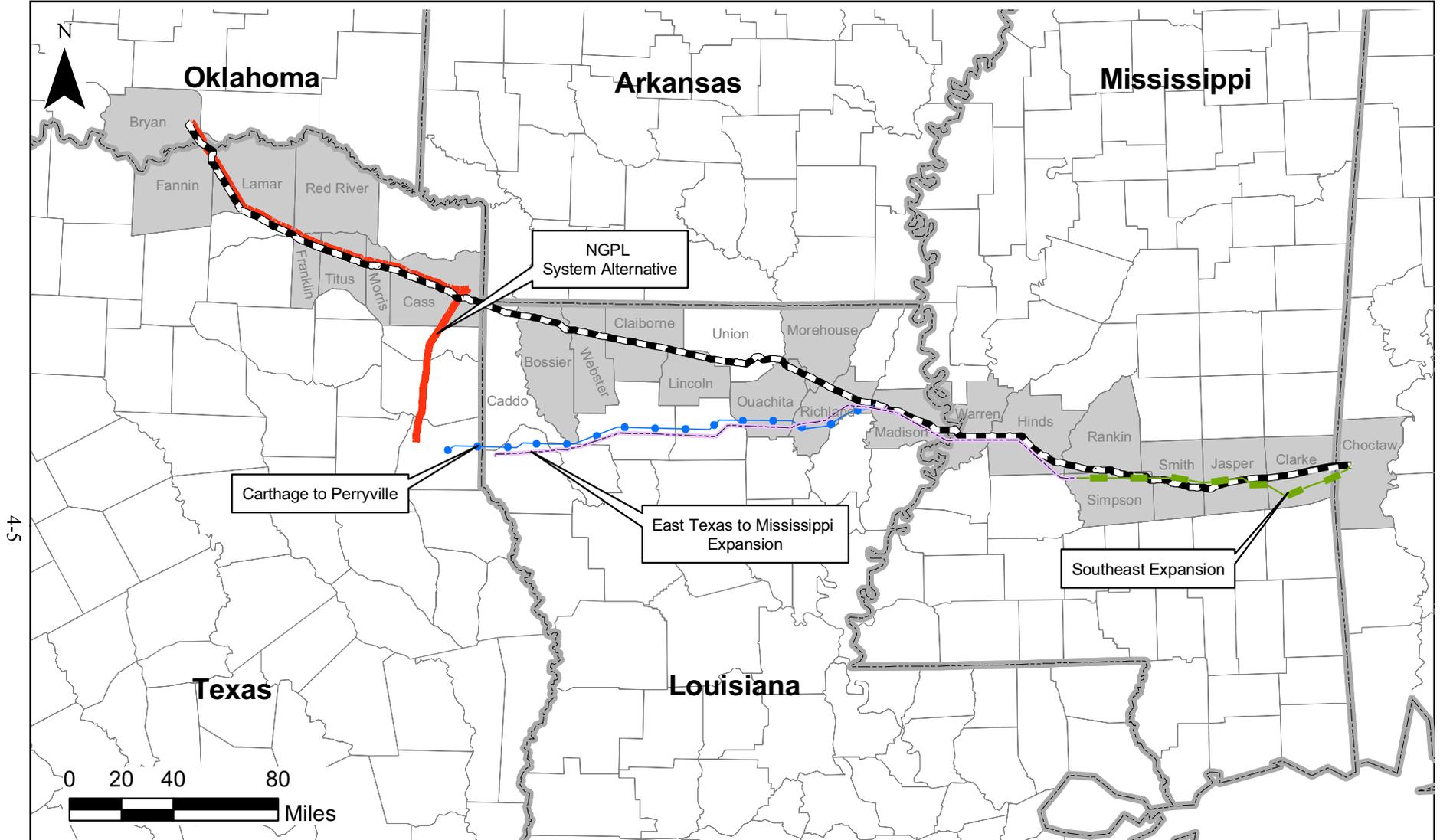
4.2.1 Existing Pipeline System Alternatives

Existing pipeline systems operated by CEGT and NGPL are located within the general vicinity of the proposed Project. Use of existing pipeline systems would entail either the use of existing pipeline infrastructure or modification (expansion) of these existing systems to meet the proposed Project objectives. Typically, the expansion of system infrastructure would entail the addition of compression and/or looping¹ of existing pipeline. Figures 4.2.1-1 and 4.2.1-2 depict the location of the NGPL and CEGT System Alternatives, respectively, in relation to the proposed Project route.

4.2.1.1 NGPL System Alternative

NGPL, a subsidiary of Kinder Morgan, Inc., operates an interstate natural gas pipeline system in Oklahoma, Texas, and Arkansas. Under the NGPL System Alternative, approximately 200 miles of the existing NGPL pipeline system, including portions of the NGPL Amarillo to Gulf Coast Crosshaul and the Gulf Coast pipelines, would be used in existing or modified form to transport the proposed Project's natural gas volumes from Bryan County, Oklahoma, to Panola County, Texas, which is the most southeastern point along the NGPL system and the nearest point to the proposed Project terminus (Figure 4.2.1-1). Thus,

¹ A loop is a segment of pipeline that is usually built adjacent to another pipeline and is connected to it at both ends.

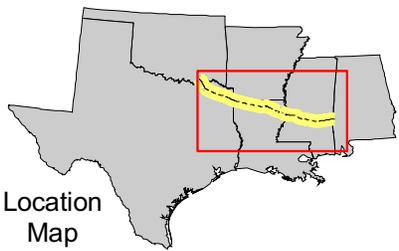
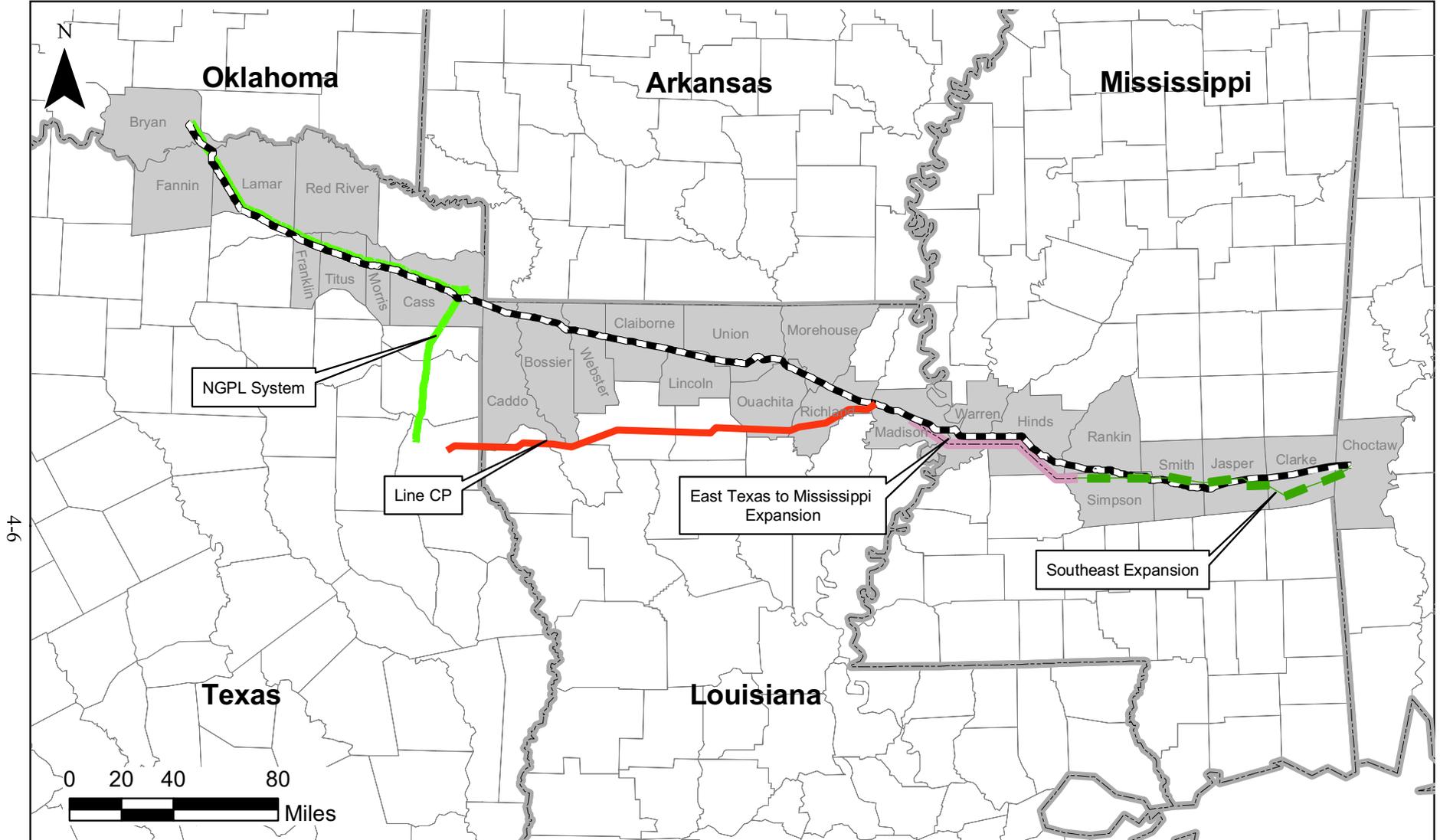


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NGPL PIPELINE SYSTEM ALTERNATIVE

DATE: May 2008

Figure 4.2.1-1



Legend	
	Proposed Project Route
	CEGT System Alternative
	NGPL System
	East Texas to Mississippi
	Southeast

MIDCONTINENT EXPRESS PIPELINE PROJECT	
CEGT PIPELINE SYSTEM ALTERNATIVE	
DATE: May 2008	Figure 4.2.1-2

adoption of the NGPL System Alternative would preclude the need for construction of the 131-mile-long segment of the proposed Project extending from the Project origin in Bryan County, Oklahoma (MP OK 0.0) to the proposed NGPL Interconnect No. 2 in Cass County, Texas (MP TX 117.4).

Use of existing NGPL pipeline infrastructure to convey the natural gas quantities associated with the proposed Project would require several system modifications. Because the operating pressure of the NGPL system is lower than the MAOP of the proposed Project, MEP indicated that the NGPL System Alternative would not result in the need for additional incremental compression beyond that which already exists on the NGPL system. However, the system alternative would require looping of the entire, approximately 200-mile-long portion of the NGPL system. Additionally, gas would be required to flow in a southerly direction on the NGPL Gulf Coast pipeline under this alternative, which would be considered a backhaul relative to the normal direction of gas flow in that pipeline. Though the flow of gas within the Gulf Coast pipeline is bidirectional at least some portions of the year, the modifications required under the NGPL System Alternative could require construction of multiple loops along that pipeline. It is likely that much of the new pipeline looping would be collocated with existing NGPL rights-of-way, but it should be noted that the proposed Project route extending from Bryan County, Oklahoma, to Cass County, Texas, is also collocated with the existing NGPL pipeline system for the majority of that distance. Thus, the environmental impacts associated with looping of that portion of the existing NGPL pipeline (the NGPL Amarillo to Gulf Coast Crosshaul) would be similar to impacts associated with the proposed Project. However, MEP estimated that pipeline looping associated with the NGPL System Alternative would require construction of an additional 69 miles of pipeline compared to the proposed Project. Construction of this length of pipeline looping within an assumed nominal construction right-of-way width of 100 feet would increase land requirements by more than 835 acres, relative to the corresponding segment of the proposed Project.

Additionally, adoption of the NGPL System Alternative would only preclude construction of that portion of the proposed Project extending from Bryan County, Oklahoma, to the proposed NGPL Interconnect No. 2 in Cass County, Texas (MP TX 117.4); this system alternative would not preclude the need for additional pipeline infrastructure extending from Panola County, Texas, to Choctaw County, Alabama. This infrastructure could entail construction of new pipeline, expansion or modification of other existing or proposed pipeline systems (such as the Carthage to Perryville Pipeline, East Texas to Mississippi Expansion, and Southeast Expansion Projects), or some combination thereof, each of which would result in its own set of specific environmental impacts. System alternatives associated with expansion of these other existing and proposed pipeline systems are considered below in Sections 4.2.1.2 and 4.2.2.1.

The NGPL System Alternative would be longer than the corresponding segment of the proposed Project route, resulting in increased land requirements and likely corresponding increases in affected environmental resources, and the system alternative would not preclude new construction or expansion/modification of other pipeline systems extending from eastern Texas to the proposed Project terminus in Alabama. For these reasons, we do not consider the NGPL System Alternative to provide environmental benefits superior to the proposed Project, and we have eliminated it from further consideration.

4.2.1.2 CEGT System Alternative

CEGT operates an interstate natural gas pipeline system in Texas, Louisiana, Oklahoma, and Arkansas with segments extending from Franklin County, Texas, to Richland Parish, Louisiana. The CEGT System Alternative would use CEGT's existing Carthage to Perryville Pipeline (Line CP) in existing or modified form to transport the proposed Project's natural gas volumes from Panola County, Texas, to Richland Parish, Louisiana (Figure 4.2.1-2). Thus, adoption of the CEGT System Alternative would preclude the need for construction of the 170-mile-long segment of the proposed Project extending from the proposed NGPL Interconnect No. 2 in Cass County, Texas (MP TX 117.4) to the CGT Interconnect in Richland Parish, Louisiana (MP CL 4.1).

The 1.2-Bcf/d capacity of Line CP is currently fully subscribed, but we recently approved CEGT's Phase III expansion for the Carthage to Perryville Project, which would increase the capacity of that pipeline system by 0.3 Bcf/d through construction of additional compression. Even with the approved capacity increase, however, the CEGT pipeline system would not have sufficient available capacity to transport the proposed Project's volume of 1.5 Bcf/d of natural gas. It would be necessary to significantly expand or modify Line CP to meet the proposed Project's objectives. Specifically, the addition of sufficient capacity to Line CP would require looping of the entire approximately 172-mile length of Line CP between Panola County, Texas, and Richland Parish, Louisiana, with 42-inch-diameter pipeline. Although it is likely that much of the new pipeline looping would be collocated with existing CEGT rights-of-way, construction of this length of pipeline looping within an assumed nominal construction right-of-way width of 100 feet would encumber approximately 2,084 acres of land, including wetlands and surface waters. Because Line CP is operated at a lower pressure than the proposed Project MAOP, MEP estimates that adoption of the CEGT System Alternative also would require the addition of a total of 61,800 hp of new compression at two existing CEGT compressor stations. Thus, the potential environmental impacts associated with the CEGT System Alternative would likely be similar to or greater than those associated with construction and operation of the corresponding segment of the proposed Project pipeline.

Additionally, adoption of the CEGT System Alternative would only preclude construction of that portion of the proposed Project extending between Cass County, Texas, and Richland Parish, Louisiana. Given the origin point of Line CP in Panola County, Texas, adoption of the CEGT System Alternative would require either new construction between Bryan County, Oklahoma, and Panola County, Texas, or adoption of the NGPL System Alternative, which would not provide environmental benefits superior to the proposed Project (as previously concluded in Section 4.2.1.1). The CEGT System Alternative would also require construction of approximately 13 miles of new pipeline to link existing NGPL pipeline system infrastructure with Line CP in Panola County, Texas, increasing the land requirements of the system alternative by an additional 157 acres. Furthermore, the CEGT System Alternative would still require additional pipeline infrastructure extending from Richland Parish, Louisiana, to Choctaw County, Alabama, in order to meet the proposed Project objectives. This infrastructure could entail construction of new pipeline, expansion or modification of other new or proposed pipeline systems (such as the East Texas to Mississippi Expansion and Southeast Expansion Projects), or some combination thereof each of which would result in its own set of specific environmental impacts. System alternatives associated with expansion of these other new and proposed pipeline systems are considered below in Section 4.2.2.1.

Because of the similar scope and magnitude, it is estimated that environmental impacts associated with the CEGT System Alternative would be similar to those of the corresponding segment of the proposed Project; but the system alternative would not preclude new construction or expansion/modification of other pipeline systems in Oklahoma, northeastern Texas, Mississippi, and Alabama to meet the objectives of the proposed Project. For these reasons, we do not consider the CEGT System Alternative to provide environmental benefits superior to the proposed Project, and we have eliminated it from further consideration.

4.2.2 New Pipeline System Alternatives

The proposed Southeast Supply Header (FERC Docket Nos. CP07-044-000 & CP07-45-000), Gulf Crossing (FERC Docket No. CP07-398-00), East Texas to Mississippi Expansion (FERC Docket No. CP06-446-000), and Southeast Expansion (FERC Docket No. CP07-32-000) Projects are new pipelines that have been proposed or are currently being constructed within the general Project area. Use of these pipeline systems, alone or in combination with other systems and/or new construction, were evaluated as system alternatives to the proposed Project. As with existing pipeline system alternatives, use of new and proposed pipeline systems would entail either the use of proposed pipeline infrastructure or expansion of planned infrastructure to meet the proposed Project objectives.

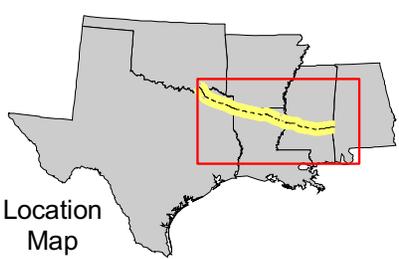
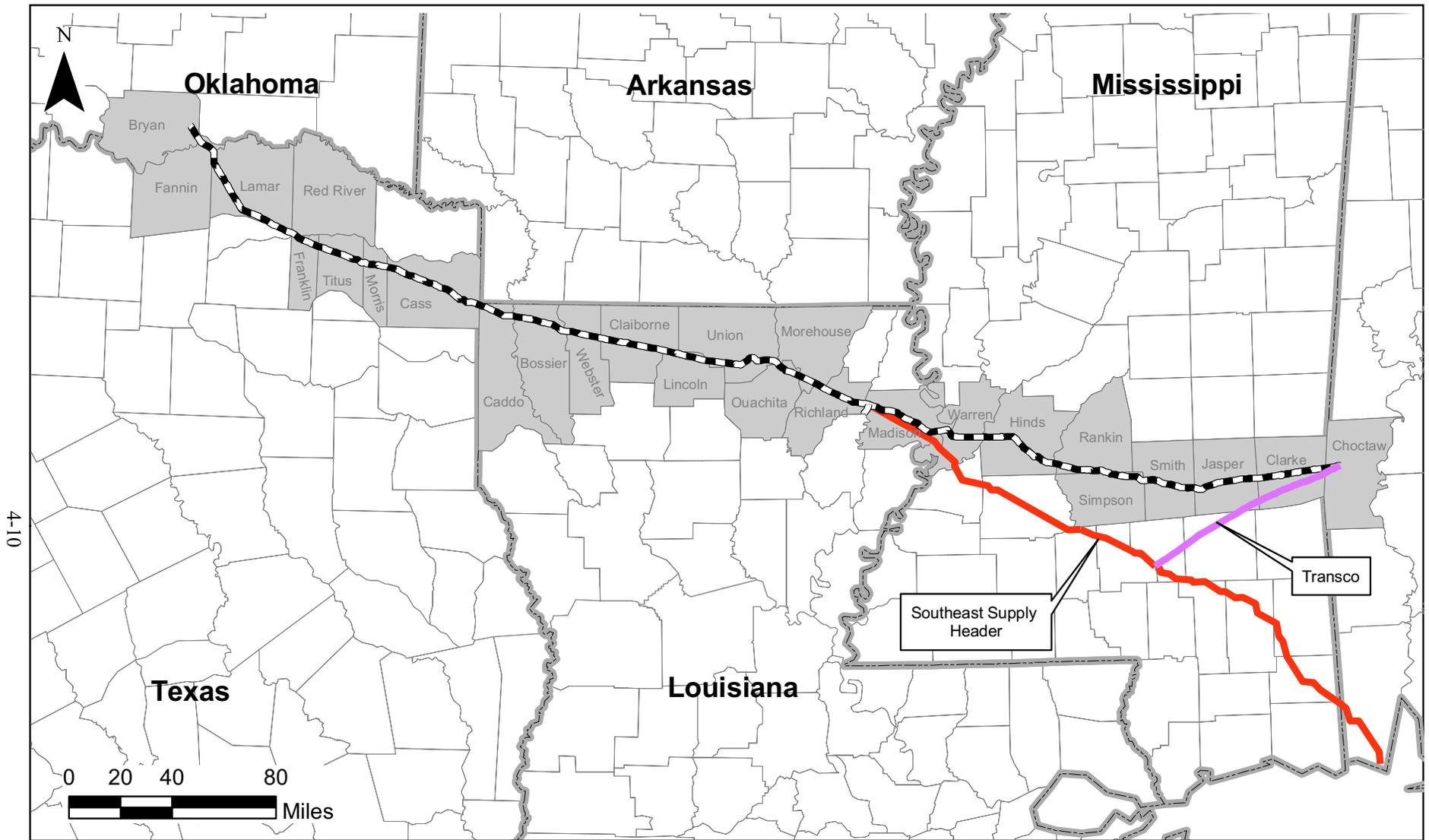
4.2.2.1 SESH System Alternative

Southeast Supply Header, LLC (SESH), a joint venture between CEGT and Spectra Energy, has proposed the Southeast Supply Header Project, which would transport up to 1.1 Bcf/d of natural gas via a 269-mile-long, 42-inch- and 36-inch-diameter pipeline extending from near Delhi in Richland Parish, Louisiana, to Codon in Mobile County, Alabama. The FERC recently issued a Certificate for the Southeast Supply Header Project, and SESH began construction of the project in November 2007. The SESH System Alternative would use approximately 130 miles of the SESH pipeline in its proposed or modified form to transport natural gas quantities associated with the proposed Project between Madison Parish, Louisiana, and Covington County, Mississippi (Figure 4.2.2-1). Adoption of the SESH System Alternative would preclude the need for construction of the 118-mile-long segment of the proposed Project extending from the CGT Interconnect in Madison Parish, Louisiana (MP LA 160.2), to Smith County, Mississippi (MP MS 84.0).

As proposed, the Southeast Supply Header Project would transport up to 1.1 Bcf/d, of which 1.0 Bcf/d is already subscribed; the pipeline system therefore would not have sufficient available capacity to transport the proposed Project's volume of 1.5 Bcf/d of natural gas. Adoption of the SESH System Alternative would require significant expansion or modification to meet the objectives of the proposed Project. Specifically, the proposed Southeast Supply Header Project pipeline would require looping over the entire 130-mile-long corresponding segment. Although it is likely that much of the new pipeline looping would be collocated with the proposed Southeast Supply Header Project right-of-way, construction of this length of pipeline looping within an assumed nominal construction right-of-way width of 100 feet would encumber approximately 1,575 acres of land, including wetlands and surface waters. Further, the SESH System Alternative would require the addition of approximately 19,000 hp of incremental compression. Thus, the potential environmental impacts associated with the SESH System Alternative would likely be similar to or greater than those associated with construction and operation of the corresponding segment of the proposed Project pipeline.

Additionally, adoption of the SESH System Alternative would only preclude construction of that portion of the proposed Project extending between Madison Parish, Louisiana, and Smith County, Mississippi. Natural gas infrastructure would still be required between Bryan County, Oklahoma, and Madison Parish, Louisiana. This infrastructure could entail construction of new pipeline, expansion or modification of new or proposed pipeline systems (such as the Gulf Crossing and East Texas to Mississippi Expansion Projects), or some combination thereof. Each of these combinations would result in its own set of corresponding environmental impacts. System alternatives associated with expansion of these new and proposed pipeline systems are considered in Sections 4.2.2.2 and 4.2.2.3, respectively. Furthermore, the SESH System Alternative would require additional pipeline infrastructure extending from Covington County, Mississippi, to Choctaw County, Alabama, in order to meet the proposed Project objectives. This infrastructure could entail construction of new pipeline or expansion or modification of the existing Transco pipeline system operating between Covington County, Mississippi, and Choctaw County, Alabama. Use of the Transco pipeline system would require approximately 81 miles of looping, encumbering approximately 980 acres of land within a 100-foot nominal construction easement, which would result in additional environmental impacts beyond that reported above in association with looping the Southeast Supply Header Project system.

Because of the similar scope and magnitude, it is estimated that environmental impacts associated with the SESH System Alternative would be similar to or greater than those associated with the corresponding segment of the proposed Project, but the system alternative would not preclude new construction or the



Legend

- Proposed Project Route
- SESH System Alternative
- Transco Pipeline

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 SESH PIPELINE SYSTEM ALTERNATIVE

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Figure 4.2.2-1

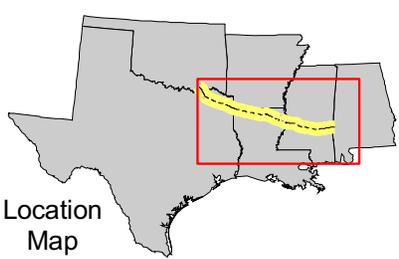
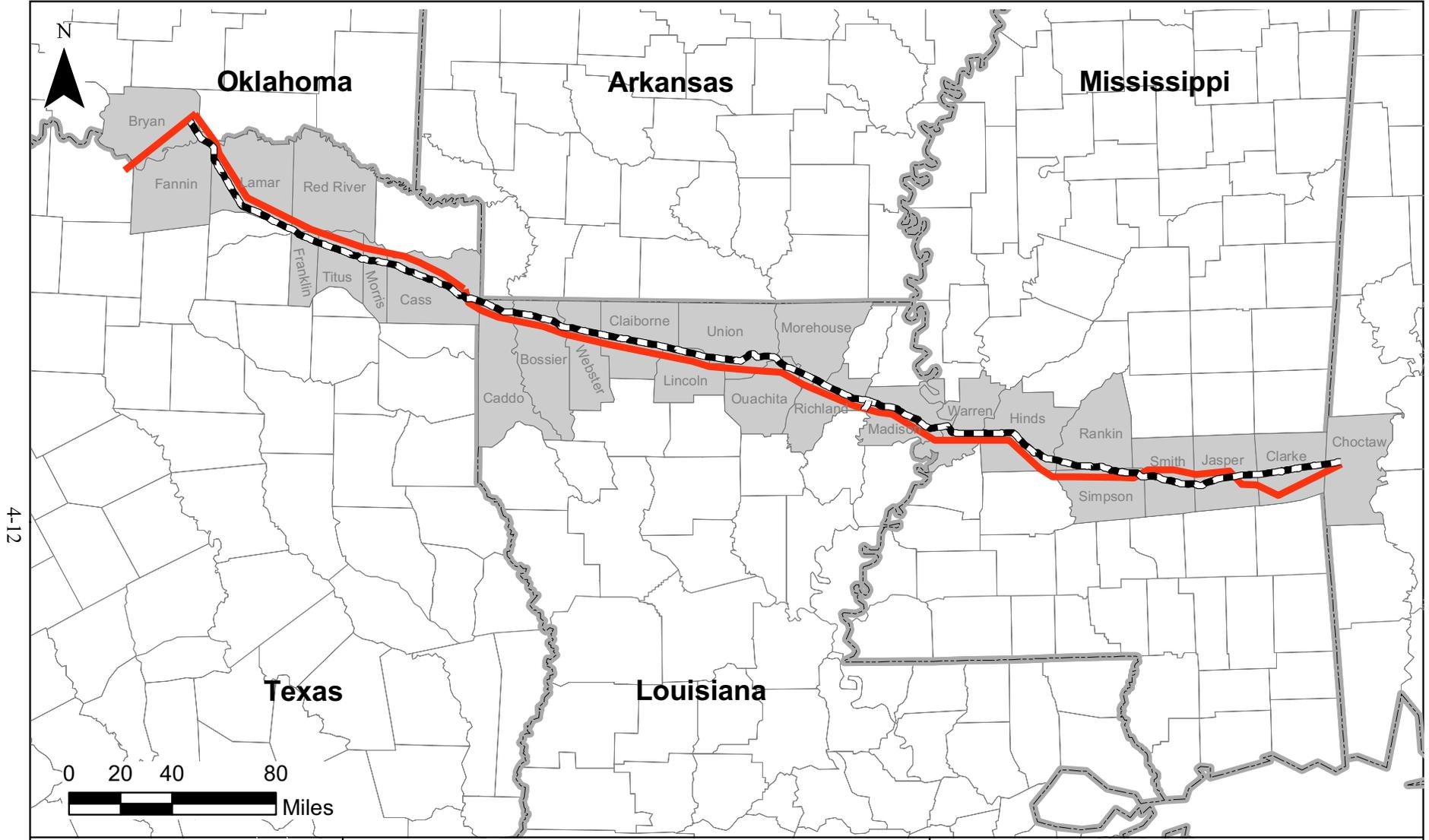
expansion/modification of other pipeline systems in Oklahoma, Texas, western Louisiana, eastern Mississippi, and Alabama. For these reasons, we do not consider the SESH System Alternative to provide environmental benefits superior to the proposed Project, and we have eliminated it from further consideration.

4.2.2.2 Boardwalk System Alternative

Gulf Crossing Pipeline Company, LLC (Gulf Crossing), and Gulf South Pipeline Company, LP (Gulf South), both subsidiaries of Boardwalk Pipeline Partners, LP, have proposed or are currently constructing a new interstate natural gas pipeline system that would extend from Grayson County, Texas, to Choctaw County, Alabama, approximating the route and delivery capacity of the proposed Project. As proposed, the Gulf Crossing Project would consist of approximately 356 miles of 42-inch-diameter pipeline extending from Grayson County, Texas, to Madison Parish, Louisiana. The 243-mile-long East Texas to Mississippi Expansion Project, which was recently completed and is now in service, consists of a 42-inch-diameter pipeline extending between DeSoto Parish, Louisiana, and Simpson County, Mississippi. The design transport capacity of both of these pipelines is 1.7 Bcf/d of natural gas. The 111-mile-long Southeast Expansion Project would transport approximately 1.2 Bcf/d from the East Texas to Mississippi Expansion Project terminus in Simpson County, Mississippi, to Choctaw County, Alabama. Construction of the Southeast Expansion pipeline commenced in November 2007 and is projected to be in service by June 2008. The use of a portion of the East Texas to Mississippi Expansion Project in conjunction with the entirety of the proposed Southeast Expansion and Gulf Crossing Projects was evaluated as a new pipeline system alternative to transport the proposed Project natural gas volumes from Bryan County, Texas, to Choctaw County, Alabama (Figure 4.2.2-2).

At most, the Gulf Crossing Project would have about 0.2 Bcf/d of unsubscribed capacity, and less than 0.3 Bcf/d of unsubscribed capacity is available on the East Texas to Mississippi Expansion and Southeast Expansion Project pipelines. The Boardwalk Pipeline System Alternative would therefore be unable to meet the capacity volumes of the proposed Midcontinent Express Pipeline Project without substantial system upgrades, such as new or increased compression and pipeline looping. We have not analyzed the extent of pipeline capacity improvement that would be required in detail, but transport and delivery of the proposed Project's volumes would require looping nearly the entirety of the new and proposed Gulf Crossing and Gulf South pipelines (as further described in Section 4.2.2.3). Because the proposed Project and Boardwalk Pipeline System Alternative traverse the same general area and would be collocated for significant portions of the respective project lengths, the potential environmental impacts associated with this system alternative would likely be similar to or greater than those associated with construction and operation of the proposed Project.

Ultimately, the FERC does not consider the proposed Project and the pipeline projects proposed by Gulf Crossing and Gulf South as true alternatives to one another. Rather, we view these projects as potentially complementary for the purpose of meeting the projected energy demands of the United States. Each pipeline project has or would undergo an independent environmental review process designed to ensure that potential environmental impacts resulting from its development are avoided, minimized, and/or mitigated. Although the Gulf Crossing, East Texas to Mississippi Expansion, Southeast Expansion, and Midcontinent Express Pipeline Projects would interconnect with existing interstate pipeline systems that would serve broader national markets, these projects would also service various natural gas suppliers and users. As a result, it is likely that market forces, which include considerations for environmental impacts and associated permitting time and mitigation costs, will ensure that the pipeline project or projects that would ultimately be developed offer the optimal combination of environmental and financial benefits while being consistent with sustainable development in the region for which they are proposed.



Legend

-  Proposed Project Route
-  Boardwalk System Alternative

MIDCONTINENT EXPRESS PIPELINE PROJECT

BOARDWALK SYSTEM ALTERNATIVE

DATE: May 2008

Figure 4.2.2-2

4.2.2.3 Single Pipeline System Alternative

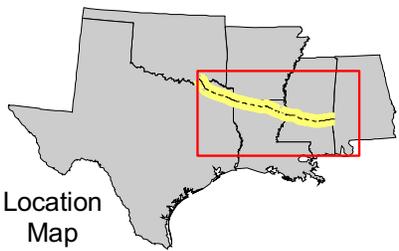
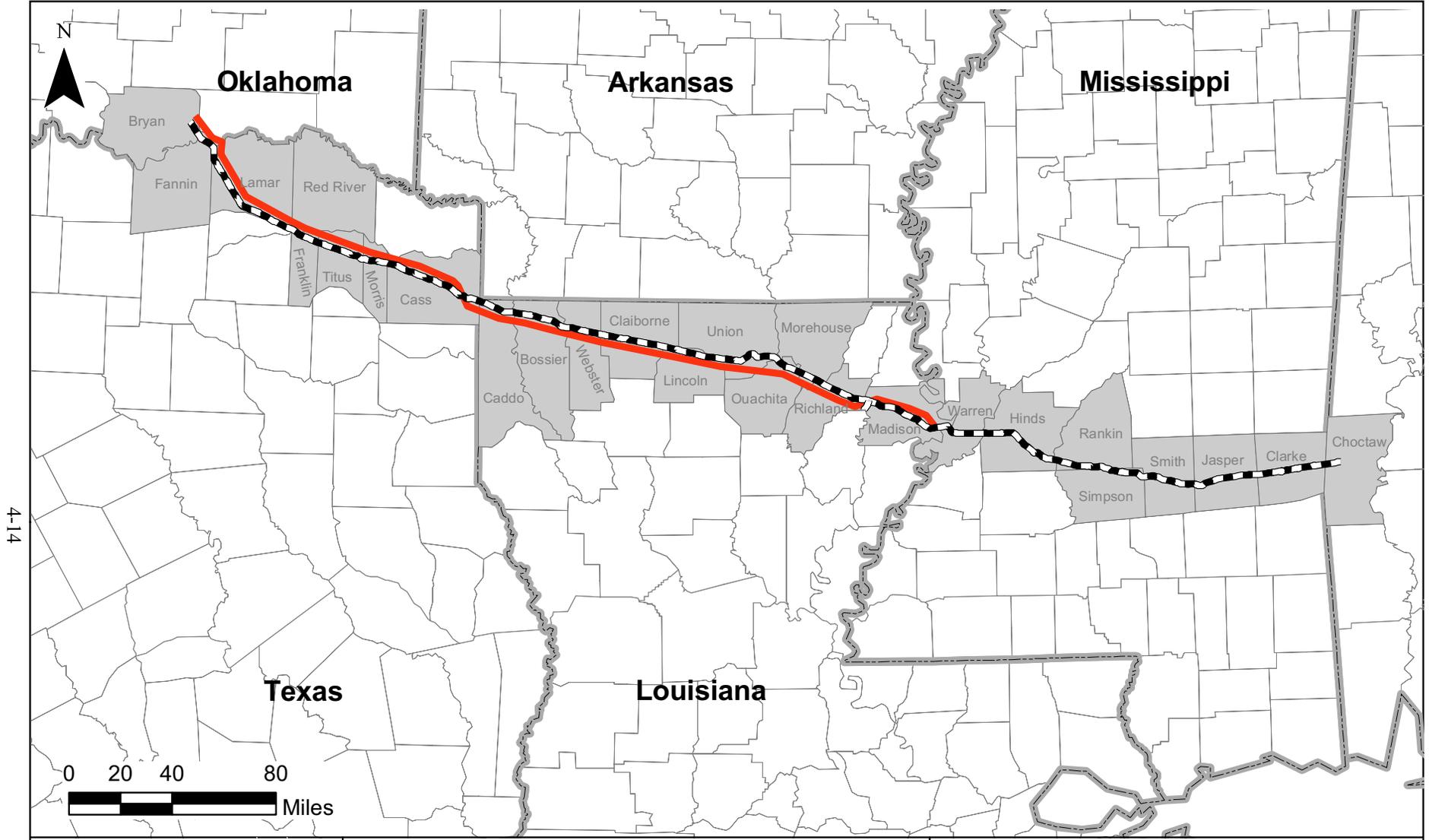
In addition to examination of a system alternative based on the Gulf Crossing Project pipeline alignment (see Section 4.2.2.2), we evaluated a Single Pipeline System Alternative. Under this alternative, we examined the feasibility of replacing the Midcontinent Express Pipeline and Gulf Crossing Project pipelines proposed by MEP and Gulf Crossing, respectively, with a single pipeline that would transport the combined volumes of both projects. Consideration of the East Texas to Mississippi Expansion and Southeast Expansion Projects were eliminated from consideration under the Single Pipeline System Alternative because construction of these projects has already commenced. Under the Single Pipeline System Alternative, a single pipeline would convey the natural gas volumes proposed in association with the Midcontinent Express Pipeline and Gulf Crossing Projects from Bryan County, Oklahoma, to the Gulf Crossing Project terminus near Tallulah in Madison Parish, Louisiana. Adoption of the Single Pipeline System Alternative would result in the need for only a single pipeline right-of-way across southern Oklahoma, northeastern Texas, and northern Louisiana, rather than the two separate rights-of-way proposed by MEP and Gulf Crossing, which could result in corresponding reductions in land requirements and associated environmental effects. Given the similarity in the proposed Project routes and construction timelines, such an alternative also appears practicable upon a cursory review. However, the feasibility of the Single Pipeline System Alternative would be constrained by multiple factors.

First, the separate points of terminus for the Midcontinent Express Pipeline and Gulf Crossing Projects (see Figure 4.2.2-3) would limit the feasibility of the Single Pipeline System Alternative to that distance where the two pipelines would be located adjacent to one another (i.e., from Bryan County, Oklahoma, to Madison Parish, Louisiana). Thus, the Single Pipeline System Alternative would not preclude the need for construction of the proposed Project pipeline to the east of Madison Parish through Mississippi and Choctaw County, Alabama.

As stated in Section 4.2.2.1, a single, 42-inch-diameter pipeline would be incapable of delivering up to 3.2 Bcf/d of natural gas (the approximate combined volume of the two projects) without significant amounts of additional compression (beyond that proposed by either MEP or Gulf Crossing), significant looping, and/or an increase in pipeline diameter. Extensive looping associated with the Single Pipeline System Alternative would essentially result in the creation of two, parallel pipelines, which would offer no significant environmental advantage over the proposed individual projects.

MEP indicates that the Single Pipeline System Alternative would require the use of a 48-inch or 52-inch-diameter pipeline to meet the combined capacity requirements of both projects. If a 48-inch-diameter pipeline were used, MEP estimates that approximately 200 miles of looping, in addition to construction of a single pipeline along the length of the Single Pipeline System Alternative route, would be required. MEP indicates that this alternative would also require the addition of approximately 8,500 hp of compression over the combined compression proposed for the individual projects, if developed separately. MEP estimates that incremental compression and looping could be reduced by the use of a 52-inch-diameter pipeline, but such an alternative would still result in the need for 2,000 hp of additional incremental compression and approximately 150 miles of looping, in addition to construction of a single pipeline along the length of the Single Pipeline System Alternative route.

Pipelines in excess of 42 inches in diameter are considered non-standard, and the use of 48-inch- or 52-inch-diameter pipeline would present numerous technical difficulties. Trenches associated with the larger-diameter pipeline would result in a 30-percent increase in spoil production compared to the amount produced by a smaller, 42-inch-diameter pipeline trench; and the typical construction right-of-way associated with a 48-inch- to 52-inch-diameter pipeline could therefore range from 135 to 160 feet. MEP contends that the difficulties associated with handling increased spoil quantities, in conjunction with the complexity of



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 Proposed Project Route
 Single Pipeline System Alternative

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SINGLE PIPELINE SYSTEM ALTERNATIVE

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Figure 4.2.2-3

operating construction equipment designed to install a 48-inch- or 52-inch-diameter pipeline, could also result in construction safety issues. Construction equipment capable of handling these non-standard pipeline diameters are not readily available. Side-boom tractors of sufficient size to transport non-standard pipe are currently unavailable in the United States, and other construction equipment such as bending and welding machines would require retrofitting to handle 48-inch- or 52-inch-diameter pipes. Construction and fabrication of this specialized equipment would increase Project costs and require significant lead time, which would result in a significant delay in the commencement of Project construction activities.

Pipe with a diameter exceeding 42 inches, as well as associated pipe fittings, is not currently available. A limited number of North American steel mills have the capability to produce pipe greater than 42 inches in diameter, and the steel plate that is required for the manufacturing of high-pressure pipeline has a significant order lag time. Thus, the additional time required to produce pipe and construction materials for the Single Pipeline System Alternative would be significant. Due to the required production lead time and other mill obligations, it is unlikely that pipe producers could manufacture the pipe required for the Single Pipeline System Alternative within a timeframe that would meet the objectives of either the Midcontinent Express Pipeline or Gulf Crossing Project.

Differences in delivery objectives, in-service dates, precedent agreements, and fee schedules for the two projects would also require development of extensive operating agreements and redevelopment of delivery contracts for the operation of a Single Pipeline System Alternative. The natural gas that would be transported by each respective project is committed under binding precedent agreements based on each individual project's fee and delivery schedules. Due to the extensive redesign of proposed facilities associated with a Single Pipeline System Alternative, one or both companies would potentially no longer be able to meet their contractual requirements and market demand. Additionally, the Midcontinent Express Pipeline Project would primarily convey natural gas originating from supply fields in the Woodward, Fayetteville, and Barnett Shale and Bossier Sand production areas of Oklahoma, Texas, and Arkansas. In contrast, the Gulf Crossing Project would primarily deliver natural gas from the Barnett Shale's Newark East Field in eastern Texas. Differences in upstream supply sources and design would introduce additional difficulty in the operational agreements associated with a Single Pipeline System Alternative. The negotiations that would be required to determine an acceptable operation plan for all companies associated with the Single Pipeline System Alternative would introduce significant delays in the proposed Project schedule and result in unmet customer demand. Further, the Single Pipeline System Alternative would have the added disadvantage of being potentially less reliable, compared to a dual pipeline system, which could increase the chances of supply disruptions associated with maintenance activities or failure of a single pipeline.

Adoption of the Single Pipeline System Alternative could result in reductions in land requirements and associated environmental effects relative to construction and operation of both the Midcontinent Express Pipeline and Gulf Crossing Projects. However, increased construction right-of-way widths, pipeline looping, and increases in incremental compression requirements would serve to moderate the significance of any environmental advantage. Additionally, the use of non-standard, 48-inch- or 52-inch-diameter pipeline to transport the combined natural gas volumes of the Midcontinent Express Pipeline and Gulf Crossing Projects would present numerous difficulties associated with materials and construction equipment availability, as well as operational challenges associated with delivery objectives, precedent agreements, and fee schedules that would likely delay the in-service date and commercial viability objectives of the proposed Project. For these reasons, we do not consider the Single Pipeline System Alternative as technically or economically feasible and practicable, and we have eliminated it from further consideration.

4.3 MAJOR ROUTE ALTERNATIVES

We considered major route alternatives to determine whether these alternatives would avoid or reduce impacts on environmentally sensitive resources that would be crossed by the proposed pipeline and in response to suggestions by the public. The origin and delivery points of a major route alternative are generally the same as for the corresponding portion of a proposed pipeline. However, the alternatives would follow routes significantly different from the proposed pipeline. Major route alternatives would not modify or make use of other existing or new pipeline systems.

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

Based on input provided to us by the general public and federal and state resource agencies, and based on our review of the proposed Project, we identified and evaluated seven major route alternatives: Southern Route Alternative (Section 4.3.1), CGT to Transco Route Alternative (Section 4.3.2), two Texas Highway Route Alternatives (Section 4.3.3), Rails-to-Trails Route Alternative (Section 4.3.4), White Oak Creek WMA Route Alternative (Section 4.3.5), and Taylor Route Alternative (Section 4.3.6).

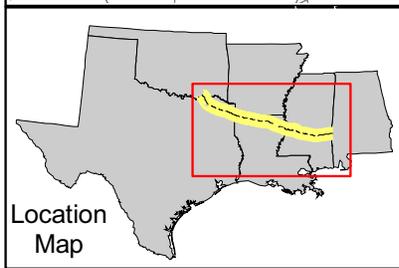
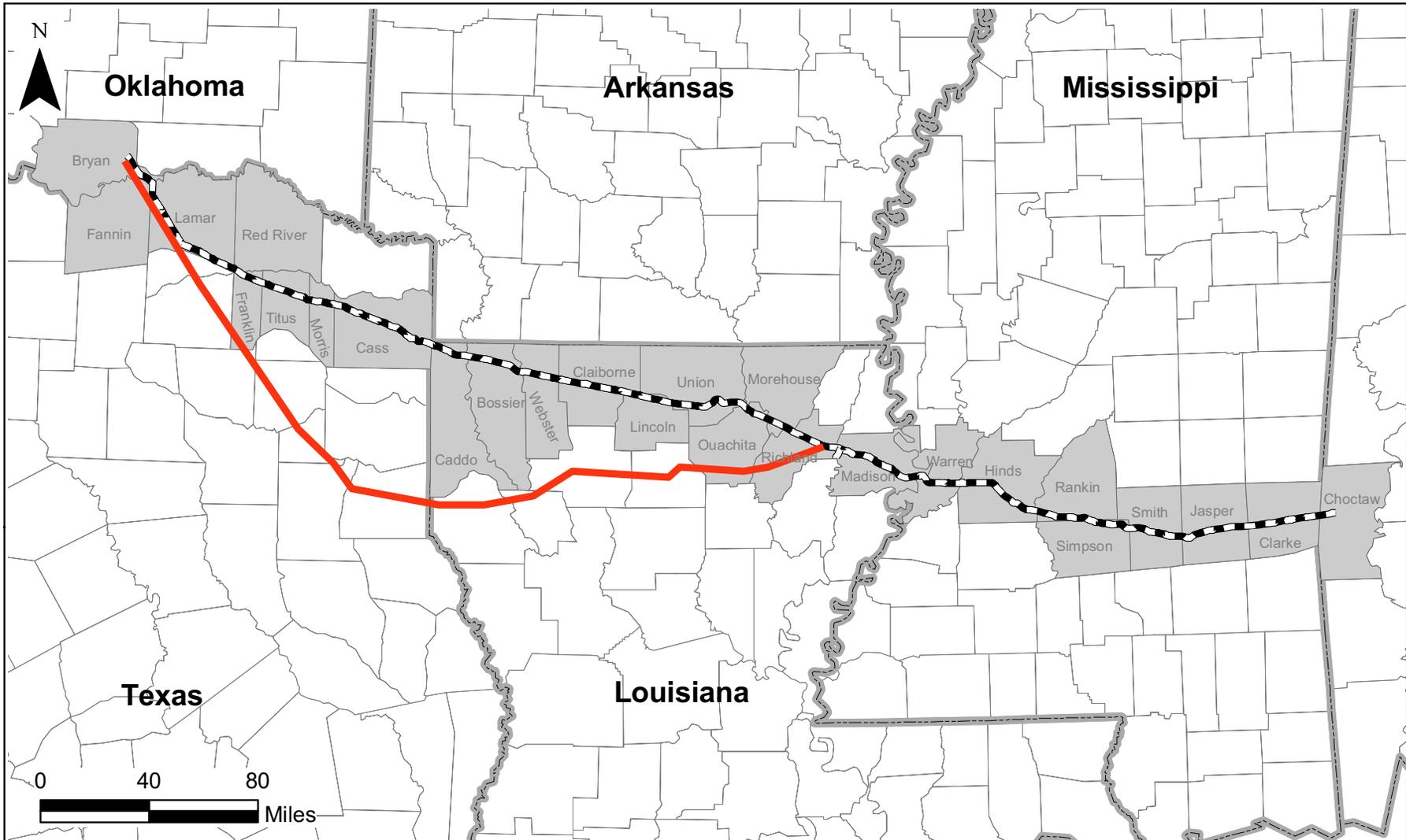
During the Draft EIS comment period, we received an additional comment suggesting that the proposed Project be collocated with the proposed Gulf Crossing Project through Union and Ouachita Parishes, Louisiana. MEP deviated from the proposed Gulf Crossing alignment in this area to provide an increased distance between the proposed Project and the D'Arbonne National Wildlife Refuge at the request of FWS. Further, due to the quantity of wetlands present in this area and MEP's need to locate a compressor station in this area, MEP adjusted their proposed routing to locate a suitable site for their Perryville Compressor Station. MEP collocated their proposed route through this area with existing rights-of-way (see Appendix D) to the maximum extent practical. We have evaluated this proposed route in this EIS and find the alignment and compressor station location acceptable.

4.3.1 Southern Route Alternative

We evaluated the Southern Route Alternative, which is similar to the NGPL and CEGT System Alternatives (discussed in Sections 4.2.1.1 and 4.2.1.2), as it was identified by MEP. The Southern Route Alternative would route the Project alignment southeast from the existing NGPL Compressor Station 802, near Paris, Texas (MP TX 25.7). The route alternative would then cross Delta, Hopkins, Franklin, Camp, Wood, Upshur, Gregg, Harrison, and Rusk Counties, Texas, to reach the Carthage Compressor Station in Panola County, Texas (Figure 4.3.1-1). From the Carthage Compressor Station, the Project would be collocated with the Carthage to Perryville Project to the Carthage to Perryville Project terminus in Delhi, Louisiana, where the route alternative would resume the proposed Project alignment at MP LA 160.0.

Impacts of the proposed Project route and the Southern Route Alternative are compared in Table 4.3.1-1. Quantitative data are based on a comparative desktop analysis using a combination of USGS topographic maps, NWI maps, and USGS land cover land use data.

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Legend

- Proposed Project Route
- Southern Route Alternative

MIDCONTINENT EXPRESS PIPELINE PROJECT

SOUTHERN ROUTE ALTERNATIVE

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Figure 4.3.1-1

The Southern Route Alternative would be approximately 33.6 miles longer than the proposed Project route. Construction and operation of the Southern Route Alternative would encumber an additional 509 acres and 204 acres of land, respectively, compared to the proposed Project alignment. The proposed Project would encumber less than one-half the quantity of residential lands that would be encumbered for the Southern Route Alternative. Approximately 66.1 percent of the proposed Project route would be collocated with existing rights-of-way, while the entirety of the Southern Route Alternative would be collocated. Construction of the Southern Route Alternative would cross approximately 42 additional perennial streams, compared to the proposed Project alignment. Due to the increased Southern Route Alternative length, an additional 8,180 hp of compression and gas cooling facilities would be required at the proposed Perryville Compressor Station to convey the natural gas quantities proposed by MEP.

TABLE 4.3.1-1 Comparison of the Southern Route Alternative and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	Southern Route Alternative
Total length (miles)	278.7	312.3
Compression requirements (hp)	71,575	79,755
Construction impacts (acres)	4,223.0	4,732.0
Permanent impacts (acres)	1,689.0	1,893.0
Adjacent to existing rights-of- way (miles)	184.2	312.3
Perennial stream crossings (number)	131	173
Major Waterbodies (number)	19	20
Wetlands (miles)	34	35
Residential lands (miles)	13	29
Forested lands (miles)	156	159
Forested wetlands (miles)	33	34158.7
Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

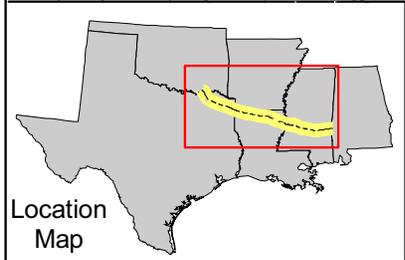
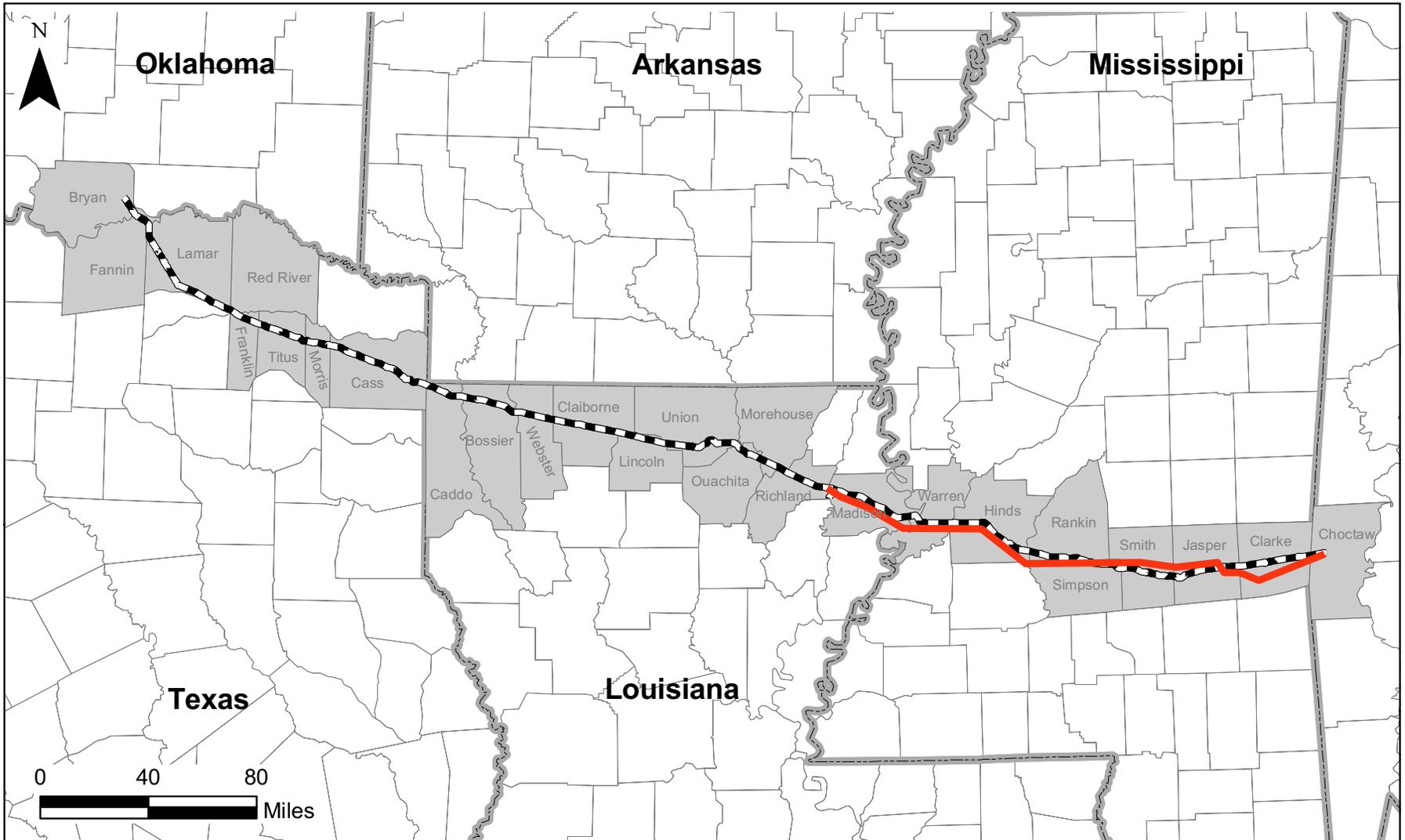
The increased compression requirement would result in a substantial increase in the total Project development cost. Further, the increased length associated with the Southern Route Alternative would increase the proposed Project transportation rates. MEP has committed to transportation rates in binding precedent agreements with its shippers, and it is likely that the increased transportation rates associated with this route alternative would render the Project economically infeasible. While both the proposed Project and the Southern Route Alternative offer environmental advantages and disadvantages associated with their routing, the proposed Project route would minimize the total amount of land encumbered for both Project construction and operation and would cost substantially less. Further, the route alternative's alignment through an increased amount of residential areas would result in transference of Project-related impacts to a greater number of landowners, compared to the proposed Project route. Given the lack of a clear and significant environmental benefit, in conjunction with the increased economic cost associated with the Southern Route Alternative, we have eliminated this route alternative from further consideration.

4.3.2 CGT to Transco Route Alternative

The CGT to Transco Route Alternative, as identified by the Applicant, would deviate from the proposed Project alignment at the CGT interconnect in Madison Parish, Louisiana (MP LA 160.2), and would parallel the East Texas to Mississippi Expansion and the Southeast Expansion Projects to the proposed Project terminus in Choctaw County, Alabama (MP AL 5.8) (Figure 4.3.2-1).

A comparison of this route alternative and the corresponding proposed Project route are presented in Table 4.3.2-1. Both the proposed Project route and the CGT to Transco Route Alternative would have similar environmental impacts. The route alternative would be approximately 2.4 miles shorter than the proposed Project route in this area, resulting in an approximately 14 acre reduction in operational land requirements. The CGT to Transco Route Alternative would be collocated with existing rights-of-way for approximately 81.5 percent of its length, while the proposed Project route would be collocated over approximately 37.5 percent of its length. This route alternative would collocate with an existing Transco right-of-way for a portion of its length, and the route alternative could offer reduced construction and operational easement widths beyond those reported in Table 4.3.2-1 if Transco allowed overlap with its existing right-of-way. The route alternative and the proposed Project alignment would encumber a similar amount of forested lands and cross the same number of perennial streams. The CGT to Transco Route Alternative would cross 1 additional mile of wetlands and approximately 2 additional miles of residential lands.

Evaluation Criterion	Proposed Project Route	CGT to Transco Route Alternative
Total length (miles)	197.4	195.0
Compression requirements (hp)	71,575	71,575
Construction impacts (acres)	2,632	2,600
Permanent impacts (acres)	1,196	1,182
Adjacent to existing rights-of-way (miles)	74.0	159.0
Perennial stream crossings (number)	207	207
Major waterbodies (number)	24	22
Wetlands (miles)	23	24
Residential lands (miles)	6	8
Forested lands (miles)	95	93
Forested wetlands (miles)	23	23
<p>Note:</p> <p>^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.</p>		



Legend

- Proposed Project Route
- CGT to Transco Route Alternative

MIDCONTINENT EXPRESS PIPELINE PROJECT
CGT TO TRANSCO ROUTE ALTERNATIVE

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While the CGT to Transco Route Alternative would be shorter than the proposed Project alignment, resulting in corresponding reductions in Project construction and operational land requirements and would be more collocated, this route alternative would cross an increased amount of residential lands that would result in the transference to Project-related impacts to additional landowners. The FERC attempts to balance environmental and landowner impacts to the maximum extent practical. Due to the increased number of landowners impacted under this alternative we believe that there would not be a sufficient environmental benefit to outweigh the increased number of landowners impacted; therefore, we have eliminated the CGT to Transco Route Alternative from further consideration.

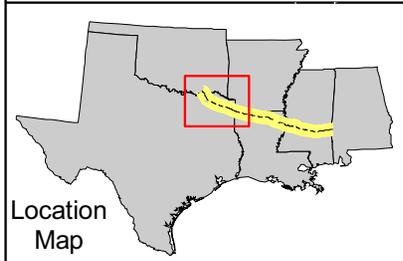
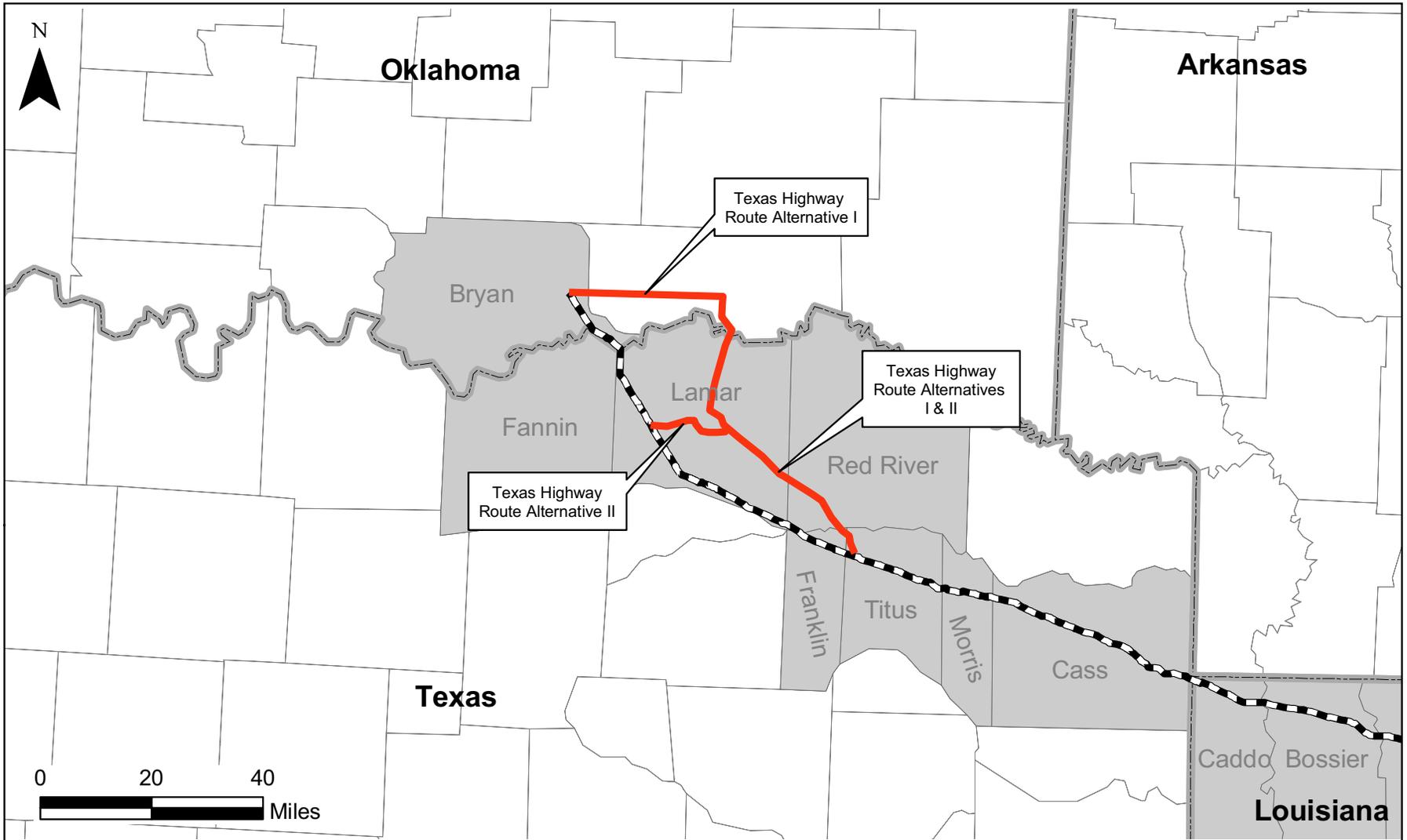
4.3.3 Texas Highway Route Alternatives

We evaluated two Texas Highway Route Alternatives in response to public comments suggesting that the proposed Project be aligned with Texas Highways 82 and 271 (Figure 4.3.3-1). The Texas Highway Route Alternative I would diverge from the proposed Project alignment near MP OK 0.0, traveling due east until reaching Texas Highway 271. The Texas Highway Route Alternative I would then follow Highway 271 south until reaching Paris, Texas, where it would continue traveling to the southeast until resuming the proposed Project route at approximately MP TX 60.5. The Texas Highway Route Alternative II would diverge from the proposed Project alignment at approximately MP TX 15.8 and travel east along Highway 82 until reaching Paris, Texas. Upon reaching Paris, Texas, the Texas Highway Route Alternative II would travel adjacent to Highway 271 in a southeasterly direction until resuming the proposed Project alignment at MP TX 60.5.

Table 4.3.3-1 compares Texas Highway Route Alternative I and the proposed route between MP OK 0.0 and MP TX 60.5. The Texas Highway Route Alternative I would be approximately 11.9 miles longer than the proposed Project and would encumber 72 additional acres for operation. The route alternative would be collocated over its entire length, while the proposed Project alignment would be collocated for over 81 percent of its length. The Texas Highway Route Alternative I would encumber an increased quantity of forested wetlands and uplands. Fewer perennial streams, but one additional waterbody, would be crossed by the route alternative, compared to the proposed Project alignment. Due to the proximity to Paris, Texas, the Texas Highway Route Alternative I would cross an increased amount of residential lands, compared to the proposed Project alignment, likely impacting an increased number of landowners.

The Texas Highway Route Alternative II would be 4.3 miles longer than the proposed Project alignment and would encumber an additional 26 acres of land for operation (Table 4.3.3-2). Both the proposed Project alignment and the route alternative would be collocated over a majority of their lengths and would cross equal numbers of perennial waterbodies and major waterbodies. Compared to the proposed Project route, this route alternative would encumber 6.4 additional acres of residential lands and 3.9 additional acres of forested land. Addition of gas cooling and approximately 6,135 hp of incremental compression at the proposed Perryville Compressor Station would also be required under this alternative, potentially resulting in increased air emissions and noise impacts.

Further, under both of these route alternatives, the Project alignment would miss interconnects at the NGPL Compressor Station 802 (MP TX 25.7). To meet delivery obligations at these interconnects, a 10.1-mile-long lateral would be required to connect the Project to the existing compressor station. Construction of this lateral would result in additional land requirements, above those reported in Tables 4.3.3-1 and 4.3.3-2. An additional 9,470 hp of incremental compression, beyond the additional compression requirements described for Texas Highway Route Alternative II, would be required under this scenario to boost lateral pressure to levels required to meet interconnect agreements.



Legend

-  Proposed Project Route
-  Texas Highway Route Alternatives

MIDCONTINENT EXPRESS PIPELINE PROJECT
TEXAS HIGHWAY ROUTE ALTERNATIVES

DATE: May 2008

Figure 4.3.3-1

TABLE 4.3.3-1 Comparison of Texas Highway Route Alternative I and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	Texas Highway Route Alternative I
Total length (miles)	75.0	86.9
Compression requirements (hp)	71,575	71,575
Construction impacts (acres)	909.0	1,053.0
Permanent impacts (acres)	455.0	527.0
Adjacent to existing rights-of-way (miles)	60.8	86.9
Perennial stream crossings (number)	21	16
Major waterbody crossing	3	4
Wetlands (feet)	0.0	583.0
Forested wetlands (feet)	0.0	583.0
Residential lands (miles)	1.5	11.6
Forested lands (miles)	11.9	19.8
<hr/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

TABLE 4.3.3-2 Comparison of Texas Highway Route Alternative II and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	Texas Highway Route Alternative II
Total length (miles)	44.7	49.0
Compression requirements (hp)	71,575	77,710
Construction impacts (acres)	677.0	742.0
Permanent impacts (acres)	271.0	297.0
Adjacent to existing rights-of-way (miles)	43.0	49.0
Perennial stream crossings (number)	3	3
Major waterbody crossing	2	2
Wetlands (feet)	0.0	0.0
Forested wetlands (feet)	0.0	0.0
Residential lands (miles)	0.6	7.0
Forested lands (miles)	4.2	8.1
<hr/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

Relative to the proposed Project route, both of the evaluated Texas Highway Route Alternatives would result in increased pipeline lengths, construction and operational land requirements, and impacts to residential lands. Further, both route alternatives would require construction of a lateral to reach the proposed Project interconnects, resulting in further land requirements and compression, with corresponding environmental consequences. For these reasons, we believe that the Texas Highway Route Alternatives are not environmentally preferable to the proposed Project, and these route alternatives have been eliminated from further consideration.

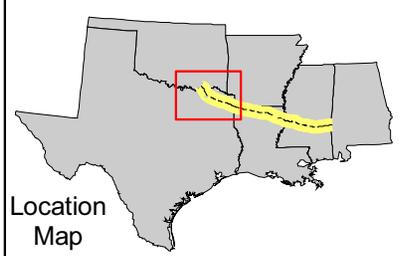
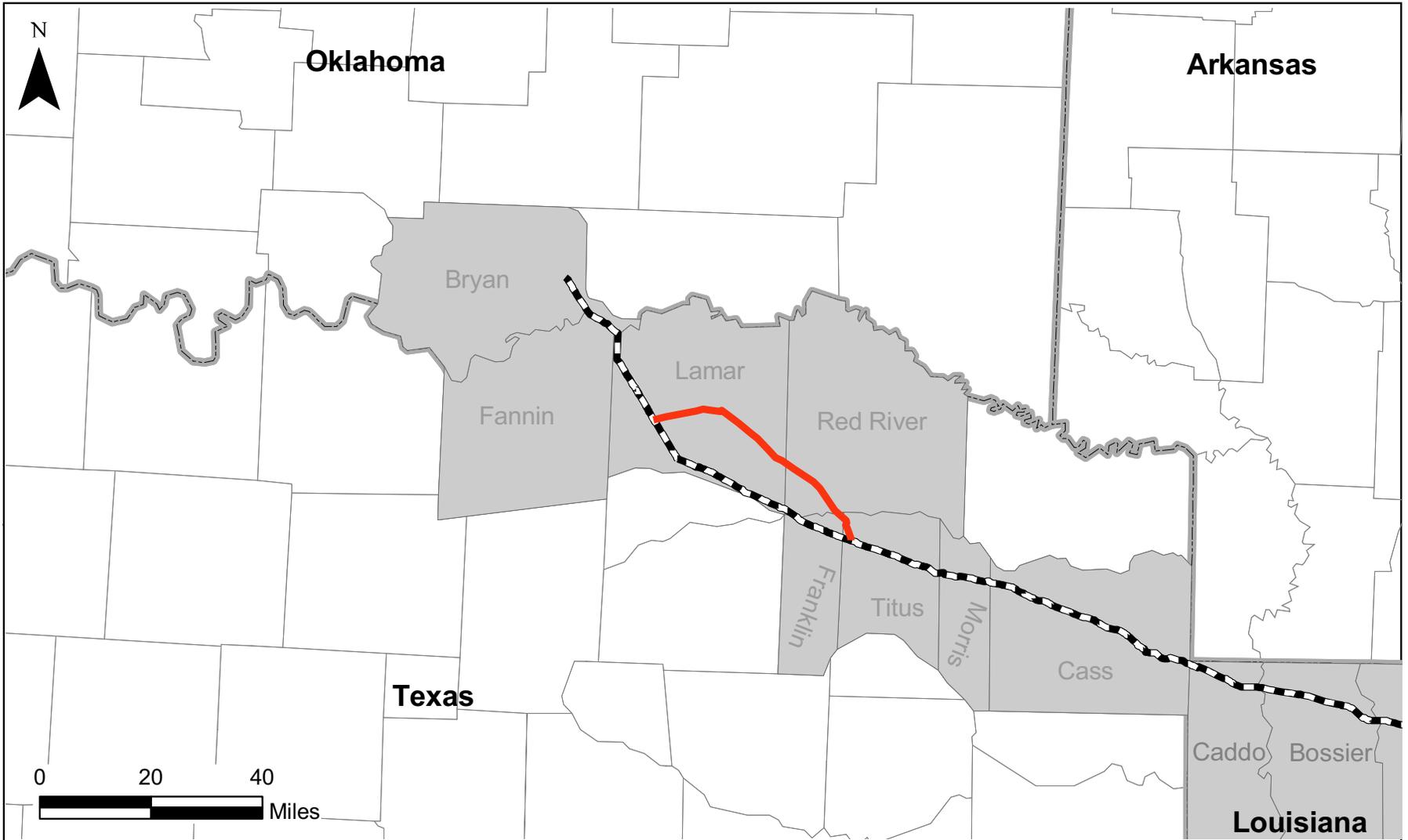
4.3.4 Rails-to-Trails Route Alternative

We evaluated a Rails-to-Trails Route Alternative, based on public suggestions, which would align the proposed Project with inactive railroad easements in Texas (Figure 4.3.4-1). The proposed Rails-to-Trails Route Alternative would follow the proposed Project alignment until MP TX 17.7 in Lamar County, Texas. At the Lamar County divergence point, this route alternative would travel east and then southeast before rejoining the proposed Project alignment at MP TX 60.0.

The Rails-to-Trails Route Alternative would be 3.4 miles longer and encumber an additional 21 acres of land for operation, compared to the proposed Project alignment (Table 4.3.4-1). This route alternative would be collocated with existing rights-of-way over its entirety, while approximately 96 percent of the corresponding segment of the proposed Project route would be collocated with existing rights-of-way. One additional stream crossing and 2.4 additional acres of forested lands would be affected by the route alternative, relative to the proposed Project route. Neither the route alternative nor the proposed Project route would impact any major waterbodies or wetlands. Due to its proximity to Paris, Texas, the Rails-to-Trails Route Alternative would encumber 6.5 additional acres of residential land relative to the proposed Project alignment. Additionally, the route alternative's alignment through a more densely populated area would result in transference of Project-related impacts to a greater number of landowners, compared to the proposed Project alignment. Further, construction in more populated and urbanized areas would likely require a constricted construction right-of-way, which could introduce safety concerns associated with congested work areas and increase the duration of Project construction activities.

Like the Texas Highway Route Alternatives, the Rails-to-Trails Route Alternative would fail to intersect the proposed Project interconnects at NGPL Compressor Station 802 (MP TX 25.7). Therefore, construction of a 10.1-mile-long lateral pipeline would be required to meet delivery obligations at these interconnects. Construction of this lateral would result in additional construction and operational land requirements beyond those reported in Table 4.3.4-1. Further, an additional 9,470 hp of booster compression would be required to boost the lateral pressure to levels needed to satisfy the proposed Project interconnect agreements.

While the environmental impacts associated with the Rails-to-Trails Route Alternative would be similar to those associated with the proposed Project route, the increased number of residential lands along the route alternative would result in a greater number of affected landowners. Further, the 10.1-mile-long lateral and associated booster compression required for this route alternative would result in additional environmental impacts beyond those evaluated in Table 4.3.4-1. For these reasons, we have eliminated the Rails-to-Trails Route Alternative from further consideration.



Legend

- Proposed Project Route
- Rails-to-Trails Route Alternative

MIDCONTINENT EXPRESS PIPELINE PROJECT
RAILS-TO-TRAILS ROUTE ALTERNATIVE

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Figure 4.3.4-1

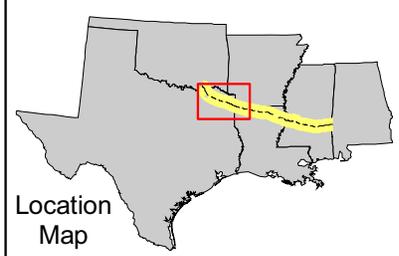
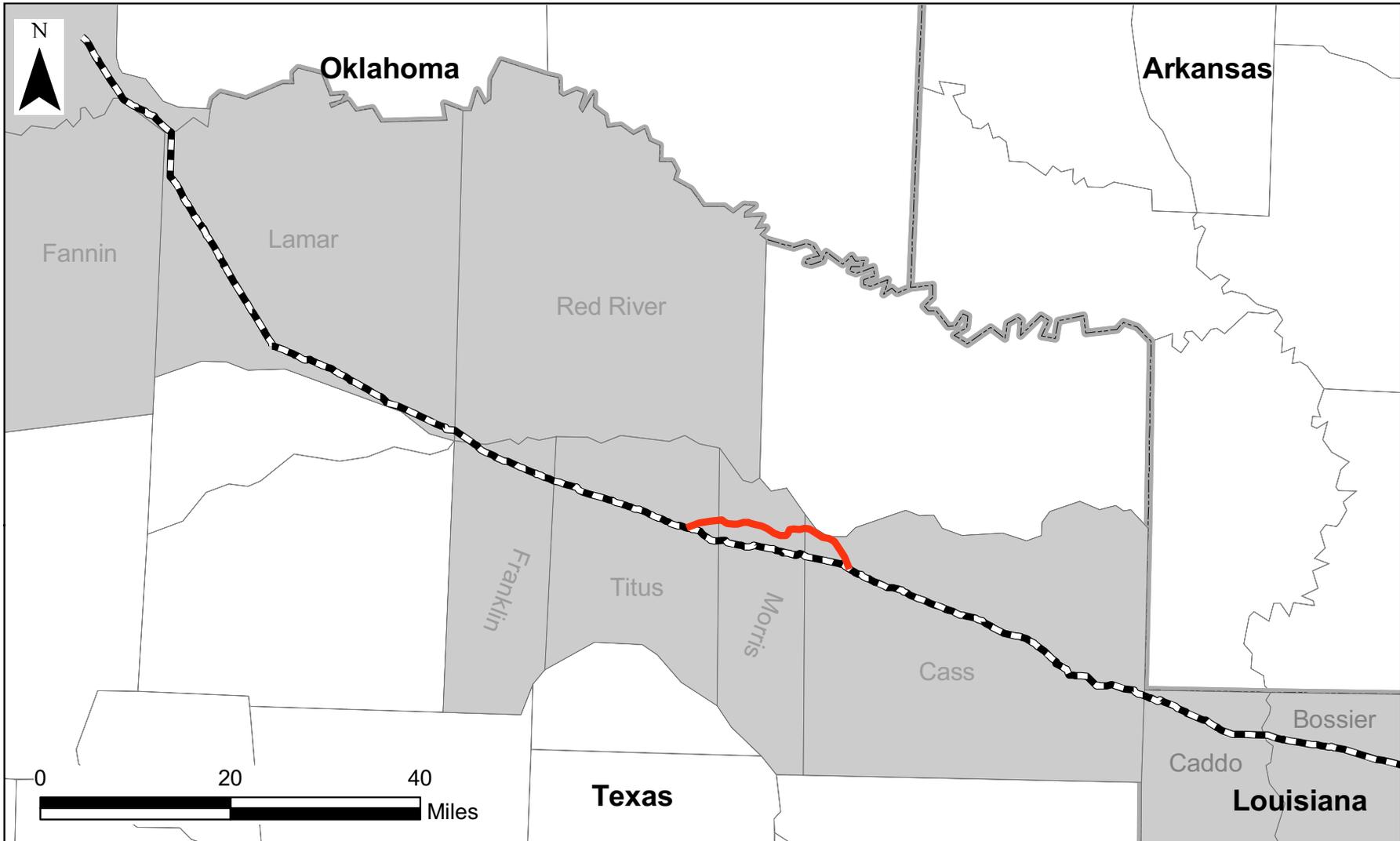
TABLE 4.3.4-1 Comparison of Rails-to-Trails Route Alternative and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	Rails-to-Trails Route Alternative
Total length (miles)	42.9	46.3
Compression requirements (hp)	71,575	71,575
Construction impacts (acres)	650.0	702.0
Permanent impacts (acres)	260.0	281.0
Adjacent to existing rights-of-way (miles)	41.2	46.3
Perennial stream crossings (number)	2	3
Major waterbody crossing	2	2
Wetlands (feet)	0.0	0.0
Forested wetlands (feet)	0.0	0.0
Residential lands (miles)	0.5	7.0
Forested lands (miles)	4.2	6.6
<hr/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

4.3.5 White Oak Creek WMA Route Alternative

The White Oak Creek WMA Route Alternative was evaluated in response to a public suggestion that the Project be placed on the White Oak Creek WMA to minimize the number of private lands affected by the proposed Project. The White Oak Creek WMA Route Alternative would diverge from the proposed Project alignment at MP TX 74.0, travel northeast to the southern White Oak Creek WMA boundary, and then travel due east before turning southeast to rejoin the proposed Project alignment at MP TX 92 (Figure 4.3.5-1).

Relative to the White Oak Creek WMA Route Alternative, the proposed Project alignment would be approximately 2 miles shorter and would result in decreased land requirements (Table 4.3.5-1). Approximately 43 percent of the proposed Project route would be collocated with existing rights-of-way, while none of the route alternative would be collocated. Both the proposed Project alignment and the route alternative would result in similar wetland and residential land impacts, but the route alternative would increase the number of perennial and major waterbody crossings, as well as the acreage of affected forested lands. For these reasons, we do not consider the White Oak Creek WMA Route Alternative to be environmentally preferable to the proposed Project route, and we have eliminated it from further consideration.

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Legend

- Proposed Project Route
- White Oak Creek Route Alternative

MIDCONTINENT EXPRESS PIPELINE PROJECT
WHITE OAK CREEK ROUTE ALTERNATIVE

DATE: May 2008

Figure 4.3.5-1

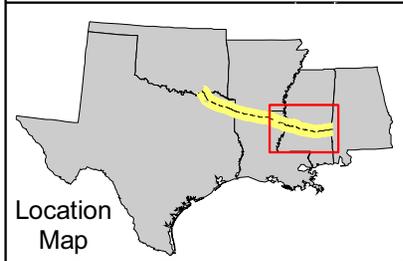
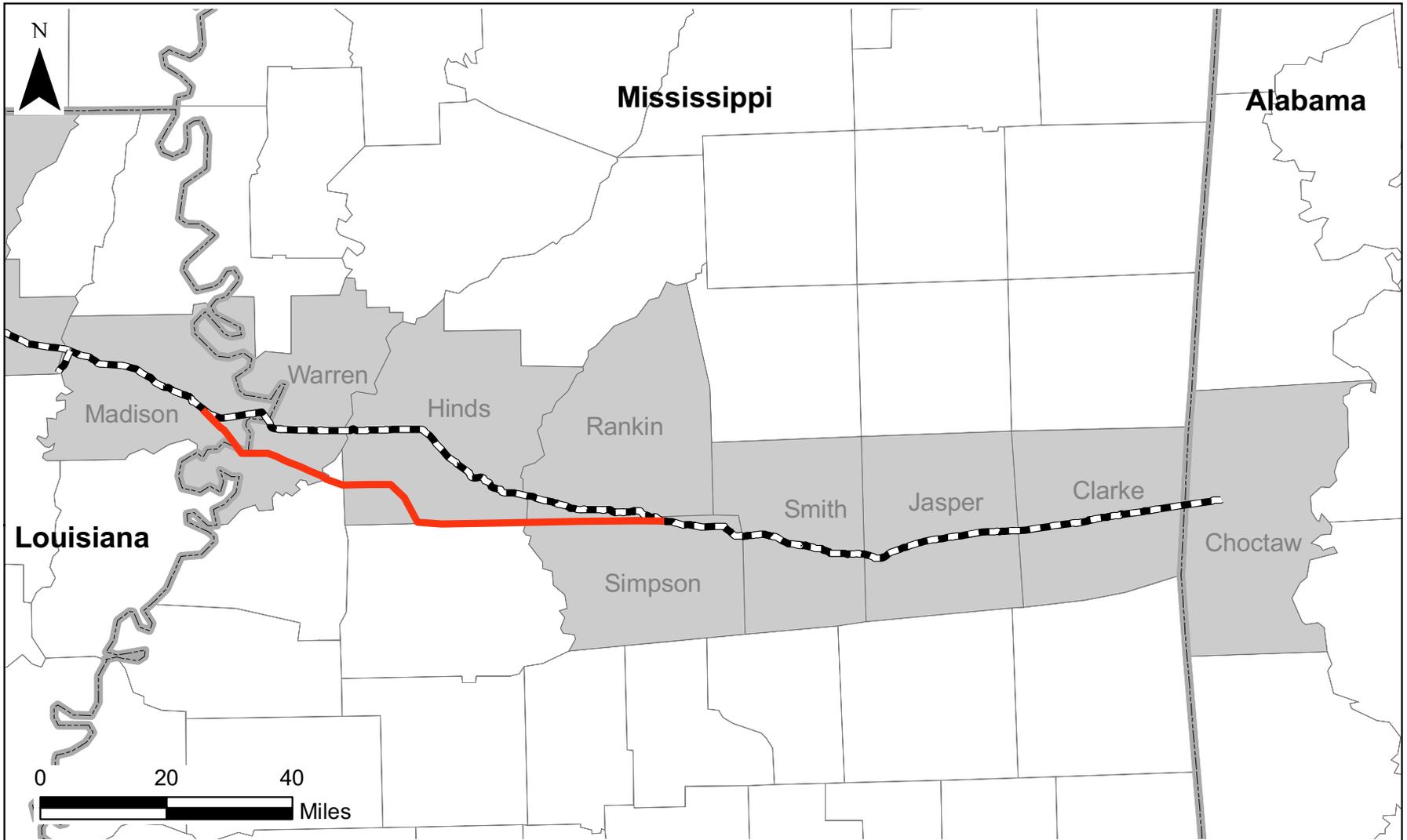
TABLE 4.3.5-1 Comparison of White Oak Creek WMA Route Alternative and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	White Oak Creek WMA Route Alternative
Total length (miles)	18.0	20.0
Compression requirements (hp)	71,575	71,575
Construction impacts (acres)	273.0	303.0
Permanent impacts (acres)	109.0	121.0
Adjacent to existing rights-of-way (miles)	7.8	0.0
Perennial stream crossings (number)	4	8
Major waterbody crossing	0	5
Wetlands (feet)	0.0	0.0
Forested wetlands (feet)	0.0	0.0
Residential lands (miles)	0.1	0.2
Forested lands (miles)	6.9	11.8
<hr/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

4.3.6 Taylor Route Alternative

We evaluated the Taylor Route Alternative in response to a route alternative suggested during a public comment meeting and in a public comment letter. The Taylor Route Alternative would shift the Mississippi River crossing about 9 miles south of the proposed crossing at MP LA 163.0. After crossing the Mississippi River, the route alternative would continue through southern Warren, northern Claiborne, and southern Hinds Counties, Mississippi, before rejoining the proposed Project alignment at MP MS 70.0 (Figure 4.3.6-1).

The Taylor Route Alternative would be 0.9 mile longer than the proposed Project alignment, resulting in an additional 5 acres of land being encumbered for Project operation (Table 4.3.6-1). While the proposed Project alignment would be collocated along approximately 46.7 percent of its length, none of the Taylor Route Alternative would be collocated with existing rights-of-way. Further, an additional nine perennial streams and four major waterbodies would be crossed by the route alternative. Adoption of the Taylor Route Alternative would also result in increased impacts to forested wetlands relative to the proposed Project alignment.

While the pipeline lengths and land requirements of the Taylor Route Alternative and the proposed Project route would be similar, approximately 37 miles of the proposed Project route would be collocated with existing rights-of-way, thus minimizing habitat fragmentation and reducing the need for temporary clearing of vegetation where construction workspaces would overlap existing rights-of-way. Further, the proposed Project alignment would reduce forested wetland impacts compared to the route alternative. For the reasons described above, we have eliminated the Taylor Route Alternative from further consideration.



Legend

-  Proposed Project Route
-  Taylor Route Alternative

MIDCONTINENT EXPRESS PIPELINE PROJECT
TAYLOR ROUTE ALTERNATIVE

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Figure 4.3.6-1

TABLE 4.3.6-1 Comparison of Taylor Route Alternative and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	Taylor Route Alternative
Total length (miles)	79.2	80.1
Compression requirements (hp)	71,575	71,575
Construction impacts (acres)	1,056.0	1,068.0
Permanent impacts (acres)	480.0	485.0
Adjacent to existing rights-of-way (miles)	37.0	0.0
Perennial stream crossings (number)	28	37
Major waterbody crossing	6	10
Wetlands (feet)	262	4,697
Forested wetlands (feet)	0.0	4,697
Residential lands (miles)	0.7	3.3
Forested lands (miles)	47.1	52.0
<hr/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

4.4 ROUTE VARIATIONS

Route variations differ from system or major route alternatives in that they are identified to resolve or reduce construction impacts to localized, specific resources such as cultural resources sites, wetlands, recreational lands, residences, and terrain conditions. While route variations may be a few miles in length, most are relatively short and in proximity to the proposed route. Because route variations are identified in response to specific local concerns, they are often the result of landowner comments. However, a variety of factors are considered in identifying and evaluating route variations, including length, land requirements, and potential for reducing or minimizing impacts to natural resources.

As part of its Project development and route selection process, MEP identified a total of 184 miscellaneous minor route variations to the originally planned route that have been incorporated into the proposed Project route, as filed with the FERC. Included in these adopted route variations is a modified Kidwell Route Variation, which is based upon our recommendation in the Draft EIS, and a route variation to avoid a WRP in Bossier Parish, Louisiana, which was agreed upon following NRCS consultations that we recommended in the Draft EIS. These minor variations were developed based on discussions with landowners, resource stewards, and project engineers to avoid or minimize impacts to natural or cultural resources, reduce or eliminate engineering and constructability concerns, and/or avoid or minimize conflicts with existing or proposed residential and agricultural land uses. Each of these miscellaneous minor route variations are summarized in Appendix J-1 and depicted in the figures provided as Appendix J-2 of this EIS. We have evaluated each of these minor route variations and considered their associated environmental consequences as part of our environmental analysis of the proposed Project provided in Section 3.0.

4.4.1 Identified Route Variations

Based on our analysis of the proposed Project and comments provided by the public, we have identified and evaluated 22 route variations. Table 4.4-1 lists these route variations, the segments of the proposed Project route that they would replace, and the reason for the proposed variation. Each route variation considered was compared to the corresponding segment of the proposed Project route to determine whether potential environmental benefits would be afforded. Our evaluation of route variations was based on information provided by MEP, comments filed with the FERC, review of available aerial photography and USGS topographic maps, and site visits performed by FERC staff.

In addition to the route variations considered below, it is anticipated that minor alignment shifts would be required prior to and during construction to accommodate currently unforeseeable site-specific constraints related to engineering, landowner, and environmental concerns. All such alignment shifts would first be subject to post-Certificate review and approval by the FERC.

TABLE 4.4-1 Summary of Route Variations Identified in Response to Public Comments Received for the Proposed Midcontinent Express Pipeline Project			
Route Variation	Proposed Project Route Milepost Range (approximate)	Reason for Variation	Analysis in Section Noted
Long Route Variations I - III	OK 8.0 – TX 4.2	Avoid waterbodies, mature forest, erodible soils, and wetlands; reduce number of affected landowners, address a landowner request; and avoid and/or minimize impacts to WRP.	4.4.1.1
Johnson Route Variations I & II	TX 11.2 – TX 12.2	Address a landowner/agency request.	4.4.1.2
Carswell Route Variation	TX 56.6 – TX 57.3	Increase Project collocation with existing right-of-way.	4.4.1.3
Radescich Route Variation	LA 54.9 – LA 55.5	Avoid hardwoods and potential cultural features.	4.4.1.4
Parks Route Variations I - III	LA 120.2 - LA 121.1	Increase Project right-of-way overlap with existing rights-of-way.	4.4.1.5
Bridges Route Variations I - IV	MS 2.5 – MS 3.2	Increase collocation with existing and proposed rights-of-way and avoid stock ponds.	4.4.1.6
Bridgers Route Variations I - IV	MS 8.8- MS 9.4	Increase collocation with existing rights-of-way and minimize forest fragmentation and wildlife impacts.	4.4.1.7
Moak Route Variation I & II	MS 26.5 – MS 29.0	Address a landowner request and minimize residential impacts	4.4.1.8
Twin Lakes Route Variations I - III	MS 34.5 – MS 35.4	Minimize impacts to a planned residential development.	4.4.1.9

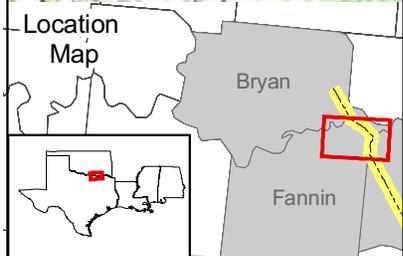
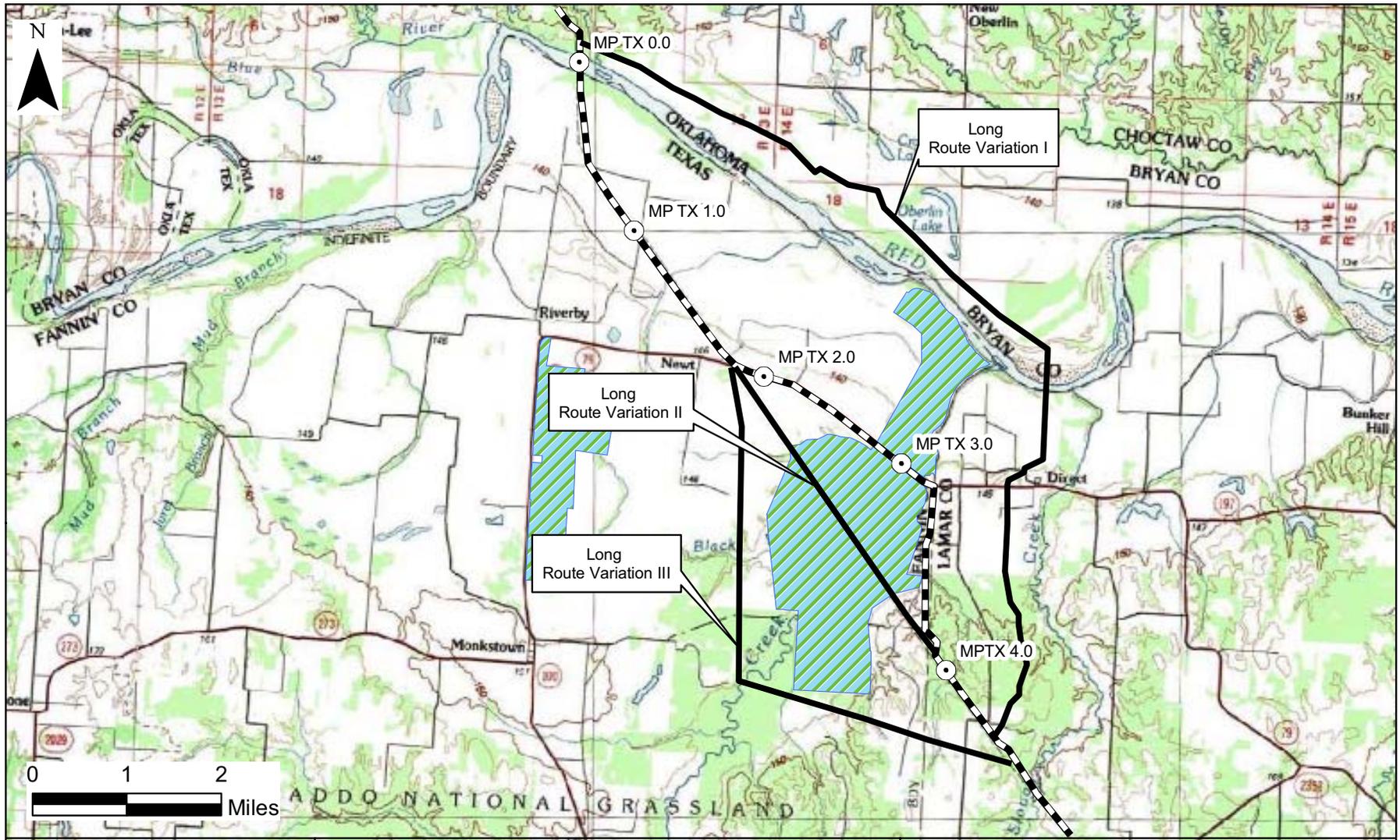
4.4.1.1 Long Route Variations

The Long Route Variations were developed and evaluated to reduce the number of affected landowners and in response to landowner comments regarding Project-related impacts to forested lands and creeks. Route variations were also assessed to determine whether they could decrease impacts to perennial waterbodies, reduce impacts to mature hardwood forests, or minimize construction in areas with highly erodible soils. The three identified route variations would diverge from the proposed Project alignment between MPs OK 8.0 and TX 4.2 (Figure 4.4.1-1). Table 4.4.1-1 provides a comparison of the various Long route variations between MP OK 8.0 and TX 4.2. The Long Route Variation I would diverge from the proposed alignment at MP OK 8.0 and parallel the Red River in a southeasterly direction through Oklahoma before turning south to cross the Red River and resume the proposed Project alignment near MP TX 4.2. The Long Route Variation II would diverge from the proposed Project alignment near MP TX 1.9 and continue to collocate with an existing NGPL pipeline right-of-way in a southeasterly direction before resuming the proposed Project route near MP TX 3.9. The Long Route Variation III would diverge from the proposed Project route near MP TX 1.9, traveling south and then east to resume the proposed Project route near MP TX 4.2.

The NRCS has requested that the proposed Project route avoid and minimize the use of lands encumbered by WRP easements to the maximum extent practicable, and the Long Route Variations I and III would entirely avoid a WRP easement located between MP TX 2.7 to MP TX 3.0. The Long Route Variations I and III would both be approximately 0.7 mile longer than the proposed Project route, resulting in a corresponding increase in permanent land requirements. Because both of these route variations would result in more greenfield construction than the proposed Project route, they would also result in increased impacts to forested lands relative to the proposed Project route. Compared to the proposed Project route, the Long Route Variation I would also cross significantly more perennial streams and lands containing highly erodible soils.

The Long Route Variation II would be shorter in length than the proposed Project route, resulting in reduced construction and operational land requirements, and the entire length of this route variation would be collocated with an existing pipeline right-of-way. Additionally, a similar number of perennial streams would be crossed, and no residences would be located within 50 feet of construction workspace areas along the Long Route Variation II. However, approximately 1.9 miles of this route variation would traverse a WRP easement, and a single HDD of the length required to entirely avoid impacts to the WRP easement would not be feasible. MEP indicates that an HDD of approximately 4,000 feet in length could be implemented to minimize surface impacts to the WRP easement, but the remaining 1.1 miles of WRP easement crossing would be accomplished by conventional open-cut trenching. Though the proposed Project route would also cross approximately 0.6 mile of WRP easement, direct surface impacts to the easement would be entirely avoided through implementation of an HDD.

Although, the Long Route Variations I and III would completely avoid WRP easements, we believe that increased land requirements, decreased collocation with existing rights-of-way, and increased crossings of perennial streams and highly erodible soils associated with these variations make them less environmentally preferable relative to the proposed Project route. Given the extended length of WRP easement that would be crossed via open-cut trenching, we also consider the Long Route Variation II to be less environmentally preferable than the proposed Project route. Given the WRP easement impact minimization measures proposed by MEP along the proposed Project route, such as the use of HDD under the entire WRP boundary that would include Bois d' Arc Creek and its riparian buffer, we believe that the Project alignment would best balance impacts to environmental resources and WRP easements, and we have eliminated the Long Route Variations from further consideration.



Legend

-  Long Route Variations
-  Proposed Project Route
-  WRP

MIDCONTINENT EXPRESS PIPELINE PROJECT
LONG ROUTE VARIATIONS

DATE: May 2008

Figure 4.4.1-1

**TABLE 4.4.1-1
Comparison of Long Route Variations and the Proposed
Midcontinent Express Pipeline Project Route^{a, b}**

Evaluation Criterion	Proposed Project Route	Long Route Variation I	Long Route Variation II	Long Route Variation III
Total length (miles)	10.2	10.9	9.6	10.9
Residences within 50 feet of construction workspace (number)	1	3	0	0
Construction impacts (acres)	115.0	132.0	107.0	132.0
Permanent impacts (acres)	58.0	66.0	54.0	66.0
Adjacent to existing rights-of-way (miles)	7.8	0.0	9.6	4.4
Total length crossing WRP (miles)	0.6	0.0	1.9	0.0
WRP construction impacts (acres)	0.0 ^c	0.0	13.9 ^d	0.0
WRP permanent impacts (acres)	0.0 ^c	0.0	1.4 ^d	0.0
Perennial stream crossings (number)	3	13	3	2
Major waterbody crossings (number)	2	4	2	1
Wetlands impacts (feet)	0	0	95	388
Landowners affected (number)	2	39	2	3
Land use	Forest, agriculture, open	Forest, agriculture, open	Forest, agriculture, open	Forest, agriculture, open

Note:

^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.

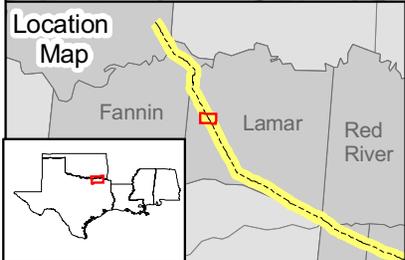
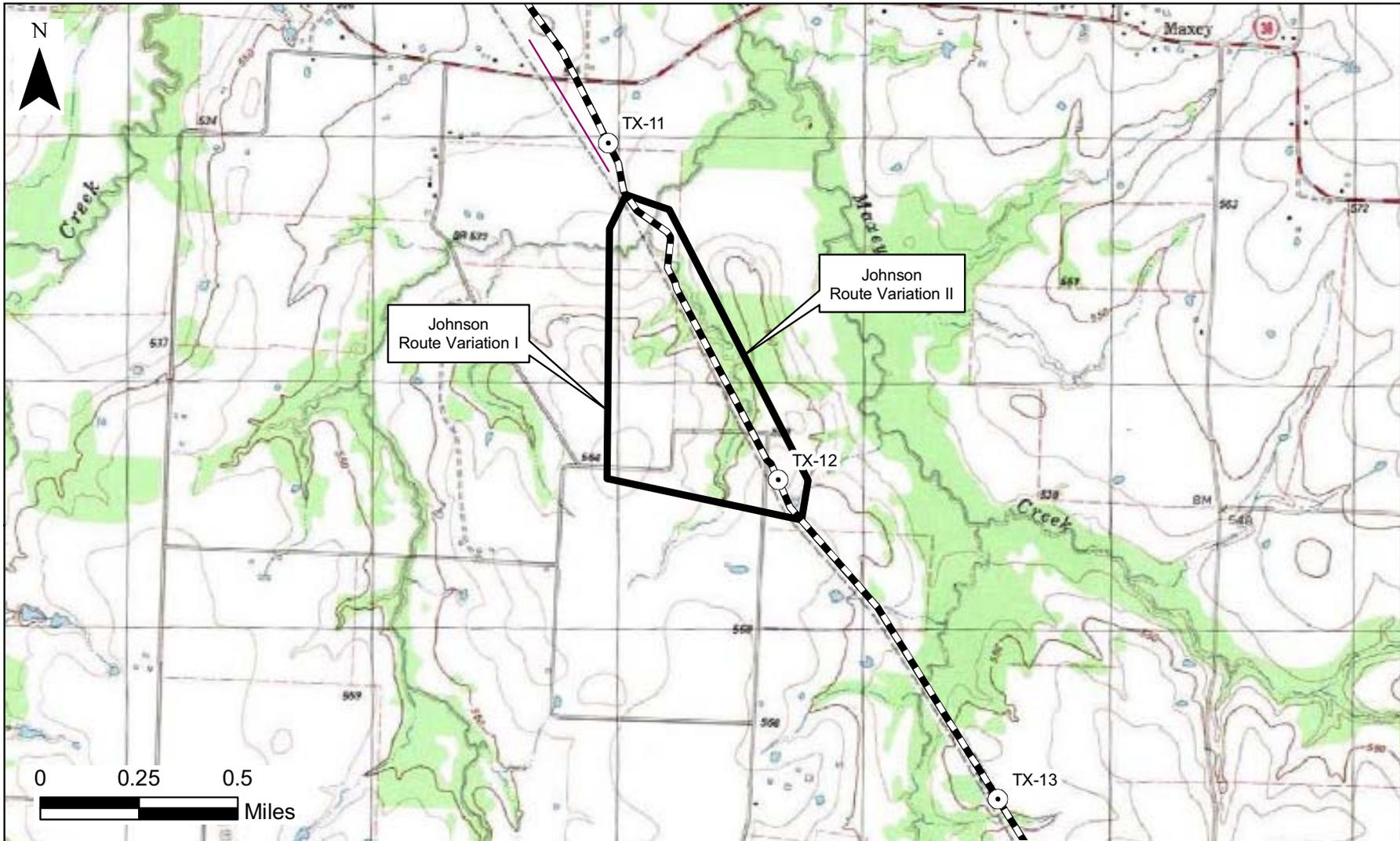
^b All route variations are compared for the length between MP OK 8.0 and MP TX 4.2.

^c WRP surface impacts would be avoided through the use of HDD. All temporary extra workspace would be located outside WRP boundaries.

^d MEP proposes to avoid surface impacts to 4,000 feet of the WRP through the use of HDD.

4.4.1.2 Johnson Route Variations

The Johnson Route Variations were developed in response to agency and landowner concerns regarding Project impacts on Silveanus dropseed (Blackland Prairie) and Post Oak-Blackjack Oak-Black Hickory vegetative communities (see Section 3.5). The Johnson Route Variation I would deviate from the proposed Project alignment at MP TX 11.2, shifting the alignment southwest and then east before resuming the original Project alignment at MP TX 12.2 (Figure 4.4.1-2). The Johnson Route Variation II would parallel the proposed Project alignment to the north between MPs TX 11.2 and TX 12.2. Table 4.4.1-2 provides a comparison of the two Johnson Route Variations.



Legend	
—	Johnson Route Variations
- - -	Proposed Project Route

MIDCONTINENT EXPRESS PIPELINE PROJECT	
JOHNSON ROUTE VARIATIONS	
DATE: May 2008	Figure 4.4.1-2

**TABLE 4.4.1-2
Comparison of Johnson Route Variations and the Proposed
Midcontinent Express Pipeline Project Route^a**

Evaluation Criterion	Proposed Project Route	Johnson Route Variation I	Johnson Route Variation II
Total length (miles)	1.0	1.2	1.1
Landowners affected (number)	4	4	4
Residences within 50 feet of construction workspace (number)	0	0	0
Construction impacts (acres)	12.0	15.0	13.3
Permanent impacts (acres)	6.0	7.0	6.7
Adjacent to existing rights-of-way (miles)	1.0	0.0	0.0
Perennial stream crossings (number)	1	1	1
Major waterbody crossings (number)	0	0	0
Wetland impacts (acres)	0.0	0.0	0.0
Land use	Agriculture, open	Agriculture	Agriculture, forest
<hr style="width: 10%; margin-left: 0;"/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.			

The Johnson Route Variation I would be approximately 0.2 mile longer than the proposed Project alignment, which would increase permanent land requirements by approximately 1 acre during operation. Further, the route variation would not be collocated with an existing right-of-way, while all of the proposed alignment would be collocated. The Johnson Route Variation I would traverse primarily agriculture lands, while the proposed Project route would primarily affect existing right-of-way, open land, and some agricultural lands. MEP indicates that the proposed route alignment adjacent to the Post Oak – Blackjack Oak – Black Hickory Vegetative Community would be contained entirely within an existing right-of-way and that no construction work spaces would result in the removal of any trees of this vegetative community. Both the proposed Project route and the route variation would avoid impacts to the Blackland Prairie communities present on the Johnson property and both would result in similar impacts to number of landowners, waterbodies, and wetlands.

The Johnson Route Variation II would be approximately 0.1 mile longer than the proposed Project alignment, which would increase permanent land requirements by approximately 0.7 acre during operation. This route variation and the proposed Project alignment would impact the same number of perennial streams, wetlands, and landowners. As stated above, the proposed Project route would primarily affect existing right-of-way and open land, while the Johnson Route Variation II would traverse agricultural and forested land. Additionally, both the Blackland Prairie and Post Oak-Blackjack Oak-Black Hickory vegetative communities would be disturbed by construction and operation of the Johnson Route Variation II.

Due to the increased land requirements associated with the Johnson Route Variation I and the decreased collocation with existing rights-of-way, we do not consider the Johnson Route Variation I to be environmentally preferable to the proposed Project alignment. For similar reasons, as well as impacts to

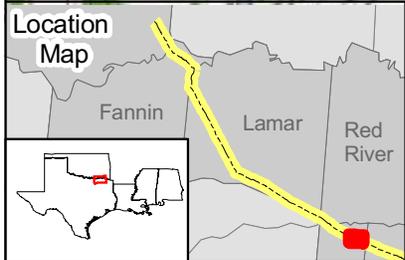
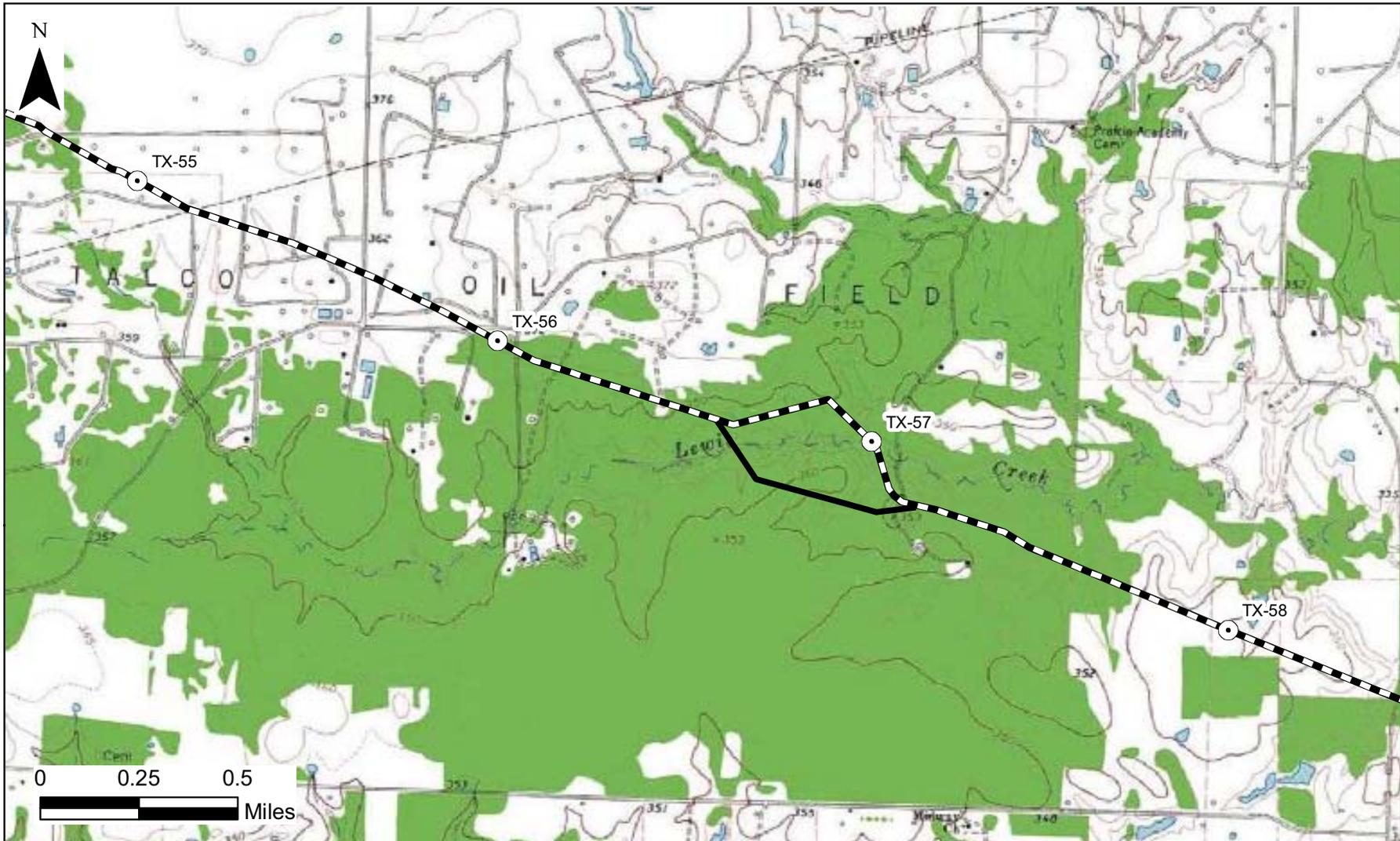
sensitive vegetative communities, we do not consider the Johnson Route Variation II to be environmentally preferable to the proposed Project alignment. Therefore, we have eliminated both of the Johnson Route Variations from further consideration.

4.4.1.3 Carswell Route Variation

The Carswell Route Variation was evaluated in response to a landowner’s request that the Project alignment be collocated with the proposed Gulf Crossing Project on the Carswell property. Table 4.4.1-3 provides a comparison of the proposed Project alignment and the Carswell Route Variation. The Carswell Route Variation would be collocated with the proposed Gulf Crossing Project that would run south of the MEP proposed alignment (Figure 4.4.1-3). The route variation would diverge south from the proposed Project route at approximately MP TX 56.6 and travel east before resuming the proposed Project route at approximately MP TX 57.3.

The Carswell Route Variation would be approximately 0.1 mile shorter than the proposed Project route, which would result in corresponding reductions in permanent land requirements. This route variation would require that the Project cross under an existing Kinder Morgan Pipeline and the proposed Gulf Crossing pipeline, which would result in the use of extra temporary workspace that would temporarily encumber land beyond those land requirements reported in Table 4.4.1-3. The proposed alignment would require over 0.6 mile of greenfield construction, while the entire Carswell Route Variation would be collocated with the proposed Gulf Crossing Project. The route variation would require one additional stream crossing.

TABLE 4.4.1-3 Comparison of Carswell Route Variation and the Proposed Midcontinent Express Pipeline Project Route		
Evaluation Criterion	Proposed Project Route	Carswell Route Variation^a
Total length (miles)	0.7	0.6
Residences within 50 feet of construction workspace (number)	0	0
Construction impacts (acres)	4.2	3.6
Permanent impacts (acres)	8.5	7.3
Adjacent to existing or proposed rights-of-way (miles)	0.1	0.6
Stream crossings (number)	2	3
Major Waterbody Crossings (number)	0	0
Land uses	Forest	Forest
Note:		
^a Route Variation stream crossing values are based on published data in the Gulf Crossing Final EIS.		



Legend

-  Proposed Project Route
-  Carswell Route Variation

MIDCONTINENT EXPRESS PIPELINE PROJECT

CARSWELL ROUTE VARIATION

DATE: May 2008	Figure 4.4.1-3
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While the Carswell Route Variation would cross one additional waterway, we believed that the shorter length and increased collocation would be environmentally preferable to the proposed Project alignment in this area. Therefore, **we recommend that:**

- **MEP should incorporate the Carswell Route Variation, as described in the Final EIS, into its proposed Project. MEP should file with the Secretary, for review and written approval by the Director of OEP, revised construction alignment sheets that show the modified route and workspaces, prior to construction in this area.**

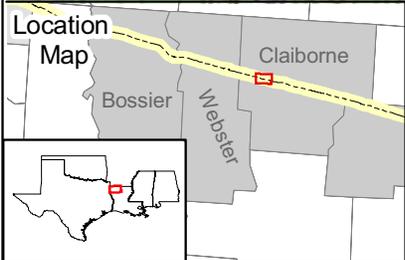
4.4.1.4 Radescich Route Variation

The Radescich Route Variation was developed in response to landowner concerns about Project related impacts to forested areas and cultural resources on his property. This route variation would diverge from the proposed Project alignment at MP LA 54.9 in Claiborne Parish, Louisiana (Figure 4.4.1-4). The Radescich Route Variation would travel east and then southeast before returning to the proposed Project alignment at approximately MP LA 55.5.

The Radescich Route Variation would increase the Project’s length by 0.1 mile and encumber additional temporary and permanent right-of-way, relative to the proposed Project route (Table 4.4.1-4). The evaluated route variation would require additional greenfield construction, compared to the proposed Project route, due to its collocation with a roadway for approximately half its length. The increased greenfield construction through forested areas would increase habitat fragmentation in this area. The same waterbody would be crossed by both the proposed Project route and the route variation at different locations. No significant cultural resources were found during MEP’s cultural resource surveys along the proposed Project alignment in this area. The Radescich Route Variation was not surveyed for cultural resources.

TABLE 4.4.1-4 Comparison of Radescich Route Variation and the Proposed Midcontinent Express Pipeline Project Route		
Evaluation Criterion	Proposed Project Route	Radescich Route Variation^a
Total length (miles)	0.5	0.6
Residences within 50 feet of construction workspace (number)	0	0
Construction impacts (acres)	6.1	7.3
Permanent impacts (acres)	3.0	3.6
Adjacent to existing rights-of-way (miles)	0.5	0.3
Stream crossings (number)	1	1
Major Waterbody Crossings (number)	0	0
Land uses	Forest	Forest
Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		

4-40



Legend

- Proposed Project Route
- Radescich Route Variation

MIDCONTINENT EXPRESS PIPELINE PROJECT

RADESCICH ROUTE VARIATION

DATE: May 2008	Figure 4.4.1-4
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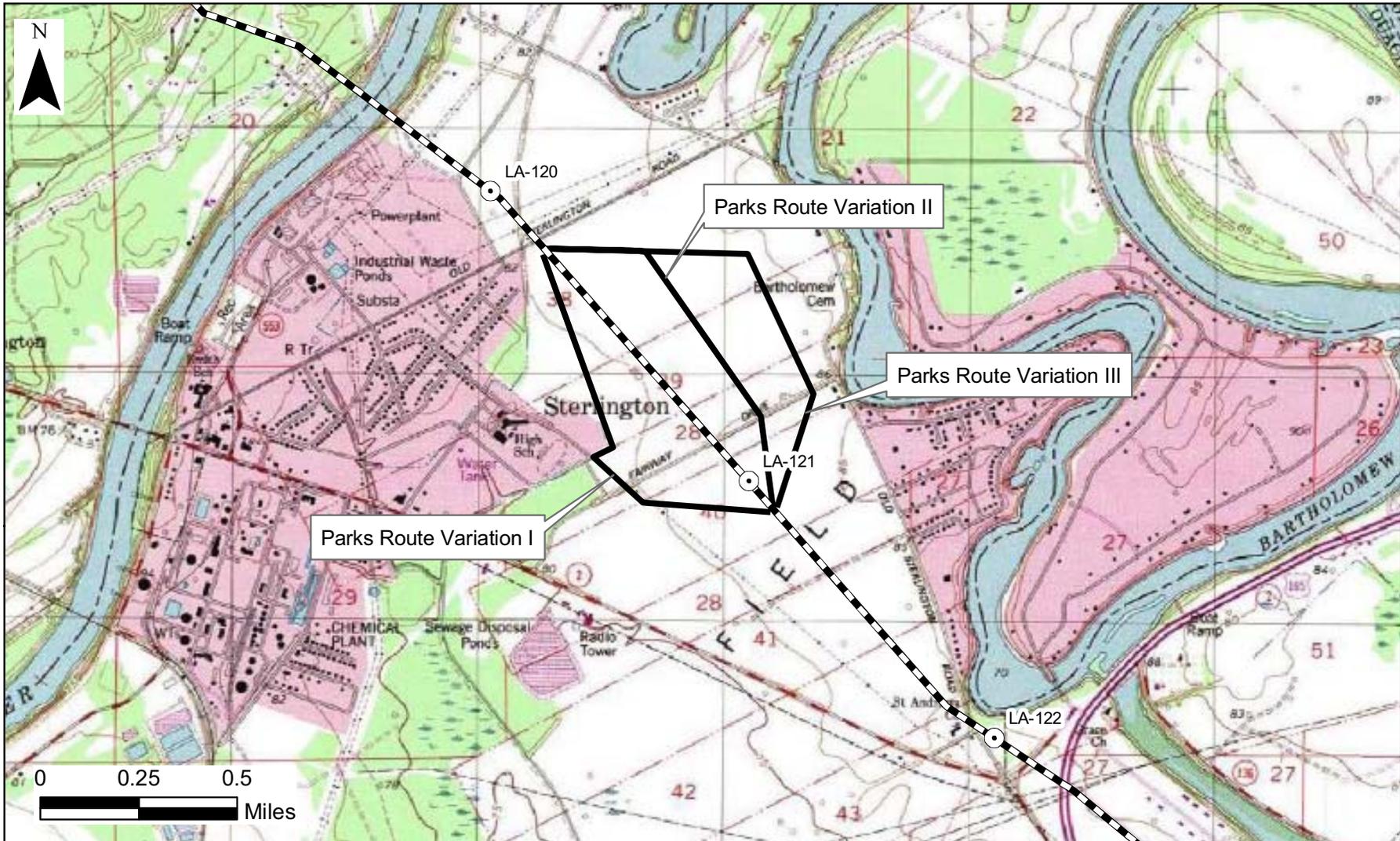
While the route variation would minimize Project-related impacts to the Radescich property, we believe that the extensive collocation of the proposed Project route in this area would minimize fragmentation of forested habitat. Further, we believe that the longer length and additional land requirements of the Radescich Route Variation would not result in an environmental benefit over the proposed Project route. Therefore, we have eliminated the Radescich Route Variation from further consideration.

4.4.1.5 Parks Route Variations

The proposed Project route would be collocated with two existing Devon-Drake pipeline rights-of-way between MP LA 120.2 and MP LA 121.1. Devon-Drake would allow MEP to overlap their existing rights-of-way by five feet and would allow a 25 foot separation between the proposed MEP and existing Devon-Drake pipelines. We evaluated two landowner-suggested and one MEP-proposed Parks Route Variations to determine if any route variations would be environmentally preferable to the proposed Project route in this area. The three Parks Route Variations would diverge from the proposed Project alignment near MP LA 120.2 (Figure 4.4.1-5). The Parks Route Variation I, as suggested by the landowner, would travel southwest towards Fairway Drive to join an existing electrical transmission line right-of-way. The route variation would collocate with the transmission line right-of-way for approximately 0.2 mile prior to traveling southeast to resume the proposed Project alignment near MP LA 121.1. The Parks Route Variation II would collocate with a powerline and then an existing Enbridge pipeline right-of-way through the Parks property before resuming the proposed Project alignment near MP LA 121.1. The third alternative, Parks Route Variation III, was suggested by MEP and would collocate with an existing powerline for approximately 0.9 mile before resuming the proposed Project route.

The Parks Route Variation I would be partially collocated with an existing Entergy powerline. MEP has indicated that the Project could potentially overlap the Entergy right-of-way by approximately 10 feet, but Entergy has not been approached about this potential overlap. Compared to the proposed Project alignment, the Parks Route Variation I would be longer and require more greenfield construction (Table 4.4.1-5). While there is a potential for a 10 foot overlap with the powerline along this route, this overlap would not offset the additional land requirements associated with the increased pipeline length.

TABLE 4.4.1-5 Comparison of Parks Route Variations and the Proposed Midcontinent Express Pipeline Project Route^a				
Evaluation Criterion	Proposed Project Route	Parks Route Variation I	Parks Route Variation II	Parks Route Variation III
Total length (miles)	0.9	1.1	1.0	1.2
Construction impacts (acres)	10.9	13.3	12.1	14.5
Permanent impacts (acres)	5.5	6.7	6.1	7.3
Adjacent to existing rights-of-way (miles)	0.9	0.2	0.8	0.9
Perennial stream crossings (number)	0	0	0	0
Major waterbody crossings (number)	0	0	0	0
Land use	Agriculture, open	Agriculture, open	Agriculture, open	Agriculture, open
Note:				
^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.				



Legend

- Proposed Project Route
- Parks Route Variations

MIDCONTINENT EXPRESS PIPELINE PROJECT

PARKS ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.1-5
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MEP met with an Enbridge representative in April of 2008 to discuss potential right-of-way overlap between the proposed Project and the existing Enbridge pipeline with which the Parks Route Variation II would be collocated. Enbridge indicated that it would not allow MEP to overlap the Enbridge existing right-of-way on the Parks property. The Parks Route Variation II would be 0.1 miles longer than the proposed Project, which would result in additional land being encumbered for the temporary and permanent right-of-way. Further, this route variation would require MEP to cross under five existing pipelines that would require additional temporary workspace beyond that reported in Table 4.4.1-5.

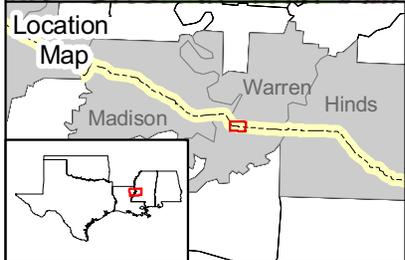
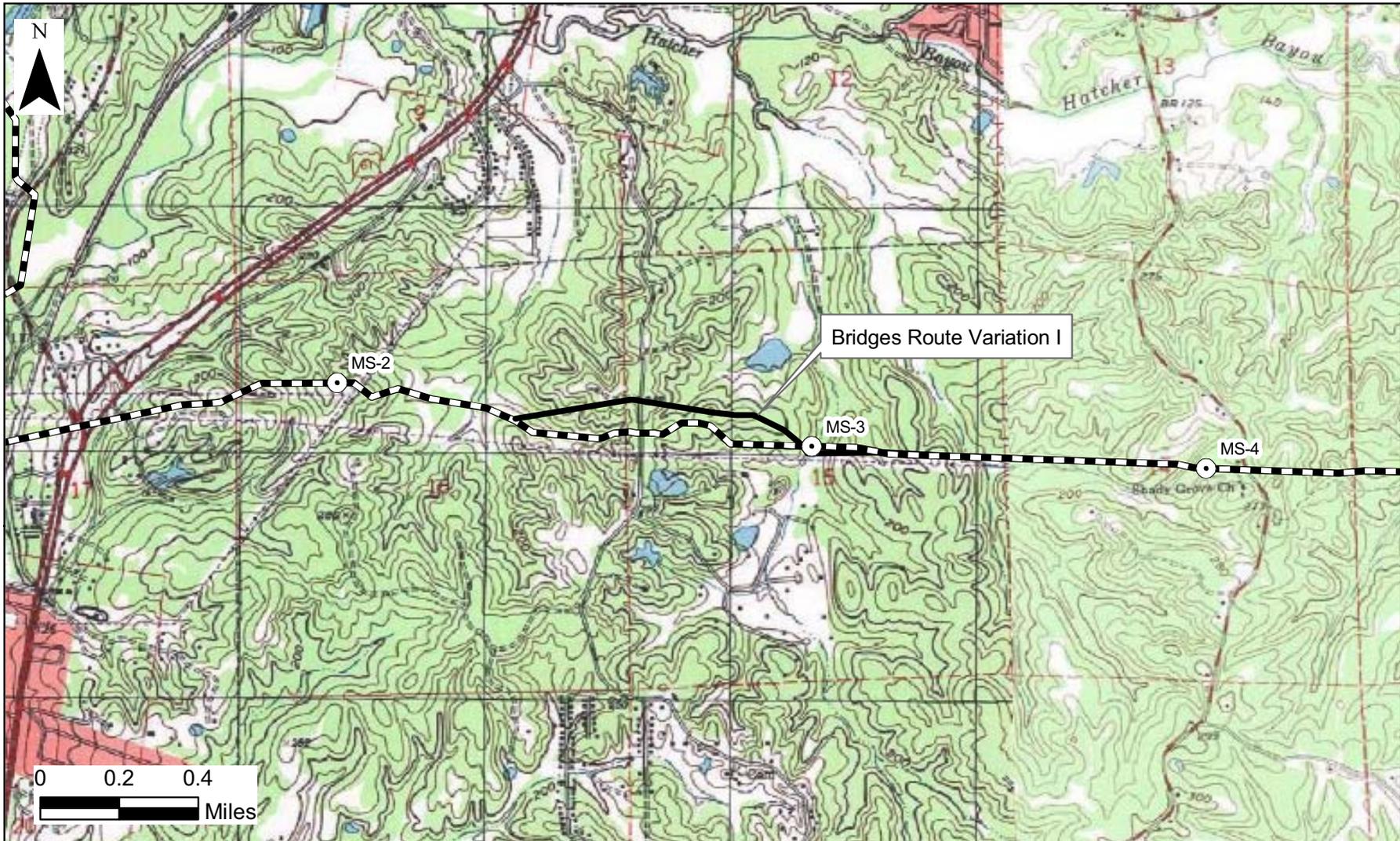
The Parks Route Variation III would be the longest of the routes evaluated, which would result in increased quantities of land being temporarily and permanently encumbered by the proposed Project. As described above, the Entergy right-of-way, which would be collocated for nearly the entire Parks Route Variation III length, would potentially be overlapped by the proposed Project right-of-way by 10 feet. While this route variation would potentially overlap an existing right-of-way, the quantity of land saved by the right-of-way overlap would not offset the increased quantity of land encumbered due to the increased length of the route variation.

Due to the overlap of the proposed Project route with the existing Devon-Drake right-of-way and the increased length and the decreased collocation of the route variations, all of the evaluated route variations would result in increased land requirements, compared to the proposed Project alignment. We believe that the proposed Project route would best minimize the environmental and landowner impacts on the Parks property; therefore, we have eliminated all three Parks route variations from further consideration.

4.4.1.6 Bridges Route Variations

We evaluated four route alternatives across the Bridges property located in Warren County, Mississippi, (Figures 4.4.1-6a-d) to minimize impacts to forested lands while ensuring that the Project could be safely constructed. Due to the presence of a severe side slope, highly erodible loess soils, and an existing pipeline to the south of the proposed alignment on the Bridges property, MEP has indicated that the Project alignment should deviate from the existing right-of-way on the property to prevent unsafe construction conditions. For these reasons, MEP has indicated that the proposed Project alignment depicted in Figures 4.4.1-6 a-d would not be safe to construct and MEP is therefore evaluating route variations in this area. We received several comments (see Appendix M) suggesting that the Project be collocated with the existing pipeline right-of-way across the Bridges property. In response to these comments, we evaluate below the Bridges Route Variation III. The Bridges Route Variations I, II, and IV have been suggested by MEP as viable route variations to their proposed Project route in this area.

The Bridges Route Variation I would diverge from the proposed Project alignment at approximately MP MS 2.5 travel north and east across the hill ridge on the Bridges property before returning to the proposed Project alignment near MP MS 3.2. The Bridges Route Variation II would travel northeast from MP MS 2.5 until reaching Dana Road. The route variation would then travel south adjacent to Dana Road and then turn east to collocate with the existing right-of-way. Upon reaching the base of the hill on the property, the Bridges Route Variation II would then travel north and east along the ridge top and resume collocation with the existing right-of-way at approximately MP MS 3.0. The Bridges Route Variation III would travel northeast until reaching Dana Road. Upon reaching Dana Road, the route variation would travel south along the roadway and resume collocation with the existing right-of-way until resuming the proposed Project alignment near MP MS 3.2. The Bridges Route Variation IV would diverge from the proposed Project alignment at approximately MP MS 2.5, travel north and east across Dana road, continue east along the top of the ridge on the Bridges' property, and then continue along an existing logging road until resuming the proposed Project alignment at MP MS 3.2.



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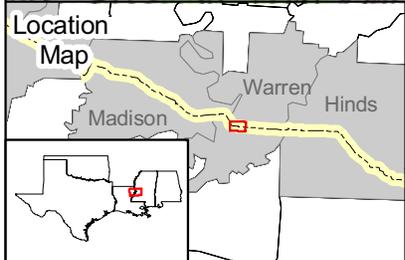
-  Proposed Project Route
-  Bridges Route Variation I

MIDCONTINENT EXPRESS PIPELINE PROJECT

BRIDGES ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.1-6a
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4-45



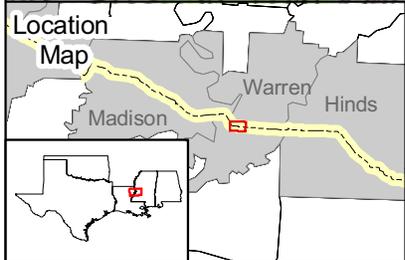
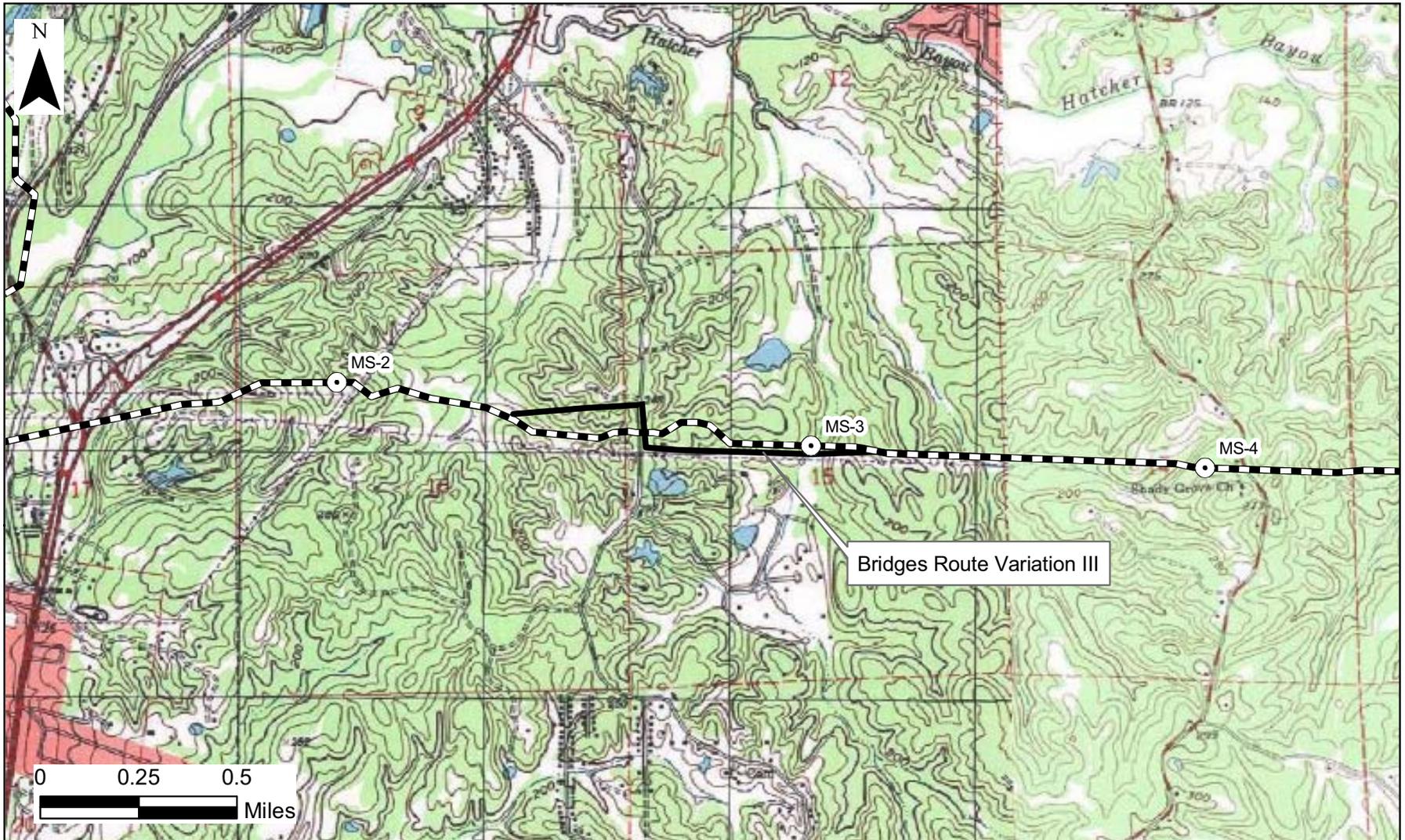
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-  Proposed Project Route
-  Bridges Route Variation II

MIDCONTINENT EXPRESS PIPELINE PROJECT

BRIDGES ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.1-6b
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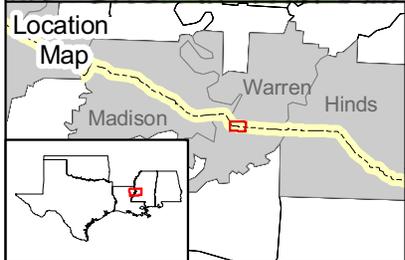
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- Proposed Project Route
- Bridges Route Variation III

MIDCONTINENT EXPRESS PIPELINE PROJECT

BRIDGES ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.1-6c
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Legend

- Proposed Project Route
- Bridges Route Variation IV

MIDCONTINENT EXPRESS PIPELINE PROJECT

BRIDGES ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.1-6d
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The Bridges Route Variation I would be the same length as the proposed Project route, resulting in similar quantities of land being encumbered for temporary and permanent easements (Table 4.4.1-6). This route variation would have increased collocation at the eastern portion of the route variation but would largely fragment the forested lands on the Bridges property. Likewise, the Bridges Route Variation IV would be a similar length as the proposed Project alignment and would not be collocated with an existing right-of-way, resulting in the fragmentation of forested habitat through the center of the Bridges property. Due to the increased forest fragmentation and the lack of collocation, we have eliminated the Bridges Route Variations I and IV from further consideration.

**TABLE 4.4.1-6
Comparison of Bridges Route Variations and the Proposed
Midcontinent Express Pipeline Project Route^a**

Evaluation Criterion	Proposed Project Route	Bridges Route Variation I	Bridges Route Variation II	Bridges Route Variation III	Bridges Route Variation IV
Total length (miles)	1.0	1.0	1.1	1.1	1.0
Construction impacts (acres)	12.1	12.1	13.3	13.3	12.1
Permanent impacts (acres)	6.1	6.1	6.7	6.7	6.1
Adjacent to existing rights-of-way (miles)	0.0	0.2	0.4 ^b	0.7 ^b	0.0
Perennial stream crossings (number)	0	0	0	0	0
Major waterbody crossings (number)	0	0	0	0	0
Land use	Forest	Forest	Forest	Forest	Forest

Note:

^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.

^b These route variations would have an additional 0.1 mile of collocation with a roadway, which is not reflected in this number.

The Bridges Route Variations II and III would be slightly longer (0.1 mile) than the proposed Project alignment, but both would have increased collocation that would minimize forest impacts on the Bridges property. The Bridges Route Variation III would be collocated with an existing pipeline right-of-way from Dana Road until MP MS 3.2. As described above, MEP has indicated that due to the presence of severe side slopes to the north and the presence of an existing pipeline to the south, construction along a portion of this route variation would be unsafe and could potentially undercut the soil supporting the existing pipeline. Due to the potential safety issues associated with the Bridges Route Variation III, we eliminate this route variation from further consideration.

The Bridges Route Variation II would be collocated with Dana Road for approximately 0.1 mile and collocated with the existing pipeline right-of-way for approximately 0.4 mile. While this route variation is slightly longer than the proposed route and the Bridges Route Variations I and IV, this route would minimize fragmentation of forest on the Bridges property while still allowing for safe construction. Because we believe that the Bridges Route Variation II would best balance safety and environmental concerns, **we recommend that:**

- **MEP should incorporate the Bridges Route Variation II, as described in the Final EIS, into its proposed Project. MEP should file with the Secretary, for review and written approval by the Director of OEP, revised construction alignment sheets that show the modified route and workspaces, prior to construction in this area.**

4.4.1.7 Bridgers Route Variations

We evaluated three variations to the proposed Project alignment that would cross the eastern portion of the Bridgers property (Figure 4.4.1-7). The landowner has expressed concerns that the proposed Project would disrupt his livestock operations by interrupting the availability of water for his cattle during Project construction. Figure 4.4.1-7 depicts two ponds that would be potentially impacted by the proposed Project alignment or by the Bridgers Route Variations. The landowner has indicated that the westernmost pond has been drained; therefore, Project construction through the western pond would not impact pond operation and use.

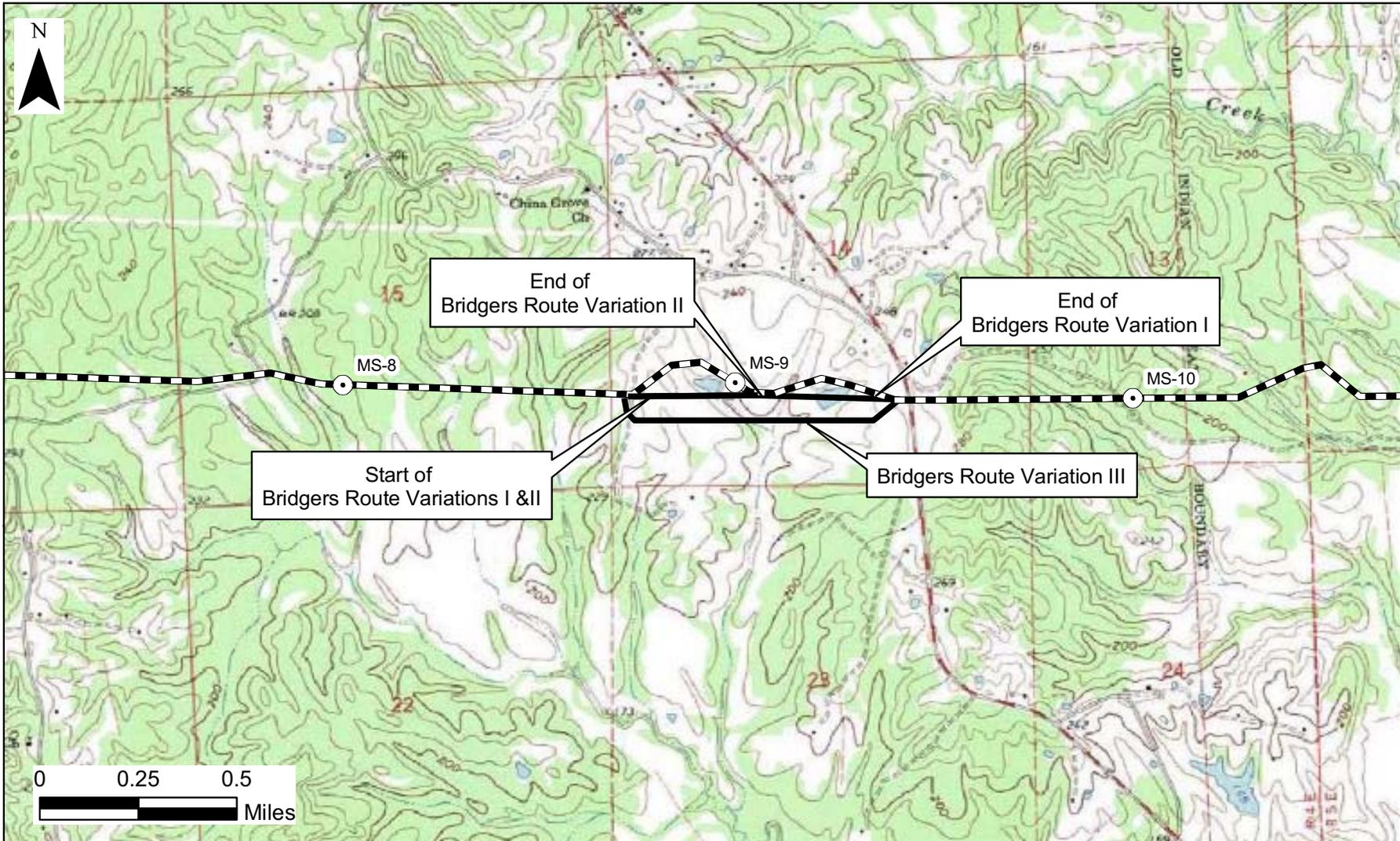
The Bridgers Route Variation I would diverge from the proposed Project alignment at approximately MP MS 8.8 and travel east along an existing right-of-way to resume the proposed Project alignment at approximately MP MS 9.2. The Bridgers Route Variation II would travel east along the same route as the Bridgers Route Variation I, but the Bridgers Route Variation II would resume the proposed Project route near MP MS 9.0 and travel north to avoid the eastern pond on the Bridgers property before resuming collocation. The Bridgers Route Variation III would be located to the south of an existing Entergy powerline and an existing Gulf South pipeline right-of-way for approximately 0.8 mile between MP MS 8.8 and MP MS 9.2 before crossing under the two rights-of-way to resume the proposed Project alignment.

The Bridgers Route Variation I is the route originally proposed by MEP. This route variation would be collocated with existing Entergy power transmission lines over its entire length but would cross the stock pond that has not been drained on the Bridgers property (Table 4.4.1-7). This route variation would be similar in length and cross similar agricultural and open land uses, compared to the proposed Project route, but would have increased collocation. As stated above, the landowner has expressed some concerns that the construction of this route variation would result in the drainage of his pond used to provide water to his livestock.

The Bridgers Route Variation II would cross the western drained pond and then resume the proposed Project alignment to travel north of the eastern pond. Like the proposed Project route, the landowner has expressed concerns that this route variation would temporarily disrupt livestock watering during construction. The Bridgers Route Variation II would be of similar length as the proposed Project route and would encumber a similar quantity of pasture and open land. This route variation would also result in increased collocation (0.4 mile), compared to the proposed Project alignment.

The Bridgers Route Variation III would be collocated with the recently constructed East Texas to Mississippi pipeline south of the proposed alignment for nearly its entire length. This route variation would result in an additional 0.1 mile in length that would be required to cross under an existing power transmission line and the Gulf South pipeline rights-of-way. The crossing of the two existing rights-of-way would further result in the need for extra temporary workspace that is not reflected in Table 4.4.1-7. This route variation would cross open land and some forested areas, but the collocation with existing rights-of-way would minimize fragmentation of these forested areas. This route variation would not impact any of the Bridgers livestock watering ponds.

4-50



Legend

- Proposed Project Route
- Bridgers Route Variations

MIDCONTINENT EXPRESS PIPELINE PROJECT

BRIDGERS ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.1-7
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TABLE 4.4.1-7 Comparison of Bridgers Route Variations and the Proposed Midcontinent Express Pipeline Project Route^{a, b}				
Evaluation Criterion	Proposed Project Route	Bridgers Route Variation I	Bridgers Route Variation II	Bridgers Route Variation III
Total length (miles)	0.7	0.7	0.7	0.8
Construction impacts (acres)	8.5	8.5	8.5	9.7
Permanent impacts (acres)	4.2	4.2	4.2	4.8
Adjacent to existing rights-of-way (miles)	0.1	0.7	0.4	0.6
Stream crossings (number)	1 (intermittent)	2 (intermittent)	2 (intermittent)	2 (intermittent)
Functioning Pond crossings (number)	0	1	0	0
Land use	Agriculture, open	Agriculture, open	Agriculture, open	Agriculture, open, forested
Note:				
^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.				
^b All route variations are compared for the length between MP MS 8.8 and MP MS 9.2.				

We believe that the increased collocation in open and agricultural land along the Bridgers property under the Bridgers Route Variation I would best minimize environmental impacts in this area. The landowner has expressed concerns regarding the disruption of water supply for his livestock under this alternative. Therefore, we recommend below that MEP provide a sufficient livestock water supply during construction and restoration. We believe that the increased collocation and the supply of water for the livestock would best balance environmental and landowner needs; therefore, **we recommend that:**

- **MEP should incorporate the Bridgers Route Variation I, as described in the Final EIS, into its proposed Project. MEP should file with the Secretary, for review and written approval by the Director of OEP, revised construction alignment sheets that show the modified route and workspaces, prior to construction in this area. MEP should also provide an adequate water supply for livestock operations at the affected property until the existing water source is restored.**

4.4.1.8 Moak Route Variations

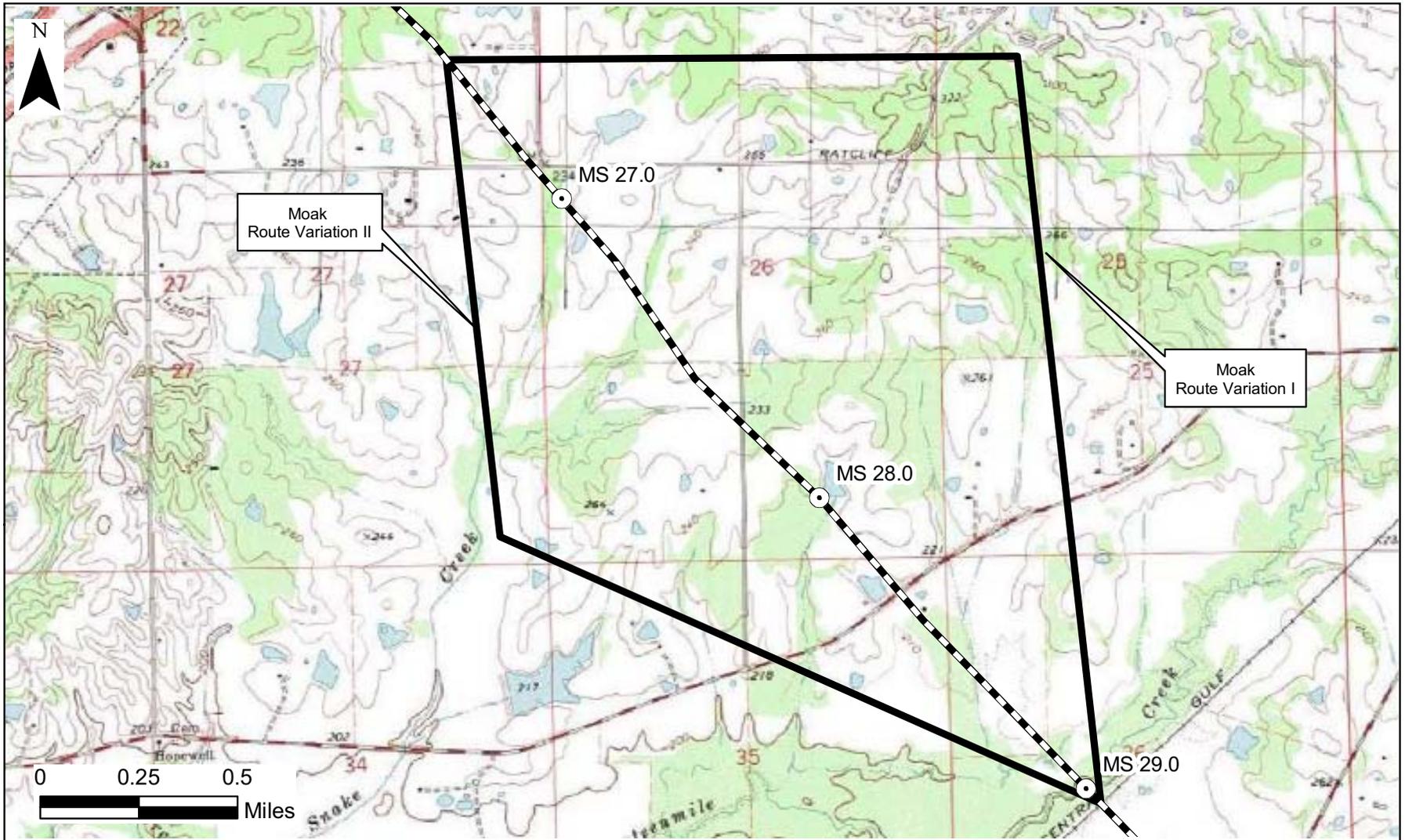
The Moak Route Variations were developed in response to a landowner's comments regarding potential Project-related effects to his property. A comparison of the Moak Route Variations and the proposed Project are depicted in Table 4.4.1-8. The Moak Route Variation I would diverge from the proposed Project route at MP 26.5, traveling due east and then turning south before resuming the original Project alignment at MP MS 29.0 (see Figure 4.4.1-8). The Moak Route Variation II would also diverge from the proposed Project alignment at MP MS 26.5, traveling south and southeast before intersecting the proposed Project alignment at MP MS 29.0.

**TABLE 4.4.1-8
Comparison of Moak Route Variations and the Proposed
Midcontinent Express Pipeline Project Route^a**

Evaluation Criterion	Proposed Project Route	Moak Route Variation I	Moak Route Variation II
Total length (miles)	2.5	3.3	2.9
Landowners affected (number)	11	4 to 6	9
Residences within 50 feet of construction workspace (number)	1	7	1
Construction impacts (acres)	33.0	44.0	38.0
Permanent impacts (acres)	15.0	20.0	17.0
Adjacent to existing rights-of-way (miles)	0.0	0.0	0.0
Perennial stream crossings (number)	1	1	2
Major waterbody crossings (number)	0	0	1
Wetland impacts (acres)	0.0	0.0	0.0
Land use type	Forest, open	Forest, open, residential	Agriculture, forest, open
<hr/> Note: ^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.			

Both Moak Route Variations would be longer than the proposed Project alignment and would therefore increase land requirements relative to the proposed Project route. Neither the route variations nor the proposed Project alignment would be collocated with existing rights-of-way. While fewer landowners would be impacted by the identified route variations, relative to the proposed Project route, the Moak Route Variation I would increase the number of residences within 50 feet of proposed construction work areas. The Moak Route Variation II would impact fewer landowners and forested lands than the proposed Project route, but the variation would impact an additional perennial stream and result in an additional major waterbody crossing.

While the two Moak Route Variations would alleviate concerns raised by the landowner, by eliminating impacts to the Moak property, adoption of either route variation would merely result in the transference of impact to other nearby landowners. Additionally, the route variations would increase the Project land requirements and result in increased residential or waterbody impacts, relative to the proposed Project route. Therefore, the route variations would offer no significant environmental advantage to the proposed Project route. For these reasons, we do not recommend adoption of either of the Moak Route Variations.



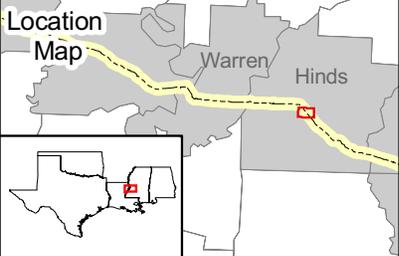
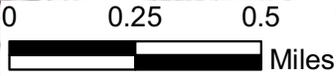
Moak
Route Variation II

Moak
Route Variation I

MS 27.0

MS 28.0

MS 29.0



Legend

-  Proposed Project Route
-  Moak Route Variations

MIDCONTINENT EXPRESS PIPELINE PROJECT
MOAK ROUTE VARIATIONS

DATE: May 2008

Figure 4.4.1-8

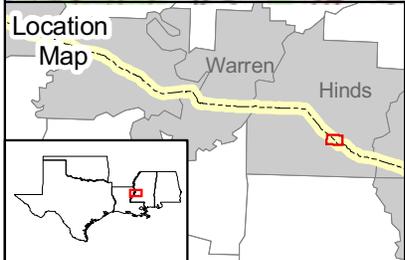
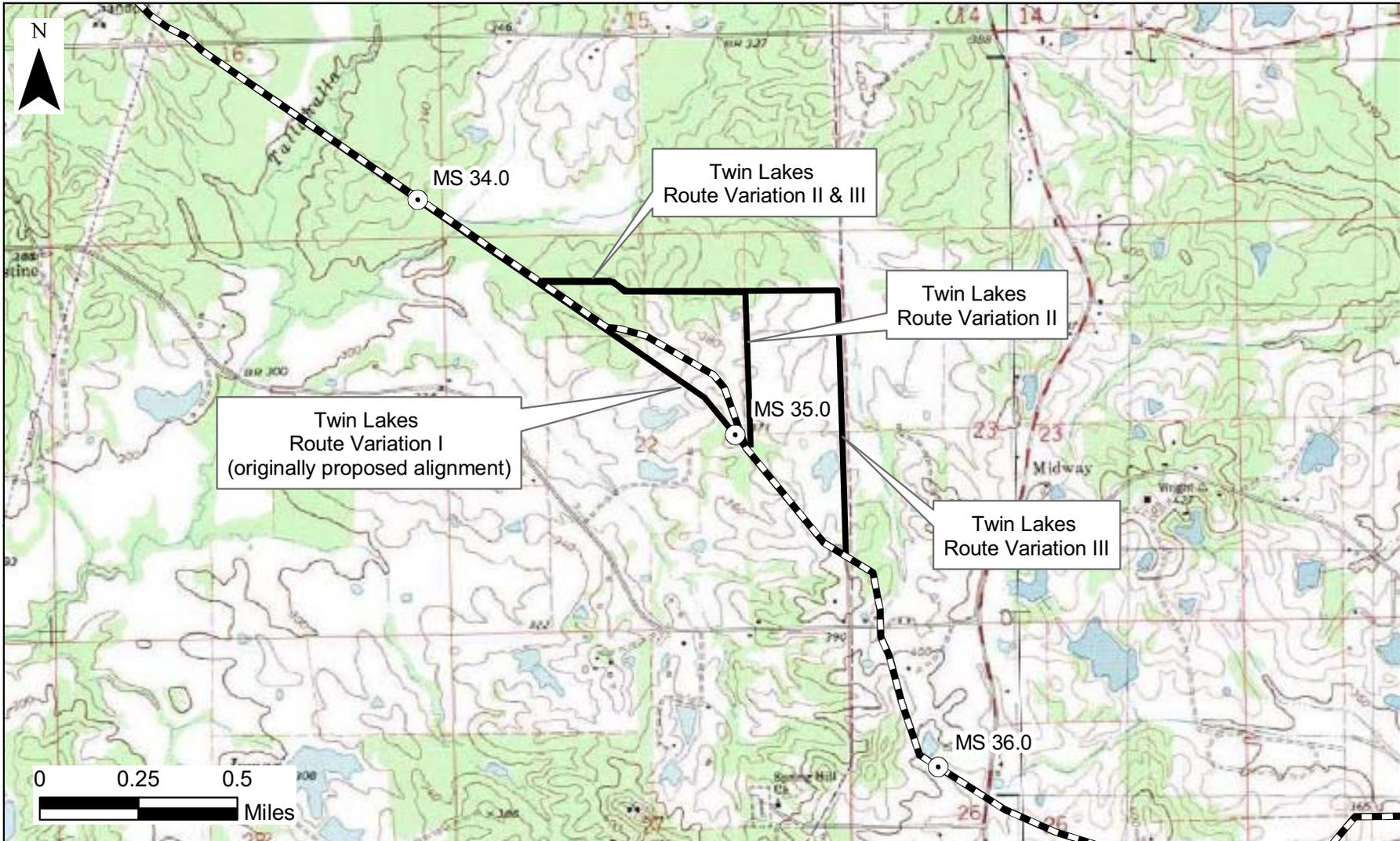
4.4.1.9 Twin Lakes Route Variation

The Twin Lakes Route Variation was developed to minimize Project-related impacts to a planned residential development in Hinds County, Mississippi. We also received a comment from the landowner located directly west of the Twin Lakes residential development requesting that the Project be aligned to minimize impacts to his forested lands. Table 4.4.1-9 provides a comparison between the evaluated route variations and the proposed Project. In an attempt to minimize impacts to the number of affected residential lots, we evaluated a route alternative in the Draft EIS that was designed to avoid traversing the interior portion of the planned development. We have received additional information regarding the Twin Lakes residential development boundaries and plot lines and have revised the Twin Lakes Route Variation that we presented in the Draft EIS. The revised route variation is discussed here as the Twin Lakes Route Variation III. Further, after the issuance of the Draft EIS, MEP has altered the proposed route in this area to more closely follow the individual lot lines within the development.

Evaluation Criterion	Proposed Project Route	Twin Lakes Route Variation I	Twin Lakes Route Variation II	Twin Lakes Route Variation III
Total length (miles)	1.0	1.0	1.2	1.4
Construction impacts (acres)	12.1	12.1	14.5	17.0
Permanent impacts (acres)	6.1	6.1	7.3	8.5
Adjacent to existing rights-of-way (miles)	0.0	0.0	0.0	0.7
Stream crossings (number)	0	0	0	0
Major Waterbody Crossings (number)	0	0	0	0
Land uses	Forest, open	Forest, open	Forest, open	Forest, open
Note:				
^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.				
^b All route variations are compared for the length between MP MS34.5 and MP MS 35.4.				

The Twin Lakes Route Variation I represents the originally proposed Project alignment that would continue in a southeast direction between MP MS 34.5 and MS 35.0 (see Figure 4.4.1-9). The Twin Lakes Route Variation II would diverge from the proposed Project alignment near MP MS 34.5 and travel east across the K.C. Oakley (Oakley) property and travel along the Oakley property line until reaching the Twin Lakes property, where the route would travel approximately 250 feet in a southeasterly direction and follow the within the northern border of the Twin Lakes development. The route variation would then turn south and cross the interior of one lot within the development and collocated with a fence line until resuming the proposed alignment near MP MS 35.0. The Twin Lakes Route Variation III would diverge from the proposed Project alignment at approximately MP MS 34.5, travel east along the Oakley and Twin Lakes property boundaries to an existing right-of-way and travel south to resume the proposed Project alignment near MP MS 35.4.

4-55



Legend

-  Proposed Project Route
-  Twin Lakes Route Variations

MIDCONTINENT EXPRESS PIPELINE PROJECT
TWIN LAKES ROUTE VARIATION

DATE: May 2008

Figure 4.4.1-9

The Twin Lakes Route Variation I would be a similar length, would encumber a similar quantity of land, and would cross similar land uses, compared to the proposed Project. This route variation would cross the interior of four lots within the Twin Lakes residential development, while the proposed Project route would only cross two lots. We have eliminated the Twin Lakes Route Variation I from further consideration due to its similar environmental impacts as the proposed Project route and the extensive impacts to the interior of the residential development.

The Twin Lakes Route Variation III would impact the interior of one lot within the residential development, approximately 0.2 mile from the proposed house site on the lot. This route variation would be approximately 0.4 miles longer than the proposed Project route and would result in a corresponding increased amount of land encumbered. Approximately half of this route variation would be collocated with an existing right-of-way to minimize environmental impacts. We believe that the increased length and the associated land requirements associated with the Twin Lakes Route Variation III would not be environmentally preferable to the proposed Project route and that this route variation would not result in a significant reduction in the impact to the residential development to justify the added environmental impact. Therefore, we have eliminated the Twin Lakes Route Variation III from further consideration.

The Twin Lakes Route Variation II would be approximately 0.2 mile longer and permanently encumber 2.4 acres more than the proposed Project route. Both the proposed Project route and the Twin Lakes Route Variation II would cross similar land uses. The Twin Lakes Route Variation II would avoid most of the interior portion of the proposed residential development, crossing only one lot within the development for approximately 500 feet. Thus the route variation would balance landowner impact minimization with environmental impacts. While the Twin Lakes Route Variation II would result in a minor increase in the amount of land encumbered for Project construction and operation, the Twin Lakes Route Variation II would avoid impacting a majority of the planned development. Therefore, **we recommend that:**

- **MEP should incorporate the Twin Lakes Route Variation II, as described in the Final EIS, into its proposed Project. MEP should file with the Secretary, for review and written approval by the Director of OEP, revised construction alignment sheets that show the modified route and workspaces, prior to construction in this area.**

4.4.2 Wetland Reserve Program Route Variations

The NRCS has requested that the proposed Project route avoid and minimize the use of lands encumbered by WRP easements to the maximum extent practicable. As described in Section 3.8, the proposed Project route would cross five parcels encumbered by NRCS-administered WRP program easements in Fannin County, Texas, and Madison Parish, Louisiana. As proposed, the crossing of each of these easements would be accomplished via HDD to avoid direct surface impacts. During Project planning, MEP avoided WRP easements to the maximum extent practical, and several route variations were adopted to avoid WRP easements, as identified in Appendix J. Further, after consultations with the NRCS, as we recommended in the Draft EIS, MEP has adopted a subsequent route variation to avoid a WRP in Bossier Parish, Louisiana. MEP indicates that the proposed crossings of some WRP easements are unavoidable. To evaluate that assertion, we considered route variations for each proposed WRP easement crossing.

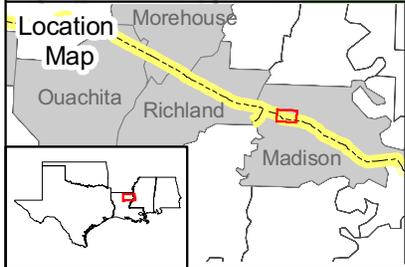
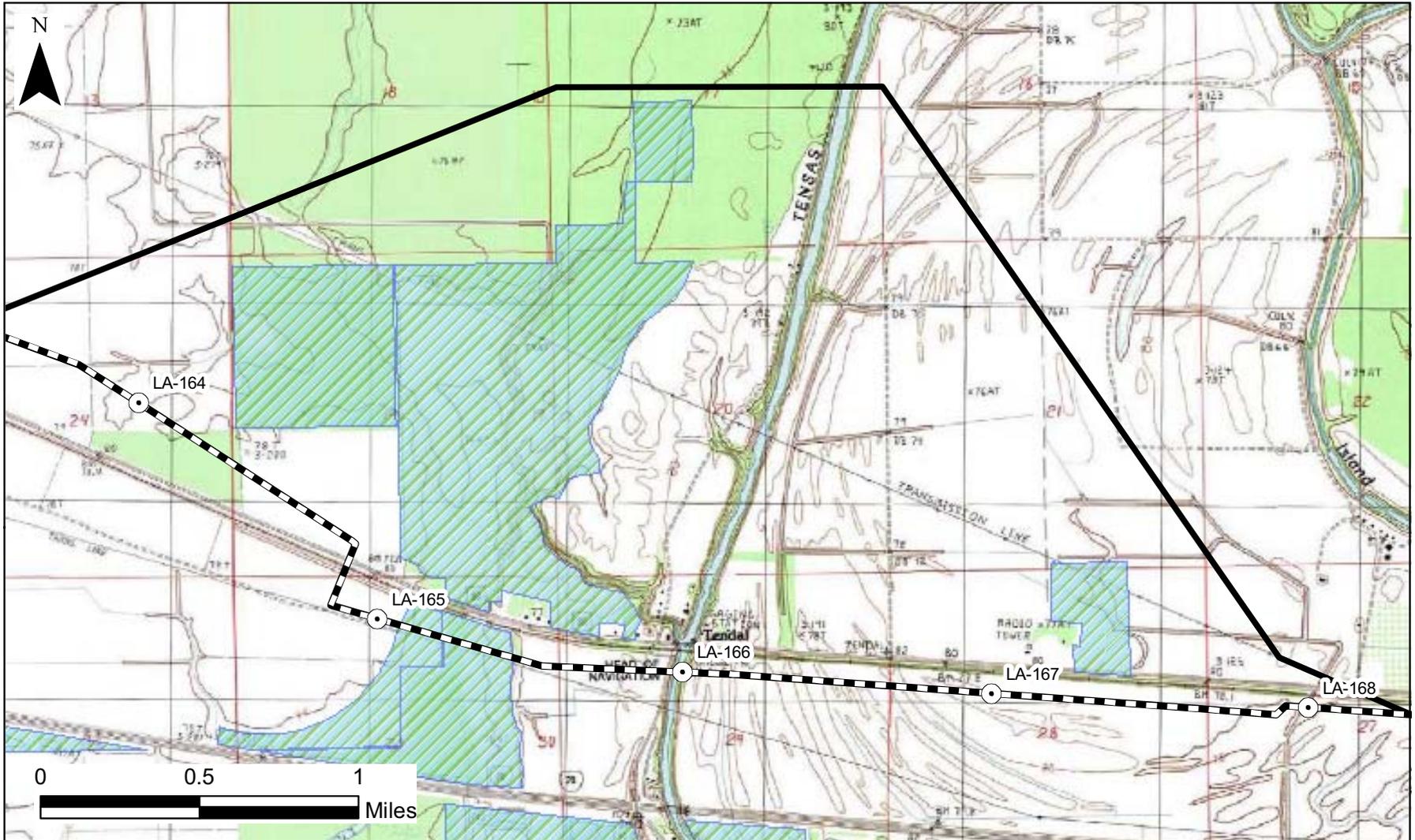
In addition to the route variations considered below, we evaluated three route variations between MP OK 8.0 and MP TX 4.0 (the Long Route Variations) in an attempt to balance impacts to a WRP easement and other environmental features, as described in Section 4.4.1.1.

4.4.2.1 Madison Parish Mainline WRP Route Variation

The Madison Parish Mainline WRP Route Variation was developed to avoid two WRP easements located in Madison Parish, Louisiana (MP LA 165.1 to MP LA 165.2; MP LA 165.2 to MP LA 165.5). Table 4.4.2-1 provides a comparison between the route variation and the proposed Project route. Due to the presence of the Tensas National Wildlife Refuge and a high concentration of other WRP easements located to the south of the proposed Project route, only a northern route variation was considered in this area. The Madison Parish Mainline WRP Route Variation would diverge from the proposed Project alignment at MP LA 163.2 to circumvent the WRP easement to the north before resuming the proposed Project route near MP LA 168.2 (Figure 4.4.2-1).

TABLE 4.4.2-1 Comparison of Madison Parish Mainline WRP Route Variation and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Route	Madison Parish Mainline WRP Route Variation
Total length (miles)	4.9	5.7
Construction impacts (acres)	65.3	76.0
Permanent impacts (acres)	29.7	34.5
Adjacent to existing rights-of-way (miles)	0.5	0.5
Total length crossing WRP (miles)	0.4	0.0
WRP construction impacts (acres)	0.0 ^b	0.0
WRP permanent impacts (acres)	0.0 ^b	0.0
Perennial stream crossings (number)	2	10
Major waterbody crossings (number)	1	1
Wetlands crossed (feet)	1,326	4,766
Landowners affected (number)	2	2
Residences within 50 feet of construction workspace (number)	0	0
Land uses (acres)	Agriculture, open	Forest, agriculture, open
Note:		
^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.		
^b WRP surface impacts would be avoided through the use of HDD.		

The Madison Parish Mainline WRP Route Variation would be approximately 0.8 mile longer than the proposed Project route, resulting in corresponding increased in temporary and permanent land requirements. Although the proposed Project route and the route variation would be collocated for the same distance and affect the same number of landowners, the Madison Parish Mainline WRP Route Variation would result in a greater number of perennial waterbody crossings. Additionally, the approximately 0.4-mile-long crossing of WRP easement along the proposed Project route would be accomplished by HDD to avoid direct surface impacts to the easement.



Legend

- Proposed Project Route
- Madison Parish Mainline WRP Route Variation
- WRP

MIDCONTINENT EXPRESS PIPELINE PROJECT

**MADISON PARISH MAINLINE
WRP ROUTE VARIATION**

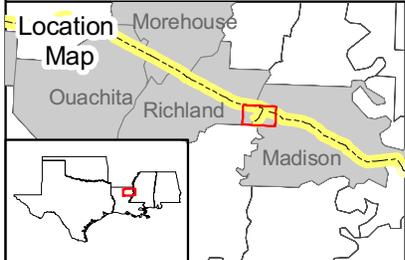
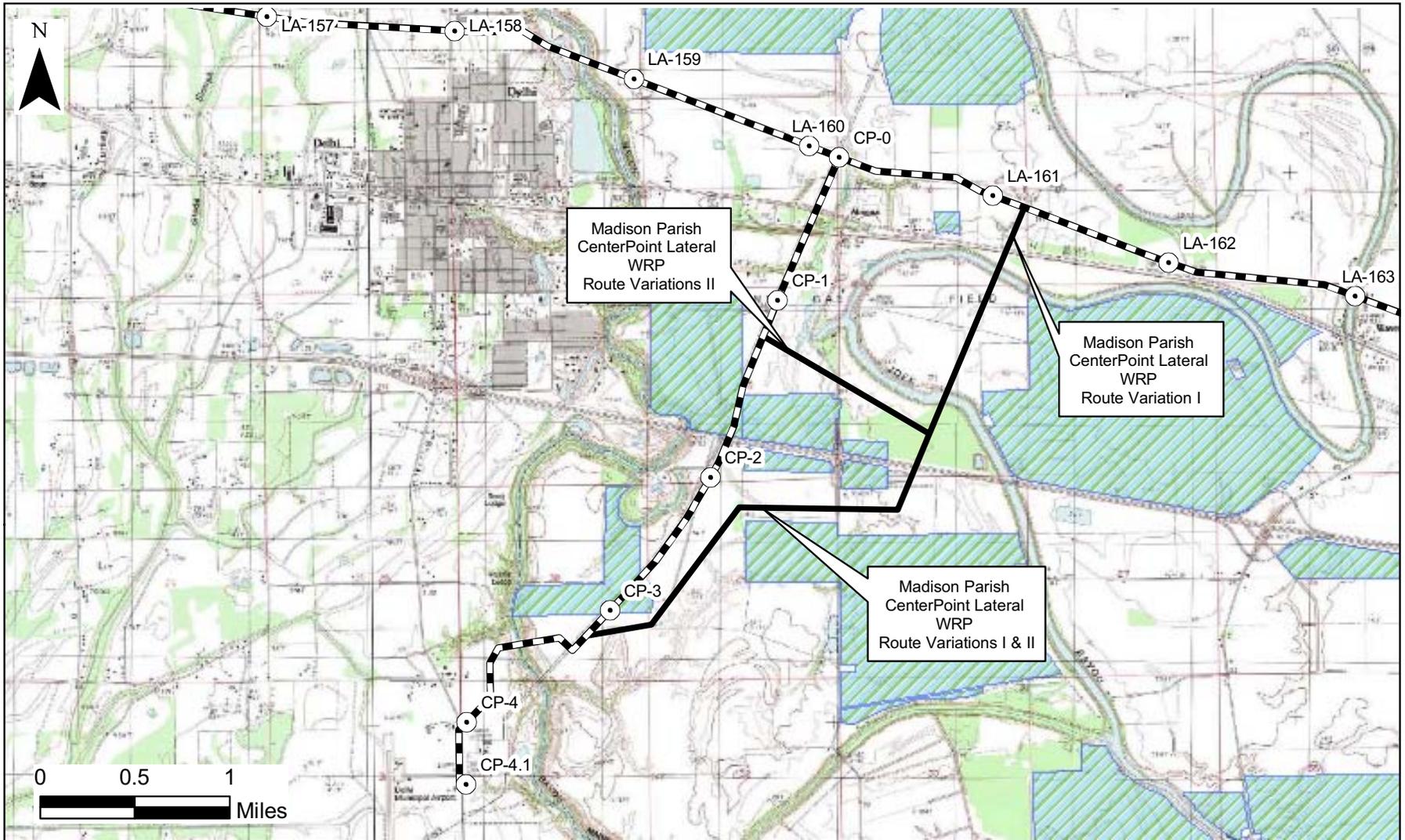
DATE: May 2008 Figure 4.4.2-1

The Madison Parish Mainline WRP Route Variation would avoid WRP lands, but would result in increased land requirements, including increased impacts to forested lands and perennial stream crossings. For these reasons and given MEP’s proposal to cross the WRP easement via HDD, we do not consider the Madison Parish Mainline WRP Route Variation to be environmentally preferable to the proposed Project route, and we have eliminated it from further consideration.

4.4.2.2 Madison Parish CenterPoint Lateral WRP Route Variations

The Madison Parish CenterPoint Lateral WRP route variations were considered to avoid two WRP easements (MP CL 1.5 to MP CL 1.7 and MP CL 2.6 to MP CL 2.9) traversed by the proposed CenterPoint Lateral route (Figure 4.4.2-2). A comparison between the route variations and the proposed Project are depicted in Table 4.4.2-2. The Madison Parish CenterPoint Lateral WRP Route Variation I would shift the interconnect with the Project mainline to MP LA 161.1, while the Madison Parish CenterPoint Lateral WRP Route Variation II would diverge from the proposed CenterPoint Lateral route at approximately MP CL 1.1. Both route variations would travel in a southwesterly direction to avoid WRP easements located near the proposed crossing of Interstate 20 and resume the proposed Project alignment at approximately MP CL 3.3.

TABLE 4.4.2-2 Comparison of Madison Parish CenterPoint Lateral WRP Route Variations and the Proposed Midcontinent Express Pipeline Project Route^a			
Evaluation Criterion	Proposed Project Route	Madison Parish CenterPoint Lateral WRP Route Variation I	Madison Parish CenterPoint Lateral WRP Route Variation II
Total length (miles)	2.9	3.7	4.4
Construction impacts (acres)	26.4	33.6	40.0
Permanent impacts (acres)	17.7	22.5	27.0
Adjacent to existing rights-of-way (miles)	2.9	0.0	0.9
Total length crossing WRP (miles)	0.5	0.0	0.0
WRP construction impacts (acres)	0.0 ^b	0.0	0.0
WRP permanent impacts (acres)	0.0 ^b	0.0	0.0
Perennial stream crossings (number)	2	4	3
Major waterbody crossings (number)	0	2	1
Wetlands crossed (feet)	1,366	2,390	3,221
Landowners affected (number)	7	5	NA
Residences within 50 feet of construction workspace (number)	0	7	0
Land uses (acres)	Agriculture, open	Forest, agriculture, open	Forest, agriculture, open
Note:			
NA = Information not available.			
^a Values reported are based on published data and mapping; therefore values shown may differ from actual values provided elsewhere in this document.			
^b WRP surface impacts would be avoided through the use of HDD.			



Legend

- Proposed Project Route
- CenterPoint Lateral WRP Route Variation
- WRP

MIDCONTINENT EXPRESS PIPELINE PROJECT
MADISON PARISH CENTERPOINT LATERAL WRP ROUTE VARIATIONS

DATE: May 2008	Figure 4.4.2-2
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Both of the Madison Parish CenterPoint Lateral WRP route variations would be longer than the proposed Project route and result in increased land requirements relative to the proposed Project route. Additionally, the route variations would traverse more forested lands and cross a greater number of perennial streams than the proposed Project route, which would primarily traverse open and agricultural lands. Further, the proposed CenterPoint Lateral route would be collocated with existing pipeline rights-of-way, while all or a majority of the route variations' lengths would require greenfield construction.

Along the proposed Project route, MEP would implement two HDDs with a combined length of approximately 0.5 mile to avoid direct surface impacts to WRP easements. Though the Madison Parish CenterPoint Lateral WRP route variations would entirely avoid the WRP easements crossed by the proposed Project route, both would also result in increased construction and operational land requirements, waterbody crossings, and impacts to forested lands. For these reasons and given MEP's proposal to cross the WRP easements that occur along the proposed CenterPoint Lateral route via HDD, we do not consider the Madison Parish CenterPoint Lateral WRP route variations to be environmentally preferable to the proposed Project route, and we have eliminated them from further consideration.

4.5 ABOVEGROUND FACILITY ALTERNATIVES

We evaluated the proposed locations of the new aboveground facilities to determine whether environmental impacts would be reduced or mitigated by use of alternative facility sites. Our evaluation involved inspection of aerial photography and mapping, as well as site visits along the proposed Project corridor. The aboveground facilities for the proposed Project include four new compressor stations, one booster compressor station, 14 meter stations, 33 MLVs, and nine pig launcher and/or receiver stations.

Because the location of the meter stations would be linked to the location of the associated natural gas receipt and interconnect points, the search for alternatives was constrained to sites located adjacent to the intersection of the proposed Project route and the planned and existing pipeline facility locations. Similarly, the locations of MLVs would be linked to the location of the proposed Project pipeline. Further, the proposed locations of MLVs along the proposed Project route were largely determined based on DOT safety regulations that specify the maximum distance between sectionalizing block valves and also require that these facilities be located in readily accessible areas. Additionally, we did not identify any alternative sites for the proposed meter stations or MLV facilities that would offer a significant environmental advantage to the proposed sites for these facilities.

As with the other proposed aboveground facilities, the compressor station locations would be constrained to sites near the proposed pipeline route. Specifically, the proposed compressor station sites along the proposed pipeline route were largely dictated based on engineering and economic design standards. The proposed locations of the Lamar, Atlanta, Perryville, and Vicksburg Compressor Stations, as well as the Delhi Booster Station, are identified in Section 2.1 of this EIS. As described in Section 3.8, construction and operation of the proposed compressor stations would result in the permanent conversion of approximately 42.1 acres of agricultural lands, 11.7 acres of forest land, and 16.9 acres of pine plantation to an industrial land use for the life of the proposed Project. We have determined that operation of these facilities would not result in significant air quality degradation or noise impacts to any nearby residents, given the measures proposed by MEP and our recommendations (see Section 3.11). However, we received numerous comments during the scoping period for the proposed Project requesting that alternative compressor station sites be considered. In response to those comments, we evaluated site alternatives for each of the proposed compressor station facilities.

Further, we received a comment requesting that we evaluate the feasibility of using electricity produced off-site, opposed to using natural gas-powered equipment, to minimize compressor station emissions. We evaluated the feasibility of using alternative electricity sources and found that due to the

energy demands of compressor station facilities and the availability of natural gas at the site, the use of alternative forms of electricity would not be economical or efficient.

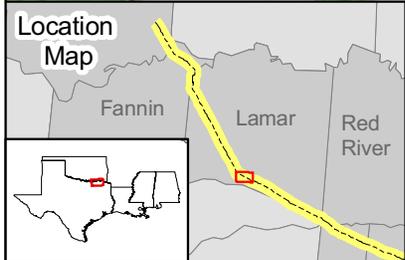
4.5.1 Lamar Compressor Station Site Alternatives

In addition to the proposed compressor station site at MP TX 28.7, we evaluated two alternative sites for the Lamar Compressor Station (MP TX 26.5 and MP TX 27.2; see Figure 4.5.1-1). Project noise and air emission impacts, and plans to minimize and mitigate those impacts are discussed in detail in Section 3.11. Section 3.8 contains our recommendations to minimize visual impacts of the proposed Project to nearby residences.

As shown in Table 4.5.1-1, three NSA would be located within 0.5 mile of the proposed compressor station site, while six to eight NSAs would be located within 0.5 mile of the alternative sites. Further, the nearest NSA would be approximately 1,700 feet from the proposed Lamar Compressor Station site, while NSAs would be located within 1,300 feet of the two alternatives sites. All of the alternative sites considered would be approximately 40 acres in size. Because the actual footprint of the proposed compressor station facilities would permanently encumber 15.0 acres, additional lands at the sites would be used to provide a visual and noise buffer around the aboveground facilities. The proposed Lamar Compressor Station site and the County Road 24120 Alternative site would primarily encumber open land that contains prime farmland soil. The County Road 24140 Alternative site is composed of open, forested, and some residential lands, the majority of which also contain prime farmland soils.

Evaluation Criterion	Proposed Project Site	County Road 24140 Alternative Site	County Road 24120 Alternative Site
Construction impacts (acres)	16.0	16.0	16.0
Permanent impacts (acres)	15.0	15.0	15.0
Parcel size (acres)	39.9	40.0	40.0
Prime farmland ^a (acres)	14.9	9.7	10.2
Noise-sensitive areas within 0.25 mile (number)	0	1	1
Noise-sensitive areas within 0.5 mile (number)	3	8	6
Land uses	Open	Open, residential, forested	Open
Note: ^a Amount of prime farmland encumbered for operation.			

Both of the alternative sites would require the use of narrow, county roads to access the compressor station during construction and operation, and the current condition of these roads would limit use by heavy construction vehicles, potentially causing interruptions to Project construction and disruptions to local traffic. In contrast, the proposed Lamar Compressor Station site would be located off of State Highway 19, which is capable of supporting heavy construction equipment, thus minimizing potential impacts to local traffic during Project construction.



Legend

- Alternative Compressor Station Site
- Proposed Compressor Station Site

MIDCONTINENT EXPRESS PIPELINE PROJECT

**LAMAR COMPRESSOR STATION
SITE ALTERNATIVES**

DATE: May 2008	Figure 4.5.1-1
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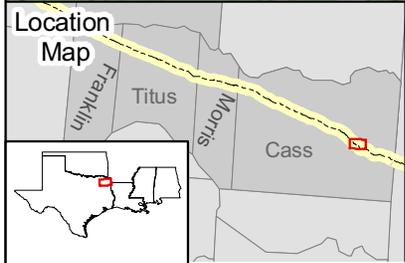
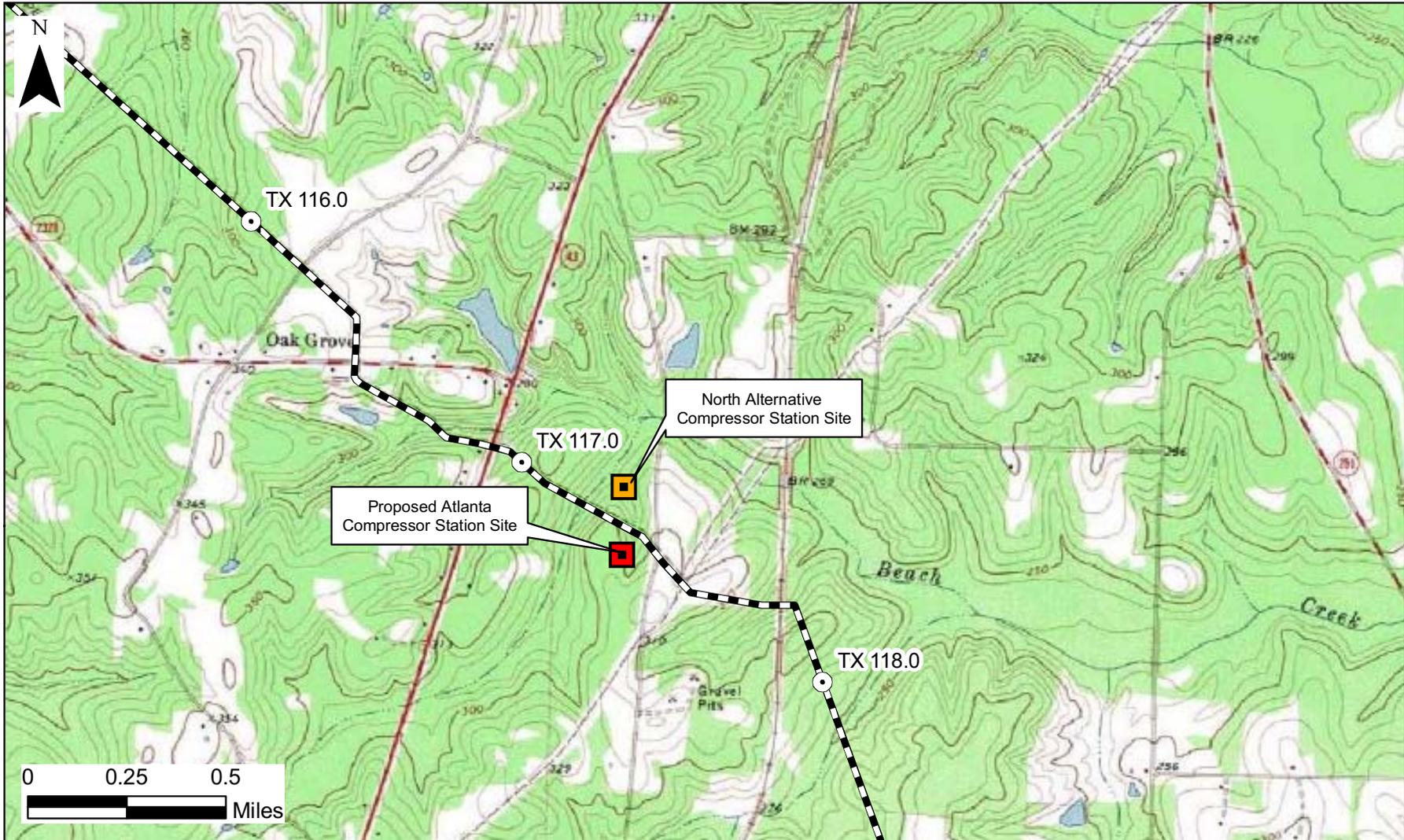
We have received multiple comments from community members regarding the potential visual, air, and noise impacts associated with construction and operation of the proposed Lamar Compressor Station. As recommended in Section 3.8, MEP would develop a final site-specific visual screening plan based on community recommendations to mitigate and minimize any visual impacts to nearby landowners. To minimize operational noise impacts, we recommended in Section 3.11.2 that MEP fund a third-party survey, directed by the FERC, to document ambient noise conditions at certain properties adjacent to the proposed Lamar Compressor Station. Further, we have included a recommendation in Section 3.11.2 that would require MEP to file a finalized noise plan that would include these ambient noise surveys, identified measures that would be used to mitigate noise impacts, monitoring during construction, and plans to offer temporary housing if the defined noise standard can not be met. . The Project compressor station facilities would also be operated in accordance with all applicable local, state, and federal air quality regulations and the conditions of any permits that may be issued to MEP, thereby minimizing the potential for adverse impacts to air quality in the region.

We believe that the actions proposed by MEP, in conjunction with our recommendations provided in Sections 3.8 and 3.11, would adequately minimize the potential for air quality, noise, and visual impacts associated with construction and operation of the Lamar Compressor Station at the proposed location. Additionally, the proposed Lamar Compressor Station site would provide superior construction and operational access and affect fewer nearby NSAs, relative to the alternative sites considered in our analysis. Further, the landowner of the proposed Lamar Compressor Station site is amenable to the sale of the property and the proposed site would be most preferable from an engineering standpoint. For these reasons, we do not consider any of the evaluated alternative sites environmentally preferable to the proposed Lamar Compressor Station site.

4.5.2 Atlanta Compressor Station Site Alternatives

In addition to the proposed Atlanta Compressor Station site at MP TX 117.4, we evaluated an alternative site located directly north of the proposed compressor station site (see Figure 4.5.2-1). Both the proposed and alternative compressor station sites would encumber approximately 11.7 acres of a larger 30-acre, forested parcel (Table 4.5.2-1). Relative to the North Alternative site, one additional NSA would be located within 0.25 mile of the proposed compressor station site, but half the number of NSAs would be located within 0.5 mile of the proposed site. As discussed in Section 3.11, predicted noise impacts associated with compressor station operation at the proposed site would be minor and would not exceed 55 dBA at the nearest NSA. An intermittent stream would cross both the proposed Atlanta Compressor Station site and the North Alternative site. This stream would cross the northwestern corner of the proposed site, while it would pass through the center of the North Alternative site. The location of this waterbody at the North Alternative site would result in a majority of the parcel being unusable for facility construction.

Despite the presence of an NSA within 0.25 mile of the proposed Atlanta Compressor Station site, operation of that facility would not result in a significant increase in noise, given the forested land cover in the area in conjunction with existing background noise. Additionally, we do not consider that the alternative site would offer any significant environmental benefit relative to the proposed Atlanta Compressor Station site.



Legend

- Alternative Compressor Station Site
- Proposed Compressor Station Site

MIDCONTINENT EXPRESS PIPELINE PROJECT

**ATLANTA COMPRESSOR STATION
SITE ALTERNATIVES**

DATE: May 2007	Figure 4.5.2-1
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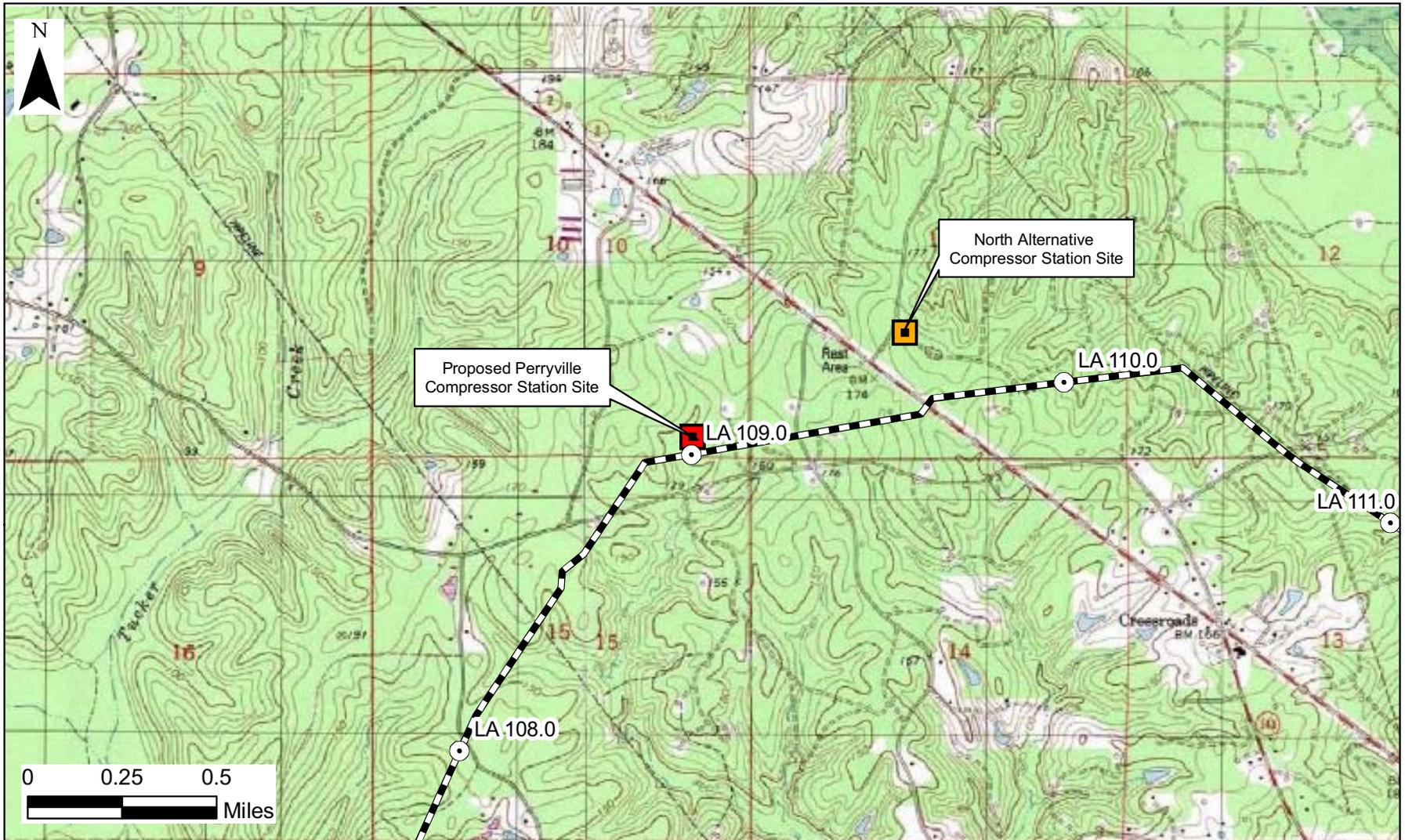
TABLE 4.5.2-1 Comparison of Atlanta Compressor Station Site Alternative and the Proposed Midcontinent Express Pipeline Project Route		
Evaluation Criterion	Proposed Project Site	North Alternative Site
Construction impacts (acres)	12.2	12.2
Permanent impacts (acres)	11.7	11.7
Parcel size (acres)	30.0	30.0
Prime farmland encumbered for operation (acres)	1.7	NA
Noise-sensitive areas within 0.25 mile (number)	1	0
Noise-sensitive areas within 0.5 mile (number)	6	12
Land uses	Forest	Forest
Note: NA = Not Available		

4.5.3 Perryville Compressor Station Site Alternatives

We evaluated one alternative site for the Perryville Compressor Station (MP LA 109.6; Figure 4.5.3-1) in addition to the proposed compressor station site located at MP LA 109.0. The North Alternative site would be located approximately 500 feet north of the proposed Project alignment along Louisiana State Highway 2.

Land use at the proposed site consists of forested land, and approximately 6.3 acres at the site are considered prime farmland. The North Alternative site contains open land entirely underlain with prime farmland soils (Table 4.5.3-1). Any forested land cover retained at the proposed compressor station site would provide a visual buffer to passing motorists on State Highway 2, while the open land associated with the North Alternative site could require implementation of visual screening measures. A single NSA would be located within 0.5 mile of the North Alternative site, but no NSAs would be located within 0.5 mile of the proposed compressor station site. For these reasons, we believe that the proposed Perryville Compressor Station site would be environmentally preferable to the North Alternative site.

TABLE 4.5.3-1 Comparison of Perryville Compressor Station Site Alternative and the Proposed Midcontinent Express Pipeline Project Route		
Evaluation Criterion	Proposed Project Site	North Alternative Site
Construction impacts (acres)	16.9	16.9
Permanent impacts (acres)	13.7	13.7
Parcel size (acres)	40.0	40.0
Prime farmland encumbered for operation (acres)	6.3	12.7
Noise-sensitive areas within 0.25 mile (number)	0	0
Noise-sensitive areas within 0.5 mile (number)	0	1
Land uses	Forest	Open



Legend

- Alternative Compressor Station Site
- Proposed Compressor Station Site

MIDCONTINENT EXPRESS PIPELINE PROJECT

PERRYVILLE COMPRESSOR STATION SITE ALTERNATIVES

DATE: May 2008	Figure 4.5.3-1
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4.5.4 Vicksburg Compressor Station Site Alternatives

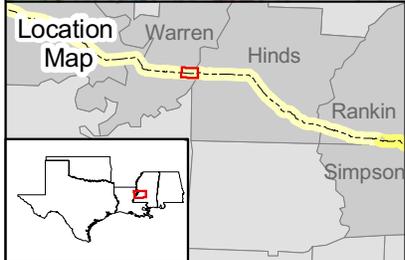
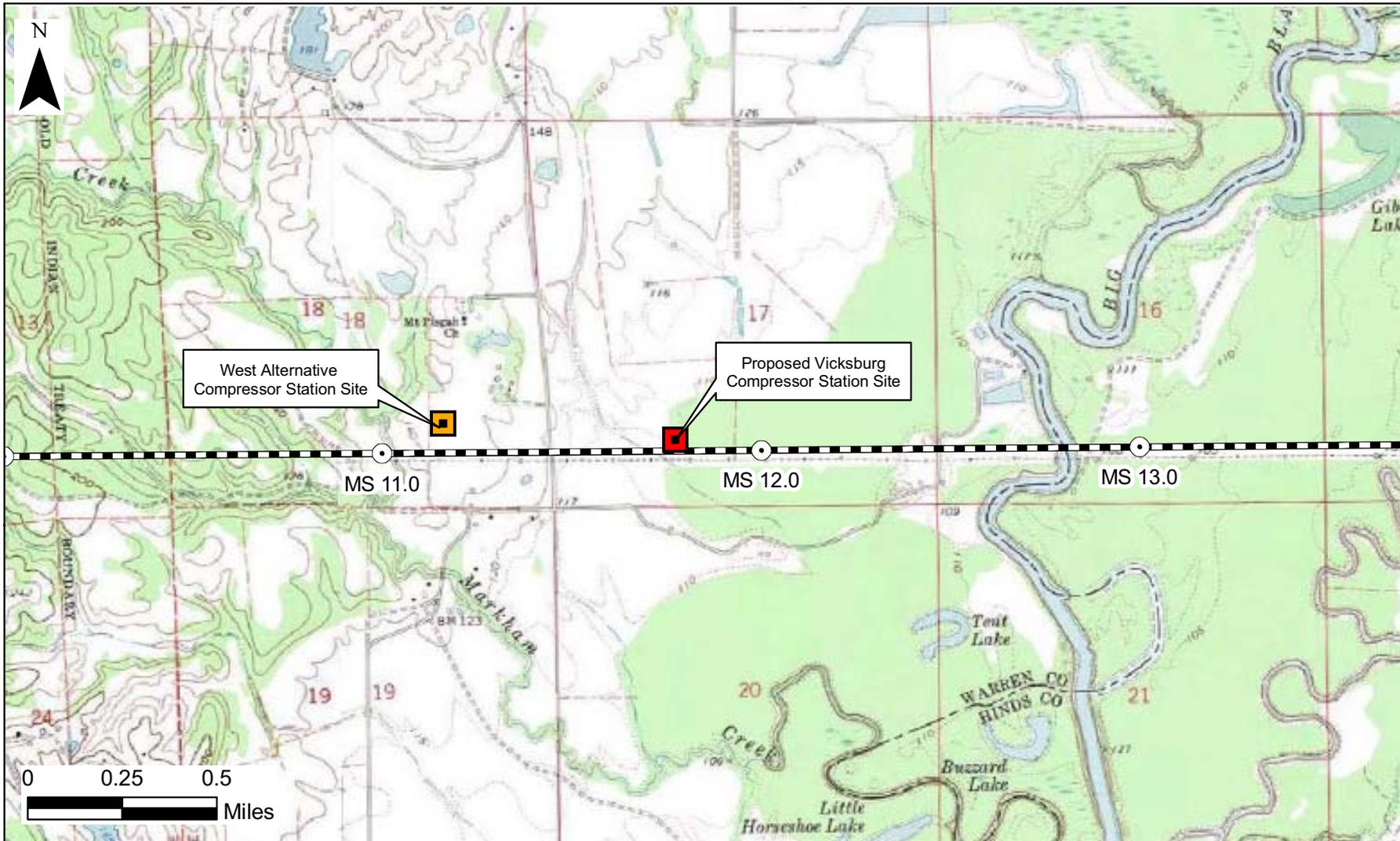
We evaluated one alternative site for the Vicksburg Compressor Station (MP MS 11.1; Figure 4.5.4-1) in addition to the proposed compressor station site located at MP MS 11.8. Both the West Alternative and the proposed compressor station site would be located in agricultural areas containing some prime farmland soils. While both sites contain prime farmland soils, the West Alternative site would contain significantly more prime farmland (Table 4.5.4-1). Additionally, no NSAs would be located within a 0.5-mile radius of the proposed compressor station site, while three and eight NSAs would be located within a 0.25- and 0.5-mile radius, respectively, of the West Alternative site. Further, the landowner of the proposed compressor station site is amenable to sale of the property, while the landowners of the West Alternative parcel are not agreeable to sale of the required property. For these reasons, we consider the proposed Vicksburg Compressor Station site to be environmentally preferable to the West Alternative site.

TABLE 4.5.4-1 Comparison of Vicksburg Compressor Station Site Alternative and the Proposed Midcontinent Express Pipeline Project Route^a		
Evaluation Criterion	Proposed Project Site	West Alternative Site
Construction impacts (acres)	11.9	11.9
Permanent impacts (acres)	11.2	11.2
Parcel size (acres)	18.5	20
Prime farmland encumbered for operation (acres)	0.6	11.2
Noise-sensitive areas within 0.25 mile (number)	0	3
Noise-sensitive areas within 0.5 mile (number)	0	8
Land uses	Agriculture	Agriculture

4.5.5 Delhi Booster Compressor Station Site Alternatives

Alternative sites for the Delhi Booster Compressor Station Site were limited to the southern end of the CenterPoint lateral due to the quantity of wetlands and flood-prone lands along the northern portion of the proposed lateral route. In addition to the proposed Delhi Booster Station site at MP CL 3.6, we evaluated one alternative site for the station (Figure 4.5.5-1). The proposed compressor station site would be located north of an existing CGT Compressor Station on the east side of Highway 17, and the South Alternative site would be located approximately 0.6 mile south of the existing CGT Compressor Station.

Land use at the proposed compressor station site consists of agricultural and forest land, while the alternative site is commercial (Table 4.5.5-1). Due to the distance between the South Alternative and the CenterPoint Lateral, an additional 0.6 to 0.9 mile-long lateral would have to be constructed. The construction of this lateral would result in land requirements beyond those reported in Table 4.5.5-1. All of the land encumbered by the proposed Delhi Booster Compressor Station is classified as prime farmland. More NSAs would be located within 0.25 and 0.5 mile of the proposed site than the South Alternative. As discussed in Section 3.11, operation of the Delhi Booster Station would result in a maximum predicted noise level increase of 4.4 dBA at the NSA nearest that facility, but the FERC considers a noise change of 9 dBA or less to be less than significant. Further, the nearest NSA to the proposed compressor station site is occupied by the owner of the parcel on which the Delhi Booster Station would be constructed, and he is amenable to the sale of the



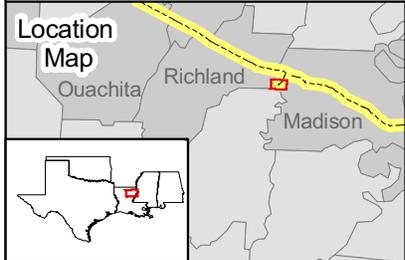
Legend

- Alternative Compressor Station Site
- Proposed Compressor Station Site

MIDCONTINENT EXPRESS PIPELINE PROJECT

**VICKSBURG COMPRESSOR STATION
SITE ALTERNATIVES**

DATE: May 2008	Figure 4.5.4-1
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Legend

- Alternative Compressor Station Site
- Proposed Compressor Station Site

MIDCONTINENT EXPRESS PIPELINE PROJECT

DELHI BOOSTER COMPRESSOR STATION SITE ALTERNATIVE

DATE: May 2008	Figure 4.5.5-1
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property. In contrast, the South Alternative site would not be available for sale. For these reasons, we do not consider the South Alternative site to be environmentally preferable to the proposed Delhi Booster Station site.

Evaluation Criterion	Proposed Project Site	South Alternative Site
Construction impacts (acres)	16.5	16.5
Permanent impacts (acres)	15.8	15.8
Parcel size (acres)	NA	54.4
Prime farmland encumbered for operation (acres)	15.8	0.0
Noise-sensitive areas within 0.25 mile (number)	5	2
Noise-sensitive areas within 0.5 mile (number)	6	5
Land uses	Agriculture, forest	Commercial
<hr style="width: 20%; margin-left: 0;"/> Note: NA = Not Available		