

### **3.0 ALTERNATIVES**

In accordance with NEPA and the FERC policy, we identified and evaluated a range of reasonable alternatives to the proposed action to determine if they would be environmentally preferable. These alternatives include the No Action and Postponed Action alternatives, energy alternatives, system alternatives, major route alternatives, route variations, and aboveground facility site alternatives. Our analysis is based on our review of publicly available information such as aerial photographs and United States Geological Survey (USGS) topographical maps, input provided by the public and state, local, and federal agencies, information filed by Rockies Express, and site visits. We considered alternatives identified by landowners, resource agencies, and other stakeholders during the public scoping period.

The evaluation criteria for selecting potentially environmentally preferable alternatives are:

- technical feasibility and practicality;
- clear environmental advantages over the REX East Project; and
- ability to meet the Project objective of delivering up to 1.8 bcf per day of Rocky Mountain natural gas from the terminus of REX West in Audrain County, Missouri to customers located in the midwestern and eastern United States.

Recognizing that not all conceivable alternatives are technically feasible and practical is important. Our analysis had to consider existing technologies and logistics in determining whether an alternative was feasible and practical.

In reviewing an alternative, we first determined whether it would meet the stated Project objectives. Next, we analyzed the potential impacts associated with the alternative to generate a comparison of the alternative to the REX East proposal. Those alternatives that met the Project objectives, appeared to be the most reasonable technically, and appeared to have similar or lower levels of environmental impact were reviewed in detail. The results of our analysis are presented below.

#### **3.1 NO ACTION OR POSTPONED ACTION ALTERNATIVES**

The FERC can take one of the following three actions in processing applications under Section 7 of the NGA: (1) deny the requested authorization (i.e., the No Action Alternative); (2) postpone action pending further filings or study (i.e., the Postponed Action Alternative); or (3) grant the Certificate with or without conditions (i.e., the proposed action).

According to the EIA's 2006 predictions, 60 percent of the projected growth in domestic natural gas consumption through 2030 will occur east of the Mississippi River, while the Rocky Mountains and Alaska will provide most of the increase in domestic production (EIA, 2006a). Thus, satisfying the increasing gas demand in the eastern United States from these domestic sources would require additional east-west pipeline capacity.

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 Alternatives, it is likely that potential end users would: (1) attempt to make other arrangements to obtain natural gas; (2) use alternative fossil-fuel energy sources (such as fuel oil or coal) and other traditional long-term fuel source alternatives (such as nuclear power or hydroelectric power); and/or (3) use renewable energy sources, such as wind power. It is also possible that energy conservation

practices could be used to offset the demand for natural gas in markets that would be supplied by the Project.

Each of these alternative approaches to meeting the energy needs of the target market would result in some level of environmental impacts. Considered both individually and in combination, specific energy alternatives or conservation measures could either: (1) not provide the projected energy needs of the regional markets; (2) satisfy the Project objectives by providing the projected regional energy demands with equal or less environmental impact; or (3) provide the required amount of energy but result in greater environmental impacts than those associated with the Project if implemented with our recommended mitigation measures.

If the FERC denies the proposal, the short- and long-term environmental impacts identified in this draft EIS would not occur. If the FERC postpones action on the application, the environmental impacts would be delayed; or—if the applicant decided not to pursue the Project—the impacts would not occur at all. If the FERC selects the No Action Alternative, Rockies Express would not be able to deliver up to 1.8 bcf per day of Rocky Mountain natural gas from the Mexico Compressor Station in Audrain County, Missouri to the high-demand markets in the midwestern and eastern United States, and the objectives of the Project would not be met.

### **3.2 ENERGY ALTERNATIVES**

In evaluating energy alternatives to the Project, we considered the use of renewable energy sources, energy conservation, and renewable energy combined with energy conservation. Energy conservation strategies or renewable energy alternatives, such as wind, hydropower, municipal solid waste, solar, and wood and other biomass, are projected to have an increasing role in the country's energy needs. State regulators and the federal government are promoting energy conservation programs, aimed primarily at residential and commercial markets, through broad-based efficiency programs, demand side management, and integrated resource planning initiatives. These programs rely on economic tests of avoided energy costs to determine which designs and technologies should be implemented. If the proposed Project were not constructed, less natural gas entering the market would result in slightly higher gas prices, which in turn would improve the economics of conservation, as well as the attractiveness of other less costly but more polluting fuels. Such effects would be small in the markets the Project would serve.

Green energy programs have been around for many years. In general, public participation rates do not demonstrate a willingness to pay what are typically from \$5 to \$20 monthly fees to substitute green energy for energy generated via fossil-fuel combustion or nuclear reaction. According to the Department of Energy (DOE, 2006), customer participation rates have exceeded 6.5 percent in only two of the more than 500 green energy programs, and typical participation rates are below 1 percent. While energy conservation strategies or renewable energy alternatives will have an increasing role in meeting the country's energy needs, a DOE study determined that, over the next 20 years, the available mix of alternative energy sources would not replace the demand for natural gas (EIA, 2006a). The combined use of renewable energy and energy conservation programs as an alternative to the Project could help reduce the need for natural gas, but they are not sufficiently available—physically or commercially—in the market region to be a viable substitute for the Project.

Even if efficiency gains, conservation efforts, and use of renewable resources increased, it is not evident that a reduction in natural gas consumption would follow. These gains would likely be used to facilitate the reduced use of other fuels that have greater associated environmental costs. Collectively, the gains achieved through better management, increased efficiency, and renewable energy use would reduce the energy demands by only a small fraction of the total projected energy demand in the foreseeable

future. Thus, energy alternatives would not be able to satisfy the Project objective to bring 1.8 bcf of natural gas, or its energy equivalent, to the target markets.

### **3.3 SYSTEM ALTERNATIVES**

System alternatives are alternatives to a proposed action that would make use of other existing, modified, or proposed transmission systems to meet the Project's stated objectives. A system alternative would make the construction in all or part of the Project unnecessary. Some modifications or additions to another pipeline system may be required to increase its capacity and reach the Project's intended customers, or another entirely new system may need to be constructed. The impact of a system alternative could be less than, similar to, or greater than that associated with the Project.

Producers of natural gas in the Rocky Mountains have made precedent agreements with Rockies Express to deliver 1.8 bcf of their natural gas from the Mexico Compressor Station to 17 gas distributors along the route. These gas distributors interconnect with the REX East Project in 12 locations spread across Illinois, Indiana, and Ohio. Three additional distributors have expressed interest in building additional capacity from their pipelines in Clarington, Ohio to points farther east. Figure 1.0-1 in chapter 1 shows the locations of Rockies Express' customers along the pipeline route. We reviewed the locations of the Rockies Express gas distributors in relation to existing natural gas systems. Given that the focus of the REX East Project is to service these customers and reach eastern markets, a desirable system alternative should deliver natural gas to these distributors while limiting construction of new infrastructure, and subsequent environmental impacts. In general, this requires that the interstate pipeline be proximal to its delivery points so that extensive distribution pipelines are unnecessary.

We reviewed existing natural gas systems and identified a system alternative that would utilize the existing Panhandle Eastern Pipe Line Company (PEPL) system. The REX East Project would begin at the terminus of REX West in Audrain County, Missouri. The PEPL system also connects with REX West at that point. PEPL potentially could be used to transport gas eastward as far as the Indianapolis area. In eastern Missouri, PEPL has a capacity of about 1.4 bcf per day and is currently operating at a load capacity factor of about 85 percent. Thus, PEPL only has additional capacity available for approximately 0.2 bcf per day and this system alone does not have the capacity to handle the 1.8 bcf per day that the REX East Project proposes to transport. Integrating the REX East Project with PEPL would require creating a parallel pipeline, which offers no clear advantage over the proposed action. That is, construction of a loop on the PEPL system would generate similar environmental impacts as would construction of the proposed pipeline. Additionally, the PEPL system terminates near the Indianapolis area. The majority of the Rockies Express customers (Rockies Express has 17 distributors) are located east of Lebanon in Ohio and would not receive gas under this alternative. We, therefore, do not consider PEPL a viable system alternative.

### **3.4 MAJOR ROUTE ALTERNATIVES**

In developing the Project route, Rockies Express considered route alternatives to address environmental and constructability issues. Rockies Express first developed a base pipeline route based on maximizing collocation with existing pipeline rights-of-way as a first step toward minimizing environmental impacts. To identify routing and siting constraints, Rockies Express reviewed publicly available information—including USGS topographic maps, National Wetlands Inventory (NWI) maps, and aerial photographs taken in 2005—and completed field surveys.

Once potential constraints such as sensitive resources and population centers had been identified, Rockies Express devised route modifications to the base pipeline route and incorporated certain modifications to create the preliminary pipeline route. Rockies Express then used the preliminary

pipeline route to consult with federal and state regulatory and review agencies, farm bureaus, elected officials, landowners, and other stakeholders during open-house and Project introductory meetings in June and October 2006. As a result of these consultations and further on-the-ground civil and environmental surveys, Rockies Express considered additional route modifications to minimize environmental impacts or to avoid route constraints. The route modifications that Rockies Express considered before filing the application with the FERC on April 30, 2007 are described in appendix E, table E-1.

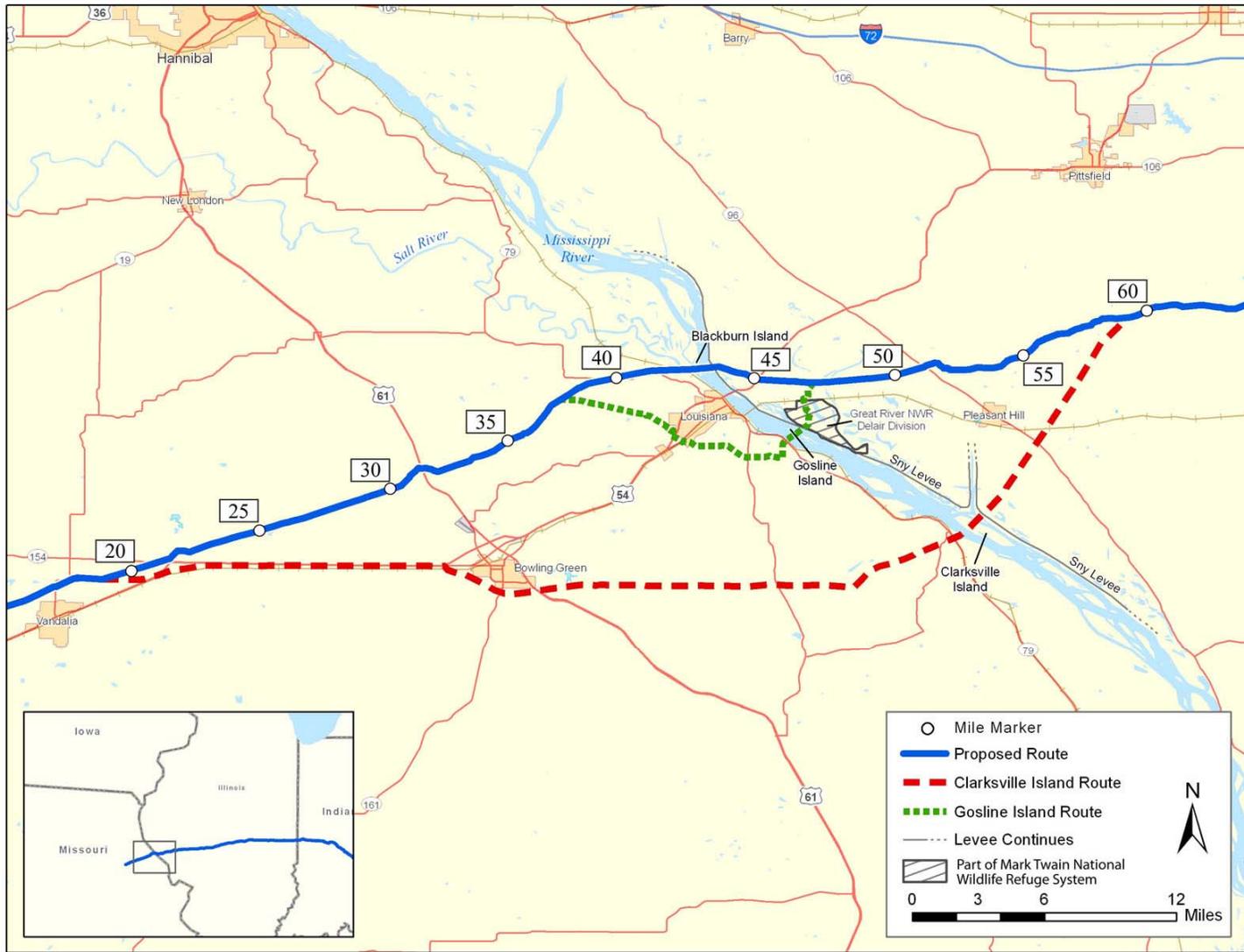
In response to stakeholder concerns, Rockies Express adopted another alternative route into the Project route that is evaluated in this draft EIS. This is a re-route around Barnesville Reservoir in Belmont County, Ohio. The Village of Barnesville, U.S. Senator George Voinovich, U.S. Congressman Charles Wilson, and various citizens expressed concern over the possible contamination and damage that pipeline construction or rupture could cause to the water supply. The re-route addresses these concerns by avoiding Barnesville Reservoir and crossing Slope Creek, a tributary, 0.7 mile south (downstream) of the Reservoir. At this time, surveys have not been completed along the Barnesville variation and no comments have been received identifying a concern with the current Project route. Therefore, we have not considered additional variations around the reservoir at this time. Should such environmental concerns arise during the comment period for this draft EIS, other variations would be considered and discussed in the final EIS. Based on the information currently available, the impacts of this incorporated variation are evaluated in this draft EIS.

We independently reviewed the Project route to determine whether impacts could be avoided or reduced on environmentally sensitive resources, while maintaining the proposed locations of meter stations. Meter stations are placed at interconnects between the REX East Project and distribution pipelines. For our review, we used the proposed meter station locations so that distribution pipelines would not need to be increased in length to interconnect with the Project. We reviewed the pipeline segments between meter stations to determine whether the need to create new rights-of-way could be minimized by routing pipelines adjacent to existing utility rights-of-way. No major modifications to the Project route were recommended based on this review.

We also received comments from agencies, communities, landowners, and other stakeholders requesting a review of changes to the Project route. This review resulted in the definition and evaluation of nine major route alternatives and numerous route variations. The major route alternatives, evaluated in turn in the following subsections, follow different alignments for a significant length of the Project route, have been raised by communities or groups of multiple landowners, and/or are considered for the purpose of avoiding or reducing impacts to significant features. The route variations, evaluated in section 3.5, are relatively short deviations from the Project route that would potentially avoid or reduce Project impacts on specific localized resources, such as individual residences or site-specific environmental conditions.

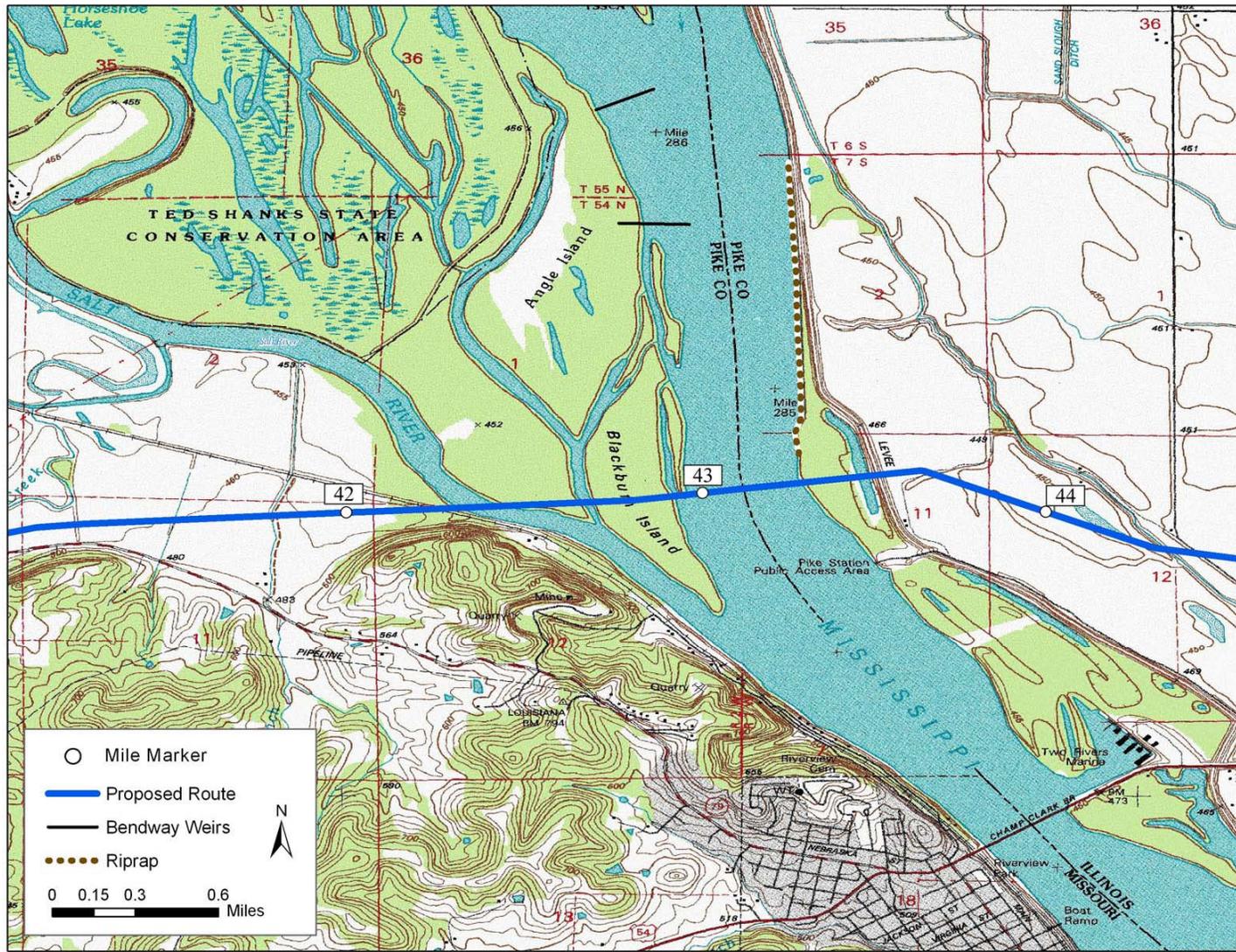
### **3.4.1 Mississippi River Crossing Alternatives**

Rockies Express has proposed to cross the Mississippi River at the confluence of the Salt River (MP 42.5) and the Mississippi River (MP 43.2) using two HDDs from Blackburn Island, as shown in figures 3.4.1-1 and 3.4.1-2. Blackburn Island is located between the two rivers and is part of the Upper Mississippi Conservation Opportunity Area (COA) owned by the COE, leased to FWS, and managed by the MDC. This operation would require clearing 5.4 acres of forested wetlands on Blackburn Island for the HDD site, staging area, and access road. Rockies Express also would dredge approximately 4,500 cubic yards from the Mississippi River on the east side of Blackburn Island to enable barge access to the island. The HDD to the west would pass underneath the Salt River, and the HDD to the east would pass underneath the Mississippi River and would go under the Sny District Levee. Underneath the Mississippi and Salt Rivers, a minimum of 40 feet separation between the river bottom and the Project



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**Figure 3.4.1-1**  
**Mississippi River Crossing Alternatives**



**Figure 3.4.1-2**  
**Detail of REX East Project Crossing Location at the Mississippi River**

pipeline alignment would be maintained. The HDD profile would also be engineered to maintain a minimum of 75 feet separation between the bottom of the levee and the REX East Project pipeline alignment. This depth would be maintained for an additional 300 feet landward from the toe of the levee, per COE requirements (Manual EM 1110-2-1913 and WES CPAR-GL-98-01). In addition, Rockies Express has developed an HDD construction plan, which fully describes safeguards to minimize the risk of an inadvertent release of drilling fluids (frac-out) and maximize the protection of the Sny District Levee. This plan includes settlement monitoring of the Sny Levee during construction and for two years construction. However, to ensure the reliability and safety of the pipeline and Sny Levee, we have recommended that Rockies Express conduct levee settlement monitoring every six months for a period of five years after Project construction (see section 4.12).

FWS, COE, state agencies, and Sny Levee District have expressed concerns regarding the proposed location of the Mississippi River crossing at Blackburn Island. FWS, COE, and state agencies expressed concern over the loss of forested habitat on Blackburn Island. The Sny Levee District raised concerns about the potential structural impacts on the Sny Levee from the HDD passing under the levee. The Sny Levee District expressed an interest in having the HDD terminate on the river side (west side) of the levee and then having the pipeline cross up and over the levee. Rockies Express is currently conducting geotechnical studies to determine the technical feasibility of this construction approach.

We evaluated two major route alternatives in response to these concerns (see figure 3.4.1-1). First, Rockies Express proposed a route alternative that would cross the Mississippi River at Clarksville Island, which is approximately 12 miles southeast of the Project route. This alternative would use Clarksville Island to cross the Mississippi River and is referred to as the Clarksville Island Route Alternative. Second, during our field visit in August 2007, the COE suggested an alternative crossing that was received from a landowner. The second route would cross the Mississippi River approximately 4 miles southeast of the Project route at Gosline Island. We independently analyzed this alternative, which is referred to as the Gosline Island Route Alternative.

The Clarksville Island Route Alternative (figure 3.4.1-3) would deviate from the REX East Project route at MP 17.7 and proceed eastward for 3.6 miles where it would intersect with the Illinois Central Gulf Railroad. The alternative would follow the railroad for 9.8 miles. It would then pass south of Bowling Green, Missouri for about a mile until it adjoins an electricity transmission line corridor, which it would parallel for 10.2 miles. From there, the alternative would continue eastward for 8.4 miles, crossing agricultural and forested land until it reaches the Mississippi River. Crossing the Mississippi River in this area would involve crossing Clarksville Island, three river channels, and the Sny Levee on the eastern bank. After crossing the river, the route alternative would run through open farmland and forested areas for 10.6 miles until it rejoins the Project route at MP 59.5.

The Gosline Island Route Alternative (figure 3.4.1-4) would deviate from the REX East Project route just before MP 38, heading southeast and proceeding approximately 4.3 miles alongside an electricity transmission line corridor before crossing Route 54 west of Louisiana, Missouri. It would continue along the transmission line corridor for 2 miles to State Highway D and proceed east toward the Mississippi River. Approximately 1 mile before passing Route 79, the route would deviate from the transmission line corridor, turn north and then northeast across the Mississippi River and Gosline Island. After crossing the Mississippi River, the route would cross the Sny Levee and pass through 2.3 miles of the Great River National Wildlife Refuge (NWR), Delair Division, which is part of the Mark Twain NWR complex, owned and managed by FWS. It would continue along mostly agricultural land in a northeast direction until it rejoins the Project route near MP 47.

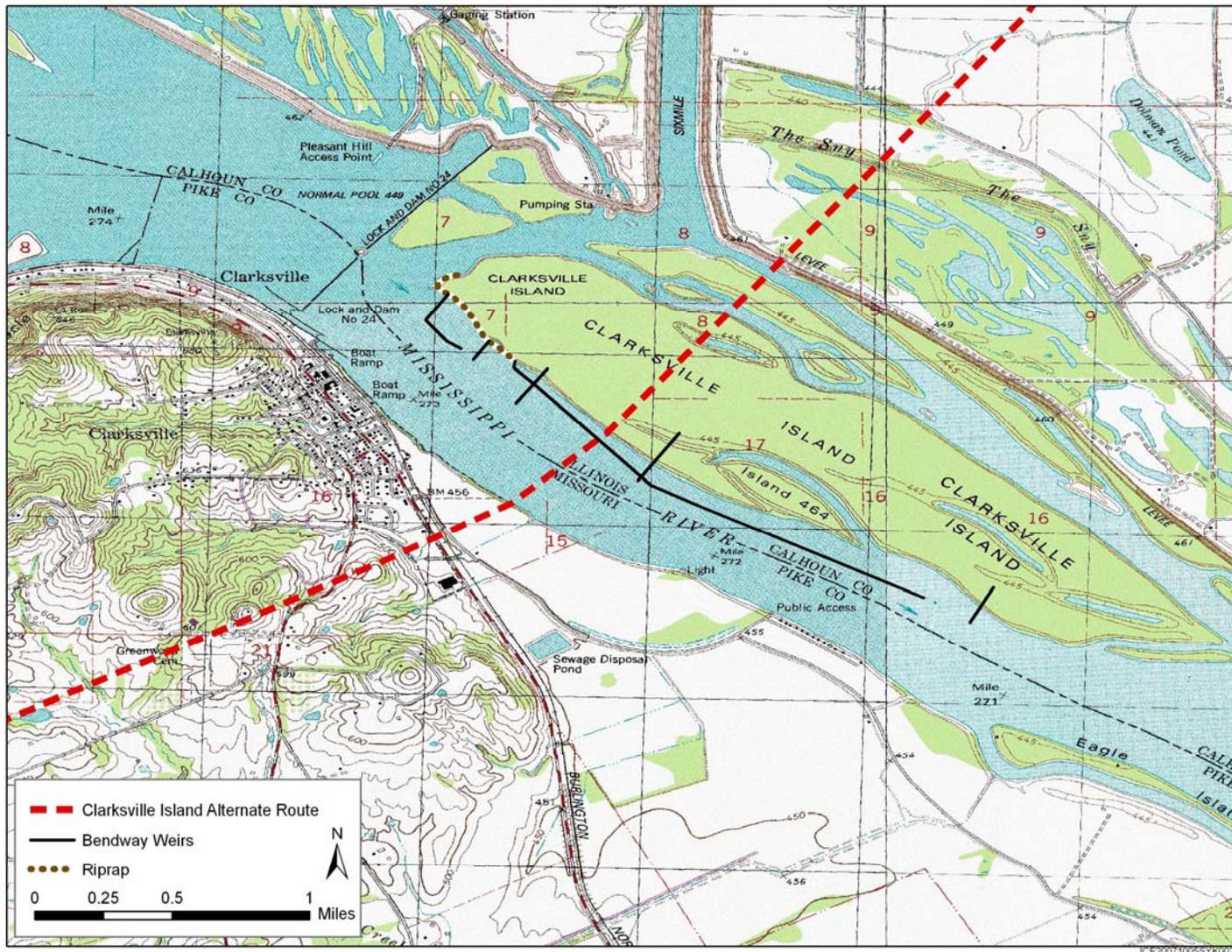


Figure 3.4.1-3  
 Detail of Clarksville Island Crossing Location at the Mississippi River

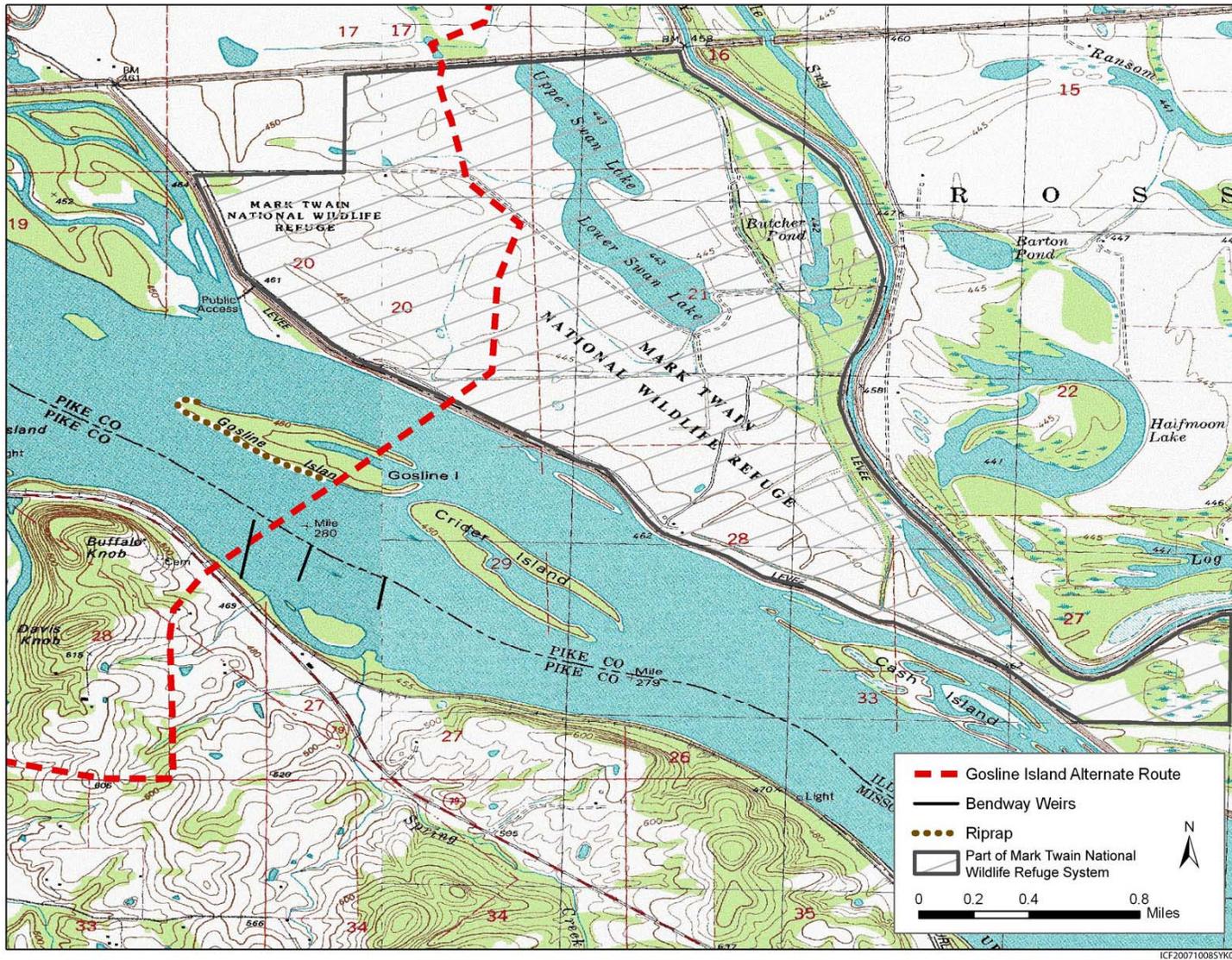


Figure 3.4.1-4  
 Detail of Gosline Island Crossing Location at the Mississippi River

The Delair Division was purchased with funds from the sale of migratory waterfowl stamps. The division lies completely within the 52-mile long Sny Agricultural Levee District and is separated from the river by the Sny Levee. When originally acquired, the area was almost entirely cropland. Of the 440 acres currently set aside for farming, 90 acres are left idle each year to provide habitat for grassland birds. The remaining 350 acres are cooperatively farmed annually—with corn, soybeans, and winter wheat—to provide supplemental food for waterfowl. Semi-permanent and permanent waterbodies make up 480 acres of Delair, providing feeding and resting areas for waterfowl and many other wetland bird species. Water level management, mowing, and disking, are used to create diverse vegetative habitat within the wetland units. FWS has commented that any proposed pipeline crossing of the refuge would require a greater level of environmental impact assessment before FWS could grant approval for such a crossing.

Table 3.4.1-1 presents a general environmental comparison of the Project route, the Clarksville Island Route Alternative, and the Gosline Island Route Alternative between MPs 17.7 to 59.5. Based on these factors, neither the Clarksville Island Route Alternative nor the Gosline Island Route Alternative would result in a clear environmental advantage over the proposed route. The Project route crosses slightly fewer wetlands, waterbodies, and forested land than do the alternatives. The Gosline Island Route Alternative is collocated with 6.7 miles of existing powerline rights-of-way and would disturb fewer cultivated lands and protected lands than would the Project route. Protected lands include FWS NWR and State COAs. The Gosline Island Route Alternative also provides the shortest HDD crossing of the river. The Clarksville Island Route Alternative is 3.1 miles longer than the others and follows existing rights-of-ways for 20.0 miles (44.4 percent). It would affect a comparable number of wetlands, waterbodies, and forested land as the Project route.

| Environmental Factor                                | Unit  | Project Route   | Mississippi River—Clarksville Island Route Alternative | Mississippi River—Gosline Island Route Alternative | Source                              |
|---|-------|-----------------|--|--|-------------------------------------|
| Total Length  | miles | 41.9            | 45.0   | 41.9   | Digital Route                       |
| Length Adjacent to Existing Right-of-Way (percent)  | miles | 25.4<br>(60.6)  | 20.0<br>(44.4)   | 32.1<br>(76.8)                                     | Digital Route                       |
| Wetlands Crossed                                    | miles | 0.9             | 1.2  | 1.9  | FWS (2007f)                         |
| Waterbody Crossings                                 | no.   | 11              | 11   | 13   | ESRI (2005a;b)                      |
| Cultivated Lands Crossed                            | miles | 32.9            | 33.2   | 25.8   | USGS (2001)                         |
| Forest Land Crossed                                 | miles | 6.6             | 9.4  | 11.8   | USGS (2001)                         |
| Commercial Land Crossed                             | miles | <0.1            | <0.1   | <0.1   | USGS (2001)                         |
| Residences Within 50 Feet of Construction Work Area | no.   | 2 <u>a/</u>     | 4 <u>a/</u>  | 0 <u>a/</u>  | Rockies Express, Aerial Photography |
| Minimum Length of HDDs (west side; east side)       | feet  | 4,000;<br>4,700 | 3,800;<br>2,900  | 3,200;<br>3,500                                    | Rockies Express; Estimated Data     |
| Protected Land <u>b/</u>                            | miles | 9.1             | 0.0  | 2.3  | FWS (2007f); Rockies Express        |

a/ Houses could not be counted along 9 miles of the routes due to poor resolution of available imagery.  
b/ Protected land includes FWS National Wildlife Refuge and State Conservation Opportunity Areas.

The Sny Levee would be crossed by each route alternative. Regardless of the route, Rockies Express would follow the same COE requirements and perform all construction in accordance with an approved HDD construction and contingency plan as described above for the REX East Project route. The width of the Mississippi River and geotechnical conditions require the river to be crossed with two HDDs from an island within the river. The different crossing locations affect the length of each drill and the types of landcover that would be affected by the drill installation. To address the concerns of the Sny Levee District, the HDD should maximize the depth below the levee at the crossing point and the distance between the levee and the HDD exit point. At the Blackburn Island crossing, the river is 1,800 feet wide and the exit is located approximately 500 feet from the levee. The exit point would be placed in a field. The field is 2,200 feet wide and lies between the levee and a small stream, which would allow the exit point to be adjusted based on geotechnical requirements for the drill and would provide room for the pipeline pull string.

Along the Gosline Island Route Alternative, the Mississippi River is narrower and the island is located closer to the west bank of the river. The shorter HDD length reduces the risk of encountering a problem with drill installation. The HDD would cross 1,200 feet of river and the exit would be located in a crop field managed by FWS. This field would allow for adjustment of the HDD exit point location to optimize the setback from the levee and other factors such as the location of the pipeline pull string. Our review indicates that a setback from the levee of between 650 and 850 feet would be possible. At Clarksville Island, the main river channel lies to the east. Toward the Sny Levee, the HDD would cross two small channels and forested wetlands at an approximate length of 3,000 feet from the center of the island to the levee. The HDD exit point would be approximately 800 to 1,000 feet from the levee and would be placed in a forested wetland that extends 3,700 feet from the levee. The pull string would be placed within the cleared pipeline right-of-way that continues to the northeast in order to minimize impacts to the forested area.

The Sny Levee District has commented that they would prefer the pipeline to go up and over the levee along the Project route. The Blackburn Island route has 0.2 mile of forested wetlands along the bank of the river where an HDD exit could be set up. The Gosline Island and Clarksville Island Route Alternatives have less than 100 feet of land along the bank, which is insufficient to support an HDD exit. The Sny Levee District has not had the opportunity, at this time, to provide comments on the alternative crossing locations or construction methods that may be used in these locations. We further discuss the option of crossing over the levee in section 4.8.5 and recommend that Rockies Express provide a geotechnical report and site-specific crossing plan for the construction of the pipeline over the levee.

Flooding during installation of an HDD could cause additional impacts to the islands and surface water quality. Additional discussion on this issue is included in section 4.1.3. The elevation on Blackburn Island is similar to the elevations on both Gosline and Clarksville Islands and we would expect similar flood potentials at all three locations.

Most of the wetlands on each island (Blackburn, Gosline, and Clarksville) along the Project or alternate routes are forested wetlands. The construction area on each island would encompass approximately 5.4 acres and would clear forested wetlands on all of the islands. Based on aerial photography, Blackburn Island and Clarksville Island appear to have mature forests while the vegetation at the center of Gosline Island appears to be either at an earlier stage of maturity or at least partially comprise herbaceous or shrubby communities. Table 3.4.1-1 shows that the Clarksville Island Route Alternative would affect approximately 0.3 more linear mile of wetlands than the Project route, and the Gosline Island Route Alternative would affect approximately one more linear mile of wetlands than the Project route.

The 4,500 cubic yards of dredging required for the Project route is assumed to be necessary at both Gosline and Clarksville Islands. At Gosline and Clarksville Islands, any dredging would have to avoid the existing riprap and bendway weirs associated with the maintained navigation channel in the Mississippi River. No such structures are located in the immediate vicinity of the Blackburn Island crossing.

The segment of the Mississippi River that contains each route alternative is located within the Mississippi Flyway, a major route for migrating waterfowl. Each island (Blackburn, Gosline, and Clarksville) that would be used as an HDD drill site is used by migratory birds. Blackburn Island is part of the Upper Mississippi COA and located adjacent to the Ted Shanks State Conservation Area. The area is generally known as the Ted Shanks Alluvial Complex and is recognized as an Important Bird Area by the National Audubon Society and BirdLife International (Jensen, 2007). Gosline Island is adjacent to the Great River NWR, which is part of the Mark Twain NWR complex, and the pipeline along this route would pass through the refuge. Clarksville Island was transferred from the Nature Conservancy to a non-profit organization, the Elizabeth Elliot Foundation, in 1982 and has remained in its natural state. Surveys for protected species along the REX East Project route, including Indiana bat surveys and mussel surveys, found no Indiana bats or mussels on or adjacent to Blackburn Island. Information is not currently available for protected species at Gosline Island or Clarksville Island and surveys for the Indiana bat, mussels, and decurrent false aster (a flowering plant) would have to be conducted to document their presence or absence. Information available from the Great River NWR documents that bald eagles and a pair of barn owls (an Illinois state endangered bird) have nested on the refuge.

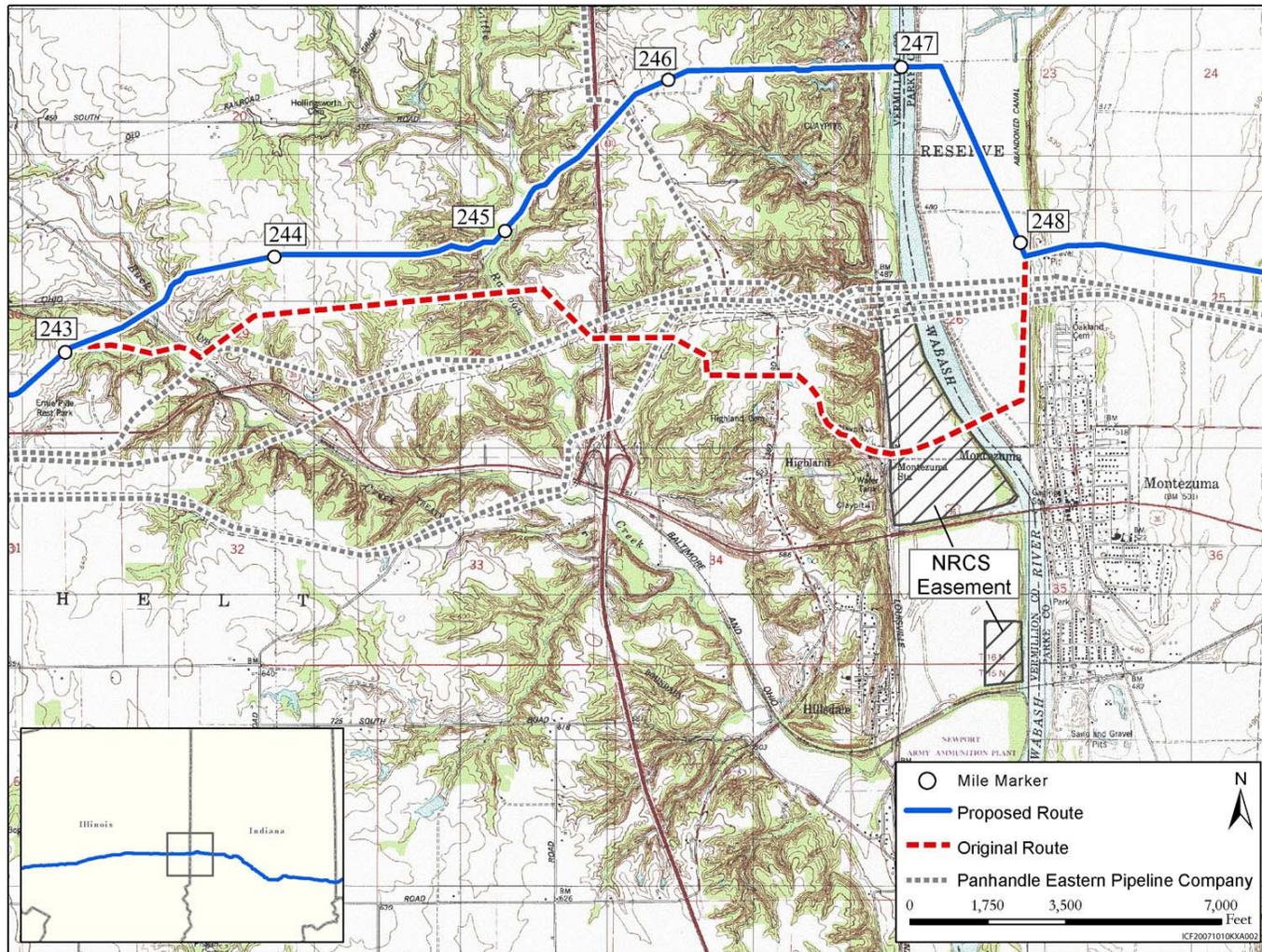
We are continuing our consultations with the Sny Levee District, COE, FWS, and other review agencies to understand the potential impacts and concerns associated with each crossing location. At this time, our analysis shows there is no clear environmental advantage of the alternative routes compared to the Project route. Therefore, we have no reason at this time to recommend an alternative route be adopted by Rockies Express. Further discussion of the construction method to cross the Sny Levee can be found in section 4.8.5.

### **3.4.2 Wabash River Alternative**

Rockies Express originally considered a route that would cross land encumbered under an NRCS Emergency Watershed Protection – Floodplain Easement (EWPP-FP) located on the west side of the Wabash River near the Town of Highland in Vermillion County, Indiana. According to NRCS policy, proposed infrastructure projects must avoid EWPP-FP easements because the agency does not have the authority to modify easement terms. Therefore, the original route was not feasible.

Rockies Express developed a route alternative and incorporated it into the Project route. As shown in figure 3.4.2-1, the Project route would turn northeast from the original route around MP 242.9, cross Little Raccoon Creek at MP 245.2, and cross the Wabash River at MP 247.8 at a location that is approximately 1.6 miles north of the Wabash River crossing location that was originally considered. This crossing location would be well outside of the boundaries of the NRCS protected land.

We examined this Project route in a site visit and evaluated the possibility of another alternative following an existing Panhandle pipeline right-of-way. However, we determined that this alternative is not feasible because it would also cross the land protected by the NRCS floodplain easement. Also, based on our field observations, following the existing pipeline right-of-way would not be preferable because there are residences currently abutting the right-of-way in some segments and there would be limited space to install another pipeline. Therefore, we did not identify an environmentally preferable alternative to the Project route crossing of the Wabash River.



**Figure 3.4.2-1**  
**Wabash River Route Alternative**

### 3.4.3 Indianapolis North Alternatives

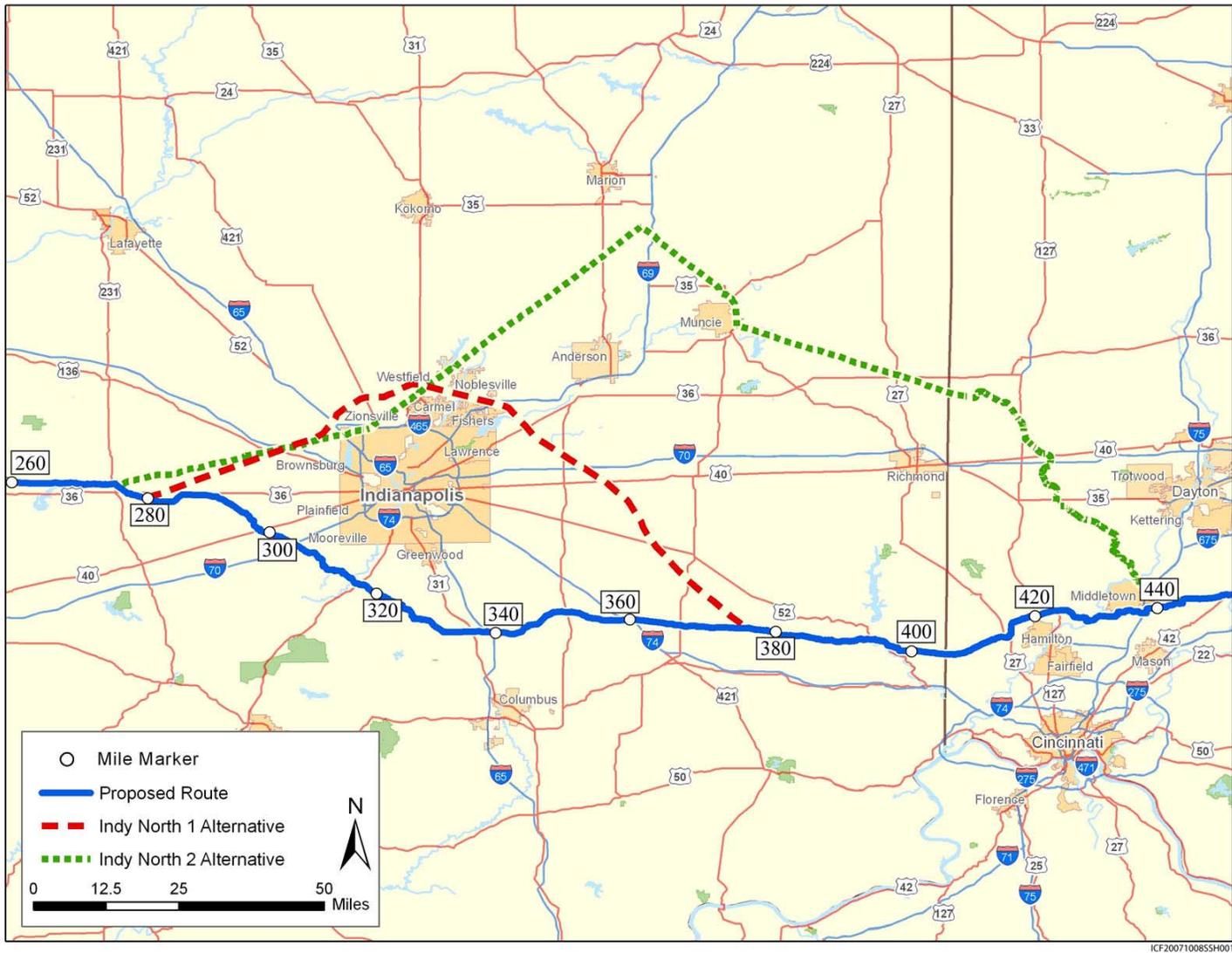
Numerous residents in the counties south of Indianapolis have requested that the FERC and Rockies Express consider an alternate route that follows the existing pipeline corridors that PEPL and Texas Eastern Transmission Company use north of Indianapolis. These residents are concerned that the Project route would cause soil erosion due to construction in unstable soils and rolling terrain, damage field drainage tiles, remove valuable habitat for various wildlife including the endangered Indiana bat, and reduce the value of farm property in an area that is expected to develop in the near future. In response to these comments, we identified two specific route alternatives that would extend north of Indianapolis: Indy North 1 and Indy North 2. We asked Rockies Express to provide an analysis of Indy North 1, and based on those results, we developed and analyzed another variation, called Indy North 2. Figure 3.4.3-1 shows these major route alternatives in relation to the Project route.

The Indy North 1 Route Alternative would deviate from the Project route at MP 279.4. It would follow an existing PEPL corridor northeast, veer around Zionsville on the northwest side of Indianapolis, and then cross Little Eagle Creek. After that crossing, the alternative route would continue northeast following the existing PEPL corridor until reaching Westfield. It would then turn southeast, pass between Noblesville and Fishers, cross Fall Creek, and continue southeast until rejoining the Project route at MP 376.0. The southeastern half of the Indy North 1 Route Alternative is not collocated along an existing corridor.

The Indy North 2 Route Alternative would approximate a route recommended by many commentors. It would turn northeast from the Project route at MP 274.5 and follow an existing PEPL corridor through Putnam and Hendricks Counties on the western side of Indianapolis. Just south of Zionsville, the alternative route would turn more north-northeast, continuing to follow the existing pipeline corridor to the point where it intersects a TETCO corridor in Grant County south of Marion. It would then turn and follow the TETCO corridor southeast, skirt the eastern edge of Muncie, and continue southeast until rejoining the Project route at MP 444.0. The entire Indy North 2 Route Alternative is collocated with existing pipeline corridors.

Table 3.4.3-1 provides an environmental comparison of the Project route and the Indy North 1 and Indy North 2 Route Alternatives. As shown, Indy North 2 is the longest of the three, approximately 31.5 miles longer than the Project route and 22.6 miles longer than Indy North 1. However, Indy North 2 would be adjacent to an existing right-of-way for 100 percent of its length, compared to 6.0 percent for the Project route and 27.7 percent for Indy North 1. All three routes cross very few wetlands, with Indy North 2 crossing the least (0.90 mile) and Indy North 1 crossing the most (1.8 miles). Indy North 2 also crosses the fewest waterbodies at 64, compared to 77 waterbodies crossed by the Project route and 86 waterbodies crossed by Indy North 1. In terms of land uses and land covers, Indy North 2 would cross almost twice as much cultivated land as the other two routes and about half as much forest as the other two routes (the Project route and Indy North 1 are comparable in terms of their cultivated land and forest crossings). All three routes cross very little commercial land and are comparable from that standpoint.

The three routes are distinguished in terms of their proximity to existing residences. Based on a review of available NRCS datasets, Indy North 2 would cross 19.0 miles of residential land compared to 10.9 miles for Indy North 1 and 3.8 miles for the Project route. Recognizing that these data are current only through 2001, we evaluated the potential impacts on residences more thoroughly by conducting site visits and by examining recent aerial photography. Our site visits found that much of the existing pipeline corridors for Indy North 1 and Indy North 2 would abut dense housing developments. In many places, there is insufficient room to install another pipeline without significantly disrupting these existing



**Figure 3.4.3-1**  
**Indianapolis North Route Alternatives**

**Table 3.4.3-1**  
**Comparison of the Indy North 1 and Indy North 2 Route Alternatives**  
**to the Corresponding Segment of the Project Route**  
**(MP 274.5 to MP 444.0)**

| <b>Environmental Factor</b>                         | <b>Unit</b> | <b>Project Route</b> | <b>Indy North 1 Route Alternative</b> | <b>Indy North 2 Route Alternative</b> | <b>Source</b>                        |
|---|-------------|----------------------|---------------------------------------|---------------------------------------|--------------------------------------|
| Total Length  | miles       | 161.7                | 170.6                                 | 193.2                                 | Digital Route                        |
| Length Adjacent to Existing Right-of-Way (percent)  | miles       | 9.7<br>(6.0)         | 47.3<br>(27.7)                        | 193.2<br>(100.0)                      | DOE Unpublished Data (2005)          |
| Wetlands Crossed                                    | miles       | 1.6                  | 1.8                                   | 0.9                                   | FWS, 2007f                           |
| Waterbody Crossings                                 | no.         | 77                   | 86                                    | 64                                    | ESRI (2005a;b)                       |
| Cultivated Lands Crossed                            | miles       | 90.0                 | 96.7                                  | 164.7                                 | USGS, 2001                           |
| Forest Land Crossed                                 | miles       | 11.3                 | 10.5                                  | 5.5                                   | USGS, 2001                           |
| Commercial Land                                     | miles       | <0.1                 | 1.3                                   | 0.8                                   | USGS, 2001                           |
| Residences Within 50 Feet of Construction Work Area | no.         | 11                   | 462                                   | >231 <u>a/</u>                        | Rockies Express, Google Earth (2007) |

a/ Houses could not be counted along 47.1 miles of the Indy North 2 Route Alternative due to poor resolution of available imagery.

developments. This finding is corroborated by our review of aerial photographs, which indicates that Indy North 1 and Indy North 2 would have more than 231<sup>1</sup> and 456 residences, respectively, within 50 feet of construction work areas; whereas the Project route would have 5 residences within 50 feet of construction work areas.

As noted previously, residents and other stakeholders raised four main concerns about the Project route. First, they expressed concern that the Project route would cause soil erosion due to construction in unstable soils and rolling terrain. Based on a review of soil classification data available from NRCS, approximately 24 percent of the soils crossed by the Project route between MPs 274.5 and 444.0 are considered highly water erodible and 0.5 percent are considered highly wind erodible. The soils to the north of Indianapolis are slightly less water erodible (22 percent highly erodible for Indy North 1 and 14 percent highly erodible for Indy North 2), but are the same as the Project route in terms of wind erodibility. With respect to the issue of rolling terrain, our analysis of the topography along the three routes indicates that the terrain is slightly more undulating to the south of Indianapolis and flattens out as the routes move north, with Indy North 2 having the largest fraction of its length across relatively flat stretches.<sup>2</sup> However, we do not believe that these minor differences in erodibility and topography create a clear environmental advantage for either of the northern alternatives relative to the Project route. Erosion control measures, as specified in the Rockies Express Plan and Procedures, would be employed during construction and would minimize the erosion of soils.

<sup>1</sup> Aerial photography for approximately 47.1 miles (24.4 percent) of Indy North 2 are low resolution and are too blurry to allow a reasonably accurate house count. The additional number of residences within 50 feet of the construction work area in these stretches is unknown.

<sup>2</sup> To evaluate rolling terrain, we examined variability in elevation across 1-mile segments for the entire lengths of the three alternative routes.

Second, residents expressed concerns that the Project route south of Indianapolis would damage their field drainage tiles. All three routes would cross substantial stretches of cropland as shown in table 3.4.3-1. Regardless of the pipeline route, impacts to agricultural resources would be minimized and fields would be restored to pre-construction function. Rockies Express has developed an AIMP (see appendix I) for dealing with construction and restoration issues unique to agricultural areas. The purpose of the AIMP is to help protect, conserve, and restore agricultural lands that may be affected by construction and/or operation of the Project pipeline. Rockies Express would follow the policies outlined in the AIMP for all activities occurring on privately owned farmland. Further, to ensure that fields with drain tiles can be fully restored, we are recommending that Rockies Express bury the pipeline at a minimum depth of five feet where the pipeline would cross agricultural fields with prime soils unless otherwise negotiated with landowners (see section 4.8.2).

Third, residents expressed concern that the Project route south of Indianapolis would remove valuable habitat for various wildlife including the endangered Indiana bat. More habitat areas would be affected along the Indy North alternatives, because of their greater lengths, but these impacts are similar to those that would be experienced along the Project route. The majority of all three routes cross agricultural and residential land. Species that commonly inhabit agricultural land are accustomed to habitat disturbance from farming activities and could temporarily use adjacent agricultural land until the area is restored. A portion of all three routes would cross forest land, although the Project route would cross the most (11.3 miles), Indy North 1 would cross almost as much as the Project route (10.5 miles), and Indy North 2 would cross the least (5.5 miles). Forest lands cleared by the pipeline construction may require more than 30 years to return to preconstruction conditions and would be prevented from re-establishing on the permanent right-of-way during operation of the pipeline. Forested areas also have the potential to be Indiana bat habitat. Surveys of the Project route in Pike County, Indiana found one male and one female Indiana bat within the Project right-of-way. Surveys would have to be conducted to determine the presence of Indiana bats in the forests that would be crossed by the route alternatives north of Indianapolis. Tree removal and pipeline construction methods would be done in accordance with FWS consultations and guidelines in all areas where Indiana bats are found to avoid or minimize serious impacts.

Fourth, residents expressed concern that the route south of Indianapolis would reduce the value of farm property in an area that is expected to develop in the near future. The only development currently planned along the Project route is the Disney Residential Development at MP 297.5. Although this development was platted in 1978, construction has not yet begun. We do not believe the Project route would significantly affect this development, because the total pipeline length across the development would be only 0.5 mile and because Rockies Express has sited its pipeline route along the property boundaries to minimize disturbance. Based on our current research, any other new developments near the Project route are only speculative at this time. The Indy North 1 and Indy North 2 would avoid the Disney Residential Development. However, we contacted planning staff in each of the counties that would be crossed by the alternatives and discovered that there are a number of planned developments along those routes as well. For example, Indy North 1 would be in the vicinity of two approved new developments in Boone County, Indiana; a recently approved development in Fishers in Hamilton County, Indiana; and a proposed new development in Hancock County, Indiana. Indy North 2 would come near land recently rezoned for development in Marion County, Indiana; 21 pending and approved residential subdivisions in Hamilton County, Indiana; and a new single family residential subdivision in Middletown in Warren County, Ohio. Based on these findings, we believe that either of the northern route alternatives would encounter as much or more planned developments, and would face the same issue as the Project route regarding speculative developments and associated land values.

In addition, neither of the Indianapolis North alternatives could connect to Rockies Express' three customers located south of Indianapolis without long laterals causing additional environmental impact. In particular, Rockies Express has made commitments to deliver natural gas to Citizen Gas and Coke Utility and Indiana Gas in Morgan County, Indiana and ANR Pipeline Company in Shelby County, Indiana. To meet the needs of these customers with a route north of Indianapolis, Rockies Express would have to build lateral pipelines to interconnect these pipeline systems. These laterals would increase the areas that would be affected by crossing at least an additional 25 miles of land. These laterals could run north to south through the suburban and urban areas of Indianapolis, but would likely run south of the city from west to east affecting many of the same areas in Putnam, Hendricks, Morgan, Johnson, and Shelby Counties.

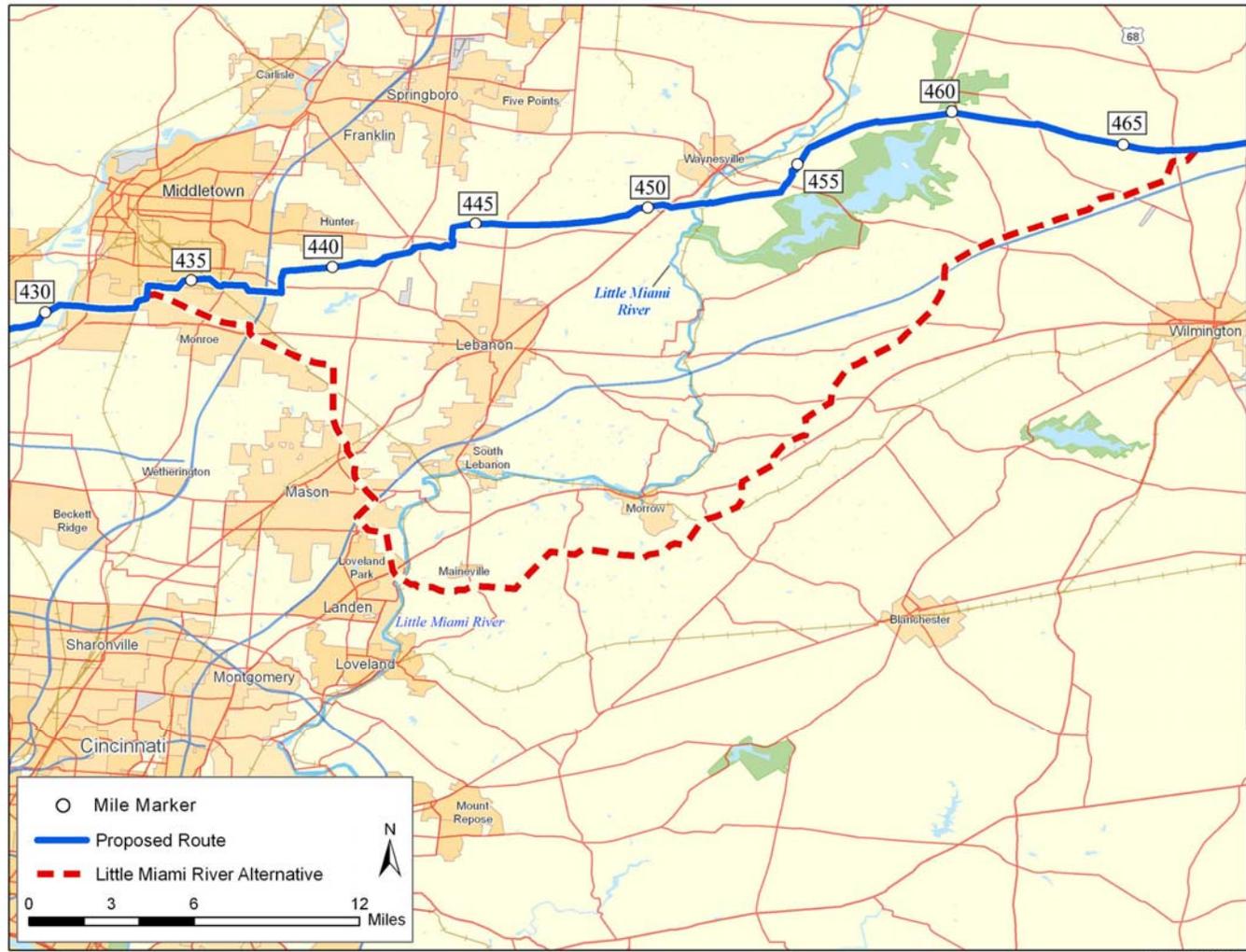
Based on the above analysis neither of the alternative routes provides a clear environmental advantage over the Project. While the northern route alternatives would be adjacent to existing rights-of-way for greater lengths than the Project route to the south, there exists numerous locations where there is little or no room to install the pipeline without encroaching on much larger numbers of existing residences. Because the other environmental concerns raised by commentors and analyzed above do not differ significantly across the three alternatives, the alternative routes do not provide a clear environmental advantage.

#### **3.4.4 Little Miami River Alternative**

The REX East Project would cross the Little Miami River at MP 451.3 in Warren County, Ohio. Rockies Express proposes to use HDD at the crossing. The river is a designated Wild and Scenic River protected under the Wild and Scenic River Act administered by NPS and is listed in the Ohio State Scenic Rivers Program as an Outstanding State Water. The OEPA also has designated the river as an exceptional warmwater fisheries habitat. The river extends south approximately 100 miles from Clark County, Ohio to the Ohio River. At the REX East crossing, the Little Miami is designated scenic and recreational, and recognized for the following outstandingly remarkable values (ORVs): Aquatic and Terrestrial Floral and Fauna, Historic and Archaeological, Geologic, Scenic, and Recreational attributes. This designation extends 66 miles from the upper portions of the river near Yellow Springs, Ohio and John Bryan State Park to approximately 22.5 miles south of the proposed crossing. The remainder of the river south to the Ohio River is designated recreational.

We asked Rockies Express to evaluate a route alternative that would avoid or minimize crossing the designated portion of the river. One alternative that was identified would be routed to the north to avoid all designated segments, but would cross the densely populated suburbs of Dayton, Ohio and therefore was not considered further. A second alternative that was identified would cross the Little Miami River at a river segment that is designated for its recreational value but not its scenic value. We evaluated this second alternative, called the Little Miami River Route Alternative, in more detail.

Figure 3.4.4-1 shows the Little Miami River Route Alternative in relation to the Project route. The alternative would deviate from the Rockies Express' Project route at MP 432.9, follow a transmission line to the southeast and south for about 15.2 miles, and cross the Little Miami River at a point where it parallels an existing transmission line crossing. The alternative route would then continue to the east and northeast following the transmission line. At MP 22.5, the route alternative would stop tracking the transmission line. At MP 25.2, the alternative would join Penn Central Railroad, continuing until MP 27.2, where it would meet State Route 22. At MP 28.5, the alternative would continue across open farm lands for 9 miles. At that point, it would run adjacent to Interstate 71 for 7 miles. Near Interchange 50, the route alternative would turn north and rejoin the REX East Project route at MP 467.2.



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**Figure 3.4.4-1**  
**Little Miami River Route Alternative**

Table 3.4.4-1 provides an environmental comparison of the Project route and the Little Miami River Alternative. As shown, the alternative is 12.3 miles longer than the Project route and would follow existing corridors for 68.5 percent of its length, compared to 92.7 percent for the Project route. Compared to the Project route, the route alternative would cross 10 more waterbodies, 5.5 more miles of cultivated land, 3.7 more miles of forest, and 0.8 more mile of commercial land. The Project route and route alternative would cross a roughly equivalent amount of wetlands. The two routes are also distinguished in terms of their proximity to existing residences. There are substantially more residences within 50 feet of the construction work area for the route alternative (see table 3.4.4-1).

| <b>Table 3.4.4-1</b>   |             |                      |   |                 |
|--|-------------|----------------------|---|-----------------|
| <b>Comparison of the Little Miami River Route Alternative to the Corresponding Segment of the Project Route (MPs 432.9 to 467.2)</b> |             |                      |   |                 |
| <b>Environmental Factor</b>  | <b>Unit</b> | <b>Project Route</b> | <b>Little Miami River Route Alternative</b> | <b>Source</b>   |
| Total Length   | miles       | 34.3                 | 46.6  | Digital Route   |
| Length Adjacent to Existing Right-of-Way (percent)   | miles       | 31.8<br>(92.7)       | 31.9<br>(68.5)                              | Digital Route   |
| Wetlands Crossed   | miles       | 0.15                 | 0.17  | FWS, 2007f      |
| Waterbody Crossings  | no.         | 21                   | 31  | ESRI, 2005a;b   |
| Cultivated Lands Crossed   | miles       | 30.0                 | 35.5  | USGS, 2001      |
| Forest Land Crossed  | miles       | 3.9                  | 7.6   | USGS, 2001      |
| Commercial Land Crossed  | miles       | 0.1                  | 0.9   | USGS, 2001      |
| Residences Within 50 Feet of Construction Work Area  | no.         | 6                    | 77  | Rockies Express |

Based on the comparison of factors other than the river designation, the REX East Project route would result in fewer environmental impacts. The Project route minimizes the total land area affected by the project and maximizes the use of existing rights-of-way.

The chief potential advantage of the route alternative would be the crossing within an area designated recreational rather than scenic and recreational. However, at the proposed crossing, Rockies Express plans to use HDD to cross the Little Miami River, which would preserve the water quality and integrity of the riverbanks. In addition, Rockies Express would not clear any large trees between the entrance and exit point of the drilling, which would protect the scenic properties of the river. A geotechnical study of the crossing found soil and bedrock materials suitable for successful HDD installation. Because of the impacts other types of construction methods would have on the protected resources, any other construction method across the Little Miami River would not be acceptable as part of a contingency plan in case of an HDD failure. Therefore, in order to protect the river if the HDD is unsuccessful, we recommended in section 4.3.4 that Rockies Express develop a contingency plan utilizing the alternative route and crossing location evaluated here. We further recommend Rockies Express not construct in the Project segment between MP 432.9 to MP 467.2 until the HDD has been successfully installed.

### 3.4.5 Mowrey Alternative

Dean and Nancy Mowrey submitted comments asking us to evaluate a route alternative in Warren and Clinton Counties, Ohio that would reroute the pipeline south of Caesar Creek Lake to follow the existing Dominion Transmission, Inc. pipeline corridor. The Mowreys have expressed various concerns about the environmental impacts of a new pipeline right-of-way through their community. They point out that the Project route would affect forests, waterbodies, wetlands, endangered species habitat, and historically significant property.

The 19.6-mile route alternative identified by the Mowreys would deviate from the Project route at MP 446.0 and follow the existing pipeline right-of-way southeast from the Project route. It would follow this existing pipeline right-of-way for nearly the entire length of the alternative. As shown in figure 3.4.5-1, from MP 446.0 the route alternative would run to the southeast for approximately 2.5 miles before crossing U.S. Route 42. It would continue to the southeast through a large forested area for approximately 1.5 miles and then turn to the east to cross the Little Miami River between North Waynesville Road and Corwin Road. The alternative would continue following the existing right-of-way east for approximately 3.0 miles before crossing into Caesar Creek State Park just south of Caesar Creek Lake. It would then turn to the northeast through Caesar Creek State Park for 2.6 miles. After departing the park, the route alternative would continue to the northeast across State Route 73 through forested and agricultural areas for approximately 6.0 miles before rejoining the Project route near MP 466.2.

Table 3.4.5-1 provides a comparison of the environmental impacts of the Project route and the Mowrey Route Alternative. The Mowrey Route Alternative would be 0.6 mile shorter, would affect two fewer wetlands, and would follow an existing right-of-way for 98 percent of its length. It would also cross five additional waterbodies, 2.8 additional miles of forested land, and 2.3 additional miles within Caesar Creek State Park, and would come within 50 feet of 3 additional residences. However, in order to minimize the impacts to these additional residences, additional minor route variations could be made to offset the route variation further away from these residences.

Along the Project route, Rockies Express would cross the Little Miami River by HDD from one agricultural field to another. This would eliminate the need to clear trees and would preserve the scenic quality of this designated Wild and Scenic River. The crossing at the Mowrey Route Alternative has extensive riparian forest on either side of the river. On the west side of the river, Rockies Express would have to clear forest to set up the HDD.

The environmental analysis of the alternatives shows a trade-off of environmental impacts. While the Mowrey Alternative would cross more waterbodies and forested land, as well as more land within Caesar Creek State Park, it would be collocated with an existing right-of-way and affect previously disturbed areas. The Mowrey Alternative crossing of the Little Miami River may also clear forest along the west side of this Wild and Scenic River. Further revision of the Mowrey Route Alternative, however, may reduce these impacts. For example, an agricultural field suitable for an HDD site on the west bank of the Little Miami River is located approximately 500 feet south of the existing right-of-way followed by the Mowrey Route Alternative. In addition, the existing right-of-way crosses an agricultural field approximately 1,600 feet from the east bank of the river. An HDD site could be located in this field without the need to clear any forest. If the HDD crossing was extended into this agricultural field, forest land cleared would be reduced by approximately 0.9 acres, assuming a standard HDD workspace size. We will continue to investigate the environmental impacts and determine if further route adjustments along the Mowrey Route Alternative could reduce environmental impacts. However, at this time, we do not have a compelling environmental reason to recommend the incorporation of this route alternative into the REX East Project.



**Figure 3.4.5-1**  
**Mowrey Route Alternative**

**Table 3.4.5-1**  
**Comparison of the Mowrey Route Alternative to the**  
**Corresponding Segment of the Project Route**  
**(MPs 446.0 to 466.2)**

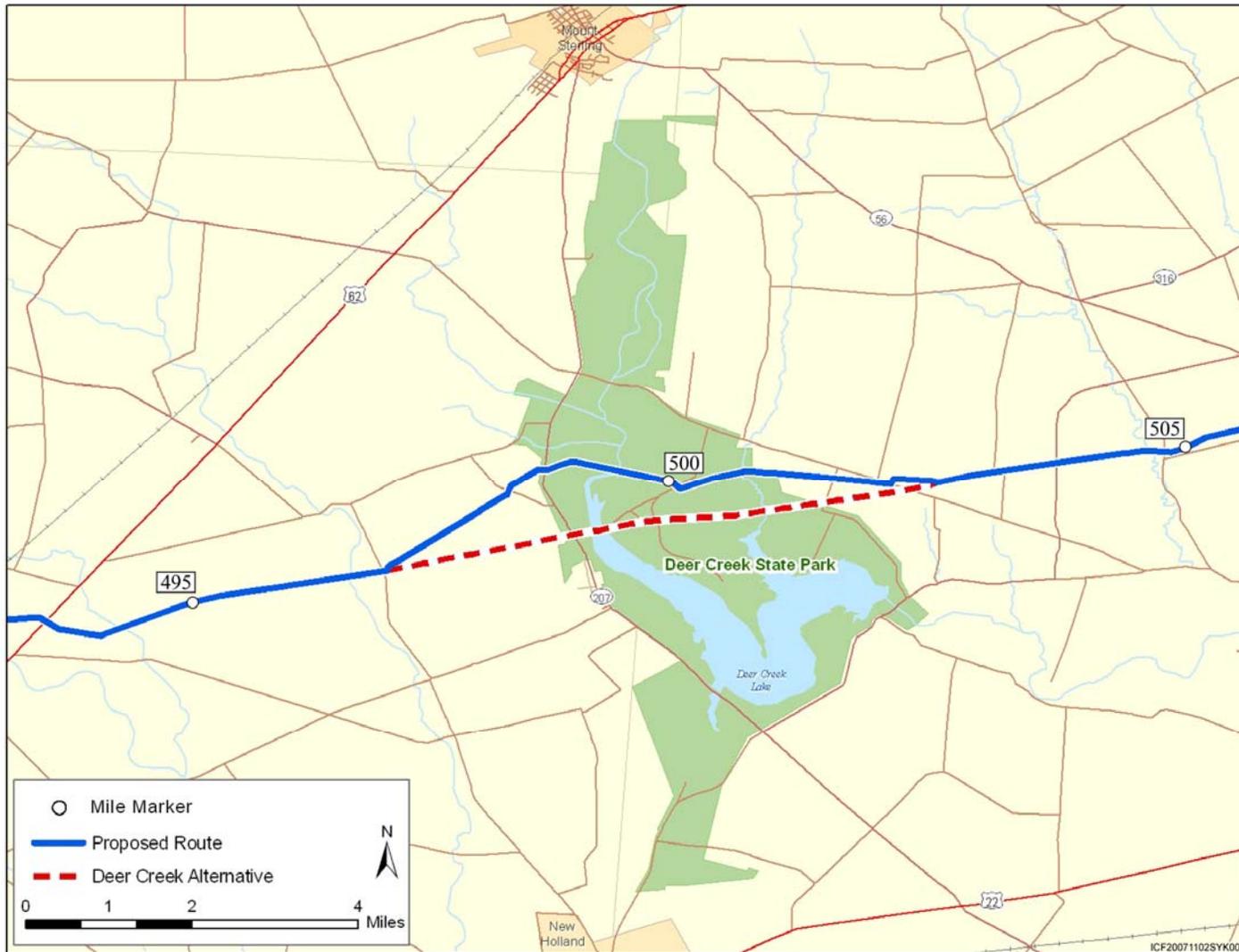
| Environmental Factor                                   | Unit  | Project<br>Route | Mowrey<br>Route<br>Alternative | Source                                     |
|--|-------|------------------|--------------------------------|--|
| Total Length   | miles | 20.2             | 19.6                           | Digital Route                              |
| Length Adjacent to Existing Right-of-Way<br>(percent)  | miles | 5.6<br>(27.7)    | 19.3<br>(98.4)                 | Digital Route                              |
| Wetlands Crossed                                       | miles | <0.1             | <0.1                           | FWS, 2007f                                 |
| Waterbody Crossings                                    | no.   | 12               | 17                             | ESRI, 2005a;b                              |
| Cultivated Lands Crossed                               | miles | 15.6             | 12.1                           | USGS, 2001                                 |
| Forest Land Crossed                                    | miles | 3.5              | 6.3                            | USGS, 2001                                 |
| Residential Land Crossed                               | miles | 0.0              | <0.1                           | USGS, 2001                                 |
| Commercial Land Crossed                                | miles | 0.0              | 0.0                            | USGS, 2001                                 |
| Residences Within 50 Feet of Construction<br>Work Area | no.   | 13               | 5                              | Alignment Sheets and Aerial<br>Photography |
| Parkland Crossed                                       | miles | 0.3              | 2.6                            | Aerial Photography                         |

### 3.4.6 Deer Creek Lake State Park Alternative

The Project route would cross Deer Creek Lake State Park in Pickaway County, Ohio between MP 499.9 and MP 500.8. The Huntington District of COE manages the park. In correspondence with Rockies Express, COE has requested that Rockies Express consider an alternative route that would follow the existing TETCO easement across the park.

As shown in figure 3.4.6-1, the 5.2 mile route alternative, called the Deer Creek Lake State Park Route Alternative, would deviate from the Project route at MP 496.9 and rejoin the Project route at MP 502.6. From MP 496.9, the Deer Creek State Park Route Alternative would cross agricultural land for approximately 1.7 miles before intersecting the state park. Inside the park, the route alternative would cross 1.1 miles of forested land, 0.2 mile of open water in Deer Creek Lake, and an existing campground. The alternative route would exit the park and continue east-northeast across Deer Creek Road and Yankeetown Pike for approximately 1.2 miles before rejoining the Project route near MP 502.6.

As shown in table 3.4.6-1, the environmental impacts of the route alternative and the Project route would be very similar. The route alternative would require crossing one additional waterbody, 0.2 mile of open water on Deer Creek Lake, and 0.5 mile of additional forested land. It is slightly shorter, impacts less cultivated land, and avoids creating a new right-of-way through Deer Creek Lake State Park by collocating with the existing TETCO pipeline corridor. The route alternative would be 100% collocated with existing rights-of-way while none of the Project route would be collocated. Although Rockies Express did not identify a crossing method for Deer Creek Lake, we believe that an HDD crossing is appropriate because it would avoid aquatic and forested areas near the Lake. For example, an HDD of approximately 1,700 feet in length could eliminate an acre or more of forested impacts on the eastern



**Figure 3.4.6-1**  
**Deer Creek Lake State Park Route Alternative**

**Table 3.4.6-1**  
**Comparison of the Deer Creek Lake State Park Route Alternative to the**  
**Corresponding Segment of the Project Route**  
**(MPs 496.9 to 502.6)**

| Environmental Factor                                | Unit  | Project Route | Deer Creek Lake State Park Route Alternative | Source                                  |
|---|-------|---------------|--|---|
| Total Length  | miles | 5.5           | 5.2  | Digital Route                           |
| Length Adjacent to Existing Right-of-Way (percent)  | miles | 0.0<br>(0)    | 5.2<br>(100)                                 | Digital Route                           |
| Wetlands Crossed                                    | miles | <0.1          | 0.1  | FWS, 2007f                              |
| Waterbody Crossings                                 | no.   | 5             | 6  | ERSI, 2005a;b                           |
| Cultivated Lands Crossed                            | miles | 4.3           | 3.1  | USGS, 2001                              |
| Forest Land Crossed                                 | miles | 1.2           | 1.7 <u>a/</u>                                | USGS, 2001                              |
| Commercial Land Crossed                             | miles | 0.0           | 0.0  | USGS, 2001                              |
| Residences Within 50 Feet of Construction Work Area | no.   | 0             | 0  | Alignment Sheets and Aerial Photography |

a/ Impacts to forested habitat may be reduced through the use of an HDD at Deer Creek Lake.

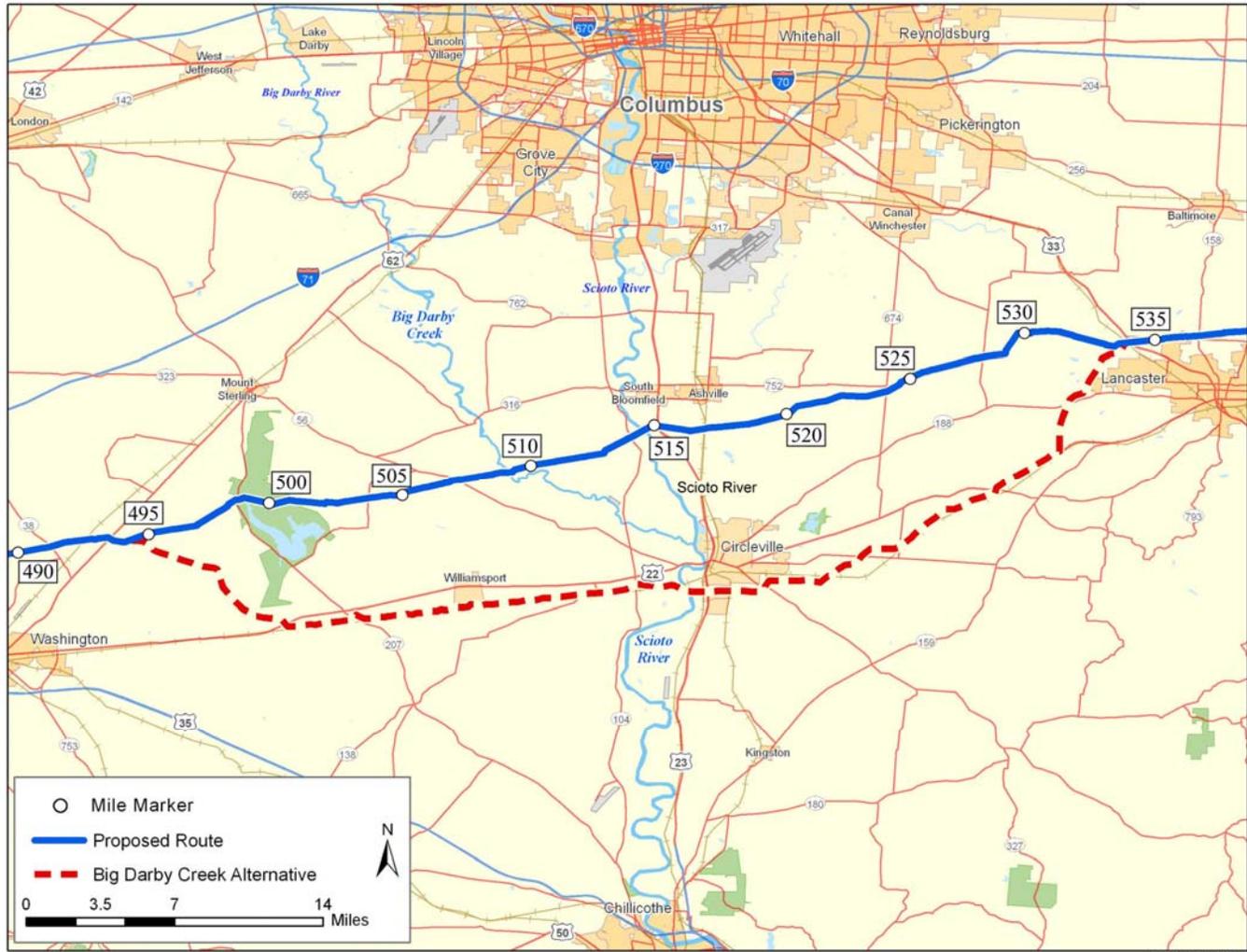
shore of the lake. Correspondence from COE to Rockies Express indicates COE would prefer to the Project be routed along the existing right-of-way. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the Deer Creek Lake State Park Route Alternative from MP 496.9 to MP 502.6, as depicted in figure 3.4.6-1. Rockies Express should file with the Secretary updated alignment sheets (including incorporation of an HDD crossing of Deer Creek Lake) and updated land use and resource tables.**

### 3.4.7 Big Darby Creek Alternative

The REX East Project would cross Big Darby Creek at MP 507.6 in Pickaway County, Ohio. Rockies Express proposes to cross the creek using HDD. Big Darby Creek is approximately 86 miles long and crosses through Union, Madison, Franklin, and Pickaway Counties in Ohio. The NPS has designated Big Darby Creek as a Wild and Scenic River with the designation of scenic. The creek is recognized for its “outstandingly remarkable values” for wildlife (protected fish and mussels) and scenic qualities.

To avoid impacts to Big Darby Creek, we evaluated the shortest route alternative that would eliminate the need to cross the Creek. That alternative, shown in figure 3.4.7-1, would run south of the Project route and cross the Scioto River south of its confluence with Big Darby Creek. The alternative would start by heading east and then southeast from MP 494.1 of the REX East Project route paralleling Bloomingburg New Holland Road for 4.4 miles. It would then run north of the town of New Holland where it would join and run adjacent to the Penn Central right-of-way for 14.5 miles, except for small deviations to avoid the town of Atlanta and the hamlets of Woodlyn and Kinderhook. The route alternative would cross the Scioto River, continue east through agricultural areas and sparse residential



**Figure 3.4.7-1**  
**Big Darby Creek Route Alternative**

development south of Circleville, Ohio, and then turn northeast. Near Stoutsville, Ohio, the alternative would follow an abandoned railroad for 4.6 miles. West of the town of Amanda, it would run adjacent to State Route 22 for 2.6 miles. The alternative would then leave the road and head to the northeast for 6.3 miles, where it would rejoin the Project route at MP 533.9.

Table 3.4.7-1 provides an environmental comparison of the Big Darby Creek Route Alternative and the Project route. The Project route would be 5.8 miles shorter than the alternative. The additional length of the alternative crosses cultivated and commercial land. The alternative maximizes length along existing rights-of-way and crosses one less waterbody. It also avoids 0.1 mile of forested land crossed and almost 0.1 mile of residential land crossed.

| <b>Table 3.4.7-1<br/>Comparison of the Big Darby Creek Route Alternative to the<br/>Corresponding Segment of the Project Route<br/>(MPs 494.1 to 533.9)</b> |             |                          |  |                        |
|---|-------------|--------------------------|--|------------------------|
| <b>Environmental Factor</b>   | <b>Unit</b> | <b>Project<br/>Route</b> | <b>Big Darby<br/>Creek Route<br/>Alternative</b> | <b>Source</b>          |
| Total Length  | miles       | 40.1                     | 45.9   | Digital Route          |
| Length Adjacent to Existing Right-of-Way (percent)  | miles       | 17.7<br>(44.1)           | 25.0<br>(54.0)                                   | Digital Route          |
| Wetlands Crossed  | miles       | 0.2 <u>a/</u>            | <0.1 <u>a/</u>                                   | FWS, 2007f; USGS, 2001 |
| Waterbody Crossings   | no.         | 32                       | 31   | ESRI, 2005a,b          |
| Cultivated Lands Crossed  | miles       | 37.1                     | 42.2   | USGS, 2001             |
| Forest Land Crossed   | miles       | 2.5                      | 2.4  | USGS, 2001             |
| Commercial Land Crossed   | miles       | <0.1                     | 0.2  | USGS, 2001             |
| Residences Within 50 Feet of Construction Work Area   | no.         | 5                        | 5  | Rockies Express        |

a/ NWI maps were not digitally available for 25.5 miles of the Project route and 36.6 miles of the Big Darby Creek Route Alternative. Instead, National Landcover data were used to estimate wetland impacts where NWI maps were not available.

Although the route alternative is longer, it would avoid Big Darby Creek. However, Rockies Express proposes to cross Big Darby Creek by HDD. A successful HDD would not disturb the banks, vegetation, or water quality of the creek, and would protect the scenic values of the river. A geotechnical study for the HDD stated that the soils and rock in the area are generally considered suitable for an HDD. However, the study points out that cobbles and boulder size materials may be encountered within an unstratified layer of materials found above the limestone bedrock. The boulder/cobble zone may be problematic during drilling operations. Generally, other construction methods would be used in case of a failure of the HDD operation. Alternative construction methods would cause permanent impacts to the scenic resources of Big Darby Creek and would not be acceptable as a contingency plan.

Based on the analysis presented above, we conclude the REX East Project route is environmentally preferable provided that an HDD crossing of Big Darby Creek is successful. Due to the protected status of the creek, we recommend in section 4.3.4 that Rockies Express use the alternative route and crossing location analyzed here if a successful HDD can not be completed. We further recommend that Rockies Express not construct in the Project segment between MP 494.1 to MP 533.9 until the HDD has been successfully installed.

### 3.5 ROUTE VARIATIONS

Route variations are short deviations less than 5 miles long from the Project route that would potentially avoid or reduce Project impacts on specific localized resources, such as individual residences or site-specific environmental conditions. Since Rockies Express filed its application on April 30, 2007, three categories of potential route variations have been considered during our review of the Project:

- (1) route variations that Rockies Express has already incorporated into the Project route evaluated in section 4 of this draft EIS;
- (2) route variations that have been requested by landowners, but a reasonable and feasible variation could not be identified for evaluation; and
- (3) route variations that have been requested by landowners where reasonable and feasible variations could be identified for evaluation.

After filing its application, Rockies Express filed two supplements making a total of 135 minor changes to the Project route alignment in response to comments from resource agencies and landowners, and in response to more detailed engineering studies. These include 57 route variations in a supplement filed on July 9, 2007 and 78 route variations in a supplement filed on July 23, 2007. The 78 route variations addressed in the July 23 filing are summarized in appendix E, table E-2. All 135 of these variations were made to achieve better construction conditions, address site-specific constraints, or minimize impacts to a specific environmental feature or residence. All 135 of these variations have been incorporated into the Project route evaluated in this draft EIS and are not described individually beyond the information provided in table E-2.

In some cases, feasible route variations to avoid a resource of concern stated by a landowner are not necessary to protect the resource of concern. For example, we have observed on previous pipeline projects that impacts to endangered species habitat such as the Indiana bat, cultural resources, and field drainage tiles can be effectively mitigated. We address these landowner concerns by including recommendations that require Rockies Express to complete all necessary threatened and endangered species and cultural resource surveys and consultations, and to evaluate appropriate route variations or other measures to avoid impacts to those species or features, prior to construction (see sections 4.7 and 4.10). We include another recommendation for pipeline construction in the event karst terrain is discovered (see section 4.1). We do not believe additional alternatives analyses or recommendations are needed to address landowner concerns about field drainage tiles, because we conclude that Rockies Express' AIMP would be adequate to protect, conserve, and restore agricultural lands that may be affected by construction and operation of the Project pipeline (see section 4.8 and appendix I).

In other cases, a feasible route variation could not be identified that would avoid or minimize impacts to the resource of concern. Table 3.5-1 summarizes comments received for which no feasible variation could be identified. The resource issues raised in these comments are addressed in section 4 by conditions and mitigation measures that will minimize or protect the resource of concern.

**Table 3.5-1**

**Summary of FERC Review of Landowner Comments for Which No Feasible or Environmentally Preferable Route Variation Was Identified**

| <b>Landowner Last Name</b> | <b>Approximate Milepost</b> | <b>Summary of Comments</b>  | <b>Summary of FERC Review</b>   |
|----------------------------|-----------------------------|---|---|
| Maguire                    | 66                          | The proposed pipeline location has maximized the potential impact on her home and surrounding land. Ms. Maguire is generally opposed to the pipeline going through her property.  | The Project route closely parallels an existing pipeline right-of-way across the Maguire property. Moving the Project route away from this existing right-of-way would result in additional environmental impacts.  |
| Oster                      | 78                          | The Oster property is a small family farm in Scott Co, IL. Ms. Oster is generally opposed to the pipeline going through her property.   | The Project route closely parallels an existing pipeline right-of-way across the Oster property. Moving the Project route away from this existing right-of-way would result in additional environmental impacts.  |
| Burtle                     | 116                         | Mr. Burtle cites concerns about drainage tiles and pipeline depth of cover. There are two existing pipeline rights-of-way on his property and he states that a third pipeline would shut down his farming operations.                             | The Project route would be located on the north side of the existing pipeline right-of-way through Mr. Burtle's property. Construction of the pipeline would result only in temporary impacts to his farming operations and a reroute would not result in any environmental advantages to the existing route. |
| Bearden                    | 164                         | Mr. Bearden did not identify any specific environmental concerns in his comment; however, he notes that his property has had 159 years of continuous farming on 80 acres.   | Because no specific environmental concerns were identified in the comment and the Project route would cross agricultural lands which would only be temporarily impacted, no reroute was considered.   |
| Jacobs                     | 312                         | Ms. Jacobs objects to the Project route cutting across her property. She cites soil disruption, drainage issues, a natural spring, wildlife, and future development as potential issues, and suggests rerouting the pipeline along Pennington Rd. | Moving the pipeline route so that it would parallel Pennington road would impact other property owners. As the pipeline crosses through predominantly agricultural land, there would not be any environmental advantage to rerouting the pipeline.  |
| Marley                     | 321                         | Mr. Marley is generally opposed to the pipeline on his property and cites concerns about impacts on the property's abundant wildlife and other environmental features such as tree stands, creeks, and cliffs.                                    | The pipeline is routed through the southern portion of the Marley property. The pipeline, as currently routed, minimizes the potential impacts, though it does pass through a small stand of trees.   |
| Ballard                    | 331                         | The Ballards object to the pipeline crossing through Indiana Classified Forest on their property.   | A minor pipeline route variation would not adequately avoid enough forest to warrant a reroute.   |
| Shobe                      | 362                         | The Shobes state that 25 acres of their land are enrolled in a government Conservation Reserve Program (CRP).   | A minor pipeline route variation would not avoid these forested areas on or near this property; therefore a reroute was not considered.   |

**Table 3.5-1**

**Summary of FERC Review of Landowner Comments for Which No Feasible or Environmentally Preferable Route Variation Was Identified**

| <b>Landowner Last Name</b> | <b>Approximate Milepost</b> | <b>Summary of Comments</b>   | <b>Summary of FERC Review</b>   |
|----------------------------|-----------------------------|--|---|
| Hudnall                    | 377                         | The Hudnalls object to the pipeline through their property and cite numerous environmental resources (e.g., water supply, archeological sites, etc.) that would be impacted by the pipeline.   | The portion of Indiana where the Hudnall's property is located is dominated by hilly topography and intermittent areas of forest and agriculture. The current route through their property would only pass through a small portion of forested area and wouldn't adversely impact the water supply. A reroute to avoid these resources on the Hudnall's property wouldn't result in any environmental benefits.   |
| Bane                       | 386                         | Mr. Bane is concerned about loss of property value and destruction of trees on his property. He proposes that the pipeline follow existing rights-of-way to the north. He also notes that eminent domain must be used to acquire an easement on his property.                        | A minor pipeline variation would not avoid these forested areas on or near this property; therefore a reroute was not considered. The closest of the existing rights-of-way mentioned in Mr. Bane's letter would be 1.0 mile north of his property. Although a reroute along this powerline right-of-way would avoid the impacts on Mr. Bane's property, it would affect new landowners and would not offer any environmental advantages to the proposed route. |
| Lecher                     | 386                         | The Lechers have specific concerns about flooding and the future exposure of the pipeline due to erosion in the area of Walnut Creek.  | Based on the results of Rockies Express' analyses of potential for pipeline exposure in this area, we concluded that the potential for erosion and subsequent pipeline exposure in this area was low; therefore, we did not identify a pipeline reroute.  |
| Davis                      | 388                         | The Davis' expressed concerns about the Project's impacts on aesthetics, future use of, and forested areas on their property.  | Route variations are being considered in conjunction with potential route variations considered on the Issacs property at MP 389. A route variation to minimize the impacts to the forested area may be feasible.   |
| Issacs                     | 389                         | The Issacs' expressed concern that the pipeline route would be located within 50 feet of their residence and suggested a possible reroute to the south of their property.  | The Project route was found to be approximately 140 feet south of the Issacs' residence. We are collecting additional information and are considering potential route variations.   |
| Orschell                   | 394                         | Mr. Orschell cites impacts to features such as wetlands, water wells, wildlife, historical cemeteries, Indian artifacts, and Princeton windblown sand areas. He recommends a pipeline reroute to collocate the pipeline with the existing TETCO pipeline corridor near Indianapolis. | The proposed pipeline route cuts across an agricultural field and does not appear to directly impact the resources identified in the comment. Consequently, a route variation was not evaluated. The Indy North 2 Route Alternative discussed above follows the TETCO pipeline corridor.  |

**Table 3.5-1  
Summary of FERC Review of Landowner Comments for Which No Feasible or Environmentally Preferable  
Route Variation Was Identified**

| <b>Landowner Last Name</b> | <b>Approximate Milepost</b> | <b>Summary of Comments</b>  | <b>Summary of FERC Review</b>  |
|----------------------------|-----------------------------|---|--|
| Knau                       | 419                         | William and Mary Lou Knau expressed concern about the creation of a new pipeline easement on their property and requested that the pipeline easement stay within the nearby existing Duke Energy easement.  | The Duke Energy easement is bordered on the south by a stream which would prevent a reroute. Along Gardner Road, which runs perpendicular to the Project route, numerous houses are found close together that would prevent the pipeline from being rerouted to the north or south away from the Duke Energy easement.                       |
| Thorman                    | 447                         | Mr. Thorman is a developer and expressed concerns about proximity of the pipeline to a proposed housing development.  | Mr. Thorman's property is divided into northern and southern parcels by two existing pipeline rights-of-way. The Project route would be collocated with one of these pipeline routes and therefore would minimize additional impacts.  |
| Vonderhaar                 | 447                         | The Vonderhaars are concerned about future development desirability of their lot.   | Project route cannot be adjusted to the north or south due to existing residential development. Consequently, a preferable route variation could not be identified.  |
| Stout                      | 451                         | The Stouts note that their property is highly desirable as a future scenic residential property. The Project route will diminish the value of the land; therefore, Rockies Express should utilize the existing TETCO pipeline easement or build along south side of the easement. | The only proposed route variation which could be considered was to extend the HDD crossing under the Little Miami River to beyond the Stout's property. However, this variation was deemed unfeasible due to hilly terrain on the property. However, the Mowrey Alternative (section 3.4.5), if accepted, would avoid the property entirely. |
| Messerly                   | 452                         | The Messerlys are concerned about a historic barn on and the future value of their property.  | The barn would not be affected by the Project route. The Project route is located near the edge of the property boundary and should not limit future development. The Mowrey Alternative (section 3.4.5), if accepted, would avoid the property entirely.  |
| Rowe                       | 460                         | Mr. Rowe objects to the pipeline running through his property and cites income lost from disruption to his horse farm; the depth of pipeline not allowing for future horse fences; loss of property utility; and environmental impacts including removal of hardwoods.            | The current pipeline route minimizes impacts to forests on Mr. Rowe's and nearby properties. Pipeline construction would only cause temporary impacts to his horse farming activities. The Mowrey Alternative (section 3.4.5), if accepted, would avoid the property entirely.   |
| Miller                     | 495                         | Mr. Miller states his land is enrolled in farm protection programs and is concerned about impact to fields, wildlife habitat, and aquifers.   | The AIMP should minimize impacts to fields and agricultural production. The Project route is located entirely on agricultural land. A route variation would not avoid the resources of concern. Additionally, the route is located along the property edge.  |
| Hartley                    | 574                         | Mr. Hartley is concerned that the proposed pipeline route cuts through his property at an angle. He is generally opposed to the pipeline crossing through his property.   | The pipeline route follows an existing right-of-way through a small portion of Mr. Hartley's wooded property. Because it is following an existing right-of-way, the impacts are minimized; therefore, a reroute is not environmentally preferable.   |

| <b>Table 3.5-1</b>   |                             |  |  |
|--|-----------------------------|--|--|
| <b>Summary of FERC Review of Landowner Comments for Which No Feasible or Environmentally Preferable Route Variation Was Identified</b> |                             |  |  |
| <b>Landowner Last Name</b>   | <b>Approximate Milepost</b> | <b>Summary of Comments</b>   | <b>Summary of FERC Review</b>  |
| Tysinger   | 577                         | The Tysingers are concerned about impacts to a water well, crops, and five operating oil wells.  | Construction of the pipeline would only temporarily impact their farming operation. Water or oil wells were not identified in field surveys.   |
| Costello   | 597                         | The Costellos object to the pipeline crossing through their property and cite proximity to their residence and intersection with power lines. They suggest a more southerly route.   | The Project route would pass through the northern portion of the Costello's property and would be a sufficient distance (600 feet) from their residence. The pipeline would not intersect the powerline on their property. Moving the right-of-way to the south would impact heavily forested areas and adjacent property owners who are not already affected. Therefore, a reroute is not environmentally preferable. |
| Stillion   | 600                         | The Stillions cite concerns about diminishing value of their land, the potential for future development, impacts to cattle, and impacts to water supply.   | The Project route follows an existing pipeline right-of-way through their property. Any reroute to the north or south would result in a greater impact to adjacent landowners and additional impacts to forested areas. Therefore, a reroute is not environmentally preferable.  |
| Potts  | 607                         | Landowners own and operate White Oak Exotic Hunting Preserve on property. They are concerned about the pipeline's impact on premier deer hunting sites and want the pipeline moved to the north side of existing transmission lines. | The Potts property is addressed in detail in the section 4.8.5 under the special land use and recreation section. The FERC has recommended Rockies Express to coordinate with the Potts to determine the best time for construction on their property in order to lessen effects on business and revenue at White Oak Exotic Hunting Preserve.   |

The following route variations were evaluated in more detail after conducting a preliminary review of their environmental impacts and technical feasibility. In total, we received 18 landowner comments for which we could identify a potentially feasible route variation. Each of these variations are discussed in separate sections below and shown in the maps in appendix J. Some of the route variations have been recommended as changes to the Project route. As these variations were recently developed, we are seeking input from affected landowners before adopting these recommendations into the final EIS.

### **3.5.1 McCarroll Route Variation (MP 291.0 to MP 291.3)**

Landowner David McCarroll in Hendricks County, Indiana wrote to us with concerns about the effect pipeline construction would have to the forested area on his farm that contains wetlands, a stream, and the endangered Indiana bat. Mr. McCarroll has denied Rockies Express survey access, but hired Keramida Environmental, Inc. to conduct a bat survey. Mist nets were monitored for five hours on two nights in June 2007. Ten bats were netted including six lactating female Indiana bats.

We reviewed the alignment to determine if an alternative route could be developed to avoid the forested area. The route would approach the forested area of Mr. McCarroll's property from the northwest and cross 0.12 mile of the forest at a narrow edge of the forested area. The forest extends to the east and north widening to nearly 0.25 mile. The west side of the forested area is cleared for residential development within 0.10 mile of the Project route. Upon reviewing the area in the field and on aerial

photography, an alternative route that would avoid the forested area was not found. A shift to the northeast would increase the length of forest crossed and a shift to the southwest would encroach upon houses (see figure J-1 in appendix J).

In section 4.7, we have recommended that Rockies Express consult with FWS on tree clearing where bats are observed in order to minimize impacts on Indiana bats and their habitat. In addition, surveys have not been completed to confirm that the Project route would cross a stream or wetlands on the McCarroll property. Should these features be encountered, Rockies Express would follow its Procedures to minimize impacts to waterbodies and wetland areas.

While reviewing the property in the field, however, we identified a route variation to minimize land use impacts to the farmed area located southeast of the forested parcel. The variation is approximately 0.40 mile long; slightly longer than the 0.30-mile corresponding segment of the Project route. Instead of crossing the field diagonally to the southeast, the variation would follow the forest/field edge for 0.19 mile, turn south along the line between two crop fields, and return to the REX East Project route to cross the road. Both the variation and Project route would cross agricultural land. The route variation is preferred because it would cross along the edges of fields that would minimize disruption to agricultural activities. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the McCarroll property from MP 291.0 to MP 291.3, as depicted in appendix J, figure J-1. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### **3.5.2 Rogers Route Variation (MPs 300.5 to 301.0)**

Century 21 Realty Group submitted written comments on behalf of landowners Otis and Louise Rogers of Hendricks County, Indiana, stating the property is actively for sale for residential development. They are concerned that the REX East Project would have a negative effect on the value of the property and ability to develop the property. South State Road 39 forms the eastern boundary of the property. The Project route would cross diagonally through the property from the northwest to southeast. Currently, the Project route would affect agricultural land. We identified a variation that would lessen the diagonal bisection of the property and allow a larger continuous parcel for residential development.

The variation would deviate from the Project route at MP 300.5 and head south along the western boundary of the property for 0.1 mile. It would then turn to the southeast and then east to avoid forested areas to the south and reconnect with the Project route at MP 301.0 before crossing South State Road 39. The variation is less than 0.1 mile longer than the half mile segment along the Project route. The route variation appears to avoid one of the two small wetland areas crossed by the Project, although fieldwork has not been completed to confirm this. The variation also crosses entirely through an agricultural field. The variation would add 22 acres to the portion of property to the north of the Project route for residential development. This larger parcel is located directly across from a golf course. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Rogers property from MP 300.5 to MP 301.0, as depicted in appendix J, figure J-2. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### 3.5.3 Parker Route Variation (MP 318.1 to MP 318.8)

Landowner Dan Parker submitted written comments expressing concern that the REX East Project route would cross at an angle through his farm and cut it in half. The Project route would cross six of Mr. Parker's parcels in Morgan County, Indiana at an angle for a total of 0.75 mile. Although an alternative route that follows property lines would be slightly longer, it would alleviate potential impacts to Mr. Parker's farming operation.

As shown in appendix J, figure J-3, the route variation we evaluated would follow the tree line towards a barn on the property that is off Big Bend Road. It would then turn directly south passing on the property line between parcels IN-MN-19.001 and IN-MN-20.001. It would continue south crossing Big Bend Road and between two crop fields not owned by Mr. Parker. Approximately 0.21 mile from the road crossing, the route variation would turn east to follow on the inside of a tree line on the adjacent property. The variation would rejoin the Project route before crossing County Road 950 East. The route variation would be 0.74 mile long compared to 0.69 mile on the Project route. Both routes would cross agricultural land. Although the route variation is slightly longer, it is preferable because it would minimize land use issues when compared to the Project route. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Parker properties from MPs 318.1 to 318.8, as depicted in appendix J, figure J-3. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### 3.5.4 Alverson Route Variation (MP 370.0 to MP 370.6)

Decatur County, Indiana landowner, Bernice Alverson, submitted a written comment expressing concern that the pipeline would disturb Native American relics, a wooded area, and field drainage tiles. Ms. Alverson suggests the pipeline be re-routed to follow existing rights-of-way. We first reviewed the Project route to see if existing rights-of-way could be utilized, but none were identified within a mile of the property. Our analysis of a major route alternative to use existing rights-of-way north of Indianapolis to avoid Decatur County is presented above in section 3.4.3. The Project route crosses the Alverson's properties from MPs 370.0 to 371.0. Approximately 0.15 mile of the route is forested while the remainder is agricultural. We identified a route variation that would avoid the forested area.

The route variation avoids the forested area by diverting south from the Project route at MP 370.0 and continuing along the southern boundary of the property before heading north to avoid structures and rejoin the Project route at MP 370.6. It is approximately 0.1 mile longer than the Project route. The Alverson's have denied survey access on their property, so we are unable to verify if there are Native American artifacts of significance on their property. However, the route variation reduces the risk of encountering significant artifacts by affecting routinely disturbed agricultural land rather than the relatively undisturbed forested property. Impacts to field drainage tiles and other concerns related to agricultural productivity are addressed in section 4.8.2. The route variation would avoid the wooded area of the Alverson's property; therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Alverson properties from MPs 370.0 to 370.6, as depicted in appendix J, figure J-4. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### 3.5.5 Yane Route Variation (MP 380.4 to MP 380.6)

Monica and Gary Yane, of Franklin County, Indiana, provided written comments against the route of the pipeline on their property. They suggested that the pipeline be routed along an existing right-of-way. In section 3.4.3, we evaluate a major route alternative that would avoid Franklin County by following existing pipeline rights-of-way north of Indianapolis. These alternatives are not environmentally preferable. Therefore, we identified a route variation that would minimize the impacts on the Yane property.

Figure J-5 in appendix J shows that the route alternative would start at MP 380.4 to continue in a southeast direction and rejoin the Project route at MP 380.6. The Project route makes a wide-angle turn in the cleared area of the Yane property. Both the Project route and route variation would cross 0.1 mile of forested property. The route alternative, however, would eliminate the turn on the property and is slightly shorter than the Project route. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Yane property from MPs 380.4 to 380.6, as depicted in appendix J, figure J-5. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### 3.5.6 Reynolds Route Variation (MP 381.5 to MP 382.7)

In response to comments received from landowner Daron Reynolds that the Project route would cross karst features and would impact the Indiana bat on his property; we evaluated two possible route variations to mitigate these potential impacts. Both route variations would depart from the Project route at approximately MP 381.5. They would both roughly parallel the Project route for approximately 0.3 mile until approaching Salt Creek, where they would split. The southern route variation would parallel Bullfork Road east across the creek and would then turn slightly to the northeast before rejoining the Project route near MP 382.7. The northern route variation would cross Salt Creek approximately 0.2 mile north of Bullfork Road and would run east along an existing telephone line right-of-way and then northeast before rejoining the Project route near MP 382.7.

To evaluate the engineering feasibility and environmental impacts of these route variations, we examined each of the Reynolds Route Variations in the field. Based on these field observations, it was determined that the Project route through the Reynolds property would be preferable to the Reynolds Route Variations. Both the southern and northern route variations would require constructing the pipeline across steep banks of the Salt Creek floodplain and along the bank of a stream that feeds into Salt Creek. Although the Project route would also cross Salt Creek, it would cross in a location characterized by shallower grade banks. Additionally, it would not require construction along the stream that feeds into Salt Creek. Neither of the route variations would offer an environmental advantage over the Project route. All three would pass through the same approximate amount of forested and agricultural land.

Consequently, we are not recommending a route variation. In response to landowner concerns about karst features, we recommend in section 4.1 that in the event karst features are discovered during construction, Rockies Express stop work to develop route variations or mitigation measures to avoid potential damage to the pipeline.

### **3.5.7 Morgan Route Variation (MP 383.1 to MP 384.0)**

Landowner Carolyn Morgan of Franklin County expressed concern over the project impacts to soil, water, and Indiana bat habitat on her property. The Project route crosses forested and agricultural fields on her property. We identified a route variation that would follow an existing powerline right-of-way to minimize further fragmentation of forested land.

As shown in appendix J, figure J-6, the route variation would deviate from the Project route at MP 383.1 on the Freas' property to continue following a powerline right-of-way to the northeast. It would follow the powerline for 0.8 mile to the eastern edge of the Morgan's property. It would then turn southeast to cross State Road 229 and rejoin the Project route at MP 384.0 as it continues in a southeasterly direction. The route variation and Project route would both cross the same four waterbodies and associated riparian forested areas. The route variation would minimize impacts to the forested areas by collocating the pipeline with the existing right-of-way to reduce fragmentation. This is particularly important on the Morgan's property where the Project route would separate a 2-acre parcel between the two rights-of-way. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Morgan property from MPs 383.1 to 384.0, as depicted in appendix J, figure J-6. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### **3.5.8 White Route Variation (MP 395.1 to MP 395.8)**

Laura White of Franklin County, Indiana wrote in opposition to the REX Project crossing her property. The REX East Project would cross agricultural fields, two waterbodies, and a driveway on her property, as shown in appendix J, figure J-7. It also makes two turns on her property that increase the total impacted area. We found a variation that would minimize the crossing length by 0.1 mile. The route variation would cross agricultural fields, one waterbody, and a driveway on her property. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the White property from MPs 395.1 to 395.8, as depicted in appendix J, figure J-7. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### **3.5.9 Schulte and Oetzel Route Variation (MP 401.5 to MP 402.0)**

David Oetzel and Harry and Barbara Shulte are neighbors in Franklin County, Indiana and wrote to ask that the pipeline be moved to the southern edge of their property. They expressed concerns for the aesthetics and future use of their land, as well as their neighbor, Mr. and Mrs. Caruso. We identified a route variation that would follow the southern edge of the property boundaries and increase the distance of the Project to residences.

The Project route would bisect 6 parcels of land between MPs 401.5 and 402.0, and the centerline would encroach within approximately 31 feet of the residence at MP 401.7 (see table 4.8.3-1). The Project route would cross agricultural areas and maintained grass yards. As shown in appendix J, figure J-8, the route variation would turn south from MP 401.5 along the edge of an agricultural field on Mr. Oetzel's property for 0.1 mile and then turn east along the south boundary of the field. It would dip further south on to Glen Strohmeier's property and across a residential driveway. It would then cross Donald Stirn's property and cross Johnson Fork Road. The route variation would continue east along the

southern edge of the properties owned by the Shultes and Mr. Oetzel. It would cross Sharptown Road and rejoin the Project route at MP 402.0. The route variation would maintain at least 100 feet from all residences in the area. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate the route variation for the Schulte and Oetzel properties located between MPs 401.5 and 402.0, as depicted in appendix J, figure J-8. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables. Rockies Express should consult and coordinate with any newly affected landowners and file new landowner information.**

### **3.5.10 Minges and Schoenharl Route Variation (MP 405.1 to MP 405.9)**

Landowners Paul and Muriel Schoenharl and Leo Minges of Butler County, Ohio provided written comments on the Project route and the potential impacts to forested areas, waterbodies, and wildlife habitat on their property. We reviewed the Project route and found that it would fragment two forested areas greater than 20 acres connected to other large forested patches nearby. FWS has expressed concern about forest fragmentation and impacts to migratory birds near these MPs (see section 4.5). We found a route variation that would avoid fragmenting these forests and follow the existing TETCO pipeline.

The route variation would deviate from the Project route at MP 405.1 by heading due south and then east along the edge of a forested area for 0.3 mile. It would then head southeast across an agricultural field to join the TETCO pipeline. The route variation would then cross briefly into James and Lisa Diersing's property before crossing into Mark and Jody Stenger's property to follow this existing right-of-way for 0.16 mile through the second forested patch. The route variation would then cross another field before rejoining the Project route across California Road at MP 405.9. The route variation would cross one waterbody and no wetlands while the Project route would cross five waterbodies and one wetland. The route variation is about 0.15 mile longer than the Project route, but avoids environmentally sensitive areas. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate the route variation for the Schoenharl and Minges properties located between MP 405.1 and MP 405.9, as depicted in appendix J, figure J-9. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables. Rockies Express should consult and coordinate with any newly affected landowners and file new landowner information.**

### **3.5.11 Walther Route Variation (MP 413.7 to MP 414.8)**

In response to comments received from landowner Hilda Walther that the Project route would cause undue impact to her farming operations and was rerouted onto her property instead of following the existing Texas Eastern pipeline right-of-way, we evaluated two possible route variations to mitigate these potential impacts. Both Walther route variations would depart from the Project route at approximately MP 413.7 and would parallel the Project route for approximately 0.25 mile. After crossing U.S. Route 27, both route variations would head east for approximately 0.25 mile before turning to the north. Walther Route Variation A would head to the north for 0.50 mile and across Minton Road before rejoining the Project route at approximately MP 414.7. Walther Route Variation B would head to the north for 0.15 mile and would then turn to the northwest and parallel an existing power line right-of-way for 0.20 mile. The variation would then turn to the north and follow the existing power line right-of-way across Minton Road before rejoining the Project route near MP 414.8.

Our review indicates that the Walther Route Variations would not result in an environmental advantage relative to the Project route. Both route variations would require constructing the pipeline through forested areas, whereas the Project route would be constructed primarily through agricultural land. Walther Route Variation B also would require constructing the pipeline near an existing cemetery. Additionally, based on a field review of the Texas Eastern pipeline right-of-way, it was determined that the original reroute onto the Walther property was unavoidable because there would not be sufficient space along the Texas Eastern pipeline right-of-way to construct the pipeline. In the years following installation of the Texas Eastern pipeline, a small neighborhood was constructed along the right-of-way making it infeasible to construct an additional pipeline within the right-of-way.

Based on our review and field observations, we find the Project route preferable to the route variations identified near the Walther property.

### **3.5.12 Frye Route Variation (MP 452.7 to MP 453.8)**

We received a comment letter from an attorney for landowners Don and Richard Frye in Warren County, Ohio. The Frye's are concerned about the Project's impact to the water quality and quantity of ground and surface water that service their homes and farms. Rockies Express did not identify a well or spring along the Project route in this area. However, the Project crosses three waterbodies and the Wellhead Protection Area (WPA) for the Village of Waynesville, Ohio at MP 453.5. We identified a route variation that would avoid crossing these waterbodies.

The Project route would cross through agricultural fields and would impact four waterbodies. The Project route is collocated with the TETCO pipelines. The route variation would turn south from the Project route at MP 452.7 to join a powerline right-of-way. It follows the powerline right-of-way for 1.0 mile until it joins the Project route at MP 453.8. Based on a review of aerial photography, the route variation does not appear to cross any waterbodies. The route variation reduces impacts to water on the property, but may increase impacts to the WPA. However, the potential impacts and risk of spills into the WPA would be minimized by adhering to Rockies Plan and Procedures and SPCC Plan, as described in section 4.3. Section 4.3.1 recommends that Rockies Express file the distance of each WPA and document consultations with applicable agencies. Therefore, **we recommend that:**

- **Prior to the end of the draft EIS comment period, Rockies Express file with the Secretary documentation of consultations of the Project route and the route variation from MPs 452.7 to 453.8, as depicted in appendix J, figure J-10, with the Village of Waynesville, Ohio Waste and Water Division of the Utilities Department, and other applicable agencies regarding construction in the WPA.**

### **3.5.13 Jones and Mowrey Route Variation (MP 458.1 to MP 458.9)**

Landowners Daniel Jones and Dean and Nancy Mowrey of Warren County, Ohio submitted comments expressing concerns about the construction of the pipeline through their properties. The Mowrey's, whose property is immediately to the southwest of the Jones property, expressed concerns about the impacts to riparian and forested areas (section 3.4.5 evaluates a route alternative suggested by the Mowreys). Mr. Jones expressed concerns about Indiana bat habitat and the impacts to a maple syrup operation on his property. To minimize these impacts, we identified a route variation that would follow the Jones and Mowrey property boundaries.

As shown in appendix J, figure J-11, the route variation would deviate from the Project route at MP 458.1. It would follow the northwestern boundary of the Mowrey property through a forested area for 0.13 mile and then turn to the east and continue through the forested area for another 0.12 mile. It

would then depart the forested area and continue to the southeast through an agricultural area along the boundary with the Jones property for 0.5 mile. At Compton Road it would turn sharply to the northeast and parallel the road through an agricultural area for 0.30 mile before rejoining the Project route at MP 458.9. Both the Project route and the route alternative would be constructed primarily through agricultural and forested areas. The Project route would be constructed through 0.3 mile of forested area and the route variation would be constructed through 0.2 mile of forested area. Although these differences are relatively minor, the route variation would avoid all of the forested area on the Jones property and thus avoid his maple syrup operation and potential Indiana bat habitat. The impacts on the Mowrey property from the route variation would be the same as those from the Project route, but the route variation would be located along the property boundary rather than cutting across it. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Mowrey and Jones properties located between MPs 458.1 and 458.9, as depicted in appendix J, figure J-11. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

#### **3.5.14 Kile Variation (MP 477.1 to MP 477.5)**

In comments submitted during the scoping period, landowners David and Ronald Kile expressed concern about the siting of the Project pipeline route in the immediate vicinity of their homestead. Specifically, the Project pipeline would be constructed within an area that currently supports barns and bins used in their farming operations. The Project route is collocated with multiple TETCO pipelines and is located between their home and a metering station for the TETCO pipeline. In response to their comment, we developed a route variation that would remain on the Kile property, but would avoid the areas of concern.

The route variation is 0.44 mile, only 0.04 mile longer than the corresponding Project route. The variation would deviate from the TETCO easement approximately 0.20 mile from County Road 14 and turn to the north to parallel the road for 0.20 mile. The variation then turns southeast for 0.20 mile to cross County Road 14 and rejoin the Project route. The Project route crosses agricultural and residential land, while the variation is located completely on agricultural land. Because the landowner has requested a minor field realignment on the property, and our review indicates that the Kile Route Variation would not result in additional impacts to environmentally sensitive areas or other landowners, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Kile property from MPs 477.1 to 477.5, as depicted in appendix J, figure J-12. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

#### **3.5.15 Noll Route Variation (MP 555.4 to MP 557.3)**

In comments submitted during the scoping period, landowner David Noll expressed concerns about the routing of the Project pipeline across his property. As shown in figure J-13 in appendix J, the Project route between Ohio Route 383 and Buckeye Valley Road would primarily follow the existing TETCO pipeline right-of-way. This right-of-way, while on Mr. Noll's and several nearby landowners' property, crosses through several forested areas that contain steep slopes, wetland areas, and sites where surveys found artifacts used by Native Americans. Mr. Noll expressed concerns that construction along the Project route would adversely affect these areas as well as impact the septic system and leach field that serves his house. Mr. Noll also expressed concerns that the Project route would temporarily disrupt

his cattle-farming operation during construction by impeding livestock access to food and water. We evaluated two possible route variations in response to these concerns.

Along with his comments, Mr. Noll provided a route variation to minimize the impact to these resources. This route variation, called Noll Route Variation A, as shown in figure J-13 in appendix J, would deviate from the Project route to the south at about MP 555.4 and parallel the south side of Township Road 121 NE through John Clouse’s property, Deborah Noll’s property, and Edward Noll’s property. The route variation would continue to the east until crossing State Route 13 and into Christopher and Margaret Noll’s property. It would then turn to the northeast and rejoin the Project route at about MP 557.3. The route variation would require crossing four previously unaffected parcels of land south of the Project route. In total, Noll Route Variation A would cross property owned by five currently unaffected landowners and Mr. Noll’s property; the corresponding segment of the Project route would cross property owned by six landowners.

In response to the comments submitted by Mr. Noll, we developed a second route variation (see figure J-13 in appendix J) that would remain on Mr. Noll’s property, but would avoid impacting the area containing Mr. Noll’s septic system and leach field, as well as one forested area. This variation, called Noll Route Variation B, would begin at MP 555.4 and would follow the Project route until crossing State Road 13. Near MP 556.3, it would depart from the Project route and cross over the existing TETCO pipeline in a northeasterly direction. It would continue in this direction until passing a stand of trees in the northeast corner of Mr. Noll’s property and turning east and then southeast to cross over the TETCO pipeline and rejoin the Project route near MP 557.3. Although this route variation would avoid one forested area and Mr. Noll’s septic system and leach field, it would not avoid the impacts to all of the forested and wetland areas mentioned in Mr. Noll’s letter.

Table 3.5.15-1 provides a comparison of the significant environmental characteristics of the Noll Route Variations and the corresponding segment of the Project route. Noll Route Variation A would be 0.17 mile longer, would cross 0.30 fewer acres of forested lands, would cross two fewer waterbodies, and would cross 0.04 fewer mile of wetlands than the corresponding segment of the Project route.

| <b>Table 3.5.15-1</b>   |             |                      |                               |   |                |
|---|-------------|----------------------|-------------------------------|---|----------------|
| <b>Comparison of the Noll Route Variations to the Corresponding Segment of the Project Route (MPs 555.4 to 557.3)</b> |             |                      |                               |   |                |
| <b>Environmental Factor</b>   | <b>Unit</b> | <b>Project Route</b> | <b>Noll Route Variation A</b> | <b>Noll Route Variation B <sup>a/</sup></b> | <b>Source</b>  |
| Total Length  | miles       | 1.86                 | 2.03                          | 1.91  | Digital Route  |
| Length Adjacent to Existing Right-of-Way (percent)  | miles       | 1.52<br>(82.0)       | 0.00<br>(0.0)                 | 0.64<br>(33.5)                              | Digital Route  |
| Wetlands Crossed  | miles       | 0.04                 | 0.00                          | 0.00  | FWS, 2007f     |
| Waterbody Crossings   | no.         | 4                    | 2                             | 4   | ESRI, 2005a;b  |
| Cultivated Lands Crossed  | miles       | 1.5                  | 1.97                          | 1.71  | USGS, 2001     |
| Forest Land Crossed   | miles       | 0.36                 | 0.06                          | 0.20  | USGS, 2001     |
| Commercial Land Crossed   | miles       | 0.00                 | 0.00                          | 0.00  | USGS, 2001     |
| Residences Within 50 Feet of Construction Work Area   | no.         | 0                    | 0                             | 0   | Aerial imagery |

<sup>a/</sup> Noll Route Variation B includes portions that are in common with the Project route to allow for comparison with Noll Route Variation A.

Additionally, although Noll Route Variation A would not parallel the existing TETCO pipeline right-of-way, it would parallel Township Road 121 NE for approximately 0.5 mile.

Our review indicates that Noll Route Variation A provides some environmental advantages (e.g., less forested lands, waterbodies, and wetlands) over the corresponding segment of the Project route and Noll Route Variation B, although is not collocated with existing rights-of-way. Both Noll Route Variations A and B would avoid impacts to the septic system near Mr. Noll's house. Noll Route Variation A, however, would be preferable because it would impact fewer waterbodies and forested areas. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the Noll Route Variation A, as depicted in appendix J, figure J-13. Rockies Express should file with the Secretary revised alignment sheets and updated land use and resource tables. Rockies Express should consult and coordinate with any newly affected landowners and file new landowner information.**

### **3.5.16 Shaffer Route Variations (MP 623.3 to MP 624.4)**

Landowner Donna Shaffer (Steele) of Belmont County, Ohio expressed concern about the impact of pipeline construction on forested areas within her property and the safety of pipeline construction. Her property is situated in an area defined by rolling topography that she indicates is susceptible to landslides. She is concerned that pipeline construction through her property would increase the likelihood of landslides due to vegetation removal on the hills. To avoid these impacts, we identified a route variation that would be south of the Project route and would avoid the forested and hilly areas of concern.

As shown in appendix J, figure J-14, the route variation would deviate from the Project route at MP 623.3. It would head to the south across Johnson-Ridge Road and then turn to the southeast through an agricultural field approximately 0.05 mile south of Johnson-Ridge Road. It would continue through this agricultural field for approximately 0.4 mile while paralleling the edge of a forested area and crossing into Richard Miller's property. It would then turn to the east and cross through a small forested area and head across Rock River Road. It would continue to the east into David and Emma Yoder's property while paralleling Johnson-Ridge Road through a partially forested area for 0.4 mile before crossing Somerton Highway and rejoining the Project route at MP 624.4. Both the Project route and route variation would be constructed primarily through agricultural and forested areas. The Project route would require construction through 0.5 mile of forested area; the route variation would require construction through 0.2 mile of forested area. Additionally, the route variation would avoid the hilly topography mentioned in Ms. Shaffer's letter. Because the route variation would impact less forested area and avoid the steep topography on Ms. Shaffer's land, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variation for the Shaffer property from MPs 623.3 to 624.4, as depicted in appendix J, figure J-14. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables. Rockies Express should consult and coordinate with any newly affected landowners and file new landowner information.**

### **3.5.17 Three Residence Variations (MPs 384.3, 384.4, 446.8)**

The REX East Project route would pass in very close proximity to three residences at MP 384.3, MP 384.4, and MP 446.8. Near MP 384, the Project route would cross Stacey Road and travel in a straight line through two houses and small forested patches. This route could be shifted to the south onto

cultivated fields without further environmental impacts. At MP 446.8, the Project route would run between two houses. The route could be shifted to the north or the south of these houses. The shortest alignment we identified to the north was 0.3 mile long and on aerial photography crossed through two rows of trees. Shifting the alignment to the south would be slightly longer, 0.36 mile, but could avoid the removal of trees. This would be the environmentally preferred alignment.

At all three houses, variations exist that would avoid the houses by more than 100 feet and would not increase environmental impacts. Therefore, **we recommend that:**

- **Prior to the start of construction, Rockies Express incorporate into the Project route the route variations at MPs 384.3, 384.4, and 446.8, as depicted in appendix J, figures J-15 and J-16. Rockies Express should file with the Secretary updated alignment sheets and updated land use and resource tables.**

### **3.6 ABOVEGROUND FACILITY SITE ALTERNATIVES**

We considered alternative aboveground site locations for compressor and meter stations to avoid or minimize impacts to forested land, wetlands, and waterbodies, and to locate the facility as far as practicable from noise-sensitive areas (NSAs). The location of aboveground facilities should also consider the presence of suitable access roads and the location of ancillary facilities, such as electric distribution lines. For most of the compressor and meter stations, the Project compressor and meter station sites are on agricultural land, far from NSAs and residential developments, and would not adversely affect sensitive environmental resources as discussed in section 4.

In filings dated September 17, 2007 and September 28, 2007, Rockies Express changed the locations of the following aboveground facilities: (1) the Bainbridge Compressor Station near MP 279.8 in Putnam County, Indiana; (2) the Hamilton Compressor Station near MP 435.6 in Butler County, Ohio; (3) the Chandlersville Compressor Station near MP 575.0 in Muskingham County, Ohio; and (4) the Clarington Meter Station at MP 640.1 in Monroe County, Ohio. Each of these changes involved minor relocations of the aboveground facility locations, along with corresponding minor changes to the pipeline routes. None of the changes were made for environmental reasons. All of the changes have been incorporated into the proposed action evaluated in this draft EIS.

Of the seven compressor stations proposed for the project, we received landowner comments on two locations: the Hamilton and Bainbridge Compressor Stations. For the other five sites, we did not receive any landowner comments or identify any significant issues which would require further evaluation of alternative locations. The change to the Hamilton Compressor Station site is discussed further below in order to address landowner comments that we received on the original proposed location. The change to Bainbridge Compressor Station site is also discussed below, as are two alternative locations for the site added in response to landowner concerns about potential noise impacts from operation of the station.

#### **3.6.1 Hamilton Compressor Station Site Alternative**

We conducted further evaluation of the Hamilton Compressor Station based on concerns regarding the previous location relative to residential development. As shown in figure 3.6.1-1, the Hamilton Compressor Station was moved approximately 1.0 mile to the northeast to a location next to an existing railroad spur and industrial site. The nearest residences would be 0.5 mile away. In contrast, the original location would have been in a residential area located 0.25 mile from the nearest residence.

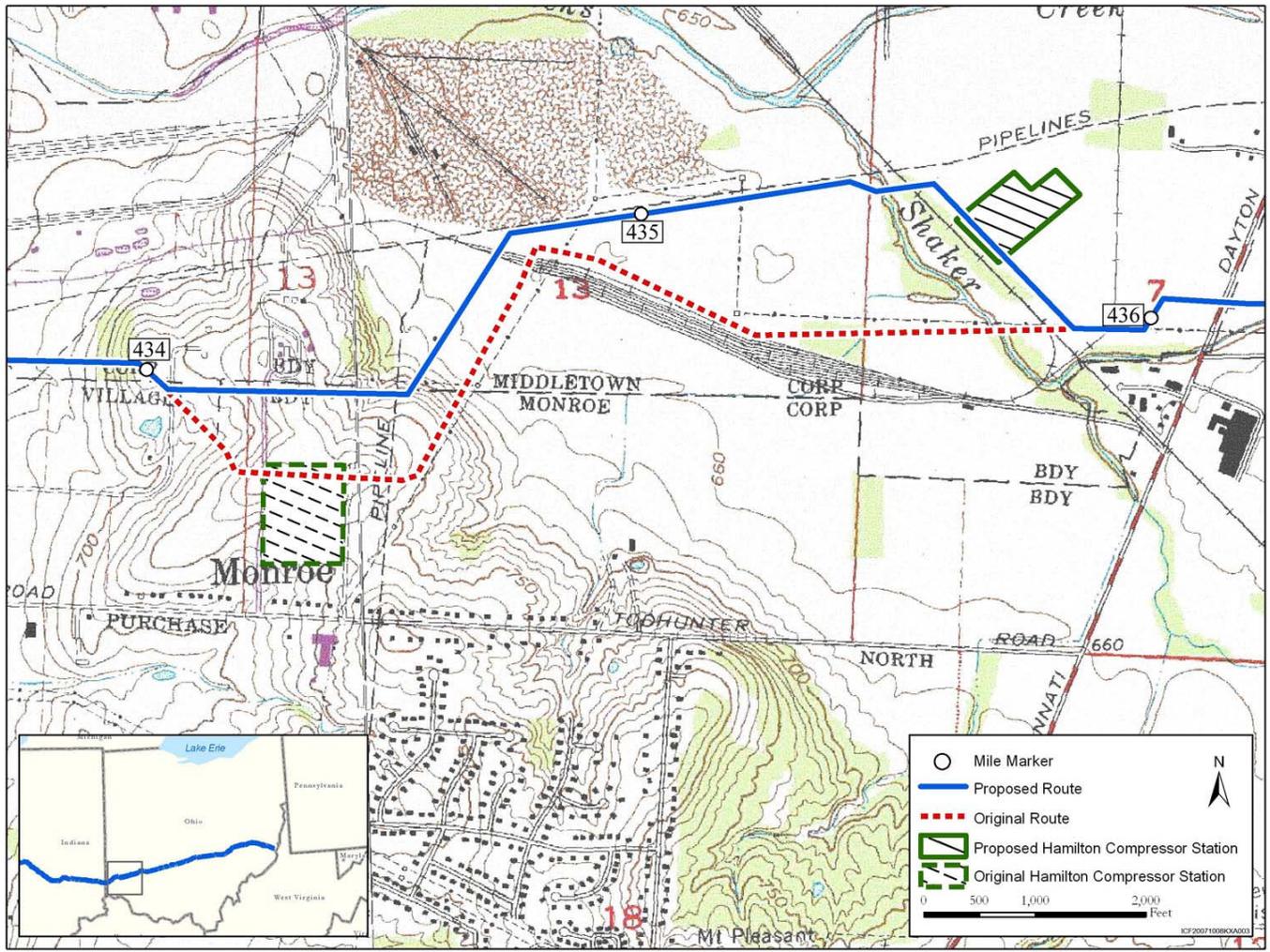


Figure 3.6.1-1  
Hamilton Compressor Station

As discussed further in section 4.11.2, operation of the Hamilton Compressor Station at the new location would increase existing noise levels at NSAs by less than 1 dBA. This increase would not result in a significant noise impact.

With regard to other environmental factors, the newly proposed compressor station site would encompass approximately 13.4 acres, of which approximately 12.3 acres are agricultural and 1.1 acres are forested. The original location would have encompassed approximately 15.2 acres of agricultural, forested, and developed land. The new location does not have any known sensitive areas within 0.5 mile and based on field observations, the site is sufficiently set back from the nearest road and would be shielded by an existing stand of trees. The new location is in an area of flat topography that would require few changes to land contours to accommodate construction. The original location would have been located in a hilly area that would have required more significant grading and topographic changes to accommodate the station and related access. Re-routing the pipeline to access the new location would affect four landowners and cross 0.1 mile of wetlands, but would follow existing right-of-way for 73 percent of its length and would cross one waterbody as compared to the original route, which would have followed existing right-of-way for 21 percent of its length, crossed four waterbodies, affected three landowners, and crossed no wetlands.

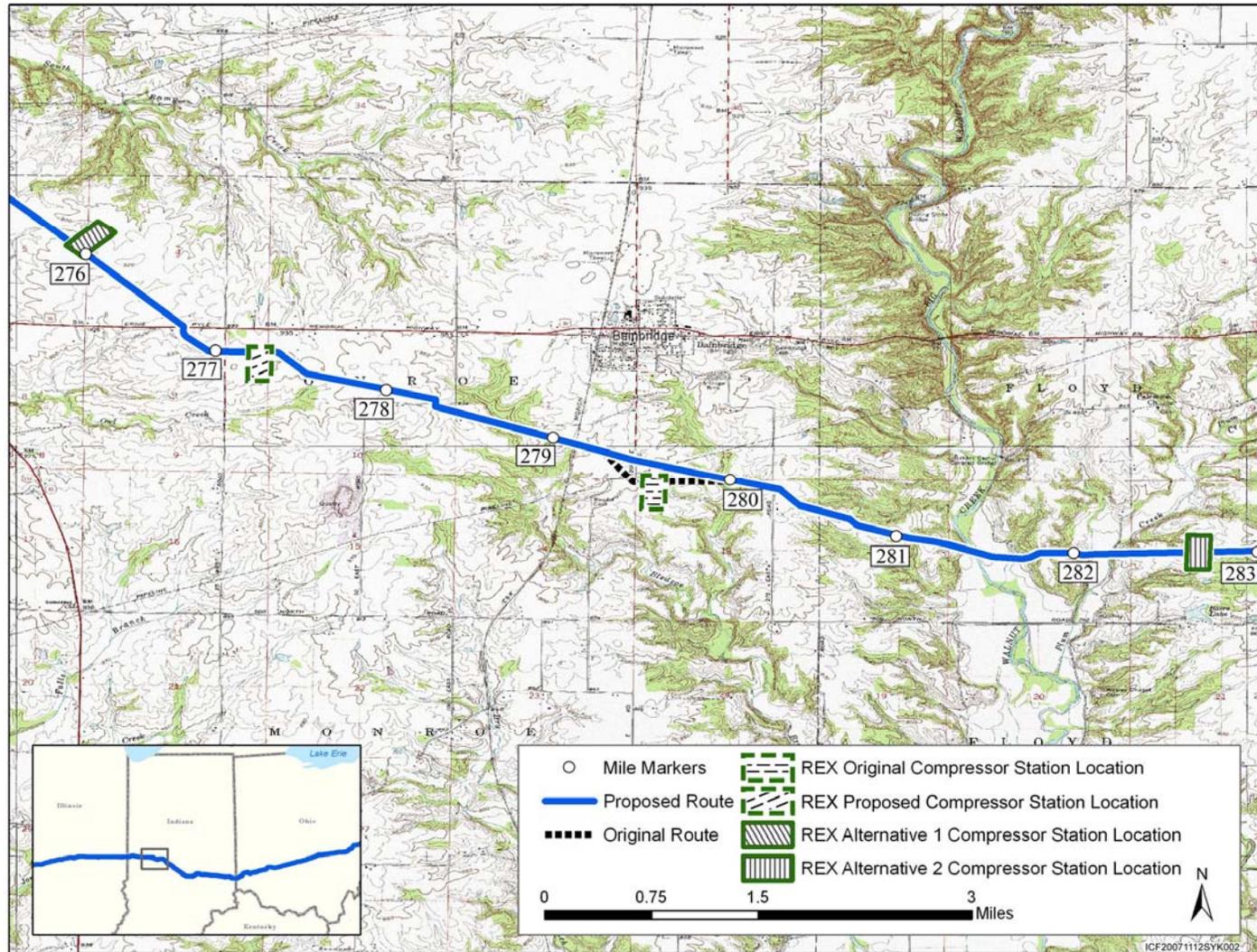
Based on these findings, we accept the new location for the Hamilton Compressor Station and recognize advantages over the originally proposed location.

### **3.6.2 Bainbridge Compressor Station Site Alternatives**

We conducted additional analysis of the Bainbridge Compressor Station sites based on landowner concerns about the proximity of the proposed locations to NSAs (which include houses). We analyzed the original location proposed by Rockies Express near MP 279.8, the new location proposed by Rockies Express near MP 277.3. Based on comments received on the newly proposed location, we analyzed two alternative locations: one approximately 1.3 miles northwest of the new proposed location near MP 276 and a second approximately 3 miles east of the original proposed location near MP 282.6. Of the four locations, only the original location would not be located along the current Project route. It would be located less than 0.10 mile south of the current Project route. The other three locations would not require any reroute of the pipeline in order to construct the compressor station.

As shown in figure 3.6.2-1, the original proposed location near MP 279.8 would have been located in a relatively flat, predominantly agricultural area that would have been partially shielded from the surrounding community by a forested area to the south and east of the proposed site. The new proposed location near MP 277.3 would also be located within a relatively flat, agricultural area, but would not be shielded by any nearby forested areas. The alternative location near MP 276 would be located in a setting similar to the new proposed location. It would be located in a relatively flat, agricultural area that would be largely unshielded from the surrounding community. Although both this alternative location and the new proposed location would have the potential to affect the local viewshed, the implementation of mitigation measures, such as planting trees for visual and noise screening would minimize the impacts. The alternative location near MP 282.6 would be located in an agricultural and forested area that would be shielded partially in most directions by an existing forested area. This alternative location is the only site that may require clearing of forested area; approximately 2.6 acres would be located within the project site boundary.

The major distinction between the four sites would be their proximity to NSAs. The original proposed location would have been located approximately 1,100 feet from one NSA and 1,700-1,800 feet from an additional four NSAs. The new proposed location would be within 900 to 1,300 feet of four



**Figure 3.6.2-1**  
**Bainbridge Compressor Station**

NSAs and within 2,200 to 2,800 feet of an additional six NSAs. The alternative location near MP 276 would be within 1,460 feet of two NSAs; 1,980 feet of a third NSA; and 3,220 feet of a fourth NSA. The alternative location near MP 282.6 would be approximately 1,000 feet from one NSA; 1,300 to 1,600 feet from four NSAs; and 1,900 to 2,100 feet from six NSAs. However, we would expect that the impacts to these NSAs would be lessened by the forested area that lies in between the proposed site and all of the NSAs. As discussed in more detail in section 4.11.2, operations of the Bainbridge Compressor Station at the proposed new location are expected to comply with the FERC noise limit at each of these NSAs.

The four locations would differ in their required access road lengths and locations. All four access roads would be constructed through agricultural areas. The original location would require a 0.04 mile permanent access road from the compressor station to North Washington Street. The new proposed location would require that a 0.1-mile permanent road be built from the compressor station to North County Road 25W. The alternative location near MP 276 would require that a new permanent road approximately 0.5-mile in length be built from the compressor station to U.S. Highway 36. The alternative location near MP 282.6 would require a 0.5-mile permanent access road to County Road 600 East. Although the access roads for each location would vary in length, the impacts associated with traffic increases would be negligible. Therefore, we do not believe this difference in access roads significantly favors one location over the other.

The four potential locations for the Bainbridge compressor station require further analysis in order to determine the most environmentally preferable site. Therefore, **we recommend that:**

- **Prior to the end of the draft EIS comment period, Rockies Express provide a revised list of landowners within 0.5 mile and updated resource analyses for the two alternative compressor sites at MP 276 and 282.9 for the Bainbridge Compressor Station, as depicted in figure 3.6.2-1. The information provided should be consistent with the requirements for compressor stations, as outlined in the FERC's Minimum Filing Requirements for Environmental Reports (18 CFR 380.12).**

### 3.7 CONCLUSIONS

Table 3.7-1 summarizes all of the route variations and route alternatives that were identified and analyzed in detail. We identified 26 route alternatives or variations to consider in detail. Of those, we recommend 14 to be incorporated into the Project route. These route alternatives and variations were recommended to further avoid or minimize impacts to important environmental resources or minimize impacts to landowners. Together the route variations would add less than 0.8 mile to the Project length. A full discussion of each variation and alternative can be found above in sections 3.4 and 3.5. Because some of the recommended changes to the Project route were recently developed, we are seeking input from affected landowners before adopting these recommendations into the final EIS.

**Table 3.7-1  
Summary of Route Alternatives and Variations Analyzed in Detail**

| <b>Route Variation/<br/>Alternative</b>   | <b>Milepost</b> | <b>County, State</b>  | <b>Summary</b>  | <b>Change<br/>in<br/>Length<br/>(miles)</b> | <b>Recommend?</b> |
|---|-----------------|---|---|---|-------------------|
| Clarksville Island Route Alternative (Mississippi River) (section 3.4.1) (figure 3.4.1-1) | 17.7 to 59.5    | Ralls, Pike, Missouri; Calhoun, Pike, Illinois  | This alternative was not shown to offer a clear environmental advantage over the Project route.   | + 3.1                                       | No                |
| Gosline Island Route Alternative (Mississippi River) (section 3.4.1) (figure 3.4.1-1)     | 38.0 to 47.0    | Pike, Missouri; Pike, Illinois  | This alternative was not shown to offer a clear environmental advantage over the Project route.   | 0   | No                |
| Indy North 1 Route Alternative (section 3.4.3) (figure 3.4.3-1)                           | 279.4 to 376.0  | Putnam, Hendricks, Boone, Hamilton, Hancock, Rush, and Decatur, Indiana   | This route alternative would not result in a clear environmental advantage and would require construction within 50 feet of 456 residences.   | + 8.9                                       | No                |
| Indy North 2 Route Alternative (section 3.4.3) (figure 3.4.3-1)                           | 274.5 to 444.0  | Putnam, Hendricks, Marion, Hamilton, Delaware, and Randolph, Indiana; Darke, Preble, Montgomery, and Warren, Ohio | This route alternative would not result in a clear environmental advantage and would require construction within 50 feet of more than 231 residences.   | + 31.5                                      | No                |
| McCarroll Route Variation (section 3.5.1) (appendix J, figure J-1)                        | 291.0 to 291.3  | Hendricks, Indiana  | We determined that no route variation could avoid the forested area; however, a route variation to minimize the impacts to farmed lands was analyzed. This route variation would follow the edge of the farmed area rather than crossing it diagonally. | + 0.1                                       | Yes               |
| Rogers Route Variation (section 3.5.2) (appendix J, figure J-2)                           | 300.5 to 301.0  | Hendricks, Indiana  | We identified a route variation that would avoid bisecting the property diagonally and allow for a larger continuous parcel for residential development.  | + < 0.1                                     | Yes               |
| Parker Route Variation (section 3.5.3) (appendix J, figure J-3)                           | 318.1 to 318.8  | Morgan, Indiana   | We identified a route variation that would predominantly follow the boundaries of Mr. Parker's fields.  | + < 0.1                                     | Yes               |
| Alverson Route Variation (section 3.5.4) (appendix J, figure J-4)                         | 370.0 to 370.6  | Decatur, Indiana  | We identified a route variation that should minimize the risk of encountering artifacts by constructing the pipeline within routinely disturbed agricultural areas and avoiding the relatively undisturbed forested areas.                              | + 0.1                                       | Yes               |
| Yane Route Variation (section 3.5.5) (appendix J, figure J-5)                             | 380.4 to 380.6  | Franklin, Indiana   | We evaluated a route variation that would cross slightly less land on their property than the Project route.  | - < 0.1                                     | Yes               |

**Table 3.7-1  
Summary of Route Alternatives and Variations Analyzed in Detail**

| <b>Route Variation/<br/>Alternative</b>   | <b>Milepost</b> | <b>County, State</b>              | <b>Summary</b>  | <b>Change<br/>in<br/>Length<br/>(miles)</b> | <b>Recommend?</b> |
|---|-----------------|-----------------------------------|---|---|-------------------|
| Reynolds Route Variations<br>(section 3.5.6)  | 381.5 to 382.7  | Franklin, Indiana                 | We evaluated two possible route variations in the field that would potentially avoid impacts. However, neither route variation would offer an environmental advantage over the Project route.   | 0   | No                |
| Morgan Route Variation<br>(section 3.5.7)<br>(appendix J, figure J-6)                 | 384.1 to 385.0  | Franklin, Indiana                 | We evaluated a route variation that would follow an existing powerline right-of-way and minimize further fragmentation of forested land on the property.  | + < 0.1                                     | Yes               |
| White Route Variation<br>(section 3.5.8)<br>(appendix J, figure J-7)                  | 395.1 to 395.8  | Franklin, Indiana                 | We evaluated a route variation that would shorten the distance across her property by 0.1 mile and avoid crossing one waterbody.  | - 0.1                                       | Yes               |
| Schulte and Oetzel Route Variation<br>(section 3.5.9)<br>(appendix J, figure J-8)     | 401.5 to 402.0  | Franklin, Indiana                 | We developed a route variation that would follow the southern edge of their properties and increase the distance of the Project to residences   | + 0.1                                       | Yes               |
| Minges and Schoenharl Route Variation<br>(section 3.5.10)<br>(appendix J, figure J-9) | 405.1 to 405.9  | Butler, Ohio                      | We analyzed a route variation that would avoid forest fragmentation by following the existing TETCO pipeline easement.  | + 0.2                                       | Yes               |
| Walther Route Variation A<br>(section 3.5.11)   | 413.7 to 414.7  | Butler, Ohio                      | We evaluated a potential route variation on the property that would follow the property boundary instead of crossing diagonally. The route variation would require construction through forested areas and would therefore not be environmentally preferable. | + 0.2                                       | No                |
| Walther Route Variation B<br>(section 3.5.11)   | 413.7 to 414.8  | Butler, Ohio                      | We evaluated a potential route variation on the property that would follow the property boundary instead of crossing diagonally. The route variation would require construction through forested areas and would therefore not be environmentally preferable. | + 0.1                                       | No                |
| Little Miami River Alternative<br>(section 3.4.4)<br>(figure 3.4.4-1)                 | 432.9 to 467.2  | Butler, Warren, and Clinton, Ohio | We analyzed a route alternative that would cross the river only where it is designated for its recreational, but not scenic, value. Our analysis indicated that the Project route would result in fewer environmental impacts than the route alternative.     | + 12.3                                      | No                |

**Table 3.7-1  
Summary of Route Alternatives and Variations Analyzed in Detail**

| <b>Route Variation/<br/>Alternative</b>   | <b>Milepost</b> | <b>County, State</b>                      | <b>Summary</b>   | <b>Change<br/>in<br/>Length<br/>(miles)</b> | <b>Recommend?</b> |
|---|-----------------|---|--|---|-------------------|
| Mowrey Alternative<br>(section 3.4.5)<br>(figure 3.4.5-1)                               | 446.0 to 466.2  | Warren and Clinton,<br>Ohio               | The Mowrey alternative would be collocated with an existing right-of-way for most of its route, and affect previously disturbed areas. However, it would cross more waterbodies, forested land, and park lands that the existing right-of-way.         | - 0.6                                       | No                |
| Frye Route Variation<br>(section 3.5.12)<br>(appendix J,<br>figure J-10)                | 452.7 to 453.8  | Warren, Ohio                              | The route variation would minimize the concerns on the Frye property, but crosses a Wellhead Protection Area (WPA). Additional information is required before a decision can be reached.   | + 0.3                                       | Not at this time  |
| Jones and Mowrey<br>Route Variation<br>(section 3.5.13)<br>(appendix J,<br>figure J-11) | 458.1 to 458.9  | Warren, Ohio                              | We evaluated a route variation that would follow the Jones and Mowrey property boundaries. The route variation would avoid all forested areas on the Jones property and minimize impacts on the to Mowrey property by following the property boundary. | + 0.2                                       | Yes               |
| Kile Route Variation<br>(section 3.5.14)<br>(appendix J,<br>figure J-12)                | 477.1 to 477.5  | Fayette, Ohio                             | We developed a route variation that would avoid an area of concern without adding additional impacts to sensitive environmental areas or other landowners.   | + < 0.1                                     | Yes               |
| Deer Creek Lake<br>State Park<br>Alternative<br>(section 3.4.6)<br>(figure 3.4.6-1)     | 496.9 to 502.6  | Fayette and<br>Pickaway, Ohio             | The environmental impacts of the route alternative and the Project route would be very similar. The COE has indicated that they would prefer the route alternative because it follows an existing right-of-way through the park.                       | - 0.3                                       | Yes               |
| Big Darby Creek<br>Alternative<br>(section 3.4.7)<br>(figure 3.4.7-1)                   | 494.1 to 533.9  | Fayette, Pickaway,<br>and Fairfield, Ohio | We evaluated a route alternative that would eliminate the need to cross the creek. The alternative is longer and Rockies Express would cross Big Darby Creek by HDD. If an HDD can be completed, the Project route is preferred.                       | + 5.8                                       | No                |
| Noll Route<br>Variation A<br>(section 3.5.15)<br>(appendix J,<br>figure J-13)           | 555.4 to 557.3  | Perry, Ohio                               | We evaluated a route variation that would minimize the length of the pipeline route that crosses through waterbodies and forested areas. Additionally, it would avoid impacts to farming operations and the septic system.                             | + 0.2                                       | Yes               |
| Noll Route<br>Variation B<br>(section 3.5.15)<br>(appendix J,<br>figure J-13)           | 555.4 to 557.3  | Perry, Ohio                               | This route variation would not avoid the impacts to all of the forested and wetland areas mentioned in Mr. Noll's comments.  | + < 0.1                                     | No                |

**Table 3.7-1  
Summary of Route Alternatives and Variations Analyzed in Detail**

| <b>Route Variation/<br/>Alternative</b>  | <b>Milepost</b>        | <b>County, State</b>              | <b>Summary</b>  | <b>Change<br/>in<br/>Length<br/>(miles)</b> | <b>Recommend?</b> |
|--|------------------------|-----------------------------------|---|---|-------------------|
| Shaffer Route<br>Variation<br>(section 3.5.16)<br>(appendix J,<br>figure J-14)                 | 623.3 to 624.4         | Belmont, Ohio                     | We identified a route variation that would avoid the forested and hilly areas of concern. Specifically, the route variation would require construction through 0.3 fewer mile of forested area. | + < 0.1                                     | Yes               |
| Three Residence<br>Variations<br>(section 3.5.17)<br>(appendix J,<br>figures J-15 and<br>J-16) | 384.3, 384.4,<br>446.8 | Franklin, Indiana<br>Warren, Ohio | We identified three minor route variations to move the alignment to a distance of greater than 100 feet from each affected house.   | + <0.1                                      | Yes               |