ROVER PIPELINE
An ENERGY TRANSFER Company

ROVER PIPELINE LLC

Rover Pipeline Project

RESOURCE REPORT 1
General Project Description

FERC Docket No. CP15-___-000

February 2015

TABLE OF CONTENTS

Section **Page**

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

AIM Plans	Agricultural Impact Mitigation Plans
API	American Petroleum Institute
ASME	American Society for Mechanical Engineers
ATWS	Additional temporary workspace
Bcf/d	billion cubic feet per day
Btu	British thermal unit
CFR	Code of Federal Regulations
CGT	Columbia Gas Transmission
Rover	Rover Pipeline LLC
EIS	Environmental Impact Statement
FERC or Commission	Federal Energy Regulatory Commission
HDD	horizontal directional drill
HDD Plan	*Horizontal Directional Drill Contingency Plan*
hp	horsepower
IBEW	International Brotherhood of Electrical Workers
MLV	mainline valve
MP	Milepost
MVP	Mountain Valley Pipeline
NAAQS	National Ambient Air Quality Standards
NDE	non-destructive examination
NGA	Natural Gas Act
NOI	*Notice of Intent to Prepare an Environmental Impact Statement for the Planned Rover Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings*
OPEN	Ohio Pipeline Energy Network
PLCA	Pipeline Contractors Association
Pre-Filing Process	FERC Pre-Filing Review Process
Project	Rover Pipeline Project
RECS	Residential Energy Consumption Survey
REX	Rockies Express Pipeline
Rover Procedures	Rover's *Waterbody and Wetland Construction and Mitigation Procedures*
SCADA	Supervisory Control and Data Acquisition
SPR Procedures	Spill Prevention and Response Procedures
U.S.	United States
USDOT	U.S. Department of Transportation
USEIA	U.S. Energy Information Administration
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Vector	Vector Pipeline L.P.

RESOURCE REPORT 1—GENERAL PROJECT DESCRIPTION	
Filing Requirement	**Location in Environmental Report**
• Describe and provide location maps of all jurisdictional facilities, including all aboveground facilities associated with the project (such as: meter stations, pig launchers/receivers, valves), to be constructed, modified, abandoned, replaced, or removed, including related construction and operational support activities and areas such as maintenance bases, staging areas, communications towers, power lines, and new access roads (roads to be built or modified). • Describe the length and diameter of the pipeline, the types of aboveground facilities that would be installed, and associated land requirements. • Identify other companies that must construct jurisdictional facilities related to the project, where the facilities would be located, and where they are in the Commission's approval process. (§ 380.12(c)(1))	Section 1.3 Volume IIB, Attachment 1A Section 1.3 Section 1.11
• Identify and describe all nonjurisdictional facilities, including auxiliary facilities, that will be built in association with the project, including facilities to be built by other companies. (§ 380.12(c)(2)) • (i) Provide the following information: (A) A brief description of each facility, including as appropriate: Ownership, land requirements, gas consumption, megawatt size, construction status, and an update of the latest status of Federal, state, and local permits/approvals; (B) The length and diameter of any interconnecting pipeline; (C) Current 1:24,000/1:25,000 scale topographic maps showing the location of the facilities; (D) Correspondence with the appropriate State Historic Preservation Officer (SHPO) or duly authorized Tribal Historic Preservation Officer (THPO) for tribal lands regarding whether properties eligible for listing on the National Register of Historic Places (NRHP) would be affected; (E) Correspondence with the United States (U.S.) Fish and Wildlife Service (and National Marine Fisheries Service, if appropriate) regarding potential impacts of the proposed facility on federally listed threatened and endangered species; and (F) For facilities within a designated coastal zone management area, a consistency determination or evidence that the owner has requested a consistency determination from the state's coastal zone management program. (ii) Address each of the following factors and indicate which ones, if any, appear to indicate the need for the Commission to do an environmental review of project-related nonjurisdictional facilities. A) Whether or not the regulated activity comprises ``merely a link'' in a corridor type project (e.g., a transportation or utility transmission project). (B) Whether there are aspects of the nonjurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity. (C) The extent to which the entire project will be within the Commission's jurisdiction. (D) The extent of cumulative Federal control and responsibility.	Section 1.11

RESOURCE REPORT 1—GENERAL PROJECT DESCRIPTION	
Filing Requirement	**Location in Environmental Report**
• Provide the following maps and photos: (§ 380.12(c)(3)) (i) Current, original United States Geological Survey (USGS) 7.5-minute series topographic maps or maps of equivalent detail; (ii) Original aerial images or photographs or photo-based alignment sheets based on these sources:	Volume IIB Attachment 1A
• Include large scale (1:3,600 or greater) plot plans of each compressor station, identifying the location of the nearest noise-sensitive areas (schools, hospitals, or residences) within 1 mile of the compressor station, existing and proposed compressor and auxiliary buildings, access roads, and the limits of areas that would be permanently disturbed. (§ 380.12(c)(4))	Volume III Attachment 1A
• Identify facilities to be abandoned, and state how they would be abandoned, how the site would be restored, who would own the site or right-of-way after abandonment, and who would be responsible for any facilities abandoned in place. (§ 380.12(c)(5))	Section 1.8
• Describe and identify by milepost, proposed construction and restoration methods to be used in areas of rugged topography, residential areas, active croplands, sites where the pipeline would be located parallel to and under roads, and sites where explosives are likely to be used. (§ 380.12(c)(6))	Section 1.6.1.10
• Describe estimated workforce requirements, including the number of pipeline construction spreads, average workforce requirements for each construction spread and meter or compressor station, estimated duration of construction from initial clearing to final restoration, and number of personnel to be hired to operate the proposed project. (§ 380.12(c)(7))	Section 1.5 and Table 1.5-1
• Describe reasonably foreseeable plans for future expansion of facilities, including additional land requirements and the compatibility of those plans with the current proposal. (§ 380.12(c)(8))	Section 1.8
• Describe all authorizations required to complete the proposed action and the status of applications for such authorizations. Identify environmental mitigation requirements specified in any permit or proposed in any permit application to the extent not specified elsewhere in this section. (§ 380.12(c)(9))	Section 1.10
• Provide the names and mailing addresses of all affected landowners and certify that all affected landowners will be notified as required in Sec. 157.6(d). (§ 380.12(c)(10))	Volume IV, Attachment 1A Section 1.9

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

Rover Pipeline LLC (Rover) is seeking authorization from the Federal Energy Regulatory Commission (FERC or Commission) pursuant to Section 7(c) of the Natural Gas Act (NGA) to construct, own, and operate the proposed Rover Pipeline Project (Project). The Rover Pipeline Project is a new natural gas pipeline system that will consist of approximately 711.2 miles of Supply Laterals and Mainlines, 10 compressor stations, and associated meter stations and other aboveground facilities that will be located in parts of West Virginia, Pennsylvania, Ohio, and Michigan. The Project will include approximately 509.1 miles of proposed right-of-way, extending from the vicinity of New Milton, Doddridge County, West Virginia to the vicinity of Howell, Livingston County, Michigan, and will include approximately 202.1 miles of dual pipelines.

On June 26, 2014, in compliance with the requirements of 18 Code of Federal Regulations (CFR) § 157.21(b), Rover requested that the FERC begin its review of the Project using the FERC's Pre-Filing Review Process (Pre-filing Process). On June 27, 2014, the FERC approved Rover's request and assigned Docket No. PF14-14-000 to the Project. As part of the Pre-Filing Process, the FERC, with input from federal and state agencies and other stakeholders, analyzed environmental impacts, alternatives, and mitigation measures as a prelude to submittal of Rover's certificate application and the development of the FERC's Environmental Impact Statement (EIS) for the Project. This allowed the FERC, and other federal and state resource management agencies, to identify and resolve environmental issues associated with the design and routing of the Project. Agencies participated in the Pre-Filing Process by providing assistance in the identification and resolution of concerns, and by participating in agency and public information meetings. The Pre-Filing Process concludes with Rover's filing of its certificate application under Section 7(c) of the NGA.

As originally proposed during the Pre-filing Process, the Project included approximately 110 miles of additional pipeline in Michigan extending from the vicinity of Howell in Livingston County to the United States (U.S.)/Canadian border, as well as an additional 15 miles in Canada from the U.S/Canada border to the Union Gas Dawn hub, near Beaver Meadow, Ontario, Canada. In late January 2015, Rover reached an agreement with Vector Pipeline L.P. (Vector) for Vector to transport the natural gas volumes from the Rover/Vector interconnect near Howell, Michigan to other Michigan delivery points and the Union Gas Dawn Hub through Vector's existing pipeline system.

Among other requirements, the FERC regulations require that the certificate application include an Environmental Report, consisting of up to 13 Resource Reports as described in 18 CFR §§ 157.14(a)(6-a), 380.3, and 380.12. Each Resource Report describes a particular aspect of the environment and evaluates the potential effects of the Project on that particular aspect. Resource Report 1 describes the Project facilities; land requirements; procedures for construction, restoration, operation, and maintenance of Project facilities; as well as environmental permits and clearances that will be required, non-jurisdictional facilities, future plans and abandonment, and cumulative impacts.

1.2 PURPOSE AND NEED

The U.S. Energy Information Administration's (USEIA) Annual Energy Outlook 2013 Early Release projects U.S. natural gas production to increase from 23.0 trillion cubic feet in 2011 to 33.1 trillion cubic feet in 2040, a 44 percent increase. Almost all of this increase in domestic natural gas production is due to projected growth in shale gas production, which grew from 7.8 trillion cubic feet in 2011 to 16.7 trillion cubic feet in 2014. The availability of increased quantities of shale gas is predicted to continue for the next 100 plus years, allowing U.S. consumers to rely upon and plan for low cost supplies of natural gas. According to the most current and relevant government and industry supply/consumption indexes (including the U.S. Department of Energy), the supply will continue to outpace domestic consumption for many years.

The Rover Pipeline Project originated as a result of discussions with producers who have active production and processing capacity as well as significant volumes of stranded gas in the Marcellus and Utica Shale areas of West Virginia, Pennsylvania, and Ohio, and who desire to move their production to markets in the Gulf Coast, Midwest, Northeast, and into Canada for redelivery to both Canadian and US markets. Thus, the Project has been designed to enable the flow of natural gas from producer processing plants and interconnections in Pennsylvania, West Virginia, and Ohio to interconnections with Energy Transfer Partners, L.P.'s existing Panhandle Eastern Pipe Line and other Midwest pipeline interconnects near Defiance, Ohio, as well as a direct connection with Vector Pipeline LP near Howell, Michigan. Vector provides interconnections to the local Michigan market through local distributors, storage facilities, and power plants, and provides further transportation into the Midwest, Eastern Canada, and Northeastern U.S. markets, including a connection with the gas trading hub located near Dawn, Canada.

The Project is a producer-driven pipeline project in which Marcellus and Utica producers have made long-term commitments for transportation capacity to move significant volumes of natural gas production to connections with interstate natural gas pipelines and storage facilities, as well as to major gas consuming markets in the Gulf Coast, Midwest and Canadian regions. The hub facilities connected to the Project at Defiance and the Vector interconnect will facilitate the delivery of natural gas to high-demand centers in the U.S. and Canada, thus increasing the diversity of supply, and helping to moderate gas prices by replacing declining supplies from the Gulf Coast. Furthermore, the Project will benefit local Midwest gas consumers by providing access to a readily available, stable, and competitively-priced gas supply for local distribution companies connected to the Project.

The Project will have the capacity to transport 3.25 billion cubic feet per day (Bcf/d) of natural gas. Rover held an open season that concluded on July 25, 2014 and executed binding precedent agreements with shippers representing 3.25 Bcf/d, which represents the total capacity of the new pipeline system. However, the Project was revised in January 2015 during Pre-Filing to terminate at a connection with Vector Pipeline L.P. (Vector) in Livingston, County, Michigan in order to maximize use of existing infrastructure and minimize impacts to the environment and landowners. As a result of the agreement with Vector, Rover currently has 0.15 Bcf/d of capacity available on the proposed system, although Rover fully expects the available capacity will be subscribed quickly.

As a result of these precedent agreements, the Project has been designed to accumulate natural gas supplies at receipt points that are accessible to the producers' processing plants, and to deliver these volumes to connections with interstate natural gas pipelines and storage facilities at the hubs at Defiance, as well as interconnects with Michigan natural gas utilities. The receipt points are defined by the compressor stations and receipt meters located at or near the beginning of each of the Supply Laterals. The delivery points are defined by the interconnecting pipeline systems located near Defiance and the Vector interconnect near Howell, Michigan. The new infrastructure will give shippers the option of storage, selling gas in the local Canadian market, selling gas back into Michigan market, or selling gas to U.S. Northeast markets via the TransCanada pipeline interconnections at Niagara Falls, Grand Island, Waddington, or other interconnects to the east. In addition, Rover will have bidirectional meter stations at the proposed Clarington Station, and delivery meters at the Rockies Express Pipeline (REX) and Columbia Gas Transmission (CGT) interconnects. These interconnects will allow access to the East Coast, Gulf Coast, and Chicago markets.

Approximately 78 percent of the natural gas moved through the Project will be delivered to customers on the U.S. segments of the pipeline, including multiple take-off points in Michigan and Ohio, or other interstate pipelines, including local distribution company gas systems serving customers throughout the states (see Figure 1.2-1 for a map of the Project connections). As described above, the Project will connect stranded Marcellus and Utica Shale gas to all markets in the U.S.

The new source will offset the reduction in available gas supply from traditional supply areas (the Rocky Mountain Region, Texas Panhandle, Oklahoma, Kansas, and the Gulf of Mexico) that historically have served Ohio and Michigan as well as other regions of the U.S. Historic supplies from the Gulf of Mexico alone are down approximately 46 percent over the last five years. Ohio is the 8th largest consumer and Michigan is the 9th largest consumer of natural gas in the U.S.; whereas, Ohio is the 19th largest producer and Michigan is the 17th largest producer, making both states net importers of natural gas to meet their supply needs for commercial and residential consumption.

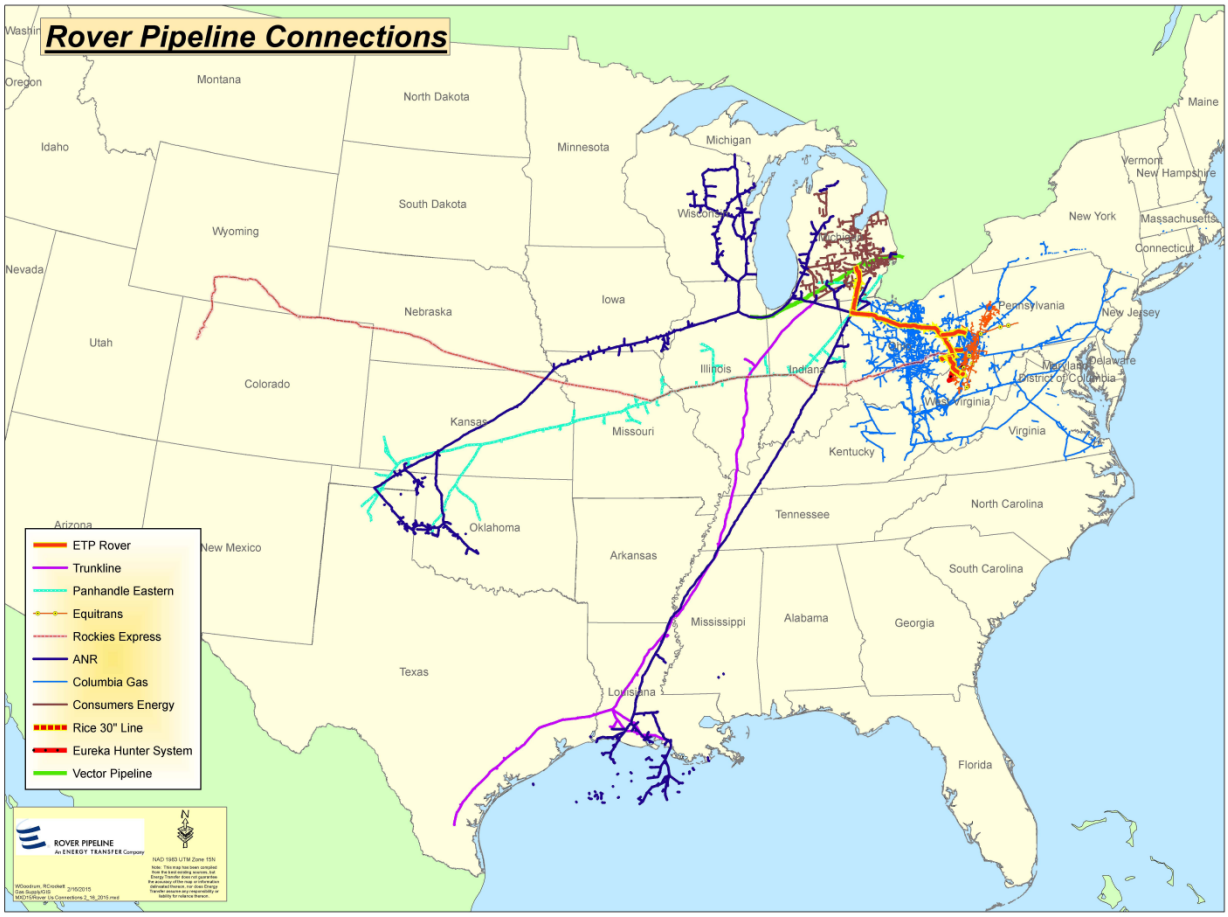

Figure 1.2-1 Rover Pipeline Connections

In summary, the Project will provide:

- new take-away infrastructure for stranded Marcellus/Utica shale gas;
- new infrastructure for Midwest markets to provide a reliable and nearby source of competitively priced natural gas supplies to replace declining supplies from the Gulf Coast and other historic production regions of the U.S.;
- new infrastructure to move natural gas to local utilities and storage in Ohio and Michigan, to the Midwest Hub for Midwest and Gulf Coast markets, to the Dawn Hub for Canadian and U.S. Northeast markets, as well as the East Coast and other markets listed above from the bidirectional and delivery meters in the Supply Laterals;
- new infrastructure to the Dawn Hub that will provide shippers with the option of storage, or selling gas in the local Canadian market, selling gas back into Michigan market, or selling gas to U.S. Northeast markets;

- long and short term economic benefits within the Project area via increased consumption of goods and services resulting from construction and operation of the Project;
- short-term job creation via construction jobs and service jobs to support the construction workforce;
- long-term job creation via permanent jobs to operate the new pipeline system; and
- long-term tax benefit to communities and state via ad valorem taxes.

The USEIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment (USEIA, 2015). According to data provided by the USEIA's Residential Energy Consumption Survey (RECS), the 2009 natural gas consumption in the Midwest Region for a 1,500 to 1,999 square foot home averaged 87.2 million British thermal units (Btu) per household or 238,904.11 Btu per day broken down over a 365-day year. The Rover Pipeline Project will provide 3.25 Bcf/day in capacity. Given the 2009 RECS data, this would supply enough natural gas to meet the demands of approximately 14,011,897 homes.

1.3 LOCATION AND DESCRIPTION OF PROPOSED FACILITIES

The Project is a new pipeline system and entails all new facilities. All receipt and delivery points, and pipeline and compression facilities, are designed to meet contractual requirements. No upgrades or expansion of existing facilities are being considered at this time. The Project consists of the following components and facilities:

- Supply Laterals:
  - eight supply laterals consisting of approximately 199.7 miles of 24-, 30-, 36-, and 42-inch-diameter pipeline in West Virginia, Pennsylvania, and Ohio,
  - two parallel supply laterals, each consisting of approximately 18.8 miles (for a total of approximately 37.6 miles) of 42-inch-diameter pipeline (Supply Connector Lateral Line A and Line B) in Ohio,
  - approximately 72,645 horsepower (hp) at six new compressor stations to be located in Doddridge and Marshall counties, West Virginia; Washington County, Pennsylvania; and Noble, Monroe, and Harrison counties, Ohio, and
  - two new delivery, 11 new receipt, and two bidirectional meter stations on the Supply Laterals.

- Mainlines A and B:
  - approximately 190.6 miles of 42-inch-diameter pipeline (Mainline A) in Ohio,
  - approximately 183.3 miles of parallel 42-inch-diameter pipeline (Mainline B) in Ohio,
  - approximately 114,945 hp at three new compressor stations to be located in Carroll, Wayne, and Crawford counties, Ohio, and
  - two new delivery meter stations in Defiance County, Ohio.

- Market Segment:
  - approximately 100.0 miles of 42-inch diameter pipeline in Ohio and Michigan,
  - approximately 25,830 hp at one new compressor station to be located in Defiance County, Ohio, and
  - two new delivery meter stations in Washtenaw and Livingston counties, Michigan.

A general location map of the Project facilities is shown on Figure 1.3-1. U.S. Geological Survey (USGS) topographic map excerpts are included as Figure 1C-1 in Appendix 1C.

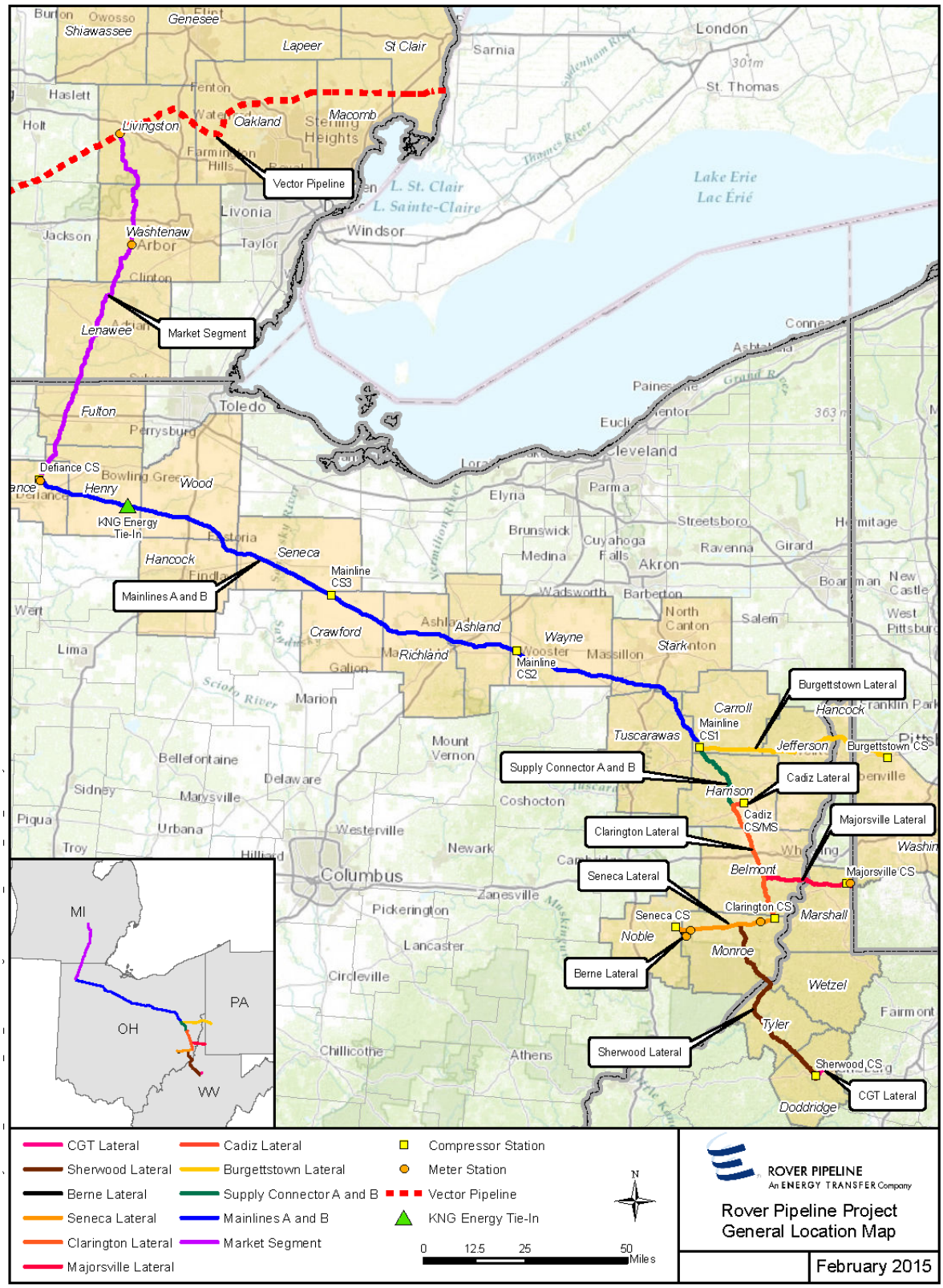

Figure 1.3-1 Rover Pipeline Project General Location Map

Included in Attachment 1A in Volume IIB are full-size USGS topographic maps and aerial-based alignment sheets showing the location of the Project pipelines and associated components, including the construction and operational pipeline rights-of-way, additional temporary workspace (ATWS), aboveground facilities, contractor yards, access roads, and horizontal directional drill (HDD) locations as described in the following sections.

1.3.1 Pipeline Facilities

Table 1.3-1 lists the Project pipelines. The pipelines will be operated at a maximum allowable operating pressure of 1,440 pounds per square inch gauge.

TABLE 1.3-1
Pipeline Facilities

Pipeline Segment	Pipeline Diameter (inches)	County, State	Approximate Length (mi)
Supply Laterals:			
Sherwood Lateral	36	Doddridge, Tyler, and Wetzel, WV	35.7
		Monroe, OH	18.3
CGT Lateral	24	Doddridge, WV	5.7
Seneca Lateral	42	Noble and Monroe, OH	25.6
Berne Lateral	24	Noble and Monroe, OH	3.7
Clarington Lateral	42	Monroe, Belmont, and Harrison, OH	32.6
Majorsville Lateral	24	Marshall, WV	12.6
		Belmont, OH	11.3
Cadiz Lateral	30	Harrison, OH	2.9
Supply Connector Line A[1]	42	Harrison and Carroll, OH	18.8
Supply Connector Line B[1]			18.8
Burgettstown Lateral	36	Washington, PA	10.4
		Hancock, WV	5.3
		Jefferson and Carroll, OH	35.6
		Supply Laterals Subtotal	***237.3***
Mainlines:			
Mainline A[1]	42	Carroll, Tuscarawas, Stark, Wayne, Ashland, Richland, Crawford, Seneca, Hancock, Wood, Henry, and Defiance, OH	***190.6***
Mainline B[1]			***183.3***
Market Segment	42	Defiance, Henry, and Fulton, OH	27.4
		Lenawee, Washtenaw, and Livingston, MI	72.6
		Mainlines Subtotal	***473.9***
		PROJECT TOTAL	**711.2**

[1] Supply Connector Lines A and B and Mainlines A and B will be installed approximately 20 feet apart.

To the extent practicable, the Project pipelines will be constructed parallel and adjacent to other existing pipelines or utility lines, or in remote areas, on primarily agricultural land, to reduce the potential interaction between the proposed pipeline and the public. Based on current design, approximately 23 percent of the total length of the new pipelines will be parallel or adjacent to existing rights-of-way (e.g., pipelines, electric transmission lines, roadways, etc.) and approximately 57 percent will be within

agricultural land (see Resource Report 8, Table 8A-1). Table 1A-1 in Appendix 1A lists the locations where the Rover pipelines will be installed adjacent (or parallel) to other existing pipeline or power line rights-of-way, the operator, and the types of permanent rights-of-way where known.

Currently, the Project does not include any areas where the pipelines will lie within any existing easements (i.e. collocate), but Rover is discussing this possibility with various adjacent entities, as described in Resource Report 10, in Sections 10.5.1 and 10.5.4. In addition, Table 1A-1 in Appendix 1A identifies the potential for the Project to use some part of the existing, adjacent easements for temporary spoil storage during construction. Where collocation is not possible, the permanent easements for the Rover pipelines will abut the adjacent existing easements following construction where feasible.

1.3.1.1 Supply Laterals

Sherwood Lateral

The Sherwood Lateral consists of construction of approximately 54.0[1] miles of 36-inch diameter natural gas pipeline commencing at the Sherwood Compressor Station in Doddridge County, West Virginia and extending in a generally northerly direction to the Sherwood Tie-In and the interconnect with the Seneca Lateral at milepost (MP) 16.7 in Monroe County, Ohio.

Rover is aware that CGT is proposing to parallel the same existing rights-of-way as the Seneca Lateral as part of their proposed Leach Xpress Project (see Section 1.12.2.3 for a description of that project). Rover initiated discussions with CGT in August 2014 regarding the sharing of data to coordinate placement of the pipelines and avoid interference between the proposed centerlines. CGT asked to postpone the sharing of data until they entered into Pre-Filing with FERC. CGT entered into Pre-Filing with FERC in October of 2014 (PF14-23).

From publicly available records, Rover has identified locations where the Leach Xpress Project appears to overlap the proposed Seneca Lateral exactly or is close enough to complicate construction and operation of each pipeline. Table 1.3-2 lists, by milepost and tract, the locations where Rover has confirmed that CGT is currently planning to be in the same location as the Seneca Lateral. Rover will again initiate communications with CGT with the hope that a mutually beneficial plan can be developed to ensure the successful permitting, construction, and operation of both proposed pipelines. Rover will also discuss with CGT the possibility of overlapping construction workspace or coordinating restoration if the project schedules coincide closely enough.

[1] The mileage reflects actual miles and incorporates an additional 1.1 miles associated with pipeline added at the beginning of the Sherwood Lateral to connect to the Sherwood Compressor Station and for a reroute at the Ohio River crossing (see Resource Report 10, Section 10.7.2.1 and 10.6.1.1, respectively).

TABLE 1.3-2
CGT Leach Xpress Project and Rover Pipeline Project Overlap

Tract Number	Begin MP	End MP	Mileage
OH-MO-SCL-007.000	2.79	2.81	0.02
OH-MO-SCL-012.000	3.71	3.75	0.04
OH-MO-SCL-013.000	3.75	3.97	0.22
OH-MO-SCL-014.000	3.97	4.23	0.26
OH-MO-SCL-018.000	5.29	5.55	0.27
OH-MO-SCL-021.000	5.80	6.18	0.38
OH-MO-SCL-027.000	6.23	6.56	0.33
OH-MO-SCL-031.000	6.88	7.09	0.21
OH-MO-SCL-032.000	7.09	7.34	0.25
OH-MO-SCL-033.000	7.48	7.57	0.09
OH-MO-SCL-034.000	7.57	7.61	0.04
OH-MO-SCL-035.000	7.61	7.99	0.38
OH-MO-SCL-044.000	9.54	9.67	0.13
OH-MO-SCL-045.000	9.67	10.18	0.50
OH-MO-SCL-046.000	10.18	10.41	0.24
OH-MO-SCL-047.000	10.41	10.69	0.27
OH-MO-SCL-047.500	10.69	10.94	0.25
OH-MO-SCL-049.000	10.94	11.19	0.25
OH-MO-SCL-049.300	11.19	11.20	0.01
OH-MO-SCL-051.000	11.20	11.30	0.10
OH-MO-SCL-052.000	11.30	11.40	0.10
OH-MO-SCL-054.000	11.70	11.95	0.25
OH-MO-SCL-055.000	11.95	12.10	0.15
OH-MO-SCL-056.000	12.10	12.50	0.40
OH-MO-SCL-058.000	12.50	12.95	0.45
OH-MO-SCL-064.000	13.06	13.61	0.55
OH-MO-SCL-068.000	14.13	14.25	0.12
OH-MO-SCL-083.000	15.80	15.98	0.18
OH-MO-SCL-086.000	16.26	16.76	0.50
OH-MO-SCL-102.000	19.00	19.57	0.58
OH-MO-SCL-104.000	19.57	19.93	0.36
OH-MO-SCL-105.000	19.93	20.20	0.27
		Total Mileage	**8.15**

CGT Lateral

The CGT Lateral consists of construction of approximately 5.7 miles of 24-inch diameter natural gas pipeline commencing at the CGT Tie-In at the interconnect with the Sherwood Lateral just north of the Sherwood Compressor Station in Doddridge County, West Virginia and extending in a generally northeasterly direction to the CGT Delivery Meter Station and the interconnect with CGT.

Seneca Lateral

The Seneca Lateral consists of construction of approximately 25.6 miles of 42-inch diameter natural gas pipeline commencing at the Seneca Compressor Station in Noble County, Ohio and extending east to the Clarington Compressor Station and the interconnect with the Clarington Lateral in Monroe County, Ohio.

Berne Lateral

The Berne Lateral consists of construction of approximately 3.7 miles of 24-inch diameter natural gas pipeline commencing at the Berne Receipt Meter Station in Monroe County, Ohio and extending northwesterly to the Seneca Compressor Station in Noble County, Ohio.

Clarington Lateral

The Clarington Lateral consists of construction of approximately 32.6 miles of 42-inch natural gas pipeline commencing at the Clarington Compressor Station (and the interconnect with the Seneca Lateral) in Monroe County, Ohio, and extending in a generally northerly direction, and terminating at the Cadiz Tie-In and the interconnect with the Cadiz Lateral and Supply Connector Lines A and B in Harrison County, Ohio.

Majorsville Lateral

The Majorsville Lateral consists of construction of approximately 23.9[2] miles of 24-inch diameter natural gas pipeline commencing at the Majorsville Receipt Meter Station in Marshall County, West Virginia and extending west to the Majorsville Tie-In at the interconnect with the Clarington Lateral (Clarington Lateral MP 11.7) in Belmont County, Ohio.

Cadiz Lateral

The Cadiz Lateral consists of approximately 2.9 miles of 30-inch natural gas pipeline commencing at the Cadiz Compressor Station in Harrison County, Ohio and extending west to the Cadiz Tie-In and the interconnects with the Clarington and Supply Connector Lines A and B at Clarington Lateral MP 32.6.

Supply Connector Lines A and B

The Supply Connector Lines A and B consist of approximately 18.8 miles of dual 42-inch diameter natural gas pipeline (for a total of approximately 37.6 miles) commencing at the Cadiz Tie-In in Harrison County, Ohio and extending north to Mainline Compressor Station 1 and the interconnection with Mainlines A and B in Carroll County, Ohio. Supply Connector Lines A and B will be installed adjacent to each other and approximately 20 feet apart.

[2] The mileage reflects actual miles and incorporates an additional 0.4 mile associated with pipeline added at the beginning of the Majorsville Lateral to connect to the Majorsville Meter Station (see Resource Report 10, Section 10.8.1.5).

Burgettstown Lateral

The Burgettstown Lateral consists of construction of approximately 51.3 miles of 36-inch diameter natural gas pipeline commencing at the Burgettstown Compressor Station in Washington County, Pennsylvania and extending west through Hancock County, West Virginia and into Ohio. The Burgettstown Lateral terminates at the Burgettstown Tie-In and the interconnect with the Supply Connector Lines A and B (Supply Connector MP 18.4) in Carroll County, Ohio.

1.3.1.2 Mainlines

Mainlines A and B

Mainline A consists of construction of approximately 190.6 miles of 42-inch diameter natural gas pipeline. Mainline B consists of construction of a second 42-inch diameter pipeline that will be located 20 feet from Mainline A for approximately 183.3 miles. Mainlines A and B originate at the Mainline Compressor Station 1 at the intersection of the Mainlines with Supply Connector Lines A and B in Carroll County, Ohio. Mainline A terminates at the Defiance Compressor Station in Defiance County, Ohio. Mainline B terminates approximately 7.3 miles east of the Defiance Compressor Station in Defiance County, Ohio, and crosses over and interconnects with Mainline A at the Mainline B Tie-In located at Mainline MP 202.1. The MPs for Mainlines A and B begin at 18.8, continuing from the Supply Connector Lines A and B, which are within the Supply Lateral Segment of the Project.

Market Segment

The Market Segment includes construction of approximately 100.0 miles of 42-inch diameter natural gas pipeline commencing at the Defiance Compressor Station, and the end of the Mainline A, in Defiance County, Ohio, extending north through Michigan, and terminating at the existing Vector Pipeline in Livingston County, Michigan.

1.3.2 Aboveground Facilities

Aboveground facilities for the Project consist of the compressor stations, receipt and delivery meter stations, launcher and receiver sites, and mainline valves (MLV). These facilities are depicted on the full-size USGS maps and aerial-based alignment sheets in Volume IIB, Attachment 1A, and the USGS map excerpts provided in Appendix 1C as Figure 1C-1. Table 1A-2 in Appendix 1A lists all proposed aboveground facilities as summarized in the following sections.

1.3.2.1 Compressor Stations

The Project includes six new compressor stations on the Supply Laterals, three new compressor stations on the Mainlines, and one new compressor station on the Market Segment. The compressor stations are listed on Table 1.3-3 by MP. Plot plans are included in Volume III, Attachment 1A as *Critical Energy Infrastructure Information (CEII) – Do Not Release*.

TABLE 1.3-3
Compressor Station Facilities

Compressor Station	Pipeline Segment MP	Township/ Nearest Town	County, State	Nameplate Rating (hp)
Supply Laterals:				
Sherwood	Sherwood Lateral MP 0.0	Beech	Doddridge, WV	14,205
Seneca	Seneca Lateral MP 0.0	Marion	Noble, OH	18,940
Clarington	Clarington Lateral MP 0.4	Switzerland	Monroe, OH	11,245
Majorsville	Majorsville Lateral MP 1.1	Dallas	Marshall, WV	7,100
Cadiz	Cadiz Lateral MP 0.0	Cadiz	Harrison, OH	15,980
Burgettstown	Burgettstown Lateral MP 0.0	Smith	Washington, PA	5,175
			Supply Laterals Subtotal	***72,645***
Mainlines:				
Mainline 1	Mainline A/B MP 18.8	Orange	Carroll, OH	42,190
Mainline 2	Mainline A/B MP 77.3	Plain	Wayne, OH	38,745
Mainline 3	Mainline A/B MP 127.9	Chatfield	Crawford, OH	34,010
			Mainline Subtotal	***114,945***
Defiance	Market Segment MP 0.0	Tiffin	Defiance, OH	*25,830*
			PROJECT TOTAL	***213,420***

Facilities at each compressor station site will include natural gas-fired compressors, a compressor building with acoustic mitigation if required, an office/control/utility building, a storage/maintenance building, gas and utility piping, separators, gas coolers or heaters (at some locations), safety equipment, an emergency generator, landscaping, and parking areas.

1.3.2.2 Receipt and Delivery Meter Stations

Meter stations will be installed at the pipeline interconnections to measure the receipt or delivery of natural gas. The locations for the 11 receipt, six delivery, and two bidirectional meter stations are listed by MP in Table 1.3-4. The bidirectional meter stations will allow for metering of flow for either receipt into the Rover Pipeline or delivery back into the interconnecting facilities. The CGT Delivery, Hall Receipt, Gulfport Receipt, Berne Receipt, and Majorsville Receipt Meter Stations on the Supply Laterals, and the ANR, Consumers Energy and Vector Delivery Meter Stations will be located on individual sites. All other meter stations will be located within the new compressor station sites.

TABLE 1.3-4
Meter Station Facilities

Meter Station	Pipeline Segment MP	Township/ Nearest Town	County, State
Supply Laterals:			
Sherwood Receipt [1]	Sherwood Lateral MP 0.0	Beech	Doddridge, WV
CGT Delivery	CGT Lateral MP 5.7	Beech	Doddridge, WV
Seneca Receipt [1]	Seneca Lateral MP 0.0	Marion	Noble, OH
Hall Receipt	Seneca Lateral MP 3.7	Summerfield	Monroe, OH
REX Delivery[1]	Seneca Lateral MP 0.0	Marion	Noble, OH
Gulfport Receipt	Seneca Lateral MP 21.9	Switzerland	Monroe, OH
Berne Receipt	Berne Lateral MP 0.0	Franklin	Monroe, OH
Clarington Station[1,2]	Clarington Lateral MP 0.4	Switzerland	Monroe, OH
Majorsville Receipt	Majorsville Lateral MP 0.0	Dallas	Marshall, WV
Cadiz Station [1, 3]	Cadiz Lateral MP 0.0	Cadiz	Harrison, OH
Burgettstown Receipt [1]	Burgettstown Lateral MP 0.0	Smith	Washington, PA
Mainlines:			
ANR Delivery	Mainline A MP 208.9	Tiffin	Defiance, OH
PEPL Delivery [1]	Mainline A MP 209.3	Tiffin	Defiance, OH
Consumers Energy Delivery	Market Segment MP 67.84	Freedom	Washtenaw, MI
Vector Delivery	Market Segment MP 100.0	Handy	Livingston, MI

[1] Meter station will be located within the associated compressor station.
[2] The Clarington Station will contain two receipt meters and two bidirectional meters.
[3] The Cadiz Station will contain two receipt meters.

Typical equipment installed at each meter station includes a supply line, ultrasonic meter skid(s), pressure and flow control regulator skid(s), a check valve, a positive shut-in valve, gas chromatograph and quality samplers, a valve with actuator to which gas quality monitors shall be connected, filter/separation facilities plus tank and containment, over-pressure protection, gas heaters (if required), a data acquisition system, building(s), electrical power, above ground piping, and fencing. Meter run piping and components will be located outside the receipt or delivery meter building. Electrical power will be provided for building cooling, lighting, ventilation, and control equipment. A small satellite dish may be installed for Supervisory Control and Data Acquisition (SCADA). The satellite dish will have a diameter of approximately four feet and will be mounted on a pole approximately five feet in height (see Appendix 1D). Telephone or cellular service also will be required for voice communications and SCADA backup.

1.3.2.3 Tie-In Facilities

There are six tie-in sites at pipeline interconnections that are located outside of the compressor or meter station sites. These Tie-In sites include a MLV side valve and a launcher/receiver as described in Sections 1.3.2.4 and 1.3.2.5, respectively, for the pipeline segment. Tie-In sites are listed on Table 1.3-5.

TABLE 1.3-5
Tie-In Facilities

Tie-In Facility[1]	Pipeline Segment MP	Township/ Nearest Town	County, State
Supply Laterals:			
CGT Tie-In (CGT/Sherwood Laterals)	Sherwood Lateral MP 0.2	Beech	Doddridge, WV
Sherwood Tie-In (Sherwood/Seneca Laterals)	Seneca Lateral MP 16.7	Sunsbury	Monroe, OH
Majorsville Tie-In (Majorsville/Clarington Lateral)	Clarington Lateral MP 11.8	Smith	Belmont, OH
Cadiz Tie-In (Cadiz/Clarington Laterals and Supply Connector Lines A and B)	Clarington Lateral MP 32.6	Cadiz	Harrison, OH
Burgettstown Tie-In (Burgettstown/Supply Connector Lines A and B)	Supply Connector MP 18.4	Leesville	Carroll
Mainlines:			
Mainline B (tie-in with Mainline A)	Mainline A MP 202.1	Tiffin	Defiance, OH

[1] Tie-In Sites could include MLV(s) and launcher/receiver.

1.3.2.4 Mainline Valves

MLVs are installed at intermediate locations along the Project and at the beginning and end of each pipeline segment, as required to meet operational needs and the design requirements specified by the U.S. Department of Transportation (USDOT) in 49 CFR § 192.179(a) – Transmission Line Valves. MLVs will be installed within the permanent pipeline right-of-way or at the compressor or meter station sites, and will most likely be buried with only the valve operators and blowoffs extending above the ground surface. To the extent practicable, the MLVs are located near existing roads to enable easy access from public roadways and reduce the requirement for construction of new access roads. Each MLV will be contained within a fenced, gated, and locked area.

1.3.2.5 Launchers and Receivers

Generally, a launcher will be installed at the beginning of each pipeline segment and a receiver at the end of each pipeline segment (or vice versa) to accommodate in-line inspection tools (smart pigs) for the periodic internal inspection of the pipeline during operations. Similar to the MLVs, the launchers and receivers will be installed within the Tie-In Sites identified in Section 1.3.2.3, or at the compressor or meter station sites. The launcher/receiver will extend the pipeline aboveground to facilitate the insertion/removal of the in-line inspection tools.

1.3.3 Design Standards

All pipeline facilities and associated appurtenances will be designed, constructed, tested, operated, and maintained to conform to or exceed the requirements of the USDOT in 49 CFR Parts 191 and 192, Transportation of Natural and Other Gas by Pipeline, Minimum Safety Standards, Annual Reports, Incident Reports, and Safety-related Condition Reports, 18 CFR § 380.15, Site and Maintenance Requirements, and other applicable federal and state regulations.

The Supply Laterals, Mainlines A and B, and Market Segment pipelines will be constructed of carbon steel pipe that has been manufactured in accordance with the American Petroleum Institute's (API) specifications for seamless and welded steel line pipe for use in conveying gas in the natural gas industries (API 5L). The pipe will be protected from external corrosion by a fusion-bonded epoxy coating and an impressed current cathodic protection system. The pipe will be internally coated to protect against internal corrosion and to increase the flow efficiency of the pipeline, thus reducing fuel consumption and compression horsepower required to transport a given volume of gas in the pipeline, and ultimately reducing greenhouse gas emissions associated with the Project.

1.3.4 Status of Field Surveys and Reports

Detailed civil, biological, and cultural field surveys began in mid-June 2014 within a 250 to 400-foot-wide survey corridor to accommodate the construction and permanent rights-of-way, ATWS, and minor route realignments that may be required for site-specific features. Environmental components of the survey program include delineations of wetlands and waterbodies, identification of threatened and endangered species or their habitat, surveys for cultural resources within the area of potential effect, identification of nearby water supply wells and residences, and noise surveys at the compressor stations, HDD sites, and independent meter stations (i.e. those not included within compressor stations). The survey corridor was typically 400 feet wide. However, in some locations, as described in Section 8.2.1 in Resource Report 8, the survey corridor was reduced to approximately 250 feet wide for all survey disciplines. The survey corridor was reduced to 250 feet under special circumstances where even small reroutes were not anticipated, such as in areas of extreme topography where the proposed line was adjacent to existing rights-of-way or property lines, etc.

As of the end of October 2014, survey permission had been granted on approximately 92.5 percent of the pipeline, representing 93 percent of the Supply Laterals, 91 percent of the Mainlines A and B, and 92 percent of the Market Segment. Table 1.3-6 summarizes the status of the civil and environmental surveys completed on the pipeline through October 30, 2014 and the corresponding data collected are included on the alignment sheets and in these resource reports. Noise surveys have been completed at the compressor station sites and HDD sites and are in progress at independent meter station sites, the results of which will be provided in April, 2015. More detailed information on the methodologies used and the status and results of surveys completed to date are included in Resource Report 2 (Water Use and Quality), Resource Report 3 (Vegetation and Wildlife, including threatened and endangered species), and Resource Report 4 (Cultural Resources); and Resource Report 9 (Air Quality and Noise).

Rover has begun the process of acquiring tracts and that process will continue throughout 2015. As stated in Section 8.2.2 in Resource Report 8, it is Rover's intention to enter into mutually beneficial agreements with landowners and avoid the use of eminent domain to the maximum extent possible.

TABLE 1.3-6
Summary of Status of Completed Civil and Environmental Surveys through October 2014

Facility	Total Miles	Civil	Cultural	Biological
Supply Laterals:				
Sherwood Lateral	54.0	52.17	52.0	52.0
CGT Lateral	5.7	5.7	5.7	5.7
Seneca Lateral	25.6	25.6	25.6	25.6
Berne Lateral	3.7	3.7	3.7	3.7
Clarington Lateral	32.6	30.55	25.3	25.3
Majorsville Lateral	23.9	22.65	22.2	22.2
Cadiz Lateral	2.9	2.19	0.0	0.0
Supply Connector Lines A and B [1]	18.8	18.77	18.77	18.77
Burgettstown Lateral	51.3	43.5	41.0	41.4
Subtotal: Supply Laterals	*218.5*	*204.83*	*194.27*	*194.67*
Mainlines:				
Mainlines A and B [1]	190.6[1]	173.65	165.73	166.23
Market Segment	100.0	92.18	86.15	90.39
Subtotal: Mainlines	*290.6*	*265.83*	*251.88*	*256.62*
TOTAL	**509.1**	**470.66**	**466.15**	**451.29**
	Percent Complete	**92.4%**	**87.6%**	**88.6%**

[1] Supply Connector Line B (18.8 miles) and Mainline B (183.3 miles) included within survey corridor for Supply Connector Line A and Mainline A, respectively.

Both civil and environmental surveys are ongoing, as weather and survey permissions permit, along the pipelines, as well as at the aboveground facility sites, temporary and permanent access roads, and contractor yards. As currently planned, the additional surveys will be completed in 2015 at all locations where landowner permission has been obtained, and addendum survey reports will be submitted when available or by the 3rd Quarter 2015. These reports include the:

- results of continuing civil and environmental surveys of the pipeline routes, aboveground facility sites, temporary and permanent access roads, and contractor yards, including reroutes;
- results of geotechnical investigations of HDD sites, including hydraulic fracture analyses;
- results of noise surveys at independent meter station sites; and
- results of species-specific surveys.

Reports or data resulting from the 2015 surveys will be provided in supplemental filings as soon as possible following the completion of each type of survey. Table 1.3-7 summarizes the estimated schedules for pending biological, cultural, and geotechnical investigations and the associated reports. Species-specific surveys are addressed in Section 3.4 and Table 3.4-3of Resource Report 3.

TABLE 1.3-7
Summary of Status of Pending Surveys

Surveys	Survey Timing[1]	Reports Issued
Biological surveys (general habitat)	Spring and Summer 2015	3rd Quarter 2015
Cultural surveys	Spring and Summer 2015	3rd Quarter 2015
Geotechnical investigations	Spring and Summer 2015	2nd Quarter 2015
Noise studies at independent meter station sites	Spring 2015	2nd Quarter 2015

[1] Survey timing depend on the timing of spring thaws, the weather, landowner survey permission, etc.

1.4 LAND REQUIREMENTS

Construction and operation of the Supply Laterals, Mainline, and Market Segment will require acquisition of construction work areas consisting of the temporary construction right-of-way, ATWS, temporary access roads from public roadways to the construction work areas, and temporary contractor yards. Following construction, all construction work areas will be restored and revegetated. Rover will retain a 50-foot-wide permanent easement for operation of a single pipeline and a 60-foot-wide permanent easement for operation of Mainlines A and B (dual pipelines) and Supply Connector Lines A and B (dual pipelines).

Table 1.4-1 summarizes land requirements for construction and operation of the Project components. Table 1A-3 in Appendix 1A lists each ATWS and the need for the ATWS. Table 1A-4 in Appendix 1A lists permanent and temporary access roads to be used during construction and operation of the Project. Table 8A-2 in Resource Report 8 provides a breakdown of land cover affected by Project construction and operation.

TABLE 1.4-1
Summary of Estimated Construction and Operation Land Requirements

Facility	State	Construction [1] (acres)	Operation [2] (acres)
Supply Laterals:			
Pipelines	WV, PA, OH	3,506.87	1,341.22
Aboveground Facilities:	WV, PA, OH	172.61	94.92
Access Roads	WV, PA, OH	122.04	18.25
Contractor Yards	WV, PA, OH	313.51	0.00
Supply Laterals Subtotal		*4,115.04*	*1,454.39*
Mainlines:			
Mainlines A and B	OH	3,329.97	1,371.09
Aboveground Facilities:	OH	98.58	47.60
Access Roads	OH	3.94	2.14
Contractor Yards	OH	218.12	0.00
Mainlines Subtotal		*3,650.61*	*1,420.83*
Market Segment	OH, MI	1,711.99	606.32
Aboveground Facilities:	OH, MI	33.04	26.21
Access Roads	OH, MI	5.24	1.80
Contractor Yards	OH, MI	59.03	0.00

TABLE 1.4-1
Summary of Estimated Construction and Operation Land Requirements

Facility	State	Construction [1] (acres)	Operation [2] (acres)
Market Segment Subtotal		*1,809.30*	*634.33*
PROJECT TOTAL		**9,574.95**	**3,509.55**

[1] The construction work area includes the construction right-of-way, which varies from 75 to 150 feet, and ATWS where required. See Section 1.4.1 for description of land requirements for construction and Table 8A-2 in Resource Report 8 for additional breakdown of land requirements.
[2] Permanent right-of-way is 60 feet for dual pipelines (Mainlines A and B and Supply Connector Lines A and B) and 50 feet for a single pipeline.

1.4.1 Pipeline Facilities

Installation of the pipeline will be accomplished along the construction right-of-way as a moving assembly line as described in Section 1.6.1. The following sections describe the various components of the construction work areas and land that will be maintained for operation of the Project.

1.4.1.1 Construction Right-of-Way

Attachment 1B in Volume IIB includes typical right-of-way cross-sections for construction in uplands, agricultural land, and wetlands for locations where one pipeline or dual pipelines will be installed. Rover is proposing to use a construction right-of-way width that will provide for safe working conditions and efficient pipe installation for the 24-, 30-, 36-, and 42-inch-diameter pipe, as well as locations where dual 42-inch-diameter pipelines will be installed, while also protecting sensitive environmental resources. The dimensions of Rover's typical construction rights-of-way are based on the following considerations:

- Trench Depth:
  - Trench depths are dependent on the size of pipe and the minimum cover requirements. Trench depths for the 24-inch pipelines in upland areas, where 36 inches of cover is maintained, are a minimum of 60 inches (5 feet) in depth. Pipeline diameters of 30, 36, and 42 inches would each require an incremental and additional 6 inches respectively, whereby a 42-inch pipe with 36 inches of cover would require a 6.5-foot-deep trench at a minimum.
  - A minimum of 48 inches of cover will be maintained in agricultural land, adding an additional foot of depth to all trenches excavated in agricultural areas.
  - Pipeline depth under roads and streams would be 60 inches (5 feet), adding two feet of additional depth to all trenches excavated through streams or roads that are open cut or leading up to a bore hole of a stream or road that will be bored.
  - Trenches in rocky soils would require approximately 6 inches of additional depth in order to add a layer of soil to pad the pipeline and avoid disturbance of the pipe coating by the rocks.
  - In areas of saturated soils, trench depths may be increased to maintain the required cover over the pipeline where the addition of set-on or saddle-bag type weights are required to maintain negative buoyancy.

- Maximum depths of 15 feet or greater are possible at foreign line crossings, areas with drain tile, locations where bell holes are required to accommodate tie-ins between pipe segments, etc.

- Trench Widths:
  - Trench widths are primarily dependent upon the depth of the trench and the cohesive ability of the soils to comply with the Occupational Safety & Health Administration Standard Number 1926.650. Standard Number 1926.650 requires the walls of a trench to be more gradually sloped and/or terraced in less cohesive soils, which results in a wider trench than in more cohesive soils.
  - A 5-foot-deep trench, which is the minimum possible trench depth for the Project pipelines as described above, would result in a minimum width of approximately 14 feet.
  - Trench widths would be wider as the depth of the trench increases for larger diameter pipe, with typical widths of 20 to 25 feet for 30-, 36-, or 42-inch diameter pipe.
  - Trench widths are also anticipated to be wider in wetland soils, especially within saturated wetlands, due to reduced cohesion of soils.
  - Maximum widths of 45 feet are possible at bore locations, where the trench would need to be deep and wide enough to accommodate the bore equipment and account for the safety of the personnel operating the equipment.
  - Storage for trench spoil and topsoil will require between 30 and 60 feet (depending on the width and depth of the trench and topsoil stripping) to prevent sloughing of the spoil back into the trench and maintain safe work areas for construction workers. In environmentally sensitive areas, spoil can be placed in nearby ATWS to reduce right-of-way width requirements.

- Construction Work Area – The equipment work area typically will require approximately 65 feet for efficient and safe pipe installation and to accommodate:
  - The large equipment used to install 30-, 36-, and 42-inch-diameter pipe – A 583 or 594-sized sideboom used to maneuver and install the pipe requires a minimum of about 25 feet of right-of-way to accommodate the partially extended counterweight needed to offset the 80-foot-long, 30-, 36-, or 42-inch-diameter pipe joints.
  - Automatic Welding – Rover will use state of the art welding processes to weld the larger diameter pipe joints together before lowering the pipe into the trench. This involves use of portable shelters, commonly referred to as “sheds” or “shacks,” that are leapfrogged down the right-of-way by sidebooms during mainline welding operations. The standard width of these sheds is between 10 and 12 feet, not including maneuvering room for the sideboom to move the sheds down the right-of-way.
  - A travel lane – The travel lane is essential for efficient pipeline construction and allows equipment and support crews to pass around construction activities and to provide ingress and egress for safety personnel and equipment in the event of an accident. During pipe laying activities, the travel lane allows sidebooms to leapfrog along the right-of-way, allowing for longer segments of pipe to be installed. For short distances and in environmentally sensitive areas, the travel lane can be reduced, although ATWS is often required outside of the sensitive areas for pipe makeup and/or spoil storage.

The construction right-of-way width and temporary land requirements for installation of the Supply Laterals, Mainlines A and B, and Market Segment will differ according to the type of terrain encountered, construction methods that will be used, and environmental sensitivity of the land being crossed. The typical right-of-way cross-sections are provided in Attachment 1B in Volume IIB. Based on its construction experience involving the installation of 24-, 30-, 36-, and 42-inch-diameter pipe, and evaluation of the environmental sensitivity of the land being crossed, Rover is proposing use of the following typical construction right-of-way widths:

- Single Pipeline – 24-inch (Berne, CGT, and Majorsville Laterals):
  - 100 feet in agricultural land (i.e., full right-of-way topsoil segregation)
  - 75 feet in upland areas, and non-forested and forested wetland areas
  - 75 feet plus 25 feet of ATWS in areas of side slope
- Single Pipeline – 30-inch (Cadiz Lateral), 36-inch (Burgettstown and Sherwood Laterals), and 42-inch (Seneca and Clarington Laterals, and Market Segment):
  - 150 feet in agricultural land (i.e., full right-of-way topsoil segregation)
  - 125 feet in upland areas (i.e., non-sensitive environmental areas where adequate workspace is available to expedite construction and install long sections of pipe)
  - 125 feet plus 25 feet of ATWS in areas of side slope
  - 100 feet in non-forested wetland areas
  - 75 feet in forested wetland areas
- Dual Pipelines – 42-inch (Supply Connector Lines A and B, and Mainlines A and B):
  - 150 feet in agricultural land (i.e., full right-of-way topsoil segregation)
  - 135 feet in upland areas (i.e., non-sensitive environmental areas where adequate workspace is available to expedite construction and install long sections of pipe)
  - 135 feet plus 15 feet of ATWS in areas of side slope
  - 120 feet in non-forested wetlands
  - 95 feet in forested wetlands where soil conditions are stable.

The Supply Laterals, Mainlines A and B, and Market Segment will be installed parallel or adjacent to other pipeline or electric transmission lines to the extent feasible. Generally, the Rover pipelines will be installed approximately 40-50 feet from the existing pipeline or transmission line structure and the permanent easements for the Rover pipelines and existing utility line will abut each other. The temporary construction right-of-way may overlap existing pipeline and electric transmission rights-of-way, where approved by the utility, while providing a safe separation distance between the Rover pipelines and existing pipelines and/or utility lines.

Dual pipelines, including the Supply Connector Lines A and B and Mainlines A and B, will be installed at a separation distance of approximately 20 feet.

1.4.1.2 Additional Temporary Workspace

ATWS will be required where an obstacle prevents the normal placement of spoil and the placement of pipe sections immediately adjacent to the pipe trench (for example, at a waterbody crossing or road crossing), where additional volumes of spoil will be generated in areas where a reduced right-of-way is being used (for example, at wetland crossings), or where additional construction operations will be performed (for example, at HDDs).

ATWS typically will be required on both sides of road, railroad, wetland, and waterbody crossings, at truck turnarounds, at hydrostatic test water withdrawal pump locations, at pipe tie-ins, at HDD entry and exit points, at foreign pipeline or other utility crossings, and for staging and fabrication of drag sections. The size and configuration of each ATWS is unique and dependent upon the existing conditions at each work location (e.g., available or accessible space, the presence of buildings and other structures, crossing angle, crossing depth, length of crossing, terrain, or the presence of trees or sensitive habitat). See Appendix 1A, Table 1A-3 for locations and purpose of each ATWS.

1.4.1.3 Access Roads

Access roads are used to transport construction workers, equipment, and materials to the construction work area from public interstate, state and county highways/roads. These access roads include private roads and/or two-tracks that may require minor modification or improvement to safely support the expected loads associated with the movement of construction equipment and materials to and from the public roadways to the construction right-of-way. Modifications or improvements to these access roads may include grading or other minor maintenance to prevent rutting during use, placement of additional gravel or crushed stone on the existing surface, enlargement to accommodate the pipeline equipment, such as stringing trucks, and/or installation of board or timber mats that will be removed upon completion of construction. See Appendix 1A, Table 1A-4 for access road locations, length, and existing surface condition.

1.4.1.4 Contractor Yards

Contractor storage yards are needed for various uses, such as stockpiling pipe, fabricating concrete weights and piping assemblies, staging construction operations, storing construction materials, parking equipment, and for temporary construction offices. Depending upon the condition of these yards and their current use, some surface grading, drainage improvements, placement of surface materials (i.e., crushed rock), and creation of internal roadways may be required. To the extent feasible and available, Rover will lease yards that have been previously disturbed for other industrial purposes or during construction of other projects. A list of proposed contractor yards is included in Table 1A-5 in Appendix 1A and maps of the locations are included in Appendix 1C, Figure 1C-1.

1.4.1.5 Operations Easement

Following construction of the Supply Laterals, Mainlines A and B, and Market Segment, Rover will retain 50 to 60 feet of the construction right-of-way as a permanent easement to allow for inspection and maintenance of the pipeline during operation. Rover will retain a permanent easement of 50 feet where one pipeline will be installed and 60 feet where dual pipelines will be installed.

1.4.2 Aboveground Facilities

Rover will purchase land for construction and operation of the 10 compressor stations and 19 meter stations. The compressor and meter stations will be located on land adjacent to the pipelines that is large enough to accommodate station facilities. The MLVs and launchers/receivers will be located within the permanent easement for the pipeline or at the tie-in, compressor or, meter station, or tie-in sites.

1.5 CONSTRUCTION SCHEDULE AND COMPLIANCE PROCEDURES

1.5.1 Construction Schedule

Rover plans to commence construction in January 2016, pending receipt of all applicable permits and clearances. The Supply Laterals and Mainlines A and B are scheduled to be in-service in December 2016. The Market Segment is scheduled to be in-service no later than June 2017.

Rover will install the pipeline using multiple construction spreads, and smaller work crews for the HDDs, meter stations, MLVs, and launchers/receivers. Separate construction crews will complete work at the new compressor stations. The order in which each facility will be constructed may vary depending upon the capabilities of each contractor, available workforce and optimized construction logistics. Table 1.5-1 summarizes the construction spreads and anticipated average and peak construction workforce. A detailed breakdown is provided in Resource Report 5. The estimated peak Project construction work force is expected to be approximately 14,225 workers, with approximately 50 percent anticipated to be local hires or from the local union halls.

Based upon the schedule to execute the Project, high quality and trained staff and available resources, Rover has committed to utilize union labor in cooperation with the Pipeline Contractors Association (PLCA) to build the Project. The PLCA has an agreement in place with the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, American Federation of Labor and, Congress of Industrial Organizations , Laborers' International Union of North America, International Union of Operating Engineers, and the International Brotherhood of Teamsters. Although the International Brotherhood of Electrical Workers (IBEW) is not a part of that agreement, Rover has agreed to utilize the IBEW for electrical work. As part of this arrangement, Rover will rely upon the collective bargaining agreements, with each union under their own respective "National Pipeline Agreement," which are currently valid from July 2014 to June 2017. These agreements specify and define that the portion of local versus regional or non-local resources. As such, Rover anticipates at least 50% of the workforce to come from the local union halls.

Approximately 38 workers will be hired to operate the new pipeline system. The proposed locations for these employees are detailed in Table 5.2-1 in Resource Report 5.

TABLE 1.5-1
Average and Peak Construction Work Force

Facility	State	Miles	Average Workforce	Peak Workforce
Pipelines:				
Sherwood Lateral	WV, OH	54.0	525	700
CGT Lateral	WV	5.7	50	75
Seneca Lateral	OH	25.6	225	300
Berne Lateral	OH	3.7	105	150
Clarington Lateral	OH	32.6	225	300
Majorsville Lateral	WV, OH	23.9	350	500
Cadiz Lateral	OH	2.9	105	150
Burgettstown Lateral	PA, WV, OH	51.3	525	700
Supply Connector Lines A and B	OH	18.8	525	750
Mainlines A and B	OH	190.6	2,625	3,750
Market Segment[1]	OH, MI	100.0	1,200	1,500
Aboveground Facilities:				
Sherwood Compressor Station	WV	--	156	250
Majorsville Compressor Station	WV	--	156	250
Seneca Compressor Station	OH	--	156	250
Clarington Compressor Station	OH	--	156	250
Cadiz Compressor Station	OH	--	156	250
Burgettstown Compressor Station	PA	--	156	250
Mainline Compressor Station 1	OH	--	169	250
Mainline Compressor Station 2	OH	--	169	250
Mainline Compressor Station 3	OH	--	169	250
Defiance Compressor Station[1]	OH	--	196	250
Meter Stations	PA, WV, OH, MI	--	1,713	2,850
		Totals	**--**	**14,225**

[1] The Market Segment and Defiance Compressor Station include approximately 18 months of construction.

1.5.2 Compliance Assurance Measures

To ensure that construction of the Project facilities will comply with mitigation measures identified in Rover's applications and supporting documentation, the FERC's environmental conditions, and the requirements of other federal and state permitting agencies, Rover will include, whenever appropriate, environmental requirements in its construction drawings and specifications. To solicit accurate bids for pipeline construction, Rover will provide these specifications and advance versions of the Construction Drawing Package to qualified prospective pipeline contractors. Contractors selected to perform work on the Project will receive copies of specifications and a Construction Drawing Package containing pipeline and aboveground facility drawings designated as being approved for construction.

For those mitigation measures that address pre-construction surveys and clearances, Rover will include pertinent correspondence documenting compliance with these mitigation measures in the Construction

Drawing Package. For those mitigation measures that address permit conditions from federal, state, and local agencies, Rover will include copies of permits and related drawings in the Construction Drawing Package. For those mitigation measures that, in part, address post-construction requirements, Rover will include instructions and documentation that will be provided to operating personnel following the completion of construction. These maintenance instructions will include copies of pertinent permits with particular reference to long-term permit conditions and reporting requirements.

Rover will require the selected contractors to install the proposed facilities according to Rover's standard specifications, the Construction Drawing Package, and the terms of a negotiated contract. To support the application of proper field construction methods, Rover will comply with the Rover's *Upland Erosion Control, Revegetation and Maintenance Plan* (Rover Plan) and has prepared a Project-Specific *Waterbody and Wetland Construction and Mitigation Procedures* (Rover Procedures) to address the site-specific conditions in the Project area (see Appendix 1B). The Rover Procedures are based on the FERC's 2013 Procedures, and include best management practices to be implemented before, during, and after construction to minimize impacts on uplands, wetlands, and surface waters. Any deviations from, or additions to, the FERC Procedures have been identified for FERC approval prior to implementation.

Appendix 1B includes the following plans that Rover will implement during construction of the Project:

- *Rover's Upland Erosion Control, Revegetation and Maintenance Plan* (Rover Plan) to support the application of proper field construction methods in upland areas;
- *Rover's Waterbody and Wetland Construction and Mitigation Procedures* (Rover Procedures) to support the application of proper field construction methods in wetlands and waterbodies, including project-specific exceptions for which Rover is requesting authorization from the FERC;
- *Spill Prevention and Response Procedures* (SPR Procedures) that provides procedures for hazardous materials transportation, handling, storage, spill prevention, and spill response;
- *Horizontal Directional Drill Contingency Plan* (HDD Plan) that provides procedures to be followed during HDD operations to minimize the potential for release of drilling fluids, containment and cleanup of inadvertent releases of drilling fluids should they occur, and steps that will be followed if the HDD cannot be completed as planned;
- *Agricultural Impact Mitigation Plans* (AIM Plans) for Ohio and Michigan that contain measures that will be implemented at a minimum during construction through agricultural fields;
- *Winter Construction Plan* that specifies erosion control and stabilization measures that will be implemented in areas during winter construction and where the construction work areas are not fully restored and revegetated prior to winter;
- *Karst Mitigation Plan* to address procedures to be employed in karst areas;
- *Blasting Plan* to address general procedures to be employed should blasting be required;
- *Unanticipated Discoveries Plan for Paleontological Resources* in the event that unanticipated paleontological resources are encountered;
- *Environmental Complaint Resolution Procedures* so that landowners and stakeholders may report environmental complaints or concerns and a process for resolving these concerns; and
- *Residential Access and Traffic Management Plan* to be employed during construction.

In addition, Rover will implement its *Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains* in the event that unanticipated cultural resources or human remains are encountered during construction. These procedures are included in Resource Report 4, Appendix 4B.

Rover will conduct environmental training sessions for all Rover construction management and contractor personnel prior to and during the pipeline installation. While this training will focus on implementation of best management practices contained in the plans in Appendix 1B, it will also include instructions on construction work area limits, permit requirements, and other mitigation measures, as appropriate.

Rover will employ full-time Environmental Inspectors, including Agricultural Inspectors, for each construction spread for the duration of Project construction. One Lead Environmental Inspector will be assigned to each spread, and one Chief Environmental Inspector will be assigned to the entire Project. All Environmental Inspectors will report to Rover's Environmental Compliance Manager. The Environmental Inspectors will have duties consistent with those contained in Paragraph II.B. (Responsibilities of Environmental Inspectors) of the Rover Plan, including ensuring compliance with environmental conditions attached to any certificate issued by the FERC for the Project, Project environmental designs and specifications, and environmental conditions attached to other permits or authorizations. Rover will provide training for its Environmental Inspectors regarding proper field implementation of the Rover Plan and Rover Procedures, hazardous materials management, and other mitigation measures included in Appendix 1B.

For purposes of quality assurance and compliance with mitigation measures, other applicable regulatory requirements, and Rover specifications, Rover also will be represented on each construction spread by a Chief Construction Inspector and one or more Craft Inspectors. Rover's Engineering and Project Management departments will be responsible for designing and constructing the facilities in compliance with regulatory and non-regulatory requirements and agreements. The Construction Site Manager will address any issues of noncompliance with mitigation measures or other regulatory requirements. If technical or management assistance is required, the Chief Inspector will request assistance from the appropriate Rover department or division. Rover's Operations Department will be responsible for long-term Project maintenance and regulatory compliance.

At the request of FERC, Rover will fund a third-party environmental compliance monitoring program that will be managed by the FERC. The overall objective of the compliance monitoring program will be to: assess environmental compliance during construction to achieve a high level of compliance; assist the FERC staff in screening and processing requests for variances during construction; and create and maintain a database of daily reports documenting compliance. Final details regarding staffing and implementation of the compliance monitoring program will be developed in consultation with the FERC prior to the commencement of construction and as part of the initial Implementation Plan documenting how Rover will comply with mitigation measures identified in the Order that may be issued by the FERC for the Project.

1.6 CONSTRUCTION PROCEDURES

1.6.1 Pipeline Facilities

Construction of the Project will follow industry-accepted practices and procedures, as further described below. Generally, construction of the Project pipelines will follow a set of sequential operations as shown in Figure 1.6-1, Typical Pipeline Construction Sequence. In this typical pipeline construction scenario, the construction spread proceeds along the pipeline right-of-way in one continuous operation. The entire process will be coordinated in such a manner as to minimize the total time a tract of land is disturbed and therefore exposed to erosion and temporarily precluded from normal use.

To minimize the impacts of construction disturbance, Rover will implement the Rover Plan and Rover Procedures as approved by the FERC. The following sections provide descriptions of activities along a typical construction spread, as well as other specialized construction methods that will be used to install the pipeline at waterbody, road, and railroad crossings, and in wetland, residential, and agricultural areas.

Described below are the activities associated with conventional construction for large-diameter pipelines. Where dual 42-inch-diameter pipelines will be installed, clearing and grading will be conducted for both pipelines in a single pass. Installation of the pipelines will be slightly staggered, where one pipeline will be assembled and installed from stringing through backfill and rough cleanup, and then the second pipeline will be installed in a similar manner through the area directly afterward. Final restoration and cleanup will be completed following installation of both pipelines. The dual pipelines may will be installed concurrently in areas requiring specialized crews, such as road/railroad crossings, foreign pipeline crossings, congested residential areas, HDD crossings, and other bored crossings. A description of dual pipeline installation during certain construction activities is included below where applicable.

1.6.1.1 Typical Upland Pipeline Construction Procedures

Surveying

The initial step in preparing the right-of-way for construction is the civil survey. Affected landowners will be contacted and requested to permit Rover agents to enter property prior to surveying and staking of the centerline and workspaces for construction.

Arrangements will be made at this time with the landowner for management of livestock during construction. This may involve fencing off the construction work areas, relocating the livestock to other pastures, or boarding the animals at offsite locations.

The civil survey crew will stake the outside limits of the construction right-of-way, the centerline location of the pipeline, drainage centerlines and elevations, highway and railroad crossings, and any temporary extra workspace, such as lay down areas or at stream crossings. The “One Call” system of each state will be contacted to allow state and local utility operators to verify and mark all underground utilities (e.g., cables, conduits, and pipelines) located within the construction work areas. To further minimize the

potential for damage to buried facilities, field instrumentation, and or test pits excavated using "soft digging" techniques (such as excavation by hand), will be used to locate utilities.

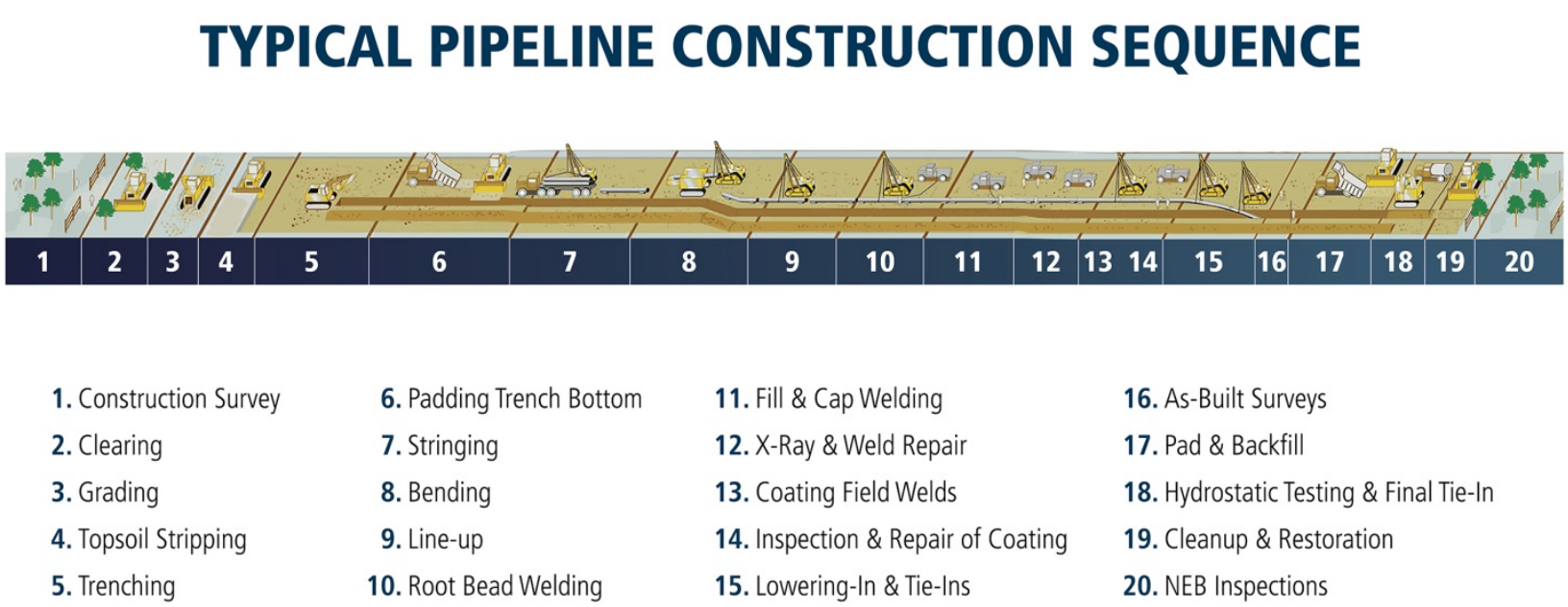

Figure 1.6-1 Typical Pipeline Construction Sequence

Clearing and Grading

Following surveying, the right-of-way will be cleared. Large obstacles such as trees, rocks, brush, and logs will be removed. Trees will be felled by hand or mechanical means. To minimize impacts on bat species, Rover intends to fell trees in winter and leave them in place until construction activities are initiated in the spring. Areas disturbed during tree cutting operations will be stabilized as necessary in accordance with Rover's *Winter Construction Plan* (see Appendix 1B). When construction begins, timber and other vegetation debris may be chipped for use as erosion-control mulch, burned, sold, or otherwise disposed of in accordance with applicable state and local regulations, and landowner easement agreements. Where allowable, burning will be conducted in such a manner as to minimize the fire hazard and prevent heat damage to surrounding vegetation. Fences will be cut and braced along the right-of-way, and temporary gates will be installed to control livestock and limit public access.

The right-of-way will then be graded where necessary to create a reasonably level working surface to allow safe passage of construction equipment and materials, and for operation of pipe fabrication and installation equipment. During the grading operation, temporary flume pipes will be installed as necessary to maintain surface drainage. Temporary erosion control measures, such as silt fencing and interceptor dikes, will be installed during topsoil and subsoil removal. Topsoil will be removed from the trenchline in all areas and will be removed from the full right-of-way in agricultural land as described in Section 1.6.1.9 below. Conserved topsoil will typically be stockpiled along one side of the right-of-way, allowing the other side to be used for access, material transport, and pipe assembly. In areas where dual pipelines will be installed, the full width of the right-of-way will be cleared and graded prior to construction of the first pipeline.

Trenching

To bury the pipeline underground, it will be necessary to excavate a trench. The trench will be excavated with a rotary trenching machine, a track-mounted backhoe, or similar equipment. Generally, the trench bottom will be excavated at least 12 inches wider than the diameter of the pipe. The sides of the trench will be sloped with the top of the trench up to 20 feet across, or more, depending upon the stability of the native soils. The trench will be excavated to a sufficient depth to allow a minimum of 3 feet of soil cover between the top of the pipe and the final land surface after backfilling. Additional cover will be provided at crossings of waterbodies, agricultural lands, roads, and railroads. Excavated soil will typically be stockpiled along the trench (the "spoil" side) and away from the construction traffic and pipe assembly area (the "working" side). Where the pipeline is adjacent to an existing pipeline, the spoil will be placed on the same side of the trench as the existing pipeline. No working equipment will operate over the active pipeline. When trenching near foreign buried utilities, soft digging methods (hand excavation or an excavator bucket without teeth or side cutters) will be used to fully excavate any foreign line (see Section 1.6.1.6). In areas where dual pipelines will be installed, trenching for each pipeline will be staggered where only one trench will be excavated at a time at any particular location and the first pipe will be installed and backfilled prior to the second trench being excavated.

Stringing

Steel pipe will be procured in nominal 40-foot, 60-foot, and 80-foot lengths, or "joints," protected with an epoxy coating applied at the factory or at a coating yard (the beveled ends will be left uncoated for welding) and shipped to strategically located materials storage areas, or "pipeyards." The individual joints may be transported to the right-of-way by truck and placed along the excavated trench in a single, continuous line, easily accessible to the construction personnel on the working side of the trench, typically opposite the spoil side. This will allow the subsequent lineup and welding operations to proceed efficiently. At stream crossings, the amount of pipe required to span the stream will be stockpiled in temporary extra workspaces on one or both banks of the stream. In areas where dual pipelines will be installed, stringing of each line will be staggered, where only one pipeline will be strung at a time at any particular location, and the first pipe will be installed and backfilled prior to the second pipeline being strung.

Pipe Bending

The pipe will be delivered to the job site in straight joints. While some induction bends may be used, some bending of pipe will be required to allow the pipeline to follow natural grade changes and direction changes of the right-of-way. Prior to welding, selected joints will be bent in the field by track-mounted hydraulic bending machines.

Pipe Assembly and Welding

Following stringing and bending, the joints of pipe will be placed on temporary supports, adjacent to the trench. Rover will use state of the art welding processes to join multiple pipe joints together, where appropriate, and tie-in welds where needed at road, railroad, stream or wetland crossings. The pipe joints will be carefully aligned and welded together using multiple passes for a full penetration weld. Only qualified welders will be allowed to perform the welding. Welders and welding procedures will be qualified according to applicable American Society for Mechanical Engineers (ASME), API, and 49 CFR Part 192 Standards.

Non-Destructive Examination and Weld Repair

To ensure that the assembled pipe will meet or exceed the design strength requirements, 100 percent of the pipeline girth welds will be visually inspected and tested for integrity using non-destructive examination (NDE) methods such as radiography (X-ray) or ultrasound, in accordance with API standards. Welds displaying unacceptable slag inclusions, void spaces, or other defects will be repaired or cut out and re-welded.

Coating Field Welds, Inspection, and Repair

Following welding, the previously uncoated ends of the pipe at the joints will be cleaned and epoxy coated in accordance with Rover's specifications. The coating on the completed pipe section will be inspected and any damaged areas will be repaired.

Pipe Lowering

The completed section of pipe will be lifted off the temporary supports and lowered into the trench by side-boom tractors or equivalent equipment. Prior to lowering the pipe, the trench will be inspected to ensure that it is free of rocks and other debris that could damage the pipe or the coating and that the trench and pipe configurations are compatible, and then the pipe will be lowered in. In rocky areas, if the bottom is not smooth, a layer of soil may be placed on the bottom of the trench to protect the pipe. Concrete set-on or saddle-bag type weights will be used if required for negative buoyancy in areas of saturated soils.

Padding and Backfilling

After the pipe is lowered into the trench, the trench will be backfilled. Previously excavated materials will be pushed back into the trench using bladed equipment or backhoes. Where the previously excavated material contains large rocks or other materials that could damage the pipe or coating, the subsoil will be sifted to remove any rock greater than 1 inch from the padding material, or clean fill and/or protective coating (rock shield) will be placed around the pipe prior to backfilling. Segregated topsoil, where applicable, will be placed after backfilling the trench with subsoil. Following backfilling in agricultural land, grassland, and open land, or in specified areas, a small crown may be left in certain areas if requested by a landowner to account for any future soil settling that might occur. Excess soil will only be distributed in upland areas evenly on the right-of-way, while maintaining existing contours.

A caliper pig run will be completed after backfill to ensure there are no dents or damage to the pipe as a result of the construction and backfill process.

Hydrostatic Test and Final Tie-In

Following backfilling of the trench, the pipeline will be hydrostatically tested in a manner that meets or exceeds the requirements of 49 CFR Part 192 to ensure that it is capable of safely operating at the design pressure. Proposed sources, potential water quantities, and discharge locations for hydrostatic test water are provided in Table 1A-6 in Appendix 1A. Test segments of the pipeline will be capped and filled with water. Surface water used for testing will be drawn through a screened intake in accordance with the Rover Procedures. The water in the pipe will be pressurized and held for a minimum of 8 hours in accordance with the Pipeline and Hazardous Materials Safety Administration requirements identified in 49 CFR Part 192. Any loss of pressure that cannot be attributed to other factors, such as temperature changes, will be investigated. Any leaks detected will be repaired and the segment will be retested. In areas where dual pipelines will be installed, the pipelines will be hydrostatically tested at separate times.

Upon completion of the test, the water may be pumped to the next pipe segment for testing, or the water may be discharged. The test water will be discharged at a rate not exceeding 2,000 gallons per minute through an energy-dissipating device in compliance with the Rover Procedures and any state-specific requirements included in the applicable state discharge permits. Once a segment of pipe has been successfully tested and dried, the test cap and manifold will be removed, and the pipe will be connected to the remainder of the pipeline.

Test water will contact only new pipe, and no chemicals will be added. No desiccant or chemical additives will be used to dry the pipe. Rover will implement applicable requirements of the Rover Procedures regarding hydrostatic testing, as well as any specifications listed in individual state permits. Unless expressly permitted or approved, there will be no direct discharge into state-designated exceptional value waters or scenic rivers.

Cleanup and Restoration

Post-construction restoration activities will be undertaken in accordance with the applicable measures in the Rover Plan and Rover Procedures, other permit or agency requirements, and requirements in the landowner easement agreements. After a segment of pipe has been installed, backfilled, and successfully tested, the right-of-way, ATWS, and other disturbed areas will be finish-graded, and the construction debris will be disposed of properly. The surface of the right-of-way disturbed by construction activities will be graded to match original contours and to be compatible with surrounding drainage patterns, except at those locations where permanent changes in drainage will be required to prevent erosion, scour, and possible exposure of the pipeline. Segregated topsoil will be returned to its original horizon, unless otherwise requested by the landowner. In areas where dual pipelines will be installed, topsoil will be segregated and stored through construction of the second pipeline before being returned to the right-of-way. It is Rover's intention to let no more than 20 days pass between backfilling of the first pipe and beginning construction on the second pipe.

Temporary and permanent erosion and sediment control measures, including silt fencing, diversion terraces, and vegetation, will be installed at that time. Private and public property, such as fences, gates, driveways, and roads, which has been disturbed by the pipeline construction, will be restored to original or better condition.

1.6.1.2 Wetland Construction Procedures

Rover has considered minimizing potential impacts to wetlands during selection of its proposed route and will avoid or minimize wetland crossings to the extent practicable. Where wetlands cannot be avoided, crossings of jurisdictional wetlands will be done in accordance with federal and state permits and approvals, and the Rover Procedures, including any deviations requested by Rover and approved by the FERC. In areas where dual pipelines will be constructed, each pipeline will be constructed in wetland areas in accordance with the Rover Procedures.

Operation of construction equipment in wetlands will be limited to that needed to clear the right-of-way, dig the trench, fabricate the pipe, install the pipe, backfill the trench, and restore the right-of-way. Rover will segregate the topsoil over the trench up to 12 inches in depth in wetlands where hydrologic conditions permit this practice. Segregated topsoil will be placed in the trench following subsoil backfilling. In accordance with the Rover Procedures, fuel will not be stored within 100 feet of wetlands or other waterbodies unless otherwise approved by the FERC or the Environmental Inspector. Restoration and monitoring of wetland crossings will be conducted in accordance with the Rover Procedures to ensure successful wetland revegetation.

Unsaturated Wetland Crossings

In crossing unsaturated wetlands (wetlands without standing water or saturated soils), construction will be similar to the typical upland construction described above, with additional measures to protect wetland resources. If normal construction equipment begins to rut or would result in mixing of wetland topsoil and subsoil, low ground pressure equipment will be used, or temporary board or timber equipment mats will be installed to allow passage of equipment with minimal disturbance of the surface and vegetation. Trees will be cut to grade, but stumps will only be removed from the trenchline and from the working side where necessary for safety. Topsoil over the pipe trench will be segregated from subsoils. A vegetation buffer zone may be left between the wetland and the upland construction areas, except for the pipe trench and travel lane and as site-specific conditions warrant. Erosion control measures such as silt fences, interceptor dikes, and straw/hay bale structures will be installed and maintained to minimize sedimentation into off-right-of-way areas. Trench plugs will be installed where necessary to prevent the unintentional draining of water from the wetland. Upon completion of construction, the right-of-way will be restored and a 10-foot-wide strip centered on the pipeline will be maintained in an herbaceous state.

Saturated Wetland Crossings

Saturated wetlands include those with standing water at the time of construction. Topsoil segregation will not be practical in saturated wetlands. Equipment mats or timber mats will be used to facilitate equipment movement through and work within the wetland. Otherwise, construction will be similar to that described above for unsaturated wetlands.

1.6.1.3 Waterbody Construction Procedures

Rover will follow the Rover Procedures to limit water quality and aquatic resource impacts during and following construction. Construction activities will be scheduled so that the pipeline trench is excavated as close to pipe laying activities as possible. In accordance with the Rover Procedures and where the pipeline will not be installed using HDD, the duration of construction across perennial waterbodies will be limited to 48 hours (24 hours to cross the waterbody and 24 hours for restoration) across minor waterbodies (10 feet wide or less) and intermediate waterbodies (between 10 and 100 feet wide). Banks will be returned to as near to pre-construction conditions as possible within 24 hours of completion of each open-cut crossing. Any deviations in timing that would result in extended crossing durations will be identified in advance by Rover and notification made to FERC with site-specific justification. In areas where dual pipelines will be constructed, each pipeline will be constructed in waterbodies in accordance with the Rover Procedures.

Construction methods at waterbody crossings will vary with the characteristics of the waterbody encountered and will be performed consistent with applicable permits and authorizations. Pipe will be installed to provide a minimum of 5 feet of cover from the waterbody bottom to the top of the pipeline. The bottom of the pipeline trench will be excavated to a width of at least 12 inches greater than the diameter of the pipe or to a greater width to allow proper backfill beneath and along the sides of the pipeline.

Trench spoil will be placed on the bank above the high water mark for use as backfill. Excavated spoil that is stockpiled in the construction right-of-way will be at least 10 feet from the stream bank, or in approved ATWS, and will be surrounded by sediment control devices to prevent sediment from returning to the waterbody.

Where the pipeline is prefabricated for installation across the waterbody, the pipeline segment will be long enough to extend for a minimum of 10 feet past the high banks on each side of the waterbody before raising in elevation to the normal trench level. The pipeline may be weighted with buoyancy control concrete weights, saddle-bag type weights and/or screw anchors to obtain sufficient negative buoyancy of the pipeline. All adjacent pipelines will be protected as necessary.

Normal backfill cover requirements will be met and backfill compacted so that it will be equal to or above that of the adjacent undisturbed areas. Ditch plugs of crushed stone, sandbags, or dry soil may also be used to keep backfill from sloughing in toward the center of the waterbody. All waterbody banks will be restored to as close to the original grade as possible, while preventing long-term erosion. All erosion control materials or other materials used for the crossing will be removed from the waterbody, and excavated material not required for backfill will be removed and disposed of at an upland site.

Rover will use the open-cut crossing method where appropriate. Dry-ditch waterbody crossing methods (i.e., dam and pump and flume) will be used where feasible depending upon the actual conditions encountered at the time of construction or where required by federal or state agencies. Major waterbodies (i.e., those greater than 100 feet wide), navigable waters, or sensitive waterbodies identified by federal and state agencies, will be crossed using HDD. The proposed crossing method for each waterbody will be provided in future submittals.

Open-Cut Crossing Method

An open-cut waterbody crossing will use methods similar to conventional upland open-cut trenching. The open-cut construction method will involve excavation of the pipeline trench across the waterbody, installation of a prefabricated segment of pipe, and backfilling of the trench with native material. No effort will be made to isolate the stream flow from the construction activities. Depending upon the width of the crossing and the reach of the excavating equipment, excavation and backfilling of the trench will generally be accomplished using backhoes or other excavation equipment operating from one or both banks of the waterbody. If necessary for reach, the equipment may operate within the waterbody. Equipment in the waterbody will be limited to that needed to complete the crossing. All other construction equipment will cross the waterbody using equipment bridges, unless otherwise allowed by the Rover Procedures for minor waterbody crossings.

In areas where man-made drainages have been created to facilitate agriculture practices (e.g., field or pasture drains), these drainage features will be rerouted or temporarily blocked during trenching to prevent downstream or off right-of-way sedimentation of natural waterbodies. These man-made crossings will be completed as part of mainline construction. For intermittent or ephemeral crossings, pipe will be strung and welded along the trench line. Trench plugs will remain on either side of the crossing or flumes will be installed to maintain water flow during rain events. When the welded pipe

string is ready for installation, the trench plugs or flumes will be removed temporarily to allow the pipe to be placed in the trench, the trench will be backfilled, and the banks restored.

Dam and Pump Crossing Method

The dam and pump method involves installation of temporary dams upstream and downstream of the waterbody crossing. The temporary dams typically will be constructed using sandbags and plastic sheeting. Following dam installation, appropriately sized pumps will be used to dewater and transport the stream flow around the construction work area and trench. Intake screens will be installed at the pump inlets to prevent entrainment of aquatic life, and energy dissipating devices will be installed at the pump discharge point to minimize erosion and stream bed scour. Trench excavation and pipeline installation will then commence through the dewatered portion of the waterbody channel. Following completion of pipeline installation, backfill of the trench, and restoration of stream banks, the temporary dams will be removed, and flow through the construction work area will be restored. This method is generally only appropriate for those waterbody crossings where pumps can adequately transfer the stream flow volume around the work area and there are no concerns about the passage of sensitive species. Where this method is used, Rover will ensure its contractor has redundant pump(s) available on location.

Flume Crossing Method

The flume crossing method is similar to a dam and pump, and will consist of temporarily directing the flow of water through one or more flume pipes placed over the area to be excavated. This method allows excavation of the pipe trench across the waterbody completely underneath the flume pipes without disruption of water flow in the stream. Stream flow will be diverted through the flumes by constructing two bulkheads, using sand bags or plastic dams, to direct the stream flow through the flume pipes. Following completion of pipeline installation, backfill of the trench, and restoration of stream banks, the bulkheads and flume pipes will be removed. This crossing method generally minimizes the duration of downstream turbidity by allowing excavation of the pipeline trench under relatively dry conditions.

1.6.1.4 Horizontal Bore and HDD Crossing Methods

Horizontal bore and HDD are trenchless crossing methods that may be used for crossings under roads, railroads, sensitive resources, and waterbodies. In areas where dual pipelines will be installed, each pipeline will be installed by bore or HDD separately.

Horizontal Bore Method

To complete a horizontal bore, two pits will be excavated, one on each side of the feature to be bored. A boring machine will be lowered into one pit, and a horizontal hole is bored to a diameter approximately two inches larger than the diameter of the pipe (or casing, if required) at the depth of the pipeline installation. The pipeline section and/or casing will be pushed through the bore to the opposite pit. If additional pipeline sections are required to span the length of the bore, they will be welded to the first section of the pipeline in the bore pit before being pushed through the bore.

Because the horizontal bore method involves pits on each side of the feature, this method is primarily used for crossings of roads or railroads. However, adjacent waterbodies or wetlands will typically be included within the length of the bore. Some elevated or channelized waterbodies, such as irrigation ditches, may also be successfully bored, depending upon the groundwater level in the area.

HDD

HDD has been in use since the 1980's as a means to install pipelines under major roadways, and under rivers and at shore approaches to eliminate pipeline exposure from erosion and scour and eliminate impacts to water quality from construction activities that would otherwise occur within the waterbody. Pipelines up to 60 inches in diameter have been successfully installed using this method. The length of pipeline that can be installed by HDD depends upon underlying soil and rock conditions, pipe diameters, and available technology and equipment sizes. An HDD may not be appropriate for every site condition encountered.

HDD involves drilling a pilot hole along a prescribed path and then enlarging that hole using reaming tools to achieve a hole large enough to accommodate the pipe. The reaming tools are attached to the drill string at the exit point of the pilot hole and then rotated and drawn back to the drilling rig, thus progressively enlarging the pilot hole with each pass. During this process, drilling fluid consisting of bentonite clay and water is maintained in drilling pits within the construction work area and will be continuously pumped into the hole to remove cuttings and maintain the integrity of the hole between the HDD entry and exit points. Once the hole has been sufficiently enlarged, a prefabricated segment of pipe will be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole to the drill rig, completing the crossing.

There is the potential for an inadvertent release of drilling mud (frac-out) during execution of an HDD. To minimize the potential for a frac-out, Rover construction personnel and the contractor will conduct visual and pedestrian inspections along the drill path and will continuously monitor drilling mud pressures and return flows. In accordance with the HDD Plan, Rover's contractor will take immediate action to control any inadvertent releases. Depending on the amount of fluid released and its location, these actions include containing the release with containment structures if a large volume is released, cleaning up the affected area, and making adjustments to the composition of the drilling fluid to minimize or prevent recurrence.

Because it is necessary to prefabricate a section of pipe above ground that is equal to the length of the HDD, additional workspace beyond the HDD temporary work area may be needed. Where the HDD and the abutting portion of the right-of-way are in or near parallel alignment, the pull section will be pre-fabricated within the construction right-of-way and no extra workspace will be required for the pull section. If the abutting right-of-way is not aligned with the HDD, an extra workspace (sometimes referred to as a "false right-of-way") will be required.

An access path up to 10 feet wide within the permanent right-of-way between the HDD entry and exit points may be used for access to a water source or as a travel lane. Disturbance will be limited to surface impacts only. This access path will be used to set up pumps for obtaining water for the drilling process

and/or for hydrostatic testing of the pipeline on the banks of the waterbody and to lay the water pipe from the waterbody to the drilling operation or the pipe. Disturbance of these areas will be limited to foot traffic and the occasional truck, all-terrain vehicle, or backhoe to move pumps and water piping in and out.

A global positioning satellite drill head is sometimes used, which transmits the location of the drill head back through the stem to the operator to maintain the hole along the prescribed path. Other technology uses electric-grid guide wires (or Tru-Tracker wires) that are hand-laid across the land surface and along the pipeline centerline to help guide the drill bit along the predetermined HDD path. The Tru-Tracker wires must be located parallel to the centerline, but are offset and must typically be placed outside of the permanent right-of-way in order to triangulate the location of the drill head. In thickly vegetated areas, some vegetation may be trimmed using hand tools to allow placement of these electric-grid guide wires. Ground and vegetation disturbance will be minimal and no trees over 3 inches diameter at breast height will be cut for guide wire installation.

The locations where HDDs are proposed are listed in Table 1A-7 in Appendix 1A. Site-specific plans for the HDDs, including access paths along the path of the drill, are provided in Attachment 1A in Volume IIB. Where an HDD is used to cross surface waters, an alternate open-cut crossing plan will also be provided in the event that an HDD needs to be abandoned due to unsatisfactory subsoil and geo-technical conditions. Generally, if the HDD should fail at the proposed location, the HDD entry/exit points will be re-evaluated and relocated to an adjacent area, and the HDD will be attempted again as described in Rover's HDD Plan (see Appendix 1B). Rover will notify all appropriate federal and state agencies and obtain approval to complete the HDD at the new location or to implement the alternate open-cut crossing plan should the HDD fail at the second location.

Geotechnical investigations for all HDDs will be completed in 2015 and the results of geotechnical investigations and hydraulic fracture analyses will be submitted when completed or by the 3rd Quarter 2015.

1.6.1.5 Road and Railroad Crossings

Traffic on major roads and railroads will be maintained during installation of the pipe by use of horizontal bore or HDD. The pipeline will be installed at a depth of at least 5 feet below a road surface and at least 10 feet below the rail of a railroad, and will be designed to withstand anticipated external loadings. At points of access to the right-of-way from hard-surfaced roads, a stone pad will be installed as a construction entrance to control dirt tracking onto the highway.

An open cut will be used where a bore or HDD is not feasible and the open cut is approved, and for crossings of private roads. Where an open cut is required, two weeks advance notice will be given to area residences and local authorities prior to the cutting of the specific roadway. Traffic control measures and road signage will be installed in accordance with all permit requirements. Road crossings that will be open cut involve the excavation of a trench across the roadway and will result in a temporary road closure for a duration of 4 - 6 hours during the excavation of the roadway. After the pipe is installed, steel plates

will be placed on one side of the open excavation to allow the traffic flow to resume through one lane. This will allow the other side of the excavation to be filled with select flowable fill material (i.e. sand and cement mix). Once the excavation is filled, the steel plates will be moved to the alternate side of the filled roadway and the remaining side will then be filled. The steel plates will remain in place overnight to allow the flowable fill material to harden. After a minimum of 12 hours, the steel plates can be removed and road base material will be placed over the excavated area and a normal traffic pattern can resume. Provisions will be made as necessary for temporary detours or other measures to maintain access and safe traffic flow during construction. Table 1A-8 in Appendix 1A lists the methods by which all roads and railroads will be crossed by the Project. Please refer to the Traffic Plan in Appendix 1B for additional information.

Rover is currently and will continue to communicate with the appropriate agencies and individuals at the state, county, municipal, community, and private levels regarding road construction and appropriate pipe depth at public and private road crossings.

1.6.1.6 Foreign Pipeline Crossings

The Project pipelines will require crossings under foreign pipelines and gathering lines. Generally, the Project pipelines will be installed under most existing foreign pipelines .due to their large size, soil cover, and separation requirements. This will require careful excavation around and under the foreign pipeline using equipment and hand-held tools and supporting the foreign pipeline as necessary to allow the Project pipeline to be slipped under the foreign pipeline. The larger spoil volumes from increased excavation depths at these pipeline crossings and the preference not to place spoil or construction equipment over existing pipelines will require additional temporary workspace at most crossings. Precautions will be taken to ensure that the existing pipelines are positively identified, not damaged, and the pipeline crossing area is safe during construction. These precautions include:

- contacting One Call to locate all known pipelines and utilities;
- locating the precise location of the existing pipelines prior to excavation using a hand-held magnetometer and/or by probing;
- scanning the edges of the right-of-way prior to grading with Passive Inductive Locating equipment to insure that no unknown foreign pipelines cross into the construction work area;
- notifying operators of the existing pipelines of proposed construction and providing the companies with the opportunity to be present during work around their pipelines;
- avoiding mechanized excavation within 3 feet of existing pipelines and completing excavations by hand shoveling;
- keeping construction equipment and spoil piles away from the existing pipeline centerline, to the extent practicable;
- temporarily supporting existing pipelines for the length of the span exposed by the crossing excavation;
- inspecting existing pipelines before and after pipe installation to ensure there is no damage to the existing pipelines or coatings that could compromise integrity;
- installing test leads on both lines for future monitoring of cathodic protection systems;

- maintaining the minimum separation distance between the existing and proposed pipeline as specified by the USDOT; and
- following safety requirements of the foreign pipeline crossing operator.

In the event of accidental damage to a foreign pipeline during construction, Rover will coordinate with the foreign pipeline operator to implement appropriate measures for maintaining the structural integrity of both pipelines and minimizing undesirable effects to human health and the environment.

1.6.1.7 Residential Areas

Where residences are located in close proximity to the edge of the construction right-of-way, Rover will reduce construction workspace areas as practicable to minimize inconvenience to property owners. In residential yards, topsoil will either be conserved or imported as an alternative to topsoil segregation and conservation. If construction requires the removal of private property features, such as gates or fences, the landowner or tenant will be notified prior to the action. Following completion of major construction, the property will be restored. Property restoration will be in accordance with any agreements between Rover and the landowner.

All structures that are within 50 feet of the construction work areas are provided in Resource Report 8, Table 8A-3 in Appendix 8A. Site-specific residential plans for residences within 50 feet of the construction work areas are included in Resource Report 8, Appendix 8B.

1.6.1.8 Commercial and Industrial Areas

Where commercial or industrial areas are near the construction work area, Rover will work with its contractor to maintain traffic flow on public roads and avoid unnecessary or lengthy delays.

1.6.1.9 Agricultural Areas

Rover will conserve topsoil in actively cultivated and rotated cropland, and improved pastureland, and in other areas at the specific request of the landowner or land management agency. In compliance with the Rover Plan and the AIM Plans, at least 12 inches of topsoil will be segregated in agricultural areas where the topsoil is greater than 12 inches deep, or more based upon landowner agreements. Where topsoil is less than 12 inches deep, the actual depth of the topsoil will be determined by visual inspection, and the entire topsoil layer will be removed and segregated. Topsoil segregation will be performed in consultation with the landowner, and may include the entire construction right-of-way or the ditch plus spoil side.

Rover has assumed, and is committed to using, full right-of-way topsoil segregation in all agricultural areas and temporarily stockpiling all topsoil in a separate windrow on the construction right-of-way as shown on the figures in Attachment 1B, in Volume II. Rover will install the pipe at a minimum depth of 4 feet to accommodate deep tilling (e.g., using parabolic plows), and will to maintain and /repair existing water or drainage tile systems that are prevalent in the Project area. Rock will not be used as upper

backfill in rotated or permanent cropland. Rover is currently consulting with state agricultural agencies, independent consultants, land improvement and drainage tile contractors, and landowners to develop plans for repair of drainage tile systems that will be affected by construction and will provide these plans in subsequent submittals. A 150-foot-wide construction right-of-way will be used to accommodate full right-of-way topsoil segregation, the added pipeline depth, and allow for restoration of water supply and drainage systems. Some ATWS will be required, primarily to stage HDD crossings or for areas where landowner agreements require deep topsoil segregation, resulting in excess topsoil storage requirements.

In addition to implementation of the procedures included in the Rover Plan and AIM Plans, Rover has employed a consultant to work with landowners of cultivated fields to develop plans for the crossing of each property to address site specific concerns including replacement and repair of drainage tiles. Also, see discussion concerning construction in agricultural areas in Section 7.3 of Resource Report 7.

1.6.1.10 Other Construction Procedures

Certain conditions that may be encountered will require the use of special construction techniques, as further described below.

Blasting

If bedrock is encountered and requires removal, several conventional (non-explosive) techniques are available, including conventional excavation with a backhoe, ripping with a dozer followed by backhoe excavation, or hammering with a pointed backhoe attachment followed by backhoe excavation. Rover does not anticipate the use of blasting for the Project.

Rugged Terrain

In areas with steep side slopes, ATWS may be needed to grade slopes to accommodate pipe bending limitations. In these areas, slopes will be cut down and, after the pipeline is installed, returned to their original contours during right-of-way restoration. In areas where the pipeline crosses laterally across the face of a slope, cut-and-fill grading may be required to establish a safe, flat work surface to install the pipeline.

Trench Dewatering

In most cases, trench dewatering will be limited to the removal of storm water collected in the pipe trench. In uplands, storm water will typically be removed from the trench prior to lowering the pipe into place. The storm water will be pumped from the trench to a well vegetated area down-gradient of the trench and through a sediment filter. The trench will be dewatered in a manner that will not cause erosion and will not result in heavily silt-laden water flowing into any waterbody or wetland. The storm water will be discharged to an energy dissipation/filtration dewatering device, such as a hay bale structure or filter bag. The dewatering structure will be removed as soon as possible after completion of the dewatering activities. Trench plugs will be used where necessary to separate the upland trench from adjacent wetlands or waterbodies to prevent the inadvertent draining of the wetland or diversion of water from the waterbody into the pipe trench.

1.6.2 Aboveground Facilities

Typical construction activities associated with the installation of the aboveground facilities are summarized below. No special construction methods will be required for the installation of the aboveground facilities.

1.6.2.1 General Construction Procedures

Construction activities and storage of construction materials and equipment will be confined within the compressor station and meter interconnect site boundaries or at one of the approved contractor yards. Debris and wastes generated from construction will be disposed of as appropriate and all surface areas disturbed will be restored in a timely manner. The aboveground facilities will be constructed in accordance with Rover construction standards and specifications as more generally described in the paragraphs that follow.

1.6.2.2 Foundations

Excavation will be performed as necessary to accommodate the new reinforced concrete foundations for the new compressors, launching and receiving facilities, metering equipment, and buildings. Subsurface friction piles may be required to support the foundations, depending upon the bearing capacity of the underlying soils and anticipated equipment loads. Forms will be set, rebar installed, and the concrete poured and cured in accordance with applicable industry standards. Backfill will be compacted in place, and excess soil will be used elsewhere or distributed around the site to improve grade.

1.6.2.3 Equipment

The compression, piping, and other equipment will be shipped to the site by truck. The equipment will be offloaded using cranes, front-end loaders, or both. The equipment will then be positioned on the foundations, leveled, grouted where necessary, and secured with anchor bolts. All non-threaded piping associated with the aboveground facilities will be welded, except where connected to flanged components. All welders and welding procedures will be qualified in accordance with API standards. All welds in large-diameter gas piping systems will be examined using radiography, ultrasound, or other approved NDE methods to ensure compliance with code requirements.

All aboveground piping surfaces will be cleaned and painted in accordance with Rover construction specifications. All paint inspection and cleanup will be conducted in accordance with federal and/or regulatory requirements and best engineering practices.

1.6.2.4 Launcher and Receiver Facilities

Launcher and receiver facilities will consist of a section of aboveground piping that will be designed to accommodate the in-line inspection tools (smart pigs) that will be placed into the pipe for periodic internal inspections of the pipeline during operations.

1.6.2.5 Mainline Valves

The MLVs will be located within the permanent pipeline easement and at the new compressor station sites, meter and tie-in sites in accordance with USDOT safety requirements. The installation of the MLVs will meet the same standards and requirements established for the construction of the compressor stations and the pipeline. MLVs will be located as close to existing roads as possible to minimize impact to property and to provide easy access for Rover operations and maintenance personnel. All MLV sites will be fenced, gated, and locked.

1.6.3 Restoration

Following construction of the Project, the areas disturbed by construction will be restored to their original condition and use, to the greatest extent practicable. All aboveground facilities will be fenced and converted to industrial use.

1.6.3.1 Pipeline Right-of-Way

Upon completion of pipeline installation, the surface of the right-of-way disturbed by construction activities will be graded to match original contours and to be compatible with surrounding drainage patterns, except at those locations where permanent changes in drainage will be required to prevent erosion, scour, and possible exposure of the pipeline. HDD entry and exit pits will be backfilled and the disturbed ground surface similarly graded. Segregated topsoil will be replaced and soils that have been compacted by construction equipment traffic will be disked. Temporary and permanent erosion control measures will be installed at this time in accordance with the Rover Plan and the Rover Procedures.

Uplands

In most upland locations, excluding actively cultivated cropland, an herbaceous vegetative cover will be re-established by seeding disturbed areas using seed mixes appropriate to the Project area as recommended by the local soil conservation districts, landowner, or land management agency. Depending upon the time of year, a seasonal variety, such as ryegrass, may be used until a more permanent cover can be established. Steep slopes and stream banks may require erosion control fabric or revetments to prevent erosion until a vegetative cover is established. In accordance with the Rover Plan, revegetation success will be monitored, and reseeding, fertilizing, and other measures will be employed until a cover equivalent to approximately 80 percent of similar, adjacent areas is achieved. Temporary and interim erosion control measures will be removed once 80 percent cover is achieved.

Actively cultivated cropland may be left unseeded at the request of the landowner. Pasture will be reseeded with a similar species or mixture.

Residential and commercial lawns will be reseeded or sodded, depending upon the original grass variety. Shrubs and small trees on residential properties will be temporarily transplanted and replaced, where practicable. Forested areas will be allowed to recover within the temporary work areas.

Wetlands

Original surface hydrology will be re-established in wetlands by backfilling the pipe trench and grading the surface with backhoes or similar equipment operating from the equipment mats, or low-ground-pressure tracked vehicles, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils. Segregated topsoil from the trench will be replaced in unsaturated wetlands. Roots and stumps will not be removed in the areas outside of the pipe trench during construction, unless required for safety, thus allowing the wetland to recover more rapidly. Generally, wetlands disturbed by construction will be allowed to revegetate naturally.

1.6.3.2 Aboveground Facilities

The areas inside the fence at the aboveground facilities most likely will be permanently converted to industrial use. Most areas in and around the buildings, meters, and associated piping and equipment will be covered with crushed rock (or equivalent) to minimize the amount of maintenance required. Roads and parking areas may be crushed rock, concrete, or asphalt. Other ground surfaces will be seeded with a grass that is compatible with the climate and easily maintained. Disturbed areas outside the fence will be restored as described above for the pipeline right-of-way.

1.6.3.3 Access Roads

Existing access roads that were modified and used during construction will be returned to original or better condition upon completion of Project construction. New temporary access roads constructed specifically for the Project will be removed, the surface graded to original contours, and the land restored to its original use in accordance with the Rover Plan and any permit requirements or landowner agreements. Permanent access roads will be maintained as required to facilitate access to the pipeline facilities and in compliance with any landowner and federal/state requirements.

1.6.3.4 Contractor Yards

Upon completion of construction, all temporary facilities (e.g., trailers, sheds, latrines, pipe racks, fencing, and gates) will be removed from the pipe storage and contractor yards. Unless otherwise requested by the landowner, each site will be graded to original contours and seeded if appropriate, so that the land is restored to its pre-construction condition.

1.7 OPERATIONS AND MAINTENANCE PROCEDURES

Rover will operate and maintain the Project facilities in compliance with USDOT regulations set forth at 49 CFR Part 192, FERC's regulations at 18 CFR § 380.15, and maintenance provisions of the Rover Plan and the Rover Procedures.

1.7.1 Pipeline

Operational activities for the Project facilities will primarily consist of routine maintenance of the right-of-way and inspection, repair, and cleaning of the pipeline. Periodic aerial and ground inspections by Rover personnel will be used to identify conditions requiring maintenance, including:

- soil erosion that may expose the pipe,
- dead vegetation that may indicate a leak in the pipeline,
- general conditions of vegetation cover and erosion control measures,
- unauthorized encroachment on the right-of-way, such as buildings and other substantial structures, and
- other conditions that could present a safety hazard or require preventive maintenance or repairs.

The cathodic protection system for the Rover pipelines will be monitored and inspected periodically to ensure proper and adequate corrosion protection. The Rover pipelines will be designed to allow the use of internal inspection technology (e.g., smart pigging) in compliance with Rover's pipeline integrity management program. Appropriate responses to conditions observed during internal inspections will be taken as necessary.

In upland areas, Rover will maintain vegetation on the permanent right-of-way by mowing, cutting, and trimming, except in areas of actively cultivated cropland. Large brush and trees will be periodically removed near the pipeline.

In accordance with the Rover Procedures, Rover will not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands and will allow a riparian strip of at least 25 feet wide as measured from the waterbody's mean high water mark to permanently revegetate. However, to facilitate periodic pipeline corrosion/leak surveys in these areas, a corridor centered on the pipeline and up to 10 feet wide where a single line will be installed may be maintained in an herbaceous state. In areas where dual pipelines will be installed, Rover is requesting permission in the Rover Procedures to maintain the 20 feet between the pipeline centerlines plus an additional 5 feet on the outside portion of the centerlines for a total of 30 feet. In addition, trees and shrubs that are located within 15 feet of the pipeline centerline(s) that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the right-of-way.

In compliance with the Rover Plan, routine vegetation maintenance within the permanent easement will occur at a frequency necessary to maintain the 10-foot corridor in an herbaceous state; however, mowing and clearing activities will not occur between April 15 and August 1 of any year. Vegetation maintenance will not normally be required in agricultural or grazing areas.

In accordance with USDOT regulations, the pipeline facilities will be clearly marked at line-of-sight intervals and at crossings of roads, railroads, waterbodies, and other key points. The markers will clearly identify the presence of the pipeline and provide a toll-free telephone number and address where a company representative can be reached 24 hours a day/7 days a week in the event of an emergency or

prior to any excavation in the area of the pipeline by a third party. As part of its effort to prevent any third party damage to the pipeline, Rover will participate in the One Call systems in West Virginia, Pennsylvania, Ohio, and Michigan.

1.7.2 Aboveground Facilities

1.7.2.1 Compressor Stations

Rover will operate and maintain the proposed compressor stations in accordance with USDOT requirements and standard procedures designed to ensure the integrity and safe operation of the facilities and to maintain firm natural gas transportation service. In addition to on-site operation and maintenance activities, the compressor stations will be linked to a central control system through a SCADA system, which will monitor the pipeline system on a 24-hour basis. In accordance with USDOT requirements, Rover proposes to establish and follow routine maintenance and operations procedures to ensure that the stations operate safely. Standard Rover operations at compressor stations will include activities such as the calibration, maintenance, and inspection of equipment, as well as the monitoring of pressure, temperature, and vibration data, and traditional landscape maintenance such as mowing and the application of fertilizer, etc. Standard Rover operations will also include the periodic checking of safety and emergency equipment and cathodic protection systems.

1.7.2.2 Meter Stations, Mainline Valves, and Tie-Ins

Rover personnel will perform routine checks of the new receipt and delivery meter stations, including calibration of equipment and instrumentation, inspection of critical components, and scheduled and preventative maintenance of equipment. Safety equipment, such as pressure-relief devices, will be tested for proper operation. Corrective actions will be taken for any identified problems.

All interconnect sites will be equipped with relief valves or pressure protection devices to protect piping from overpressure in the event that site or unit control systems fail. A telemetry system will notify local personnel and personnel at Rover's gas control headquarters of the activation of safety systems and alarms. These personnel will then instruct maintenance personnel to investigate and take proper corrective actions.

1.8 FUTURE PLANS AND ABANDONMENT

Rover has no plans for future expansion. However, if market conditions change such that an expansion is justified, Rover will seek the appropriate authorization from the FERC and other federal, state, and local agencies.

The Project facilities are designed to last as long as needed with modern technology and proper maintenance. The life of the Project may be constrained or increased by other factors, such as gas supply and market needs, that are the major factors in determining the economic life of the Project. At the end of

the useful life of the Project, Rover will obtain the necessary permission to abandon its facilities in accordance with regulations that exist at the time of abandonment and any landowner requirements.

1.9 PUBLIC OUTREACH

In June 2014, Rover initiated the FERC Pre-filing Process in Docket PF14-14-000, and contacts with landowners directly or indirectly affected by the Project, federal and state agencies with permit or review approval over the Project, and local governments and agencies. The purpose of these communications was to solicit comments on the Project and areas of concern so that comments could be addressed in the design of the Project where feasible. Rover also certifies that all affected landowners will be notified as required in Section 157.6(d) of the FERC's regulations.

1.9.1 Federal and State Agencies

Section 1.10 and Table 1A-9 in Appendix 1A identify federal, state, and local agencies with permit or approval authority over the Project. Copies of correspondence received to date are included in Attachment 1D in Volume IIB. Most comments focused on environmental aspects of the Project and are addressed in Resource Report 2 and Resource Report 3 for natural resources; while Resource Report 4 is for cultural resources. Consultations are ongoing and documentation of future correspondence will be provided to FERC staff.

The FERC also initiated interagency communications and has identified the U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service (USFWS), and Ohio Environmental Protection Agency as cooperating agencies in the preparation of the EIS for the Project. The USEPA, Region 5, provided recommendations on topics or issues that FERC should address in their EIS. The majority of these concerns are addressed in these resource reports. Any remaining concerns will be addressed as required by FERC staff.

1.9.2 Open Houses

In June 2014, Rover began contacting landowners regarding the Project to inform them about the Project and request permission to conduct field surveys along the proposed route. Mailings to potentially affected landowners included all landowners whose land would be directly affected by construction activities and landowners within 0.25 mile of the proposed right-of-way or alternatives as they were identified, ATWS, aboveground facility sites, access roads, pipe and contractor yards, and landowners or residents within 1.0 mile of the proposed compressor stations, or alternate locations. In addition, all landowners within 0.5 mile of the proposed route were invited to attend Open Houses that were conducted between 5:30 and 7:30 pm at the locations listed in Table 1.9-1. These mailing lists were provided to FERC on a periodic basis.

TABLE 1.9-1
Open House Locations

Date	Town	County	State
July 8, 2014	New Martinsville	Wetzel	West Virginia
July 8, 2014	Imperial	Allegheny	Pennsylvania
July 9, 2014	Woodsfield	Monroe	Ohio
July 9, 2014	Wooster	Wayne	Ohio
July 10, 2014	Cadiz	Harrison	Ohio
July 10, 2014	Tiffin	Seneca	Ohio
July 14, 2014	Defiance	Defiance	Ohio
July 14, 2014	Fenton	Genesee	Michigan
July 15, 2014	Chelsea	Washtenaw	Michigan
July 15, 2014	Richmond	St. Clair	Michigan
September 16, 2014	Linden	Genesee	Michigan
September 17, 2014	Metamora	Lapeer	Michigan
September 18, 2014	St. Clairsville	Belmont	Ohio

The Open Houses provided information on the Project, its purpose and preliminary design, the preliminary routes under evaluation, and responses to questions that are most commonly asked regarding the pipeline, safety, and protection of sensitive resources. Attendance ranged from 50 to over 300 people at each Open House.

1.9.3 FERC Scoping Meetings

On November 4, 2014, FERC published its *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Rover Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings* (NOI). The NOI announced the opening of the scoping process that would be used for FERC to gather input about the Project from the public and other interested stakeholders and to help the Commission staff in determining what issues need to be evaluated in the EIS.

The NOI also provided information on how to submit written comments and identified the locations of public scoping meetings that were held in the Project area to gather verbal comments (see Table 1.9-2). Each scoping meeting was recorded by a court reporter and a transcript of the meeting was placed in the public record. The scoping period closed on December 18, 2014, although comment letters continue to be posted on the Pre-filing Docket and will be addressed to the extent that they raise new issues.

TABLE 1.9-2
FERC Scoping Meeting Locations

Date	Town	County	State
November 17, 2014	Toronto	Hancock	Ohio
November 18, 2014	Paden City	Wetzel	West Virginia
November 19, 2014	Cadiz	Harrison	Ohio
November 20, 2014	Chelsea	Washtenaw	Michigan
December 1, 2014	Adrian	Lenawee	Michigan
December 2, 2014	Defiance	Defiance	Ohio
December 3, 2014	New Washington	Crawford	Ohio
December 4, 2014	Navarre	Stark	Ohio
December 10, 2014	Flint	Genesee	Michigan
December 11, 2014	Richmond	Macomb	Michigan

1.9.4 Public Comments

Attachment 1C in Volume IIB includes summaries of specific comments included in each of comment letters posted on the FERC Pre-filing Docket for the Project, beginning in July 2014 and continuing through the end of public scoping on December 18, 2014. Table 1.9-3 provides a summary of the number of comment letters posted by state, including form letters, but eliminating duplicate letters and those letters commenting on another project.

Also included in Attachment 1C in Volume II are summaries of comments received at the public scoping meetings. In general, the comments at the public scoping meetings reflected those in the comment letters and no significant new issues or concerns were raised.

TABLE 1.9-3
Number of Comment Letters Received

State	Number of Commenters	Letters in Support of Project	Letters of Opposition or Concern
Ohio	425	410	15
West Virginia	243	238	5
Michigan	905	316	589
Pennsylvania	89	88	1
Other States	47	39	8
No Address Provided	55	26	29
Total	**1,764**	**1,117**	**647**
	Percent of Total	*63%*	*37%*

Comments in support of the Project came from workers who would gain employment during construction or operation of the Project, and those who supported the development of new natural gas infrastructure in the Project area and the benefits that new infrastructure would provide to the local economies. These commenters supported the Project because it would bring jobs and a much needed economic stimulus to many communities, some of which were hard hit by the recent economic downturn. The economic

benefits of the Project are described further in this Resource Report 1, Section 1.2 (Purpose and Need) and in Resource Report 5, Socioeconomics, Section 5.2.

Those who were opposed to the Project, or had concerns about the Project, had a variety of reasons. The comment summaries in Attachment 1C in Volume II identify the Resource Report and section where these comments are addressed. Table 1.9-4 provides a summary of these comments. The vast majority of commenters with concerns about the Project were from counties in Michigan that are no longer included in the Project (e.g., Shiawassee, Genesee, Lapeer, Oakland, Macomb, and St. Clair counties). Therefore, these concerns have been resolved with the elimination of approximately 110 miles of pipeline through these counties as a result of the January 2015 agreement between Rover and Vector (see Section 1.1). Rover notified all stakeholders in early February of the agreement.

TABLE 1.9-4
Summary of Concerns Identified During the Scoping Process

Comment or Concern	Resource Report (RR) Where Concern is Addressed
General	
Project is not needed	RR 1, Section 1.2
No Project benefits in Michigan	RR 1, Section 1.2
Use of eminent domain	RR 8, Section 8.2.2
Survey access	RR 8, Section 8.2.1
Water Resources	
Impacts on aquifers	RR 2, Section 2.1
Impacts on wells and potential for well water contamination from spills	RR 2, Sections 2.1.4 and 2.1.6
Impacts on watersheds	RR 2, Section 2.2.1
Contamination of water supplies from pipeline leaks	RR 2, Section 2.1
Impacts on surface waters	RR 2, Section 2.2
Impacts on wetlands	RR 2, Section 2.3
Vegetation and Wildlife	
Impacts on vegetation and ecosystems	RR 3, Section 3.2
Impacts on wildlife	RR 3, Section 3.3
Impacts on rare species habitats and conservation areas	RR 3, Section 3.4
Cultural Resources	
Impacts on culturally significant properties	RR 4, Section 4.4
Socioeconomics	
Loss of property values	RR 5, Section 5.2.7
Pipeline would result in cancellation of mortgage	RR 5, Section 5.2.9
Pipeline would result in cancellation of homeowner insurance	RR 5, Section 5.2.8
Lack of emergency personnel and additional strain on community resources	RR 5, Section 5.2.4
Deterioration of public roads	RR 5, Section 5.2.5
Taxes and economic benefits	RR 5, Section 5.2.3

TABLE 1.9-4
Summary of Concerns Identified During the Scoping Process

Comment or Concern	Resource Report (RR) Where Concern is Addressed
Geology	
Concerns about geology and construction in steep terrain.	RR 6, Section 6.4.3
Concerns about impacts on coal mining operations	RR 6, Section 6.2
Agricultural Land	
Impacts on drain tiles cut for pipeline installation	RR 7, Section 7.3.3
Impacts on agricultural land	RR 7, Section 7.3
Loss of soil quality and productivity	RR 7, Section 7.2
Land Use	
Impacts on residential land	RR 8, Section 8.3
Concerns about access during construction	RR 8, Section 8.3
Concerns about impacts on residential land and recreational areas	RR 8, Sections 8.3 and 8.4
Loss of visual quality	RR 8, Section 8.5
Air and Noise	
Concerns about noise	RR 9, Section 9.2
Alternatives	
Use of energy conservation or renewable energy sources	RR10, Section 10.3
Pipeline should not be located along Line 6B	RR10, Section 10.5.3.3
Abandonment of the Trunkline pipeline	RR10, Section 10.4.1
Use other existing pipeline systems	RR10, Section 10.4
Pipeline should follow highways (e.g., Interstate 69)	RR 10, Section 10.5.1
Pipeline should be located in more rural areas	RR 10, Section 10.5.1
Pipeline should be located within existing utility easements	RR 10, Sections 10.5.1 and 10.6.2
Pipeline should not follow existing utility corridors, too many utilities already installed in existing easements	RR 10, Section 10.5.1
Pipeline should be located in public lands	RR 10, Section 10.5.1
Pipeline should avoid crossings of conservation areas	RR 10, Section 10.6.3
Site-specific concerns about crossings of individual tracts	RR 10, Section 10.6.3
Safety	
Concerns about being located within potential impact radius (PIR).	RR 11
Concerns about safety hazards	RR 11

1.9.5 Environmental Complaint Resolution Procedure

Before construction, each landowner or stakeholder will be provided with a letter containing Rover's *Environmental Complaint Resolution Procedure* (see Appendix 1B). This procedure provides contact information for Rover (and the FERC) so that landowners and stakeholders may report environmental complaints or concerns, and a process for resolving these concerns. All landowners potentially affected by the Project have been contacted by a Rover designated local right-of-way agent. In the case of a minor reroute to the pipeline that would incorporate new landowners, a Rover designated local right-of-way agent will contact the landowners as soon as possible. In addition, Rover's toll-free phone number and

lead right-of-way agent contact information are currently available on Rover's website at http://www.energytransfer.com/ops_etrover.aspx. Contact phone numbers will remain active throughout the pre-construction, construction, and restoration phases of the Project.

1.10 PERMITS AND APPROVALS

The construction, operation, and maintenance of the Project will require permits and regulatory approvals from various federal, state, and local agencies, as well as consultations with Native American tribes and other interested parties. Consultations were initiated with other federal and state agencies in June 2014, and these consultations will continue throughout the Project review and permitting period. The applicable federal, state, and local permits and approvals, responsible agencies, and the filing status and schedule for these permits and approvals are summarized in Table 1A-9 in Appendix 1A. Copies of agency correspondence are included in Volume IIB, Attachment 1D.

1.11 RELATED FACILITIES

1.11.1 Non-Jurisdictional Facilities

Non-jurisdictional facilities are those facilities that are related to the Project and may include electric distribution or other support systems that may be constructed to provide electricity or other services to the compressor or meter stations. Electric utilities may need to install additional distribution lines that will be constructed adjacent to existing utility or road rights-of-way to provide electric power to the compressor and meter stations. These facilities will be constructed by the owner/operator in accordance with applicable federal and state regulations. Rover has not identified any required non-jurisdictional facilities that may be constructed in conjunction with the Project.

A four factor test may be used to determine whether there is sufficient federal control and responsibility over a project as a whole to warrant environmental analysis of Project-related non-jurisdictional facilities. These factors are:

- whether or not the regulated activity comprises "merely a link" in a corridor type project (e.g., a transportation or utility transmission project),
- whether there are aspects of the non-jurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity,
- the extent to which the entire project will be within the Commission's jurisdiction, and
- the extent of cumulative federal control and responsibility.

If non-jurisdictional facilities are identified in the future, environmental analysis as warranted will be addressed in future submittals as they are identified.

Rover has analyzed the system facilities (compressor stations, meter stations, pipeline route and mainline valve sites) to identify potential locations where non-jurisdictional facilities could be introduced. There is available power within the majority of the sites Rover has selected.

For compressor station locations where power is not readily available within the site boundary, the sites will require new easements for distribution-level voltage ranging from 500 to 2000 kilowatt, three-phase, 480-volt power lines. For meter station sites not within compressor stations, the electric load requirement will be significantly less, typically single-phase, 200 amp service. Both types of electrical lines are typically supported by single, wooden poles, with the three-phase requiring cross-arms, and single phase poles not requiring cross-arms. The new power lines will be designed to be accommodated within a utility corridor abutting the permanent access roads planned for the facilities. The utility company will install the powerlines in accordance with state regulations. The Project aboveground sites requiring auxiliary facilities located outside of the site boundaries are discussed below and are included in all relevant tables in the corresponding Resource Reports as part of the proposed permanent access road for the station.

- Sherwood Compressor and Meter Station – A 100 foot-wide and approximately 3-126-foot-long permanent access road and electric utility easement is required from Eilos Camp Road to the Sherwood Compressor Station property line.

- Majorsville Compressor Station – A 100-foot-wide and approximately 2,260-foot-long permanent access road and electric utility easement is required between Township Road 32 (Ruth Hill Road) and the Majorsville Compressor Station property line.

- Cadiz Compressor Station – A 100-foot-wide and 1,050-foot-long permanent access road and electric utility easement is necessary from Industrial Park Road to the Cadiz Compressor Station property line.

- Consumers Energy Meter Station – A 75-foot-wide and approximately 525-foot-long permanent access road and electric utility easement is required between Pleasant Lake Road and the Consumers Meter Station property line.

If additional non-jurisdictional facilities are identified in the future, environmental analysis as warranted will be addressed in future submittals as they are identified. Table 10.7-1 in Resource Report 10 identifies the minimum distances to utility transmission lines that would be required if electrical compression was utilized for the Project. The compressor units proposed for the Project are reciprocating engines, and those non-jurisdictional facilities are therefore not required.

1.11.2 Supply Facilities

The Supply facilities include plants or pipeline facilities that are either existing or that the suppliers may construct to interconnect with the Rover pipeline system. The Sherwood, Seneca, Berne and Majorsville Laterals will tie into existing plants. The Cadiz Lateral will tie into the Cadiz plant, which is currently

under construction. The Clarington Lateral will tie into pipelines that will be constructed and in-service at the start of construction of the Rover Pipeline Project. The Burgettstown Lateral will tie into a new plant with a targeted in-service date of mid-2017. Rover is not aware of the scope of these expansions; however, any new facilities will be constructed in accordance with applicable federal and state regulations.

1.12 CUMULATIVE IMPACTS

Cumulative impacts may result when the environmental effects associated with a proposed project are added to temporary (construction-related) or permanent (operations-related) impacts associated with other past, present, or reasonably foreseeable future projects. Although the individual impact of each separate project might not be significant, the additive or synergistic effects of multiple projects could be significant. The purpose of a cumulative impact analysis is to identify and describe potential cumulative impacts that could result from the construction and operation of the Project in conjunction with these other projects.

Other projects and proposed actions considered in this cumulative impact analysis may differ from the proposed Project in type, magnitude, and duration, but occur in or near the areas affected by the Project. Other projects included in this analysis are based on the likelihood of completion, and only recently completed projects, those with ongoing impacts, or those that are "reasonably foreseeable" future actions are included. To be included in this analysis, an action must meet the following three criteria: 1) impact a resource area potentially affected by the proposed Project, 2) cause this impact within all, or part of, the proposed Project area, and 3) cause this impact within all, or part of, the time span for the potential impact from the proposed Project.

1.12.1 Minor Projects

Current and reasonably foreseeable future projects were identified from internet research of projects under review at federal and state agencies, and through contacts with county planning agencies (see Volume II, Attachment 1D) in counties crossed by the Project. The majority of these projects are small in size and associated with oil and gas wells in Ohio, West Virginia, and Pennsylvania, and other miscellaneous small projects (e.g. sewer work, septic systems, areas of road work, etc.). Due to the small size of these projects, the potential for any substantial cumulative impact is very unlikely, and no cumulative impacts are assumed for this group. Table 1A-10 provides information on these minor projects including: project name, location, description, and distance from the Rover Pipeline Project. Figure 1C-2 in Appendix 1C shows the general locations of these minor projects relative to the Rover Pipeline Project.

1.12.2 Major Projects

There are several more substantial projects (referred to here as major projects), which due to their size and location, have some potential for cumulative impacts. These include nine proposed or planned pipeline projects (Spectra Energy's NEXUS Gas Transmission [NEXUS] and Ohio Pipeline Energy Network

[OPEN] projects, CGT's Leach XPress project, Equitrans' Ohio Valley Connector project, Mountain Valley Pipeline's Mountain Valley Pipeline [MVP] project, ANR's East Pipeline project, Kinder Morgan's UTOPIA East and Utica Marcellus Texas Pipeline projects, Dominion's Supply Header and Atlantic Coast Pipeline projects), and two electric generation projects (Moundsville Power, LLC - Combined-Cycle Power Plant, and the Blackfork Wind Energy project). Table 1A-11 in Appendix 1A lists these major projects along with available information on: location, description, distance from Rover's Project, affected environmental resources, project size, status and construction schedule. Figure 1C-3 in Appendix 1C shows the general location of each of these major projects with respect to Rover's Project. The following is a description of these major projects:

1.12.2.1 Spectra Energy - NEXUS Project

The NEXUS project will originate in northeastern Ohio, and includes approximately 250 miles of large diameter gas pipeline capable of transporting at least 2 Bcf/d of natural gas. The pipeline will extend from receipt points in eastern Ohio to interconnects with the existing pipeline grid in southeastern Michigan. The project will utilize both existing and expansion capacity on the DTE Gas transportation system and the Vector pipeline system to access Michigan markets, Chicago, and the Dawn Hub. Although NEXUS has initiated the Pre-filing Process, it has not yet submitted draft resource reports and detailed information on project impacts is not available. Cumulative impacts are unlikely since the project is over 15 miles away from Rover at its closest point.

1.12.2.2 Spectra Energy - Ohio Pipeline Energy Network (OPEN) Project

The OPEN project will consist of approximately 76 miles of new 30-inch diameter pipeline and associated pipeline support facilities in Ohio, including a new compressor station, capable of transporting 550,000 dekatherms per day. Also included are reverse flow modifications at existing compressor stations along Texas Eastern's existing mainline in Ohio, Kentucky, Mississippi and Louisiana. The Environmental Assessment (August 2014) for the project indicates total impact area of the OPEN project is approximately 1,563.6 acres. The distance of this project to the Rover Pipeline Project is variable. The Project will cross the Burgettstown and Majorsville Laterals.

1.12.2.3 CGT - Leach XPress Project

CGT's Leach XPress Project will involve construction of approximately 127 miles of pipeline and two loops totaling 30 miles, abandonment of 27 miles of pipeline, three new compressor stations and modifications at two existing stations. The project will increase the capacity of CGT's system by 1.5 Bcf/d and will move regional gas supplies to various markets, including interconnections with Columbia Gulf in Leach, Kentucky. This project will parallel the Seneca Lateral for approximately 25 miles and thus would result in a wider disturbed area right-of-way and associated wetlands and other impacts. Information on impacts associated with the Leach Xpress project is not available, but types and extent of impacts are likely very similar to those described for the Seneca Lateral. Although CGT has initiated the Pre-filing Process, it has not yet submitted draft resource reports, and detailed information on project impacts is not available.

1.12.2.4 Equitrans - Ohio Valley Connector Project

The Ohio Valley Connector project will involve approximately 50 miles of pipeline and two new compressor stations to transport approximately 900,000 dekatherms per day of natural gas produced in the central Appalachian Basin to interconnections with the Texas Eastern and REX pipelines. The northern terminus of the Equitrans project will be in the vicinity of the eastern end of the Seneca Lateral, and thus there could be potential for short term and localized cumulative impacts in this area.

1.12.2.5 ANR East Pipeline Project

The ANR East Pipeline project will include the construction of a new pipeline originating at the Cadiz Gas Plant in southeastern Ohio and terminating at the ANR Joliet Hub in Lake County, Indiana. The new build will consist of approximately 320 miles of large diameter, and up to 140,000 hp of compression. The distance of the ANR project to the Rover pipelines is variable; the ANR project would cross Rover's Mainlines A and B in two locations and parallel Mainlines A and B in other locations. At the locations where the pipelines cross, there could be potential for small localized and short term cumulative impacts from the two projects.

1.12.2.6 Kinder Morgan - UTOPIA

The Kinder Morgan UTOPIA project is a 240-mile, 12-inch diameter pipeline extending from Harrison County, Ohio, to Kinder Morgan's Cochin Pipeline near Riga, Michigan, where the company would then move product eastward to Windsor, Ontario, Canada. UTOPIA would transport previously refined or fractionated natural gas liquids, including ethane and propane, with an initial capacity of 50,000 barrels per day (bpd), which is expandable to more than 75,000 bpd. The distance from the Rover Project is variable, and the Utopia project crosses Mainlines A and B in two locations.

1.12.2.7 Kinder Morgan - Utica Marcellus Texas Pipeline

The Kinder Morgan Utica Marcellus Texas Pipeline project involves the abandonment and conversion of over 1,000 miles of natural gas service, the construction of approximately 200 miles of new pipeline from Louisiana to Texas, and 155 miles of new laterals in Pennsylvania, Ohio, and West Virginia. The pipeline, which will provide connectivity to major processing and fractionation hubs in the basin, will terminate in Mont Belvieu, Texas, and have a maximum design capacity of 375,000 bpd for transporting Y-grade natural gas liquids. A part of the Utica Marcellus Texas Pipeline project is in the same area as the Supply Laterals.

1.12.2.8 Dominion - Supply Header Project

Dominion's Supply Header project will deliver up to 1.5 Bcf/d of natural gas from supply areas in West Virginia to demand areas in West Virginia, Virginia, and North Carolina. The project will impact 12,971.9 acres of land associated with 554.3 miles of natural gas transmission pipelines and associated aboveground facilities. Distance from the Rover Pipeline Project is variable.

1.12.2.9 Dominion - Atlantic Coast Pipeline Project

Dominion's Atlantic Coast Pipeline project involves construction and operation of a 550-mile interstate natural gas pipeline extending from West Virginia through Virginia and into eastern North Carolina to meet the region's rapidly growing demand for natural gas. The pipeline has an estimated cost of between $4.5 billion and $5 billion, an initial capacity of 1.5 Bcf/d of natural gas per day, and a target in-service date of late 2018. Gas will be carried through a 42-inch-diameter pipe in West Virginia and Virginia, and a 36-inch-diameter pipe in North Carolina.

1.12.2.10 Mountain Valley - MVP Project

The Mountain Valley MVP project will involve construction of 286 miles of 36- to 42-inch diameter pipeline to deliver gas from Equitrans' mainline and sunrise transmission systems, and from gathering systems and natural gas production facilities located near the pipeline to the proposed tie-in point near the Transco Zone 5 compressor station 165. The project will cross 16 counties in West Virginia and will be near the Sherwood Lateral in Doddridge County, West Virginia.

1.12.2.11 Moundsville Power, LLC - Combined-Cycle Power Plant Project

The Moundsville Power, LLC project is a proposed combined cycle power plant located approximately 5.6 miles from the Rover Pipeline Project in Marshall County, West Virginia. The project would involve air noise and water impacts associated with construction and operation. The project would occupy 40 acres of a 280 acre site. Due to the distance away from Rover, cumulative impacts are unlikely, with the possible exception of air emissions. However, like Rover, other air emission sources will have to comply with the NAAQS, which are designed to protect the most sensitive populations from air pollution including cumulative air impacts.

1.12.2.12 Blackfork Wind Energy Project

The Blackfork Wind Energy Project consists of 91 wind turbines, 494 feet high, capable of generating 200 megawatts of power with a life span of 20 to 25 years. In addition to the turbines, the project includes access roads, electrical collection lines, a construction-staging area, concrete-batch plant, substation, and an operation and maintenance facility. The project is approximately 0.3 miles from the Rover Pipeline Project at its closest point and will take up approximately 14,800 acres in Richland County, Ohio.

1.12.3 Analysis of Cumulative Impacts

The potential area of impact for cumulative impacts was generally considered to include the following by resource:

- surface water, wetland, groundwater, vegetation, wildlife, fisheries, soils, and geologic resources within Hydrologic Unit Code 12;
- cultural resources which overlap;

- land use resources within 0.5 mile for smaller projects and within 5 miles for projects requiring more than 10 acres of land;
- air quality impacts within the same counties, or within 31 miles (50 kilometers) of a new stationary source; and
- socioeconomic impacts within the same counties.

1.12.3.1 Geology, Soils and Sediments

The area assessed for geology, soils, and sediments generally included the Hydrologic Unit Code 12 area within which both the Rover Pipeline Project and other projects are located. The facilities associated with the Project, including aboveground facilities, are expected to have a temporary but direct impact on near-surface geology, soils, and sediments. Clearing and grading associated with construction of the Project and the other nearby projects could accelerate the soil erosion process and, without adequate protection, could result in discharge of sediment to adjacent waterbodies and wetlands. Because the direct effects will be localized and limited primarily to the period of construction, cumulative impacts on geology, soils, and sediments will only occur if other projects are constructed at the same time and place as the proposed Project. Rover will implement the Rover Plan, the Rover Procedures, and AIM Plans to minimize the potential for erosion as a result of water or wind action and to aid in reestablishing vegetation after construction. Other projects will be required to implement similar best management practices.

With respect to the major gas pipeline and energy generation projects noted above, like Rover, these will affect near surface geology, soils and sediments, but due to their separation distance and regulatory requirements for sedimentation control and best soil management practices, they are unlikely to result in any cumulative impacts to these resources with Rover. Of note is that there are a few places where some of the gas pipelines cross the Rover Pipeline Project (see Table 1A-10 in Appendix 1A and Figure 1C-2 in Appendix 1C) and here there could be small/localized areas where construction would overlap and have common impacts. At these locations, depending on timing of the work, there would be potential for construction to take place at different times and disturb soils twice or for the work to take place at the same time. Regardless, Rover and other entities would be required to contain sediments in accordance with National Pollutant Discharge Elimination System and other permit requirements, and once constructed and revegetated, there would be minimal impact to these resources. As a result, the cumulative effect on geological resources, soils, and sediments are expected to be temporary and minor.

1.12.3.2 Water Resources and Wetlands

The area assessed for water resources and wetlands generally included the Hydrologic Unit Code 12 area within which both the Rover Pipeline Project and other projects are located. Construction of the Project facilities, including aboveground facilities, will result in temporary impacts to surface waters and wetlands. Rover has sited its pipeline route and aboveground facilities to avoid water resources and wetlands to the extent practicable.

Sediment loading could also occur due to runoff from construction activities near wetlands and waterbodies. These resources could also be affected by a spill of hazardous liquids or the excavation and dispersal of contaminated sediments during trenching. Rover will implement the Rover Procedures to minimize impacts on groundwater, surface waters, and wetlands and the SPR Procedures to reduce the potential for hazardous liquids spills. Each of the other project proponents will be required to implement best management practices to comply with applicable federal and state permit requirements. Rover, and each proponent for the other projects with wetland impacts, will be required by the terms and conditions of their respective Section 404 permits to provide compensatory mitigation for unavoidable wetland impacts. Impacts on surface waters and wetlands resulting from construction will end shortly after the projects are completed and the work areas are restored and revegetated.

With respect to the major gas pipeline and energy generation projects noted above, these projects will affect water resources and wetlands at various waterbody and wetland crossings, but due to their distance from the proposed Project and the regulatory requirements related to protection of wetlands and waters, these projects are unlikely to result in any cumulative impacts to these resources. However, there are a few locations where both the proposed Project and another major project cross the same waterbodies or wetlands (see Table 1A-11 in Appendix 1A and Figure 1C-3 in Appendix 1C). In these locations, there could be very small, localized areas where wetland and waterbody impacts would overlap. At present there is limited detailed information on the location of other major projects and their impacts on wetland resources areas to quantify cumulative impacts. Where pipelines cross wetlands, FERC limits the area of disturbance to 75 feet wide, and thus in the limited number of areas where pipelines do cross each other, and to the extent they do cross in a wetland area, the disturbed area would be relatively small (less than 6,000 square feet – assuming a perpendicular crossing). Such cumulative impacts would amount to disturbing the same wetland area twice depending on the timing of the work. In all cases, these areas of overlap (and all wetland areas affected) would be restored in accordance with the Rover Procedures. The other area of cumulative wetland impacts would be where Rover's Seneca Lateral runs adjacent to the proposed CGT's Leach XPress Project for approximately 25 miles. Here cumulative impacts to wetlands would amount to a combined wider right-of-way and would be limited to 75 feet wide for each project in the area of wetlands. Rover, CGT, and the other entities would be required to comply with the conditions of their federal and state wetlands permits to limit wetland impacts, and once constructed and revegetated, there would be minimal long-term impact on these resources.

The proposed Project would result in some conversion of forested wetlands to scrub-shrub wetland or emergent wetland within the permanent right-of-way. The other pipeline projects in the area are likely to result in the same types of vegetation conversion. Any impacts associated with forest conversion would be mitigated for in compliance with federal and state permit requirements at ratios greater than the actual conversion. Therefore, impacts on wetlands with respect to conversion of wetland vegetation type would be small and minimal cumulative impacts are expected.

1.12.3.3 Vegetation and Wildlife

The area assessed for vegetation and wildlife generally included the Hydrologic Unit Code 12 area within which both the Rover Pipeline Project and other projects is located. When projects are constructed at or

near the same time, the combination of construction activities could have a cumulative impact on vegetation and wildlife in the immediate area. Clearing and grading and other construction activities associated with the projects, including the Rover Pipeline Project, will result in the removal of vegetation, alteration of wildlife habitat, displacement of wildlife, and other secondary effects such as forest fragmentation and establishment of invasive plant species. Rover will implement best management practices contained in its plans and procedures in Appendix 1B to reduce the potential for erosion, revegetate disturbed areas, and control the spread of noxious weeds. Rover is consulting with the USFWS and state agencies to reduce or avoid impacts on federal and state listed endangered and threatened species through timing restrictions or special construction techniques, such as HDD. The other projects would be expected to complete similar consultations as part of the permitting process.

With respect to the major gas pipeline and energy generation projects noted above, these projects will affect vegetation and wildlife, and will result in forest clearing. Due to the separation between most projects and regulatory requirements related to protection of vegetation and wildlife, these projects are unlikely to result in any cumulative impacts in a localized area except where the few locations where these projects overlap. At present there is limited detailed information on the location of other major projects and their impacts on vegetation and wildlife to quantify cumulative impacts on these resources. However, where pipelines do cross each other, impacts to vegetation in the area of overlap will be fairly minimal (<6,000 square feet in wetland areas as noted above, and somewhat larger in upland areas depending on width of right-of-way). Such cumulative impacts to vegetation would amount to disturbing the same area of vegetation and or wildlife habitat twice depending on the timing of the work. In all cases these areas of overlap would be restored in accordance with the Rover Plan and the Rover Procedures. The other area of cumulative vegetation impacts would be where Rover's Seneca Lateral runs adjacent to the proposed CGT's Leach XPress Project for approximately 25 miles. Here cumulative impacts to vegetation and wildlife habitat would amount to a combined wider right-of-way. Rover and other entities would be required to comply with the conditions of their permits and where regulated by FERC would be required to follow the Rover Plan and the Rover Procedures, which would minimize impacts to these resources and restore vegetation and wildlife habitat.

1.12.3.4 Cultural Resources

The area assessed for cultural resources included those areas where cultural resource impacts from other proposed projects overlap those of the Rover Pipeline Project. Past disturbances to cultural resources in the Project area are typically related to urban development, accidental disturbances, intentional destruction or vandalism, lack of awareness of the historic value, and construction, maintenance, and operations associated with existing infrastructure. Federally regulated projects must implement measures designed to avoid or minimize direct impacts on cultural resources. Non-federal projects must comply with any procedures or best management practices required by the state regulations in West Virginia, Pennsylvania, Ohio, and Michigan. Rover has developed a Project specific plan to address unanticipated discoveries of cultural resources and human remains in the event they are discovered during construction (see Resource Report 4).

At present there is not enough information to attempt to quantify cumulative impacts to cultural resources as data on other proposed projects and cultural resources is limited or not available. To the extent cultural resources are discovered where Rover and another project overlap each other or run adjacent to each other, both parties would be required to avoid the resource if possible, minimize impact to the resource, or recover such resources. All projects will be required to comply with Section 106 and conditions imposed by the State Historic Preservation Officer to protect cultural resources that are eligible for the National Register of Historic Places. Therefore the Project, in combination with other planned or proposed projects, is not expected to contribute to short- or long-term cumulative impacts on cultural resources.

1.12.3.5 Socioeconomics

The area assessed for socioeconomics included the counties where other proposed projects and the Rover Pipeline Project are both located. The Project and other proposed projects will create temporary construction jobs and will employ local workers, thus providing a direct economic benefit to those individuals and the communities in which they reside. Depending on the project, the non-local workforce could represent a nominal increase in the total population in the Project area. However, the counties have sufficient vacant or available housing options, and the necessary infrastructure to provide public services and utilities to support the workforce. Following construction, there will be positive cumulative economic benefits from these projects through additional tax revenues generated from the new facilities and permanent jobs created to operate the new facilities. These positive cumulative economic benefits would occur in counties where both the Rover Project and one or more major projects are proposed (See Figure 1C-3). It is expected that construction of the various projects will take place on different schedules and that the geographical distance between these projects will minimize potential negative impacts that may be associated with shortages of housing, municipal services, and increased traffic on local roadways. In summary, cumulative socioeconomic impacts are limited, and where they do exist, would be positive due to job creation and addition of new revenue sources for the area.

1.12.3.6 Land Use and Visual Resources

The area assessed for land use and visual resources included land use resources within 0.5 mile for smaller projects and within 5 miles for projects requiring more than ten acres of land. The area affected by these projects is predominantly agricultural land and forest with isolated areas of industrial, commercial, and residential development. In general, these projects avoid construction through densely populated residential areas and the proposed routes follow existing rights-of-way to the extent practicable or are located in rural residential areas away from population centers. Construction and operation of the Rover Pipeline Project in conjunction with the other projects will result in temporary and permanent changes to current land uses. For pipeline projects, the pipeline will be buried underground and land along the pipelines will be revegetated and allowed to revert to pre-construction uses following construction except for restrictions on the use of the permanent easement for aboveground structures, excavation activities such as mining, or forest. Therefore, cumulative impacts on land use, residential areas, or visual resources from pipeline construction will be primarily temporary and minor and associated with the conversion of forest to open land within the permanent right-of-way.

The Rover Pipeline Project and other proposed or planned projects include the construction of aboveground facilities or expansion of existing facilities. Operation of these new and expanded aboveground facilities, including gas processing facilities, will result in the conversion of previously undeveloped land to industrial use. While this conversion could result in cumulative impacts where multiple aboveground facilities are proposed in the same localized area, these impacts generally will be distributed throughout the larger geographic region and most of the Projects are far from the Rover Project (the proposed projects listed in Table 1A-10 are located an average distance of 11.1 miles away from the Rover Project, and the major pipeline projects are also generally separated from the Rover Project by large distances except in the limited areas where they cross each other and with the noted exception of where the CGT's Leach Xpress Project runs adjacent to the Rover Pipeline Project. In this location cumulative land use and visual impacts would be insignificant since the pipelines are buried, and land use adjacent to the right-of-way would resume as normal, including the ability to use the right-of-way for agriculture. Rover's above ground facilities are small in scale, and will not result in any significant cumulative visual or land use impacts with other facilities including gas processing plants (e.g. the Blue Racer Midstream LLD Berne Gas Processing Plant – Facility No. 22 in Table 1A-10), but instead represent a minor changes in land use associated with the growing gas extraction and processing industry in the region.

1.12.3.7 Air and Noise

The area assessed for air quality and noise impacts is within the same county as other projects or within 31 miles (50 kilometers) of a new stationary source. Construction activities have the potential to produce air and noise emissions. Construction equipment and vehicles emit air pollutants and generate noise in the immediate vicinity of the construction, and fugitive dust emissions are generated by soil excavation and other construction activities. The cumulative impact on air quality and noise from construction of the Project and other proposed projects will depend on the type of construction activities that are taking place at the same time and how close the projects are to each other. Mitigative measures to control air and noise emissions include maintaining construction equipment in good operating order and watering down the construction work areas to control fugitive dust. Because construction activities for the Project are temporary and distributed throughout the length of the Project, construction activities are expected to result only in short-term air and noise impacts to nearby residents and businesses and no significant long-term impacts.

Operation of the Rover Pipeline Project compressor stations and other projects with aboveground facilities will have air and noise emissions associated with them. Potential sources of air pollutants include gas processing facilities (e.g. the Blue Racer Midstream LLD Berne Gas Processing Plant – Facility no. 22 in Table 1A-10), possible emission sources from other proposed gas extraction/production facilities, emissions from compressor stations, and other miscellaneous sources. Sources of air emissions from operation of these projects are or will be controlled in accordance with state and federal air pollution laws and regulations that limit the air pollutant emissions. Although emission data on these other sources is very limited and a quantitative cumulative analysis cannot be performed, the other air emission sources in the area must comply with the NAAQS, which are designed to protect the most sensitive populations from air pollution including cumulative air impacts. Noise levels associated with operation of new

compressor stations or other plants will also comply with applicable regulations regarding noise levels. As a result, long term, permanent degradation of air or noise quality due to operation of the Rover Pipeline Project in conjunction with the other projects is not expected and there would be no significant long-term impact on noise quality in the vicinity of these stations.