



Equitrans Expansion Project

Docket No. PF15-22

## **Resource Report 10 – Alternatives**

**Draft**

July 2015

## Equitrans Expansion Project Draft Resource Report 10 – Alternatives

<b>Resource Report 10 Filing Requirements</b>	
<b>Information</b>	<b>Location in Resource Report</b>
<b>Minimum Filing Requirements</b>	
1. Address the “no action” alternative (Sec. 380.12(l)(1)).	Section 10.2
2. For large projects, address the effect of energy conservation or energy alternatives to the project (Sec. 380.12(l)(1)).	not applicable
3. Identify system alternatives considered during the identification of the project and provide the rationale for rejecting each alternative (Sec. 380.12(l)(1)).	Section 10.3
4. Identify major and minor route alternatives considered to avoid impact on sensitive environmental areas (e.g., wetlands, parks, or residences) and provide sufficient comparative data to justify the selection of the proposed route (Sec. 380.12(l)(2)(ii)).	Section 10.4
5. Identify alternative sites considered for the location of major new aboveground facilities and provide sufficient comparative data to justify the selection of the proposed site (Sec. 380.12(l)(2)(ii)).	Section 10.5

<b>FERC Environmental Information Request for Resource Report 10            Dated July 2, 2015</b>	
<b>Request</b>	<b>Status</b>
1. Revise section 10.3 (System Alternatives) as follows. First, list all existing FERC-jurisdictional transmission pipelines by company in Allegheny, Greene, and Washington Counties, Pennsylvania, and Wetzel County, West Virginia, not owned, operated, or controlled by Equitrans or its affiliates. Second, indicate the lengths and diameter of these other jurisdictional pipelines, and their current capacity. Third, illustrate the location of those other existing pipeline facilities on a map in relationship to the proposed EEP facilities. Fourth, discuss if any of those other existing pipeline systems could handle the additional volumes proposed for EEP without major modifications. Fifth, indicate if any other existing pipeline system in Wetzel County, West Virginia could supply substantial volumes of natural gas to the proposed MVP Project.	Will be addressed in the final version of RR10
2. Revise all figures to depict mileposts and starting/ending pipelines.	Addressed in Figure 10.4-1 Addresses in Figure 10.4-2
3. Section 10.3.1 states the “proposed H-316 pipeline will generally follow the alignment of the existing Texas Eastern Transmission Company pipeline between the proposed Redhook Compressor Station and the existing H-302 pipeline.” However, table 1.3-2 in RR 1 states that the H-316 pipeline is only co-located adjacent to the Texas Eastern pipeline for 30 percent of the route (approximately 0.92 miles of 2.99 miles). Clarify the apparent discrepancy.	Addressed in Section 10.3.1

<b>FERC Environmental Information Request for Resource Report 10 Dated July 2, 2015</b>	
<b>Request</b>	<b>Status</b>
<p>4. Evaluate these potential route alternatives for H-318:</p> <p>a) From MP 0 head northeast along an existing pipeline right-of-way about 0.5 mile to opposite the power plant in Elrama, cross under the Alleghany River, and follow the existing power line northwest about 2 miles to Lobbs Road, then parallel Lobbs Road for about 1 mile west to MP 4;</p> <p>b) Straight line from MP 0 about 3 miles northwest to MP 4;</p> <p>c) Co-location with the existing power line through the Riverview Golf Course; and</p> <p>d) Co-location with a recently constructed pipeline south of the town of Bunola, Pennsylvania which is depicted on June 2014 Google Earth imagery.</p>	<p>Locations addressed in Figure 10.4-2</p> <p>Will be addressed in the final version of RR10</p> <p>Will be addressed in the final version of RR10</p> <p>Will be addressed in the final version of RR10</p> <p>Will be addressed in the final version of RR10</p>
<p>5. Revise section 10.3 to include a map illustrating the locations of existing pipeline systems, existing electric transmission lines, and existing major roads, and explain if the proposed pipeline segments could follow all or portions of those existing rights-of-way as route alternatives.</p>	<p>Will be addressed in the final version of RR10</p>
<p>6. Include a detailed assessment and depiction of at least one viable route or site alternative for all proposed facilities, including the</p> <p>a. Webster Interconnect</p> <p>b. H-158, and M80 pipelines.</p> <p>c. For (non-compressor station) aboveground facilities, such as meter stations and valves, consider their potential for visual impact or noise effects upon residents in comparison to the proposed aboveground facilities locations</p>	<p>Addressed in Section 10.4.4.</p> <p>Addressed in Section 10.4.3.</p> <p>Will be addressed in the final version of RR10</p>
<p>7. Include alternatives comparison tables for all pipeline segments and aboveground facilities and ensure that the data categories are consistent across all the tables/alternatives. Include additional data categories for extent of co-location with existing rights-of-way, forest, crop land, waterbodies, wetlands, habitat for listed threatened and endangered species, previously recorded cultural resources, steep side-slopes, shallow bedrock, karst geology, landslides, landowner parcels crossed, and residences within 50 feet of a proposed work area.</p>	<p>Will be addressed in the final version of RR10</p>
<p>8. The boundaries of the proposed Redhook Compressor Station in figure 10.4-1 and appendix 1-B page 2 do not match. Resolve the apparent discrepancy.</p> <p>Revise figure 10.4-1 to depict the boundaries of the County Natural Heritage Inventory core habitat.</p>	<p>Addressed in Figure 10.4-1</p> <p>Will be addressed in the final version of RR10</p>
<p>9. Section 10.4 states the “alternative route 2 was chosen as the proposed route for the Redhook Compressor Station to the H-302 pipeline interconnection.” However, the route depicted on figure 10.4-1 does not match the route identified as proposed in appendix 1B. Resolve the apparent discrepancy.</p>	<p>Addressed in Section 10.4.1.2 and Figure 10.4-1</p>

<b>FERC Environmental Information Request for Resource Report 10 Dated July 2, 2015</b>	
<b>Request</b>	<b>Status</b>
10. Revise section 10.5 to include a detailed discussion of why the existing Pratt Compressor Station could not be modified and/or expanded as an alternative to the Redhook Compressor Station.	Addressed in Section 10.5
11. Section 10.5 states there are seven residences within the preferred “siting area” for the proposed Redhook Compressor Station and two residences in the East siting area. Revise section 10.5 to describe and assess in detail these residences and discuss the landowner’s willingness to sell these residences to Equitrans for both the proposed and alternative sites. Further, report each landowner’s willingness to accommodate all other proposed and alternative aboveground facilities, such as pig launchers/receivers, meter stations, MLVs, and communication towers.	Will be addressed in the final version of RR10
12. Include applicable information for all proposed and alternate compressor station sites as described in section 10.4 of our Guidance Manual. Include information on noise-sensitive areas (NSAs) for all four directions (not just the closest), tree size and composition (hardwood or evergreen) for the vegetation buffers as well as the width of vegetative buffers in relation to NSAs, and topographic considerations for noise and visual screening for the NSAs. Include topographic maps as well as aerial photography depicting the above-mentioned features.	Will be addressed in the final version of RR10
13. Include a discussion of the feasibility of using electric-motor-driven compressors at the proposed new compressor station. Include the rate of electricity required and the number of electric motors required. Compare the size of the electric transmission line necessary under the current proposal with what would be required for the electric motors. Compare the sound levels projected for the operational decibels of the electric turbines compared to the proposed gas turbines at NSAs around the Red Hook Compressor Station.	Will be addressed in the final version of RR10

**DRAFT RESOURCE REPORT 10  
 ALTERNATIVES  
 TABLE OF CONTENTS**

10.1 INTRODUCTION ..... 10-1  
 10.1.1 Environmental Resource Report Organization ..... 10-1  
 10.2 NO ACTION ALTERNATIVE..... 10-1  
 10.3 SYSTEM ALTERNATIVES ..... 10-2  
 10.3.1 Existing Pipeline Systems..... 10-3  
 10.3.2 New Pipeline Systems ..... 10-5  
 10.4 ROUTE ALTERNATIVES..... 10-5  
 10.4.1 H-316 Pipeline Routing ..... 10-5  
 10.4.1.1 Alternative Route 1 ..... 10-5  
 10.4.1.2 Alternative Route 2..... 10-8  
 10.4.2 H-318 Pipeline Route Alternatives..... 10-9  
 10.4.2.1 Elrama Alternative..... 10-9  
 10.4.2.2 Pollocks Knop Alternative ..... 10-11  
 10.4.2.3 Power line Alternative ..... 10-12  
 10.4.2.4 Bunola Alternative..... 10-13  
 10.4.3 M-80 and H-158 Alternatives ..... 10-14  
 10.4.4 Webster Interconnect Alternative..... 10-16  
 10.4.5 Aboveground Facility Visual or Noise Effects ..... 10-16  
 10.5 COMPRESSOR STATION SITE ALTERNATIVES..... 10-18  
 10.5.1 Compressor Station Site Alternatives..... 10-18  
 10.5.2 Potential Residence Relocations ..... 10-21  
 10.5.3 Use of Electric-Motor-Driven Compressors ..... 10-21  
 10.6 REFERENCES ..... 10-21

**LIST OF FIGURES**

Figure 10.3-1 Location of Natural Gas Pipelines Allegheny, Greene, and Washington Counties,  
 Pennsylvania, and Wetzel County, West Virginia ..... 10-4  
 Figure 10.4-1. H-316 Route Alternatives ..... 10-6  
 Figure 10.4-2. H-318 Pipeline Route Alternatives..... 10-10  
 Figure 10.4-3. M-80 and H-158 Pipelines ..... 10-15  
 Figure 10.4-4. Webster Interconnect..... 10-17  
 Figure 10.5-1. Redhook and East Compressor Station Sites ..... 10-19

### LIST OF TABLES

Table 10.3-1	Existing Natural Gas pipelines in Allegheny, Greene, and Washington Counties, Pennsylvania, and Wetzel County, West Virginia .....	10-3
Table 10.4-1	Comparison of Route Alternative 1 and Alternative Route 2 .....	10-7
Table 10.4-2	Comparison of Route Alternative 2 and Proposed Route .....	10-8
Table 10.4-3	Comparison of Elrama Alternative and Proposed Route .....	10-11
Table 10.4-4	Comparison of Pollocks Knob Alternative and Proposed Route .....	10-12
Table 10.4-5	Comparison of Power Line Alternative and Proposed Route .....	10-13
Table 10.4-6	Comparison of Bunola Alternative and Proposed Route .....	10-14
Table 10.5-1	Comparison of East Alternative and Proposed Redhook Compressor Station Sites ...	10-20

## **DRAFT RESOURCE REPORT 10 ALTERNATIVES**

### **LIST OF ACRONYMS AND ABBREVIATIONS**

CNHI	County Natural Heritage Inventory
Dth/day	dekatherms per day
EIA	U.S. Energy Information Agency
EQT Gathering	EQT Gathering, LLC
Equitrans	Equitrans, L.P.
FERC	Federal Energy Regulatory Commission
HDD	horizontal directional drill
hp	horsepower
LDCs	local distribution companies
MVP	Mountain Valley Pipeline
MP	milepost
NWI	National Wetlands Inventory
Project	Equitrans Expansion Project
ROW	right-of-way
Tcf	trillion cubic feet
Texas Eastern	Texas Eastern Transmission, LP

## DRAFT RESOURCE REPORT 10 ALTERNATIVES

### 10.1 Introduction

Equitrans, L.P. (Equitrans) is seeking a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act authorizing it to construct and operate the proposed Equitrans Expansion Project (Project) located in three counties in Pennsylvania and one county in West Virginia. In addition, Equitrans is seeking authorization to abandon an existing compressor station (which will be replaced by a new compressor station) pursuant to Section 7(b) of the Natural Gas Act. Equitrans plans to construct approximately 7.4 miles of pipeline (at two separate locations), a new compressor station, an interconnect with the proposed Mountain Valley Pipeline (MVP), and ancillary facilities to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users and power generation in northeastern, Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region.

The Project is designed to transport natural gas from the northern portion of the Equitrans system south to the interconnection with the proposed MVP, as well as to existing interconnects with Texas Eastern Transmission, LP (Texas Eastern) and Dominion Transmission, Inc. The Project will provide shippers with the flexibility to transport additional natural gas produced in the central Appalachian Basin to meet the growing demand by local distribution companies, industrial users, and power generation facilities located in local, northeastern, Mid-Atlantic and southeastern regions of the United States. The Project will also increase system reliability, efficiency and operational flexibility for the benefit of all Equitrans customers. The Project is designed to add up to 600,000 dekatherms per day (Dth/day) of north-south firm capacity on the Equitrans system.

Resource Report 1 provides a complete summary of the Project facilities (see Tables 1.2-1 and 1.2-2) and a general location map of the Project facilities (Figure 1.2-1).

#### 10.1.1 Environmental Resource Report Organization

This draft resource report contains a discussion of the various alternatives to the Project that could achieve all or some portion of the Project objectives. The range of alternatives considered includes the no action alternative (Section 10.2), system alternatives (Section 10.3), route alternatives (Section 10.4), compressor station site alternatives (Section 10.5), and references (Section 10.6). Equitrans will revise this alternatives analysis as additional data is gathered and evaluated, and will file with FERC a final Resource Report 10 – Alternatives with its application.

### 10.2 NO ACTION ALTERNATIVE

If the Project is not authorized by the FERC, the short-term and long-term environmental impacts resulting from Project activities, to be discussed in other resource reports, will not occur. However, the No Action Alternative would not allow the accomplishment of the Project's stated purpose and need, to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies (LDCs), industrial users, and power generation facilities located in local, northeastern, Mid-Atlantic and southeastern regions of the United States, as well as potential markets in the Appalachian region. Under the No Action Alternative, numerous benefits will be foregone. These lost benefits include:



- Economical access of new sources of natural gas supply from the Marcellus and Utica production regions by natural gas markets in northeastern, Mid-Atlantic and southeastern areas of the United States and potentially the Appalachian region;
- Access for new and existing electricity generation facilities to greater sources of clean burning natural gas supply to enhance reliability of the electric system;
- Access for new and existing electricity generation facilities to greater sources of clean burning natural gas supply, which in turn will create opportunities to improve regional air quality; and
- Meeting the demonstrated demand for transportation services identified during the Project open season and continuing discussions with producers in the area.

The U.S. Energy Information Agency (EIA) projects that U.S. total natural gas consumption will increase from 25.6 trillion cubic feet (Tcf) in 2012 to 31.6 Tcf in 2040, with a large portion of this increased demand occurring in the electric generation sector (EIA 2014). A sizable portion of this growth in production is occurring in the Marcellus and Utica shale regions, with Marcellus shale production steadily increasing. Likewise, the increased demand for natural gas is expected to be especially high in the southeastern United States, as new environmental regulations result in coal-fired generation plants being converted or replaced by natural gas-fired generation plants. The infrastructure design of the Project is expected to benefit these regions by connecting the production supply to the market demand. In doing so, the Project will bring clean-burning, domestically produced natural gas supplies from the prolific Marcellus and Utica shale regions and supply it to the demand markets in order to support the growing demand for clean-burning natural gas, provide increased supply diversity, and improve supply reliability to these growing markets. The Project may also support additional uses of natural gas in south central West Virginia and Pennsylvania by providing infrastructure that can facilitate economic development associated with having access to affordable gas supplies, as these areas currently have limited interstate pipeline capacity.

The No-Action Alternative would jeopardize the ability to offer the growing northeastern, Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region access to a clean burning, low-cost source of fuel, and limit the economic growth of this region of the country that will be offered by the Project. Thus, the No-Action Alternative would have both adverse economic and environmental consequences.

### 10.3 SYSTEM ALTERNATIVES

System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems to meet the stated objectives of the Project. A system alternative would make it unnecessary to construct all or part of the Project, although some modifications or additions to the alternative systems may be required to increase its capacity or provide receipt and delivery capability consistent with that of the Project. These modifications or additions would result in environmental impacts that may be less than, comparable to, or greater than those associated with construction of the Project. System alternatives that would result in significantly less environmental impact might be preferable to the Project. However, a viable system alternative must also be technically and economically feasible and practicable, and must satisfy necessary contractual commitments made with shippers supporting the development of the Project.

**10.3.1 Existing Pipeline Systems**

Equitrans evaluated current system alternatives by looking at the technical and economic feasibility and practicality of the alternative, the environmental advantage of the alternative, and the alternatives’ ability to meet the Project’s purpose and need in increased natural gas supplies to the northeastern, Mid-Atlantic, Appalachian, and southeastern markets. Table 10.3-1 is a list all existing FERC-jurisdictional transmission pipelines by company in Allegheny, Greene, and Washington Counties, Pennsylvania, and Wetzel County, West Virginia, not owned, operated, or controlled by Equitrans or its affiliates. Figure 10.3-1 shows their location. There are no existing pipelines that would allow for the proposed interconnections. The proposed H-316 pipeline will directionally follow, and where feasible be adjacent to, the existing Texas Eastern pipeline between the vicinity of the proposed Redhook Compressor Station and the existing H-302 pipeline. Analyses determined that the Texas Eastern line does not have the capacity or operating pressure to move the planned additional volume of natural gas. The proposed H--318 pipeline will connect the existing Applegate Gathering System, which is operated by EQT Gathering, LLC (EQT Gathering), west to Equitrans’ existing H-148 pipeline. There are no existing pipeline systems that would allow for a connection between these two points. The M-80 and H-158 pipelines will connect the to-be-abandoned Pratt Compressor Station to the proposed Redhook Compressor Station. There are no existing pipeline systems that would allow for a connection between these two points. The Webster Interconnect and Mobley Tap are designed to deliver gas into the MVP from the Equitrans Transmission System. Any other location for these facilities would require new pipeline construction to connect to the MVP.

<b>Table 10.3-1</b>		
<b>Existing Natural Gas pipelines in Allegheny, Greene, and Washington Counties, Pennsylvania, and Wetzel County, West Virginia</b>		

[To be provided when information is available]

**Figure 10.3-1 Location of Natural Gas Pipelines Allegheny, Greene, and Washington Counties, Pennsylvania, and Wetzel County, West Virginia**

[To be provided when information is available]

### 10.3.2 New Pipeline Systems

The Project's pipeline and compressor station facilities are designed to optimize the transport of natural gas from the northern portion of Equitrans' system south to a future interconnection with the proposed MVP facilities, as well as to existing interconnects on the southern portion of Equitrans' system with Texas Eastern and Dominion Transmission, Inc. Equitrans did not identify any new or proposed pipeline systems that could conceptually serve as a system alternative when considered in conjunction with the location of MVP. The H-316 pipeline will move gas from the new Redhook Compressor Station to Equitrans' existing H-302 pipeline for delivery to Texas Eastern or south on Equitrans' H-302 pipeline to MVP. The H-318 pipeline will move gas from the Applegate Gathering System, which is operated by EQT Gathering, to Equitrans' existing H-148 pipeline for delivery south. There are no new or proposed pipelines that would allow for the proposed interconnections with the MVP or existing interconnects on the southern portion of Equitrans' system.

## 10.4 ROUTE ALTERNATIVES

During Project development, Equitrans conducted an extensive review of potential pipeline routes to identify potential pipeline corridors. This analysis consisted of identifying the constraints that characterize the key environmental resources, land uses, and potential restrictions located along each route and route alternative (where applicable) and then comparing them to identify a preferred route. Because the Project's objective is to optimize the flow of natural gas between components of Equitrans system and interconnect with the proposed MVP, the study area is limited in size.

### 10.4.1 H-316 Pipeline Routing

In the initial study phase, two route alternatives were identified to transport gas from the existing Pratt Compressor Station to Equitrans' existing H-302 pipeline for delivery to Texas Eastern or south on Equitrans' H-302 pipeline ultimately connecting with MVP (Figure 10.4-1). The initial study phase resulted in the selection of Alternative 2. As the study progressed, it was apparent that the Pratt Compressor Station could not be adequately expanded to accommodate the amount of new compressor facilities needed, leading to the identification of the Redhook Compressor Station (see Section 10.5). As discussed in Section 10.4.1.2, as a result of the identification of the Redhook Compressor Station, during the final study phase the location of Alternative 2 was modified to the alignment of the Proposed Route (Figure 10.4-1).

#### 10.4.1.1 Alternative Route 1

As originally configured, Alternative Route 1 would exit the existing Pratt Compressor Station to the southeast and extend approximately 2.9 miles to a termination at the H-302 pipeline. Alternative Route 1 crosses undeveloped land, isolated wetlands totaling approximately 118 feet, and approximately 869 feet of County Natural Heritage Inventory (CNHI) core habitat. CNHIs indicate plants, animals, natural communities, and habitats of concern. Overall, the alternative is 40 percent forested with less than one half mile of slopes greater than 20 percent. There are no residences located within 50 feet of the edge of the construction right-of-way.

[To be revised and expanded when information in Table 10.4-1 is available]

**Figure 10.4-1. H-316 Route Alternatives**

As originally configured, Alternative Route 2 would exit the existing Pratt Compressor Station to the southeast and extend approximately 2.9 miles to a termination at the H-302 pipeline. Alternative Route 2 crosses undeveloped land, isolated wetlands totaling approximately 86 feet, and approximately 1,561 feet of CNHI core habitat. Overall, the alternative is 80 percent forested and crosses 0.7 mile of slopes greater than 20 percent. There are no residences located within 50 feet of the edge of the construction right-of-way.

At the end of the initial siting phase, Alternative Route 2 was chosen as the preferred route between the Pratt Compressor Station the H-302 pipeline. Based on the data presented in Table 10.4-1, key resources that played a role in identification of the preferred route included number of housing development crossings, forest clearing, length crossing National Wetlands Inventory (NWI)-mapped wetlands, number of perennial stream crossings, and length paralleling existing natural gas pipeline. The two routes are similar for length, construction disturbance, and proximity to residences. Alternative Route 1 crosses fewer feet of CNHI core habitat and has less slope greater than 20 percent.

<b>Table 10.4-1</b>		
<b>Comparison of Route Alternative 1 and Alternative Route 2</b>		
<b>Feature</b>	<b>Route Alternative 1</b>	<b>Route Alternative 2</b>
<b>General</b>		
Total length (miles)	TBD	TBD
Length adjacent to existing ROW (miles)	TBD	TBD
Land disturbed within construction ROW (acres) <u>a/</u>	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>b/</u>	TBD	TBD
NRHP designated or eligible historic districts crossed (miles)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land crossed (miles)	TBD	TBD
Cropland crossed (miles)	TBD	TBD
Wetlands (NWI) crossed (feet)	TBD	TBD
Perennial waterbody (source) crossings (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species crossed (miles)	TBD	TBD
Steep side slopes crossed (miles)	TBD	TBD
Shallow bedrock crossed (miles)	TBD	TBD
Karst geology crossed (miles)	TBD	TBD
Landslide prone soils crossed (miles)	TBD	TBD
<u>a/</u> Assuming 110-foot-wide construction ROW. <u>b/</u> City, town, village center, or dense residential development. <u>c/</u> Crossing is adjacent to existing utility corridor.  NRHP = National Register of Historic Places NWI = National Wetland Inventory		

Alternative Route 2 would result in fewer impacts on wetlands. When considered in relation to the preferred (west) site for the proposed Redhook Compressor Station, additional pipeline would have been required to connect Alternative Route 1 as compared with Alternative Route 2. On balance, Alternative Route 2 was preferred over Alternative Route 1.

**10.4.1.2 Alternative Route 2**

While Alternative Route 2 was preferred over Alternative 1 in the initial siting study, expanding the Pratt Compressor Station was determined to not be feasible (see Section 10.5.1). In the process of selecting the Redhook Compressor Station site as a replacement, substantial alignment changes were necessary that resulted in the final Proposed Route (Figure 10.4-1). During the follow-on study civil survey conducted along Alternative 2 five pipelines were identified in the existing corridor intended to be followed. The location of any additional pipeline would have been on severe side-slope reported to be experiencing active slips. Another factor was the proximity to an existing residence. These constraints as well as the selected location for the proposed Redhook Compressor Station caused the Proposed Route alignment to shift from the south to the north side of creek. The Proposed Route from the Redhook Compressor Station to the H-302 pipeline when compared to Alternative 2 from the Pratt Compressor Station shows that \_\_\_\_\_. Table 10.4-2 shows key resources that played a role in the selection of the Proposed Route.

[To be revised and expanded when information in Table 10.4-2 is available]

<b>Table 10.4-2</b>		
<b>Comparison of Route Alternative 2 and Proposed Route</b>		
<b>Feature</b>	<b>Route Alternative 2</b>	<b>Proposed Route</b>
<b>General</b>		
Total length (miles)	TBD	TBD
Length adjacent to existing ROW (miles)	TBD	TBD
Land disturbed within construction ROW (acres) <u>a/</u>	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>b/</u>	TBD	TBD
NRHP designated or eligible historic districts crossed (miles)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land crossed (miles)	TBD	TBD
Cropland crossed (miles)	TBD	TBD
Wetlands (NWI) crossed (feet)	TBD	TBD
Perennial waterbody (source) crossings (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species crossed (miles)	TBD	TBD
Steep side slopes crossed (miles)	TBD	TBD
Shallow bedrock crossed (miles)	TBD	TBD

<b>Table 10.4-2</b>		
<b>Comparison of Route Alternative 2 and Proposed Route</b>		
<b>Feature</b>	<b>Route Alternative 2</b>	<b>Proposed Route</b>
Karst geology crossed (miles)	TBD	TBD
Landslide prone soils crossed (miles)	TBD	TBD
<p>a/ Assuming 110-foot-wide construction ROW.            b/ City, town, village center, or dense residential development.            c/ Crossing is adjacent to existing utility corridor.</p> <p>NRHP = National Register of Historic Places            NWI = National Wetland Inventory</p>		

**10.4.2 H-318 Pipeline Route Alternatives**

The H-318 pipeline will move gas from the Applegate Gathering System, which is operated by EQT Gathering, west to Equitrans’ existing H-148 pipeline for delivery south. The distance between the gathering system and the connection to the H-148 pipeline is approximately 2.7 miles. The length of the proposed route is approximately 4.1 miles. A more direct route is constrained by a combination of residential, industrial and recreational developments, river crossing locations and terrain (see Figure 10.4-2). From the Applegate Gathering System and heading west, the proposed route alignment is immediately pushed south to avoid steep terrain on either side of the Monongahela River, as well as a lack of adequate horizontal directional drill (HDD) setup locations. Along the southerly location, the route takes advantage of rolling terrain and more moderate slopes on either side of Kelly Run. West of Kelly Run, the route would cross to the south and avoid the Riverview Golf Course. To this point, two parcels of farm are crossed that have national conservation easements. These easements are described as held by Allegheny County for protection of farmland. No public access is allowed. Near Bunola, an HDD would be accomplished across the Monongahela River, which avoids the Norfolk Southern Shire Oaks railyard and a more developed area of Elrama. Continuing west, the route generally follows ridge tops to its connection with the existing H-148 pipeline.

In an information request dated July 2, 2015 FERC asked Equitrans to evaluate an alternative four alternative routes to the H-318 Proposed Route. These alternatives are discussed below.

**10.4.2.1 Elrama Alternative**

FERC asked Equitrans to evaluate an alternative that would begin at milepost (MP) 0.0 and head northeast along an existing pipeline right-of-way about 0.5 mile to opposite the power plant in Elrama, cross under the Alleghany River, and follow the existing power line northwest about 2 miles to Lobbs Road, then parallel Lobbs Road for about 1 mile west to MP 4.

[Text and Table 10.4-3 information to be provided when available]



**Figure 10.4-2. H-318 Pipeline Route Alternatives**

<b>Table 10.4-3</b>		
<b>Comparison of Elrama Alternative and Proposed Route</b>		
<b>Feature</b>	<b>Elrama Alternative</b>	<b>Proposed Route</b>
<b>General</b>		
Total length (miles)	TBD	TBD
Length adjacent to existing ROW (miles)	TBD	TBD
Land disturbed within construction ROW (acres) <u>a/</u>	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>b/</u>	TBD	TBD
NRHP designated or eligible historic districts crossed (miles)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land crossed (miles)	TBD	TBD
Cropland crossed (miles)	TBD	TBD
Wetlands (NWI) crossed (feet)	TBD	TBD
Perennial waterbody (source) crossings (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species crossed (miles)	TBD	TBD
Steep side slopes crossed (miles)	TBD	TBD
Shallow bedrock crossed (miles)	TBD	TBD
Karst geology crossed (miles)	TBD	TBD
Landslide prone soils crossed (miles)	TBD	TBD
<u>a/</u> Assuming 100-foot-wide construction ROW. <u>b/</u> City, town, village center, or dense residential development. <u>c/</u> Crossing is adjacent to existing utility corridor.  NRHP = National Register of Historic Places NWI = National Wetland Inventory		

**10.4.2.2 Pollocks Knop Alternative**

FERC asked Equitrans to evaluate an alternative that would begin at MP 0.0 and proceed in a straight line about 3 miles northwest to MP 4.

[Text and Table 10.4-4 information to be provided when available]

<b>Table 10.4-4</b>		
<b>Comparison of Pollocks Knob Alternative and Proposed Route</b>		
<b>Feature</b>	<b>Pollocks Knob Alternative</b>	<b>Proposed Route</b>
<b>General</b>		
Total length (miles)	TBD	TBD
Length adjacent to existing ROW (miles)	TBD	TBD
Land disturbed within construction ROW (acres) <u>a/</u>	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>b/</u>	TBD	TBD
NRHP designated or eligible historic districts crossed (miles)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land crossed (miles)	TBD	TBD
Cropland crossed (miles)	TBD	TBD
Wetlands (NWI) crossed (feet)	TBD	TBD
Perennial waterbody (source) crossings (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species crossed (miles)	TBD	TBD
Steep side slopes crossed (miles)	TBD	TBD
Shallow bedrock crossed (miles)	TBD	TBD
Karst geology crossed (miles)	TBD	TBD
Landslide prone soils crossed (miles)	TBD	TBD
<u>a/</u> Assuming 100-foot-wide construction ROW. <u>b/</u> City, town, village center, or dense residential development. <u>c/</u> Crossing is adjacent to existing utility corridor.  NRHP = National Register of Historic Places NWI = National Wetland Inventory		

### 10.4.2.3 Power line Alternative

FERC asked Equitrans to evaluate an alternative that would be co-located with the existing power line through the Riverview Golf Course.

[Text and Table 10.4-5 information to be provided when available]

<b>Table 10.4-5</b>		
<b>Comparison of Power Line Alternative and Proposed Route</b>		
<b>Feature</b>	<b>Power Line Alternative</b>	<b>Proposed Route</b>
<b>General</b>		
Total length (miles)	TBD	TBD
Length adjacent to existing ROW (miles)	TBD	TBD
Land disturbed within construction ROW (acres) <u>a/</u>	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>b/</u>	TBD	TBD
NRHP designated or eligible historic districts crossed (miles)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land crossed (miles)	TBD	TBD
Cropland crossed (miles)	TBD	TBD
Wetlands (NWI) crossed (feet)	TBD	TBD
Perennial waterbody (source) crossings (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species crossed (miles)	TBD	TBD
Steep side slopes crossed (miles)	TBD	TBD
Shallow bedrock crossed (miles)	TBD	TBD
Karst geology crossed (miles)	TBD	TBD
Landslide prone soils crossed (miles)	TBD	TBD
<u>a/</u> Assuming 100-foot-wide construction ROW. <u>b/</u> City, town, village center, or dense residential development. <u>c/</u> Crossing is adjacent to existing utility corridor.  NRHP = National Register of Historic Places NWI = National Wetland Inventory		

**10.4.2.4 Bunola Alternative**

FERC asked Equitrans to evaluate an alternative that would be co-located with a recently constructed pipeline south of the town of Bunola, Pennsylvania, which is depicted on a June 2014 Google Earth imagery.

[Text and Table 10.4-6 information to be provided when available]

<b>Table 10.4-6</b>		
<b>Comparison of Bunola Alternative and Proposed Route</b>		
<b>Feature</b>	<b>Bunola Alternative</b>	<b>Proposed Route</b>
<b>General</b>		
Total length (miles)	TBD	TBD
Length adjacent to existing ROW (miles)	TBD	TBD
Land disturbed within construction ROW (acres) <u>a/</u>	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>b/</u>	TBD	TBD
NRHP designated or eligible historic districts crossed (miles)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land crossed (miles)	TBD	TBD
Cropland crossed (miles)	TBD	TBD
Wetlands (NWI) crossed (feet)	TBD	TBD
Perennial waterbody (source) crossings (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species crossed (miles)	TBD	TBD
Steep side slopes crossed (miles)	TBD	TBD
Shallow bedrock crossed (miles)	TBD	TBD
Karst geology crossed (miles)	TBD	TBD
Landslide prone soils crossed (miles)	TBD	TBD
<u>a/</u> Assuming 100-foot-wide construction ROW. <u>b/</u> City, town, village center, or dense residential development. <u>c/</u> Crossing is adjacent to existing utility corridor.  NRHP = National Register of Historic Places NWI = National Wetland Inventory		

**10.4.3 M-80 and H-158 Alternatives**

FERC asked Equitrans to include a detailed assessment and depiction of at least one viable route or site alternative for the M-80 and H-158 pipelines. The locations of the M-80 and H-158 pipeline alternatives are shown in Figure 10.4-3. The 6-inch M-80 and 12-inch H-158 pipelines currently move gas to the Pratt Compressor Station, but will require modification to move gas to the Redhook Compressor Station once it is commissioned.

The co-located pipelines will be realigned for a distance of approximately 0.22 mile to connect the existing and proposed compressor stations. The re-alignment avoids resource concerns and is the shortest distance feasible. Any other location alternative would be longer. No further consideration of alternative locations was considered warranted.

**Figure 10.4-3. M-80 and H-158 Pipelines**

[To be provided when information is available]

#### **10.4.4 Webster Interconnect Alternative**

FERC asked Equitrans to include a detailed assessment and depiction of at least one viable route or site alternative for the Webster Interconnect. The location of the Webster Interconnect is shown in Figure 10.4-4. The Webster Interconnect will allow delivery of natural gas into MVP from the Equitrans Transmission System. The Webster Interconnect will be located near the point where the Equitrans H-306 is crossed by MVP. The interconnect location is the only options available to supply MVP from Equitrans without running long sections of pipeline from Equitrans to MVP. Therefore, no alternative interconnect or tap locations were considered.

#### **10.4.5 Aboveground Facility Visual or Noise Effects**

FERC asked Equitrans to consider potential for visual impact or noise effects upon residents for (non-compressor station) aboveground facilities, such as meter stations and valves, in comparison to the proposed aboveground facilities locations.

[To be provided when information is available]

**Figure 10.4-4. Webster Interconnect**

[To be provided when information is available]



## 10.5 COMPRESSOR STATION SITE ALTERNATIVES

In the initial study phase, it was determined that the existing 4,800 horsepower (hp) Pratt Compressor Station would not meet the Project purpose and need. The existing station cannot be taken out of service because existing gas supply contracts require gas to flow during the 14-18 month construction window of the Project. The existing site footprint is too small to accommodate the approximately 31,300 hp of compression provided by the two Taurus 70 units and two CAT 3616 units needed for the Project. There is a fairly large wetland to the north of the existing Pratt site, making it difficult to expand the footprint. The existing station is also located in a floodplain adjacent to a creek which can be avoided by selecting a new site. Finally the old units need to be removed as they are beyond their service life. Once the proposed compressor station, at a new site, is operational, these units can be removed from service.

Therefore, alternative sites were identified and evaluated. Two alternative sites near the Pratt Compressor Station (the East Compressor Station and the West Compressor Station sites) were identified and analyzed to determine a preferred site (see Figure 10.5-1). As discussed below, the West Compressor Station site was determined to be the preferable location.

### 10.5.1 Compressor Station Site Alternatives

The East Compressor Station site is approximately 23.9 acres in area, of which 5.9 acres are cleared. There are two residences located within the siting area. Water features include approximately 1 acre of NWI wetland and riverine land cover, and the site contains approximately 280 feet of a perennial stream. Approximately 15.2 acres of the siting area involve slopes greater than 8 percent. Approximately 3.9 acres of CNHI core habitat are located within the siting area.

[Text to be expanded when information in Table 10.5-1 is available]

The West Compressor Station site is approximately 19.8 acres in area, of which 13.6 acres are cleared. There are seven residences located within the siting area. These residences are surrounded by existing pipelines and offer high potential for acquisition. The only water feature within the siting area is approximately 30 feet of a perennial stream. Approximately 5.6 acres of the siting area involve slopes greater than 8 percent.

[Text to be revised and expanded when information in Table 10.5-1 is available]

**Figure 10.5-1. Redhook and East Compressor Station Sites**

[To be provided when information is available]

The West Compressor Station site was chosen as the preferred siting area for the new Redhook Compressor Station. Based on the data presented in Table 10.5-1, key resources that played a role in identifying the preferred site include the presence of NWI-mapped wetlands, streams, core habitat, and forested areas. The West Compressor Station site requires less cutting and filling based on slopes present. When compared with the East Compressor Station site, the preferred siting area would have fewer impacts on the listed resources. Although the preferred siting area involves more residences, acquisition of those residences would minimize any issues. On balance, the West Compressor Station site is preferred over the East Compressor Station site.

[To revised and expanded when information in Table 10.5-1 is available]

<b>Table 10.5-1</b>		
<b>Comparison of East Alternative and Proposed Redhook Compressor Station Sites</b>		
	<b>Alternative East Compressor Station Site</b>	<b>Proposed Redhook Compressor Station Site</b>
<b>General</b>		
Total area (miles)	TBD	TBD
Land disturbed within construction area (acres)	TBD	TBD
<b>Land Use</b>		
Populated areas within ½ mile (number) <u>a/</u>	TBD	TBD
NRHP designated or eligible historic districts within ½ mile (number)	TBD	TBD
Landowner parcels crossed (number)	TBD	TBD
Number of residences relocated	TBD	TBD
Residences within 50 feet of construction work space (number)	TBD	TBD
<b>Resources</b>		
Forested land affected (acres)	TBD	TBD
Cropland affected (acres)	TBD	TBD
Wetlands (NWI) affected (acres)	TBD	TBD
Perennial waterbody affected (number)	TBD	TBD
New River crossings (number)	TBD	TBD
Habitat of listed threatened and endangered species affected (acres)	TBD	TBD
Steep side slopes affected (acres)	TBD	TBD
Shallow bedrock encountered (acres)	TBD	TBD
Karst geology encountered (acres)	TBD	TBD
Landslide prone soils encountered (acres)	TBD	TBD
<u>a/</u> City, town, village center, or dense residential development.		
NRHP = National Register of Historic Places NWI = National Wetland Inventory		

### **10.5.2 Potential Residence Relocations**

FERC asked Equitrans to describe and assess the effects of residences that may require relocation as a result of developing either the alternative or proposed Redhook Compressor Station.

[To be provided when information is available]

### **10.5.3 Use of Electric-Motor-Driven Compressors**

FERC asked Equitrans to include a discussion of the feasibility of using electric-motor-driven compressors at the Redhook Compressor Station.

[To be provided when information is available]

## **10.6 REFERENCES**

EIA (U.S. Energy Information Agency). 2014. Annual Energy Outlook 2014 with Projections to 2040. April. Available on the web at: [www.eia.gov/forecasts/aeo](http://www.eia.gov/forecasts/aeo).