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# Captina Creek Watershed Natural Gas Pipeline Crossings

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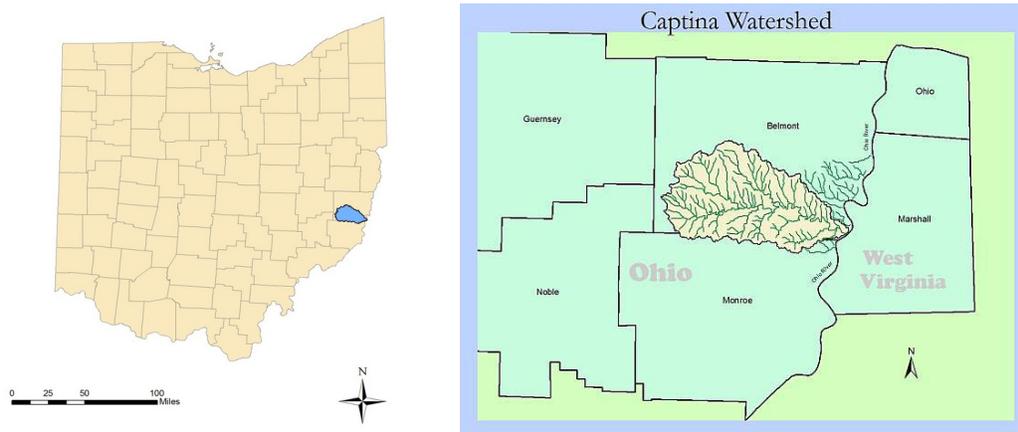
# Introduction

This report is an informational document on the current state of natural gas pipeline creek crossings in the Captina Creek Watershed in Belmont County, Ohio.

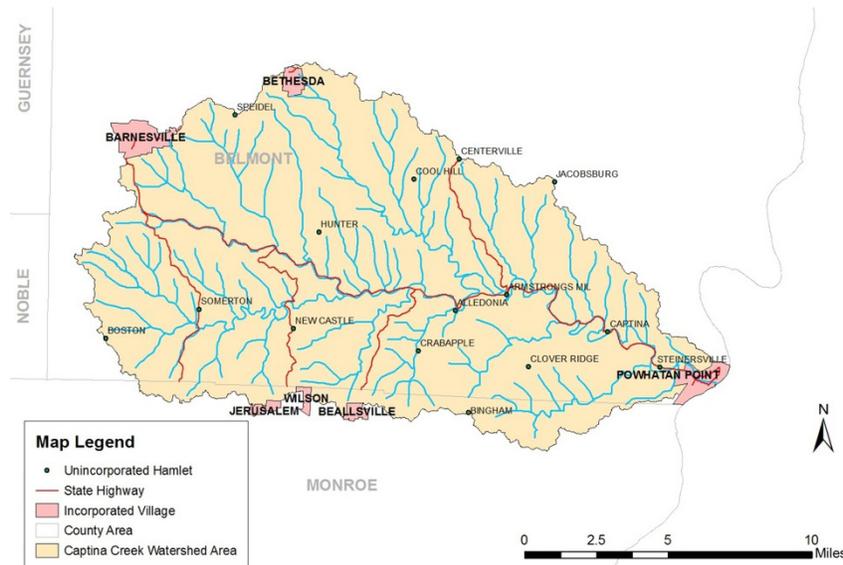
## Captina Creek Watershed

Captina Creek is located in Belmont County in eastern Ohio. It is a tributary to the Ohio River, starting near Barnesville, Ohio and terminating at Powhatan Point, Ohio. Captina watershed is approximately 180 square miles of land area of which around 168 square miles (93%) are located in Belmont County and around 12 square miles (7%) are in Monroe County.

**Figure 1:** Location of Captina Creek Watershed



**Figure 2:** Captina Creek Watershed Administrative Boundaries



Captina Creek is listed as an Outstanding State Water from river mile 25.4 to 0.8 by the Ohio Environmental Protection Agency (OEPA), and several tributaries to Captina are listed as Superior High Quality Water. The United States Environmental Protection Agency (USEPA) has designated Captina Creek as an Aquatic Resource of National Importance for its water quality and biodiversity. OEPA has classified Captina as an exceptional warmwater habitat (EWH) and several tributary headwaters have coldwater habitat (CWH) status. Captina Creek mainstem has the highest Index of Biotic Integrity (IBI) in the state with a 55.1 out of 60 points and has scored in the top ten watersheds in the state for the Invertebrate Community Index (ICI). Additionally, Captina Creek is home to important populations of the Eastern Hellbender (*Cryptobranchus alleganiensis alleganiensis*), a small mouth bass fishery, and bobcats (*Felis rufus*) have been sighted in the forested habitat of the watershed.

## **Oil and Gas Extraction**

Hydraulic fracturing (also known as fracking) for natural gas in the Marcellus and Utica–Point Pleasant shale formations started booming in the 2010s in Belmont County and surrounding areas in Ohio, Pennsylvania, and West Virginia. According to Ohio Department of Natural Resources (ODNR) documentation, there were 590 actively producing horizontally drilled natural gas wells in Belmont County, Ohio during the first quarter of 2021. As a result of the increased natural gas extraction activity, pipelines to move gas within and outside of the area have been built. As of 2021, there were four major interstate transmission lines (Rover Pipeline, Blue Racer Midstream, Texas Eastern Transmission, and Rockies Express) and many other localized gathering lines. According to the United States Department of Transportation Pipeline and Hazardous Materials Safety Administration (USDOT PHMSA), gathering lines are smaller pipelines used to transport natural gas from the source to processing or storage facilities or to transmission lines, and transmission lines are larger pipelines used to transport gas to or from processing and storage facilities or to large volume customers like power plants or factories.

## **Pipeline Crossings**

Many of the natural gas pipelines that traverse Belmont County cross creeks and smaller tributaries in the Captina Creek watershed. The development of pipelines disturbs the land which can cause erosion and increased sedimentation in waterways as well as habitat loss if not properly restored. This is especially true in hilly Belmont County where pipeline development has deforested sections of steep hillsides that are difficult to restabilize. Removal of stabilizing vegetation can cause erosion resulting in increased sediment being carried into waterways during storm events which can have a negative impact on water quality and aquatic species living in the creeks. Additionally, lack of high quality vegetation on steep slopes can result in faster water runoff which impacts creeks and can cause flooding when water runoff exceeds natural capacity. Because of the potential negative impacts to water quality and habitat, the stabilization and revegetation of pipeline rights-of-way near creeks is incredibly important.

## Project Description

The goal of this project was to identify existing natural gas pipelines where they cross waterways in the Captina Creek watershed and evaluate their quality and potential impact on the watershed. The focus was on more recent pipelines constructed in the past ten years or so as a result of the oil and gas fracking boom of the 2010s. Particular attention was paid to pipeline crossings of Captina Creek mainstem and its six major tributaries of North Fork, South Fork, Bend Fork, Piney Creek, Pea Vine Creek, and Cat Run, which are the focus of this report. Some crossings on smaller tributaries were identified but are not included in this report as they have not been verified by a site visit nor visually assessed for their condition.

## Data Sources

GIS data were obtained from the following sources:

- [Ohio Geographically Referenced Information Program \(OGRIP\) Ohio Statewide Imagery Program \(OSIP\) 2020](#)
- [United States Census Bureau 2020 TIGER/Line Shapefiles](#)

Data, maps, and other information publicly available online used to determine the locations and ownerships of pipelines were obtained from the following sources:

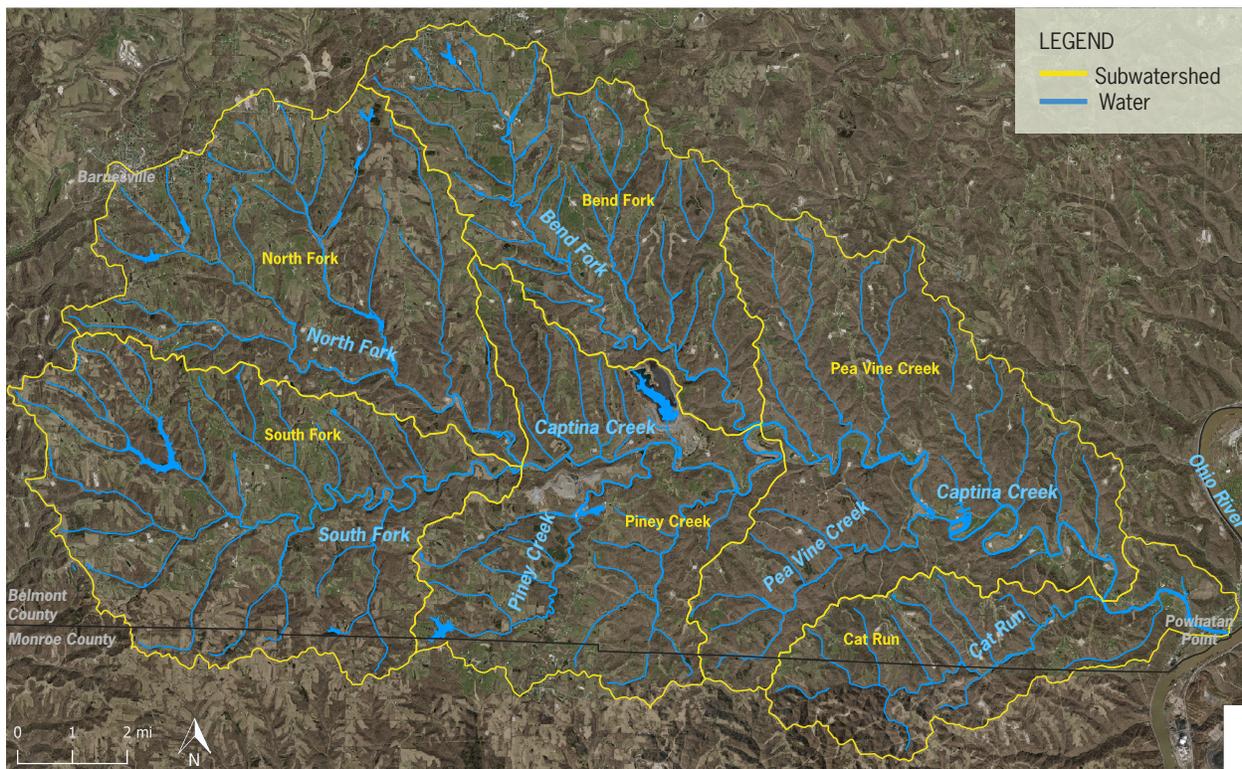
- [Blue Racer Midstream](#)
- [Equitrans Midstream](#)
- [FracTracker](#)
- [Rover Pipeline](#)
- [Summit Midstream](#)
- [United States Department of Transportation \(USDOT\) Pipeline and Hazardous Materials Safety Administration \(PHMSA\) National Pipeline Mapping System \(NPMS\)](#)
- United States Securities and Exchange Commission



# Pipeline Crossings

While there are pipeline creek crossings throughout the entirety of Captina watershed, this report focuses on crossings of the mainstem of Captina Creek and its six major tributaries of North Fork, South Fork, Bend Fork, Piney Creek, Pea Vine Creek, and Cat Run. The six tributaries are identified as being of particular significance in the 2013 Captina Creek Watershed Action Plan due to their statuses of being the main waterways in each of the six subwatersheds.

**Figure 3:** Major Tributaries and Subwatersheds to Captina Creek



GIS data for all waterway crossings in the watershed were collected, down to the smallest unnamed tributaries. However, in order to focus efforts in alignment with the Watershed Action Plan, field data collection was limited to pipeline crossings on the mainstem of Captina Creek and the six major tributaries. Some crossings were not visited due to them being on private property that is inaccessible from public roads and rights-of-way. Figure 4 on page 10 depicts all natural gas pipeline crossings of the focus waterways and Figure 5 on page 11 provides information about pipeline ownership and the condition of the land at the crossing. The condition ratings are described and depicted starting on page 12.



**Figure 5: Pipeline Creek Crossings**

ID	Pipeline Name	Waterway	Year Built	Owner	Type	Condition Rating
BF_EQT_1	Equitrans	Bend Fork		Equitrans Midstream	gathering	no data
BF_EQT_2	Equitrans	Bend Fork		Equitrans Midstream	gathering	no data
BF_EQT_3	Equitrans	Bend Fork		Equitrans Midstream	gathering	no data
CC_BRM_4	Blue Racer Midstream	Captina		Dominion/Caiman Energy II	transmission	3.5
CC_BRM_3	Blue Racer Midstream	Captina		Dominion/Caiman Energy II	transmission	4
CC_BRM_2	Blue Racer Midstream	Captina		Dominion/Caiman Energy II	transmission	no data
CC_D_2	Dominion	Captina		Dominion		3
CC_D_1	Dominion	Captina		Dominion		3.5
CC_D_3	Dominion	Captina		Dominion		3.5
CC_ET	Energy Transfer	Captina	2014	Energy Transfer Company		3
CC_EQT_2	Equitrans	Captina		Equitrans Midstream	gathering	1
CC_EQT_1	Equitrans	Captina		Equitrans Midstream	gathering	3
CC_R	Rover	Captina	2017	Energy Transfer Partners	transmission	no data
CC_TET	Texas Eastern Transmission	Captina	2014	Enbridge	transmission	3.5
CR_BRM	Blue Racer Midstream	Cat Run		Dominion/Caiman Energy II	transmission	1.5
CR_ET	Energy Transfer	Cat Run	2014	Energy Transfer Company		2.5
CR_EQT_2	Equitrans	Cat Run		Equitrans Midstream	gathering	2
CR_EQT_1	Equitrans	Cat Run		Equitrans Midstream	gathering	3
CR_EQT_3	Equitrans	Cat Run	2014	Equitrans Midstream	gathering	3
CR_REX	Rockies Express	Cat Run	2009	Tallgrass Energy	transmission	4
CR_R	Rover	Cat Run	2017	Energy Transfer Partners	transmission	1.5
CR_SM	Summit Midstream	Cat Run	2014	Summit Midstream	gathering	2.5
CR_TET	Texas Eastern Transmission	Cat Run	2014	Enbridge	transmission	3
NF_MW	MarkWest	North Fork		MarkWest		no data
PV_BRM	Blue Racer Midstream	Pea Vine		Dominion	transmission	3
PV_D	Dominion	Pea Vine		Dominion		3
PV_EQT_1	Equitrans	Pea Vine		Equitrans Midstream	gathering	3
PV_EQT_2	Equitrans	Pea Vine		Equitrans Midstream	gathering	no data
PV_REX	Rockies Express	Pea Vine	2009	Tallgrass Energy	transmission	no data
PV_R	Rover	Pea Vine	2017	Energy Transfer Partners	transmission	1.5
PC_REX	Rockies Express	Piney	2009	Tallgrass Energy	transmission	no data
SF_OG_3	Ohio Gathering	South Fork	2014	MarkWest/Summit Midstream	gathering	3.5
SF_OG_2	Ohio Gathering	South Fork	2014	MarkWest/Summit Midstream	gathering	4
SF_OG_1	Ohio Gathering	South Fork		MarkWest/Summit Midstream	gathering	no data
SF_REX	Rockies Express	South Fork	2009	Tallgrass Energy	transmission	no data

\*no data means the site was not visited, no visual assessment was made

## Condition Ratings

The following pipeline creek crossing ratings have been determined in context to the watershed and from current state and federal regulations and best management practices:

### **1 = Bad:**

- Land is unstable with minimal to no vegetation; some slippage, bare soil, and/or erosion
- Negative impact on water quality likely during storm events from fast, sedimented runoff

### **2 = Okay:**

- Land is stable and minimally vegetated in ways that will not sufficiently slow water runoff
- Some negative impact to water quality likely during storm events from fast runoff

### **3 = Good:**

- Land is stable, but could be steep, and well vegetated in ways that will slow water runoff
- Little to no impact on water quality likely during storm events

### **4 = Best:**

- Land is stable, not too steep, and well vegetated
- Vegetation creates habitat for pollinators and other land animals
- No impact to water quality likely during storm events
- Additional riparian habitat benefits

See Figures 6 through 12 on pages 13, 14, and 15 for visual examples of condition categories.

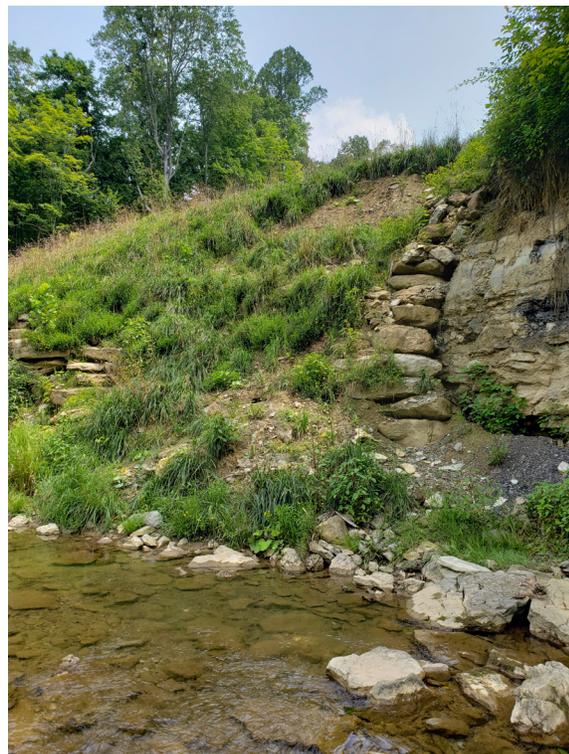
Current regulations should result in pipelines that would fall into the Okay or Good categories, however, many pipelines in the watershed were constructed prior to current regulations. The Bad category are substandard crossings that could be in violation of water pollution laws. The Best category goes above and beyond current regulations and best practices. It is based on what would be ideal restoration of pipeline sites without violating safety regulations that have limits on vegetation growth heights in order to ensure monitoring and ease of access in case of emergency. More information on current state and federal regulations regarding pipelines is discussed in “Regulations” on page 17.

Pipeline conditions were rated based on site visits in July of 2021. This was during the height of the summer and vegetation growth. Ratings could change throughout the seasons depending on the types of vegetation that have been planted and if they maintain coverage year-round or leave the ground susceptible to runoff during the winter and spring seasons.

**Figure 6:** Bad [1] Example (CC\_EQT\_2)



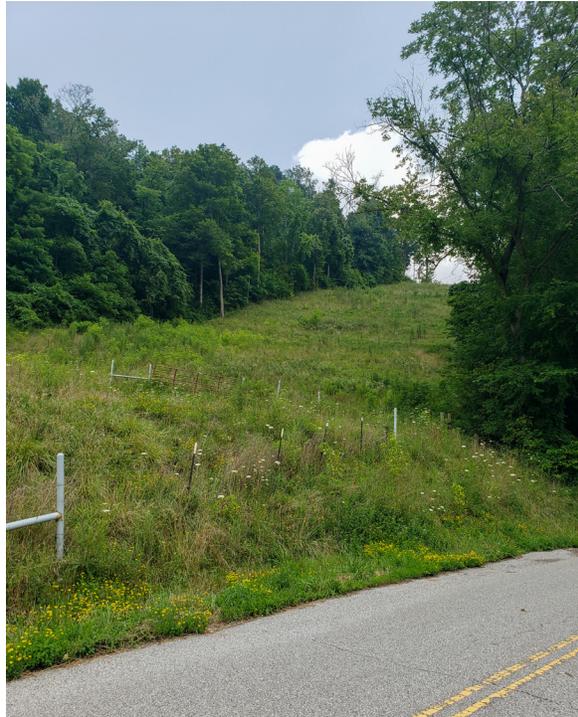
**Figure 7:** Bad/Okay [1.5] Examples (CR\_R and CR\_D; PV\_R)



**Figure 8:** Okay [2] Example (CR\_EQT\_2)



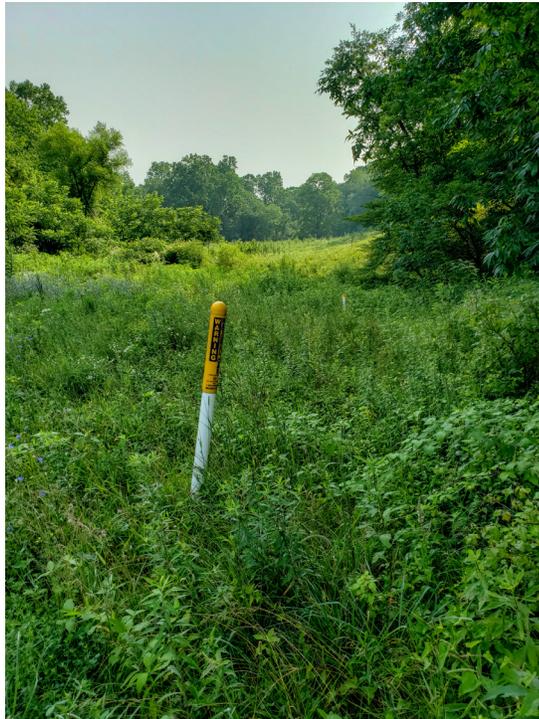
**Figure 9:** Okay/Good [2.5] Example (CR\_ET)



**Figure 10:** Good [3] Examples (CR\_TET; PV\_BRM)



**Figure 11:** Good/Best [3.5] Examples (CC\_D\_1; SF\_OG\_3)



**Figure 12:** Best [4] Examples (SF\_OG\_2; CC\_BRM\_3)





# Regulations

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## Federal

At the federal level, there are three regulatory bodies that oversee various aspects of natural gas pipelines depending on their location and stage of development:

- [US Army Corps of Engineers \(USACE\)](#)
- US Department of Energy (USDOE) [Federal Energy Regulatory Commission \(FERC\)](#)
- US Department of Transportation (USDOT) [Pipeline and Hazardous Materials Safety Administration \(PHMSA\)](#)

### USACE

The US Army Corp of Engineers oversees [Section 404 nationwide permits](#) (NWP) of the Clean Water Act (CWA) for activities that impact waters of the US. NWP 12 (Oil or Natural Gas Pipeline Activities) applies to pipeline construction, maintenance, repair, and removal. The Army Corp works closely with the Ohio EPA which is the regulatory body that issues CWA Section 401 permits in conjunction with and separate from USACE's 404 permits.

### FERC

The Federal Energy Regulatory Commission of the US Department of Energy oversees the [approval of interstate pipeline projects](#) to ensure they meet USDOT PHMSA safety standards. They also provide [guidance](#) on land restoration and erosion control of pipeline rights-of-way. Prior to approving an interstate pipeline, FERC must comply with the National Environmental Policy Act ([NEPA](#)) and submit an environmental assessment (EA) and/or an environmental impact statement (EIS) to the Council on Environmental Quality ([CEQ](#)) in the Executive Office of the President about the environmental impacts of a pipeline.

### PHMSA

The Pipeline and Hazardous Materials Safety Administration of the US Department of Transportation oversees [safety](#) for interstate pipelines including guidance on right-of-way maintenance to ensure access to pipelines for safety reasons.

## State

In the State of Ohio, four regulatory bodies oversee natural gas pipeline activity:

- [Ohio Environmental Protection Agency \(OEPA\)](#)
- [Ohio Department of Agriculture \(ODA\)](#)
- [Ohio Power Siting Board \(OPSB\)](#)
- [Public Utilities Commission of Ohio \(PUCO\)](#)

### *OEPA*

The Ohio EPA issues [Section 401 Water Quality Certifications](#) (WQC) under the Clean Water Act. An individual 401 WQC is required for all pipeline activity in the Captina Creek watershed because of its classification as ineligible or possibly ineligible for nationwide permits due to its high quality water and habitat statuses. An Ohio EPA map showing NWP eligibility can be viewed [here](#).

The Ohio EPA also issues [General Permit OHCG00001](#) for Construction Storm Water Discharges from Oil and Gas Linear Transmission Line and Gathering Line Installation, effective 2018. This permit requires the implementation of best management practices (see the [Rainwater and Land Development Manual](#)) regarding erosion prevention during construction and requires disturbed ground to be permanently stabilized soon after construction is complete. The OEPA created this permit to fill a gap in National Pollutant Discharge Elimination System (NPDES) permitting requirements from which oil and gas pipelines are currently exempt.

### *ODA*

The Ohio Department of Agriculture provides [guidance](#) on pipeline right-of-way restoration on agricultural land for soil and water resource protection.

### *OPSB and PUCO*

The Ohio Power Siting Board and the Public Utilities Commission of Ohio oversee the approval of intrastate pipelines in a similar way to how FERC oversees interstate pipelines. PUCO also oversees [safety](#) for intrastate pipelines and completes inspections and enforcement of state safety regulations.

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# Conclusion

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This report serves as a preliminary inventory of existing natural gas pipelines in the Captina Creek watershed. It is possible that some existing crossings were missed due to incomplete data sources, therefore this report should not be taken as an absolute complete survey.

## **Next Steps/Moving Forward**

With oil and gas extraction still occurring in Belmont County, the area should continue to be monitored for future pipeline construction activity. Additionally, any crossings of smaller tributaries that have been identified (not included in this report) could be visited for verification of their location and for visual assessment of their condition.

Since the site survey of the conditions of the pipeline crossings was completed during peak summer vegetation growth, it is recommended that site surveys be completed at different points during the year to get a better picture of their impact on the watershed. It is possible that a site that appeared to be in Good or Best condition may only be Okay during other seasons in which vegetation coverage can vary. Particular attention should be paid during spring and early summer when rainfall is at its peak but vegetation coverage may not yet be at peak.

Water quality could also be monitored at or near each crossing, particularly for suspended sediment levels before, during, and after storm events and throughout the year when vegetation coverage and rainfall volumes fluctuate. This would provide measurable data points from which to determine the real impact of a crossing on the waterway overall and in different seasons.



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