



**FEMA**

August 22, 2022

## ***Environmental Assessment Scoping Document***

### **SECTION ONE: BACKGROUND**

#### **1.1 Project Information:**

---

**Project ID:** HMGP-4507-0040 (R)  
**Recipient:** Ohio Emergency Management Agency  
**Subrecipient:** City of Zanesville  
**Title:** Muskingum Avenue Improvements  
**Address:** Muskingum Avenue and Putnam Hill Park  
**Locality:** Zanesville, Muskingum County, Ohio  
**GPS:** 39.937327, -82.013468 (approximate project center)  
**PLSS:** T16N R14W S1

#### **1.2 Purpose and Need:**

---

The purpose of the project is to restore the functional operation of Muskingum Avenue for motorists, pedestrians, and bicyclists as well as upgrading and relocating the existing sanitary sewer force main for future full replacement.

The project is needed as Muskingum Avenue has been closed between Pine Street and the Genesee and Wyoming Railroad crossing, located approximately 1,500 ft. to the east of Pine Street, since February 2019. Multiple safety hazards have contributed to this closure including a slip on the north side of the roadway due to flooding of the Muskingum River as well as multiple rock and tree falls that have occurred on the south side of the road due to the steep, weathered cut rock face. These hazards have resulted in damage to the roadway pavement and sidewalk located on the north side of the road. Muskingum Avenue in this location acts as a thoroughfare between U.S. Route 22 and U.S. Route 40. A detour to the south of the Muskingum River adds an additional 1.5 mi. along city streets connecting these two U.S. Routes and a detour to the north contributes to more congestion within downtown Zanesville.

A study performed in 2018 noted that the continued rock falls, pavement patching, landslip damage, and associated sediment have also resulted in the poor condition and ultimate failure of the storm sewer system in the area.

In addition, an existing 24 in. sanitary sewer force main runs adjacent to the Muskingum River. This force main has been determined to be undersized and in poor condition.

### **SECTION TWO: ALTERNATIVE ANALYSIS**

NEPA requires FEMA to evaluate alternatives to the proposed project and describe the environmental impacts of each alternative. NEPA also requires an evaluation of the No Action alternative, which is the future condition without the project. This section

describes the No Action alternative, the Proposed Action, and alternatives considered but eliminated from further consideration.

## **2.1 Alternative 1 – No Action Alternative**

---

Under the No Action alternative, Muskingum Avenue and the surrounding safety hazards and utility deficiencies would not be repaired. As a result, the roadway and sidewalk would continue to deteriorate from additional slips and rock falls and would not reopen. The force main would also not be replaced and the larger sanitary sewer upgrade could not be completed as proposed.

## **2.2 Alternative 2 – Proposed Action**

---

This project consists of five components as outlined below:

### ***2.2.1 South Slope Stabilization (S5)***

The south slope stabilization (Alternative S5, as identified within the Muskingum Avenue Improvement Study, dated November 2020) will stabilize the slope to the south of Muskingum Avenue by creating a 10 ft. wide bottom bench and barrier wall with a catchment fence adjacent to the back of the curb/gutter. The south bluff will be cutback at a 4:3 (run:rise) slope with 10 ft. wide benches at soft soil/rock layers. These benches occur at approximately 755 to 757 ft. above mean sea level (AMSL) and 776 to 782 ft. AMSL. The cutback will result in the removal of approximately 69,083 cubic yards (CY) of soil and rock which will be placed within Putnam Hill Park as outlined in Section 2.2.5 below. Approximately 5.5 acres of tree cover will be removed in the process of the cutback, filling of the park, and minor clearing that will occur in the north side stabilization area. A 5 ft. tall concrete barrier wall will be placed along the south side of the roadway for 959 ft.

### ***2.2.2 North Slope Stabilization (N3)***

Referred to as Alternative N3 for the north slope stabilization, the north slope of Muskingum Avenue at the location of the landslide will be stabilized with a 191 ft. long precast concrete lagging retaining wall with steel soldier piles drilled into bedrock. In addition, a 1,180 ft. long 3.5 ft. tall barrier wall will be placed along the north side of the sidewalk along Muskingum Avenue.

### ***2.2.3 Repair of Muskingum Avenue, Sidewalk, and Stormwater Drainage System***

The project will replace the existing roadway surface, sidewalk, and drainage system and will reopen these facilities to motorists, pedestrians, and bicyclists. The existing asphalt roadway, concrete sidewalk, and stone wall will be removed and disposed of within a licensed landfill. The new roadway will consist of two-way traffic with two 12 ft. wide lanes with a design speed of 25 miles per hour (MPH), 2.5 ft. wide curb and gutter sections on each side, and a 6 ft. wide sidewalk on the north side of the roadway. A mix of full-depth pavement replacement and planing and resurfacing will occur beginning at the eastern edge of the Pine Street intersection with Muskingum Avenue and terminate at the western edge of the railroad crossing for a total length of 1,667 ft.

The existing stormwater drainage system will be replaced by the curb and gutter inlet system with the storm sewer discharging to the north into the Muskingum

River as originally designed by the existing system. The outlets will consist of one 12 in. pipe and three 18 in. pipes onto tied concrete block matting on the river embankment where it will drain into the river.

#### ***2.2.4 Construction of Wastewater Force Main***

1,200 ft. of 30 in. high-density polyethylene (HDPE) sanitary sewer force main will be installed a minimum of 4 ft. below the westbound lane of Muskingum Avenue. As part of this project, the new line will not be connected to any existing infrastructure, nor will it be active. The inclusion of this project is to avoid disturbing the road in the future when the existing force main is replaced. The existing force main will remain and stay active. It will be abandoned at a later time.

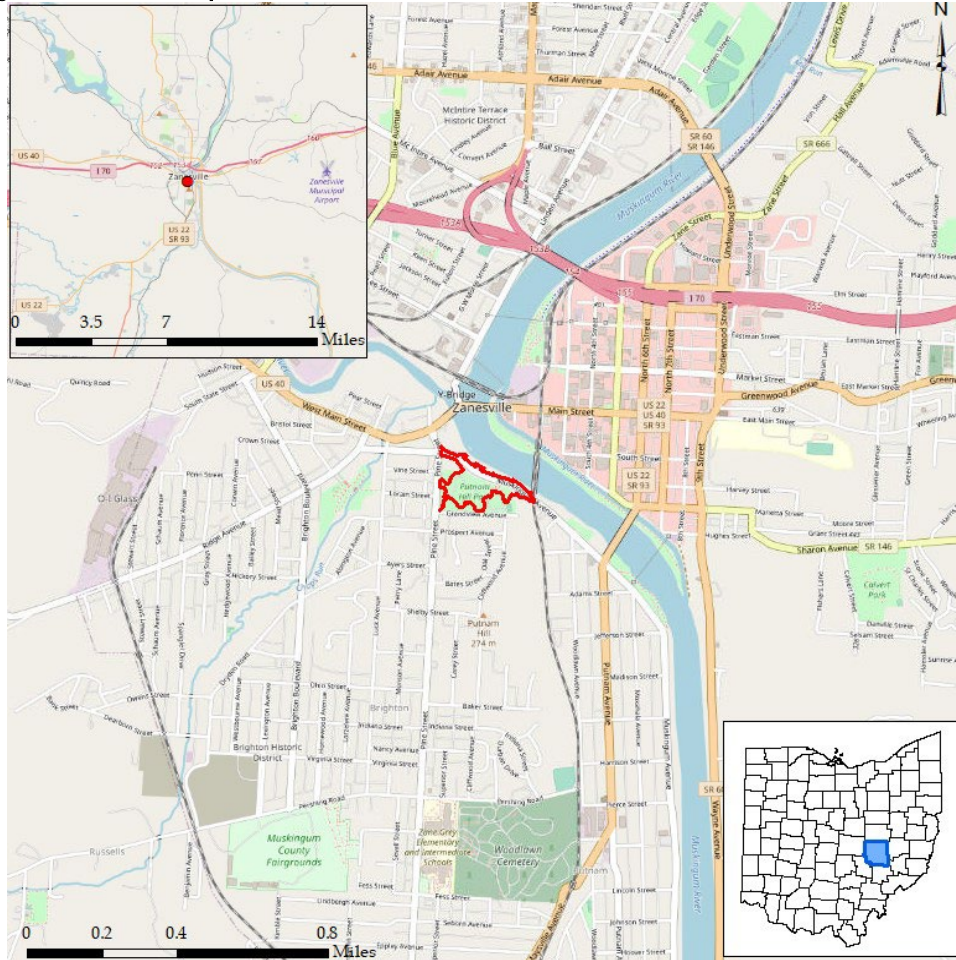
#### ***2.2.5 Reconstruction of Putnam Hill Park***

Approximately 69,083 CY of excess fill from cuts associated with the slope stabilizations will be placed within Putnam Hill Park to the south of Muskingum Avenue. The fill will be placed within a ravine toward the western side of the park, and all trees in the area will be removed to promote a level surface. This will raise the existing ground level 25 to 30 ft. in some locations and will result in the removal of two jurisdictional streams present in the area. The proposed fill will slope westward where runoff will be directed into a detention basin. 970 ft. of the existing 13 ft. wide access drive on the west side of the park that goes through the ravine will be removed prior to fill placement and replaced with a new 1,275 ft. long by 8 ft. wide multi-use path.

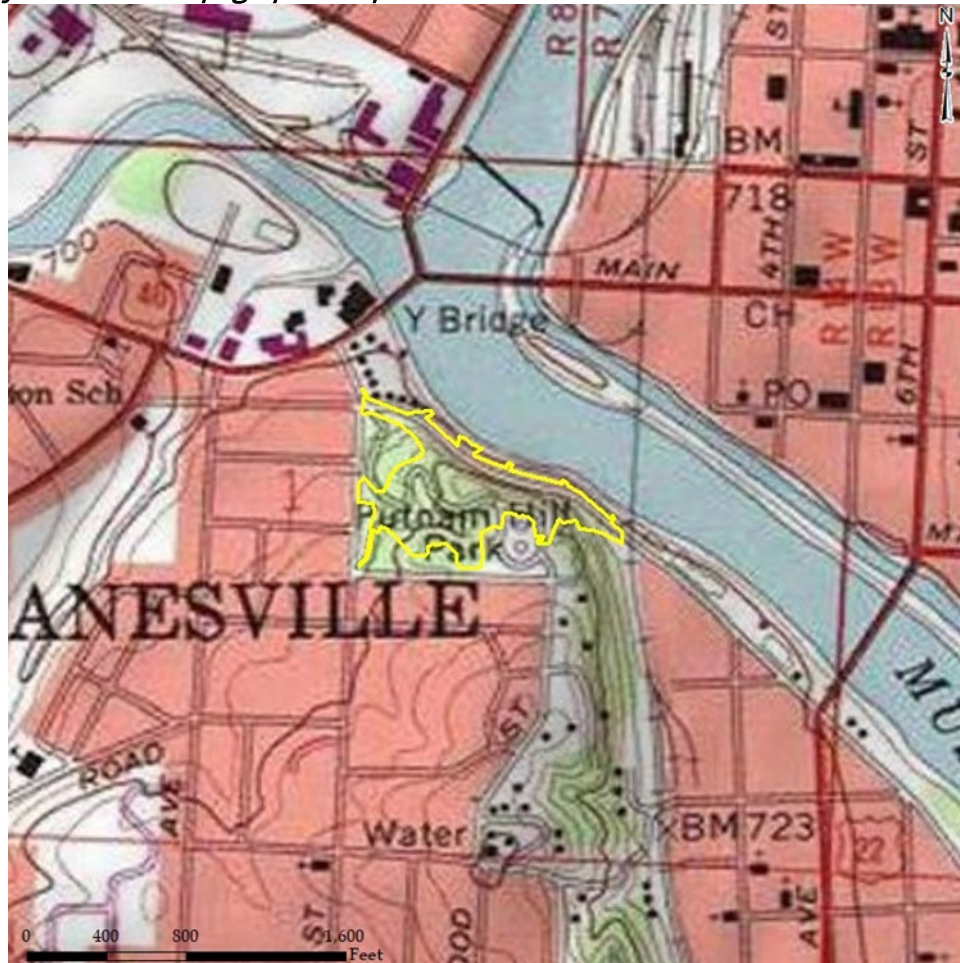
The south slope stabilization will impact the Y-Bridge overlook located within Putnam Hill Park; therefore, the existing overlook will be removed and a new 68 ft. long by 14 ft. wide concrete overlook with four benches will be constructed at the top of the newly cut bluff and west of the original location. The parking lot and access road adjacent to the existing overlook will be reconstructed and will contain 10 parking spaces. An additional parking area will be constructed east of the new overlook location and will contain 10 parking spaces including 3

Americans with Disabilities Act (ADA)-accessible spaces. Twenty 14 ft. tall light poles will be installed along the shared-use path, overlook, and parking lots.

**Exhibit 1: Project Location Map**



**Exhibit 2: Project Location Topographic Map**



### 2.3 Alternatives Considered and Eliminated from Further Analysis

The following alternative design options were studied during the planning process. The conceptual alternatives described below were considered but dismissed from further analysis because of cost and community impact.

In their Muskingum Avenue Improvement Study (November 2020), the City of Zanesville considered five additional alternatives for the south slope stabilization, labeled S1 through S4 (S5 is the preferred alternative covered in **Section 2.2.1**), and two additional alternatives for the north slope stabilization, labeled N1 and N2 (N3 is the preferred alternative covered in **Section 2.2.2**), as outlined below:

#### **2.3.1 South Slope Cutback with Catchment Ditch (S1A)**

This alternative would create a 10 ft. wide depressed catchment ditch, extending out 25 ft. from the roadway adjacent to the back of the curb/gutter. The south bluff would be cutback at a 1:2 (run:rise) slope then a 3:2 slope to a 10 ft. wide bench at a soft soil/rock layer. A 1:1 slope would then extend up for the remainder of the cut with another 5 ft. wide bench at a soft soil/rock layer. This alternative was removed from additional consideration due to greater park impacts, excavation quantities, and construction costs.

### ***2.3.2 South Slope Cutback with Catchment Ditch (S1B)***

This alternative would create a 10 ft. wide depressed catchment ditch, extending out 25 ft. from the roadway adjacent to the back of the curb/gutter. The south bluff would be cutback at a 3:2 (run:rise) slope to a 10 ft. wide bench at a soft soil/rock layer then at a 1:1 slope for the remainder of the cut with another 5 ft. bench at a soft soil/rock layer. This alternative was removed from additional consideration as it had greater park impacts, excavation quantities, and construction costs than the Proposed Action.

### ***2.3.3 South Slope Soldier Pile and Lagging Fill Wall (S2)***

This alternative utilizes a soldier pile and permanent lagging wall to prevent further weathering of the softer rock layers such as limestone and coal. The wall would include a cutback that starts approximately 2 ft. in from the base of the wall and would extend out 8 ft. horizontally from the top of the wall. This cutback would allow for the placement of panel drains against the rock face to collect ground water and allow it to be discharged away from the wall. The top of the wall would have a 6 ft. tall fence with a 25 kJ impact rating. This would be to keep any rock falls on top of the wall and not continue onto the roadway. Between the fence and the rock face, a minimum 8 ft. wide concrete slab would be constructed in order to redirect water and take energy away from any rock falls that may occur. The slab would also be designed for maintenance so that crews could access the top of the wall with equipment to remove any rock debris. While this alternative has similar impacts and service life as the Proposed Action, it is more than \$1 million in greater construction costs.

### ***2.3.4 South Slope Soldier Pile and Lagging Cut Wall (S3)***

This alternative would install a D-50 barrier wall to prevent debris from falling onto Muskingum Avenue, a 15 ft. wide depressed catchment ditch to catch falling rocks and debris, draped mesh to remove energy from rockfalls, and a soldier pile with lagging retaining wall placed into the base of the bluff to support the lower sections of the bluff. While this alternative would have minimal excavation and park impacts, it was ultimately removed from consideration as it had more than \$1 million in greater construction costs and a shorter service life as compared to the Proposed Action.

### ***2.3.5 South Slope Cutback with Barrier Wall (S4)***

This alternative would create an 8 ft. wide depressed catchment ditch, extending out 18 ft. from a barrier wall adjacent to the back of the curb/gutter. The south bluff would be cutback at a 4:3 (run:rise) slope with two 10 ft. wide benches at soft soil/rock layers. This alternative was removed from additional consideration as it had greater park impacts, excavation quantities, and construction costs than the Proposed Action.

### ***2.3.6 North Slope Retaining Wall and Bank Stabilization (N1)***

This alternative would construct a retaining wall along the north side of Muskingum Avenue at the location of the existing slip. The soils below the wall would be benched and the toe of the slip would be excavated to bedrock. Rock slope protection would then be placed over the benched soils up to the bottom of the wall. This alternative was removed from additional consideration as it had greater disturbed earth, floodplain impacts, Muskingum River impacts, and construction costs than the Proposed Action.

**2.3.7 North Slope Reconstructed Embankment (N2)**

This alternative would remove approximately a 225 ft. long strip of soil, vegetation, and debris at the existing slip down to bedrock. The embankment would be replaced with durable rock at a 1.7:1 (H:V) or flatter slope. The toe would need excavated to an elevation of approximately 671 ft. which is lower than the OHWM of the Muskingum River. This alternative was removed from additional consideration as it had greater disturbed earth, floodplain impacts, Muskingum River impacts, and construction costs than the Proposed Action.

**Table 1  
South Slope Alternative Comparison**

Alternative	Estimated Cost	Park Impacts (acre)	Service Life
2.3.1(S1A)	\$ 5,165,070	1.3	Indefinite
2.3.2(S1B)	\$ 6,119,200	1.5	Indefinite
2.3.3(S2)	\$ 4,872,300	0	75 Years
2.3.4(S3)	\$ 3,757,900	0	75 Years
2.3.5 (S4)	\$ 3,763,900	0.8	Indefinite
<b>Proposed Action (S5)</b>	<b>\$ 2,680,760</b>	<b>0.6</b>	<b>Indefinite</b>

**Table 2  
North Slope Alternative Comparison**

Alternative	Estimated Cost	Muskingum River Impacts	Floodplain Impacts	Earth/Vegetation Disturbance
2.3.6 (N1)	\$ 2,269,500	No	Yes	Yes
2.3.7 (N2)	\$ 3,511,000	Yes	Yes	Yes
<b>Proposed Action (N3)</b>	<b>\$ 897,900</b>	<b>No</b>	<b>No</b>	<b>Minimal</b>

**SECTION THREE: AFFECTED ENVIRONMENT**

The project area extends approximately 1,500 ft. along Muskingum Avenue from Pine Street on the west end to the Genesee and Wyoming Railroad crossing on the east end. It extends north toward the Muskingum River and south into Putnam Hill Park. It is approximately 9.6-acres in total size.

**3.1 Preliminary Screening of Assessment Categories:**

To better understand the affected environment, FEMA contracted for two field Phase I surveys on environmental resources to be conducted.

The proposed action will impact existing jurisdictional streams in Putnam Hill Park, according to the Preliminary Jurisdictional Determination and Waters Investigation Report. Significant coordination with USACE will be required to ensure the project complies with any permitting requirements.

The cultural resources survey indicates that additional review and investigation will be required to understand the impacts to historic and archaeological resources within

Putnam Hill Park. Per the Phase I Cultural Resources Survey, three sites potentially eligible for listing on the National Register of Historic Places exist in the project area: Putnam Hill Park, Putnam Hill Spring, and an archaeology site. Formal Section 106 consultation will occur as a part of this review.

During the scoping phase, FEMA will review the possibility of avoiding or minimizing the impacts to water and cultural resources.

The alternatives listed above are likely to result in impacts governed by the federal laws and executive orders listed below. Items listed below will require closer coordination with the appropriate agencies to identify and mitigate potentially significant impacts.

- Clean Water Act (CWA)
- Endangered Species Act (ESA)
- Executive Order 13175 – Consultation and
- Coordination with Indian Tribal Governments
- National Historic Preservation Act (NHPA)

### 3.2 Reasonably Foreseeable Future Actions

**Section 2.2.4** details the construction of the wastewater force main as part of this project that extends from Pine Street to the railroad. The City of Zanesville is in the planning process of a separate project that will connect a new 30 in. sanitary force main to the existing pump station located along the river northeast of the intersection of Muskingum Avenue and Pine Street and to continue the force main replacement east of the railroad.

## SECTION FOUR: REFERENCES

U.S. Census Bureau. 2021. Quickfacts – Zanesville city, Ohio.  
<https://www.census.gov/quickfacts/zanesvillecityohio>

*PHASE I CULTURAL RESOURCES SURVEY - Muskingum Avenue Improvements Project - Zanesville, Muskingum County, Ohio.* 2022. Prepared by Lawhon & Associates, Inc.

*Waters Investigation Report – Muskingum Avenue Improvements – Zanesville, Ohio.* 2022. Prepared by Burgess & Niple, Inc.

*Preliminary Jurisdictional Determination.* 2022. U.S. Army Corps of Engineers.

## SECTION FIVE: DISTRIBUTION LIST

The Agencies listed below have been provided a copy of this document. Other Agencies and interested parties (SHPO, Tribal Nations, etc.) will be contacted through the usual FEMA Region 5 coordination and consultation practice.

- U.S. Environmental Protection Agency Region 5 (EPA Region 5)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- Ohio Department of Natural Resources (ODNR)
- Ohio Environmental Protection Agency (OEPA)
- Ohio State Historic Preservation Office (OHPO)



- Delaware Nation

## SECTION SIX: FEMA CONTACT INFORMATION

Anyone interested in providing comment on this document may respond as noted below before September 21, 2022. Be sure to provide your name and contact information along with your comments.

### Respond by Mail:

---

Federal Emergency Management Agency, Region 5  
c/o Duane Castaldi, Regional Environmental Officer  
536 South Clark Street, 6th Floor  
Chicago, IL 60605-1521

### Respond by Email:

---

Send comments to [fema-r5-environmental@fema.dhs.gov](mailto:fema-r5-environmental@fema.dhs.gov).