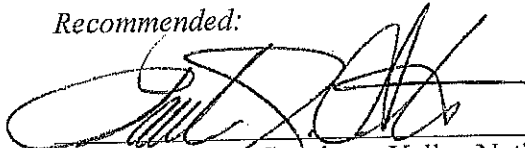


STATEMENT OF FINDINGS
EXECUTIVE ORDER 11988: Floodplain Management
PRA-CUVA 18(1), 164(1), Rehabilitation/Replacement of the Fitzwater Truss
Bridge and Waste Weir Bridge, Construction of a Trailhead, and Miscellaneous
Improvements on Fitzwater Road
Cuyahoga County, OH

Recommended:


For Superintendent, Cuyahoga Valley National Park

8/29/08
Date

Certified for Technical Adequacy and Servicewide Consistency:

Acting 
Chief, WASO Water Resources Division

8/29/08
Date

Approved:

Act. 
Director, Midwest Region

8/29/08
Date

INTRODUCTION

Executive Order 11988 (Floodplain Management) requires the NPS and other federal agencies to evaluate the likely impacts of actions in floodplains. The objective of E.O. 11988 is to avoid, to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. NPS Director's Order #77-2 Floodplain Management and Procedural Manual #77-2 provide NPS policies and procedures for complying with E.O. 11988. This Statement of Findings (SOF) documents compliance with these NPS floodplain management procedures.

PROPOSED ACTION

Alternative D – Option 1 would replace both bridges on a new alignment and align Fitzwater Road to a four-way intersection with Canal Road; would consist of the replacement of the Fitzwater Truss Bridge and the Waste Weir Bridge along a new roadway alignment spurring from the existing Fitzwater Road. The Fitzwater Truss Bridge would be replaced with an approximately 240-foot long bridge downstream (north) from its existing location. A second bridge, approximately 160 feet in length, would be constructed to cross the Waste Weir and the Canal. Depending on the type of structure used to cross the Cuyahoga River, it may be necessary to place a pier in the river. The existing Fitzwater Truss Bridge and Waste Weir Bridge would be removed; however the existing culvert spanning the Canal would be left in place to avoid impacting the Canal. The asphalt approaches to the bridges would be obliterated and the area re-graded and re-vegetated.

The new alignment would tie into the stop light at the intersection of Fitzwater Road and Canal Road to create a four-way intersection approximately 130 feet north of the existing intersection. Fitzwater Road would be raised to meet the bridge abutment at west side of the Cuyahoga River, and would transition down to the raised Fitzwater Road at a 5 percent grade. American Disability Act requirements allow a maximum grade of 5 percent. The length of Fitzwater Road would be scarified, fill material would be added to raise the road by approximately three feet, and the road would be paved with asphalt.



Figure 1. The alignment of the new bridges are shown immediately north of the existing alignment.

A public trailhead with associated parking would be constructed on the west side of the Cuyahoga River south of Fitzwater Road. A trail would be constructed to connect the parking area to the Towpath Trail, but trail users would have to cross the Fitzwater Truss Bridge within the vehicle lanes. The parking area is expected to accommodate a maximum of ten vehicles. The configuration and exact size of the parking area would be finalized during the design process.

In order to provide necessary access to the Cuyahoga Valley Scenic Railroad maintenance yard after the Fitzwater Truss Bridge was closed to vehicular traffic because of safety concerns, an access road was constructed following the existing sewer access road from Pleasant Valley Road and running adjacent to the existing rail line, ending at Fitzwater Road. The one lane access road includes pullouts to allow vehicles to pass. The road is used only by the Park and Cuyahoga Valley Scenic Railroad, is closed to the public.

SITE DESCRIPTION

Federal Emergency Management Agency (FEMA) Flood Insurance Rate maps show that the bridges are within a Zone A 100-year-flood floodplain. Zone A identifies that the floodplain limits were established using approximate methods and that detailed studies have not been completed by FEMA in this area to determine specific Base Flood Elevations (BFEs). The floodplain extends to the other side of the valley at Canal Road. The line shown on the right side delineates the edge of the area mapped. In the vicinity of Fitzwater Road, the main channel of the Cuyahoga River meanders within a floodplain approximately 1600 feet wide. At the Fitzwater Road crossing, the main channel is relatively straight and is situated towards the east side of the floodplain. Large parts of the floodplain are wooded, and there is evidence of woody debris in the channel. The formation and movement of sandbars and debris piles at the site create variable flow conditions through the bridge for high flows.

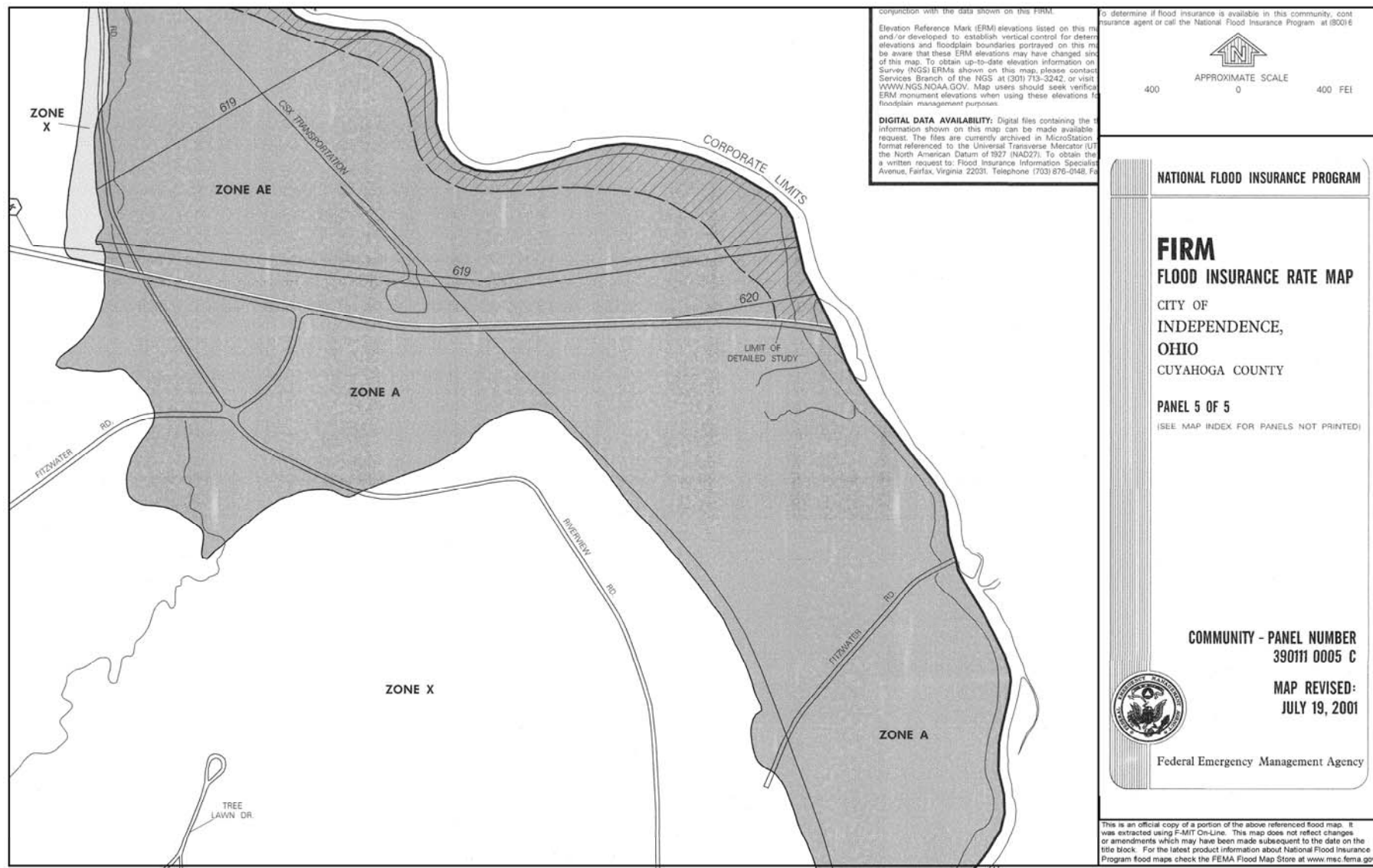


Figure 2. Floodplains are shown as Zone A.

JUSTIFICATION FOR USE OF THE FLOODPLAIN

The project proposes to replace existing bridges along Fitzwater Road to maintain access to the Cuyahoga Valley Scenic Railway maintenance yard. The Fitzwater Truss Bridge was closed to vehicular traffic in late November 2007 due to severe deterioration; therefore it became necessary to construct an access road to provide access to the maintenance yard until the bridges were replaced. Fill material was placed along the existing sewer access road and rail line to construct a one-lane road access road.

In the study area, Fitzwater Road runs from the east side of the floodplain, roughly at Canal Road, to the west side of the floodplain at the maintenance yard. Alternative sites were investigated; however all of these sites would also be located within the floodplain, as Fitzwater Road crosses the floodplain.

DESCRIPTION OF SITE-SPECIFIC FLOOD RISK

Flooding occurs regularly within the floodplain. It has been observed that Fitzwater Road is overtopped with floodwaters roughly every two years. There is adequate warning time in the event of flooding, because high water levels can be easily observed upstream. Should evacuation of the site be necessary in the event of flooding, visitors and Park staff would be able to use the Fitzwater Road and Canal Road to leave the area. The Cuyahoga River channel meanders within the floodplain, and woody debris is moved within the River. The floodplain exhibits a deep layer of sediment deposited from the River.

Flood flows begin to spill into the overbank along the west side of the river around a two-year event, and spread towards the railroad embankment, which is not overtopped until flows reach a 100-year event. The canal berm (towpath) on the east side of the river is higher than the west overbank and is not overtopped upstream of Fitzwater Bridge for flows less than a 100-year event, but downstream of the bridge, the berm profile drops and is overtopped at a few locations during a 50-year event. Fitzwater Road is slightly higher than the adjacent ground in the west overbank and is reportedly overtopped every couple years. During a 100-year flood, flow depths over the roadway are estimated to be approximately three feet.

The main channel within the project area is approximately 150-200 feet wide, while the 100-year floodplain is approximately 1600 feet wide and generally extends from the CVSR railroad on the west to Canal Road on the east. Normal flow depths range from a few feet to nearly 10 feet, and flood flow depths can exceed 20 feet. Average flood flow velocities in the vicinity of the Fitzwater Bridge range from three to five feet/second. The majority of flood flows are conveyed in the overbank areas, as the main channel has limited capacity and is exceeded on a frequent (roughly annual) basis.

FLOODPLAIN MITIGATION

The existing Fitzwater Truss Bridge has no freeboard and is partially submerged during a 50-year flood. Freeboard is measured as the distance between the surface of the water at the 50-year flood level and the low bridge elevation above the channel. Freeboard is necessary to provide clearance for debris movement under the bridge during large storm events. The existing Waste

Weir Bridge is elevated above the 50-year flood elevation, but freeboard is not as important at this bridge since flood flows from the river are not conveyed in the canal or wasteway channel. As a result of the preliminary bridge hydraulics and discussions between the National Park Service and Federal Highway Administration Design and Bridge staff it was decided to raise the bridge and Fitzwater Road to obtain additional freeboard for the proposed bridge over the Cuyahoga River.

The existing bridge over the Cuyahoga River is only 200 feet long, and currently constricts normal flows within the channel. Significant scour at both bridge abutments has occurred as a result. The proposed bridge length of 270 feet will minimize the constriction. Grade raises along the access road with additional fill will be required to meet the raised bridge, but the resulting increase in backwater resulting from these improvements is less than 0.00 feet for the 100-year event flood. Although some flow conveyance area in the overbank will be decreased, the conveyance area in the main channel is significantly increased with the longer bridge.

The structures are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60). Design considerations were sensitive to the historic importance of the National Historic Landmark site listed in the National Register of Historic Places comprised of the Ohio & Erie Canal, Alexander Mill, the Lock Tender's House, Locks 37 and 38, and the Tinkers Creek Aqueduct. Altering the bridges drastically from their existing state might cause an adverse affect on this site.

CONCLUSION

The National Park Service concludes that there is no practical alternative for replacement of the bridges over the Cuyahoga River, Ohio & Erie Canal, and Waste Weir. The preferred alternative would substantially reduce potentially hazardous conditions caused by continued bridge deterioration. Mitigation and compliance with regulations and policies to prevent impacts to water quality, floodplain values, and loss of property or human life would be strictly adhered to during and after the construction. Individual permits with other federal and cooperating state and local agencies would be obtained prior to construction activities. No long-term adverse impacts would occur from the Preferred Alternative. Therefore, the National Park Service finds the Preferred Alternative to be acceptable under Executive Order 11988 for the protection of floodplains.