KALAMAZOO RIVER TRUSTEES

Restoring Your Natural Resources

Kalamazoo River
Draft Supplemental Restoration Plan and Environmental Assessment

Prepared by

U.S. Fish and Wildlife Service

National Oceanic and Atmospheric Administration

Michigan Department of Environment, Great Lakes, and Energy

Michigan Department of Natural Resources

Michigan Department of Attorney General

April 2021

Regulatory Notes

An Environmental Assessment is prepared to comply with the National Environmental Policy Act of 1969 (NEPA). The NEPA is the Nation's premier environmental law that guarantees every American the right to review, comment, and participate in planning of federal decisions that may affect the human environment.

The Council on Environmental Quality (CEQ) on July 16, 2020 issued in the Federal Register a final rule updating its regulations for the NEPA (85 Fed. Reg. 43304, July 16, 2020). On January 20, 2021, President Joseph R. Biden issued an Executive Order entitled "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis" that requires agencies to immediately review promulgation of Federal regulations and other actions during the previous four years to determine consistency with Section 1 of the Executive Order. This may include the CEQ reviewing the July 16, 2020 update to the NEPA regulations. The goals of the July 2020 amendments to the NEPA regulations were to reduce paperwork and delays and to promote better decisions consistent with the policy set forth in section 101 of the NEPA. The effective date of these amended regulations was September 14, 2020. However, for actions that began before September 14th, such as this one, agencies may continue with the regulations in effect before September 14th because applying the amended regulations would cause delays to the ongoing process. The U.S. Fish and Wildlife Service began its NEPA analysis of this draft restoration plan before September 14th, so to reinitiate planning under the amended regulations would delay not only the NEPA analysis, but delay implementation of the restoration plan. In addition, these amendments may be reviewed by the CEQ. The Trustees for the Kalamazoo River believe that making significant changes to the draft restoration plan to be consistent with the July 2020 amendments would be an inefficient use of settlement funds. Therefore, this draft restoration plan, and the final restoration plan, will continue and conclude under the NEPA regulations, policy, and guidance in existence prior to September 14, 2020, but incorporate aspects of the amended regulations where they do provide for greater efficiencies, unless directed otherwise following any CEQ review of the amended regulations.

Estimated Federal Agency Costs to Prepare the Restoration Plan & Environmental Assessment: $40,000.

This document emphasizes the use of 'clear language' to communicate the planning effort of the Kalamazoo River Trustee Council. The Plain Writing Act of 2010 directs federal agencies to adopt language that is "clear, concise, well-organized, and follows other best practices appropriate to the subject."

KALAMAZOO RIVER DRAFT SUPPLEMENTAL RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT

Abstract

This Draft Supplemental Restoration Plan and Environmental Assessment uses criteria established in the 2016 Programmatic Restoration Plan (*Final Restoration Plan and Programmatic Environmental Impact Statement for Restoration Resulting from the Kalamazoo River Natural Resource Damage Assessment)* to evaluate and select specific restoration alternatives and evaluates potential environmental impacts from those alternatives. The Preferred Alternative selected consists of a prioritized list of projects to be funded with $12.4 million in available funds. This Draft Supplemental Restoration Plan also describes the status of the Kalamazoo River Natural Resource Damage Assessment process and the additional restoration project ideas that were submitted to the Kalamazoo River Trustees but not selected for this round of funding.

Table of Contents

List of Figures

List of Tables

Acronyms and Abbreviations

Acronym	Full Term
AOC	Area of Concern
BMP	Best Management Practice
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
CWA	Clean Water Act
DOC	U.S. Department of Commerce
DOI	U.S. Department of the Interior
EA	Environmental Assessment
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
F.R.	Federal Register
GHG	Greenhouse Gas
GLRI	Great Lakes Restoration Initiative
Kalamazoo River Superfund Site	Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
KRE	Kalamazoo River Environment
M.C.L.	Michigan Compiled Laws
MDNR	Michigan Department of Natural Resources
MDEQ	Michigan Department of Environmental Quality (now known as EGLE)
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRD	natural resource damages
NRDA	natural resource damage assessment

Acronym	Full Term
NRDAR	natural resource damage assessment and restoration
OPA	Oil Pollution Act
OU	Operable Unit
PCB	polychlorinated biphenyl
Programmatic Restoration Plan	*Final Restoration Plan and Programmatic Environmental Impact Statement for Restoration Resulting from the Kalamazoo River Natural Resource Damage Assessment* (MDNR et al., 2016)
PRP	Potentially Responsible Party
RP	Restoration Plan
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SRP	Supplemental Restoration Plan
TCRA	Time-Critical Removal Action
THPO	Tribal Historic Preservation Office
Trustees	Michigan Department of Natural Resources, Michigan Department of Environment, Great Lakes and Energy, Michigan Department of Attorney General, U.S. Fish and Wildlife Service, and National Oceanic and Atmospheric Administration
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WCS	water control structure

This page intentionally left blank.

EXECUTIVE SUMMARY

Introduction

The Kalamazoo River Natural Resource Trustees (Trustees) published the *Final Restoration Plan and Programmatic Environmental Impact Statement for Restoration Resulting from the Kalamazoo River Natural Resource Damage Assessment* ("Programmatic Restoration Plan"; MDNR et al., 2016) and accompanying *Record of Decision for the Kalamazoo River Natural Resource Damage Assessment: Final Restoration Plan and Programmatic Environmental Impact Statement* ("Record of Decision"; NOAA et al. 2016) to identify an overall restoration approach, define the framework to implement the Trustees' restoration program, and provide analysis of the environmental impacts associated with the potential restoration efforts. This Draft Supplemental Restoration Plan and Environmental Assessment (Draft Supplemental Restoration Plan) uses the criteria established in the Programmatic Restoration Plan to evaluate and select specific restoration projects and evaluates potential environmental impacts from those projects.

Background and Status of Kalamazoo River NRDA

Natural resources in Michigan have been injured by releases of polychlorinated biphenyls (PCBs) from Kalamazoo-area paper mills that contaminated sediments, floodplain soils, water, and living organisms in and near Portage Creek and the Kalamazoo River, collectively referred to as the "Kalamazoo River Environment" (KRE). The Michigan Department of Natural Resources, the Michigan Department of Environment, Great Lakes, and Energy, the Michigan Department of Attorney General, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration (collectively referred to as the Trustees) are in the process of determining the extent of injuries to natural resources caused by these releases of PCBs and how to restore these injured natural resources and the services they provide to both other natural resources and the public. This evaluation is known as a natural resource damage assessment (NRDA), which is authorized under the Comprehensive Environmental Response, Compensation, and Liability Act (more commonly known as the federal "Superfund" law) [42 United States Code (U.S.C.) §§ 9601–9675] and other statutes.

The restoration actions discussed in this document arose from the ongoing NRDA process being conducted by the Trustees. The Trustees took the first step in the formal NRDA process in May of 2000 with the issuance of a Preassessment Screen (MDEQ et al. 2000a). The Trustees developed a Stage I Assessment Plan in November of 2000 to guide performance of the assessment (MDEQ et al. 2000b) and then proceeded to implement that plan. The Trustees prepared two Stage I assessment reports and released them in 2005: a Stage I injury assessment (MDEQ et al., 2005a) and a Stage I economic assessment (MDEQ et al., 2005b).

The Trustees have continued assessment work while negotiating with potentially responsible parties (PRPs) to resolve NRDA liability through restoration of natural resources and the services they provide. The Trustees have reached settlements for NRDA in two bankruptcies and also reached a settlement with NCR Corporation in late 2019. To plan for restoration, the Trustees wrote a Restoration Plan / Environmental Assessment (RP/EA) for Operable Unit #1 (OU1) of the site in 2013 (MDNR et al., 2013) and the Programmatic Restoration Plan in 2016. The Trustees began restoration under the RP/EA for OU1 by implementing the removal of the Alcott Street Dam and restoration of Portage Creek in Kalamazoo, Michigan, in 2018.

Proposed Action, Purpose and Need for Action

The proposed federal action under the National Environmental Policy Act (NEPA) [42 U.S.C. §§ 4321 et seq.] addressed in this Draft Supplemental Restoration Plan is the selection of restoration projects to be funded from NRDA settlements along with Trustees oversight of the implementation of these projects. Restoration is necessary to compensate the public for natural resource injuries resulting from the release of hazardous substances from facilities that operated in and along Portage Creek and the Kalamazoo River. A restoration plan is necessary to facilitate effective restoration actions, including by providing for public input on the proposed restoration actions, and to comply with NEPA.

The actions proposed in this Draft Supplemental Restoration Plan will accomplish the following:

- Meet statutory objectives of restoring, replacing, rehabilitating, or acquiring the equivalent of natural resources and services potentially injured or destroyed as a result of releases of hazardous substances.
- Provide a diversity of sustainable habitat types within the Kalamazoo River watershed to enhance fish and wildlife resources potentially injured by the release of hazardous substances.
- Provide for public use and enjoyment of natural resources.

Relationship to Programmatic Restoration Plan

This Draft Supplemental Restoration Plan picks up where the Programmatic Restoration Plan and its Record of Decision left off. The Programmatic Restoration Plan describes and evaluates preferred categories of restoration projects relative to the types of injuries observed in the KRE, but does not select specific projects other than the removal of the Otsego City Dam and the Otsego Dam. The Programmatic Restoration Plan does, however, lay out a process by which the Trustees will select specific restoration projects and the criteria by which they will be evaluated. Using the programmatic approach, goals, objectives, and selection criteria identified in the Programmatic Restoration Plan and a request for restoration project ideas from the public (described below), the Trustees are now ready to evaluate and propose specific projects for an initial round of restoration implementation with approximately $12.4 million of available funds.

In this Draft Supplemental Restoration Plan, the Trustees propose a Preferred Alternative that would best meet the goals and objectives identified in the Programmatic Restoration Plan with the restoration project ideas developed with public input. The Trustees are now seeking public review and comment on this Draft Supplemental Restoration Plan and will consider and address public comments as Supplemental Restoration Plan is finalized.

Restoration Evaluation Process

On December 11, 2019, the Trustees announced that they were seeking restoration project ideas from the public through an online restoration portal and described the NRDA-specific eligibility and evaluation criteria that would be used to select specific restoration actions. The public and stakeholders submitted 83 ideas between the December 2019 announcement and March 18, 2020, the Trustees' published deadline for submitting ideas for this first round of project selections. After combining duplicate submittals, separating some submittals into two or more distinct project ideas, and screening the project ideas using the NRDA eligibility criteria, the Trustees ranked the resulting 54 restoration project ideas using the NRDA evaluation criteria. The top ranking project ideas across the categories of restoration identified in the Programmatic Restoration Plan (Table ES-1) have been further developed

and evaluated as the Preferred Alternative within this Draft Supplemental Restoration Plan. Lower ranking project ideas that are not proposed for funding in this first round of funding are summarized in the Draft Supplemental Restoration Plan and could be considered, along with modified or new project ideas, in future rounds of funding, if available from proposed or future settlements. The Trustees would seek additional public input as part of any such future rounds of funding.

Table ES-1. Proposed restoration projects in the Preferred Alternative and relevant restoration categories as described in the Programmatic Restoration Plan (MDNR et al. 2016)

Proposed Project	Restoration Categories
Plainwell Dam Area Restoration	Aquatic and riparian habitat restoration
Allegan City Dam Removal Engineering	Barrier removal
Nature Preserve along Kalamazoo River in Allegan	Habitat conservation
Plainwell Diversion Dam & Mill Race Dam Removal and Channel Restoration	Aquatic habitat restoration and barrier removal
Trowbridge Township Restoration and Access	Riparian habitat restoration
Davis-Olmsted Drain Improvements	Aquatic habitat restoration and barrier removal
Reed Court Floodplain and Stormwater Improvements	Riparian habitat restoration
River Bluff Park Shoreline Restoration	Riparian habitat restoration
Commerce Lane Railroad Trestle Removal and Bank Restoration	Aquatic and riparian habitat restoration
Mussel Translocation and Riffle Success Evaluation	Aquatic restoration
Kalamazoo River Shoreline Frontage and Acreage Acquisition near Calkins Dam	Habitat conservation
Manlius Township Land Protection	Habitat conservation
Parchment Restoration Plan/Urban Wildlife Corridor	Riparian habitat restoration
Koopman Marsh Restoration	Aquatic and riparian habitat restoration

Affected Environment

The affected environment consists of the Kalamazoo River watershed, which encompasses 5,230 square kilometers (2,020 square miles) in southwestern Michigan and is described in detail in the Programmatic Restoration Plan. In brief, the watershed includes a variety of land uses and a diversity of habitats that support a broad range of aquatic and terrestrial species. The land use is dominated by agriculture, with

forested land, wetlands, and urban areas also being significant. The Kalamazoo River and its tributaries consist of cold and cool headwater streams with warm water rivers in the middle and lower portions of the watershed. The dominant natural terrestrial vegetation communities are both dry and wet hardwood forests, wet lowland forests, and grassland-savanna complexes. Economically, the Kalamazoo River watershed currently supports a mixture of agricultural production, light and heavy industry, and recreational businesses (Kalamazoo River Watershed Public Advisory Council, 1998).

Environmental Consequences

This Draft Supplemental Restoration Plan analyzes potential environmental impacts associated with the proposed projects that constitute the Preferred Alternative for restoration in the Kalamazoo River watershed.

The analysis is summarized in Table ES-2 below. The Preferred Alternative is unlikely to have significant adverse impacts on the environment. This alternative would meet the mandates under NRDA statutes and regulations to restore natural resources and services injured by releases of hazardous substances and is consistent with the goals and objectives outlined in the Programmatic Restoration Plan. The Preferred Alternative would have direct beneficial effects and only minor, short-term adverse impacts. The No-Action Alternative would not have direct beneficial effects or adverse impacts but would allow the degraded conditions of habitats in the Kalamazoo River watershed to continue, which would not be consistent with the Programmatic Restoration Plan.

Table ES-2. Summary of positive (+) and negative (-) environmental impacts for the No-Action and Preferred Alternatives

Resource Area	Term	No-Acton	Preferred
Water resources and water quality	Short	None	Minor (-)
	Long	None	Moderate (+)
Geological resources and sediment quality	Short	None	Minor to moderate (-)
	Long	None	Moderate (+)
Biological resources - fish	Short	None	Minor (-)
	Long	None	Minor to moderate (+)
Biological resources – aquatic invertebrates	Short	None	Minor to moderate (-)
	Long	None	Minor to moderate (+)
Biological resources - wildlife	Short	None	Minor (-)
	Long	None	Moderate (+)
Biological resources – vegetation	Short	None	Minor (-)
	Long	None	Moderate (+)
Biological resources – endangered species	Short	None	None to minor (-)
	Long	None	None to moderate (+)

Resource Area	Term	No-Acton	Preferred
Cultural resources	Short Long	None None	None to minor (-) Moderate (+)
Air quality	Short Long	None None	Minor (-) Minor (+)
Climate and climate resiliency	Short Long	None None	Minor (-) Moderate (+)
Socioeconomic resources and environmental justice	Short Long	None None	Minor (-) to minor (+) Moderate (+)
Recreation and land use	Short Long	None None	Minor (-) Moderate (+)
Noise	Short Long	None None	Minor (-) Minor (+)

This page intentionally left blank.

1. INTRODUCTION

1.1 Background

Natural resources in Michigan have been injured by releases of polychlorinated biphenyls (PCBs) from Kalamazoo-area paper mills that contaminated sediments, floodplain soils, water, and living organisms in and near Portage Creek and the Kalamazoo River. PCBs are organic chemical compounds that can cause death, cancerous tumors, chromosome alterations, decreased fertility, reduced growth, physical deformations, endocrine system malfunctions, immune system impairment, and other biochemical changes in living organisms (MDEQ et al., 2005a). Because of concerns about the persistence and toxicity of PCBs in the environment, Congress banned their manufacture and distribution in the late 1970s [Public Law 94-469; 40 Code of Federal Regulations (C.F.R.) § 761].

The Michigan Department of Natural Resources (MDNR), the Michigan Department of Environment, Great Lakes, and Energy (EGLE), the Michigan Department of Attorney General, the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA) (collectively referred to as the Trustees) are in the process of determining the extent of injuries to natural resources caused by these releases of PCBs, and how to restore these injured natural resources and the services they provide to both other natural resources and the public. This evaluation is known as a natural resource damage assessment (NRDA), which is authorized under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; more commonly known as the federal "Superfund" law) [42 United States Code (U.S.C.) §§ 9601–9675]. The overall goal of NRDA is to restore natural resources and the services they provide.

In 2016, The Kalamazoo River Natural Resource Trustees (Trustees) published their *Final Restoration Plan and Programmatic Environmental Impact Statement for Restoration Resulting from the Kalamazoo River Natural Resource Damage Assessment* (Programmatic Restoration Plan, MDNR et al., 2016). The document guides the Trustees restoration of natural resources injured by the release of hazardous substances at the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site to the Kalamazoo River Environment (Figure 1-1). The Trustees are using the term "Kalamazoo River Environment" (KRE) in this document to represent the entire NRDA assessment area. The KRE encompasses the Kalamazoo River Superfund Site along with any area where hazardous substances released from the Kalamazoo River Superfund Site have come to be located, although restoration actions may occur within the Kalamazoo River watershed, as described in the Programmatic Restoration Plan. Through the Programmatic Restoration Plan, the Trustees accomplish three primary goals.

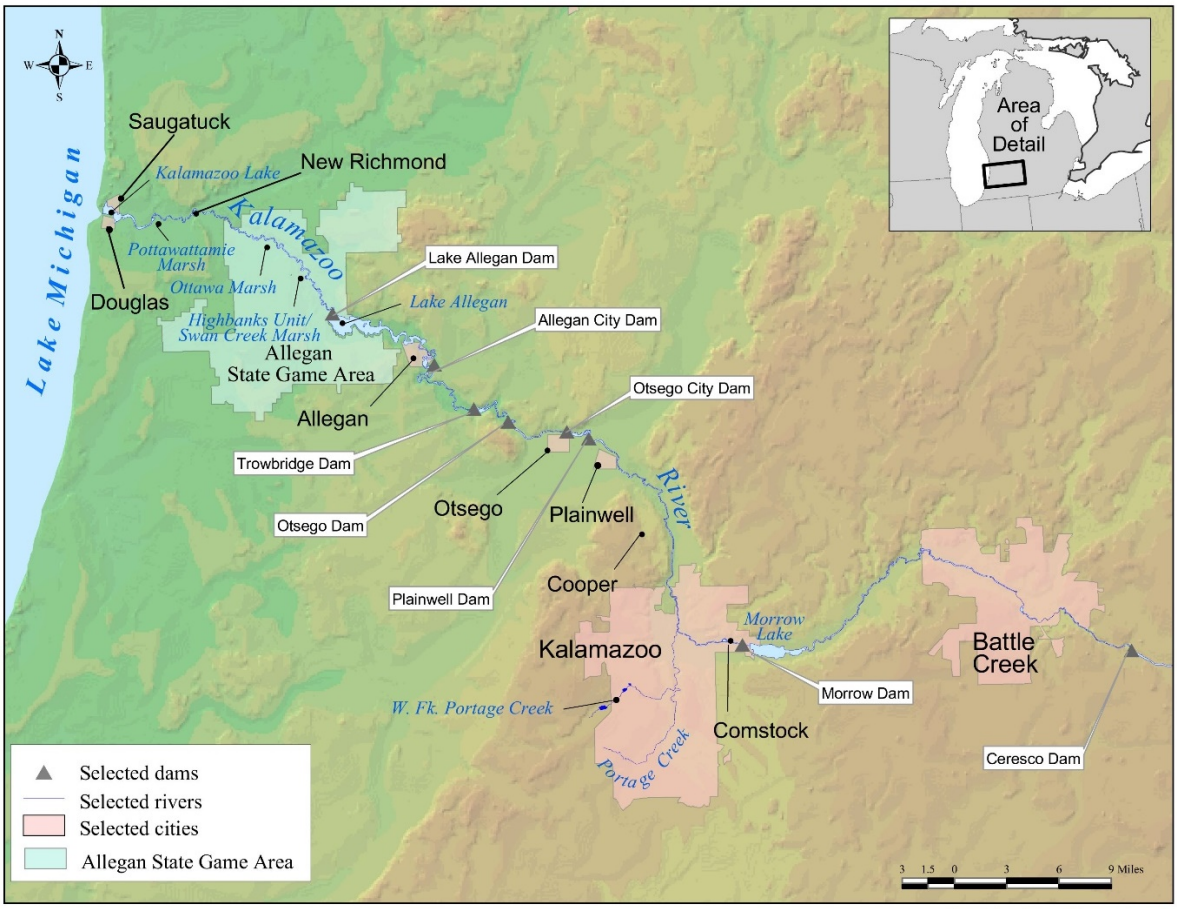

Figure 1-1. Overview of the Kalamazoo River Environment (KRE) assessment area.

First, the Programmatic Restoration Plan identifies an overall restoration approach with a geographic scope of the Kalamazoo River watershed (Figure 1-2). This approach consists of a mixture of aquatic habitat restoration, riparian and wetland habitat restoration, dam removal for river and fish passage restoration, and habitat conservation actions in the 5,230-square-kilometer (2,020-square-mile) Kalamazoo River watershed, including potential projects in tributaries. With this approach, the Trustees may conduct restoration actions in locations that have not been affected by PCBs, including projects in tributaries other than Portage Creek, and in remediated areas that were previously contaminated with PCBs. The Trustees also considered an alternative approach with a geographic scope limited to the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site and, as required by law, a natural recovery or "no-action" alternative. After thorough review and careful consideration, the Trustees determined that the selected approach with active restoration of a mixture of habitat types in the Kalamazoo River watershed, with specific project selection guided by criteria that focus benefits on the injured natural resources, would be the most effective strategy to restore the injured resources.

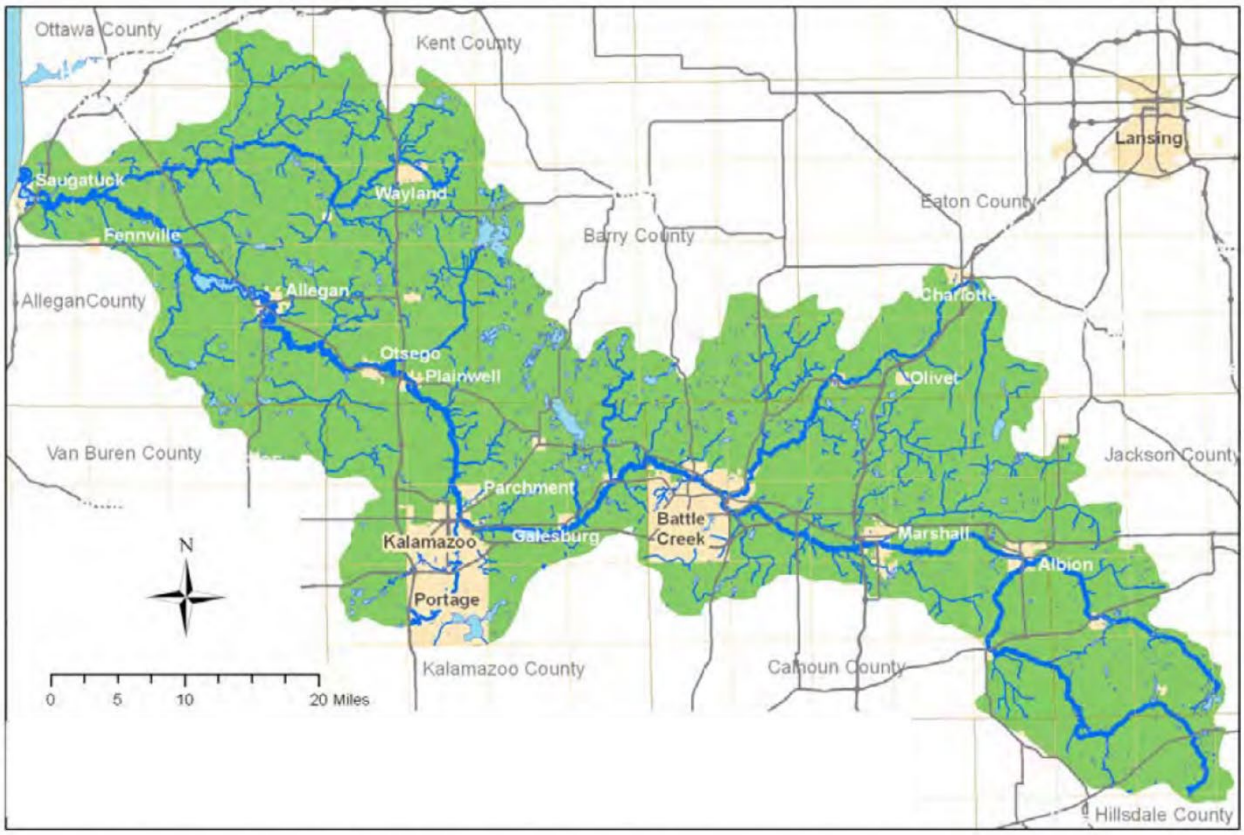

Figure 1-2. Kalamazoo River watershed (adapted from Kalamazoo River Watershed Council, 2011)

Second, the Programmatic Restoration Plan, together with its Record of Decision (NOAA et al. 2016), sets forth a framework for implementation of restoration and at the same time, acknowledges the need for additional, more specific restoration planning documents. To that end, the Programmatic Restoration Plan identifies a process for continued restoration planning, including a means to develop and select specific projects, engage with the public, implement restoration, monitor and adaptively manage for long-term stewardship, manage restoration finances, and track restoration. The document provides a detailed list of criteria—from geographic constraints to ecological goals to legal considerations—that the Trustees will use to evaluate specific restoration projects, actions, or categories of actions.

Third, the Programmatic Restoration Plan provides a broad analysis of the environmental impacts associated with the types of restoration described throughout the document. This analysis is required under the National Environmental Policy Act (NEPA) [42 U.S.C. §§ 4321 et seq.] for any major federal action that has the potential to significantly impact the environment. The Trustees ultimately concluded that the restoration types discussed in the Programmatic Restoration Plan are unlikely to have significant adverse environmental impacts. However, the Trustees did not select specific restoration actions in the Programmatic Restoration Plan beyond two specific projects to restore aquatic connectivity on the Kalamazoo River by removing dams in and near Otsego, Michigan; therefore, they concluded, further environmental analysis may be required when specific actions are selected.

This Draft Supplemental Restoration Plan and Environmental Assessment (Supplemental Restoration Plan) picks up where the Programmatic Restoration Plan left off. In this Draft Supplemental Restoration Plan, the Trustees have used the criteria identified in the Programmatic Restoration Plan to evaluate restoration projects for implementation and have assembled the highest ranking projects that together

address the objectives of the Programmatic Restoration Plan into a proposed Preferred Alternative for public review and comment. The Federal Trustees have also conducted an environmental impacts analysis of this alternative as compared to a "no action" alternative in order to satisfy their obligations under NEPA.

After completion of public review and comment, the Trustees anticipate addressing public comments in a Final Supplemental Restoration Plan that selects a Preferred Alternative consisting of specific restoration projects that the Trustees would implement over time with funding from previous, pending, and possibly future settlements for natural resource damages.

1.2 Overview of the Kalamazoo River Site

This section provides a brief summary of the status and history of the Allied Paper, Inc./Portage Creek/ Kalamazoo River Superfund Site and the related NRDA. Sections 1.1 and 1.2.2 of the Programmatic Restoration Plan contain more detailed discussions of the Kalamazoo River Superfund Site, the ongoing cleanup of PCBs at the Kalamazoo River Superfund Site being coordinated by the U.S. Environmental Protection Agency (EPA), and the NRDA process being conducted by the Trustees and are incorporated here by reference.

Industrial activities in the Kalamazoo area have released PCBs into the environment. The primary source of these PCB releases was the recycling of carbonless copy paper at several area paper mills. The paper mills disposed of PCB-containing waste by several methods that resulted in releases of PCBs into the environment. These PCBs have migrated downstream in surface waters and have contaminated sediments, the water column, and biota in and adjacent to an approximately 129-kilometer (80-mile) stretch of the Kalamazoo River, the lower 4.8 kilometers (3 miles) of Portage Creek, and Lake Michigan. PCBs are also present in paper residuals disposed of in landfills and lagoons and other areas associated with former mill operations along the stream corridor.

Organisms at the top of the food chain accumulate the greatest concentrations of PCBs. Humans can also be exposed, primarily by eating fish contaminated with PCBs. PCBs are present in every component of the KRE ecosystem that has been studied to date, including in the aquatic, terrestrial, and wetlands-based food chains (MDEQ et al., 2005a).

Due to the potential risks the PCB releases posed to the environment and to human health, the EPA added the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Kalamazoo River Superfund Site) to the National Priorities List on August 30, 1990. At the time, the Kalamazoo River Superfund Site was described as involving PCB contamination of (1) an Allied Paper, Inc. property in Kalamazoo, Kalamazoo County, Michigan; (2) a 4.8-kilometer (3-mile) stretch of Portage Creek from Kalamazoo to where the creek meets the Kalamazoo River; and (3) a 56-kilometer (35-mile) stretch of the Kalamazoo River. Subsequently, the EPA and EGLE have expanded the description of the Kalamazoo River Superfund Site to 129 kilometers (80 miles) of the Kalamazoo River (from Morrow Dam to Lake Michigan), including the river banks and formerly impounded floodplains, as well as a 4.8-kilometer (3-mile) stretch of Portage Creek and four paper residual landfills.

Within the Kalamazoo River Superfund Site, several operable units (OUs) have been identified for response actions to date, including the Allied Paper, Inc. Landfill (OU1); the Willow Boulevard/A-Site Landfill (OU2); the King Highway Landfill (OU3); the 12th Street Landfill (OU4); and 129 kilometers (80 miles) of the Kalamazoo River, including a stretch of Portage Creek (OU5). OU5 is further broken down into seven areas (Figure 1-3).

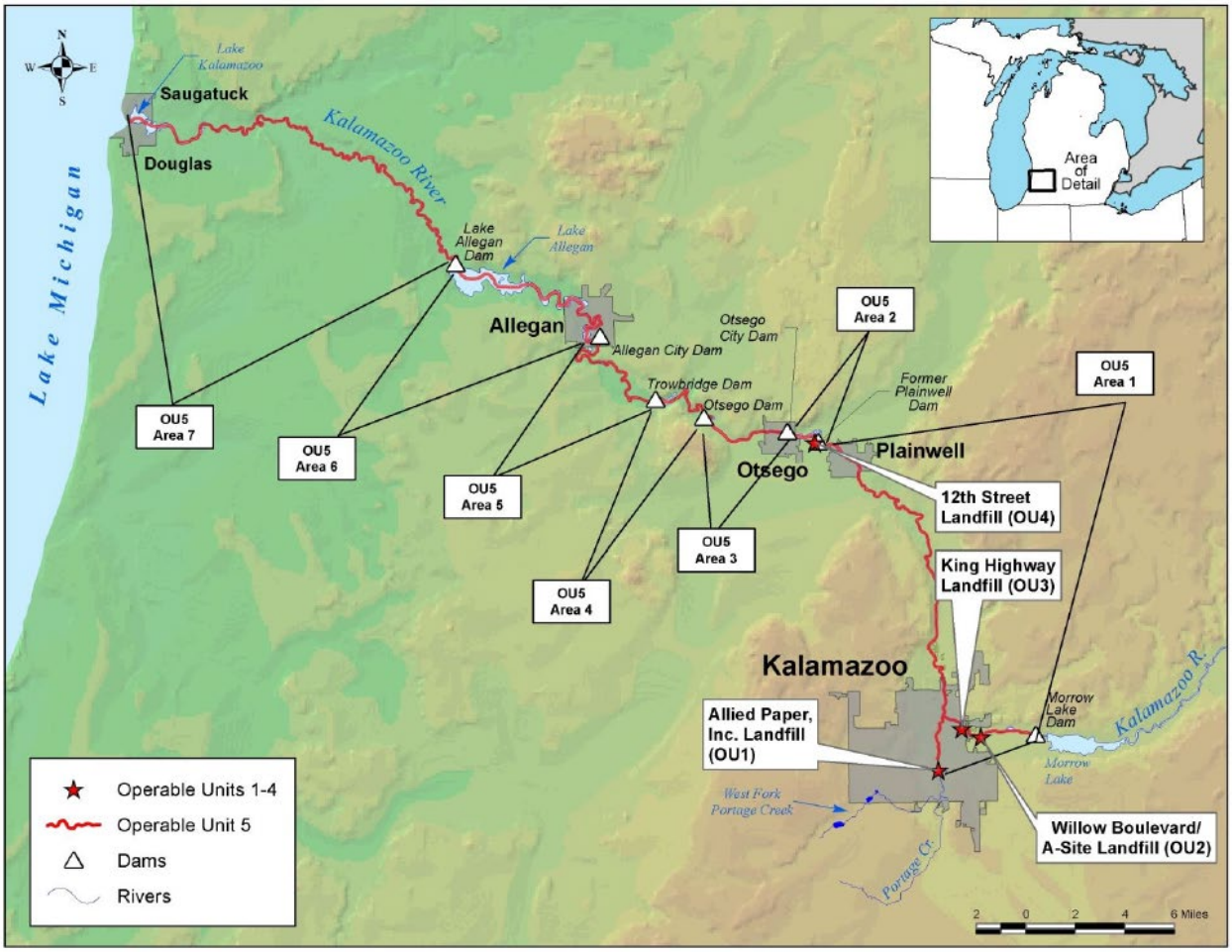

Figure 1-3. Kalamazoo River Superfund Site Operable Units (OUs). The red line indicates the length of OU5, but is not inclusive of all areas where PCBs have come to be located.

EPA and EGLE are directing the ongoing cleanup of PCBs at the Kalamazoo River Superfund Site using both time-critical removal actions and remedial actions. The status of cleanup at each OU and of the areas within OU5 are summarized in Table ES-1.

Table 1-1. Summary of Operable Units (OUs) of the Kalamazoo River Superfund Site

OU or Area	Description	Remedial Status
OU1	Allied Paper Inc. Landfill/Bryant Mill Pond Area	Remedial action beginning in 2020
OU2	Willow Boulevard/A-Site Landfill	Remedial actions largely complete
OU3	King Highway Landfill	Remedial actions largely complete
OU4	12th Street Landfill	Remedial actions largely complete
OU5	Kalamazoo River and Portage Creek	(see Areas, below)
OU5-Area 1	Morrow Dam to former Plainwell Dam	Record of Decision in 2015; remediation anticipated after 2020
OU5-Area 1	Former Plainwell Impoundment	Time-Critical Removal Action completed in 2009, included removal of Plainwell Dam
OU5-Area 1	Plainwell No. 2 Dam Area	Time-Critical Removal Action completed in 2010
OU5-Area 1	Portage Creek	Time-Critical Removal Action completed in 2013
OU5-Area 2	Former Plainwell Dam to Otsego City Dam	Record of Decision in 2017; remediation anticipated after 2020, plans include removal of Otsego City Dam
OU5-Area 3	Otsego City Dam to Otsego Dam	Time-Critical Removal Action completed in 2018, included dam removal; remedial action to be determined
OU5-Area 4	Otsego Dam to Trowbridge Dam	Time-Critical Removal Action initiated in 2020, plans include removal of Trowbridge Dam; remedial action to be determined
OU5-Area 5	Trowbridge Dam to Allegan City Dam	Investigations ongoing; remedial action to be determined, but Allegan City Dam removal is expected
OU5-Area 6	Allegan City Dam to Lake Allegan Dam	Investigations ongoing; remedial action to be determined, but Lake Allegan (Calkins) Dam is expected to remain in place
OU5-Area 7	Lake Allegan Dam to Lake Michigan	Remedial action to be determined
OU6	(designation reserved for future use)	Not applicable
OU7	Simpson Plainwell Mill site	Remedial action is ongoing with expected completion in 2021

1.3 Natural Resource Trustees

Natural resource trustees act on behalf of the public to address injuries to natural resources. The natural resource trustees for Kalamazoo River Superfund Site work cooperatively as a Trustee Council guided by a Memorandum of Understanding originally signed in 2003 and updated in 2005. The Trustee Council currently consists of representatives of five trustees:

- State of Michigan, acting through the Michigan Department of Natural Resources, the Michigan Department of Environment, Great Lakes, and Energy, and the Michigan Department of Attorney General
- U.S. Department of Commerce, acting through the National Oceanic and Atmospheric Administration (NOAA)
- U.S. Department of the Interior, acting through the U.S. Fish and Wildlife Service.

The Trustees and the NRDA process that they conduct are independent of the clean-up/remedial process being undertaken by federal and state clean-up agencies. For a full discussion of the relationship between these two processes, please refer to Section 1.6 of the Programmatic Restoration Plan.

In addition, the Programmatic Restoration Plan contains a detailed discussion of the overall NRDA process. For more information on that topic, including the complete restoration planning process undertaken by the Trustees prior to publication of the Programmatic Restoration Plan, please refer to Sections 1.7 and 1.8 of that document. For a summary and update on this NRDA, please see Chapter 2 of this document.

1.4 Proposed Action, Purpose and Need for Action

The proposed federal action under NEPA addressed in this Draft Supplemental Restoration Plan is the selection of restoration projects in the Kalamazoo River watershed. Active restoration, such as the Preferred Alternative, is necessary to compensate the public for any natural resource injuries resulting from the release of hazardous substances to the KRE.

A restoration plan is necessary to facilitate effective restoration actions under NRDA authorities and to comply with NEPA. The restoration approach for the NRDA is based on the Trustees' combined knowledge of the natural processes and restoration opportunities in the KRE, the nature and extent of contamination, and current plans for clean-up actions by response agencies.[1] This Draft Supplemental Restoration Plan will accomplish the following:

- Identify a preferred restoration alternative that, when implemented, will meet statutory objectives of restoring, replacing, rehabilitating, or acquiring the equivalent of natural resources and services injured or destroyed as a result of releases of hazardous substances
- Provide the public an opportunity to participate in restoration planning and the NEPA process

[1] Response agencies are those agencies charged with removing contaminants from the environment, also known as clean-up. For Kalamazoo River, the response agencies are the EPA and EGLE.

- Describe how the specific restoration projects in the preferred alternative would provide a diversity of sustainable habitat types to enhance fish and wildlife resources injured by the release of hazardous substances
- Describe how the specific restoration projects in the preferred alternative would provide for public use and enjoyment of natural resources.

This Draft Supplemental Restoration Plan complies with NEPA by (1) describing the proposed action, purpose, and need for restoration in Chapter 1, (2) summarizing the current environmental setting in Chapter 4 (Affected Environment), (3) identifying alternatives and analyzing potential environmental impacts in Chapter 3 (Restoration Alternatives) and Chapter 5 (Environmental Consequences), and (4) summarizing public participation in Section 1.7 (Public Participation).

1.5 Legal Mandates and Authorities

1.5.1 NRDA-Related Authorities

In the context of NRDAs, trustees are responsible for assessing injuries to natural resources from releases of hazardous substances, quantifying the extent of such injuries, and seeking commensurate compensation from potentially responsible parties for restoration of natural resources. Authority to act on behalf of the public is given to trustees in CERCLA [42 U.S.C. §§ 9601-9675]; the National Contingency Plan [40 C.F.R. §§ 300.600–300.615] and the Federal Water Pollution Control Act [33 U.S.C. §§ 1251–1387 (Clean Water Act, CWA)]; and the State is further authorized to recover the value of damages to natural resources under Part 31, Water Resources Protection, and Part 201, Environmental Remediation, of the Michigan Natural Resources and Environmental Protection Act (Public Act 451, as amended).

CERCLA requires natural resource trustees to develop a plan for implementing restoration and further direct that implementation cannot occur until there has been adequate public notice, opportunity for a hearing, and consideration of all public comment.[2] 42 U.S.C. § 9611(i); 33 U.S.C. § 2706 (c)(5). Regulations for implementing NRDA under CERCLA further describe the NRDA process [43 C.F.R. Part 11] and provide direction on restoration planning [43 C.F.R. § 11.93].

1.5.2 NEPA Authority

Actions undertaken by the federal Trustees to restore natural resources or services under CERCLA and other federal laws are subject to the 1969 NEPA, 42 U.S.C. §§ 4321–4370, and the regulations guiding its implementation at 40 C.F.R. Parts 1500-1508. In this case, the federal Trustees are USFWS and NOAA, who are acting as co-leads for NEPA compliance for this Draft Supplemental Restoration Plan. This Draft Supplemental Restoration Plan was developed in accordance with NEPA to meet the requirements of an Environmental Assessment. It is tiered from the Programmatic Restoration, as allowed by CEQ's NEPA regulations at 40 C.F.R. § 1502.20. This tiered approach will increase efficiency of the federal Trustees' NEPA process by reducing repetitive discussions of broader information applicable to the entire NRDA restoration program [see 40 C.F.R. § 1502.20].

[2] CERCLA provides an exception to this requirement for situations "requiring action to avoid an irreversible loss of natural resources or to prevent or reduce any continuing danger to natural resources…." 42 U.S.C. § 9611(i).

1.6 Relationship between the NRDA and NEPA Processes

NEPA applies to restoration actions undertaken by Federal Trustees. The Trustees have integrated the CERCLA and NEPA processes in this Draft Supplemental Restoration Plan, as they did in the Programmatic Restoration Plan. This integrated process allows the Trustees to meet the public involvement requirements of these statutes concurrently.

This document supplements the Programmatic Restoration Plan, which was intended to expedite and provide a point of departure for future analyses. This Draft Supplemental Restoration Plan relies on the framework set out in the Programmatic Restoration Plan and conducts the project-level NRDA and NEPA analyses that will permit the Trustees to move forward with specific restoration actions.

1.7 Public Participation

Public participation and input are important parts of the restoration planning process and are required under NEPA and CEQ regulations (40 C.F.R. §§ 1500–1508). As part of the process to develop the Programmatic Restoration Plan, the Trustees sought public input during preparation of the draft publication in 2014-2015 and its finalization in 2016 (see Section 1.2.1.2 of the Programmatic Restoration Plan for more details). Following that, the Trustees created opportunities for public involvement during other stages of restoration planning, including providing an online tool to help the public submit ideas for restoration projects. On January 13, 2020, the Trustees hosted a public meeting specifically to explain this online portal along with providing an update on the NRDA as a whole and a proposed settlement with NCR Corporation (described in Section 2.2).

The Trustees maintain a public web site with information on the NRDA at https://www.fws.gov/midwest/es/ec/nrda/KalamazooRiver. This site is updated periodically and provides a forum for the public to access documents and view notices about upcoming public meetings.

Ongoing outreach by the Trustees to the general public includes hosting and attending public meetings, issuing press releases, participating in the Kalamazoo River Community Advisory Group's monthly meetings and at certain Kalamazoo River Watershed Council meetings, and making presentations at local and regional professional conferences. Starting in March of 2020 through at least the time of this writing, meetings are being held online rather than in person. The press release for this Draft Supplemental Restoration Plan will include information on how to attend a virtual public meeting about the plan and how to contact someone to make other arrangements for asking questions about the plan.

1.7.1 Public Review of the Supplemental Restoration Plan

Public comment will be accepted on this Draft Supplemental Restoration Plan for 30 days, beginning on the date of its publication, or a later date if specified in the press release announcing the availability of the plan and the start of the public comment period. Comments may be submitted via email to kalamazooriver.nrda@noaa.gov (please put "Kzoo SRP comment" in the subject line). If necessary, comments may be mailed to Lisa Williams, USFWS, 2651 Coolidge Road, Suite 101, East Lansing, MI 48823.

1.8 Administrative Record

This Draft Supplemental Restoration Plan references a number of documents prepared by and for the Trustees and through the NRDA and NEPA processes. These documents (including the Programmatic Restoration Plan) are incorporated by reference into this Draft Supplemental Restoration Plan and are

part of the Trustees' administrative record, which is available online at https://www.diver.orr.noaa.gov/web/guest/diver-admin-record?diverWorkspaceSiteId=6723.

In addition, if a person seeks to review hard copies of documents in the administrative record, that person may contact Megen Miller, Assistant Attorney General, Michigan Department of Attorney General, Environment, Natural Resources, and Agriculture Division at MillerM59@michigan.gov or 517-335-7664.

2. STATUS OF THE KALAMAZOO RIVER NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION PROCESS

2.1 Injury and Damage Assessment

The restoration alternatives discussed in this document arise from the ongoing phased NRDA process being conducted by the Trustees. The Trustees have been using a phased approach to facilitate early coordination with response actions and settlements with willing potentially responsible parties (PRPs), as described in Section 1.2.2.2 of the Programmatic Restoration Plan.

The Trustees took the first step in the formal NRDA process in May of 2000 with the issuance of a Preassessment Screen (MDEQ et al. 2000a). The Trustees developed a Stage I Assessment Plan in November of 2000 to guide performance of the assessment (MDEQ et al. 2000b) and then proceeded to implement that plan. The Trustees prepared two Stage I assessment reports and released them in 2005: a Stage I injury assessment (MDEQ et al., 2005a) and a Stage I economic assessment (MDEQ et al., 2005b). In 2009, the Trustees issued an update to the Stage I economic assessment (MDEQ, 2009), which considered new and updated data on fishing activity and fish consumption advisories and updated the recreational fishing damage estimates to be expressed in 2009 dollars.

The Trustees have continued to gather data and update injury and damage assessment information while negotiating with PRPs to resolve NRDA liability through restoration of natural resources and the services they provide.

2.2 Settlements

Trustees may settle claims for natural resource damages with willing PRPs even while still conducting injury assessments. As described in Section 1.2.2.4 of the Programmatic Restoration Plan, the Trustees received approximately $900,000 from a bankruptcy settlement with Plainwell, Inc. and Plainwell Holding Company in 2005 and over $2 million pursuant to a bankruptcy settlement with LyondellBasell Industries in 2010.

The Trustees reached a settlement with NCR Corporation to partially settle natural resource damage claims stemming from past discharges of PCBs into the Kalamazoo River in late 2019 that was approved by the federal court on December 2, 2020. This settlement has provided $2 million in Trustee past assessment costs and $10 million for restoration and will provide an additional $15 million for restoration over time:

- $2.1 million paid annually for six years after the court approval of the settlement
- $2.4 million within seven years after the court approval of the settlement.

Interest calculated from the date that the consent decree was lodged with the court (December 11, 2019) was added to the $10 million payment and will be added to the future payments for restoration.

The total of $25 million funding to the Trustees for restoration plus $2 million in Trustee past assessment costs is part of a larger settlement with NCR Corporation regarding its responsibility for PCB contamination in and near the Kalamazoo River. In addition to the payment of natural resource damage claims to the Trustees, the agreement, valued at approximately $245.2 million, involves performance of cleanup work by NCR Corporation, payment of money to EPA for future cleanup work, and payment of past and future government response costs.

2.3 Restoration Planning

The Trustees have been conducting restoration scoping and planning concurrently with injury and damage assessment work. Under NRDA, the goal of restoration is to return injured natural resources and services to the condition they would have been in if the contamination giving rise to the injuries had not occurred. By initiating restoration scoping and planning early, the Trustees have sought to achieve on-the-ground improvements for injured natural resources and reach settlements with PRPs as quickly as possible for this large and complex site. As part of this early restoration planning work, the Trustees solicited input on restoration projects from the public (Appendix A in MDEQ et al., 2005b). The Trustees have also provided technical assistance to response agencies and PRPs in order to facilitate meeting some restoration objectives during response actions, when possible.

To plan for restoration using funds from the bankruptcy settlement with LyondellBasell Industries, the Trustees wrote a Restoration Plan / Environmental Assessment (RP/EA) for Operable Unit #1 (OU1) of the site in 2013 (MDNR et al., 2013). The Trustees began restoration under the RP/EA for OU1 by implementing the removal of the Alcott Street Dam and restoration of Portage Creek in Kalamazoo, Michigan, in 2018. For more details on this project, please see the Trustees' website at https://www.fws.gov/midwest/es/ec/nrda/KalamazooRiver/RestorationProjects.html

To prepare for additional settlement negotiations and settlement opportunities, the Trustees then prepared the Programmatic Restoration Plan, published in 2016. As described in Section 1.1, the Programmatic Restoration Plan provides for an overall restoration approach with a geographic scope of the Kalamazoo River watershed with a mixture of aquatic habitat restoration, riparian and wetland habitat restoration, dam removal for river and fish passage restoration, and habitat conservation actions in the watershed, including potential projects in tributaries. The Programmatic Restoration Plan, together with its Record of Decision (NOAA et al. 2016), sets forth a framework for implementation of restoration and at the same time, acknowledges the need for additional, more specific restoration planning documents. To that end, the Programmatic Restoration Plan identifies a process for continued restoration planning, including a means to develop and select specific projects, engage with the public, implement restoration, monitor and adaptively manage for long-term stewardship, manage restoration finances and track restoration. The document provides a detailed list of criteria, described in Section 2.3.2, that the Trustees use to evaluate specific restoration actions or categories of actions. Finally, the Programmatic Restoration Plan provides a broad analysis of the environmental impacts associated with the types of restoration described in that document.

This Draft Supplemental Restoration Plan and Environmental Assessment (Supplemental Restoration Plan) picks up where the Programmatic Restoration Plan left off and incorporates many parts of it by reference. In this Draft Supplemental Restoration Plan, the Trustees have used the criteria identified in the Programmatic Restoration Plan to evaluate restoration projects for implementation and have assembled the highest ranking projects that together address the objectives of the Programmatic Restoration Plan into a proposed Preferred Alternative for public review and comment. The Federal Trustees have also conducted an environmental impacts analysis of this alternative as compared to a "no action" alternative in order to satisfy their obligations under NEPA.

2.3.1 Restoration Goals and Objectives

The Trustees' overall goal is to restore, rehabilitate, replace, or acquire the equivalent of those natural resources injured by hazardous substances released in the KRE through an NRDA restoration program,

as described in the Programmatic Restoration Plan. The goal of this program is to contribute to restoring and maintaining a riverine ecosystem with structural and functional components similar to those of the historical Kalamazoo River corridor, before it was degraded by dams and waste disposal. This includes improving habitat quality and enhancing the fish and wildlife of the Kalamazoo River watershed, as well as improving human-use services. In this process, the Trustees are coordinating with other regional and local restoration plans in the Kalamazoo River watershed.

To accomplish this goal, the Trustees seek integrated habitat restoration projects with a strong nexus to the Kalamazoo River's injured resources that contribute to the following broad ecological objectives, as condensed from more specific objectives listed in Section 2.2. of the Programmatic Restoration Plan:

- Restore natural river flow dynamics
- Restore floodplain function
- Reestablish floodplain and riparian plant communities
- Improve aquatic and riparian habitat conditions
- Improve river margin habitat (increase complexity)
- Restore habitat that provides ecological value in the landscape context (connectivity, patch size, shape, and distance between different patches of habitat)
- Restore recreational services in a manner that minimizes negative impacts to ecological restoration
- Eliminate impacts of hazardous substances, including PCBs.

The Trustees prefer restoration projects that enhance ecosystem processes, are integrated into the adjacent landscape, and are naturally sustainable to the greatest extent possible. The Trustees also support projects that are spatially small, but that help provide key habitat types or features. Smaller projects in priority areas that are highly developed help to create a network of habitats that fish and wildlife can use as corridors for migration and refuge.

In the Programmatic Restoration Plan, the Trustees also developed a list of priority habitat types for restoration. Based on their importance for potentially injured natural resources, these habitats are highest priority:

- Aquatic habitat
- Riparian habitat
- Upland habitat.

Restoration of these types of habitats will benefit the types of natural resources injured by PCBs and increase services provided to humans. Restoration projects will provide ecological functions similar to, but not necessarily the same as, those injured by PCBs. Although NRDA only quantifies injuries resulting from the release of hazardous substances, restoration with NRDA funding can be used to address other types of habitat degradation that have occurred as long as the restoration would benefit the types of natural resources and services injured by the hazardous substances. For example, the presence of an inadequate culvert in a tributary near where it enters the Kalamazoo River may not be related to releases of PCBs, but its replacement with a better culvert would benefit aquatic organisms, including fish, that were injured by the releases of PCBs into Portage Creek and the Kalamazoo River.

2.3.2 Restoration Project Evaluation Criteria

As described in the Programmatic Restoration Plan, the Trustees evaluate and prioritize specific projects using a set of evaluation criteria. These criteria are consistent with the NRDA regulations at 43 C.F.R. Part 11, and Trustee mandates and preferences. The evaluation criteria fall into two categories: threshold criteria that must be met for a project to be considered (Table 2-1), and additional criteria that inform the selection process by identifying desirable qualities to be considered to rank alternatives when sufficient funding is not available to execute all the acceptable actions. These additional criteria are divided into three types: project focus, implementation, and benefits.

Table 2-1. Threshold acceptance criteria (pass/fail)

Criteria	Description
A1: Complies with applicable and relevant federal, state, local, and tribal laws and regulations	Projects must be legal, likely to receive required permits, and must consider public health, welfare, and the environment.
A2: Addresses resources injured by hazardous substances or services lost because of injuries in the KRE	Projects must restore, rehabilitate, replace, or acquire the equivalent of injured natural resources, as measured by their physical, chemical, or biological properties or their services.
A3: Is technically feasible	Projects must be likely to meet Trustee objectives within a reasonable period of time.

Table 2-2. Project focus criteria

Criteria	Description	Relative Weight[3]
F1: Onsite restoration	Projects most directly benefiting resources associated with the Kalamazoo River and Portage Creek are preferred over projects with less direct or more distant benefits.	Higher
F2: Addresses/incorporates restoration of "preferred" trust resources and services, as evidenced in Trustee mandates and priorities based on law and policy.	Trustee priorities include dynamic floodplain/riverine habitats, wetlands, habitat continuity, water quality, soil/sediment quality, state game and recreation areas, threatened and endangered species, native species, important food-web species, and recreationally significant species.	Medium

[3] General priority weights of higher, medium, and lower for the individual evaluation criteria, relative to one another within a given category, are as described by the Trustees in their Stage 1 Assessment Report (MDEQ et al., 2005b, Section 4.2)

Criteria	Description	Relative Weight[3]
F3: Focuses restoration on resources that are unlikely to be addressed by other programs.	Ecologically valuable restorations that are often not considered by other programs because they need long-term inputs will be favored over quicker, more routine actions that are typically addressed by other programs.	Lower

Table 2-3. Project implementation criteria

Criteria	Description	Relative Weight[4]
I1: Benefits can be measured for success by evaluation/comparison to restoration baseline (no action) condition.	Projects will be evaluated in terms of whether the benefits can be quantified and the success of the project determined.	Higher
I2: Benefits achieved at reasonable cost (i.e., project is cost-effective).	Projects will be evaluated as to whether (1) they will achieve desired benefits at a reasonable cost, and (2) they are cost-effective relative to other projects that could provide the same or similar benefits.	Higher
I3: Uses established, reliable methods/technologies known to have a high probability of success.	Project methodology will be evaluated for likelihood of success. Factors that will be considered include whether the proposed technique is appropriate to the project, whether it has been used before, and whether it has been successful. Projects incorporating wholly experimental methods, research, or unproven technologies will be given lower priority.	Medium
I4: Takes into account completed, planned, or anticipated response actions.	Projects that restore or enhance habitat impacted by response actions will be preferred over those not associated with response actions. Projects proposed in areas likely to be impacted by response actions must be coordinated with response actions to provide cost savings and to take advantage of the availability of mobilized equipment onsite during remediation, if possible,	Medium

[4] General priority weights of higher, medium, and lower for the individual evaluation criteria, relative to one another within a given category, are as described by the Trustees in their Stage 1 Assessment Report (MDEQ et al., 2005b, Section 4.2)

Criteria	Description	Relative Weight[4]
	and to avoid damage to the restoration project by any subsequent response actions.	
I5: Takes into account regional planning and federal and state policies.	Projects will be evaluated for consistency with federal and state policies. Projects should also be justified relative to existing regional plans, such as species recovery plans and fisheries management plans.	Lower

Table 2-4. Project benefits criteria

Criteria	Description	Relative Weight[5]
B1: Provides the greatest scope of ecological, cultural, and economic benefits to the largest area or population.	Projects that benefit more than one injured resource or service will be given priority. Projects that avoid or minimize additional natural resource injury, service loss, or environmental degradation will be given priority.	Higher
B2: Provides benefits not being provided by other restoration projects being implemented/funded under other programs.	Preference is given to projects, or aspects of existing projects, that are not already being implemented or have no planned funding under other programs. Although the Trustees may use restoration planning efforts by other programs, preference will be given to projects that would not otherwise be implemented without NRDA restoration funds.	Higher
B3: Aims to achieve environmental equity and environmental justice.	Low-income and ethnic populations (including Native Americans) may be affected the most by environmental pollution, and sometimes benefit the least from restoration programs. Therefore, restoration should not have disproportionately high costs or low benefits to low-income or ethnic populations. Further, where these populations experience specific service losses such as subsistence fishing, restoration programs should attempt to address these losses.	Medium
B4: Maximizes the time over which benefits accrue.	Preference is given to projects that provide benefits sooner and for a longer period of time.	Lower

[5] General priority weights of higher, medium, and lower for the individual evaluation criteria, relative to one another within a given category, are as described by the Trustees in their Stage 1 Assessment Report (MDEQ et al., 2005b, Section 4.2)

Criteria	Description	Relative Weight[5]
	Projects that incorporate resiliency to the impacts of climate change, and therefore provide longer-term benefits, are preferred.	

2.3.3 Monitoring and Stewardship

Monitoring and stewardship, including maintenance, will help ensure that NRDA restoration project sites are able to provide the required long-term benefits to any injured resources. As described in Section 2.4 of the Programmatic Restoration Plan, performance criteria that relate to monitoring plans and adaptive management strategies allow the Trustees to determine if project goals and objectives are met. By requiring long-term stewardship at each restoration project whenever practicable, the Trustees will increase the probability that each restoration project continues to benefit any injured resources long after the project has met its performance criteria, and that it will produce the full measure of ecological value needed to compensate for resource losses. Active monitoring and adaptive management activities are expected to last at least 10 years after project implementation. Long-term stewardship is expected to continue beyond 10 years, and preferably in perpetuity (see Figure 2-1), so Trustees consider the need for long-term, active stewardship to support project benefits and the likelihood that project proponents will be able to provide such long-term stewardship when selecting projects to fund. In addition, the Trustees require that projects will be protected through fee title transfers, conservation easements, deed restrictions, or other legal mechanisms to permanently prevent conversions of the sites to uses incompatible with the created ecological values.

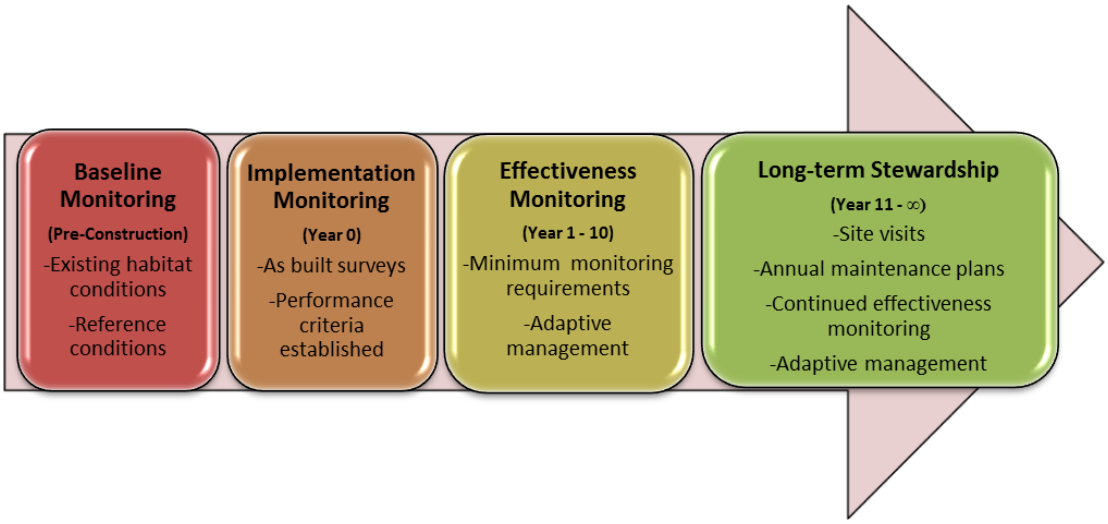

Figure 2-1. Kalamazoo River NRDA Site Stewardship Model

2.3.4 Project Scoping and Ranking

In December of 2019, the Trustees announced to the public and stakeholders that they were seeking ideas for restoration projects and provided an online tool to help people submit project ideas (Appendix A). In addition, the Trustees hosted a public meeting on January 13, 2020, to demonstrate this online

tool, called the “Restoration Portal” and describe the types of project ideas that would best meet the evaluation criteria established for NRDA restoration projects.

The Trustees received 83 project ideas that were submitted to the Restoration Portal between December of 2019 and the March 18, 2020 deadline announced for this round of project selection and funding (Appendix B). The Trustees reviewed all of these project ideas relative to the NRDA threshold acceptance and evaluation criteria, as described in Table 2-1 through Table 2-4. After combining duplicate submittals, separating some submittals into two or more distinct project ideas, and screening the project ideas using the NRDA threshold acceptance criteria, the Trustees proceeded to rank the resulting 54 restoration project ideas using the NRDA evaluation criteria.

A panel of Trustee representatives developed a systematic protocol to ensure objective and consistent ranking across the 54 project ideas. The panel wrote narrative descriptions for low, medium, and high scores for each of the criteria and referred to those when assigning scores for each project idea. The panel grouped ideas by type (e.g. land acquisition, stream road crossing improvement projects) to facilitate consistent scoring of project ideas within a type. In some cases, the panel contacted submitters to obtain additional information if needed to inform scoring or to discuss modifications to an idea that could improve its consistency with the NRDA goals and criteria. Lastly, the Trustees divided some project ideas into phases if additional feasibility or design work was needed before the Trustees could fully evaluate the full implementation of a restoration project.

The Trustees selected top ranked restoration projects to be proposed for funding in this Draft Supplemental Restoration Plan. As described in the Programmatic Restoration Plan, the Trustees are interested in implementing a diverse portfolio of restoration actions that provide the maximum possible benefit to the natural resources impacted by the contamination of the KRE. As such, the Trustees looked for a variety of restoration project types among the high ranking projects and considered project types when prioritizing those projects. In addition, the Trustees considered projects that had time-critical funding needs including factors such as coordination with planned response actions, assisting in purchasing a high priority parcel that may only be available for a limited time, or to utilize opportunities to leverage funding from other sources.

2.3.5 Prioritized Funding Approach

The prioritized list of proposed restoration project presented in Table 2-5 includes more projects than the Trustees believe can be fully funded with approximately $12.4 million currently available in order to allow the Trustees the flexibility to fund additional projects if higher priority projects become infeasible or require less NRDA funding than currently expected.

The Trustees propose a phased approach to funding the proposed projects. Several of the projects are either conceptual in nature or could benefit from additional engineering and design. In a first phase of funding, the Trustees would propose to fund a mixture of feasibility studies, engineering and design, and implementation of the highest priority projects with the $12.4 million currently available. In the second phase, the Trustees would use improved cost estimates from the feasibility studies and engineering design work funded in the first phase to determine how many of these projects would be funded for implementation, assuming that they still rank similarly (e.g., costs have not become excessive relative to the benefits to be provided), as well as how many additional projects from the prioritized list could be funded. For this second phase of funding, the Trustees may draw solely from the projects already described in this document or, if significant time has passed, the Trustees may look for additional projects that have been suggested through the Restoration Portal or have come to the attention of the Trustees that might rank high enough to be considered.

Table 2-5. Prioritized list of restoration projects proposed for funding, relevant restoration categories as described in the Programmatic Restoration Plan (MDNR et al., 2016) with proposed initial funding types and preliminary cost estimate ranges[6]

Proposed Project	Restoration Categories	Initial Funding Type	Preliminary Cost Estimate ($0-$100,000)	Preliminary Cost Estimate ($100,000-$1M)	Preliminary Cost Estimate ($1M-$2M)
Plainwell Dam Area Restoration	Aquatic and riparian habitat restoration	Implementation			X
Allegan City Dam Removal	Barrier removal	Engineering and Design		X	
Nature Preserve along Kalamazoo River in Allegan	Habitat conservation	Implementation			X
Plainwell Diversion Dam & Mill Race Dam Removal and Channel Restoration	Aquatic habitat restoration and barrier removal	Engineering and Design		X	
Trowbridge Township Restoration and Access	Riparian habitat restoration	Implementation		X	
Davis-Olmsted Drain Improvements	Aquatic habitat restoration and barrier removal	Implementation		X	
Reed Court Floodplain and Stormwater Improvements	Riparian habitat restoration	Feasibility Study/ Engineering and Design	X		
River Bluff Park Shoreline Restoration	Riparian habitat restoration	Feasibility Study/ Engineering and Design		X	
Commerce Lane Railroad Trestle Removal and Bank Restoration	Aquatic and riparian habitat restoration	Conceptual Design	X		

[6] Several proposed projects in the preferred alternative provide initial funding for feasibility studies or early design phases. The Trustees may allocate additional funding to such projects for implementation in the future if the results of the initial phase do not significantly change the Trustees' evaluation of the projects using the evaluation criteria (e.g. cost/benefits). In addition, Trustees will continue to pursue other funding sources to maximize the investment of NRDAR funds through coordinating with response actions and encouraging match.

Proposed Project	Restoration Categories	Initial Funding Type	Preliminary Cost Estimate ($0-$100,000)	Preliminary Cost Estimate ($100,000-$1M)	Preliminary Cost Estimate ($1M-$2M)
Mussel Translocation and Riffle Success Evaluation	Aquatic restoration	Implementation	X		
Kalamazoo River Shoreline Frontage and Acreage Acquisition near Calkins Dam	Habitat conservation	Implementation		X	
Manlius Township Land Protection	Habitat conservation	Implementation			X
Parchment Restoration Plan/Urban Wildlife Corridor	Riparian habitat restoration	Plan	X		
Koopman Marsh Restoration	Aquatic and riparian habitat restoration	Feasibility Study	X		

2.3.6 Future Restoration Planning Activities

The Trustees are seeking public comment within 30 days of the publication of this document on the Preferred Alternative. In the Final Supplemental Restoration Plan, the Trustees will respond to comments and update other information as needed.

The Trustees intend to solicit and evaluate project ideas periodically through the Restoration Portal, including planning and design projects funded through previous phases. Through this cycle, Trustees will make a public announcement through web updates and emails seeking additional and/or updated project ideas. Should the Trustees propose to fund new projects not already described in this initial restoration plan, an additional restoration plan would be drafted for public review and comment.

The settlement with NCR Corporation requires NCR to make additional payments to the Trustees after the initial $10 million of $2.1 million each year for six years and then $2.4 million in a final payment within seven years. To the extent that the projects included in Table 1 have additional funding needs that exceed the funds immediately available, the Trustees could use some of the funding from future payments to meet those needs.

PRP project implementation is not evaluated in this document. If a PRP-implemented restoration project is proposed as part of a settlement, that project would be evaluated relative to the Programmatic Restoration Plan, the OU1 RP/EA, and the Supplemental Restoration Plan. If the project is not covered by any of these restoration plans, the Trustees would conduct a separate planning effort for that potential project. Opportunity for public comment would be provided.

3. RESTORATION ALTERNATIVES AND EVALUATION

To be considered viable in the Trustees' analysis, an alternative must be reasonable and meet the Trustees' purpose and need (see Section 1.4). The Trustees used the evaluation criteria described in Section 2.3.2 to select restoration projects that meet these requirements to include in a Preferred Alternative. Furthermore, the projects that the Trustees are including in the Preferred Alternative are those that ranked as best meeting the Trustees' goals and objectives among the projects currently available. Additional project ideas that were received are summarized and discussed in Section 3.3 as "Alternatives Considered but not Further Analyzed".

The Trustees are required to evaluate a No-Action Alternative under NEPA (40 C.F.R. § 1502.14(d)) and, similarly, a Natural Recovery Alternative under CERCLA (43 C.F.R. § 11.82(c)). This will be referred to as the No-Action Alternative in this document. The No-Action Alternative gives the Trustees and the public a basis of comparison when evaluating other alternatives.

3.1 Prioritized Restoration Alternative (Preferred Alternative)

The Preferred Alternative consists of a prioritized suite of projects that would, if implemented, provide benefits to natural resources injured by the release of hazardous substances into the KRE and provide natural resource services similar to what would have been provided had those releases not occurred. Collectively, these projects are expected to increase habitat quality and quantity, promote habitat connectivity, create new public use opportunities, and benefit natural resources within the Kalamazoo River watershed, consistent with the Programmatic Restoration Plan.

The Trustees continue to work with project proponents to refine cost estimates for the proposed projects, and several projects need some level of feasibility study, design, and/or engineering work before accurate cost estimates can be made for full implementation of the project. Under the Preferred Alternative, the Trustees would fund up to $12.4 million for projects in a phased approach as described in Section 2.3.4, with projects prioritized in the order listed in this Section 3.1.

Project proponents would be expected to commit to monitoring and long-term stewardship of their projects as described in Section 2.3.3, and comprehensive cost estimates developed for the projects are expected to include monitoring and adaptive management. Depending on the project, the Trustees would contribute a portion of the funding or other support needed for baseline monitoring and the first several years of implementation and effectiveness monitoring and adaptive management actions through this round of funding.

Within the $12.4 million available, the Trustees would reserve approximately 10% for their costs in managing the agreements and working with project proponents to ensure that the natural resource damage assessment and restoration (NRDAR) goals and objectives are being met, as well as to conduct additional restoration planning activities for future rounds of funding from the NCR settlement or other potential settlements.

3.1.1 Plainwell Dam Area Restoration

The overall intent of this project is to provide in-stream, stream bank, and floodplain restoration at the former Plainwell #1 Dam Time Critical Removal Action location. While the dam structure itself was removed in 2009, the spillway remains in place. NRDAR funding would be used to support one or two aspects of a three-part project, wherein all three parts are located immediately adjacent to each other and are hydrologically connected. The three components of the entire project include: spillway removal,

habitat improvements, and geomorphic channel restoration. The Trustees are in discussions with several project partners to provide funding for these components to achieve comprehensive site restoration goals. Maintaining stable banks to prevent erosion remain the responsibility of PRPs as part of the remedial process and certain aspects of this project are eligible for funding from the Great Lakes Restoration Initiative (GLRI), depending on availability of funding relative to other GLRI program priorities. The DNR is proposing to coordinate the entire project.

Specifically, the Trustees propose that NRDAR funds could be used to complete some or all of the habitat improvement and geomorphic channel restoration components. This could include removal of undesirable vegetation in floodplain areas, replacement with native vegetation, re-contouring of the geomorphic channel, and placement of stream bank and in-stream habitat structures, such as large woody debris. The NRDAR portion of the project could also include stream bank alteration to allow for river access to the floodplain between US-131 and the former dam. Project goals would include reducing flow velocities to provide long-term improvements to fish habitat and reduction of bank erosion potential.

Natural resource benefits are expected to include increased native plant diversity and increased in-stream, wetland, and terrestrial habitat value for fish, wildlife, and benthic organisms. Reconnection of the river to the floodplain during high-flow periods would increase flood storage capacity, improve resiliency to future extreme weather and flooding events, and provide additional habitat diversity. Stabilization of stream banks would prevent erosion and reduce sedimentation. The incorporation of natural channel design features along the banks like live trees and shrubs would provide for long-term, self-sustaining bank stabilization. This project would provide direct benefits to injured natural resources because it is improving habitat in an area where removal of contaminants has occurred and the project would be coordinated with additional remedial work in the area. The Trustees would be able to measure benefits to natural resources by comparing the results of monitoring efforts before and after the project, including through standardized fish survey protocols, mussel surveys, and measures of river geometry and function.

In addition to these improvements in ecological natural resources, the project would provide increased human use services related to natural resources by improving fish communities for recreational fishing, wildlife communities for activities like bird watching, and the aesthetics of this section of the river as a natural area for recreational paddling and floating.

3.1.2 Allegan City Dam Removal Engineering

The Allegan City Dam is an aging dam on the Kalamazoo River in downtown Allegan. Fish are unable to pass this barrier in the Kalamazoo River and contaminated sediments have been deposited upstream of it and need to be addressed. The City of Allegan, as the dam owner, has begun planning for removal of the Allegan City Dam in coordination with the EPA-led Superfund remediation process. NRDAR funding would be used for the engineering phase of the project to create design options with biddable specifications for the removal of the dam, restoration of the river channel and floodplain areas that are currently impacted by the dam, and related redevelopment/revitalization of the downtown riverfront. In a future implementation phase, the dam removal would take place in conjunction with remedial activities, but NRDAR funding for engineering and design prior to development of the remedial alternatives and design would help maximize the potential for benefits to natural resources and services from this overall project.

Implementation of chosen design specifications would restore high-gradient riverine habitat through the currently impounded area (approximately 3.2 kilometers [2 miles]), provide connectivity through the

existing dam location for fish and recreational passage, restore fringing wetlands and floodplains for improved wetland function, provide increased river access (preliminary plans include a kayak launch and a boat launch), and allow for development of currently submerged lands for use as parks/public space along the Kalamazoo River in downtown Allegan. Invasive plants would be monitored and controlled during restoration efforts as part of the project.

Assuming removal of the dam structure in a future phase, natural resource benefits are expected to include hydrologic reconnection of the river between the Calkins dam at Lake Allegan downstream, through the current Trowbridge dam site (expected to be removed in 2022-2023) upstream, approximately 28.3 kilometers (17.6 miles). By the time the Allegan City Dam would be removed, the main stem of the Kalamazoo River would be barrier free for fish and recreational passage from Morrow dam, upstream of the City of Kalamazoo, down to the Calkins dam, a total of nearly 80 river kilometers (50 river miles). Average water temperatures would be expected to decrease throughout and fish communities would be expected to evolve toward those dominated by riverine species indicative of good water quality. Fish, wildlife, and benthic habitat is expected to improve, along with riparian wetland communities.

In addition to these improvements in ecological natural resources, the project would provide increased human use services related to natural resources by improving fish communities for recreational fishing, wildlife communities for activities like bird watching, recreational use for boating and floating without the need for portaging, opportunities for environmental education about river history and restoration, and the aesthetics of this section of the river as a natural area. All these improvements will have positive impacts on the local economy in an area that has not been able to effectively benefit from the River's natural resources.

3.1.3 Nature Preserve Acquisition along the Kalamazoo River in Allegan

This project would contribute $1 million of NRDAR funding to the Southwest Michigan Land Conservancy (SWMLC) toward the acquisition and restoration of a 140-acre parcel of land along the Kalamazoo River for a nature preserve. The SWMLC has identified additional sources of funding to leverage the proposed NRDAR funds to purchase and improve the property. In addition to contributing significantly to the purchase of the property, NRDAR funds would be able to be used by SWMLC to perform the necessary due diligence practices prior to purchase and to begin restoration work, including management of non-native and invasive species and adapting the existing trail system for public use. SWMLC would manage and maintain the property according to a management plan emphasizing removal of invasive species and restoration of natural resources in support of local biodiversity.

The property includes nearly 5 kilometers (3 miles) of Kalamazoo River frontage, with steep bluffs on the southern side and a dry-mesic northern forest composed of white oak and white pine, with backwater wetlands on the northern side. Over one-third of the acreage consists of forested deciduous and scrub-shrub wetlands. It is located less than 0.6 kilometers (1 mile) from downtown Allegan and existing trails could be used by local hikers, making it well suited and accessible as an urban nature preserve.

Figure 3-1. Kalamazoo River shoreline area (Photo credit: Lisa Williams, USFWS)

Natural resource benefits would include preservation of native plant communities, reduction in invasive species coverage, and protection of riparian, wetland, and upland features for wildlife habitat value. Protecting the parcel would have a positive impact on fish, birds, and fish-eating mammals by providing high-quality habitat, as well as connectivity to adjacent protected lands. The parcel would be available for non-motorized public use for hiking, wildlife viewing, environmental education, and other forms of passive recreation.

3.1.4 Plainwell Diversion Dam and Mill Race Dam Removal and Channel Restoration

This project would remove the Plainwell Diversion Dam, the Mill Race Dam and associated infrastructure and would implement natural channel restoration work in-stream grade control riffle structures as needed. The Plainwell raceway, which makes Plainwell "The Island City", would be maintained. The project would replace the diversion dam at the upstream end of the Plainwell raceway and the failing Mill Race Dam and its spillway at the outflow of the raceway near Plainwell City Hall with a structure similar to a rock ramp that would maintain flow in the raceway while allowing for fish and recreational passage. Project implementation would be coordinated between the DNR and the City of Plainwell.

Initially, the Trustees would fund design, coordination, outreach, baseline data collection, and engineering of the project. Once implementation and monitoring costs were determined, the Trustees would re-evaluate the project's feasibility as described in Section 2.3.4 and fund those activities if still warranted.

Benefits of the project would include improved passage for fish and other aquatic wildlife, the addition of natural in-stream structure for improved habitat for benthic invertebrates, and improved recreational paddling opportunities, including the removal of the safety hazards caused by the existing dams and infrastructure. By utilizing natural structures in-stream to maintain flow and pool elevation,

infrastructure maintenance costs to the city would be reduced over time. The project would also contribute to the cumulative total of barrier-free mainstem Kalamazoo River miles.

3.1.5 Trowbridge Township Restoration and River Access

This project would contribute to restoring and redeveloping the area along the Kalamazoo River at the Trowbridge Dam site and 26th Street, following the completion of Superfund Time Critical Removal Action work and the Trowbridge dam removal. An 11-acre plot was cleared specifically to be utilized as a staging area for the river cleanup and dam removal from 2020-2023. There is an unimproved gravel boat launch at the site, on the upstream side of the current dam location. The site is owned by the State of Michigan and is managed by the DNR, who would lead this project.

There is currently a working group consisting of staff from DNR, EGLE, Allegan County, Trowbridge Township, City of Allegan, Outdoor Discovery Center, Consumers Energy, and EPA discussing visions for potential future uses of this area when the cleanup project is completed in 2023. NRDAR funding would be used to support habitat restoration work and could contribute to providing structures like paths and platforms to direct human access to the river in ways that balance natural shoreline functioning with human use. The project as a whole would provide benefits including the following: stream bank restoration to benefit fish and wildlife, improvements to floodplain and upland habitat to benefit wildlife, improved access for recreational uses like fishing, wildlife viewing, and boating.

3.1.6 Davis-Olmstead Drain Improvement

The Davis-Olmstead Drain, also referred to as Davis Creek, is located within a densely populated area of Kalamazoo Township west of Sprinkle Road between Business-94 and the Kalamazoo River. The project area of the creek begins approximately 0.6 kilometers (1 mile) upstream of the Kalamazoo River, zig-zags through a mostly residential area while passing through eight road crossing structures, and ends at the Kalamazoo River. The urban area surrounding the project includes a public school, county fairgrounds, and a mobile home park. The area is comprised of a mixture of industrial, commercial, and residential zones. The project, proposed by the Road Commission of Kalamazoo County, would replace two unsuitable sets of culverts, encourage a more harmonious relationship between the creek and residents, and enhance riparian habitat along the last 0.6 kilometers (1 mile) of the Davis-Olmstead Drain that empties to the Kalamazoo River.

There are six road crossings in this 0.6 kilometers (1 mile) stretch that are now open-bottom structures with approximately 3.3 to 3.7 meter (11 to 12 foot) spans. However, there are two road crossings, under Brookfield and Springfield Avenues, remaining in this stretch that consist of three concurrent culverts which would each be replaced with an open-bottom, 3.7 meter (12 foot) span structure. The culvert replacements would improve stream flow and reduce erosion and sedimentation, thus reducing phosphorus loading to the Kalamazoo River. Additionally, the project would open the last mile of the creek to flow freely and facilitate fish and wildlife movement to and from the Kalamazoo River. One road crossing in this section of the creek was replaced in 2017. The same culvert design is being proposed for the two road crossings in this project. The Trustees would provide funding to adapt this design and implement the project.

The project would include stream bank restoration along the entire stretch to increase riparian wildlife habitat and reduce erosion. Restoration would enhance native plant communities and control invasive species like Japanese Knotweed. Paired with the culvert replacement and stream bank restoration would be a robust education plan. Outreach efforts would include public meetings, direct mailings, social media, and more. This would help residents and property owners around the affected area

understand the work this project would entail, why it is being done, and what the short and long-term positive impacts would be. Between the physical work to be done and the education campaign that would be implemented, the goal would be to help improve water quality in the stream and ensure that the improved quality would last through proper care by those that live and work around it.

3.1.7 Reed Court Floodplain and Stormwater Improvements

The proposed Reed Court Floodplain and Stormwater Improvement Project is located on the west side of Portage Creek north (downstream) of Reed Avenue on 4.2 acre City-owned brownfield parcel located between Reed Avenue, Stockbridge Street and Reed Court. The property address is 433 Reed Avenue with parcel ID 06-22-467-002. Generally, the project focus would be to "offline" (redirect) 6.4 cubic feet per second (CFS) of stormwater from direct untreated discharge to Portage Creek to a stormwater treatment system that would retain and treat runoff coupled with restored floodplain and riparian habitat with an educational walking path.

The existing project location lies within the A/E zone and X zone of the floodplain with approximately 3.4 acres or approximately 81.3% of the property lying within the floodplain. The property is not listed as wetlands by the National Wetland Inventory. The property is listed by the City of Kalamazoo natural features protection ordinance and has been selected as a protected natural feature by the City of Kalamazoo code of ordinances.

The project would combine stormwater treatment with enhanced floodplain connectivity and flood capacity of Portage Creek while providing an opportunity to link pedestrian pathways with educational signage. The project would assess and protect important natural features at the site while incorporating native Michigan vegetation into the riparian, wetland, and upland areas created for on-site stormwater treatment, riparian restoration, and wildlife habitat. Stormwater would enter the project area and flow to Portage Creek through a series of constructed sediment traps, pools, and swales to reduce direct stormwater inputs and pollutant loads.

The project is ideally situated to provide an additional 1.2 acres of floodplain storage by reshaping portions of the west bank of Portage Creek and constructing two backwater channels parallel to the main channel. The project location is at the transition zone in channel gradient from rocky swift conditions to slow velocities and soft bottoms. Providing backwater at this transition zone allows for dampening during peaking flows as well as valuable amphibian and reptile habitat. Hibernaculums within the transition and upland locations within the project area would be provided to further enhance reptile habitat.

Project elements would build upon similar design components of the Kalamazoo Valley Community College Culinary Campus site improvements, downstream of this Reed Court property. Pedestrian trails would be designed to connect with upstream and downstream Portage Creek and Kalamazoo River Valley Trail systems. There would also be descriptive signage along the trails to educate the public as to why the project was created and how it functions. The project would also help to connect the aforementioned site to areas upstream, or south of Reed Avenue, where streambank restorations and removal of the Alcott Street dam have already been achieved.

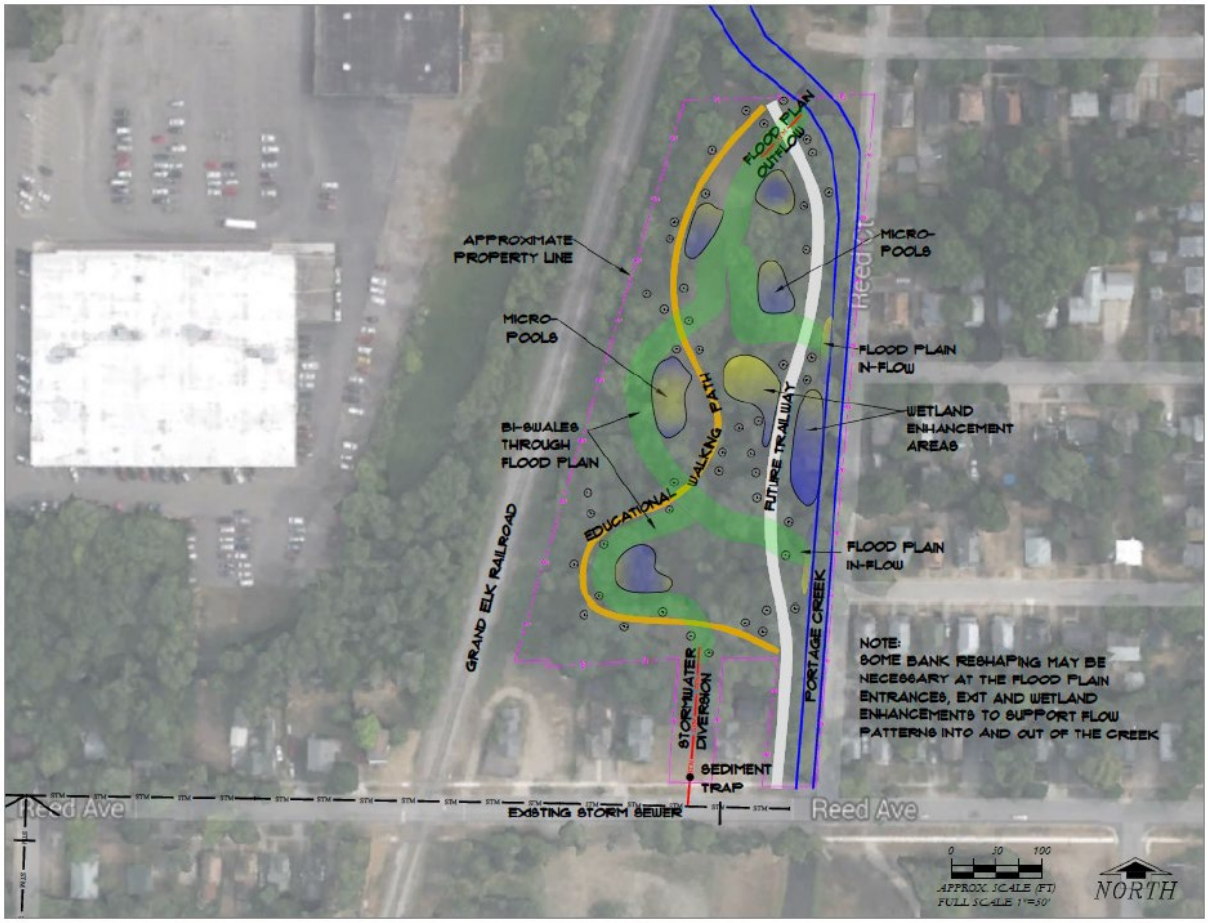

Figure 3-2. Early conceptual drawing of proposed Reed Court Floodplain and Stormwater Project along Portage Creek in Kalamazoo, Michigan (courtesy of Kieser & Associates, 2020). The proposed updated concept would include backwater channels and hibernacula while removing the "future trailway" as it has now been routed to the other side of Portage Creek.

This project is one of the current priorities of the Portage Creek Renaissance (PCR), a private sector-led, community-based endeavor that seeks to encourage and promote long-term ecological restoration, water resource protection, public access, renewed community connectedness, and economic development throughout the entire Portage Creek corridor. The PCR envisions re-establishing the creek as a natural connector of riparian communities with the modern view of natural amenities and post-industrial community access.

Initially, the Trustees would fund design, coordination, outreach, baseline data collection, and engineering of the project. Once implementation and monitoring costs were determined, the Trustees would re-evaluate the project's feasibility as described in Section 2.3.4 and fund those activities if still warranted.

More specific benefits of project construction would include naturalizing the Portage Creek corridor with increased wetland and floodplain areas, and incorporating native vegetation into the riparian, wetland, and upland areas for on-site stormwater treatment and wildlife habitat. Fish, aquatic invertebrates, sediment quality and water quality would benefit from the stormwater treatment aspects of this project. Wildlife using the riparian corridor will also benefit from these aspects as well as from the habitat improvements. The project would extend a significant length of naturalized Portage Creek

corridor that continues to benefit from ongoing remediation and restoration efforts both upstream and downstream from the project location. Finally, this project is expected to benefit the local community by providing green space to enjoy, improved recreation alternatives, educational signage along a trail that also provides a connection to other trails for recreational use, and improved water quality and flood capacity that may improve home values.

3.1.8 River Bluff Park Shoreline Restoration

River Bluff Park is a Saugatuck Township public park with 0.8 kilometers (0.5 miles) of Kalamazoo River frontage. The park consists of roughly 30 acres, mostly undeveloped with a few hiking trails, and is located south off Old Allegan Road just east of I-196. The main park activities include walking, trail running, nature exploring, bird watching, shoreline fishing, and passive enjoyment of the natural surroundings. The natural geomorphology of the river system has been altered by increased boat traffic and construction of the interstate, so erosion is a problem along the shoreline where the river turns east of the I-196 crossing. The project would focus on using natural channel design principles to stabilize and protect the river shoreline.

The shoreline restoration project would construct up to 365 meters (1200 feet) of bioengineered stable shoreline and related habitat improvements. The project would include the installation of large pieces of natural wood, native plants, and large rocks to stabilize the most highly eroding sections of riverbank and improve riparian habitat. Stabilizing the actively eroding bank would reduce the sediment load into Kalamazoo Lake and prevent additional park land from slipping away. Access to the area would be expanded by using areas disturbed for construction to expand the natural surface walking path.

This project would benefit fish, aquatic invertebrates, and sediment and water quality by reducing erosion and increasing vegetation and large woody structures that provide areas for fish to hide and feed. In addition, the project would provide for improved public access to the shoreline for recreational use while directing shoreline use and fishing to designated areas on and along the path, thus protecting other areas of the shoreline from trampling and over-use.

Initially, the Trustees would fund design, coordination, outreach, baseline data collection, and engineering of the project. Once implementation and monitoring costs were determined, the Trustees would re-evaluate the project's feasibility as described in Section 2.3.4 and fund those activities if still warranted.

3.1.9 Commerce Lane Railroad Trestle Removal and Bank Restoration

The Commerce Lane railroad trestle in the City of Parchment crosses the Kalamazoo River on a diagonal from southwest to northeast near the Kalamazoo River Valley Trail, and, due to the spacing of its supporting structure, it often causes accumulation of river debris, altering and impeding river flow and causing bank erosion. The Commerce Lane Railroad Trestle Removal and Bank Restoration project would begin with a feasibility study to examine alternatives to combine riverbank restoration efforts and the construction of a fishing/observation platform along Commerce Lane with the removal of most of the City-owned and non-functioning railroad trestle over the river. This feasibility study would be conducted in cooperation with the City of Parchment and alternatives would be discussed with the local community.

If an acceptable and feasible alternative can be developed and implemented, the project would provide benefits to fish and aquatic invertebrates through improved river flow, reduced erosion, and improved

water and sediment quality. Natural resources would also benefit from the restoration of the riverbank along Commerce Lane with re-contouring and establishment of native species of vegetation along the river bank. Public enjoyment of natural resources would be enhanced by improved access to the river for nature viewing and shoreline fishing, including by walking from adjacent neighborhoods and from the Kalamazoo River Valley Trail, as well as by providing safer recreational paddling opportunities without the barrier, currents, and obstacles created by the trestle.

Initially, the Trustees would fund the feasibility study and design. If an acceptable and feasible alternative is developed, the Trustees would fund design, additional coordination and outreach, baseline data collection, and engineering of the project. Once implementation and monitoring costs were determined, the Trustees would re-evaluate the project's feasibility as described in Section 2.3.4 and fund those activities if still warranted.

3.1.10 Mussel Translocation and Riffle Success Evaluation

Freshwater mussels are located throughout the Kalamazoo River and provide valuable ecosystem services by filtering water, providing habitat for other aquatic organisms, stabilizing river bottom substrates, and being a source of food to wildlife, but have been impacted by response activities that removed contaminated sediments and dams. Freshwater mussels are long-lived species with low reproduction rates, so losses of adults can significantly impact populations over time. To reduce impacts to mussels from response activities and dam removals, in recent years mussels have been searched out, picked up, and moved upstream of the planned work areas in a process called translocation. As dams have been removed, a series of riffle structures have been created to guide the flow of the river in these steeper areas of the river, and these riffle structures are expected to provide beneficial habitat to mussels, as well as other aquatic invertebrates and fish. Over time, these species are expected to benefit from the many benefits of dam removal (see Programmatic Restoration Plan, sections 4.3.2 and 5.4.2.1.3), but additional data are needed to understand and minimize the impacts of the work and to optimize the design and construction of features of the new river channel with benefits to these species in mind.

To date, the success of translocation of Kalamazoo River mussels related to response activities and dam removals has only been examined systematically over the short-term and the use of the newly constructed riffles by mussels has not been evaluated. This project would use an existing agreement with a qualified professional and/or publicize one or more Requests for Proposals to perform two types of evaluations: 1) evaluations of long-term mussel survival and recruitment from previous translocation efforts, e.g. at the former Plainwell and Otsego Township dam sites, and 2) evaluation of benefits to mussels provided by new riffle structures over time. Results of the project would inform ongoing decision making for: 1) reducing additional losses to mussels as response work proceeds, 2) improving selection of future translocation areas and perhaps techniques as well, and 3) recommending adjustments to the design of new riffles or other restoration features to benefit mussels and other aquatic species.

Anticipated results would benefit freshwater mussel species in the Kalamazoo River by minimizing mussel losses during future response activities and dam removals and benefit mussels and other aquatic species by identifying beneficial attributes of river channel restoration features including constructed riffles.

3.1.11 Kalamazoo River Shoreline Frontage and Acreage Acquisition near Calkins Dam

This project would acquire, preserve, and protect in perpetuity real property immediately downstream and west of Calkins dam, which forms Lake Allegan, including approximately 915 meters (3,000 feet) of Kalamazoo River frontage and about 27 acres. Assuming the property could be acquired at fair market value at a time when the Trustees have funding remaining, the parcel would become part of the adjacent State owned and managed Allegan State Game Area and would be protected from future development. Otherwise, given the location and current private ownership, development of the property is a possibility in the future.

The property is a wooded peninsula surrounded by a bend in the river. Natural resource benefits of acquisition would include the continued existence of streambank, floodplain, and upland habitats for a wide variety of birds, mammals, reptiles, amphibians and more. The property provides ecological services that may be lost if it were to be developed. Trees and other vegetation prevent streambank erosion and keep river temperatures cool, the property also provides floodplain storage capacity and stormwater filtration. If included in the State Game Area, the property would become accessible for natural resource-based recreational opportunities, such as fishing, wildlife viewing, mushroom hunting, and other natural resource-based recreation, consistent with the management plans of the State Game Area.

3.1.12 Manlius Township Land Protection

This project would acquire and preserve a number of large, undeveloped parcels along the Kalamazoo and Rabbit Rivers in Manlius Township. These parcels total roughly 295 acres, and several abut state-owned land managed by the DNR. These parcels are currently used as private hunting land and not open to the public. While there is no immediate pressure for development of this property, similar bluff and ravine lots in Manlius and adjacent townships have been developed with increasing regularity. Population growth and housing demand in the greater Holland/Grand Rapids/Kalamazoo region will put increasing pressure on this area.

Assuming the parcels could be acquired at fair market value at a time when the Trustees have funding remaining, the Trustees would provide funding for the purchases, formal preservation, and initial restoration. The Outdoor Discovery Center Network would manage and protect the site in perpetuity. This would include controlling invasive species along the river and right of way corridors in particular. Conservation easements on the land would ensure that the areas would be open to the public for appropriate uses and protected from future development.

The project would protect and improve riparian, floodplain and upland habitat along both rivers for fish, and terrestrial and aquatic wildlife. Combined with the adjacent state-owned land managed by the DNR, the project would help protect and improve a large block of natural habitat for the benefit of wildlife with large home range sizes and for public enjoyment of such an area

3.1.13 Parchment Restoration Plan/Urban Wildlife Corridor

On behalf of Kalamazoo River Stakeholders including local municipalities, township and county governments, and area environmental and recreational groups, the City of Parchment is proposing the development of an Urban Wildlife Corridor. The corridor would extend from downtown Kalamazoo through the City of Parchment to D Avenue in Cooper Township, where a diverse human population could benefit from increased environmental awareness and contact with the natural world. In its initial

stages, this project would create a regional plan leading to the establishment of an Urban Wildlife Corridor. This would include identifying and prioritizing riverine, riparian and upland areas for restoration, inventorying current populations of plants and animals, and developing a plan focused on "pockets of recovery" in order to implement restoration and resource enhancement in designated areas. Habitat restoration along the urban area along the Kalamazoo River helps wildlife live in and move through the riparian corridor, connecting wildlife populations upstream and downstream to each other.

In addition to the direct benefits to natural resources, Urban Wildlife Corridor restoration projects would offer the opportunity to develop public awareness of the river and surroundings as an important environmental resource. Potential features to connect people with nature could include river access for kayaks and canoes, wildlife viewing trails with handicap access, pollinator pathways, and a nest box trail. The projects could also increase opportunities for passive enjoyment of the river with enhanced picnicking spots and observational platforms. These features would all contribute to a growing public awareness of and appreciation for the river as a regional asset. In addition, the Urban Wildlife Corridor would provide an opportunity to engage the public in monitoring and evaluation activities. Citizen science projects could document bird and other wildlife population changes as a result of restoration efforts, while local schools and neighborhood associations could assist in actual restoration efforts and documentation of long-term results.

At this time, the Trustees would contribute funding toward a regional plan that established the Urban Wildlife Corridor. Once individual projects were identified in the Urban Wildlife Corridor, the Trustees would evaluate those projects for inclusion in a future Supplemental Restoration Plan for an additional round of funding.

3.1.14 Koopman Marsh Restoration

The Koopman Marsh lies adjacent to the Kalamazoo River and is part of the Allegan State Game Area managed by the DNR. The marsh has been altered by a water control structure, emergency spillway, and dike that have altered the natural flow regime and prevent water from Swan Creek from entering the marsh. Instead, the water is diverted to flood the Swan Creek Highbanks Unit and to the existing Swan Creek channel which flows into the Kalamazoo River. The resulting Swan Creek Highbanks Unit is a valuable marsh for waterfowl, but the quality of Koopman Marsh has been reduced because of limited connectivity to Swan Creek since its channel downstream of the water control structure is now at a lower elevation than Koopman Marsh. This project would be for a feasibility study to determine options for re-establishing floodplain connectivity with Swan Creek to restore wetland and riparian functionality in the Koopman Marsh.

Initially, the Trustees would fund the feasibility study. If an acceptable and feasible alternative is developed, the Trustees would fund design, additional coordination and outreach, baseline data collection, and engineering of the project. Once implementation and monitoring costs were determined, the Trustees would re-evaluate the project's feasibility as described in Section 2.3.4 and fund those activities if still warranted and funds were available.

Assuming implementation of a solution determined through this feasibility study, the Koopman Marsh would return over time to providing more highly functioning wetland ecosystem services. It would provide flood storage under high water conditions, as well as improved fish, amphibian, and waterfowl habitat. Other natural resource benefits would include improved water quality downstream of the marsh and enhanced wildlife viewing and hunting opportunities.

3.2 No-Action Alternative

The Trustees are required to evaluate a No-Action Alternative under NEPA (40 C.F.R. § 1502.14(d)) and, similarly, a Natural Recovery Alternative under CERCLA (43 C.F.R. § 11.82(c)). Under the No-Action Alternative, no action is taken to restore natural resources and services that were lost as a result of the release of hazardous substances into KRE beyond the ongoing remedial process being conducted separately. Injured natural resources may eventually recover to baseline over time; however, there would be interim losses between the start of the injury and the time at which resources are fully recovered. The No-Action Alternative would not provide compensatory restoration for the interim losses to which the public is entitled under the law. Furthermore, there is no guarantee that natural recovery would return the injured natural resources to baseline condition. In summary, the No-Action Alternative would provide the most uncertain outcome regarding the future condition of injured resources and would leave the public uncompensated for compensable interim losses. Accordingly, the Trustees determined that the No-Action/Natural Recovery Alternative would not serve the purpose and need discussed in Section 1.4, and therefore is not preferred.

3.3 Alternatives Considered but not Further Analyzed

Not all project ideas met the eligibility requirements for NRDAR restoration projects or they ranked lower than projects included in the Preferred Alternative. Projects that would not restore, replace, or acquire the equivalent of injured natural resources or the services they provide were found to not be eligible. These included projects that proposed outdoor recreation only without benefits or direct relationship to natural resources, projects that were focused on research or modelling without a clear link to NRDAR, projects that were required to be done by law or permit (e.g. mitigation for an action or lack of action), and projects that were already the responsibility of an agency.

Some projects that are not included in the Preferred Alternative but are similar to those that are, relative to the NRDAR criteria listed in Section 2.3.2, ranked only slightly lower than those that were able to be included with the funding available. The Trustees will consider these projects again when evaluating project ideas for future rounds of funding, and project proponents are encouraged to discuss their project with the Trustees, update the information on the project in the Restoration Portal as needed, and consider possibly modifying the project to better meet the objectives described in the NRDAR criteria.

At least one submittal to the Restoration Portal provided comments on how the Trustees should prioritize projects and about aspects of EPA's remedial work. The Trustees believe that the suite of prioritized projects proposed in the Preferred Alternative are largely consistent with the comments about which types of projects the submitter described as being most needed. The Trustees continue to work with EPA to find remedial alternatives that result in healthy, functional aquatic, riparian, and upland habitats to the largest extent possible with its authorities and with PRPs to incorporate additional benefits into their work.

Projects that ranked significantly lower than projects included in the Preferred Alternative included, but were not limited to, projects that only benefited a single natural resource or natural resources service, projects for which the technical feasibility was uncertain or the cost to benefit ratios were considered to be prohibitively high, and projects for which the benefits to injured natural resources were uncertain or unclear. The following sections describe types of projects that tended to rank lower than the projects included in the Preferred Alternative, but for which certain projects may be possibilities for future rounds of restoration funding depending on the details of the specific project. In addition, section 3.3.4 describes a project to remove a concrete channel and restore the Kalamazoo River in the City of Battle

Creek. While this project has the potential for multiple benefits, it is not ready for full evaluation by the Trustees, as described below.

3.3.1 Restoration Projects in County Drains

The Trustees received several project ideas that proposed improvements in designated county drains far upstream of the Superfund Site. While these project types would achieve local improvements in water quality and provide a narrow strip of riparian habitat, these projects would not be expected to provide measurable or significant benefits to the natural resources most impacted by the releases of hazardous substances in and along Portage Creek and the Kalamazoo River in the Superfund Site. In addition, the Trustees are concerned that these benefits would not be assured into the future as succeeding County Drain Commissioners could perform work in the drains that would undo the work performed with NRDAR funds. In addition, the Trustees determined that other sources of funding may be available for these types of projects such that NRDAR funding is not critical to the project being achieved at some point. For these reasons, projects like this ranked lower than the projects included in the Preferred Alternatives.

The Trustees may consider projects in designated county drains in potential future restoration plans depending on the details of the project and the nature and extent of expected benefits. As an example of this, the culvert replacement and stream restoration project in the Davis-Olmstead Drain near where it enters the Kalamazoo River is included in the Preferred Alternative in this restoration plan because of the expected benefits and permanence of the project.

3.3.2 Removal of Dams or Other Barriers Far Upstream of the Superfund Site

While removal of dams and other barriers on rivers and streams is a high priority generally for the Trustees, the Trustees received several project ideas that suggested funding for feasibility studies or implementation of barrier removals that were far upstream of the Superfund Site and had other dams or barriers between the proposed project and reaches of the Kalamazoo River or Portage Creek that are within the Superfund Site.

These projects would achieve improvement in river or stream conditions in one reach of the river, but tended to rank lower than the projects included in the Preferred Alternatives because they were disconnected from the reaches of the Kalamazoo River or Portage Creek that are within the Superfund Site. In potential future restoration plans, the Trustees may choose to undertake such projects, depending on the costs relative to expected benefits, especially if the projects do not have other barriers to fish passage between them and the Superfund Site. An example of an upstream dam removal project that the Trustees may consider in the future is removal of the concrete channel and restoration of the Kalamazoo River in Battle Creek. In this case, the potential benefits of the project would be significant, providing a complete change in habitat types within the project area as well as providing connectivity for many miles of the mainstem of the Kalamazoo River, if such a full restoration is found to be feasible. This project is discussed in more detail in Section 3.3.4, below.

3.3.3 Best Management Practices for Stormwater and Agricultural Areas

The Trustees received several project ideas related to improving water quality through planning for and/or implementing best management practices (BMPs) for stormwater in more urban areas and agricultural runoff in more rural areas of the watershed.

While these project types are likely to achieve improvements in water quality, they tended to rank lower than the projects included in the Preferred Alternative because the benefits to natural resources injured by the releases of hazardous substances into the Superfund Site were difficult to quantify relative to the costs of these types of projects and because there are existing government-funded programs to implement these types of BMPs. In addition, some of the proposed agricultural BMP programs would only be expected to provide benefits for as long as NRDA funds were used to make annual payments to farmers to continue the BMPs. Other projects were expected to provide longer term benefits.

In potential future restoration plans, the Trustees may choose to undertake such projects, depending on the costs relative to expected benefits for the specific project. For example, the Reed Court project in the Preferred Alternative includes stormwater management improvements as part of a project in the floodplain of Portage Creek within the Superfund Site that will also provide improvements to riparian habitat and recreational access to the public, including the local neighborhood, with interpretative signage to connect them to the natural resources of Portage Creek.

3.3.4 Concrete Channel Removal and River Restoration in the City of Battle Creek

The Kalamazoo River is confined to concrete channels as it flows through the City of Battle Creek, and this concrete channel is generally inhospitable to aquatic life and other ecological functions that rivers typically provide, such as flood storage and stormwater filtering; however, the City of Battle Creek is considering replacing the concrete channel with a more natural river channel. Built in the late 1950s by the U.S. Army Corp of Engineers (USACE), the concrete itself is rapidly aging, resulting in the need for either extensive repair or replacement and creating an opportunity to develop a river channel that is more aesthetically pleasing and beneficial to the community and to the environment. The City of Battle Creek has requested a Federal Interest Determination from the USACE that it hopes will lead to a Feasibility Study partially funded by the USACE, which it feels are critical steps in securing the necessary partners and funding for the project. While the Trustees see value in removing the concrete channel and restoring this section of river for fish passage, wildlife use, and other natural resource services, they believe that it would be prudent to see the results of the Federal Interest Determination and learn more about the feasibility of this project to provide benefits to natural resources before further evaluating whether to contribute NRDAR funding to this project.

For a river restoration design that could provide low enough flow velocities to allow fish to readily swim through the area, the project would need additional land beyond the current footprint of the channel. If the City of Battle Creek is able to obtain the additional space to accommodate a feasible design, there would still be significant funding required for engineering and implementation of this large-scale river restoration project. The Trustees are not making a decision at this time about contributing funding to feasibility studies, engineering, and implementation stages of the project, but are interested in working with the City of Battle Creek and others to explore being part of a multi-party effort to restore this section of the Kalamazoo River.

If a feasible design can be implemented, the project would remove the concrete banks and stream bed that form the current river channel. Project construction would likely include the creation of meanders in the stream channel, restoration of appropriate natural stream bed substrates, natural habitat features in the stream channel, construction of appropriately sized and sloped stream banks, planting of native vegetation to stabilize banks, and provision of recreational access for fishing, paddling, and wildlife viewing.

Natural resource benefits to be realized over time could potentially include the connection of fish communities above and below the City of Battle Creek, restoration of aquatic vegetation and benthic macroinvertebrate communities throughout the reach, and resulting increases in fish and wildlife communities that feed on them, such as amphibians, birds, and ducks. City residents would be able to walk to a more naturalized river and enjoy natural resources through fishing, paddling, and wildlife viewing.

4. AFFECTED ENVIRONMENT

The affected environment for purposes of restoration actions in the Kalamazoo River watershed is described in great detail in Chapter 4 of the Programmatic Restoration Plan, which is incorporated here by reference. For the purposes of this Draft Supplemental Restoration Plan, the affected environment is summarized below. All the restoration projects considered in this Draft Supplemental Restoration Plan fall within the affected environment described in the Programmatic Restoration Plan, and there are no known site-specific environmental resources that were not included in that description.

4.1 Water Resources and Water Quality

The mainstem of the Kalamazoo River is approximately 198 kilometers (123 miles) long and flows from the Town of Albion, Michigan, to Lake Michigan near the City of Saugatuck, Michigan (MDNR, 1981). The north and south branches of the Kalamazoo River originate at more than 305 meters (1,000 feet) above sea level, join at Albion, and drop to approximately 177 meters (580 feet) above sea level at the mouth of the river. The watershed contains approximately 872 kilometers (542 miles) of stream tributaries, most notably Rice Creek, Battle Creek River, Portage Creek, and Rabbit River (MDNR, 1981).

As of 2005, there were 110 dams in the Kalamazoo River watershed that were registered with MDEQ (now EGLE), 14 of which were on the mainstem (Wesley, 2005). There may also be any number of small unregistered dams in the watershed. Between Morrow Lake, just upstream of the City of Kalamazoo and the river mouth, the river alternates between free-flowing sections and a series of low-head dams. These dams, which no longer serve any of their historical purposes with the exception of Lake Allegan Dam which is being used for hydropower, alter the natural gradients of the river, block fish passage, fragment the river system, and eliminate many rapid and riffle areas that are important for fish spawning. The dams decrease the water velocity upstream, which makes the river wider and shallower, and cause increased deposition of fine sediments and increased water temperatures (Wesley, 2005). Additionally, the dams affect water quality by increasing downstream temperatures, decreasing dissolved oxygen, and storing suspended sediments. The dams disrupt the natural patterns of discharge and flooding of the river, increasing erosion and decreasing inputs of nutrients to the floodplain. The dams also interfere with human uses of the river, including recreational navigation.

Water in the Kalamazoo River watershed has historically been affected by discharges from industries and municipalities, nonpoint sources of pollution associated with agriculture and urban development, and aerial deposition (Wesley, 2005; Kalamazoo River Watershed Council, 2011). Water quality is generally good in the headwaters and upper mainstem segments (Wesley, 2005). The middle segment flows through the major urban areas of Battle Creek and Kalamazoo and has historically experienced low dissolved oxygen levels caused by excessive nutrients from wastewater discharges. Water quality in the lower mainstem segment is affected by inputs upstream and the City of Allegan. Lake Allegan has a long history of nutrient problems and eutrophication. High phosphorous concentrations in Lake Allegan contribute to excessive algal growth and seasonally low dissolved oxygen levels (Wesley, 2005).

In general, Kalamazoo River water quality has improved and continues to improve as a result of laws intended to protect water quality and provide for the remediation of contaminated sediments. Surface water in the Kalamazoo River watershed is protected by Michigan Water Quality Standards (Part 31 of 1994 Public Act 451). EGLE monitors water quality to determine compliance with the law. However, some areas within the watershed are not attaining their designated uses. Designated uses that have been identified as impaired in portions of the Kalamazoo River watershed include fish consumption, warmwater fishery, other aquatic life and wildlife, and body contact recreation (Kalamazoo River

Watershed Council, 2011). These impairments are caused by contaminants such as PCBs and mercury, nutrients such as phosphorus, physical alterations to substrate and flow regimes, sedimentation and siltation, and the presence of bacteria (e.g., E. coli). In 2001, MDEQ established a Total Maximum Daily Load intended to reduce concentrations of phosphorus in Lake Allegan to less than 60 micrograms per liter (MDEQ, 2001).

4.2 Geologic Resources and Sediment Quality

Soils in the Kalamazoo River watershed range from clay and silt to sand and organic materials (Kalamazoo River Watershed Council, 2011). About 70% of the watershed is covered with coarse-textured soils that are relatively permeable to infiltration of water (Kalamazoo River Watershed Council, 2011).

Sediments in the Kalamazoo River consist of variable proportions of particles, ranging from fine clay to large boulders, as well as organic matter (CDM, 2003). The former impoundment areas are associated with increased siltation and decreased particle sizes relative to most of the rest of the river (CDM, 2003). Areas with cobbles and gravel substrates are unevenly distributed throughout the river.

Because of their chemical properties, the majority of PCBs released to the environment tend to accumulate in sediments rather than being dissolved in the water column. In the Stage I assessment (MDEQ et al., 2005a), the Trustees found that sediments are and have been injured by PCBs in Portage Creek and the lower 129 kilometers (80 miles) of the Kalamazoo River. PCB concentrations in portions of the Kalamazoo River watershed are high enough to cause toxic effects in benthic invertebrates, mink, and bald eagles.

In October 2019, STS Hydropower, LLC, began releasing water and sediment from Morrow Dam during a drawdown of Morrow Lake in order to repair gates at its hydroelectric facility at the dam. These releases resulted in significant deposition of sediments in the Kalamazoo downstream of Morrow Dam. As of this writing, STS Hydropower, LLC, has completed gate repairs and restored water levels in Morrow Lake and has completed limited investigation of the impacts of the sediment deposition in a portion of the impacted river. At this time, the Trustees are uncertain as to what long-term impacts of sediment deposition will be. However, EGLE, MDNR, and the EPA have investigated these impacts and the State will continue this investigation and its enforcement against STS Hydropower, LLC, for alleged violations of the NREPA.

4.3 Biological Resources

The Kalamazoo River watershed comprises a diversity of habitats that support a broad range of species. Aquatic habitat consists of surface water and sediments that support all or a portion of the lifecycles of benthic invertebrates, fish, and birds and mammals that feed on aquatic organisms. Riparian zones and wetlands along the Kalamazoo River provide food and cover for both aquatic organisms and terrestrial organisms (MDEQ et al., 2005a).

4.3.1 Fish and Aquatic Invertebrates

As of 2005, MDNR identified 102 species of fish in the Kalamazoo River watershed (Section A.1 in Appendix A, Table 18; Wesley, 2005). The species that inhabit different portions of the watershed are determined in large part by the temperature of the water and the nature of the stream substrate and available habitat. In the cool to cold waters of the headwaters mainstem segment and Portage Creek, the fish community is dominated by brown trout, mottled sculpin, white sucker, stonecat, and rock bass.

In the upper river segment, which is also relatively cool compared to downstream reaches, northern hog sucker, white sucker, and stonecat are common. Game species in this segment include rock bass, smallmouth bass, and northern pike. The middle mainstem segment is classified as warmwater and supports a different mixture of fish species, including white sucker, golden redhorse, common carp, common shiner, striped shiner, smallmouth bass, and rock bass. The fish community in the mouth segment reflects the large size of that segment and its barrier-free connection to Lake Michigan. The dominant species in this reach include flathead catfish, walleye, quillback carpsucker, freshwater drum, gizzard shad, alewife, and various migratory salmon species; lake sturgeon are also found in this segment.

Aquatic invertebrates (e.g., freshwater mussels and clams, snails, and the larval forms of some insects, such as dragonflies, midges, and mayflies) live or feed on the bottom of aquatic habitats. Most aquatic invertebrates live part or most of their lifecycle attached to submerged rocks, logs, or vegetation. These invertebrates are vital in the aquatic food chain, playing essential roles in energy and nutrient transfer from primary producers, such as algae and phytoplankton, to predatory fish and as decomposers. They are also frequently used as indicators of water and habitat quality. The presence of sensitive species, such as mayflies, caddisflies, and stoneflies, is indicative of good water quality. Extremely polluted waters that receive high inputs of organic matter or nutrient enrichment tend to have a low diversity of macroinvertebrates. The quality of the macroinvertebrate community varies throughout the watershed (Wesley, 2005). It is generally good to excellent in the headwater, upper, and middle segments, where sensitive species can be found. Wesley (2005) was unable to find any surveys of the invertebrate community in the lower and mouth segments.

Twenty-three species of freshwater mussels have been documented in the Kalamazoo River watershed (Mulcrone and Mehne, 2001; Wesley, 2005). As previously stated, because mussels cannot move very far and are sensitive to pollution and siltation, their presence is an indicator of good water quality. Mulcrone and Mehne (2001) found that the diversity of mussel species was lowest in the middle reaches of the river, from Plainwell to below Allegan City Dam, and hypothesized that this might result from the presence of impoundments and historically poor water quality in these reaches.

4.3.2 Wildlife

A wide variety of wildlife also uses the Kalamazoo River basin. Many of these species are dependent on the river and its tributaries for cover, water, and food. Many birds use the Kalamazoo River watershed for nesting, feeding, and resting. More than 218 resident and migratory species are regularly found in the watershed (Wesley, 2005). These include a variety of aquatic birds (e.g., dabbling and diving ducks, swans, grebes, herons, sandpipers, mergansers, cormorants, osprey, kingfishers, gulls), songbirds, upland game birds (e.g., turkeys, pheasant, grouse), and raptors (e.g., bald eagles, hawks, owls). Fifty-four species of amphibians and reptiles have been found in the Kalamazoo River watershed, including turtles, snakes, salamanders, lizards, frogs, and toads, and there are at least 40 mammal species known to use the area, including rodents, bats, beaver, otter, muskrat, mink, raccoon, fox, and deer (Wesley, 2005).

4.3.3 Vegetation

The Kalamazoo River watershed currently has remnants of the historical oak savanna (characterized by grassy prairie-type ground cover beneath an open tree canopy) and prairie (i.e., tallgrass) habitats that once dominated the landscape. The dominant terrestrial vegetation communities in the Kalamazoo River watershed include:

- Dry southern hardwood forest – forests of dry upland sites with burr oak, black oak, or white ash dominating
- Moist southern hardwood forest – forests that occur in richer and moister soils and are dominated by beech and sugar maple
- Wet lowland forest – forests characterized by willow, cottonwood, or bottomland floodplain forest, including sycamore, silver maple, and ash
- Grassland-savanna complex – includes the combination of prairies, sedge meadows, and savannas, characterized as treeless or with scattered trees and dominated by grasses or wet or dry sedges (Chapman and Brewer, 2008; Kalamazoo River Watershed Council, 2011).

Approximately 13% of the Kalamazoo River Watershed is forested and non-forested wetlands (Kalamazoo River Watershed Council, 2011), including prairie fens and broad, mostly emergent marsh, wetlands along the lower 42 kilometers (26 miles) of the Kalamazoo River as the river meanders across a lacustrine plain as it approaches Lake Michigan. Prairie fens, a type of wetland habitat with high rates of groundwater through-flow that is found only in the glaciated Midwest (Kalamazoo River Watershed Council, 2011). These fens typically contain switchgrass, Indiangrass, big bluestem, sedges, rushes, Indian plantain, and prairie dropseed. The upland edges of these fens also support tamarack, dogwood, bog birch, poison sumac, and the invasive glossy buckthorn.

4.3.4 Federally listed species

The ESA [16 U.S.C. §§ 1531–1544] provides protection for species in danger of extinction throughout all or a significant portion of their range, as well as designation of critical habitat for those species. A number of federally listed threatened and endangered species under the U.S. Department of the Interior's (DOI's) jurisdiction have been identified by the USFWS as potentially occurring in or near the proposed project sites (Table 4-1). There are no federally protected species under NOAA's jurisdiction in the project area. Based on specific occurrence records and specific habitat requirements, none of the proposed restoration projects are expected to affect the following species that are listed in Table 4-1: piping plover, red knot, whooping crane, Karner blue butterfly, Mitchell's satyr butterfly, or Pitcher's thistle. Therefore, they will not be analyzed in this document. Analyses of the potential for effects on Indiana bat, northern long-eared bat, eastern massasauga rattlesnake, snuffbox mussel, and monarch butterfly are in section 5.1.3.5.

Table 4-1. Federally listed endangered, threatened, and candidate species potentially occurring in or near the proposed projects in the Preferred Alternative (USFWS, 2020)

Common name	Federal status	Critical habitat identified/ preferred habitat
Indiana bat	Endangered	No critical habitat identified in Michigan. Inhabit caves and mines for winter hibernacula and trees for summer roosts along small to medium rivers with well-developed riparian woods; woodlots within 1-3 miles of rivers and streams; and in upland forests.
Northern long-eared bat	Threatened	No critical habitat rules have been published. Hibernates in caves and mines, swarming in surrounding wooded areas in autumn. Roosts and forages in upland areas and uses trees for summer roosts.

Common name	Federal status	Critical habitat identified/ preferred habitat
Piping plover	Endangered	No critical habitat identified in counties with proposed projects. Uses wide, sandy beaches that are flat and have very little vegetation. Nesting territories include small creeks and wetlands.
Red knot	Threatened	No critical habitat rules have been published. Large wetland complexes during the red knot migratory window of May 1-Sep. 30.
Whooping crane	Experimental Population	No critical habitat rules have been published. Large wetland complexes during the migratory window of early spring to late fall.
Eastern massasauga rattlesnake	Threatened	No critical habitat rules have been published. Shallow wetlands or shrub swamps in spring. Crayfish towers or small animal burrows which are adjacent to drier upland open shrub forest sites. During summer, massasauga rattlesnakes move to drier upland areas.
Karner blue butterfly	Endangered	Critical habitat defined, but none in proposed project sites or immediate vicinity. Inhabit pine barrens dominated by pitch pines and scrub oak and oak savannas on sandy soils containing wild lupines.
Mitchell's satyr butterfly	Endangered	No critical habitat rules have been published. Inhabit prairie fens.
Monarch butterfly	Candidate	No critical habitat rules have been published. Monarchs can be found in a wide variety of habitats and are especially attracted to flowering plants for nectar and plants in the milkweed family on to which they lay eggs.
Snuffbox mussel	Endangered	No critical habitat rules have been published. Inhabit small- to medium-sized creeks to large lakes, especially in areas with a swift current. Adults burrow in sand, gravel, or cobble substrates.
Pitcher's thistle	Threatened	No critical habitat rules have been published. Grows on the open sand dunes and low beach ridges of Great Lakes shores. Found in near-shore plant communities or non-forested areas of a dune system.

4.4 Socioeconomic Resources and Environmental Justice

As of 2000, approximately 400,000 people lived in the watershed (Kalamazoo River Watershed Council, 2011). The majority of this population resided in the municipalities of Kalamazoo (74,262) and Battle Creek (52,347; U.S. Census Bureau, 2014). The total population for Michigan only changed by 0.55% from the 2000 to the 2010 census (http://censusviewer.com/state/MI, accessed 2/7/2021) and by 1.0% from the 2010 census to a 2019 estimate, but increased by 5.9% in Kalamazoo County from the 2010 census to a 2019 estimate (U.S. Census Bureau, 2021), so, if Kalamazoo County is representative of the

watershed, populations within the watershed may have increased somewhat over the last approximately 10 years and have been increasing more than for the state as a whole. In 2019, the estimated percentages of the population of Kalamazoo County by race and Hispanic origin were 81.2 % White, 11.8% was Black or African American, 5.2% was Hispanic or Latino, 2.8% was Asian, 0.5% American Indian or Alaska Native, 0.1% Native Hawaiian or Other Pacific Islander, and 3.6% two or more races (U.S. Census Bureau, 2021). These percentages are similar to those reported for the county from the 2010 census and within 2% of those for the state as a whole in the 2019 estimate. Data from the 2020 census were not yet publicly available at the time of this writing.

The Kalamazoo River watershed supports a mixture of agricultural production, light and heavy industry, and recreational businesses (Kalamazoo River Watershed Public Advisory Council, 1998). The region's strongest economic sectors are agriculture and tourism.

Environmental justice generally seeks to address environmental harms that have disproportionately burdened communities that have low socioeconomic status or are predominately made up of people from racial or ethnic minorities. The State of Michigan defines environmental justice as "the equitable treatment and meaningful involvement of all people, regardless of race, color, national origin, ability, or income and is critical to the development and application of laws, regulations, and policies that affect the environment, as well as the places people live, work, play, worship, and learn."[7] The Trustees have specifically included environmental justice in their decision-making by including equity and environmental justice as a Restoration Project Evaluation Criteria and considering data available through the EPA's EJ Screen, an environmental justice mapping and screen tool.

4.5 Recreation

The river provides important natural resource and recreational services year-round. Approximately 223 square kilometers (86 square miles) in the Kalamazoo River watershed are publicly owned (Kalamazoo River Watershed Council, 2011). Public lands include the Allegan State Game Area (194 square kilometers, 75 square miles), the Fort Custer Recreation Area (12 square kilometers, 4.7 square miles), and about one-fifth of the Yankee Springs Recreation Area (4 square kilometers, 1.6 square miles) (Kalamazoo River Watershed Council, 2011). In addition to these public lands, the watershed also has city and county parks and paths, some of which provide access to the riverfront, and nature areas and preserves (including the W.K. Kellogg Biological Station run by Michigan State University, the Kalamazoo Nature Center, and the Binder Park Zoo in Battle Creek). The paved multi-purpose Kalamazoo River Valley Trail is currently being developed; 17 of the planned 35 miles have been constructed (Kalamazoo County Government, 2014). When complete, it will link more than 140 miles of trail connecting the Battle Creek Linear Park, the Kal-Haven State Park Trail, and the Portage Bicentennial Park Trail.

A broad array of recreational opportunities are available in the Kalamazoo River watershed, including camping, fishing, skiing, sledding, snowmobiling, horseback riding, golf, wildlife observation, hunting, canoeing, and boating (MDNR, 1981). Sport fishing is a popular recreational activity in Michigan. In the lower part of the Kalamazoo River below Lake Allegan Dam, anglers target coldwater sport fish such as Chinook salmon and rainbow trout, as well as walleye, smallmouth bass, bluegill, and catfish (MDEQ et al., 2005b). Warmwater species caught farther upstream include largemouth bass, panfish, carp, and suckers (MDNR, 1981).

[7] EGLE Office of the Environmental Justice Public Advocate, https://www.michigan.gov/environmentaljustice/ (last visited March 2, 2021).

4.6 Indigenous Peoples and Cultural Resources

The Kalamazoo River watershed occupies ancestral and contemporary homelands of several Indigenous nations, including but not limited to the Bodéwadmi (Potawatomi), Miami, Sauk, Kickapoo, Peoria, Meskwaki (Fox), and Anishinabek (Native Land Digital, 2021; Jeff Martin and Lakota Pochedly, Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians, personal communication, 2021). The three federally recognized tribes currently active in conservation along the Kalamazoo River are the Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians (Gun Lake Tribe), the Nottawaseppi Huron Band of the Potawatomi (NHBP), and the Pokagon Band of Potawatomi. The following description of relationships and knowledge comes from the NHBP, as provided by John Rodwan, NHBP Environmental Director:

> Indigenous peoples have occupied the Great Lakes watershed for countless generations. Within the Kalamazoo River watershed their lifeways were and are deeply interwoven with its abundant natural, cultural and spiritual resources. The River also provided byways for transportation, which factored into trade and travel to seasonal hunting, fishing and foraging encampments. The River was not viewed as an entity upon itself, but rather an interconnected and indivisible portion of their ideology. They understood its rhythms and responded to them through their vast understanding of traditional ecologic knowledge. Nearly all of the pre-contact landscape has been altered to favor a society based upon resource extraction and a seemingly endless exploitation of the River. Throughout the historic period, Anishnabek have witnessed the degradation of the quality of the River, yet they endured, adapted and still consider the River as central to their identity. Gone are the once abundant wild rice beds and migration of waterfowl that depended on it as part of their continental journeys. Gone are the sturgeon and the diversity of wildlife within it. Gone are most of the turtle nesting grounds used by generations of turtles. The Anishnabek's understanding of ecology included great knowledge of and respect for water. To the Anishnabek, water is life.

By the late 1600s when the first European explorers transited the area, the land was occupied by the Potawatomi, one of the nations belonging to the Three Fires Confederacy and greater Algonquin people (Kalamazoo Public Library, 2015). The first permanent settlements by Europeans came in the early 1800s, and Kalamazoo and the surrounding area became an agricultural center linked to trade centers, initially by river travel and subsequently by railroads.

Properties within the Portage Creek / Kalamazoo River riparian corridor that were either listed or documented as being eligible for listing in the National Register of Historic Places at the time of the preparation of the Programmatic Restoration Plan were historic buildings or districts, but also include river bridges and historic sites. There were no listed prehistoric sites within the Portage Creek / Kalamazoo River riparian corridor, but because of the importance of the river to indigenous people, prehistoric artifacts may be discovered by ground-disturbing actions in the streambeds and riparian areas. The Trustees will be seeking updated site-specific information for each project before it is implemented as described further in Chapters 5 and 6.

5. ENVIRONMENTAL CONSEQUENCES

In considering the proposed restoration action, the Federal Trustees (NOAA and DOI) are responsible under the National Environmental Policy Act (NEPA) for conducting an analysis of the potential environmental impacts of proposed federal actions. The Programmatic Restoration Plan was also a Programmatic Environmental Impact Statement (EIS) that included such an analysis for NEPA compliance. This Draft Supplemental Restoration Plan provides an environmental assessment (EA) tiered from the EIS to support the Trustees' proposed Preferred Alternative and to encourage and facilitate involvement by the public in the environmental review process.

There is effectively only one "action" alternative considered in this Draft Supplemental Restoration Plan and EA: the Prioritized Restoration Alternative (Preferred Alternative). This action alternative is compared to the "no action" alternative.

This EA assesses potential environmental (including social and economic) impacts associated with the Preferred Alternative and the No-Action Alternative. In developing this EA, the Federal Trustees adhered to the procedural requirements of NEPA, the CEQ regulations for implementing NEPA (40 C.F.R. §§ 1500-1508), and NOAA's procedures for implementing NEPA.[8]

The following definitions will be used to characterize the nature of the various impacts evaluated with this Draft Supplemental Restoration Plan:

Effects or Impacts. Means changes to the human environment that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives.

- *Reasonably foreseeable*. Includes effects that occur at the same time and place as the proposed action and may include effects that are later in time or farther removed in distance.
- *Reasonably close causal relationship*. Includes effects that can readily be expected to result from the action, but are generally not considered if they are "remote in time, geographically remote, or the product of a lengthy causal chain." [C.F.R. 1508.1(g)(2)]
- Effects have to be within the federal agency's statutory authority to prevent.

Short-term or long-term impacts. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period, or only during the time required for installation activities. Long-term impacts are those that are more likely to be persistent and chronic.

Minor, moderate, or major impacts. These relative terms are used to characterize the magnitude of an impact. Minor impacts are generally those that might be perceptible but, in their context, are not amenable to measurement because of their relatively minor character. Moderate impacts are those that are more perceptible and, typically, more amenable to quantification or measurement. Major impacts are those that, in their context and due to their intensity (severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 C.F.R. § 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the requirements of NEPA.

[8] NOAA Administrative Order (NAO) Series 216-666A6, Environmental Review Procedures for Implementing the National Environmental Policy Act (NAO 216-666A6).

Adverse or beneficial impacts. An adverse impact is one having adverse, unfavorable, or undesirable outcomes on the human-made or natural environment. A beneficial impact is one having positive outcomes on the human-made or natural environment. A single act might result in adverse impacts to one environmental resource and beneficial impacts to another resource.

5.1 Impacts of the Prioritized Restoration Alternative (Preferred Alternative)

This alternative includes projects that restore aquatic and riparian habitats as well as several that conserve habitat through preservation of parcels along the Kalamazoo River. The restoration projects include barrier removals in the Kalamazoo River and one of its tributaries, Davis-Olmstead Drain, and other types of habitat restoration.

The Federal Trustees are evaluating the impacts of the proposed projects of the Preferred Alternative in aggregate. Generally, the types of impacts that the Trustees anticipate across restoration projects are similar to each other and consistent to the types of impacts analyzed in the Programmatic Restoration Plan (Chapter 5); however, where one or more projects would result in unique impacts, the Federal Trustees will identify and discuss that potential impact specifically.

The Programmatic Restoration Plan analyzed dam removal on the Kalamazoo River generally (Section 3.1.3.1) as well as the specific removal of Otsego City Dam and Otsego Dam, but not the specific removal of the Allegan City Dam, Plainwell #2 Dam and Mill Race Dam that are included in this Supplemental Restoration Plan. The Plainwell #2 Dam and Mill Race Dam impound less water than the Otsego City Dam or Otsego Dam already analyzed, so the magnitude of the impacts of their removal are expected to be somewhat less than those for the Otsego City Dam and Otsego Dam. At this time, the Trustees are only contemplating funding a feasibility study for the concrete channel and engineering and design work for the Allegan City Dam and not the implementation of the projects themselves. Additional analysis of the impacts of the implementation of these projects would be conducted if the Trustees propose to fund implementation in the future.

5.1.1 Water Resources and Water Quality

The Prioritized Restoration Alternative would not have any long-term adverse impacts to water quality but would instead have long-term minor beneficial impacts to water quality. Many of the projects implemented under this alternative would add or enhance riparian vegetation which could favorably decrease water temperatures in degraded areas and decrease inputs of stormwater sediment and contaminants including phosphorous, addressing a parameter of concern in the Kalamazoo River. Projects that would increase floodplain habitat, connectivity, and vegetation increase the level of ecological functions within and bordering restoration areas and help to stabilize riverbanks, control erosion and sedimentation, increase flood storage capacity, and improve water quality by filtering pollutants.

The Prioritized Restoration Alternative is expected to cause minor localized short-term adverse direct impacts through increases in turbidity where in-water work is part of a restoration activity and from disturbance to the existing floodplain. Best management practices would be used that would define the time of year in-water or near-water work would be allowed, limit turbidity increases and duration, capture and treat stormwater as appropriate, and require water quality monitoring during construction. Pollutants on the CWA Section 303(d) list are not expected to be present at the restoration sites, or if

present would be cleaned up prior to restoration activities, or would be isolated from restoration activities.

Habitat construction, ongoing maintenance, and adaptive management of vegetation at restoration projects may occasionally include the use of herbicides. Best management practices for herbicide use include limitations on which products to use in sensitive habitats, specific application methods, distance from open water, and other strategies to limit adverse impacts. These activities could have minor short term adverse direct impacts to water quality, though management practices to be used are designed to minimize all such impacts.

5.1.2 Geologic Resources and Sediment Quality

The implementation of the Prioritized Restoration Alternative would not have any adverse impacts to geologic resources and would have long-term beneficial impacts to sediment quality. There are no known mineral or oil deposits in the areas where the proposed projects are located. Long-term, major, beneficial impacts on sediment quality would be expected from aquatic and riparian habitat restoration projects that reduce erosion and facilitate natural sediment transport. For example, River Bluff Park Shoreline Restoration Project and the Davis-Olmstead Drain projects specifically address areas of continuing shoreline and instream erosion. The establishment of native riparian vegetation across multiple projects would reduce sediment in stormwater runoff and decrease the amount of instream sedimentation from normal rainfalls. In particular, the Reed Court Floodplain and Stormwater Improvement Project would be specifically designed to reduce stormwater inputs to Portage Creek from the surrounding urban area. Habitat conservation actions that protect properties from development will prevent future erosion and sedimentation.

Short-term, moderate, adverse impacts would be expected from siltation created by construction and restoration activities (i.e., from erosion and runoff) while establishment of these habitats is completed. Mitigation measures such as those described in Section 5.2.1 of the Programmatic Restoration Plan would be implemented to minimize release of sediments, intercept silt-carrying runoff, and prevent additional sedimentation. Compaction of soils would be minimized by using existing roads when possible. Where feasible, heavy equipment would be used in less-sensitive areas and would be operated in ways that minimize impacts (e.g., using low pressure tires or temporary mats to protect sensitive soils).

5.1.3 Biological Resources

5.1.3.1 Fish

Long-term, minor to moderate, beneficial impacts on fish would be expected from the proposed habitat restoration activities. Restoration of the Kalamazoo River instream habitat and barrier removals combined with riparian restoration that reduces water temperature improves river habitat and fish survival. Migratory fish in the Kalamazoo River, such as walleye and white sucker, would greatly benefit from barrier removal as a result of increased mobility in the river system. Barrier removal could also increase the abundance and diversity of fish species by providing a broader range of habitat and substrate and may reduce conditions favorable to invasive species (Bednarek, 2001). These improvements to the complexity and quality of habitat would also provide long-term benefits to native biological resources, such as higher productivity, increased feeding opportunities, and lower predation rates. Adequate water quality for fish health is a necessity, and long-term improved water quality would be expected from the proposed restoration. Under the preferred alternative, an increase in

reproduction would be expected to occur in restored river habitats, leading to a sustainable increase in the total amount of fishes over time.

Short-term, minor, adverse impacts on fish would be expected from sedimentation and turbidity during initial implementation of restoration projects, but mitigation measures would be taken to minimize these impacts and most fish would have the ability to temporarily move away from the disturbed area. These short-term, minor, adverse impacts would be negligible when compared to the long-term beneficial impacts of improved fish habitat and overall improvement to the health of the water body and riparian areas.

5.1.3.2 Aquatic Invertebrates

Long-term, minor to major, beneficial impacts of the restoration of natural channels and stream banks would be expected and would directly improve water resources and water quality by reestablishing natural suspended sediment patterns and temperature regimes. Similarly, riparian and wetland restoration would directly benefit aquatic invertebrates by improving the quality of the sediment by removing artificial fill and restoring vegetation to prevent erosion of soils. It would also improve water resources and quality by restoring the hydrologic functioning of the riparian and wetland habitats to pre-disturbance conditions and providing filtration of pollutants and nutrient inputs to the wetland habitat and the adjacent aquatic habitat. Overall, barrier removal would improve water quality and habitat for aquatic invertebrates by eliminating the adverse impacts of the dams, including the Allegan City, Plainwell Diversion, and Mill Race dams, such as increased water temperatures, decreased dissolved oxygen, and trapping of sediments that would otherwise move downstream.

Short-term, minor, adverse impacts on aquatic invertebrates would be expected during the proposed restoration efforts because of the increases in turbidity, physical disturbance of aquatic and riparian habitats, temporary displacement or harassment of organisms, and indirect changes in habitat. However, mitigation measures such as those described in Section 5.2 of the Programmatic Restoration Plan would be used to avoid erosion and sedimentation that could affect aquatic invertebrates. For projects like dam removals that would disturb significant areas of river bottom, surveys for freshwater mussels would be conducted during project design to either avoid mussel beds, if possible, or translocate mussels if necessary.

5.1.3.3 Wildlife

Long-term, moderate beneficial impacts on wildlife that rely on aquatic and riparian habitats, such as mammals, reptiles, birds, and amphibians, would be expected from increasing the connectivity of aquatic habitats, restoring bank vegetation used as habitat, establishing natural water temperatures and conditions, and protecting large blocks of contiguous habitat from development. The increased connectivity of the river upstream and downstream and with its floodplain would provide an expansion of available food resources within the ecosystem food web, while improving the overall health and functionality of the river ecosystem. Long-term, indirect, minor, beneficial impacts on water quality would be expected from restoring the aquatic habitat of the river and would also benefit wildlife by providing a safer, healthier drinking water source, and reducing sickness and mortality rates.

Short-term, minor adverse impacts on wildlife could be expected as a result of increased turbidity, human activity, and habitat disturbance as a result of restoration activities. Depending on the seasonal timeframe and duration of implementation, restoration activities could disturb critical nesting and other reproductive activities of wildlife. To reduce these potential impacts, the Trustees would use mitigation efforts such as fencing around the construction site, reducing the total duration of the project by

planning concurrent construction activities, restricting certain types of activities (e.g. tree removal) in some areas to specific seasonal windows, and establishing a road management plan for easy access to the site. Short-term adverse impacts on wildlife habitat (aquatic and land-based) may be anticipated; however, this adversity is negligible compared to the overall long-term improvements of the micro and macro habitats.

5.1.3.4 Vegetation

Long-term, moderate beneficial impacts on vegetation in the Kalamazoo River watershed would be expected from the proposed restoration projects. The projects would establish native species in restored riparian areas and barrier removals would enhance aquatic and riparian vegetation throughout the project area by reestablishing the river's natural flow and allowing for a more diverse community of vegetation to grow and thrive.

Changes in hydrology associated with a barrier removal could cause changes in wetland habitat along the stream upstream of a former barrier, which may include the elimination of some wetland areas around the former margins of the impounded area (NOAA, 2006). Although wetlands may decrease at the former boundary of the impoundment, they could redevelop both above and below the former barrier (NOAA, 2006). Long-term, minor beneficial impacts on vegetation would be expected following completion of the dam removal by reconnecting instream habitat and restoring more natural and self-sustaining vegetation communities. Because of these benefits, under their administrative rules for wetland mitigation, EGLE can waive wetland mitigation for dam removal projects where there is a benefit to wetland and stream habitat overall. These types of wetland vegetation changes would be minor for the removal of the Plainwell Diversion and Mill Race dams because the dams would be replaced with a series of riffles and other grade controls that would minimize water levels changes upstream of the project area of these two dams.

5.1.3.5 Federally Listed Species

Long-term, moderate, beneficial impacts on listed species that rely on or may use aquatic and riparian habitats, such as Indiana bats, northern long-eared bats, eastern massasauga rattlesnake, and snuffbox mussel would be expected from increasing the connectivity of aquatic habitats, restoring bank vegetation used as habitat, establishing natural water temperatures and conditions, and protecting large blocks of contiguous habitat from development. The increased connectivity of the river upstream and downstream and with its floodplain would provide an expansion of available food resources within the ecosystem food web, while improving the overall health and functionality of the river ecosystem. To benefit monarch butterflies, a candidate species under the ESA, proposed projects that include revegetation with native species would incorporate both a variety of milkweed species (*Asclepias* spp.) as well as plant species that provide nectar at different times in the spring, summer, and early fall and structure throughout the growing season (e.g. native grasses like little blue stem (*Schizachyrium scoparium*) or indian grass (*Sorghastrum nutans*)). In addition, were feasible, areas within project sites would be designated for management for monarchs and these areas would be protected from harmful disturbance during the peak monarch breeding and migration periods (May through September) and managed outside of those periods to prevent growth of woody vegetation.

Depending on the timing and location of construction activities, short-term, moderate, adverse impacts on listed species could occur from disturbance and the removal of existing vegetation during construction activities. Site-specific project plans would be developed to avoid incidental impacts on listed species. For example, in order to avoid impacts on the Indiana bat and the northern long-eared bat, any tree removal would be scheduled and completed in the fall and winter months or bat surveys

would be completed prior to any tree removal in the summer months when reproductive colonies of the bats could be present. Surveys conducted for freshwater mussels for proposed in-stream projects would be done by qualified experts who can identify snuffbox as well as other species of conservation concern. Prior to providing funding for a project, the Trustees would update information on listed species that could potentially occur in the project area and consult with the USFWS if necessary.

To avoid impacts to the eastern massasauga rattlesnake, all projects would use wildlife-safe materials for erosion control and site restoration throughout the project area. Erosion control products containing plastic mesh netting or other similar materials with fixed mesh sizes that could entangle snakes and other wildlife would not be allowed. Several products for soil erosion and control exist that do not contain plastic netting, including net-less erosion control blankets (for example, made of excelsior), loose mulch, hydraulic mulch, soil binders, unreinforced silt fences, and straw bales. Others are made from natural fibers (such as jute) and loosely woven together in a manner that allows wildlife to wiggle free.

5.1.4 Air Quality

Short-term, minor adverse impacts on air quality would be expected from the use of vehicles, machinery, and construction equipment for habitat restoration, barrier removal, and habitat conservation. Following the completion of the restoration activities, no long-term adverse impacts would be expected. Replacement of concrete structures with natural materials and vegetation and revegetation of disturbed sites with a mix of native species is expected to have minor long-term beneficial impacts to air quality.

The short-term adverse impacts would be limited to the extent and duration of the restoration activity and the area in which the restoration occurred. Construction would follow best management practices, including the use of dust suppression actions and use of low-emission fuels to limit dust and emissions to the extent practicable. All restoration activities would be performed in compliance with all applicable federal and Michigan air pollution control regulations. Impacts from the combustion of fossil fuels would nonetheless include some release of greenhouse gases (i.e., carbon dioxide and nitrogen oxides), volatile organic compounds, ozone, smoke, and other pollutants. Additionally, increased particulate matter would be expected from construction vehicle traffic and controlled burns (if used to maintain habitats). However, the Kalamazoo River watershed is located in Air Quality Control Regions that are in attainment with National Ambient Air Quality Standards and the increase in emissions from the vehicles, machinery, and construction equipment would be minimal and not be expected to cause exceedances of these standards.

5.1.5 Climate and Climate Resiliency

The Programmatic Restoration Plan (Section 4.3.10.2) provides a description of how the Trustees have approached restoration design and management to provide maximum adaptability to climate change. What follows here is an analysis of the impacts of the Prioritized Restoration Alternative on climate and examples of projects that are expected to improve local resiliency to increased frequency of extreme weather events, flooding, and changes in annual patterns of precipitation.

Minor short-term adverse direct effects on greenhouse gas (GHG) emissions are expected as a result of the Prioritized Restoration Alternative. Actions resulting in GHG emissions may include the use of heavy equipment for construction, transport of materials needed for construction, and other activities associated with pre- and post-implementation such as monitoring and adaptive management. These activities have the potential to generate GHG emissions through the use of oil-based fuels and

consumption of both renewable and nonrenewable resources. However, the amount of GHG emissions generated through this activity is not anticipated to be significant due to the limited number of restoration projects, extended construction time, and the use of best management practices as described above in the section on air quality.

Long-term minor beneficial impacts to factors affecting climate change may result from restoration projects that include replacement of concrete structures with natural materials and vegetation and revegetation of disturbed sites with a mix of native species as these actions would thus increase carbon storage capacity of soils and plant communities, contributing to carbon sequestration. Many of the projects in the Preferred Alternative are expected to improve local resiliency to increased frequency of extreme weather events, flooding, and changes in annual patterns of precipitation by increasing flood storage capacity, filtering stormwater, and removing aging infrastructure in and along rivers and streams that could fail catastrophically during extreme events: Plainwell Dam Area Restoration, Allegan City Dam Removal, Plainwell Diversion Dam & Mill Race Dam Removal and Channel Restoration, Davis-Olmsted Drain Improvements, Reed Court Floodplain and Stormwater Improvements, River Bluff Park Shoreline Restoration, and Commerce Lane Railroad Trestle Removal and Bank Restoration.

In addition, the projects that protect natural areas along rivers and streams from development allow those areas to continue to provide flood storage capacity and filtration of runoff as opposed to increasing the amount of impermeable surface area that would contribute to rapid runoff of stormwater and melting snow and ice.

5.1.6 Socioeconomic Resources and Environmental Justice

No long-term impacts on population demographics would be expected under the Preferred Alternative and short-term, minor to moderate, beneficial impacts on the local economy would be expected from the purchase of goods and materials by the contractors completing the restoration activities. No new residents would be expected to relocate to or from the Kalamazoo River watershed as a direct result of the proposed action; however, property values on parcels associated with being near conservation areas may increase (Reeves et al. 2018). While the Trustees likely will not be able to control all aspects of contracted work, local construction workers may be used for restoration actions and heavy equipment would most likely be procured from local suppliers. A recent study indicates that every $1 million invested in ecosystem restoration generates approximately 12 to 32 job-years and approximately $2.2 to $3.4 million in total economic output (Thomas et al. 2016).

The proposed restoration projects would improve the quality of the Kalamazoo River and allow for increased use of the river for recreational purposes. Therefore, long-term, minor, beneficial impacts would be expected from increased recreational opportunities and associated impacts on the local economy from the purchase of goods and materials.

The Trustees used publicly available data from EPA's EJScreen to help evaluate areas that may be of concern for environmental justice. Consistent with the Restoration Project Evaluation Criteria, the Trustees rated projects higher that would likely benefit populations impacted by environmental justice concerns. Proposed restoration projects in the Preferred Alternative are expected to provide long-term, minor, beneficial impacts on the communities and environmental justice populations that live and work in the Kalamazoo River watershed without causing disproportionate adverse impacts. Long-term, minor, beneficial impacts would be expected as a result of reduced flood risks, aesthetic benefits to the Kalamazoo River watershed, improved fishery resources, reduced dam maintenance costs, and increased local economic activity from recreational opportunities and tourism. Providing natural areas with public access within walking and biking distance of neighborhoods with environmental justice

populations would result in long-term beneficial impacts to those neighborhoods. Several of the projects would provide people in urban residential neighborhoods with such access to restored natural areas, including the Davis-Olmsted Drain Improvements Project, the Reed Court Floodplain and Stormwater Improvements Project, and the Commerce Lane Railroad Trestle Removal and Bank Restoration Project.

5.1.7 Recreation and Land Use

Following completion of the restoration projects in the Preferred Alternative, long-term, minor to moderate, beneficial impacts would be expected from the increased recreational opportunities on the Kalamazoo River, Portage Creek, and the surrounding area. Aquatic habitat restoration, riparian and wetland habitat restoration, and habitat conservation would increase the native vegetation and wildlife in the area. These improvements would create additional opportunities for fishing, wildlife observation, hiking, canoeing, and boating at local parks and trails. Boating would benefit from increased connectivity and safety of the river associated with barrier removals because of the reduced need to portage around dams, particularly at the Plainwell Diversion Dam and the Commerce Lane Railroad Trestle. In addition, engineering work for the Allegan City Dam Removal could lead to similar improvements, and the Trowbridge Township Restoration and Access Project would contribute to improved river access for boating. Nearly all projects would provide additional opportunities for wildlife observation and several projects would specifically include trails with interpretative signage and/or shoreline fishing opportunities: Nature Preserve in Allegan, Plainwell Diversion Dam and Mill Race Dam Removals and Channel Restoration, Davis-Olmsted Drain Improvements, Reed Court Floodplain and Stormwater Improvements, River Bluff Park Shoreline Restoration, Commerce Lane Railroad Trestle Removal and Bank Restoration, and, in potential future phases, Parchment Urban Wildlife Corridor.

Public use on any restoration project site should be carefully considered and designed, and potentially redirected, in order to minimize any degradation of potential NRDAR restoration-related ecological values. Implementation of a restoration project may permanently redirect or restrict some recreation activities at a recreation area for the long-term protection of natural resources. Where possible, the design of restoration projects that provide passive recreational use should simultaneously direct human use away from sensitive ecological areas. This would result in a mix of long-term minor adverse and beneficial impacts to public access for recreation across the projects.

Short-term, direct, minor to moderate adverse impacts on recreational areas would be expected during construction of several of the restoration projects proposed. During dam and barrier removal projects, certain areas of the Kalamazoo River and tributaries could be temporarily closed, or have access restrictions, during a particular activity. Recreation in a particular area could be restricted during construction, or be degraded by increased dust and noise; however, access would be improved following completion of the restoration activity. Projects would also be designed and implemented to minimize the amount of time that recreational uses are impacted.

There would be no change in any land use designations (e.g. re-zoning); therefore, no short- or long-term impacts on land use would be expected under the Preferred Alternative, although some privately-owned land would be opened to use by the public for recreation.

5.1.8 Noise

No significant long-term impacts on the noise environment would be expected from the implementation of restoration projects in the Preferred Alternative. In the long term, minor beneficial impacts to wildlife and people using the river corridor could result from an increase in riparian vegetation that could

provide a noise buffer along the river and replacement of dams with riffle structures may decrease river noise slightly.

The construction of restoration projects implemented under the Preferred Alternative would result in short-term, minor, adverse noise impacts in a small area around each project location from the use of heavy equipment during the construction phase of the projects. Restoration projects are subject to the noise ordinances in place in the applicable jurisdiction and must acquire noise permits or variances if construction would create noise levels beyond those allowed outright. During restoration, wildlife near the restoration activity that can relocate (e.g., birds) may move to quieter areas; however, these species would be expected to return once the noise has stopped. Outside of the immediate project site, the increase in noise should be minimal.

5.1.9 Indigenous Peoples and Cultural Resources

Long-term, moderate beneficial impacts would be expected from the restoration actions. The river and riparian areas would be returned to more natural states, providing a more pleasing view from any nearby historic properties and improving habitats that support species with traditional importance to Native American tribes.

Short-term negligible to minor adverse impacts on cultural resources would be possible from aquatic habitat restoration, riparian and wetland restoration, barrier removal, and habitat conservation under the Preferred Alternative. For implementation projects included in the Preferred Alternative, the Trustees are currently working with agency archeologists and Tribal Historic Preservation Offices (THPOs) to identify cultural and historic resources subject to Section 106 of the National Historic Preservation Act (NHPA). For feasibility study, engineering and design projects included in the Preferred Alternative, the potential for effects on historic properties subject to NHPA Section 106 would be evaluated as a part of the project. If an eligible historic property or cultural resource is within the area of the proposed restoration project, then an analysis would be made to determine whether the project would have an adverse effect on this historic property or cultural resource. If the project would have an adverse effect on either of these, then the agency proposing the restoration project would consult with the SHPO or appropriate THPOs to alter the project to avoid or minimize the adverse effect prior to finalizing the Supplemental Restoration Plan or implementing a project.

Prior to the start of construction activities, the Trustees would prepare an Unanticipated Discoveries Plan to be used across all projects that would involve soil disturbance, review it with the SHPO, and consult on it with the Nottawaseppi Huron Band of the Potawatomi, the Match-E-Be-Nash-E-Wish Band of Pottawatomi Indians, and the Pokagon Band of Potawatomi. As a part of that plan, the project proponents would be required to instruct construction personnel to call attention to any artifacts uncovered by excavation or dredging and take appropriate action in accordance with the plan.

5.2 Impacts of the No-Action Alternative

Under the No-Action Alternative, no federal action is taken to restore natural resources and services that were lost as a result of the release of hazardous substances into the Kalamazoo River. The No-Action Alternative does not meet the purpose and need for restoring any injured resources and services. Although response actions and natural attenuation may result in reduction in the level of contamination in Kalamazoo River, and conditions for natural resources may improve gradually over time, the No-Action Alternative would not result in compensation for injuries to natural resources or services. This alternative would have no beneficial impacts to elements of the environment, as natural resources would not fully recover without restoration and would remain injured. Under the No-Action

Alternative, some habitat recovery could result from another federal action, but not from the federal action being evaluated in this Draft Supplemental Restoration Plan. There would be neither associated funding costs nor any economic benefits with the No-Action Alternative.

5.2.1 Water Resources and Water Quality

No short-term impacts are anticipated under the No-Action Alternative. In the long term, water quality in the area would remain in its current condition with existing problems from localized erosion, stormwater inputs, and lack of riparian vegetation.

5.2.2 Geologic Resources and Sediment Quality

No short-term impacts are anticipated under the No-Action Alternative. In the long term, sediment quality in the area would remain in its current condition with existing problems from localized erosion, barriers to natural sediment transport, stormwater inputs, and lack of riparian vegetation.

5.2.3 Biological Resources

No short-term impacts are anticipated under the No-Action Alternative. In the long term, habitat would remain in its current degraded condition. Biological resources dependent on that habitat, and whose local populations are suffering due to its condition, would continue to experience adverse impacts.

5.2.4 Air Quality

No short-term impacts are anticipated under the No-Action Alternative. In the long term, air quality in the area would remain in its current condition and not benefit from increases in well-vegetated areas.

5.2.5 Climate and Climate Resiliency

No short-term impacts are anticipated under the No-Action Alternative. In the long term, local areas would remain or become increasingly vulnerable to the consequences of extreme weather events including flooding and catastrophic failure of aging infrastructure like dams, barriers and hardened shorelines.

5.2.6 Socioeconomic Resources and Environmental Justice

No short-term impacts are anticipated under the No-Action Alternative. In the long term, local areas would not benefit from construction and recreation-related economic activity, improved access to protected or restored natural areas, or the potential for increased property values adjacent to protected natural areas.

5.2.7 Recreation and Land Use

No short-term impacts are anticipated under the No-Action Alternative. In the long term, the resources that support recreational activities, such as boating, wildlife viewing, fishing by boat and from shore, and kayaking, would not improve and would remain in their current condition.

5.2.8 Noise

No impacts are anticipated under the No-Action Alternative.

5.2.9 Indigenous Peoples and Cultural Resources

No short-term impacts are anticipated under the No-Action Alternative. In the long term, cultural resources in the area would remain in their current condition and not benefit from improved views of natural areas or improvements in habitats that support species with traditional importance to Native American tribes.

5.3 Cumulative Impacts and Related Actions

The Federal Trustees are aware of several plans, projects, and programs that may have similar or related past, present and reasonably foreseeable future environmental impacts as the restoration projects included in the Prioritized Restoration Alternative. They include the following:

- Response actions to clean up hazardous substances, including remediation and removal actions directed by the EPA and the State of Michigan
- Great Lakes Restoration Initiative (GLRI), managed by the Great Lakes National Program Office of the EPA
- Watershed plans and actions taken by the USDA, Michigan Department of Agriculture and Rural Development, and county conservation districts
- Watershed plans and actions taken by non-governmental organizations like the Kalamazoo River Watershed Council and Kalamazoo River Protection Association
- Regulatory programs to protect water quality, sediment quality, wetlands, and floodplains from contaminants and physical damage, including those administered by the EPA, the State of Michigan, and local units of government
- Programs to protect, recover, and manage threatened and endangered species, migratory birds, and game species administered by the U.S. Fish and Wildlife Service and the State of Michigan.

The general intent of aspects of these plans, projects, and programs include restoring or enhancing habitats preferred by native organisms. Restoration and enhancement can take many forms, and might occur in watersheds above, within, or below the locations of the included restoration projects. Some programs are required, such as the enhancement actions associated with the TMDL for phosphorous in the Kalamazoo River, but others focus on the identification of limiting factors and provide a suite of potential action categories that could be implemented to address the limiting factors. Response actions and GLRI-funded work both include significant specific, foreseeable actions within this Draft Supplemental Restoration Plan's Kalamazoo River watershed, so benefits to native fish, wildlife, and other organisms are likely from these programs.

Actions under this Draft Supplemental Restoration Plan and others would cumulatively create long-term benefits. Benefits would include reduced water temperatures, increased invertebrate prey sources, improved shallow-water habitats, stronger food web interactions, decreased predation on juvenile fish, reductions in contaminant exposure, and increased quality, quantity, and connectedness of aquatic and riparian habitats. It is expected that although this project and others in the watershed may have the potential to cumulatively provide net positive effects, the cumulative benefits would not be significant at a larger (regional) level.

5.4 Summary of Alternatives Analysis

The Trustees evaluated the environmental impacts of the Prioritized Restoration Alternative and the No-Action Alternative. The analysis is summarized in Table 5-1. The Trustees concluded that the Preferred Alternative is the Prioritized Restoration Alternative. This alternative is unlikely to have significant adverse impacts to the environment. This alternative would meet the mandates under NRDAR statutes and regulations to restore natural resources and services injured by releases of oil and hazardous substances and is consistent with the goals and objectives outlined in the Programmatic Restoration Plan.

Table 5-1. Summary of positive (+) and negative (-) environmental impacts for the No-Action and Preferred Alternatives

Resource Area	Term	No-Acton	Preferred
Water resources and water quality	Short	None	Minor (-)
	Long	None	Moderate (+)
Geological resources and sediment quality	Short	None	Minor to moderate (-)
	Long	None	Moderate (+)
Biological resources - fish	Short	None	Minor (-)
	Long	None	Minor to moderate (+)
Biological resources – aquatic invertebrates	Short	None	Minor to moderate (-)
	Long	None	Minor to moderate (+)
Biological resources - wildlife	Short	None	Minor (-)
	Long	None	Moderate (+)
Biological resources – vegetation	Short	None	Minor (-)
	Long	None	Moderate (+)
Biological resources – endangered species	Short	None	None to minor (-)
	Long	None	None to moderate (+)
Cultural resources	Short	None	None to minor (-)
	Long	None	Moderate (+)
Air quality	Short	None	Minor (-)
	Long	None	Minor (+)
Climate and climate resiliency	Short	None	Minor (-)
	Long	None	Moderate (+)
Socioeconomic resources and environmental justice	Short	None	Minor (-) to minor (+)
	Long	None	Moderate (+)
Recreation and land use	Short	None	Minor (-)
	Long	None	Moderate (+)
Noise	Short	None	Minor (-)
	Long	None	Minor (+)

This page intentionally left blank.

6. COORDINATION AND CONSULTATION

This chapter provides a review of the applicable laws and regulations that may affect the Trustees' restoration actions. Restoration projects would need to comply with federal, state, tribal, and local laws and regulations. There are also several permitting requirements associated with many of these laws and regulations, and the Trustees along with project proponents would need to be sure that there is coordination across these programs so that all restoration project implementation and monitoring complies with applicable laws and regulations. In January, February, and March of 2021, the Executive Branch of the United States issued multiple Executive Orders relating to Environmental Justice, Tribal Consultation, climate and the environment. At the time of this writing, these Executive Orders are being reviewed and will be considered as the Trustees move forward in developing and implementing the restoration projects.

6.1 Comprehensive Environmental Response, Compensation and Liability Act

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601 *et seq.* provides a legal framework for addressing injuries to the nation's natural resources resulting from releases of hazardous substances. CERCLA, also known as the Superfund Act, establishes liability for injury to, destruction of, loss of, or loss of use of natural resources caused by the release of hazardous substances and authorizes recovery of natural resource damages for such injuries. Natural resource trustees are responsible, under CERCLA, for restoring, rehabilitating, replacing, or acquiring the equivalent of natural resources injured by hazardous substance releases and losses of services provided by those natural resources.

CERCLA provides authorization to EPA to seek the cleanup of uncontrolled or abandoned hazardous waste sites, as well as emergency releases of pollutants and contaminants into the environment. As discussed previously in this document, the Trustees would ensure that restoration projects are coordinated with CERCLA-authorized response actions at the Kalamazoo River Superfund Site.

6.2 National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to evaluate potential environmental effects of any major planned federal action and promotes public awareness of potential impacts by requiring federal agencies to prepare an environmental evaluation for any major federal action affecting the human environment. After considering NEPA requirements, the Federal Trustees believe that the selected projects described in this Supplemental Restoration Plan/EA will not cause significant negative impacts to the environment, or to natural resources or the services they provide. None of the selected projects is controversial, has highly uncertain impacts or risks, or is likely to violate any environmental protection laws. Further, the Federal Trustees do not believe the selected projects will adversely affect the quality of the human environment or pose any significant adverse environmental impacts. Instead, habitat restoration projects will benefit many species of plants and animals and some may also improve water quality and flood risk by restoring natural habitat functions. Likewise, the selected restoration actions will provide positive benefits for human recreational use and non-recreational use by tribal members and the general public.

6.3 Endangered Species Act

The Endangered Species Act of 1973, as amended, 16 U.S.C. §§ 1531–1544 (ESA) provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The ESA provides for the conservation of ecosystems upon which these species depend and provides a program for identification and conservation of these species. Federal agencies are required to ensure that any actions are not likely to jeopardize the continued existence of a federally listed threatened or endangered species. Federally listed endangered, threatened, and candidate species potentially occurring at or near the proposed project sites are listed in Table 4-1 in this document. Potential effects and measures to avoid or minimize adverse effects are discussed in Section 5.1.3.5. ESA Section 7 requires that federal agencies proposing an action consult with USFWS if the proposed action may affect endangered and threatened species or destroy or adversely modify designated critical habitat. For implementation projects included in the Preferred Alternative, consultations would take place prior to finalizing the Supplemental Restoration Plan and implementation of a project.

6.4 Clean Water Act

The Clean Water Act (CWA), 33 U.S.C. § 1251 is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the CWA prohibits the discharge of dredged or fill material into all waters of the United States, including wetlands, both adjacent and isolated, without a permit. The State of Michigan has assumed from the EPA the authority to regulate the placement of fill material in waterways and wetlands under provisions of Section 404 g (1) of the CWA. However, since Section 10 of the Rivers and Harbors Act does not provide for similar transfer to states, the U.S. Army Corps of Engineers (USACE) retains Section 404 jurisdiction within those waters that are navigable waters of the U.S. and their adjacent wetlands. The discharge of any fill materials must comply with state water quality standards consistent with Sections 301, 307, and 401 of the Clean Water Act. The EGLE/USACE Joint Permit Application package covers permit requirements pursuant to state and federal rules and regulations for construction activities where the land meets the water and including wetlands (EGLE, 2020). It is intended to prevent duplication of state and federal regulations. The application covers activities on or for areas regulated by Michigan's Natural Resources and Environmental Protection Act (NREPA, see Section 6.5: Wetlands, Inland Lakes and Streams, Floodplains, Great Lakes Bottom Lands, Marinas, Critical Dunes, Dams, and High Risk Erosion Areas). Project proponents would be required to submit permit applications and receive the necessary permits prior to implementing proposed projects.

6.5 Michigan Natural Resources and Environmental Protection Act

The Michigan Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (NREPA) is in place to "protect the environment and natural resources of the state; to codify, revise, consolidate, and classify laws relating to the environment and natural resources of the state; to regulate the discharge of certain substances into the environment; to regulate the use of certain lands, waters, and other natural resources of the state; to protect the people's right to hunt and fish; to prescribe the powers and duties of certain state and local agencies and officials; to provide for certain charges, fees, assessments, and donations; to provide certain appropriations; to prescribe penalties and provide remedies; and to repeal acts and parts of acts." The parts of NREPA that may apply to certain proposed restoration projects include, but are not limited to, the following: Part 31, Water Resources Protection;

Part 91, Soil Erosion and Sedimentation Control; Part 301, Inland Lakes and Streams; Part 303, Wetlands Protection; Part 315, Dam Safety; and, Part 365, Endangered Species Protection. Project proponents would be required to submit permit applications and receive the necessary permits prior to implementing proposed projects.

6.6 Rivers and Harbors Act

The Rivers and Harbors Act, 33 U.S.C. §§ 401, *et seq.* regulates the development and use of navigable waterways within the United States. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters. It gives USACE the authority to regulate discharges of fill and other materials into such waters. Actions that require Section 404 CWA permits are also likely to require permits under Section 10 of this Act, and permits may be required for some of the in-water work at the restoration projects included in the Preferred Alternative.

6.7 National Historic Preservation Act

The National Historic Preservation Act of 1966, as amended, 16 U.S.C. §§ 470, *et seq*. is intended to preserve historical and archaeological sites. For implementation projects included in the Preferred Alternative, consultations with the Michigan SHPO and THPOs/Tribes would take place prior to finalizing the Supplemental Restoration Plan and implementation of a project. For projects starting with a feasibility study or engineering and design work, the review of potential for impacts and consultation, if warranted, would occur during those phases. If an eligible historic property or cultural resource is within the area of the proposed restoration project, then an analysis would be made to determine whether the project would have an adverse effect on this historic property or cultural resource. If the project would have an adverse effect on either of these, then the agency proposing the restoration project would consult with the SHPO and/or THPOs/Tribes to alter the project to avoid or minimize the adverse effect.

6.8 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires USFWS and National Marine Fisheries Service, which is part of NOAA, to consult with other state and federal agencies in a broad range of situations to help conserve fish and wildlife populations and habitats in cases where federal actions affect natural water bodies. As required by the FWCA, the Federal Trustees are in close coordination with all of the agencies in the Trustee Council on all aspects of the Kalamazoo River NRDAR, including restoration project selection.

6.9 Executive Order 11514 (35 Fed. Reg. 4247) – Protection and Enhancement of Environmental Quality

This Executive Order directs federal agencies to monitor, evaluate, and control their activities in order to protect and enhance the quality of the nation's environment; to inform and seek the views of the public about these activities; to share data gathered on existing or potential environmental problems or control methods; and to cooperate with other governmental agencies. The release of this Draft Supplemental Restoration Plan and the types of projects envisioned under the Preferred Alternative are consistent with the goals of this order. This Draft Supplemental Restoration Plan is the product of intergovernmental cooperation and will protect and enhance the environment. The restoration planning process has provided and continues to provide the public with information about the restoration efforts.

6.10 Executive Order 11988: Floodplain Management

This order, issued by President Carter on May 24, 1977, requires each federal agency to provide opportunity for early public review of any plans or proposals for actions in floodplains, in accordance with Section 2(b) of Executive Order 11514, as amended, including the development of procedures to accomplish this objective.

6.11 Executive Order 11990: Wetland Management

This order, issued by President Carter on May 24, 1977, requires each agency to provide opportunity for early public review of any plans or proposals for new construction in wetlands, in accordance with Section 2(b) of Executive Order 11514, as amended, including the development of procedures to accomplish this objective. The Trustees would work with permitting agencies to ensure that projects minimize any wetlands impacts and that all necessary permits are obtained.

6.12 Executive Order 12898: Environmental Justice, as Amended

This order, issued by President Clinton on February 11, 1994, requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. In the past, the United States emphasized the importance of incorporating environmental justice review in the analyses conducted by federal agencies under NEPA and of developing mitigation measures that avoid disproportionate environmental effects on minority and low-income populations. In January 2021, the Executive Branch of the United States issued Executive Orders relating to Environmental Justice and, at the time of this writing, these Executive Orders are being reviewed and will be considered as the Trustees move forward in developing and implementing the restoration projects.

The Trustees have not identified any disproportionate adverse impacts to human health or environmental effects of implementation of the restoration projects on Native Americans or other minority or low-income populations and believe that these projects would be beneficial to these communities based on the analysis in Section 5.1.9.

6.13 Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment

This memorandum, implemented in 2015, states the importance of mitigating adverse impacts to land, water, wildlife, and other ecological resources. It emphasizes the need for clear and consistent approaches to avoid and minimize adverse impacts and provide for compensatory mitigation.

6.14 Information Quality Guidelines Issued Pursuant to Public Law 106-554.

Information disseminated by federal agencies to the public after October 1, 2002, is subject to information quality guidelines developed by each agency pursuant to Section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of such information (i.e., the objectivity, utility, and integrity of such information). This Draft Supplemental Restoration Plan is an information product

covered by the information quality guidelines established by NOAA and DOI for this purpose. The information collected herein complies with applicable guidelines.

6.15 Executive Order 13007 – Indian Sacred Sites, and Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments

Executive Order 13007 describes federal policy for accommodating sacred Indian sites. This Executive Order requires federal agencies with statutory or administrative responsibility for managing federal lands to (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religions' practitioners; (2) avoid adversely affecting the physical integrity of such sacred sites; and 3) maintain the confidentiality of these sacred sites. Executive Order 13175 exists to (1) promote regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications; (2) strengthen the United States government-to-government relationships with Indian tribes; and (3) reduce the imposition of unfounded mandates upon Indian tribes. The Draft Supplemental Restoration Plan has been shared with the 3 federally-recognized tribes in the Kalamazoo river watershed. As part of the planning process for individual projects, appropriate contact, coordination, and consultation with these and additional federally recognized Indian tribes, including all U.S.-based Potawatomi Tribes would be conducted. In January 2021, the Executive Branch of the United States issued Executive Orders relating to Tribal Consultation and, at the time of this writing, these Executive Orders are being reviewed and will be considered as the Trustees move forward in developing and implementing the restoration projects.

6.16 Executive Order 12962 (60 Fed. Reg. 30,769) – Aquatic Systems and Recreational Fisheries.

This Executive Order directs federal agencies to, among other things, foster and promote restoration that benefits and supports viable, healthy, and sustainable recreational fisheries. The restoration projects that have been or would be built under the Preferred Alternative would benefit aquatic systems, recreational fish species and their prey.

6.17 Executive Order 13112 (64 Fed. Reg. 6,183) – Invasive Species

The purpose of Executive Order 13112 is to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. No invasive species have been or would be intentionally introduced by any restoration project included in the Preferred Alternative. In addition, these projects are required to follow best management practices to avoid such introduction and to follow rigorous monitoring plans to document invasive species on the project sites.

6.18 Local Laws

The Trustees would require project proponents to fully coordinate with local units of government to ensure compliance with local requirements, including carefully considering relevant local plans and complying with applicable ordinances. Relevant local plans could include shoreline and growth

management plans. Relevant ordinances could include erosion control, zoning, construction, noise, and wetlands.

This page intentionally left blank.

7. LIST OF PREPARERS, AGENCIES, AND PERSONS CONSULTED

7.1 Preparers

Lisa L. Williams, U.S. Fish and Wildlife Service, East Lansing, MI

Julie Sims, National Oceanic and Atmospheric Administration, Ann Arbor, MI

John Riley, Michigan Department of Environment, Great Lakes, and Energy, Lansing, MI

Jay Wesley, Michigan Department of Natural Resources, Plainwell, MI

7.2 Agencies and Persons Consulted

The following is list of those entities with whom the preparers of this document consulted during its preparation.

Federal Agencies

U.S. Fish and Wildlife Service, East Lansing, MI

National Oceanic and Atmospheric Administration, Ann Arbor, MI and Silver Spring, MD

U.S. Environmental Protection Agency, Chicago, IL

State Agencies

Michigan Department of Environment, Great Lakes, and Energy

Michigan Department of Natural Resources

Michigan Department of Attorney General

Tribes

Nottawaseppi Huron Band of the Potawatomi

Match-E-Be-Nash-E-Wish Band of Pottawatomi Indians

Pokagon Band of Potawatomi

Local Agencies, Non-Governmental Organizations, and Others

See Appendix C, which includes people who provided comments to the Trustees on the 2016 Programmatic Restoration Plan or in meetings and correspondence since the publication of that document and people to whom the Trustees have provided notices of meetings and availability of documents.

This page intentionally left blank.

8. REFERENCES

Bednarek A.T. 2001. Undamming rivers: A review of the ecological impacts of dam removal. *Environmental Management* 27(6):803–814.

CDM, 2003. Final (Revised) Baseline Ecological Risk Assessment for Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Available at https://archive.epa.gov/reg5sfun/ecology/web/pdf/allied_paper_bera.pdf

Chapman, K.A. and R. Brewer. 2008. Prairie and Savanna in southern lower Michigan: History, classification, ecology. The Michigan Botanist 47:1–48. Available: http://quod.lib.umich.edu/cgi/p/pod/dod-idx/prairie-and-savanna-in-southern-lower-michigan-history.pdf?c=mbot;idno=0497763.0047.101. Accessed February 1, 2015.

EGLE. 2020. Joint Permit Application EGLE/Army Corp of Engineers, https://www.michigan.gov/statelicensesearch/0,4671,7-180-24786-244631--,00.html. Accessed December 31, 2020.

Kalamazoo County Government. 2014. Kalamazoo River Valley Trail. Available: http://www.kalcounty.com/parks/krvt/index.html. Accessed August 14, 2014.

Kalamazoo Public Library. 2015. Kalamazoo's First Residents: Our Native Americans. Available: http://www.kpl.gov/local-history/general/native-americans.aspx. Accessed August 10, 2015.

Kalamazoo River Watershed Council. 2011. Kalamazoo River Watershed Management Plan. Version 1.0. March.

Kalamazoo River Watershed Public Advisory Council. 1998. The Kalamazoo River: Beauty and the Beast. Remedial and Preventive Action Plan for the Kalamazoo River Watershed Area of Concern. Last major revision: April 21 1998. Available: http://kalamazooriver.org/wp-content/uploads/2012/12/Kalamazoo-River-RAP-1998.pdf. Accessed March 17, 2014.

MDEQ. 2001. Total Maximum Daily Load (TMDL) for Total Phosphorus in Lake Allegan. Michigan Department of Environmental Quality, Surface Water Quality Division. March 23. Available: http://www.michigan.gov/documents/deq/wrd-swas-tmdl-allegan_450908_7.pdf. Accessed August 14, 2014.

MDEQ, Michigan Attorney General, USFWS, and NOAA. 2000a. Preassessment Screen, Kalamazoo River Environment Site, Michigan. Prepared for Michigan Department of Environmental Quality, Michigan Attorney General, U.S. Fish and Wildlife Service, and National Oceanic and Atmospheric Administration by Stratus Consulting Inc., Boulder, CO. May 30.

MDEQ, Michigan Attorney General, USFWS, and NOAA. 2000b. Stage I Assessment Plan, Kalamazoo River Environment Site. Prepared for Michigan Department of Environmental Quality, Michigan Attorney General, U.S. Fish and Wildlife Service, and National Oceanic and Atmospheric Administration by Stratus Consulting Inc., Boulder, CO. November.

MDEQ, Michigan Attorney General, USFWS, and NOAA. 2005a. Stage I Assessment Report, Volume 1 – Injury Assessment: Kalamazoo River Environment. Prepared for Michigan Department of Environmental Quality, Michigan Attorney General, U.S. Fish and Wildlife Service, and National Oceanic and Atmospheric Administration by Stratus Consulting Inc., Boulder, CO.

MDEQ, Michigan Attorney General, USFWS, and NOAA. 2005b. Stage I Assessment Report, Volume 2 – Economic Assessment: Kalamazoo River Environment. Final Report. Prepared by Stratus Consulting Inc., Boulder, CO. March 15.

MDEQ, Michigan Attorney General, USFWS, and NOAA. 2009. Stage I Assessment Report, Volume 2 – Economic Assessment: Kalamazoo River Environment: Recreational Fishing Update. Prepared by Stratus Consulting Inc., Boulder, CO. July 16. 10p.

MDNR. 1981. Lower Kalamazoo River Natural River Plan: Allegan County. Michigan Department of Natural Resources. July.

MDNR, MDEQ, Michigan Attorney General, USFWS, and NOAA. 2016. Final Restoration Plan and Environmental Assessment, Portage Creek and Operable Unit 1 – Allied Paper Property, Allied paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Prepared by Stratus Consulting, Inc. 111 p.

MDNR, MDEQ, Michigan Attorney General, USFWS, and NOAA. 2016. Final Restoration Plan and Programmatic Environmental Impact Statement for Restoration Resulting from the Kalamazoo River Natural Resource Damage Assessment. Prepared by Abt Associates. 297 p.

MDNRE. 2010. Environmental Justice Plan for the State of Michigan and Department of Natural Resources and Environment. December 17. Available: http://newwarriorsforearth.files.wordpress.com/2011/04/mi_ej_plan.pdf. Accessed December 31, 2020.

Mulcrone, R.S. and C. Mehne. 2001. Freshwater Mussels of the Kalamazoo River, Michigan, from Battle Creek to Saugatuck. Prepared for Lisa Williams, U.S. Fish and Wildlife Service. Available: http://www.fws.gov/midwest/es/ec/nrda/KalamazooRiver/documents/mussels.pdf. Accessed December 5, 2020.

Native Land Digital. 2021. Native Lands Map at https://native-land.ca/. Accessed January 6, 2021.

NOAA. 2006. Supplemental Programmatic Environmental Assessment of NOAA Fisheries' Implementation Plan for the Community-Based Restoration Program. June. Available: http://www.habitat.noaa.gov/pdf/s_pea_june_2006_final_62306.pdf. Accessed February 16, 2016.

NOAA, USFWS, MDNR, MDEQ, and Michigan Attorney General. 2016. Record of Decision for the Kalamazoo River Natural Resource Damage Assessment: Final Restoration Plan and Programmatic Environmental Impact Statement. November 16.

Reeves, T., B. Mei, P. Bettinger, and J. Siry. 2018. Review of the effects of conservation easements on surrounding property values." Journal of Forestry 116(6): 555-62.

Thomas, C. C., Huber, C., Skrabis, K., & Sidon, J. 2016. Estimating the Economic Impacts of Ecosystem Restoration—Methods and Case Studies. U.S. Geological Survey Open-File Report 2016–1016. 98 pp.

U.S. Census Bureau. 2014. State and County QuickFacts. Data derived from Population Estimates, Census of Population and Housing, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, and Consolidated Federal Funds Report. Available: http://quickfacts.census.gov/qfd/states/. Last revised March 27, 2014. Accessed March 28, 2014.

U.S. Census Bureau. 2021. State and County QuickFacts. Data derived from Population Estimates, Census of Population and Housing, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, and Consolidated Federal Funds Report. Available:

https://www.census.gov/quickfacts/fact/table/MI,kalamazoocountymichigan/PST045219. Accessed February 16, 2021.

USFWS. 2020. Information for Planning and Consultation at https://ecos.fws.gov/ipac/. Accessed December 31, 2020.Wesley, J.K. 2005. Kalamazoo River Assessment. Fisheries Division Special Report 35. Ann Arbor, MI. Michigan Department of Natural Resources. September. Available: http://www.michigandnr.com/PUBLICATIONS/PDFS/ifr/ifrlibra/Special/Reports/sr35/SR35.pdf. Accessed March 14, 2012.

9. APPENDICES

9.1 Appendix A-1: Press Release for Submittal of Ideas

Kalamazoo River restoration ideas must be submitted by March 18

Michigan Department of Natural Resources sent this bulletin at 02/18/2020 08:45 AM EST

- NEWS -
Feb. 18, 2020
Contact: Jay Wesley (Michigan DNR), 269-204-7057

At the end of 2019, a group of state and federal natural resource trustees announced it was accepting Kalamazoo River watershed restoration project ideas that could be funded through a proposed $25 million agreement with NCR Corporation to partially settle natural resource damage claims stemming from past discharges of polychlorinated biphenyls (PCBs) into the southwest Michigan river.

The Kalamazoo River Natural Resource Trustee Council for this site (the "Kalamazoo River Trustees") welcomes project ideas submitted through its restoration portal. Ideas submitted by March 18 will be evaluated by the Kalamazoo River Trustees this spring. Project ideas submitted after March 18 will be evaluated in future rounds.

The Trustees will select project ideas for additional development and eventual funding based on 1) submitted ideas and 2) the restoration criteria described in the 2016 Final Restoration Plan and Programmatic Environmental Impact Statement, available on the Kalamazoo River website.

The Trustees will fund projects with existing funds from past claims for losses of natural resources and, if approved by the court, with funds from the settlement agreement with NCR Corporation, currently lodged with a federal district court. If approved, the NCR settlement will provide $27 million to resolve NCR's liability, of which $25 million would go toward restoration and $2 million to reimburse a portion of the Trustees' previously accrued assessment costs. The $25 million restoration funding would be paid over seven years.

The Kalamazoo River Trustees include:
Michigan Department of Environment, Great Lakes, and Energy.
Michigan Department of Natural Resources.
Michigan Department of Attorney General.
U.S. Department of the Interior, represented by the U.S. Fish and Wildlife Service.
U.S. Department of Commerce, represented by the National Oceanic and Atmospheric Administration.

For more information about the Natural Resource Damage Assessment at the Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site, visit the Kalamazoo River website.

The natural resource trustees for this Kalamazoo River site include the Michigan Department of Environment, Great Lakes, and Energy; the Michigan Department of Natural Resources; the Michigan Department of Attorney General; the U.S. Department of the Interior, represented by the U.S. Fish and Wildlife Service; and the U.S. Department of Commerce, represesnted by the National Oceanic and Atmospheric Administration.

9.2 Appendix A-2: Restoration Portal Instructions

Suggest a Project - Kalamazoo River Hazardous Waste Site

Share Your Ideas

Do you have an idea for a specific restoration project in the Kalamazoo River (https://darrp.noaa.gov/hazardous-waste/kalamazoo-river) watershed? The Natural Resource Trustees for the Kalamazoo River Superfund Site are interested in hearing from you. You can use the online portal below to provide the Trustees information about one or more projects you wish to have considered.

You can view the Trustees' project evaluation criteria in the 2016 Restoration Plan and Programmatic Environmental Impact Statement (http://pub-data.diver.orr.noaa.gov/admin-record/6723/Final_Restoration_Plan_and_Programmatic_Environmental_Impact_Statement_for_Restoration_Resulting_from_the_Kalamazoo_River_Natural_Resource_Damage_Assessment.pdf) (section 2.3). This page will be updated if there are any different criteria considered in the future. Other submission guidelines are listed below.

Restoration activities are complementary to cleanup, and will focus on restoring or enhancing ecological services in aquatic, riparian, and upland habitats. The Trustees' goals are to restore and maintain the Kalamazoo River's ecosystem similar to its structure and function before degradation by dams and pollution.

Your submission will be entered into our database (https://darrp.noaa.gov/hazardous-waste/kalamazoo-river/view-submitted-projects-kalamazoo-riverhazardous-waste-site) and reviewed. Suggested projects will be evaluated by the Trustees for consideration in project-specific restoration plans that will be subject to public review and comment.

After you've successfully submitted your information, you'll receive a confirmation number. Please keep that number for your records.

Attachments cannot be provided through the portal. If you would like to submit supplemental documents, please email them to kalamazooriver.nrda@noaa.gov (https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=kalamazooriver.nrda@noaa.gov). Be sure to reference your project's name and confirmation number in your email.

If you are having problems with the online portal, you may instead request a project idea submission form PDF by emailing kalamazooriver.nrda@noaa.gov. Once the form is completed, it can be sent to the same email address or mailed to:

NOAA Restoration Center
RE: Kalamazoo River Project Solicitation % Julie Sims
4840 S. State Rd.
Ann Arbor, MI 48108

View submitted projects that meet our posting guidelines. (https://darrp.noaa.gov/hazardous-waste/kalamazoo-river/view-submitted-projects-kalamazooriver-hazardous-waste-site)

More questions about the process? Read our FAQs (https://darrp.noaa.gov/hazardous-waste/kalamazoo-river/frequently-asked-questions-faqs).

9.3 Appendix B: Restoration Project Ideas Submitted by March 18, 2020

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14467	Garfield Lake Outlet Stream Restoration	Brian Huggett	USFWS, Michigan DNR,	project page link
14466	Nonpoint Source Loading in the Kalamazoo River	Elizabeth Rochow	Area Conservation Districts, Allegan Conservation District,	project page link
14465	Headcut on Miller Creek Tributary	Brian Talsma	DNR, Allegan Conservation District, EGLE,	project page link
14462	Adaptive Management for Aquatic Ecological Services in State-managed Lakes of the Kalamazoo River Basin	Mark Kieser		project page link
14461	Importance of Native Mussels to filtering water in the PCB impacted region of the Kalamazoo River	Daelyn Woolnough		project page link
14460	Creek habitat and connectivity study	Jamie McCarthy	City of Kalamazoo,	project page link
14459	Lake Mollusk Survey	Daelyn Woolnough		project page link
14458	Portage Creek Renaissance (multiple projects)	Mark Kieser	City of Kalamazoo, City of Portage,	project page link
14452	Restoration and augmentation of native mussel populations in the Kalamazoo watershed	Daelyn Woolnough	MDNR,	project page link
14456	Host fish to native mussels: Modeling for successful conservation of native mussels in the Kalamazoo Watershed	Daelyn Woolnough	MDNR- fisheries,	project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14454	Koopman Marsh Wetland Restoration - Feasibility Study	Don Poppe	Macatawa Bay Waterfowlers,	project page link
14453	Valley Township Waterfront Acreage Improvement	Ken Yonker		project page link
14448	Kalamazoo River Restoration (multiple ideas)	Dayle Harrison		project page link
14450	Comprehensive Water Quality Protection in the Rabbit and Gun River Watersheds	David Comeau	Gun Lake Tribe, Allegan Conservation District,	project page link
14449	Gun River Restoration	Denise Medemar	Gun River Intercounty Drain Board,	project page link
14447	Invasive species survey and treatments	Anna Kornoelje	Kalamazoo River Watershed Council,	project page link
14443	Albion Dams Removal/Restoration Feasibility Study	Darwin McClary	Michigan Department of Natural Resources,	project page link
14442	Best Management Practices along the Lower Rabbit River	Dan Callam	River's Edge Farms, Dyhuis Farms,	project page link
14441	Stream Restoration Along the Gun River	Dan Callam	Gun Lake Township, Allegan County Drain Office, Gun Plain Conservation Club,	project page link
14440	Gibson and Triskett Intercounty Drain Aquatic Habitat Restoration Project	Christine Kosmowski		project page link
14439	Construction of an Island in the Shallow Area of Kalamazoo Lake Using Dredged Contaminated Sediments:	Robert Shuchman, PhD	Allegan County,	project page link
14438	Acquisition of Prime Kalamazoo River Shoreline Frontage and Acreage	Ken Yonker		project page link
14437	Land Acquisition - Kalamazoo river frontage	Dana Burd	Land conservancy, Allegan County Parks, Saugatuck Township,	project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14436	Land Acquisition - Walker's Landing	Dana Burd	Allegan County Parks, Saugatuck Township,	project page link
14435	Land Acquisition - wetland and trail connectivity in Saugatuck Township	Dana Burd	Saugatuck Township,	project page link
14434	River Bluff Park Shoreline Restoration	Dana Burd	saugatuck township,	project page link
14433	Battle Creek River Habitat Restoration	Patty Hoch-Melluish		project page link
14432	Wetland Restoration (e.g. EGLE Weltand Map Viewer)	Todd M Losee	ODC Network,	project page link
14431	River Road & 108th Street culvert replacements	Craig Atwood	Otsego and Trowbridge Townships,	project page link
14430	Kalamazoo River Mussel Species of Greatest Conservation Need: Propagation and Standards for Conservation	Scott Hanshue	Central Michigan University,	project page link
14420	Allegan City Dam Removal and Riverfront Revitalization	Joel Dye	Perrigo Corporation, Michigan Department of Environment, Great Lakes, Energy, Outdoor Discovery Center, Kalamazoo River Natural Resource Damage Trustees, Michigan Department of Natural Resources, Allegan Conservation District, Allegan District Library, Positively Allegan,	project page link
14428	Rabbit River Preserve Habitat Preservation	Dan Callam		project page link
14427	Manlius Township Land Protection	Dan Callam		project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14426	M-40 over Bear Creek	Richard Stack	Michigan Department of Natural Resources,	project page link
14425	Saugatuck Township Land Preservation	Dan Callam		project page link
14424	Valley Township water well for rire control and prevention	Ken Yonker		project page link
14423	Kalamazoo River 100 year lease-modified-buy back	Ken Yonker		project page link
14422	Allegan Resettlement Camp Marker	Ken Yonker		project page link
14411	Repair eroding bank site on the Kalamazoo River	Matt Diana	Office of the Drain Commissioner, Kalamazoo County Road Commission, Four Township Water Resources Council, Cooper Township, Kalamazoo River Watershed Council,	project page link
14419	Echo Point Boat Dock and dredging	Ken Yonker	Consumer's Energy,	project page link
14418	Allegan County Heritage Trail Program	Ken Yonker	Check with Allegan County Parks/Tourism area,	project page link
14417	Grass,and rice beds and structure planting in Morrow pond	Chad Thomas		project page link
14416	Superfund site "Eat Safe Fish" fish consumption advisory-signage	Ken Yonker		project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14415	Habitat improvement and recreational improvement in the downriver Calkin Hydrodam area	Ken Yonker		project page link
14414	Rabbit River Fish Spawning Habitat Restoration	Brian Talsma	City of Wayland, Hopkins Public Schools, Michigan DNR, Stealheaders, Allegan Drain Commission, Trout Unlimited, EGLE,	project page link
14412	Boat Docks on Allegan Lake	Lynn Matt		project page link
14410	Veldhoff County Drain restoration	Jason Combs		project page link
14409	Portage Creek Restoration at Milham Park – Phase II	Patrick McVerry	Stantec Consulting Services, Inc.,	project page link
14408	Supporting Agricultural Best Management Practices in the Kalamazoo River Watershed	Brian Talsma	Eaton Conservation District, Van Buren Conservation District, Barry Conservation District, Calhoun Conservation District, Allegan Conservation District, Kalamzoo Conservation District, Hillsdale Conservation District, Jackson Conservation District,	project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14407	Kirby Rd at Waubascon Creek Crossing Replacement	Brian Kernstock		project page link
14394	Travis Drain - 19th Street Culvert Replacement	Rebekkah Ausbury	Kalamazoo County Office of Drain Commissioner,	project page link
14392	CD Avenue Culvert Replacement Over Spring Brook Tributary	Rebekkah Ausbury	Richland Township,	project page link
14400	Davis-Olmsted Drain Improvement	Rebekkah Ausbury	Kalamazoo County Office of the Drain Commissioner,	project page link
14397	Culvert Replacements throughout Ross Township	Rebekkah Ausbury	Ross Township,	project page link
14399	Waubascon Rd over Tributary of Waubascon Creek Crossing Replacement	Brian Kernstock		project page link
14391	Urban Wildlife Corridor	Nancy Stoddard	City of Parchment	project page link
14390	Rabbit River Fish Spawning Habitat Restoration	Brian Talsma	City of Wayland, Hopkins Public Schools, Michigan DNR, Stealheaders, Allegan Drain Commission, Trout Unlimited, EGLE,	project page link
14388	Commerce Lane Railroad Trestle Restoration Project	Nancy Stoddard		project page link
14385	Naturalization of Concrete Channel in Battle Creek	Carl Fedders	USACE,	project page link
14384	Rabbit River Tributary Restoration	Julie Hulsey	Outdoor Discovery Center,	project page link
14383	Kirby Rd. at Sevenmile Creek Crossing Replacement	Brian Kernstock		project page link
14378	Plainwell Mill Stream Dam and Plainwell Dam #2 remnants removal	Kenneth Kornheiser	City of Plainell, DNR,	project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14381	140 acre Nature Preserve Acquisition in Allegan on the Kalamazoo River	Hilary Hunt	Southwest Michigan Land Conservancy	project page link
14377	29.5 Mile Road Bridge Replacement	Brian Kernstock		project page link
14376	Riverwalk Extension	Joel Saukas	City of Otsego, Michigan Department of Natural Resources,	project page link
14375	Evaluate Augusta Creek Area for Habitat Conservation, and Riparian and wetland habitat restoration	Scott Hicks		project page link
14373	Trowbridge Township River Access / Recreation / Wildlife Area	Paul Ruesch	Brandy Gildea, Michigan EGLE, Dennis McKee, U.S. EPA Region 5, Don Poppe, Outdoor Discovery Center, Joel Dye, Trowbridge Township, Allegan County Board, Allegan County, Mark Mills, Mannik Smith,	project page link
14370	Access for small craft	Bernard Campos		project page link
14369	Kalamazoo River Recreation Plan	Lee Adams		project page link
14367	Riparian and Wetland Habitat Preservation and Restoration	Jessica Mistak		project page link
14364	Protect Nesting Area for Kalamazoo River Turtles	Lisa Williams	Enbridge Line 6B Trustee Council, U.S. Fish and Wildlife Service,	project page link
14363	Collaboration with renowned mycologist Paul Stamets to breakdown PCBs using fungus	Evan Driscoll		project page link

Project ID	Project Title	Project Contact	Partner Organization	Link to Project Page
14362	Elijah Root Dam Removal	Kathleen Hoyle	In Process,	project page link
14356	Removal of concrete river channel	John H. Macfarlane		project page link
14355	Plainwell Dam No. 2 (up-stream)	Erik		project page link
14354	Kalamazoo River Access Points	Alex Stucky		project page link
14353	Kalamazoo River Disc Golf Complex	Tim Kopacz	UP Disc Golf Association,	project page link
14350	Swan Creek Dam Removal	Mills, Mark	Kalamazoo Valley Trout Unlimited, Allegan County Road Commission,	project page link
14098	Sturgeon Spawning Habitat	Jay Wesley	Gun Lake Tribe, Consumers Energy,	project page link
14091	Concrete Channel Removal and River Restoration in the City of Battle Creek	John Riley	City of Battle Creek, USACE,	project page link
14090	Concrete Channel Removal and River Restoration in the City of Battle Creek	John Riley	City of Battle Creek, USACE,	project page link
14089	Plainwell Dam #1 TCRA Area Restoration - spillway removal	Mark Mills	Kalamazoo River NRD Trustee Council, MDEGLE, City of Plainwell,	project page link
14088	Plainwell #2 Dam and Raceway Structure Replacement	Mark Mills	Michigan DEGLE, City of Plainwell,	project page link

9.4 Appendix C: Local Agencies, Non-Governmental Organizations, and Others Consulted

This table includes people who provided comments to the Trustees on the 2016 Programmatic Restoration Plan or in meetings and correspondence since the publication of that document and people to whom the Trustees have provided notices of meetings and availability of documents.

Name	Agency or Organization	Organization Type
Jeffrey K. Conner	MSU-Kellogg Biological Station	Academia
Michelle DeLong	EGLE	Agency
Sue Virgilio	EPA GLNPO	Agency
Christine Kosmoski	MDARD Inter-County Drain Program	Agency
Diane Russell	U.S. EPA	Agency
Jim Saric	U.S. EPA	Agency
R.J. Peterson	Tower Marine	Business
Tori Harris	Allegan Conservation District	Conservation
Sarah Nelson	Barry County Conservation District	Conservation
Rick Pierson	Calhoun Conservation District volunteer	Conservation
Maureen Reed	Calhoun County Conservation District	Conservation
Chris Tracy	DNR NRC Commissioner	Conservation
Sue Spagnuolo	Eaton County Conservation District	Conservation
Elizabeth Rochow	Kalamazoo County Conservation District	Conservation
Jean Gagliardo	Kalamazoo County NRCS	Conservation
Scott Kipp	City of Albion	Local Government
Joel Dye	City of Allegan	Local Government
Carl Fedders	City of Battle Creek	Local Government
Ted E. Dearing	City of Battle Creek	Local Government
Andy Helmboldt	City of Battle Creek - Commissioner	Local Government
Gregg Guetschow	City of Charlotte	Local Government
William LeFevere	City of Douglas	Local Government
Lori West	City of Galesburg	Local Government

Name	Agency or Organization	Organization Type
Jamie McCarthy	City of Kalamazoo	Local Government
Jim Ritsema	City of Kalamazoo	Local Government
Tom Tarkiewicz	City of Marshall	Local Government
Laura Barlond-Maas	City of Olivet	Local Government
Aaron Mitchell	City of Otsego	Local Government
Nancy Stoddard	City of Parchment	Local Government
Eric Wilson	City of Plainwell	Local Government
Laurence Shaffer	City of Portage	Local Government
Kirk Harrier	City of Saugatuck	Local Government
Joshua Eggleston	City of Wayland	Local Government
Randy Thompson	Comstock Township	Local Government
Ronald L. Jones	Heath Township	Local Government
Mark Evans	Hopkins Township	Local Government
Pat Crowley	Kalamazoo County Drain Commissioner	Local Government
Alyssa Milbeck	Portage Parks and Recreation	Local Government
Jeff Heppler	Vilage of Augusta	Local Government
Travis Brininstool	Village of Bellevue	Local Government
Jason Mockeridge	Village of Concord	Local Government
Jeffery L. Heath	Village of Hanover	Local Government
Brent Michael	Village of Homer	Local Government
Dave Middleton	Battle Creek Steelheaders	Non-profit
Sarah Reding	Kalamazoo Nature Center	Non-profit
Dayle Harrison	Kalamazoo River Protection Association	Non-profit
Paul Tulgetske	Kalamazoo Valley Trout Unlimited	Non-profit
Ron Clark	Kazoo Sturgeon for Tomorrow	Non-profit
Dennis Eade	Michigan Steelheaders	Non-profit
Travis Williams	Outdoor Discovery Center	Non-profit
Emily Wilke	Southwest Michigan Land Conservancy	Non-profit

Name	Agency or Organization	Organization Type
Peter TerLouw	Southwest Michigan Land Conservancy	Non-profit
Nicole Wood	Whitehouse Nature Center - Albion College	Non-profit
Conor Macfarlane	3Eye Technologies	RP/PEIS commenter
Danielle Zebell	3Eye Technologies	RP/PEIS commenter
Mandi Weiss	3Eye Technologies	RP/PEIS commenter
TJ Hagist	3Eye Technologies	RP/PEIS commenter
Larry Rizor	Archtects Incorporated	RP/PEIS commenter
Karen Weideman	Battle Creek resident	RP/PEIS commenter
Mark Stuart	Battle Creek resident	RP/PEIS commenter
Nancy Mcfarlane	Battle Creek resident	RP/PEIS commenter
Rick Baron	Battle Creek resident	RP/PEIS commenter
Stephanie Turk	Battle Creek resident	RP/PEIS commenter
Tanner Beuchler	Battle Creek resident	RP/PEIS commenter
Wendy Sosville	Battle Creek resident	RP/PEIS commenter
Max Miller	GVSU student	RP/PEIS commenter
John Mcfarlane	Mumford, Schubel, Macfarlane & Barnett	RP/PEIS commenter
Britteny Hilley	Previous commenter	RP/PEIS commenter
Dale Borske	Previous commenter	RP/PEIS commenter
Kelly Lavery	Previous commenter	RP/PEIS commenter
Ralph Haefner	USGS	RP/PEIS commenter
Liz Binoniemi-Smith	Gun Lake Tribe	Tribal
John Rodwan	Nottawaseppi Huron Band	Tribal
Grant Poole	Pokagon Band of Potawatomi	Tribal
Steve Allen	Four Township Watershed Resources Council	Watershed group
Kenny Kornheiser	Kalamazoo River Watershed Council	Watershed group
Patty Hoch-Melluish	Kalamazoo River Watershed Council	Watershed group
Brian Jones	International Paper	PRPs

Name	Agency or Organization	Organization Type
Joe Abid	Consultant for Georgia Pacific (Wood)	PRPs
Mark Kieser	Kieser & Associates, LLC	Consultant
Rob Myllyoja	Stantec	Consultant
Jim Haadsma	Michigan House (Battle Creek)	Legislative
Matt Hall	Michigan House (Emmet Twp)	Legislative
Julie Alexander	Michigan House (Hanover)	Legislative
Brandt Iden	Michigan House (Kalamazoo)	Legislative
John Hoadley	Michigan House (Kalamazoo)	Legislative
Luke Meerman	Michigan House (Polkton Twp)	Legislative
Steven Johnson	Michigan House (Wayland)	Legislative
Dr. John Bizon	Michigan Senate (Battle Creek)	Legislative
Tom Barrett	Michigan Senate (Charlotte)	Legislative
Mike Shirkey	Michigan Senate (Clarklake)	Legislative
Sean McCann	Michigan Senate (Kalamazoo)	Legislative
Aric Nesbitt	Michigan Senate (Lawton)	Legislative
Fred Upton	U.S. House	Legislative
Justin Amash	U.S. House	Legislative
Tim Walberg	U.S. House	Legislative
Debbie Stabenow	U.S. Senate	Legislative
Gary Peters	U.S. Senate	Legislative