

FEDERAL EMERGENCY MANAGEMENT AGENCY
FINDING OF NO SIGNIFICANT IMPACT
Flint River Flood Mitigation Project
Saginaw County, Michigan
FEMA-DR-1346-MI, NEMIS ID #A1346.53

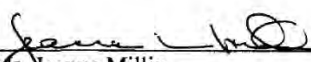
The Flint River Erosion Control Board in Saginaw County, Michigan, has applied for HMGP Section 404 funding under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Grant funds are provided by Federal Emergency Management Agency (FEMA) under this program for disaster-related mitigation projects. The purpose of the Proposed Action is to prevent damages associated with the 10-year storm event along an eight-mile stretch of the Flint River in Albee, Spaulding, and Taymouth Townships in Saginaw County, Michigan. The project would reduce or prevent damages to the residences, agricultural land, roads, and infrastructure from overland flooding. The need for this project is to reduce the risk to human health and safety associated with flooding, and to minimize the economic loss and hardship to the community from the costs associated with repeated flood damages. The Proposed Action would involve construction of flood mitigation measures at seven individual locations along Flint River and would include the reconstruction of existing earthen dikes and construction of a floodway shelf, a storage reservoir, and two wetland areas.

In accordance with 44 Code of Federal Regulations (CFR) for FEMA, Subpart B -Agency Implementing Procedures, Part 10.9, an Environmental Assessment (EA) was prepared pursuant to Section 102 of the National Environmental Policy Act of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (40 CFR Parts 1500-1508). The purpose of the EA was to analyze the potential environmental impacts for the Plaster Creek Flood Mitigation project and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONS!).

Based upon the conditions and information contained in the EA for the Flint River Flood Mitigation Project (April 2006) and in accordance with FEMA's regulations in 44 CFR Part 10 (Environmental Considerations) and Executive Orders 11988 (Floodplain Management), 11990 (Protection of Wetlands), and 12898 (Environmental Justice), FEMA concluded the following:

A Finding of No Significant Impact. The proposed project, as described in the EA, will not result in any significant adverse impacts to existing land use, water resources (surface water, groundwater, wetlands, waters of the United States, and floodplains), air quality, noise, biological resources (vegetation, fish and wildlife, state-and federally listed threatened or endangered species and critical habitats), safety issues, hazardous materials and waste, and cultural resources, or result in disproportionately high or adverse effects on minority or low-income populations. Therefore, an Environmental Impact Statement will not be prepared.

APPROVAL


 Ms. Jeanne Millin
 Regional Environmental Officer
 FEMA, Region V

Date: May 22, 2006

Draft Environmental Assessment

Flint River Flood Mitigation Alternatives Flint River Erosion Control Board

FEMA-DR-1346-MI

Saginaw County, Michigan

HMGP Project No. A1346.53

April 2006



FEMA

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List of Acronyms

APE	Area of Potential Effect
BMPs	Best Management Practices
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CO	Carbon Monoxide
CSO	combined sewer overflow
CWA	Clean Water Act
CY	cubic yards
dB	decibels
dBA	A-weighted sound levels
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FRFCP	Flint River Flood Control Project
HMGP	Hazard Mitigation Grant Program
HUC	hydrologic unit code
LF	linear feet
Lp	sound pressure level
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
NAAQS	National Ambient Air Quality Standards
NCA	Noise Control Act
NEPA	National Environmental Policy Act

NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NRCS	Natural Resources Conservation Service
NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O ₃	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
P.L.	Public Law
PM-10	Particulate Matter with a diameter less than or equal to 10 microns
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
SHPO	State Historic Preservation Officer
SO ₂	Sulfur Dioxide
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V:H	Vertical:Horizontal
VOCs	Volatile Organic Compounds
WQS	Water Quality Standards

Section One - Introduction

1.1 PROJECT AUTHORITY

Severe storms and flooding occurred on September 10 and 11, 2000 in the State of Michigan, leading the Federal Emergency Management Agency (FEMA) to issue a Federal disaster declaration, DR-1346-MI, on October 17, 2000. Under this declaration, Oakland and Wayne Counties became eligible for Individual Assistance, and all counties within the State became eligible for funding through the Hazard Mitigation Grant Program (HMGP).

The Flint River Erosion Control Board (Applicant) in Saginaw County, Michigan, applied for HMGP Section 404 funding under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Grant funds are provided by FEMA under this program for disaster-related mitigation projects. In accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10), FEMA must fully understand and consider the environmental consequences of actions proposed for Federal funding. The purpose of this Environmental Assessment (EA) is to meet FEMA's responsibilities under NEPA and determine whether to prepare a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS) for the proposed project. As part of this NEPA review, the requirements of other environmental laws and Executive Orders (EOs) are also addressed.

1.2 PROJECT LOCATION AND SETTING

The project area consists of seven sites along an 8-mile stretch of the Flint River located within the Townships of Albee, Spaulding, and Taymouth, in Saginaw County, Michigan (Figure 1, Appendix A). Saginaw County is located in the east central portion of Michigan. The portion of Saginaw County in which the project area is located is known as the Saginaw Valley, which is primarily an agricultural area that consists of 11,145 acres of highly productive and fertile farmland, 340 residences, and 6 commercial businesses.

The growth of urban areas within the upstream headwater areas of the Flint River watershed (e.g., the City of Flint, in Genesee County, Michigan) has increased impervious surfaces and reduced natural overflow areas along the Flint River. As a result, the volume and velocity of flow has also increased and subsequently led to an increase in the frequency and intensity of flood events within the downstream segment of the Flint River, including the project area. The project area was flooded more than 20 times since 1948 (HMGP Application, 2001).

As a temporary flood control measure, individual property owners created a patchwork of un-engineered earthen dikes along the river to prevent flooding of their crops and residences. However, these earthen dikes were prone to erosion, washouts, and overtopping. In an effort to create a more sustainable solution to reducing flood damage within the project area, the Applicant, in consultation with the Michigan Department of Environmental Quality (MDEQ), developed the Flint River Flood Control Project (FRFCP) for the Flint River Erosion Control Board District (the district corresponds to approximately the 100-year floodplain).

The FRFCP proposes engineered flood control measures for the entire 24-mile stretch of the Flint River in the project area. The FRFCP includes the reconstruction of existing un-engineered earthen dikes, the excavation of floodway shelves, and the construction of storage reservoirs. The FRFCP was implemented in 1989, and dike reconstruction activities occurred in 1989, 1991, 2001, and 2002; these activities completed 52 percent of the FRFCP. The remainder of the construction is on hold due to lack of funding.

In compliance with Phase II of the National Pollutant Discharge Elimination System (NPDES) permit, Genesee County has recently prepared a stormwater management plan for the portions of the Flint River watershed that occur within its boundaries (GCDC, 2006). The goal of the stormwater management plan is to recognize and catalog the current conditions that impact the water quality of the Flint River and its tributaries, address actions that can be taken to resolve existing problems and prevent future degradation.

1.3 PURPOSE AND NEED

The purpose of the action alternatives presented in this EA is to prevent damages associated with the 10-year storm event along an eight-mile stretch of the Flint River in Albee, Spaulding, and Taymouth Townships in Saginaw County, Michigan. The action alternatives would reduce or prevent damages to the residences, agricultural land, roads, and infrastructure from overland flooding. The need for this project is to reduce the risk to human health and safety associated with flooding, and to minimize the economic loss and hardship to the community from the costs associated with repeated flood damages. In recent flood events, about 50 homes were affected by the flooding.

Section Two – Alternative Analysis

This EA discusses three alternatives for meeting the project's purpose and need as discussed in Section 1.3: Alternative 1 – No Action; Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action); and Alternative 3 – Elevation, Relocation, or Acquisition of Flood-prone Structures.

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, no additional improvements or flood mitigation measures would be implemented. Flooding would continue to occur along the unimproved portions of the dike system within the project area until the Applicant could obtain alternative funding to complete the Flint River Flood Control Project. Moreover, the full benefits of the work already completed (i.e., the portions of the dike system improved in 1989, 1991, 2001, and 2002) would not be realized due to the continued erosion, washouts and overtopping of the unimproved existing earthen dikes during flood events. Future flooding would continue to negatively affect agricultural crops, residences, and businesses.

2.2 ALTERNATIVE 2 – DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (PROPOSED ACTION)

The Proposed Action would complete the remaining 48 percent of the Flint River Flood Control Project within seven individual project sites, as described below and shown on Figure 2 in Appendix A. To complete this flood control project, the reconstruction of existing earthen dikes, construction of a floodway shelf, a storage reservoir, and two wetland areas are proposed. In addition, this alternative would require the relocation of one farm residence. The improvements would prevent floodwaters from overtopping dikes up to, and including, a 10-year storm event, and is expected to have a 50-year useful life.

Existing earthen dikes would be reconstructed and offset from current locations (Figures 3 and 4, Appendix A). The reconstructed dikes would be aligned with the previously improved dike sections within the project area and would be constructed to U.S. Army Corps of Engineers (USACE) standards. A total of 404,800 cubic yards of excavated material resulting from the construction of the floodway shelf and reservoir would be used to reconstruct 53,900 linear feet (LF) of earthen dike. The project dikes would be constructed as a trapezoidal shape with a 2:1 vertical: horizontal (V:H) side slope, and a top width of at least 12 feet. A minimum 10-foot wide floodway shelf would be constructed between the edge of the river and the toe-of-slope of the reconstructed dike. The dikes on the opposite sides of the river would be located at a minimum of 380 feet apart

Prior to construction, the excavated material that would be used for levee construction would be tested and certified as clean-fill. Should any of the excavated material tests positive for contaminants, that material would be disposed of at a facility permitted to receive such material. No contaminated sediments or soils would be used to construct the levees.

Additionally, though most of the material would come from on-site, when on-site material is inadequate, off-site material would be brought in. During construction, an inspector would be on-

site to monitor materials and would halt construction if materials are not sufficient to meet the USACE standard. Soils would be compacted to 90 percent in 12-inch layers in accordance with the Standard Proctor Test.

Additional floodwater containment would be created from the construction of a 24-acre storage reservoir near levee segment five, and the creation of 7.2 acres of wetlands (refer to Figure 2, Appendix A). The floodway shelf would provide a place for sediment to drop out when flow returns to a normal base flow, and would increase the floodwater containment area and minimize bank erosion.

The reconstructed dikes would be located within existing easements through private properties that are within the Applicant's jurisdiction, or on expanded easements that would be acquired by the Applicant. Access to the project area would be obtained either via public road or from adjacent farmland properties. No work is proposed within the waterway of the Flint River.

The Applicant is developing an Operations and Maintenance (O&M) Plan for the flood control structures associated with this alternative. The O&M Plan must be adopted prior to final approval of the EA and signing of the FONSI by FEMA.

2.2.1 Project Segment 1

This proposed project segment would reconstruct a dike along an existing ditch within Spaulding Township, Section 15. The project would create 5,000 LF of dike from 15,000 cubic yards (CY) of on-site material along the south side of Evon Road (Section A) and along the eastern border of the Shiawassee National Wildlife Refuge. Construction activities would widen an existing ditch and reconstruct the existing earthen dike. The reconstructed dike would have a 0.000 percent grade and the top of dike elevation would be 590.0 feet above National Geodetic Vertical Datum (NGVD). The new dike would be aligned with an existing dike that was previously reconstructed in 1990. The estimated area to be impacted is 10 acres.

2.2.2 Project Segment 2

This proposed project segment would reconstruct a dike along the north side of an existing ditch within Spaulding Township, Sections 21, 22, and 28. The project would create 5,000 LF of dike from 20,000 CY of on-site material within the Shiawassee National Wildlife Refuge between Birch Run Creek and Spaulding Drain. Construction activities would widen the existing ditch and reconstruct the existing earthen dike. The reconstructed dike would have a 0.018 percent grade and the top of dike elevation would range from 592.0 feet above NGVD to 592.9 feet above NGVD. The new dike would be aligned with an existing dike along Spaulding Drain that was previously reconstructed in 1989. The estimated area to be impacted is 10 acres.

2.2.3 Project Segment 3

This proposed project segment would reconstruct a dike and floodway shelf on both sides the Flint River within Spaulding Township, Sections 32 and 33. This project would create 14,400 LF of dike from 43,200 CY of on-site material between the along the portion of Flint River known as Old Flint River (from the confluence of Flint River and Spaulding Drain, near the Curtis Road bridge, to the confluence of Flint River and Misteguay Creek). Both the reconstructed north and

south dikes would have a 0.000 percent grade and the top of dike elevation would be 594.0 feet above NGVD. The proposed dike would be aligned with an existing dike near Curtis Road that was previously reconstructed in 1989. The estimated area to be impacted is 33 acres.

2.2.4 Project Segment 4

This proposed project segment would reconstruct a dike and floodway shelf on both sides the Flint River within Spaulding Township, Sections 35. This project would create 6,400 LF of dike from 64,000 CY of on-site material between Bueche Road and East Road (Michigan State Route 13). The proposed top of dike elevation of the north dike ranges from 597.5 feet above NGVD to 598.4 feet above NGVD, while the top of dike elevation of the south dike ranges from 598.4 feet above NGVD to 599.4 feet above NGVD. The proposed dikes would be aligned with existing dikes that were previously reconstructed in 1990, 1998, and 2002. The estimated area to be impacted is 28 acres.

2.2.5 Project Segment 5

This proposed project segment would reconstruct a dike and floodway shelf on both sides the Flint River within Albee Township, Section 1 and Spaulding Township, Section 36. This project would create 15,800 LF of dike from 189,600 CY of on-site material between East Road (Michigan State Route 13) and Sheridan Road. The proposed top of dike elevation of the north dike ranges from 600.1 feet above NGVD to 602.2 feet above NGVD, while the top of dike elevation of the south dike ranges from 600.0 feet above NGVD to 602.2 feet above NGVD. The proposed dikes would be aligned with an existing dike that was previously reconstructed in 1989. The estimated area to be impacted by dike and floodway shelf reconstruction is 55 acres.

In addition, the construction of a floodwater storage reservoir, two wetland areas are proposed within this project segment. The reservoir would be located within a 24-acre agricultural field located between a large river meander. Water would enter the reservoir through a 250 LF spillway on the east side of the reservoir and discharge on the west side of the reservoir through an 18-inch corrugated metal pipe (CMP). The existing agricultural property would be seeded to support permanent grass vegetation. Two wetland areas (2.9 acres and 4.3 acres, respectively) would be excavated to an elevation of 590.0 feet above NGVD along the edge of the Flint River. The wetland areas will be seeded with a wetland seed mix. The new floodway shelf would help to alleviate potential erosion damage.

To accommodate the improvements proposed within this project segment, one residence located within the floodplain, at property parcel 1001-000, Albee Township near Sheridan Road, would be acquired and demolished. In addition, three outbuildings (two sheds and one barn) would be removed from this property.

2.2.6 Project Segment 6

This proposed project segment would reconstruct a dike and floodway shelf on the south side of the Flint River within Taymouth Township, Section 7. This project would create 5,000 LF of dike from 50,000 CY of on-site material between Malone Road and Seymour Road. The reconstructed dike would have a 0.022 percent grade and the top of dike elevation would range from 603.40 feet above NGVD to 604.0 feet above NGVD. The proposed dike would be aligned with an existing

dike that was previously reconstructed in 1989. The estimated area to be impacted by dike and floodway shelf reconstruction is 17 acres.

2.2.7 Project Segment 7

This proposed project segment would reconstruct a dike and floodway shelf on the north side of the Flint River within Taymouth Township, Section 8. This project would create 2,300 LF of dike from 23,000 CY of on-site material between the Central Michigan Railway and the eastern border of the Flint River Flood and Erosion Control District. The reconstructed dike would have a 0.022 percent grade and the top of dike elevation would range from 605.6 feet above NGVD to 606.0 feet above NGVD. The proposed dike would be aligned with an existing dike that was previously reconstructed in 2001. The estimated area to be impacted by dike and floodway shelf reconstruction is 8 acres.

2.3 ALTERNATIVE 3 – ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD- PRONE STRUCTURES

Under Alternative 3, existing flood-prone structures within the 10-year floodplain would be elevated, relocated, or voluntarily acquired. As such, the costs associated with the damage, potential safety hazards, and disruption of life caused by repeated flooding of these structures would be reduced or eliminated.

Approximately 200 residences and six commercial structures are located within this flood hazard area. The flood-prone structures would be evaluated to determine the most suitable method of flood protection. Elevating the flood-prone structures to a height determined to be out of the flood hazard area is the preferred protection method, because this method would cause the least inconvenience to the property owner. If elevation is not feasible, relocating the flood-prone structures to other areas within same parcel, or to another parcel, that are located outside of the flood hazard area would be considered. If it is determined that the structure cannot be relocated, due to the integrity of the structure or because no suitable relocation areas are available, then the flood-prone structures would be purchased by FEMA in a voluntary acquisition program.

The FEMA-acquired structures would be demolished. Debris material from the demolished structures would be disposed of at a facility permitted to receive such material. The land vacated by relocated or demolished structures would be graded to the existing contours and seeded with a grass mix to stabilize the soils. Land use restrictions would prohibit the construction of new residential or commercial structures within the flood hazard area. Farmland adjacent to the protected flood-prone structures could continue to be cultivated.

2.4 ALTERNATIVES CONSIDERED AND DISMISSED

Both structural and non-structural alternatives for the FRFCP were provided for consideration by the USACE (USACE, 1982). A summary of these alternatives and the reason for their dismissal is provided in this section.

Nonstructural Alternative: NFIP Participation

Under this alternative, the project area would be covered under FEMA's existing National Flood Insurance Program (NFIP). The NFIP provides funding for reimbursement of structural damage losses and only includes coverage for buildings. However, flooding in the Flint River area of the Shiawassee Flats mainly affects agricultural land. Therefore, by only participating in the NFIP, agricultural lands would not be sufficiently protected. This alternative would not meet the purpose and need of this project to prevent or reduce damages to agricultural lands and was dismissed.

Structural Alternative: Upstream Reservoirs

Potential reservoir sites were identified and evaluated for drainage area, pond area, reservoir storage, and the amount of runoff that could be stored for the catchment area. Very few reservoir sites qualified for further consideration. Ultimately it was determined that the reservoirs would not significantly reduce the flood problems within the Flint River area of the Shiawassee Flats. Therefore, this alternative did not meet the stated purpose and need for the project and was dismissed.

Structural Alternative: Levees to Protect Against 100-Year Event

This alternative would be similar to Alternative 2 with the exception of constructing the levees to protect against the 100-year event. However, this alternative would not meet MDEQ permitting requirements due to the potential for adverse effects to upstream and downstream communities. Since this alternative would not receive state permitting approval, it was dismissed.

Section Three – Affected Environment and Environmental Consequences

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Seismicity and Soils

3.1.1.1 Geology

The project area lies within the Michigan Basin, a large regional structure composed of a variety of strictly sedimentary rocks that were deposited in the Paleozoic Era, Cambrian through Pennsylvanian Periods, when the Basin was inundated six times by saltwater seas (Martin, 1957). Bedrock in Saginaw County is the Saginaw Formation, Pottsville Series and consists of sandstone, siltstone, shale, and limestone. According to the Michigan Department of Environmental Quality (MDEQ), Geological Survey Division, Jurassic Red Beds are also present in areas, particularly in the western portion of the county (1987). The depth to Precambrian granite is at least 5,000 feet (Martin, 1957).

Following an extensive period of erosion during the Mesozoic and most of the Cenozoic Eras, ice sheets advanced during the Pleistocene Epoch. Most of Saginaw County was covered in till, and then completely covered by ancestral Saginaw Bay as the glaciers retreated (Martin, 1957). Quaternary lacustrine sediments dominate the geology of the project area. The western half of the project area is covered in sediments of gray to dark reddish-brown lacustrine clay and silt of up to 32.8 feet (10 meters) in thickness. The eastern half of the project area is characterized by up to 98.4 feet (30 meters) of coarser, pale brown to pale reddish-brown lacustrine sand with lenses of gravel. These coarser sediments likely indicate former beaches and littoral deposits of glacial lakes (MDEQ, 1982). The topography of the Saginaw Valley region surrounding the project area is relatively flat.

3.1.1.2 Seismicity

Saginaw County lies in an area of low seismic activity. According to the United States Geological Survey (USGS) National Earthquake Information Center, no significant earthquakes (Modified Mercalli Intensity VII or more) have occurred in Michigan in the last 50 years. The last significant earthquake was of a magnitude 4.4 and occurred in 1947 (USGS, 2005a). The USGS National Seismic Hazard Mapping Project indicates that Saginaw County has a low probability of seismic activity (USGS, 2005b).

3.1.1.3 Soils

Two soil associates underlie the project area: the Sloan-Zilwaukee-Misteguay Association (Project segments 1, 2, 3, 4, and 5), and the Pipestone-Granby-Wixom Association (Project segments 6 and 7) (USDA, 1994). According to the Soil Survey of Saginaw County, Michigan (USDA, 1994), seven soil units are mapped within the project area. Project Segment 1 is mapped as Zilwaukee-Misteguay complex, frequently flooded (94) and Chesaning-Cohoctah complex, rarely flooded (96). Project Segment 2 is mapped as Zilwaukee-Misteguay complex, rarely flooded (59). Project Segments 3, 4, 5, 6, and 7 are primarily mapped as Sloan-Ceresco complex rarely flooded (95). Portions of Project Segment 3 are also mapped as Zilwaukee-Misteguay complex, rarely flooded

(59) and Sloan silt loam, rarely flooded (69). Portions of Project Segment 6 are also mapped as Pipestone sand, loamy substratum, 0 to 3 percent slopes (31A). Portions of Project Segment 7 are also mapped as Pipestone sand, loamy substratum, 0 to 3 percent slopes (26A). Figure 5 in Appendix A depicts the mapped soil units within the project area.

3.1.1.3.1 Prime and Unique Farmland

All of the mapped soils underlying the seven proposed project segments are classified as prime farmland soils (USDA, 1994). Prime farmland is defined as land best suited for the production of food, feed, forage, fiber, and oilseed crops (USDA, 1994). The Farmland Protection Policy Act (FPPA) was enacted in 1981 (Public Law [P.L.] 98-98) to minimize the unnecessary conversion of farmland to non-agricultural uses as a result of Federal actions. Programs administered by Federal agencies must be compatible with state and local farmland protection policies and programs. The Natural Resources Conservation Service (NRCS) is responsible for protecting significant agricultural lands from irreversible conversions that result in the loss of an essential food or environmental resource.

Alternative 1 – No Action Alternative

Impacts to geology and seismicity would not occur under this alternative, as no construction would occur. Soils within and adjacent to the project area, including prime farmland, would continue to be adversely impacted from erosion and inundation associated with 10-year storm events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Implementation of the Proposed Action would have no impact on the existing geologic or seismologic conditions of the area. Under the Proposed Action, approximately 192 acres of soils, including prime farmland, would be directly impacted by activities associated with the reconstruction of existing earthen dikes, the excavation of a floodway shelf and the creation of a floodwater storage reservoir. A total of 404,800 cubic yards of excavated material resulting from the construction of the floodway shelf and reservoir would be used to reconstruct 53,900 LF of earthen dike. Prior to construction, these soils would be tested and certified as clean fill. Should any of the excavated material test positive for contaminants, that material would be disposed of at a facility permitted to receive such material.

All of the soils mapped for the project area have been classified by the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) as having limitations for dike construction due to seepage, piping, or wetness. According to Wilcox Engineering, the existing on-site soils are adequate for construction of the Proposed Action (Niethammer, 2006). Moreover, the previously reconstructed dikes (improved in 1983, 1991, 200, and 2001) adjacent to the project area were designed using the same soils types as the soils proposed for use with the Proposed Action and these dikes have not shown evidence of deterioration associated with the USDA/NRCS identified soil limitations (Niethammer, 2006).

Potential adverse impacts include soil loss due to erosion associated with construction activities. Erosion would be minimized through the compliance of the sediment and erosion control Best Management Practices (BMPs) in the MDEQ permits issued for the Proposed Action. Sediment and erosion control BMPs include installing silt fences and hay bales at the limits-of-disturbance,

seeding and mulching exposed soils shortly after disturbance, and placing erosion control fabric on the dikes. In addition, no more than 1,000 LF of the existing earthen dikes will be reconstructed at one time, which will minimize and control soil disturbance within a construction area.

Approximately 186 acres of land mapped as prime farmland soils would be impacted to accommodate the Proposed Action's structural flood control improvements. However, the majority of the soils within the project area have already been taken out of agricultural production to create the existing earthen dikes that the Proposed Action would reconstruct. The Proposed Action is consistent with FPPA and Michigan farmland protection objectives since it would ultimately protect thousands of acres of prime farmland soils that are actively cultivated from damages associated with storms up to and including the 10-year storm event. In their letter to the Applicant, dated April 20, 2001, the NRCS stated that they fully support the Proposed Action (Appendix B). The current project design has not been altered since the 2001 correspondence with NRCS, however, a request for an updated letter was sent to NRCS on April 4, 2006. NRCS indicated on April 18, 2006, that the updated response letter is currently being processed but to-date it has not been received. The EA will not be finalized and funding for the project will not be provided by FEMA until the NRCS consultation has been completed.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Impacts to geology and seismicity would not occur under this alternative. Soils within and adjacent to the project area would continue to be adversely impacted by erosion and inundation associated with 10-year storm events. This alternative would protect existing flood-prone structures by elevation, relocation, or acquisition. No existing prime farmlands would be removed from productive use. Ground disturbing activities associated with the demolition and relocation of homes in the floodplain could temporarily increase erosion of soils to nearby surface waters. Mitigation measures, as described in Section 6, would be implemented to minimize impacts to soils.

3.1.2 Water Resources and Water Quality

The Flint River and its connecting drainage systems run through several counties of east-central Michigan (hydrologic unit code [HUC] 04080204). The Flint River drainage system is one of several drainage areas that are part of the Shiawassee Flats area and Saginaw River Basin, which is a drainage area that encompasses approximately 6,260 square miles. The Saginaw River eventually discharges into Saginaw Bay, an arm of Lake Huron. The project area is within the downstream segment of the Flint River. The Mississippian aquifer, one of the most productive aquifers in the State, underlies the project area (USGS, 2005c). The project area obtains potable and irrigation water from groundwater wells.

Michigan has received authorization from the Federal government to administer Section 404 of the Clean Water Act in most areas of the state. Water resources in the state are regulated in accordance with Part 31, Water Resources Protection; Part 301, Inland Lakes and Streams, and Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act (NREPA), as amended.

To protect surface water quality, Michigan has developed Water Quality Standards (WQS) pursuant to Part 31, Water Resources Protection, of the NREPA, 1994 PA 451, as amended. Under NREPA, all surface waters of the state are protected for the following designated uses: agricultural, industrial, and municipal water supply, navigation, warm-water fishery, aquatic life and wildlife support, and partial body contact recreation. The protected designated uses for the Flint River also include total body contact recreation, which are any activities normally involving direct contact with water to the point of complete submergence, particularly immersion of the head, with considerable risk of ingesting water, including swimming.

Water Quality Standards are unmet for the segment of the Flint River that flows adjacent to the project area due to polychlorinated biphenyls (PCB) and mercury contamination in fish (MDEQ, 2004). This segment of the river is included on the Clean Water Act (CWA) Section 303(d) Water Quality Standards Nonattainment List for Water Bodies Requiring Total Maximum Daily Loads (TMDLs). Fish contaminant advisories are present for the entire Flint River downstream of the Hamilton Dam in Flint, Michigan. In addition, total body contact recreation is not recommended after any form of precipitation due to elevated bacteria counts.

Michigan implemented a Wellhead protection program to help reduce the potential for groundwater contamination by identifying and protecting areas that contribute water to municipal water supply. No wellhead protection areas are located within or adjacent to the project area (MDEQ, 2006a). No U.S. Environmental Protection Agency (EPA) designated sole source aquifers underlie the region (EPA, 2006a).

During past flood events, the project area has been contaminated with *E. coli* bacteria that resulted from the release of untreated sewage into the Flint River from combined sewer overflows (CSOs) and wastewater treatment plants located upstream of the project area (FRECB, 2001). A February 20, 2001 article from The Flint Journal describes such an event (Appendix C). In addition to contamination of agricultural land, several privately owned groundwater wells were contaminated and had to be sealed (FRECB, 2001). According to a letter from the State Department of Health supporting the project (Appendix B), *E. coli* contamination occurred from a Genesee County sewage treatment plant.

Wild and Scenic Rivers Act. The Wild and Scenic Rivers Act was established to preserve the free-flowing state of listed rivers or those under consideration for inclusion due to numerous values, such as scenic, recreational, geologic, or historic. The Flint River is not listed as a wild and scenic river (NPS, 2006). No further action is necessary under the Wild and Scenic Rivers Act.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no construction would occur. Sedimentation from the ongoing erosion of the deteriorating earthen dikes may adversely affect downstream water quality. Land adjacent to the project area would continue to be contaminated by upstream releases of untreated sewage and other contaminants during flood events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

The Proposed Action is not anticipated to adversely affect water resources or water quality. The Applicant obtained permits from MDEQ (Permit Numbers 01-73-0090-P and 04-73-0027-P) under

Part 301, Inland Lakes and Streams, of NREPA, as amended (Appendix B). The proposed project would comply with all requirements set forth in the permits. Erosion and sedimentation that may occur during construction would be minimized through the compliance with the sediment and erosion control BMPs in the MDEQ permits issued for the Proposed Action.

Reconstruction of the existing deteriorating dikes would have beneficial impacts on downstream water quality by eliminating a current source of downstream sedimentation. The hydraulic changes will primarily include a lowering of flood elevations along and downstream of the dike setback areas. The surface water elevation will be reduced as each portion of the dike system is reconstructed away from the river's edge. The proposed dikes would be set back 100 to 150 feet from the existing edge of the river, creating a wider conveyance area that would allow the same volume of water to flow through at reduced velocity and elevation. The new floodway shelf would, in effect, restore the natural function of the floodplain, and natural capture and filtration of contaminants would occur to some degree. In addition, as the dike system is moved back from the river, less chance exists for erosion of the dikes to occur. Decreased dike erosion would result in less sediment reaching the water. As with the hydraulic changes, as the balance of the system is reconstructed, the water quality will continue to improve.

The Proposed Action would reduce human exposure to untreated sewage and other contaminants carried by the Flint River by reducing the overflow of contaminated river water onto adjacent land in the project area. Floodwaters would be confined to the new floodway channel throughout the project area during 10-year storm events. The Proposed Action is not anticipated to affect groundwater resources due to the shallow excavations required for construction activities. The potential for residential wells to be contaminated by overflows of contaminated water from Flint River such as occurred in 2001 (see Appendix C) would be reduced.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, existing flood-prone structures would be protected by elevation, relocation, or acquisition. The removal of homes would decrease the amount of impervious surfaces and increase in floodwater storage capacity in the floodplain, which may provide a beneficial impact to water quality. However, sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect downstream water quality. Land adjacent to the project area would continue to be contaminated from upstream releases of untreated sewage and other contaminants during flood events. Removal of flood-prone structures may reduce the potential for human exposure to sewage-related pathogens.

3.1.3 Floodplain Management (Executive Order 11988)

Executive Order (EO) 11988 directs Federal agencies to take actions to minimize occupancy of and modifications to floodplains. Specifically, EO 11988 prohibits FEMA from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. FEMA applies the Eight-Step Planning Process, as required by regulation, to meet the requirements of EO 11988. This step-by-step analysis is included in Appendix D of this document.

Floodplains refer to the 100-year floodplains as set by FEMA and are shown on Flood Insurance Rate Maps (FIRMs) for all communities participating in the National Flood Insurance Program (NFIP). The 100-year floodplain designates the area inundated during a storm having a one-percent chance of occurring in any given year. FEMA also identifies the 500-year floodplain. The 500-year floodplain designates the area inundated during a storm having a 0.2 percent chance of occurring in any given year.

The three townships that would be affected by the proposed project are registered in Michigan as communities participating in the NFIP. Spaulding Township joined in June 1979; Albee Township joined in August 1986; and Taymouth Township joined in December 1988. All three townships participate in and are in good standing with the Federal Insurance Administration, which administers the NFIP. The project area is located on FIRM Community Panel Numbers: 26145C0185D, 26145C0190D, 26145C0195D, 26145C0245D, and 26145C0250D. According to the FIRMs, the majority of project area has been mapped and identified as 100-year floodplain (Zone AE). Some portions of the existing dike system are designated as outside both the 100- year and 500-year floodplains (Zone X).

Alternative 1 – No Action Alternative

The No Action Alternative would have a negative long-term impact on residences and farms already located within the floodplain. Without additional flood control measures the Flint River would continue to overflow its banks within the project area. Flooding may worsen as the existing dikes continue to deteriorate. Residences and farms within the floodplain would experience continued damage and loss as a result of future flood events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, adverse impacts to the floodplain are not anticipated. Alternative 2 would complete the Flint River Flood Control Project. Once complete, the project improvements would prevent floodwaters up to and including a 10-year storm event from overtopping dikes and flooding the adjacent residences and farms. Moreover, the construction of the floodwater storage reservoir would provide additional flood protection for downstream communities from larger events. The 24-acre retention area would provide up to 30 minutes additional floodwater retention time (Niethammer, 2005).

The hydraulic analysis prepared by Wilcox Engineering concluded that the proposed project activities would not significantly impact the 100-year flood stage of the Flint River (FRECB, 2001). To confirm that no increases in the 100-year floodway water surface elevations would occur, the Applicant would be required to obtain a “no-rise certificate” and submit it to FEMA for concurrence prior to commencing construction.

Potential minor impacts to the floodplain would include vegetation removal and potential soil compaction as a result of equipment use. Use of heavy equipment on wet or damp soils can compact soils to the extent that infiltration rates within the floodplain could decrease, increasing runoff and erosion. To mitigate the effects of heavy equipment use and compaction, it is recommended that project activities occur during dry periods (precipitation limited to less than 1 inch in the week prior to equipment use). Soil compaction in the floodplain could temporarily

affect its filtering ability (by decreasing infiltration rates), but the area of impact would be limited and any impacts would be short-term.

The MDEQ reviewed the Proposed Action under the State's Floodplain Regulatory Authority, and issued permits (Permit Numbers 01-73-0090-P and 04-73-0027-P) under Part 31, Water Resources Protection, of NREPA), that allow construction within a federally identified flood hazard area (Appendix B). The proposed project would comply with all requirements set forth in the permit.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, existing flood-prone structures would be protected by elevation, relocation, or acquisition. The removal of homes would decrease the amount of impervious surfaces and increase in floodwater storage capacity in the floodplain, which may provide a beneficial impact. However, sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect the natural and beneficial functions of the downstream floodplain. The acquired land adjacent to the project area would continue to experience flooding. Removal of flood-prone structures would reduce the structural damages associated with these flooding events.

3.1.4 Air Quality

EPA regulates six criteria pollutants that could cause adverse health effects (EPA, 2006b). National Ambient Air Quality Standards (NAAQS) have been set for sulfur dioxide (SO₂), particulate matter with a diameter less than or equal to 10 microns (PM-10), ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), and lead (Pb). NAAQS are typically established for a variety of averaging times, ranging from one hour to one year.

The Michigan Air Quality Monitoring Program, a division of the MDEQ, oversees and reports on results of federally mandated National Air Monitoring Stations and State and Local Air Monitoring Sites as well as the Special Purpose Monitoring Stations network in Michigan (MDEQ, 2006b). Air quality measurements from this network are used to demonstrate the attainment status with regard to NAAQS. Ambient air monitoring is also a requirement for State Implementation Plans.

Information from the Environmental Protection Agency (EPA), Region V, indicates that Saginaw County is in attainment for all six criteria pollutants used as indicators of air quality (EPA, 2006c).

Alternative 1 – No Action Alternative

No construction would occur under the No Action Alternative; therefore, there would be no impacts to air quality.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

There would be no discernable impacts to air quality under the Proposed Action. Some local and short-term increases in particulates and exhaust emissions could occur as a result of construction activities. Under the Proposed Action, mitigation measures would be required to reduce construction-related impacts to air quality. These measures are detailed in Section 6 of this document.

Implementation of the Proposed Action would involve limited use of heavy construction equipment such as backhoes, excavators, and bulldozers for the dike reconstruction. Proposed construction duration is approximately four months.

Heavy construction equipment is a source of fugitive dust emissions that may have a substantial temporary effect on local air quality. Emissions during construction can be associated with ground excavation, earth moving, and construction. Dust emissions can vary substantially from day to day depending on the level of activity, the specific operations, and weather. Emissions from fuel-burning internal combustion engines (heavy equipment and earthmoving machinery), could temporarily increase the levels of volatile organic compounds (VOCs) and some of the priority pollutants, including CO, NO₂, O₃, and particulate matter.

Potential impacts to air quality would be short-term and temporary in nature. To mitigate for fugitive dust and equipment emissions, vehicle engines would be turned off while not in use, construction roads would be watered when dusty conditions exist, and local residents would be advised to close windows during periods of heavy construction activity to prevent dust from infiltrating their homes.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under the Alternative 3, there would be no discernable impacts to air quality. Some local and short-term increases in particulates and exhaust emissions could occur from demolition of the acquired flood-prone residential and commercial structures. Mitigation measures, as described in Section 6, would be implemented to minimize impacts to air quality.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Terrestrial and Aquatic Environment

Terrestrial Habitat

The east-central Michigan lies near the northern limits of the extensive Eastern Broadleaf forest that stretches south to the Appalachian Mountains in Pennsylvania and east through New England. The Saginaw Valley is predominantly agricultural with limited forested areas along the river corridors, and in hedgerows. The main crops raised in this area consist of sugar beet, corn, soybean, and grains.

In December 2005, URS biologists conducted a site visit of the project area. Each of the seven project segments was found to consist of agricultural fields adjacent to a forested riparian floodplain community. Dominant trees growing on and near the deteriorating dikes included: American elm (*Ulmus americana*); box elder (*Acer negundo*); cottonwood (*Populus deltoides*); basswood (*Tilia americana*); willow (*Salix sp.*); green ash (*Fraxinus pennsylvanica*); hackberry (*Celtis occidentalis*); hickory (*Carya sp.*); quaking aspen (*Populus tremuloides*); oaks (*Quercus spp.*); and maples (*Acer spp.*). Shrubs and woody vines observed included: honeysuckle (*Lonicera sp.*); multiflora rose (*Rosa multiflora*); grape (*Vitis sp.*). Herbaceous plant species observed included: reed canary grass (*Phalaris arundinacea*); goldenrod (*Solidago spp.*); teasel (*Dipsacus sylvestris*); bramble (*Rubus sp.*); knotweed (*Polygonum sp.*); primrose (*Oenothera sp.*); Queen Anne's lace (*Daucus carota*); asters (*Aster spp.*); common mullein (*Verbascum thapsus*); thistle

(*Cirsium spp.*); curly dock (*Rumex crispus*); panic grass (*Panicum spp.*); ryegrass (*Lolium sp.*); common burdock (*Arctium minus*); giant ragweed (*Ambrosia trifida*); and wood nettle (*Laportea canadensis*).

Observations or signs of the following wildlife species were noted during the site reconnaissance eastern cottontail (*Sylvilagus floridanus*); gray squirrel (*Sciurus carolinensis*); woodchuck (*Marmota monax*); beaver (*Castor canadensis*); red fox (*Vulpes vulpes*); raccoon (*Procyon lotor*); and whitetail deer (*Odocoileus virginianus*). Other species expected would include: small rodents such as shrews (*Soricidae*); moles (*Talpidae*); voles and mice (*Cricetidae*); muskrat (*Ondatra zibethica*); opossum (*Didelphis marsupialis*); and skunk (*Mephitis mephitis*). site. Subsequent to construction, the reconstructed dikes would be routinely mowed and maintained to prevent woody vegetation from establishing. The new floodway shelves would be seeded with a mix of grasses, and would be allowed to naturally revert to a forested floodplain community. During construction activities, wildlife using the project area would be displaced. Once construction activities are concluded, however, displaced wildlife is anticipated to return. Mitigation for the loss of forested habitat would be compliant with all local, state, and Federal laws, regulations, and requirements.

Project Segment 1 and 2 are located in and/or adjacent to the Shiawassee National Wildlife Refuge. In their letter dated May 13, 2005, the U.S. Fish and Wildlife Service (USFWS) stated that activities associated with the Proposed Action should not be a concern to the refuge (Appendix B).

Aquatic Habitat

Under the Proposed Action, no adverse impacts to aquatic plants or wildlife species are anticipated. Effects to the aquatic habitat under the Proposed Action would be limited to the potential for erosion into the waters of the Flint River due to construction activities; no construction activities are proposed within the waterway of the Flint River. To mitigate against degradation of aquatic habitat due to erosion, the Applicant would comply with all BMPs set forth in the MDEQ permits issued for this project activity, such as silt fencing and hay bales, and seed exposed soils with grasses.

The Proposed Action would have a beneficial affect on the aquatic habitat for fish and macro-invertebrates by reducing water turbidity and increasing spawning habitat. Reconstruction of the dikes and floodway shelves would decrease the turbidity within the Flint River that is a result of the ongoing erosion of the deteriorating dikes.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, future flooding would continue to affect the project area, as it has historically. Because floodplain vegetation, and its associated wildlife species are well adapted to flooding, no adverse effects to terrestrial or aquatic habitat, and or species, is anticipated. Sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect aquatic habitat. The removal of flood-prone residences and commercial structures may provide an increase in terrestrial habitat, which would be a beneficial impact to wildlife.

3.2.2 Wetlands (Executive Order 11990)

The term wetland refers to areas that are inundated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, intrastate lakes, rivers, streams (including intermittent streams), mudflats, sloughs, and similar areas.

Under EO 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and preserve and enhance their natural and beneficial values. If a Federal action has the potential to impact jurisdictional waters of the United States as defined by Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) would be contacted for appropriate Bird species observed within the project area included: American kestrel (*Falco sparverius*); red-winged blackbird (*Agelaius phoeniceus*); American crow (*Corvus brachyrhynchos*); mourning dove (*Zenaidura macroura*); brown-headed cowbird (*Molothrus ater*); junco (*Junco hyemalis*.); ring-billed gull (*Larus delawarensis*); Canadian geese (*Branta canadensis*); common flicker (*Colaptes auratus*); common grackle (*Quiscalus quiscula*); cardinal (*Cardinalis cardinalis*); starling (*Sturnus vulgaris*); blue-winged teal (*Anas discors*); black capped chickadee (*Parus atricapillus*); and belted kingfisher (*Megasceryle alcyon*).

Project Segment 1 and 2 are located in and/or adjacent to the Shiawassee National Wildlife Refuge. This 9,200-acre refuge, established in 1953, was created to protect significant wetland habitat for migratory waterfowl. The Shiawassee National Wildlife Refuge has been designated as an Important Bird Area (IBA). Over 300 species of birds have been observed at the refuge.

Aquatic Habitat

Project Segments 3, 4, 5, 6, 7, and 8 are located adjacent to the Flint River, while Project Segments 1 and 2 are located adjacent to adjacent drainage ditches. The portion of the Flint River that flows adjacent to the project area has been classified by the Michigan Department of Natural Resources (MDNR), Fisheries Division, as second-quality warm water streams that have limited sport fish populations due to pollution, competition, inadequate reproduction, or lack of suitable habitat (MDNR, 2001). In 1997, MDNR conducted a fish survey in the lower Flint River, Bluntnose minnow (*Pimephales notatus*); green sunfish (*Lepomis cyanellus*); Johnny darter (*Etheostoma nigrum*); and rock bass (*Ambloplites rupestris*) were reported as the most commonly collected species, while game fish species were reported in very low occurrences (MDNR, 1997).

MDNR conducted a biological survey of the main stem of the Flint River and its tributaries from July through September 1998 (MDNR, 1998). One of the MDEQ sampling areas (Survey Location 1 – Sheridan Road at Flint River) was located within the project area (Project Segment 4). Based on the MDNR survey at Survey Location 1, the macro-invertebrate community was rated as “acceptable” and the in-stream habitat was rated as “good-slightly impaired.”

Alternative 1 - No Action Alternative

Under the No Action Alternative, no ground disturbing activities would occur. Future flooding would continue to affect the project area, as it has historically. Sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect aquatic habitat.

Because floodplain vegetation, and its associated wildlife species are well adapted to flooding, no adverse effects to terrestrial habitat, and or species, is anticipated.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Terrestrial Habitat

Under the Proposed Action, no adverse impacts to terrestrial plants or wildlife species are anticipated. Minor, short-term disturbance to the project area would occur to accommodate the construction of the structural floodplain improvements. Approximately 192 acres of agricultural fields and forested land would be cleared for the construction activities associated with the reconstruction of dikes and floodway shelves, and the construction of a floodwater storage reservoir and two new wetland areas. Cleared vegetation would be burned in pits and buried on-permitting requirements. Section 404 of the CWA authorizes the USACE to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the United States at specified disposal sites. FEMA applies the Eight-Step Decision- Making Process, required by 44 CFR Part 9, to meet the requirements of EO 11990. This step- by-step analysis is included in Appendix D of this document.

Michigan has received authorization from the Federal government to administer Section 404 of the CWA in most areas of the state. Wetlands in the State are regulated in accordance with Part 303, Wetlands Protection, of the NREPA and MDEQ is the administering agency for these regulations.

According to the National Wetlands Inventory (NWI) map, prepared by the US Fish and Wildlife Service (USFWS), both vegetated and un-vegetated wetlands occur in or adjacent to the project area. The majority of the Flint River that flows adjacent to the project area is classified as a Riverine Lower Perennial Open Water Permanently Flooded (R2OWH) wetland. In December 2005, URS wetland scientists conducted a site reconnaissance of the project area. No wetlands are mapped or were observed in Project Segments 1, 6, or 7.

Project Segment 2 - Palustrine Forested Broad-leaved Deciduous, Temporarily Flooded (PFO1A) and Palustrine Scrub-shrub Palustrine Forested Broad-Leaved Deciduous/ Emergent Semi-permanently and Seasonally Flooded (PSS1/EMY) wetlands are mapped north of Project Segment 2, and are associated with the Shiawassee National Wildlife Refuge that manages wetland habitat for migratory waterfowl. No wetlands were observed within the project area during the site reconnaissance.

Project Segment 3 – Palustrine Emergent Temporarily Flooded (PEMA) wetlands are mapped at the northern most portion of the project site along the southern edge of the Flint River. The mapped PEMA wetlands were verified during the site reconnaissance, but were observed to be outside the limits of the project area.

Project Segment 4 – Palustrine Scrub-shrub Semi-permanently and Seasonally Flooded (PSSY) wetlands are mapped in the central portion of the project site along the northern edge of the Flint River. The mapped PSSY wetlands were verified during the site reconnaissance, and are located within the project area.

Project Segment 5 – Palustrine Scrub-shrub Unknown (PSSU) wetlands are mapped in the central portion of the project site along the southern edge of the Flint River. The mapped PSSU wetlands were verified during the site reconnaissance, and are located within the project area.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no wetlands would be affected due to construction activities. No adverse impacts to wetlands are anticipated.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

The Proposed Action has the potential to affect both of the wetlands areas observed in Project Segments 4 and 5. The MDEQ has reviewed the Proposed Action under the State’s Floodplain Regulatory Authority and has issued permits that allow construction within regulated wetlands (Permit Numbers 01-73-0090-P and 04-73-0027-P) under Part 31, Water Resources Protection; Part 301, Inland Lakes and Streams; and Part 303, Wetlands Protection, of NREPA. The proposed project would comply with all requirements set forth in the permits. No ground disturbing activities would occur within the wetlands located within Project Segment 4. These wetland areas have been designated as “low ground – do not disturb” on the project design drawings. In accordance with the MDEQ permit, 7.2 acres of wetlands would be constructed to offset 2.9 acres of wetland loss within Project Segment 5.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, existing flood-prone structures would be protected by elevation, relocation, or acquisition. No wetlands within the project area would be directly impacted. The removal of homes would decrease the amount of impervious surfaces, and may provide a beneficial impact to the wetlands located in the vicinity of the project area.

3.2.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 requires Federal agencies to determine the effects of their actions on threatened and endangered species of wildlife and plants, and their habitats, and to take steps to conserve and protect these species.

A request for the determination of presence or absence of listed or proposed to be listed, threatened or endangered species and critical habitat within the subject area was also submitted to the MDNR, Wildlife Division on November 18, 2005. In their letter, dated December 19, 2005, the MDNR reported the state and federally listed threatened bald eagle (*Haliaeetus leucocephalus*) is known to occur on or near the project area. In addition, the MDNR reported two State species of concern that may occur on or near the project area: Blanding’s turtle (*Emydoidea blandingii*) and the northern harrier (*Circus cyaneus*). Both species of special concern are known to have occurred within the Shiawassee National Wildlife Refuge. The MDNR deferred oversight of the bald eagle to the USFWS.

A request for the determination of presence or absence of listed or proposed to be listed, threatened or endangered species and critical habitat within the vicinity of the project area was submitted to the USFWS, East Lansing Field Office (USFWS) on November 18, 2005. In a letter dated

December 16, 2005, the USFWS reported concerns regarding the potential presence of two threatened or endangered species or critical habitat near the project area. The USFWS indicated a bald eagle's nest is present near the project area, and the project area is within the breeding range for Indiana bat (*Myotis sodalis*), both federally listed endangered species.

In subsequent correspondence, the USFWS determined that the bald eagle nests were located 3,960 feet or more away from the project area. As such, the project area was determined to be outside the USFWS's tertiary zone (660 to 2,640 feet away from nests) for bald eagle management. Activities occurring outside of the tertiary zone are permitted by the USFWS without seasonal restrictions. In their email dated January 13, 2006, USFWS stated that activities within the project area would not negatively affect the bald eagle or its habitat, and no further Section 7 consultation regarding bald eagle is required (Appendix B).

The project area is located at the very northern extreme of the Indiana bat's range in Michigan. Ideal Indiana bat habitat is considered to be mature forests near a water source with relatively open understories that provide suitable maternity roost trees (large diameter trees with significant areas of peeling bark, cracks, and/or crevices that receive at least partial sun exposure). As a result of their informal consultation with FEMA, USFWS stated that if activities within the project area would comply with project conditions regarding tree removal, then the project would not negatively affect Indiana bat or its habitat, and no further Section 7 consultation regarding Indiana bat is required.

If the applicant chooses to cut down trees in the project area, the following conditions apply:

- Dead, dying or trees with peeling or exfoliating bark larger than 6-inches in diameter may only be felled in the project area during the period of October 14 to March 15.
- No clear cutting is allowed.
- Trees may only be cut by hand; chain saws are permitted.
- No heavy machinery is allowed during the tree removal process.
- Trees may not be removed from the project site and must be left where they fall.

Verification of compliance with these conditions will be made part of the project approval process.

Alternative 1 - No Action Alternative

Under the No Action Alternative, no construction would occur, and no adverse effects to threatened or endangered species are anticipated.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse effects to threatened or endangered species are anticipated. Section 7 consultation with the USFWS regarding bald eagle and Indiana bat have been concluded.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse effects to threatened or endangered species are anticipated.

3.3 HAZARDOUS MATERIALS

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), are defined as “a solid waste, or combinations of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.” While the definition refers to “solids,” it has been interpreted to include semisolids, liquids, and contained gases as well. Hazardous materials and wastes are regulated in Michigan via a combination of federally mandated laws and state laws developed by the MDEQ. The hazardous waste statutes are contained as Sections 324.11101 – 324.11153 of the NREPA, as amended.

To determine the presence and approximate location of known hazardous materials in the vicinity of the proposed project, Environmental Data Resources (EDR), an independent information service, conducted a database search. The database search queries multiple Federal, state, and local records to identify former and current hazardous materials storage, leaks, brownfields, small and large quantity generators, and Superfund sites. No mapped hazardous materials sites were found in EDR’s search within a 1-mile radius of each of the seven proposed project segments (EDR, 2006).

A reconnaissance level survey for hazardous materials and wastes in the project vicinity was conducted by URS on March 13, 2002. No obvious indicators for the presence of hazardous materials such as drums, tanks, stressed vegetation, or vent pipes were observed. No subsurface hazardous materials testing was conducted in the project area as a part of this EA. Conclusions are based only on the field reconnaissance, database search, and reported historical use of the properties.

Alternative 1 - No Action Alternative

Under the No Action Alternative, no flood mitigation activities would be undertaken using FEMA funds. If any hazardous wastes or materials occur in the project area, they would not be altered from their present condition.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Based upon the EDR database search, under the Proposed Action Alternative, no impacts to hazardous materials or wastes are anticipated.

Although subsurface hazardous materials are not anticipated to be present in the project area, excavation activities could expose or otherwise affect subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled in accordance with applicable local, State, and Federal regulations.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Based upon the EDR database search, under Alternative 3, no impacts to hazardous materials or wastes are anticipated. Any hazardous materials discovered, generated, or used during implementation of this alternative would be disposed of and handled in accordance with applicable local, State, and Federal regulations.

3.4 SOCIOECONOMICS

3.4.1 Zoning and Land Use

3.4.1.1 Zoning

The proposed dike construction is located within Spaulding, Albee, and Taymouth Townships. Each township has jurisdiction over zoning and ordinances. In all three townships, the proposed project sites are located within areas zoned agricultural. Permitted uses within agricultural districts include farms, single-family residences, farm-related housing, temporary structures, and accessory farm-related uses.

3.4.1.2 Land Use

Approximately 50 percent of the Flint River basin is under cropland management. The primary crops grown in the basin are; seed and feed corn, wheat, oats, soybeans, dry edible beans, sugar beets, melon, and sweet corn (MDNR, 2001). Approximately 15 percent of the land use is urban, 16 percent forested, and 15 percent non-forested. Low-density residential and small commercial businesses are located outside of the project area.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no direct impact to current land use and zoning. Flooding of businesses and residences would continue to be a frequent occurrence, however, and could adversely impact land use in the area.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under this alternative, the Proposed Action would be consistent with current zoning and land uses and would preserve current land uses by reducing the negative impacts associated with frequent flooding. No impacts to zoning would occur because the proposed dike construction is permitted under the existing agricultural zoning district and therefore, would require no amendments or variances from existing bulk regulations. The Flint River Erosion Control Board would acquire all appropriate land variances and property easements.

Minor impacts to agricultural land use would occur. Although there may be some losses of tillable ground due to the dike reconstruction, this alternative ultimately protects more than 11,000 acres of productive farmland. The benefit realized by the protection of farmland greatly outweighs the loss of a small tillable area. This project has the support of the U.S. Department of Agriculture, Natural Resources Conservation Service (Appendix B).

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under this alternative, adverse impacts to land use would include the permanent elevation, relocation, or voluntary acquisition of flood-prone residences and small commercial businesses.

3.4.2 Visual Resources

Visual resources refer to the landscape character (i.e., what is seen), visual sensitivity (i.e., human preferences and values regarding what is seen), scenic integrity (i.e., degree of intactness and wholeness in landscape character), and landscape visibility (i.e., relative distances of seen areas) of a geographically defined viewshed.

The Flint River corridor is dominated by agricultural fields and rural landscape. The fields are occasionally punctuated by forested areas along the river. Single-family residential structures are found in the project vicinity. In addition, several roads, including State Highway M-13, Sheridan Road, and other rural roads cross the Flint River.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no direct impact to the visual quality of the project site and surrounding area. However, continued flooding could cause damage to area structures, which may decrease the visual quality of the area.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Visual resources would not be adversely impacted under this alternative. Since dikes are common feature throughout the project area, the completion of the Flint River Flood Control Project would alter the landscape minimally. Reconstruction of the dikes would not obstruct existing views of the river from the adjacent properties or bridges crossing the river. Heavy equipment and soil stockpiles would be seen in the project area during construction, but this would be short-term. These modifications would slightly alter the landscape, but would be a minimal change to visual resources.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse impacts to the visual quality of the project site and surrounding area are anticipated. Some flood-prone residences and small commercial businesses would be permanently removed from the project area, while others would be relocated to other portions of the project area or elevated in place. Heavy equipment would be seen in the project area during demolition activities, but this would be short-term. The communities overall rural/forested view shed would be minimally altered.

3.4.3 Noise

Noise is generally defined as unwanted sound and can include any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Responses to noise by living organisms vary depending on the type and characteristics of the noise, distance between the noise source and receptor, receptor sensitivity, and time of day.

Sound pressure level (Lp) can vary over an extremely large range of amplitudes. The decibel (dB) is the accepted standard unit for measuring the amplitude of sound because it accounts for the large variations in amplitude and reflects the way people perceive changes in sound amplitude. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as “loudness” or “noisiness.”

Different sounds have different frequency contents. When describing sound and its effect on a human population, A-weighted sound levels (dBA) are typically used to account for the response of the human ear. The term “A-weighted” refers to a filtering of the noise signal, which emphasizes frequencies in the middle of the audible spectrum and de-emphasizes low and high frequencies in a manner corresponding to the way the human ear perceives sound. The dBA has been found to correlate well with people’s judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. The Day-Night Average Sound Level (DNL) is an average measure of sound.

Noise, defined herein as unwanted or unwelcome sound, is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only directs those Federal agencies that operate noise-producing facilities or equipment to implement noise standards. The EPA’s guidelines (and those of many Federal agencies) state that outdoor sound levels in excess of 55 dB DNL are “normally unacceptable” for noise-sensitive land uses such as residences, schools, and hospitals.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no construction would occur and no additional noise would be generated. Noise levels would be expected to remain at current levels.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Noise associated with the Proposed Action would be emitted by mechanical equipment used during construction. Equipment associated with the Proposed Action includes backhoes, excavators, and bulldozers. Table 1 shows the anticipated noise levels at a distance of about 50 feet from miscellaneous heavy equipment potentially associated with the Proposed Action. The use of heavy equipment would be a short-term, temporary activity that would be associated with the initial construction phase, and regular maintenance of the proposed project. The impact of noise would be greatest from zero to 50 feet of the project area. Noise levels decrease with distance, and the impact would therefore be attenuated as distance from the project area increased.

To minimize potential noise impacts, construction and maintenance activities would be limited to the hours of 7 a.m. and 7 p.m., from Monday through Saturday. Construction and maintenance activities are anticipated to be temporary; proposed construction is anticipated to last four months.

To mitigate for these potential noise impacts, the Applicant would be required to inform residents of the construction period and potential noise impacts, as well as suggested mitigation measures, such as closing windows during construction or planning daily errands around construction times.

Table 1: Heavy Equipment Noise Levels at 50 Feet

Equipment Type¹	Number Used²	Generated Noise Levels L_p (dBA)³
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Dump Truck	1	75
Flat-Bed Truck (18 wheel)	1	75

Based on the intermittent use of the construction and maintenance equipment, no significant noise impacts are anticipated. Post-construction noise levels would return to current ambient levels. Noise impacts resulting from the long-term operation and maintenance of the levee system are not expected to be significant. No adverse impacts to the existing noise levels within the project area are anticipated.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Noise associated with the Alternative 3 would be emitted by mechanical equipment used during demolition activities. As the work would be conducted near some residences, residents of the area may be subjected to construction-related noise that could reach 80 dB during daytime periods. This noise would not be constant and would be temporary; construction would be limited to the hours of 7 a.m. and 7 p.m. Monday through Saturday, only during the four months of proposed construction. Post construction noise levels would return to current levels.

To mitigate for these potential noise impacts, the Applicant would be required to inform residents of the construction period and potential noise impacts, as well as suggested mitigation measures, such as closing windows during construction or planning daily errands around construction times.

3.4.4 Public Services and Utilities

3.4.4.1 Utility Services

Gas and Electric services in the project area are provided by Consumers Energy, public water is supplied by Saginaw City Water Works, and solid waste disposal services are provided by Mid-Michigan Waste Authority.

3.4.4.2 Fire Departments

Spaulding, Albee, and Taymouth Townships each have a Volunteer Fire Department consisting of 20 to 30 volunteer firefighters.

¹ Estimated

² Estimated

³ Source: CERL, 1978

3.4.4.3 Police Departments

Spaulding Township has a permanent, full-time Police Department each consisting one Police Chief overseeing two officers. Albee Township does not have a police department, however through a contract with the Saginaw County Sheriff's Department one officer is allocated several hours per week to Albee Township. Taymouth Township has no police services and does not contract with Saginaw County.

3.4.4.4 Hospitals

The nearest hospital to the proposed project location is Saginaw Community Hospital, located on Hospital Road in the City of Saginaw.

Alternative 1 – No Action Alternative

No immediate impacts to public services and utilities are anticipated under the No Action Alternative. The risk of flooding would remain within the project area, and future flooding would continue to cause temporary road closures, affecting the ability of emergency personnel to access certain areas. The Townships (as well as private utilities) would continue to incur economic costs associated with the repair and maintenance of structures caused by floodwater damage. These effects would be temporary in duration, but recurring with each future flood event.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, overbank flooding resulting from the 10-year or smaller storms would be prevented by the completion of the Flint River Control Project. Public streets and services would no longer be subjected to interruptions and damage. The Townships (as well as private utilities) would benefit from the elimination of costs associated with the emergency response services provided to flood victims, and the from future repair and maintenance flood-prone properties that would be protected by the Proposed Action.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no immediate impacts to public services and utilities are anticipated. The risk of flooding would remain within the project area, and future flooding would continue to cause temporary road closures, affecting the ability of emergency personnel to access certain areas. The Townships (as well as private utilities) would benefit from the elimination of costs associated with the emergency response services provided to flood victims, and the future repair and maintenance of properties that would be removed from the flood hazard area.

3.4.5 Traffic and Circulation

The project sites are accessed via M-13, a paved, north-south two-lane State Road, and smaller local roads. Interstates in the area include I-75, approximately five miles east of the project sites, and I-69, approximately 20 miles south of the project area.

Alternative 1 – No Action Alternative

Under the No Action Alternative, flooding would continue to cause road closures, and require detours to divert traffic.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to traffic are anticipated. Access to the project area will be obtained either via public road or from adjacent farmland properties. No road closures or detours are anticipated as a result of construction activities. Roads would be protected from flooding associated with the 10-year and smaller storm events storm events, allowing the flow of traffic to pass unencumbered.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, flooding would continue to cause road closures, and require detours to divert traffic. This alternative would reduce the number of residents and businesses in the flood hazard area, and may reduced amount of traffic on area roads.

3.4.6 Environmental Justice (Executive Order 12898)

EO 12898, entitled, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” directs Federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.” This section examines the impact of the proposed action and alternatives on minority and low-income populations and determines whether the proposed action would have a disproportionately high and adverse effect on the populations.

According to the 2000 Census, Saginaw County was the tenth most populated county in the state of Michigan, and had a total population of 210,039 individuals (U.S. Bureau of Census, 2000). The three townships that comprise the project area are overwhelmingly rural (92.9 percent), and account for less than five percent (4.5 percent) of the total county population. From 1990 to 2000, and again from 2000 to 2004, Saginaw County experienced a slight decline in total population (negative 0.9 and 0.5 percents, respectively). Similarly, the townships within the project area experienced a population decline from 1990 to 2000 (negative 2.4 percent), however experienced a slight increase from 2000 to 2004 (0.1 percent).

The population of the three townships within project area is overwhelmingly white (97.8 percent), and is well above the national average of 75.1 percent. The largest minority race is Black or African American with 4.1 percent of the population in the project area; this is well below the national average of 12.3 percent. Other minority groups include those of two or more races (2.2 percent), some other race (2.0 percent), American Indian and Alaska Native (0.6 percent), Asian (0.2 percent), and Native Hawaiian and Other Pacific Islanders (0.1 percent). Hispanics or Latinos in the area comprise 6.6 percent of the population, well below the national average of 12.5 percent. For 1999, the latest year for which income data are available, the median incomes per household for Albee, Spaulding, and Taymouth Townships were \$42,000, \$36,791, and \$46,581 respectively.

With the exceptions of Spaulding Township, each was slightly above the national average of \$41,994. Although more than nine percent of individuals in the three townships live below the poverty level (9.1 percent), it is below the county, state, and national averages of 13.9, 10.5, and 12.4 percents respectively. As such, the community surrounding the project area is not considered a minority or low-income population.

Median single-family home costs in all three townships were on average well below, by one-third, the national average of \$119,600. In 2000, the average value of a single-family home in Albee Township was \$79,700, in Spaulding Township was \$61,900, and in Taymouth Township was \$96,500.

Alternative 1 – No Action Alternative

Under the No Action Alternative, all residents of the community would continue to be impacted damages associated with the continued flooding of the Flint River.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no minority or low-income populations would be adversely impacted. The project would benefit the entire community and the local economy by reducing the risks and costs associated with flooding.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse disproportionate impacts to minority or low-income populations are anticipated. Any property located within the floodplain that would be flooded in a 10-year storm event would be purchased by FEMA in a voluntary acquisition program. Although single-family home values are less than the national average, a fair market value would be offered for each home. The project would benefit the local economy by reducing the risks and costs associated with flooding of FEMA acquired properties within the flood hazard area.

3.4.7 Safety and Security

Safety and security issues that have been considered in this analysis include the health and safety of the area residents, the public at-large, and the protection of personnel involved in construction activities. EO 13045, Protection of Children, requires Federal agencies to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children.

Alternative 1 – No Action Alternative

Under the No Action Alternative, the potential for flooding to occur would remain. Without mitigating the flooding risk, the potential for adverse impacts to public safety would continue to be compromised by overbank flooding during the 10-year storm events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, excavation activities could present safety risks to persons performing the activities. To minimize risks to safety and human health, all project activities would be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Administration (OSHA) regulations.

During construction activities, safety measures to mitigate potential impacts to the general public, including children, entail employing appropriate signage and safety fencing to warn the public of dangerous slopes and activities, and restrict access to those sites. Overall, the project activities would decrease risks to human health and safety associated with storms equal to or less than a 10-year storm event.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, the potential for flooding to occur would remain. Public safety would continue to be compromised by overbank flooding during the 10-year storm events. However, the safety and security would increase for the residents and businesses relocated out of the flood hazard area.

3.5 CULTURAL RESOURCES

In addition to review under NEPA, consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include identification of significant historic properties that may be affected by the Preferred Alternative. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP; 36 CFR 60.4).

As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE) “is the geographical area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist.”

In addition to identifying historic properties that may exist in the undertaking’s APE, the Federal agency must also determine in consultation with the appropriate State Historic Preservation Officer (SHPO) what effect if any the proposed action would have to historic properties. If the proposed project would have an adverse effect to these properties, the Federal agency must consult with the SHPO on ways to avoid, minimize, or mitigate the adverse effect. A formal Section 106 consultation for the project area’s APE was initiated with the Michigan SHPO in November 2001.

3.5.1 Historic Resources

Section 106 of the NHPA of 1966, as amended, requires that Federal agencies take into account how each action could affect historic properties. For purposes of Section 106, any property listed on or eligible for listing on the National Register of Historic Places is considered historic and as such the impacts to these cultural resources must be identified.

URS conducted an on-line review of the Michigan State Register of Historic Places and the NRHP. This assessment identified four historic places within Spaulding Township and three within Taymouth Townships listed on the NRHP (Table 2). There are no listed historic places within Albee Township (Table 2). None of the identified properties are located within a one-mile radius of the project area; therefore no properties would be affected. Additionally, no historic properties were noted in the vicinity of the project area during a site reconnaissance conducted by URS historians on March 8 and 9, 2002, and again on November 8 and 9, 2005.

Table 2: Historic Resources Located within Spaulding and Taymouth Townships

Site	Location	Township	Listed Register(s)
Mower Road Bridge	Over Cole Drain	Spaulding	National
Schultz Site (20SA2) and Green Point Site (20SA1)	Not available - Address restricted	Spaulding	National
Morrisville Bridge (a.k.a. Burt Road Bridge)	Carries Burt Road across the Flint River, 0.45 miles east of Seymour Road	Taymouth	National and State
Hess School	1520 Houlihan Road, NW corner of Cole Road	Spaulding	State
Hodges Site (20SA130)	SW 1/4, NE 1/4, Section 35	Spaulding	State
Burt Opera House	E. Burt Road, between Dorwood and Nichols roads	Taymouth	State
Saint Paul's Mission	Seymour Road, south of East Burt Road	Taymouth	State

Alternative 1 – No Action Alternative

Under the No Action Alternative, no adverse impacts to historic properties would occur.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to historic resources are anticipated. No historical sites of architectural significance within the project area or within a one-mile radius of the project area were identified as part of the historic records database search or during the site reconnaissance. This alternative would not have an impact upon historic architectural resources located at the project site and vicinity, and no mitigation would be required.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no changes or impacts to the existing historical sites of architectural significance would occur.

3.5.2 Archaeological Resources

Preliminary data searches conducted by URS showed the project area had extremely high probability for archaeological resources. Twenty-six known archaeological sites were identified

within the APE. The SHPO required FEMA to conduct Phase I, Phase II, and Phase III Archaeological Investigations along the project corridor to evaluate site potential and to mitigate impacts to archaeological sites in the area.

Of the 26 archaeological sites identified during the Phase I investigation, 11 were determined by SHPO to require further Phase II evaluation. In 2004, URS (on behalf of FEMA) conducted Phase II archaeological excavations of the 11 sites. Based on this field work, URS prepared a Phase II report (dated February 2005) that contains recommendations to conduct additional Phase III excavations at 3 of the 11 sites (20SA367, 20SA369, and 20SA372), because these sites appeared to meet the criteria for listing in the NRHP. The report findings and recommendations were accepted by the Michigan SHPO in a letter dated March 14, 2005, (Appendix B). In August 2005, guidelines for Phase III excavations at the three sites eligible for listing on the NRHP were established in a Memorandum of Agreement (MOA) between the SHPO, FEMA, and the Applicant. Phase III excavations were conducted by URS in accordance with the MOA, and based on this field work, URS submitted a draft Phase III Technical Report to the SHPO. In a letter dated November 23, 2005, the SHPO stated, “excavation work could be considered complete, and that successful mitigation of the sites had been accomplished.” (Appendix B). That letter constitutes “written confirmation that the Office of the State Archaeologist and the SHPO consider the mitigation fieldwork to be complete.” A final Phase III Technical Report is expected to be submitted to the SHPO in April 2006. Copies of the reports can be obtained by contacting the Michigan SHPO via telephone at (517) 373-1630, via fax at (517) 335-0348, or via email at preservation@michigan.gov.

Table 3: Summary of Archeological Phase I, II, and III Investigations

Phase	Dates	Number of Sites Identified for Further Review	Comments
I	2001 - 2004	26	SHPO concurred with URS determination that 11 of the 26 sites required further analysis.
II	2004 –2005	11	SHPO concurred with URS determination that 3 of the 11 sites may meet the criteria for listing in the NRHP, and would require further analysis.
III	2005 - 2006	3	Phase III field work was conducted in accordance with the MOA, and SHPO had considered mitigation complete. A Final Phase III technical report is pending.

Alternative 1 – No Action Alternative

No changes or impacts to the existing archaeological resources would occur under this alternative because soil excavation or ground-disturbing activities would not take place.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to archaeological resources are anticipated. As a result of the Phase I investigations, Phase II evaluations, and Phase III excavations of archaeological resources along the project area, impacts to archaeological resources have been

successfully mitigated. In a letter dated November 23, 2005, the Michigan SHPO provided conditional approval of the Proposed Action, pending completion of the mitigation work for three archaeological sites in the APE as specified in the Memorandum of Agreement (MOA; Appendix B).

The MOA establishes clear direction on unanticipated discoveries in the event that any archaeological materials (e.g., human remains, funerary objects, objects of cultural patrimony, etc.) may be discovered during project construction or staging of equipment. In the event of unanticipated discoveries during project implementation all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no impacts to archaeological resources are anticipated. If any unanticipated discoveries in the event that any archaeological materials are discovered during activities associated with the elevation, relocation, or acquisition/demolition of any residential or commercial structures, all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

3.5.3 Indian Religious Sites Investigation

Consultation letters were sent to several Indian Tribes that may attach religious or cultural importance to the project area. In a letter dated July 28, 2003, the Saginaw Chippewa Tribe requested to be notified using their Site Reference Form if there is an inadvertent discovery of human remains or burial objects found during site construction. These measures have been specified in the MOA and agreed to by the Saginaw Chippewa Tribe.

Alternative 1 – No Action Alternative

The No Action Alternative is not expected to negatively impact Indian Religious Sites. No soil excavation or ground-disturbing activities are proposed under this alternative. Continued erosion of area soils could lead to an inadvertent discovery of burial objects. While the discovery of such objects would be a beneficial effect, it is unknown whether they would be identified as religious objects and cared for as such. In this light, this alternative may lead to the accidental discovery and loss of Indian religious objects.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to Indian Religious Sites are anticipated. Per the MOA, as agreed to by the Saginaw Chippewa Tribe of Michigan, avoidance and mitigation measures consist of immediate notification using the Site Reference Form if there is an inadvertent discovery of human remains or burial objects found during site construction. Should potentially significant archaeological materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse impacts to Indian Religious Sites are anticipated. If Indian religious objects are discovered during activities associated with the elevation, relocation, or acquisition/demolition of any residential or commercial structures, all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

3.6 IMPACT SUMMARY MATRIX

A summary of potential impacts for each alternative is summarized in Table 4: Description of Alternatives Matrix and Table 5: Impact Summary Matrix.

Table 4: Description of Alternatives Matrix

A. Description of Alternative	NO ACTION ALTERNATIVE (Alternative 1)	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Description of Alternative	FEMA funds would not be used for flood mitigation activities within the project area.	Existing earthen dikes would be reconstructed and a floodwater storage reservoir would be constructed to reduce flooding in the project area.	200 residences and six commercial buildings would be elevated, relocated, or acquired by FEMA. Residential and commercial structures acquired by FEMA would be demolished and the acquired land would be maintained as open space.

Table 5: Impact Summary Matrix

B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Geology, Seismicity, and Soils	No impacts to geology or seismicity. Soils within the project area would continue to erode; prime farmland adjacent to the project area would continue to be inundated during flood events.	No impacts to geology or seismicity. Direct impact to 192 acres of soils, including 186 acres of land mapped as prime farmland. Surface erosion may increase during project construction. Thousands of acres of prime farmland adjacent to project area would be protected from Flint River flooding for a 10-year storm event.	No impacts to geology or seismicity. Temporary disturbance to soils associated with the demolition of residential and commercial structures.
Water Resources and Water Quality	The project area would continue to flood and would continue to experience contamination from upstream releases of untreated sewage during flood events. Erosion of the existing deteriorating dikes would degrade downstream water quality.	The project areas would be protected from Flint River flooding for a 10-year storm event. Erosion may occur during construction. No anticipated effects to groundwater resources. The potential for adjacent properties and private wells to be contaminated by upstream releases of untreated sewage would be reduced.	The project area would continue to flood and would continue to experience contamination from upstream releases of untreated sewage during flood events. Land restrictions within the acquired properties would reduce the effects from flooding in the project area. Erosion of the existing deteriorating dikes would degrade downstream water quality.

B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Floodplain Management	No impacts to the 100-year floodplain would be anticipated.	No impacts to the 100-year floodplain would be anticipated. Storm events greater than the 10-year storm event would still impact the project area.	No impacts to the 100-year floodplain would be anticipated. Land restrictions within the acquired properties would reduce the effects from flooding in the project area.
Air Quality	No impacts to air quality would be anticipated.	Fugitive dust emissions due to heavy construction equipment may have a temporary impact on local air quality.	Fugitive dust emissions due to demolition activities may have a temporary impact on local air quality.
Terrestrial and Aquatic Environment	No impacts to the terrestrial or aquatic environment would be anticipated. Downstream aquatic habitat would continue to be affected by erosion of the existing deteriorating dikes.	Direct impacts to 192 acres of forested and agricultural land would temporarily displace terrestrial wildlife. The aquatic environment may be improved from the reduction of turbidity associated with the deteriorating dikes.	No impacts to the terrestrial or aquatic environment would be anticipated. Downstream aquatic habitat would continue to be affected by erosion of the existing deteriorating dikes.
Wetlands	No impacts to wetlands would be anticipated.	Reconstruction of the floodway shelf would directly impact 2.9 acres of wetlands. The creation of 7.2 acres of wetlands within the project area is proposed to offset unavoidable wetland loss.	No impacts to wetlands would be anticipated.
Threatened and Endangered Species	No impacts to proposed or listed threatened and endangered species would be anticipated.	No impacts to proposed or listed threatened and endangered species would be anticipated.	No impacts to proposed or listed threatened and endangered species would be anticipated.
Hazardous Materials and Wastes	Based on results from an Environmental Data Resources, Inc. (EDR) database search, no impacts to hazardous materials or wastes are anticipated.	Based on results from an EDR database search, no impacts to hazardous materials or wastes are anticipated.	Based on results from an EDR database search, no impacts to hazardous materials or wastes are anticipated.
Zoning and Land Use	No direct impacts to land use and zoning would be anticipated.	Additional easements would need to be acquired. To accommodate the proposed improvements, 192 acres of land would no longer be available for agricultural land use.	Up to 200 residential and six commercial properties could be converted to open space.
Visual Resources	No immediate impacts would occur to existing visual resources.	Temporary visual impacts to project area may occur during construction as a result of equipment and stockpiles.	Temporary visual impacts to project area may occur during demolition activities.

B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Noise	No construction would occur and no additional noise would be generated.	Temporary increase in the ambient noise levels due to equipment use during dike reconstruction activities.	Temporary increase in the ambient noise levels due to equipment use during demolition activities.
Public Services and Utilities	There would be no impact to utilities but public services would continue to be impacted by road closures during severe storm events.	Beneficial impacts to public services and utilities would occur from the reduction of damage associated with the 10-year storm.	Beneficial impacts to public services and utilities would occur as the acquired properties would no longer require repair and maintenance for damage associated with the 10-year storm.
Traffic and Circulation	Flooding would continue to close State and local roads.	State and local roads would be protected from flooding associated with the 10-year storm.	Flooding would continue to close state and local roads.
Environmental Justice	Executive Order 12898 is not applicable to this alternative	Minority or low-income populations are not concentrated in project area, and therefore would not be impacted by project activities.	Minority or low-income populations are not concentrated in project area, and therefore would not be impacted by project activities.
Safety and Security	Potential safety risks to residents and businesses in the event of a flood would remain unchanged.	All project activities would be performed using qualified personnel and conducted in accordance with the standards specified in Occupational Safety and Health Administration (OSHA) regulations. Overall, the project activities would decrease risks to human health and safety associated with the 10-year storm.	All project activities would be performed using qualified personnel and conducted in accordance with the standards specified in OSHA regulations. Overall, the project activities would decrease risks to human health and safety associated with the 10-year storm.
Cultural Resources	There would be no construction, and therefore, no historic or archaeological resources would be disturbed.	No impacts to historic or archaeological resources are anticipated.	No impacts to historic or archaeological resources are anticipated.

Section Four – Cumulative Impacts

Cumulative impacts are those effects on the environment that result from the incremental effect of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

For this EA, the related actions include the setback and reconstruction of the entire 8-mile flood-control dike system. This system is currently 52 percent complete, with continued work expected on the remaining dike system as funding becomes available. FEMA funding is expected to complete the remaining 48 percent of the dike system.

The primary cumulative impacts on this system relate to the hydraulic changes, water quality changes, and impacts to the vegetation and soils along the construction footprint of the dike system upgrades. The hydraulic changes will primarily include a lowering of flood elevations along and downstream of the dike setback areas. The surface water elevation will be reduced as each portion of the dike system is reconstructed away from the river's edge.

As discussed in the water quality section, the widening of the natural floodplain that will occur as the dikes are set back allows for the increased filtration of sediment from the river in the vegetative area between the river and the newly reconstructed dike. In addition, as the dike system is moved back from the river, less chance exists for erosion of the dikes to occur. Decreased dike erosion would result in less sediment reaching the water. As with the hydraulic changes, as the balance of the system is reconstructed, the water quality will continue to improve.

For soils and vegetation, immediate impacts will occur along the areas of construction as the dike system is reconstructed. The short-term loss of habitat and soil disturbance would be quickly recovered through mitigative replanting, with revegetation occurring quickly in those areas with setback dikes. The negative impacts of flooding on agricultural lands and ditches would be reduced increasingly as the dike system moves towards completion.

Consequently, the long-term cumulative impacts are generally favorable and relate primarily to the restoration of the natural and beneficial functions of a floodplain that has been restored to a more natural state. The previously existing portions (52 percent) of the flood-control system have proven effective. When high-water flow conditions occur, the new construction successfully retains the flow without erosion or breakthrough of the dikes. With the completion of the Proposed Action, the system would be complete, and the community would be able to enjoy maximum benefit of protection from the 10-year storm.

Section Five – Public Participation

Several public meetings have been held to discuss issues associated with the Proposed Action.

On June 6, 2001, a meeting regarding the project and grant funding was held at the Albee Township Hall. Attendance lists (but no minutes) are available for that meeting through the State Hazard Mitigation Officer.

On June 29, 2005, a public meeting was held at the Spaulding Township Hall at 7:00 p.m. The meeting was held specifically to solicit public comments with regard to historic or environmental issues associated with the proposed project. Representatives from the State and Federal governments attended. A total of 34 people attended the meeting. See attached copy of the meeting notice and FEMA's minutes (Appendix E).

In addition, the Flint River Erosion Control Board holds monthly (or quarterly) meetings that are open to the public, and provide an opportunity for any public comment. Although these meetings are not specifically designed to discuss the project, it is regular agenda item.

Furthermore, all of the MDEQ permits that were issued for this project included a public notice process in which comments relating to the project were solicited from the public.

A public notice advertising the availability of the Draft EA for public review was published in the Saginaw News on April 26, 2006 (Appendix E). The public was provided the opportunity to review the EA and comment on the Proposed Action from April 26, 2006 to May 17, 2006. The EA was available at the Hoyt Main Library, 505 James Avenue, Saginaw, Michigan; the Bridgeport Public Library, 3399 Williamson Road, Saginaw, Michigan; or online at <http://www.fema.gov/plan/ehp/envdocuments/ea-region5.shtm>. The FEMA Region V office will collect and compile comments submitted by the public.

[Summary of comments received by FEMA to be provided here at the conclusion of the public comment period.]

Section Six – Mitigation Measures and Permits

Table 6 provides a brief summary of the anticipated mitigation measures, and Table 6 provides a list of anticipated permits required for the proposed project alternatives.

Table 6: Mitigation Measures

Alternatives	Mitigation Measures
Alternative 1 – No Action Alternative	No mitigation measures required.

Alternatives	Mitigation Measures
<p>Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)</p>	<p>The Applicant must follow all applicable local, state, and Federal laws, regulations, and requirements. They must obtain and comply with all required permits and conditions prior to initiating work on the project.</p> <p>The Applicant must apply stormwater and water quality protection BMPs such as placing silt fences and hay bales, and seeding and mulching exposed soils shortly after disturbance.</p> <p>Soils that would be stockpiled on-site should be covered to help prevent fugitive dust and soil erosion.</p> <p>The applicant must develop an Operations and Maintenance (O&M) Plan for the project’s flood control structures. The O&M Plan must be adopted prior to final approval of the EA and signing of the FONSI by FEMA. All flood control structures must be maintained in accordance with the FEMA-approved plan.</p> <p>If changes are made to the project designs that modify the dike locations, the Applicant must resubmit the designs to FEMA for review and concurrence.</p> <p>If the applicant chooses to cut down trees in the project area, the following conditions apply:</p> <p>Dead, dying or trees with peeling or exfoliating bark larger than 6-inches in diameter may only be felled in the project area during the period of October 14 through March 15.</p> <p>No clear cutting is allowed.</p> <p>Trees may only be cut by hand; chain saws are permitted.</p> <p>No heavy machinery is allowed during the tree removal process.</p> <p>Trees may not be removed from the project site and must be left where they fall.</p> <p>Vehicle engines would be turned off while not in use, construction roads would be watered when dusty conditions exist, and local residents should be advised to close windows during periods of heavy construction activity.</p> <p>Project applicant is required to water down construction areas to reduce dust, when necessary.</p> <p>Any hazardous materials discovered, generated, or used during implementation of the proposed project must be disposed of and handled by the applicant in accordance with applicable local, state, and Federal regulations.</p> <p>Construction should be limited to the hours of 7 a.m. and 7 p.m. Monday through Saturday.</p> <p>The Applicant would be required to inform residents of the construction period and potential noise impacts, as well as suggested mitigation measures, such as closing windows during construction or planning daily errands around construction times.</p> <p>All construction activities must be conducted by trained personnel in compliance with OSHA standards and regulations to protect worker safety.</p> <p>Appropriate signage, detour routes, and safety fencing should be employed to warn the public of dangerous slopes and activities, and restrict access to those sites.</p> <p>All construction personnel will receive training and certification in the methods of early identification of Indian artifacts, so that if artifacts are present, equipment operators would know when to stop. Intermittent monitoring by the State should be built into the construction schedule and a compliance report issued that will be part of the close-out process. Should potentially historic, archeological, or Indian significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the Applicant would consult with FEMA and the SHPO or other appropriate agencies for further guidance.</p> <p>To ensure the 50-year useful life is achieved, the Applicant must develop and formally adopt a maintenance plan for the flood control structures. Measures should include the routine mowing along the dikes to ensure woody vegetation does not become established, which could compromise the integrity of the dikes.</p>

Alternatives	Mitigation Measures
<p>Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures</p>	<p>The project applicant would cover stockpiled soils to help prevent fugitive dust and soil erosion.</p> <p>The applicant must apply stormwater and water quality protection BMPs such as placing silt fences and hay bales, and seeding and mulching exposed soils shortly after disturbance. In addition to the berm, the detention ponds would be revegetated after completion to prevent future erosion.</p> <p>The applicant must follow all applicable local, state, and Federal laws, regulations, and requirements.</p> <p>Vehicle engines would be turned off while not in use, construction roads should be watered when dusty conditions exist, and local residents would be advised to close windows during periods of heavy construction activity.</p> <p>Any hazardous materials discovered, generated, or used during implementation of the proposed project must be disposed of and handled by the applicant in accordance with applicable local, state, and Federal regulations.</p> <p>Construction would be limited to the hours of 7 a.m. and 7 p.m. Monday through Saturday.</p> <p>The Applicant would be required to inform residents of the construction period and potential noise impacts.</p> <p>Appropriate signage and safety fencing would be employed to warn the public of dangerous slopes and activities, and restrict access to those sites.</p> <p>All construction personnel will receive training and certification in the methods of early identification of Indian artifacts, so that if artifacts are present, equipment operators would know when to stop.</p> <p>Intermittent monitoring by the State would be built into the construction schedule and a compliance report issued would be part of the close-out process. Should potentially historic, archeological, or Indian significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the Applicant would consult with FEMA and the SHPO or other appropriate agencies for further guidance.</p>

Table 7: Permit Requirements

Alternatives	Permit Requirements
Alternative 1 – No Action Alternative	No permits are required.
Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)	The applicant must obtain and comply with all permits required from MDEQ and other applicable State and Federal agencies prior to initiating work on the project. The project has been reviewed by MDEQ and the applicant has obtained all necessary permits under Part 301, Inland Lakes and Streams, Part 31, Water Resources Protection, and Part 303, Wetlands Protection, of the NREPA. All conditions stated in the above- mentioned permits would be complied with throughout the planning and construction periods. The Applicant must submit a no-rise certification to FEMA before commencing construction.
Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures	No permits are required.

Section Seven - Consultations and References

7.1 Agency Consultation

The following agencies were consulted during preparation of this EA:

7.1.1 Federal Agencies Consulted

Federal Emergency Management Agency (FEMA)

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)

U.S. Department of the Interior, Fish and Wildlife Service (USFWS)

7.1.2 State, City, and Local Agencies Consulted

Michigan Department of Environmental Quality (MDEQ)

Michigan Department of Natural Resources (MDNR)

Michigan State Historic Preservation Office (SHPO)

Hannahville Indian Community

Keweenaw Bay Indian Community

Lac Vieux Desert Band of Lake Superior Chippewa

Sault Ste. Marie Tribe of Chippewa Indians

Pokagon Band, Potawatomi Indian Nation, Inc.

Albee Township Offices

Spaulding Township Offices

Taymouth Township Offices

7.2 Distribution

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7.4 Personal Communication

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