US Army Corps
of Engineers ®
Kansas City District

OAKLAND LEVEE UNIT

Draft Supplemental Environmental Assessment I
to
Final Revised Environmental Assessment
City of Topeka Flood Risk Management Study
Topeka, Kansas

JUNE 2015

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DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, KANSAS CITY DISTRICT
635 FEDERAL BUILDING
601 E 12TH STREET
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FINDING OF NO SIGNIFICANT IMPACT

Oakland Levee Unit - Supplemental Environmental Assessment to the *Final Revised Environmental Assessment City of Topeka Flood Risk Management Study Topeka, Kansas*

Project Summary

The Oakland Levee Project is a U.S. Army Corps of Engineers' (USACE) flood risk management project located in Topeka, Kansas. An Environmental Assessment and Finding of No Significant Impact for the project were prepared in 2008. Since that time, several modifications have been proposed to the design to improve structural weaknesses, correct levee underseepage safety concerns, and prevent a pump station failure. The project is anticipated to begin construction in 2015 and be completed by 2016.

Alternatives

In addition to the No-Action Alternative, two other alternative plans were considered. These consist of implementing the project as described in the 2008 Environmental Assessment, Alternative 2, and a new alternative, Alternative 3.

Alternative 1 – No Action: The No Action Alternative would consist of not modifying structural weakness in the Oakland Levee Unit and not installing rock anchors to East Oakland pump plant, leaving portions of Topeka, Kansas prone to socioeconomic damages during large storm events from the Kansas River. There would also be an increase risk to life due to the dense population within the protected area. This alternative would not meet the purpose and need of the project as described in the 2008 Environmental Assessment.

Alternative 2 – Maintain previously approved levee improvements: Alternative 2 would result in modifications to the Oakland Levee Unit being constructed as proposed in Section 7.0 of the 2008 Environmental Assessment. Sometime after the 2008 Environmental Assessment was approved an examination of the Oakland Levee discovered a 1,200 foot section the levee also had underseepage safety issues. Modifications as described in the 2008 Environmental Assessment would not resolve all geotechnical and structural weaknesses in the levee or solve current interior drainage issues resulting from implementation of the project. Alternative 2 was not considered for the recommended plan because it would not resolve all underseepage safety concerns for the Oakland Levee system.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): This alternative would consist of modifying the Oakland Levee Unit by constructing under seepage berms, improving interior surface drainage, installing rock anchors to East Oakland

pump station, and expanding the borrow area. Underseepage improvements would be constructed at the landward toe of the levee on city waste water treatment plant property. The combined underseepage berm area is approximately 4.6 acres and would require approximately 21,000 cubic yards of borrow material. Borrow material would be obtained from a privately owned agricultural field and hauled by truck using a designated haul route. The borrow area and haul route would be returned to approximate preconstruction grades and contours. The borrow area would be restored to its pre-construction agricultural capabilities. The project sponsor or contractor would be responsible for issuing safety considerations at the intersection of the haul route and ATV park access road. Interior drainage improvements would be needed to prevent surface water runoff ponding at the toe of the levee. The East Oakland pump station would have rock anchors installed to stabilize the structure from floodwaters and prevent the pump station from failure during flood events. The supporting rock anchors would be located around the exterior perimeter of the building and are secured by drilling into the existing bedrock. Native grasses and forbs would be planted in all disturbed areas of the construction footprint for erosion and invasive species control. The borrow area would not receive erosion control plantings and would likely returned to privately owned agricultural practices.

Summary of Environmental Impacts

Following an evaluation of environmental consequences, Alternative 3 has been identified as the Recommended Plan. This alternative best meets the purpose and need of the project as described in this document and in the 2008 Environmental Assessment. The Recommended Plan would not result in any significant adverse impacts, either directly, indirectly, or cumulatively to the human environment. Minor impacts could result from the removal of approximately 0.1 acres of treed habitat. This could have minor, although not significant, impacts on local wildlife resources. Actions are incorporated into the plan to avoid any take of migratory birds. This plan may, but would not likely adversely affect any threatened or endangered species. No wetlands would be impacted by this alternative. The Recommended Plan would likely have no affect on cultural resources. The plan would not significantly impact any Waters of the United States and the project sponsor or contractor would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from KDHE and/or other state and local permits if applicable.

Mitigation Measures

The Recommended Plan would not result in any significant adverse impacts to the human environment. To minimize impacts to migratory birds, the clearing approximately 0.1 acres of treed habitat would be scheduled during winter, a time of the year when most migratory birds are not present. Also, removing these trees during the winter would serve as a precaution to avoid any take of northern long-eared bat, a species that is protected as threatened under the Endangered Species Act. No additional efforts to avoid, minimize, or mitigate for project impacts are proposed.

Public Availability

On June 22, 2015, a Notice of Availability was distributed by USACE announcing the availability of this draft Supplemental Environmental Assessment for a 30-day public comment period. Information concerning the availability of the Notice of Availability and draft Supplemental Environmental Assessment is being e-mailed to entities on the Kansas City District Regulatory Branch distribution list. Hardcopies are available upon request. During the public comment period, the draft Supplemental Environmental Assessment is available on the Kansas City District Public Notice website at:
http://www.nwk.usace.army.mil/Media/PublicNotices/PlanningPublicNotices.aspx

Conclusion

After evaluating the anticipated effects of the Recommended Plan for the Oakland Levee Project, as described in the Supplemental Environmental Assessment, I have determined that this plan does not constitute a major Federal action that would significantly affect the quality of the human environment; and therefore, preparation of an Environmental Impact Statement is not required.

_____ _____

Date

Andrew D. Sexton
Colonel, Corps of Engineers
District Commander

Oakland Levee Unit – Draft Supplemental Environmental Assessment to the *Final Revised Environmental Assessment City of Topeka Flood Risk Management Study Topeka, Kansas*

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Appendices

1.0 Introduction

The U.S. Army Corps of Engineers, Kansas City District (USACE) in partnership with the City of Topeka, Kansas propose a flood risk reduction project located in Topeka, Kansas within the Kansas River Basin. The Oakland Levee project is authorized under Section 216 of the 1970 Flood Control Act. An Environmental Assessment for three levee units in Topeka, Kansas was prepared and a Finding of No Significant Impact was signed in December 2008. Since that time, modifications have been proposed to the Oakland Levee Unit project design. These include under seepage berm modifications, improvements to interior drainage structures, adding rock anchors to the East Oakland pump station, and expanding the borrow area.

This document serves as a supplement to the *Final Revised Environmental Assessment City of Topeka Flood Risk Management Study Topeka, Kansas* (2008 Environmental Assessment) that was prepared in 2008 (USACE, 2008). Because this document is a supplement to an existing Environmental Assessment, the focus of the analysis is limited to those features that differ from what was previously evaluated. This Supplemental Environmental Assessment provides the necessary information to properly and fully assess the proposed modifications to the Oakland Levee Unit project as required by the National Environmental Policy Act (NEPA) of 1969, as amended (41 U.S. Code [USC] 4321 et seq.), the President's Council of Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500-1508), and USACE Engineering Regulation (ER) 200-2-2. For reference, the projects feasibility study and 2008 Environmental Assessment with Finding of No Significant Impact can be found at http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksProgramsAndProjects/Topeka,KanFloodRiskManagement.aspx.

1.1 Purpose and Need

The overall purpose of the Oakland Levee project is to increase the reliability of the flood risk management system for the City of Topeka by improving structural weaknesses and correcting levee underseepage safety concerns. The recommended plan is needed to reduce the risk to the local population from flooding due to levee geotechnical and structural weaknesses while maintaining the performance of the system as originally authorized and intended by Congress. The Oakland Levee has a history of severely flooding the local community, resulting in severe socioeconomic impacts. Additionally, the East Oakland pump station currently does not meet the safety requirements and is expected to fail when flood stages reach seven feet from the top of the pump station walls. Failure of the pump station would allow floodwaters to enter the protected area, therefore preventing interior drainage from being discharged into the river. This Supplemental Environmental Assessment is being prepared to evaluate potential impacts to the human environment for proposed modifications to the design of certain features that were described in the 2008 Environmental Assessment and Finding of No Significant Impact.

1.2 Location and Existing Site Characteristics

Oakland Levee project is located directly east of downstream of downtown Topeka, KS along the right bank of the Kansas River. The levee is approximately ten miles long and protects roughly 7,241 people. The levee protects approximately 3,000 residential homes, nearly 231

businesses, approximately 1,000 acres of agricultural fields, Philip Billard Municipal Airport, a BNSF rail yard, schools, churches, and various city infrastructures such as the city waste water treatment plant among others. The Oakland Levee ties into the Shunganunga Creek levee system. The project area can be seen on Figure 1.

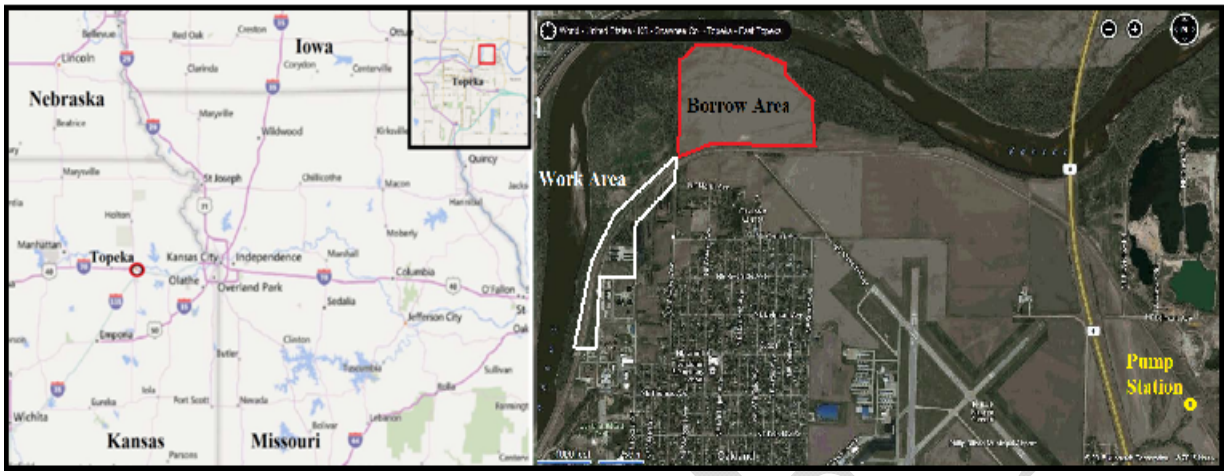

Figure 1: Location of project area located in Topeka, Kansas.

1.3 Agency and Public Coordination

The currently proposed modifications to the project have been coordinated with the U.S. Fish and Wildlife Service (USFWS) and Kansas Department of Wildlife, Parks and Tourism (KDWPT). See Sections 5.0 and 16.0 of the 2008 Environmental Assessment for previous details regarding agency and public coordination. USFWS indicated that the project lies within the range of the northern long-eared bat, a species recently listed as federally threatened. Interim survey guidance protocols for this species were provided, as was information concerning the Migratory Bird Treaty Act. See Appendix A – Agency Coordination. A response letter from KDWPT regarding proposed project modifications was received on April 25, 2015. See Appendix A for coordination letters.

On June 22, 2015, a Notice of Availability was issued by USACE announcing the availability of this draft supplemental EA for a 30-day public comment period. Information concerning the availability of the draft documents was e-mailed to entities on the Kansas City District Regulatory Branch distribution list. During the public comment period, the draft documents were available on the Kansas City District Public Notice website at: http://www.nwk.usace.army.mil/Media/PublicNotices/PlanningPublicNotices.aspx. A copy of the Notice of Availability is included in Appendix B.

2.0 Alternatives

This section describes the alternatives considered in detail for the Supplemental Environmental Assessment. In addition to the No-Action Alternative, two other alternative plans were considered. These consist of implementing the project as described in the 2008 Environmental Assessment, Alternative 2, and a new alternative, Alternative 3. The alternatives were evaluated in detail in Section 4 before identifying a Recommended Plan.

Alternative 1 – No Action: The No Action Alternative would consist of not modifying structural weakness in the Oakland Levee Unit and not installing rock anchors to East Oakland pump plant, leaving portions of Topeka, Kansas prone to socioeconomic damages during large storm events from the Kansas River. There would also be an increase risk to life due to the dense population within the protected area. This alternative would not meet the purpose and need of the project as described in the 2008 Environmental Assessment.

Alternative 2 – Maintain previously approved levee improvements: Alternative 2 would result in modifications to the Oakland Levee Unit being constructed as proposed in Section 7.0 of the 2008 Environmental Assessment. Sometime after the 2008 Environmental Assessment was approved an examination of the Oakland Levee discovered a 1,200 foot section the levee also had underseepage safety issues. Modifications as described in the 2008 Environmental Assessment would not resolve all geotechnical and structural weaknesses in the levee or solve current interior drainage issues resulting from implementation of the project. Alternative 2 was not considered for the recommended plan because it would not resolve all underseepage safety concerns for the Oakland Levee system.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): This alternative would consist of modifying the Oakland Levee Unit by constructing underseepage berms (Figure 2), improving interior surface drainage, installing rock anchors to East Oakland pump station, and expanding the borrow area as shown on Figure 3. Underseepage improvements would be constructed at the landward toe of the levee on city waste water treatment plant property. The combined underseepage berm area is approximately 4.6 acres and would require approximately 21,000 cubic yards of borrow material. Borrow material would be obtained from a privately owned agricultural field and hauled by truck using the haul route shown on Figure 3. The borrow area and haul route would be returned to approximate preconstruction grades and contours. The borrow area would be restored to its pre-construction agricultural capabilities. The project sponsor or contractor would be responsible for issuing safety considerations at the intersection of the haul route and ATV park access road. Interior drainage improvements would be needed to prevent surface water runoff ponding at the toe of the levee. The East Oakland pump station would have rock anchors installed to stabilize the structure from floodwaters and prevent the pump station from failure during flood events. The supporting rock anchors would be located around the exterior perimeter of the building and are secured by drilling into the existing bedrock. Native grasses and forbs would be planted in all disturbed areas of the construction footprint for erosion and invasive species control. The borrow area would not receive erosion control plantings and would likely be returned to privately owned agricultural practices.

Figure 2: Underseepage Berm Areas.

Figure 3: Borrow Area and Haul Route.

3.0 Affected Environment

This chapter presents the affected environment within and surrounding the project footprint. It only includes those resources that could be impacted by one of the proposed alternatives. Existing conditions within the project footprint appear to have only a few minor changes since the 2008 Environmental Assessment was prepared. Information included in this section was obtained from site visits, geographic information systems data, literature searches, review of maps and aerial photography, agency coordination, and previous reports. See Section 10 in the 2008 Environmental Assessment for affected environmental conditions previously assessed.

3.1 Water Quality

A 2014 KDHE 303(d) List of Impaired Waters indicates that the Kansas River adjacent to the project footprint has multiple impairments (KDHE 2014). These include impacts to aquatic life from total phosphorus and total suspended solids, water supply impairments from sulfate, and recreation impairments from E. coli and Fecal Coli from Topeka to Ogden, Kansas. For additional water quality and aquatic resources information refer to Section 10.1 of the 2008 Environmental Assessment.

3.2 Prime and Unique Farmlands

These resources are institutionally important because of the Food Security Act of 1985, as amended, and the Farmland Protection Policy Act of 1981. They are technically important because they provide habitat for open and forest-dwelling wildlife, and the provision or potential for provision of forest products and human and livestock food products. These resources are publicly important because of their present economic value or potential for future economic value. The borrow area, shown in Figure 3, is considered prime and unique farmland.

3.3 Wetlands

There are no wetlands within or adjacent to the project footprint. Because of this, a Clean Water Act Section 404 and 401 authorizations would not be required. For additional information regarding wetlands refer to Section 10.2 of the 2008 Environmental Assessment.

3.4 Forested/Wildlife Resources

Most of the forest and woodland in the study area has been greatly impacted by urban development. However, approximately 135 acres of forested habitat is located adjacent to the project work area along the Kansas River. Small patches of trees do exist within and next to the project footprint. A list of typical wildlife species found in the area is located in Appendix C of the 2008 Environmental Assessment.

3.5 Threatened and Endangered Species

USFWS and KDWPT were contacted to request information regarding federal- and state-listed threatened, endangered, candidate species, or species of special concern that have potential to occur in the project area (Appendix A). Species in these categories that may potentially occur in the area are identified in Table 1.

Table 1: Threatened and endangered species.

Common Name	Scientific Name	Status
Northern Long-Eared Bat	*Myotis septentrionalis*	Threatened

The federally protected northern long-eared bat is listed as a threatened species under the Endangered Species Act. Northern long-eared bats have been experiencing rapidly declining populations due to white nose syndrome, a fungal pathogen (USFWS 2015). During winter this species of bat is known to hibernate in caves and abandoned mines. Summer habitat is currently not well defined, but it is believed that roosting habitat includes dead or live trees and snags with cavities, peeling or exfoliating bark, split tree trunk and/or branches. Foraging habitat includes upland and lowland woodlots and tree lined corridors. Occasionally, they may roost in structures like barns and sheds. Coordination with USFWS determined that potential habitat for northern long-eared bat is within the project area. Trees located along the proposed haul route have the potential to provide suitable habitat for the northern long-eared bat.

3.6 Invasive Species

Invasive species have the potential to displace native plants and animals. According to Executive Order 13122, federal agencies may not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species. Invasive aquatic species that are a concern in Kansas which have the potential to be introduced into new water bodies as a result of contaminated construction equipment include zebra mussels, purple loosestrife, and Eurasian water-milfoil, among others. Invasive terrestrial species often flourish on land that has recently been disturbed. They may also be transported to new locations on construction equipment. Examples of invasive terrestrial species of concern in Kansas include johnsongrass, reed canary grass, sericea lespedeza, and Japanese honeysuckle, among others. Invasive plant species are common on disturbed lands in the general project area.

3.7 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires federal agencies to take into account the effects of their undertakings on historic properties. By definition, historic properties are properties eligible for or listed on the National Register of Historic Places (NRHP). Federal undertakings refer to any federal involvement including funding, permitting, licensing, or approval. Federal agencies are required to define and document the Area of Potential Effect (APE) for undertakings. The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist.

A background review of the project borrow area was conducted using the Kansas Historical Society Archeological Map viewer on-line. No sites were identified within the project area. The results of the background review were coordinated by letter with State Historic Preservation Officer (SHPO) on June 1st, 2015 (Appendix D). USACE requested concurrence that any proposed work in the project area would have no effect on historical properties and that work could proceed without further coordination, unless archeological materials were discovered during construction. SHPO concurred with this recommendation in a letter dated June 8th, 2015 (Appendix D).

3.8 Visual Quality

The Kansas River adjacent to the project area contains floodplain forest, sand bars, islands, and bluffs, which provide natural diversity to the river corridor landscapes. Cropland, grassland, and forested land are established in portions of the river's floodplains. Existing levees and flood risk management mechanisms that have been installed to prevent bank or levee erosion interrupt the natural character of the river systems. However, flood risk management features have been in place for many years and in many instances may blend in with the adjacent natural landscape. The residential and industrial areas near the project footprint are also part of the present visual quality.

3.9 Noise

Existing sound levels throughout the Topeka metropolitan area are highly variable depending on location. Sound levels range from relatively loud noises associated with urban and industrial activities to very quiet rural environments. Noise sources within the project area include agricultural and industrial activities, traffic on roads, aircraft over-flights, and natural sounds such as wind through trees and water falling over rocks. Ambient noise levels are generally dependent upon the level of urban development and associated activities conducted within a given area. For further details see Section 10.8 of the 2008 Environmental Assessment.

3.10 Air Quality

In accordance with the Clean Air Act, the U.S. Environmental Protection Agency set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to the environment and public health. The six principal pollutants, also known as "criteria" pollutants, are: ozone, lead, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide. The proposed project is located in Shawnee County, Kansas. Shawnee County and its surrounding counties are all in full attainment of all NAAQS. The surrounding counties in Kansas are rural and air emissions are not monitored.

3.11 Socioeconomics

Approximately 7,241 people live within the area protected by the levee. The levee protects approximately 3,000 residential homes, nearly 231 businesses, approximately 1,000 acres of agricultural fields, Philip Billard Municipal Airport, a BNSF rail yard, schools, churches, and

various city infrastructures such as the city waste water treatment plant among others. For further detail see section 10.10 of the 2008 Environmental Assessment.

3.12 Hazardous, Toxic, and Radioactive Wastes (HTRW)

The HTRW investigations consisted of a records search of past and present environmental activities and enforcement actions near the project site. A previous investigation was conducted during the 2008 Environmental Assessment. Information regarding the results of the previous HTRW investigation of the project area can be found in Section 11.0 of the 2008 Environmental Assessment. To address any potential HTRW concerns regarding proposed project modifications, to include the entire borrow area, an updated investigation was conducted by USACE in April, 2015. No new HTRW sites were identified. Detailed locations of concern are included on a map in Appendix C – Hazardous, Toxic, and Radioactive Waste (HTRW).

4.0 Environmental Consequences

This section presents the evaluation of direct and indirect impacts of the alternatives on the human environment. The significance of an action depends on both context and intensity. Context is related to any short or long-term impacts in a specific location. Intensity is related to the severity of the impact, either beneficial or adverse. Refer to 40 CFR Section 1508.27 for a detailed description of context and intensity. Alternatives considered in this document would not require mitigation; therefore mitigation will not be discussed in further detail in this section. No wetlands are located in the project area as discussed in See Section 10.2 of the 2008 Environmental Assessment. Additionally, Environmental Justice is discussed in the 2008 Environmental Assessment and is applicable to all alternatives considered in this document. There are no Environmental Justice concerns for any of the proposed alternatives and Environmental Justice will not be discussed further in this document. See Section 12.0 in the 2008 Environmental Assessment for further details regarding Environmental Justice.

4.1 Water Quality

Alternative 1 – No Action: Alternative 1 would not result in any changes to the existing condition of water quality in the project area. See Section 10.1 of the 2008 Environmental Assessment for further details regarding the No Action alternative and water quality. In the unlikely event a large flood was to occur and breach the levee, short-term temporary impacts to water quality would result from inundation. Inundated areas would transport urban non-point source pollutants into the river and mix with other flooded waters of the river system.

Alternative 2 – Maintain previously approved levee improvements: Alternative 2 would not result in any direct or indirect significant impacts to water quality as determined in Section 10.1 of the 2008 Environmental Assessment. Negligible short-term impacts could result from construction activities adjacent to the Kansas River from increased turbidity of surface water runoff. These impacts would cease once construction was complete. The project sponsor or contractor would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from KDHE and/or other state and local permits if applicable. They would be

required to comply with KDHE Best Management Practices and formatting requirements. A NPDES permit and Best Management Practices would be implemented during all aspects of construction to minimize any potential construction related impacts to water quality. It is not expected that Alternative 2 would contribute or improve water quality as it pertains to the KDHE 303(d) list. Additionally, Section 17.0 of the 2008 Environmental Assessment indicates that 401 and 404(b) permits are not required for this project.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): All impacts to water quality would be similar to Alternative 2. The project sponsor or contractor would be required comply with KDHE and/or other state and local permits or regulations if applicable as described in Alternative 2. The Recommended Plan would not contribute or improve water quality as it pertains to the KDHE 303(d) list. Section 17.0 of the 2008 Environmental Assessment indicates that 401 and 404(b) permits are not required for this project. Impacts to the Kansas River from the use of the borrow area would be negligible. The borrow area is an agricultural field that has seasonal crops and is exposed for much of the year. If flooding would occur, project activities would not contribute to the addition to sediment to the river system. It is more likely that the Kansas River would deposit sediments from the river onto the borrow area because the borrow area is located on the inside bend of the river and is mostly forested around its edges.

4.2 Prime and Unique Farmlands

Alternative 1 – No Action: The No Action Alternative would not result in any direct or indirect impacts to prime and unique farmland. See Section 10.3 of the 2008 Environmental Assessment for details regarding prime farmland.

Alternative 2 – Maintain previously approved levee improvements: The borrow area considered for underseepage improvements for Alternative 2 is considered prime farmland. Impacts to prime farmland at this location would be short term and temporary. No significant impacts to prime farmland would result from Alternative 2. The borrow area would be restored to its original farm use capabilities. See Section 10.3 of the 2008 Environmental Assessment for details regarding prime farmland impacts resulting from Alternative 2.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): The borrow area considered for underseepage improvements for Alternative 3 is considered prime farmland as indicated in Section 10.3 of the 2008 Environmental Assessment. Impacts to prime farmland at this location would be short term and temporary. The borrow area would be restored to its original farm use capabilities as agreed to by the USACE, project sponsor, and private land owner prior to construction of the project. Restoration would likely involve earth work by grading and restoring interior drainage. If borrow is taken during the planting season, compensation for agricultural or financial losses would fall on agreements between the landowner and the project sponsor. No significant impacts to prime farmlands would result from the Recommended Plan.

4.3 Wetlands

Alternative 1 – No Action: The No Action Alternative would not result in any direct or indirect impacts to wetlands. No wetlands exist within the project area.

Alternative 2 – Maintain previously approved levee improvements: Alternative 2 would not result in any direct or indirect impacts to wetlands. No wetlands exist within the project area.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): Alternative 3 would not result in any direct or indirect impacts to wetlands. No wetlands exist within the project area.

4.4 Forested/Wildlife Resources

Alternative 1 – No Action: The No Action alternative would not result in any direct or indirect impacts to forested or wildlife resources within or adjacent to the project area. Though unlikely, if flooding resulted from levee failure as a result of the No Action alternative, it is expected that forested areas and wildlife resources living in the floodplain would be adapted for flood conditions or move to non flooded areas. No construction related impacts to forested or wildlife resources would occur.

Alternative 2 – Maintain previously approved levee improvements: This plan would not result in any direct or indirect significant impacts to forested or wildlife resources. No trees were anticipated to be cleared for construction of Alternative 2. Forested areas and wildlife resources living in the floodplain would likely be adapted for flood conditions and it's expected that little to no impacts to these resources would occur. All other forested and wildlife resource impacts would be same as describe in Section 10.4 of the 2008 Environmental Assessment.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): The Recommended Plan could have minor negative impacts to forested resources. Less than 0.1 acres of trees may be removed to construct a haul route. These trees are located near the Northeast Chester Avenue and Northeast North Avenue. Trees would be cleared during the winter months to avoid any potential direct impacts to northern long-eared bats. The riparian corridor adjacent to the project area is well forested and would provide enough habitat for any wildlife displaced or negatively impacted. Additionally, if borrow material is taken during the planting season, wildlife in the area could utilized adjacent agricultural fields for foraging. Removal of trees during the winter months, as stated in Section 5 below, would avoid any direct impacts to migratory birds. No significant impacts to forested or wildlife resources are anticipated.

4.5 Threatened and Endangered Species

Alternative 1 – "No Action": The "No-Action" alternative would not result in any impacts to federal or state listed threatened or endangered species. There would not be any impacts to northern long-eared bat protected under the Endangered Species Act.

Alternative 2 – Maintain previously approved levee improvements: This alternative may, but is not likely to adversely affect any federally-listed threatened or endangered species that are currently protected under the Endangered Species Act. Federally protected northern long-eared bats could be found in the project area. However, as a precaution to avoid any take of this species, removal of any trees and snags that may provide habitat for this species would occur during the winter of November 2015 through February 2016, a time of the year when northern long-eared bats would not be present. This alternative is not likely to adversely affect northern long-eared bats. See Section 10.5 of the 2008 Environmental Assessment for further impact details regarding threatened and endangered species.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): The Recommended Plan would not likely adversely affect any federally-listed threatened or endangered species currently protected under the Endangered Species Act. As a precaution to avoid any take of northern long-eared bats, as described in Alternative 2, trees and snags would be removed during the winter of November 2015 to February 2016. This alternative would not likely adversely affect northern long-eared bats.

4.6 Invasive Species

Alternative 1 – "No Action": The "No-Action" alternative would not likely result in the introduction of any invasive species. Levee failure could result of implementing the No Action alternative and it is possible that flood waters would carry and spread invasives throughout the floodplain.

Alternative 2 – Maintain previously approved levee improvements: Alternative 2 is not likely to transfer any invasive species to or from the project site. The construction contractor would be required to wash their equipment prior to entering and leaving the construction site to avoid the spread of both terrestrial and aquatic invasive species by their equipment. Disturbed land areas would be replanted with native grass and forbs species to minimize the likelihood that invasive plants would become established. All plant materials would be free from any federal or state listed noxious weeds. Any straw or mulch used for erosion control would also be certified weed free.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): The Recommended Plan is not expected to transfer any invasive species to or from the project site. Precautions to prevent the introduction of invasive species as described for Alternative 2 would also used for this alternative.

4.7 Cultural Resources

Alternative 1 – "No Action" Alternative: The "No Action" Alternative would have no effect on any cultural resources within or adjacent to the project area.

Alternative 2 – Maintain previously approved levee improvements: It was determined in 2008 that this plan would likely have no affect on cultural resources. At that time, the Kansas State Historic Preservation Officer (SHPO) concurred with the determination. In the unlikely

event that archeological material is discovered during project construction, work in the area of discovery would cease until the discovery is investigated by a qualified archeologist, and coordinated with the SHPO and federally recognized Native American tribes. See Section 10.6 of the 2008 Environmental Assessment for further impact details regarding cultural resources.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): The Recommended Plan would likely have no affect on cultural resources. The Recommended Plan was coordinated with the Kansas SHPO in a letter dated June 1st, 2015 (Appendix D). The SHPO concurred with this determination in a letter on June 8th, 2015 (Appendix D). Federally recognized Native American Tribes with ties to the area are notified of the proposed project through the standard draft Environmental Assessment notification process during public comment period. If in the unlikely event that archeological material is discovered during project construction, work in the area of discovery would cease until the discovery is investigated by a qualified archeologist and coordinated with the SHPO and federally recognized Native American tribes.

4.8 Visual Quality

Alternative 1 – "No Action": Under the No-Action Alternative, there would be no modifications to the existing flood risk management system. In the absence of federal action addressing levee improvements, a high water event could result in widespread aesthetic impacts including deposits of debris, dead trees and property damage.

Alternative 2 – Maintain previously approved levee improvements: Alternative 2 would not result in significant impacts to the visual quality. All impacts would be short term and temporary. Failure of the levee would result in possible visual quality impacts as indicated under the No Action alternative. Additional visual quality impact details are discussed in Section 10.7 of the 2008 Environmental Assessment.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): Alternative 3 impacts to visual quality would be short term and temporary. Impacts associated to visual quality would be construction related. Also, the levees would be seeded with native grasses and forbs on completion of construction. No significant impacts to visual quality would be anticipated.

4.9 Noise

Alternative 1 – "No Action": Under the No-Action Alternative, there would be no modifications to the existing flood risk management system and no noise impacts

Alternative 2 – Maintain previously approved levee improvements: No significant noise impacts are expected to result from implementing Alternative 2. Additional noise impact details are discussed in Section 10.8 of the 2008 Environmental Assessment.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): No significant noise impacts are expected to result from implementing the Recommended Plan.

Impacts would be the same as the Future Conditions with Recommended Plan in Section 10.8 of the 2008 Environmental Assessment.

4.10 Air Quality

Alternative 1 – "No Action": No significant impacts to air quality are anticipated from the No Action alternative. See Section 10.9 of the 2008 Environmental Assessment for further details regarding air quality.

Alternative 2 – Maintain previously approved levee improvements: No significant air quality impacts are expected to result from implementing Alternative 2. The project is located in an attainment area, which is an area wherein the concentrations of all criteria pollutants meet the NAAQS (EPA, 2015). Failure of the levee would result in possible air quality impacts as indicated under the No Action alternative. Additional air quality impact details are discussed in Section 10.9 of the 2008 Environmental Assessment.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): No significant air quality impacts are expected to result from implementing the Recommended Plan. The project is located in an attainment area, which is an area wherein the concentrations of all criteria pollutants meet the NAAQS (EPA, 2015). Impacts would be the same the Future Conditions with Recommended Plan in Section 10.9 of the 2008 Environmental Assessment.

4.11 Socioeconomics

Alternative 1 – "No Action": No Action alternative could result in severe flood damage to things like urban neighborhoods, schools, local businesses, industrial areas, city infrastructure/utilities, and an airport from levee failure. Business owners and residents would likely incur large premium increases for flood insurance. Insurance requirements would discourage new business development and the entry of large private employers. The Topeka sewage treatment facilities would likely be damaged and their operations interrupted periodically. Also, Topeka would also likely lose opportunities for development in parcels located in the Oakland area. Additional No Action socioeconomic impact details see Section 10.10 of the 2008 Environmental Assessment.

Alternative 2 – Maintain previously approved levee improvements: Failure of the levee would result in possible socioeconomic impacts as described under the No Action alternative. For additional Alternative 2 socioeconomic impacts see Section 10.10 of the 2008 Environmental Assessment. Alternative 2 is not expected to result in any significant impacts to socioeconomics.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): Alternative 3 would address all structural weaknesses in the Oakland levee system and protect everything within the levee to a one-percent annual exceedance probability of flood risk management. Alternative 3 impacts to socioeconomics would be similar to the impacts of the Future Conditions with the Recommended Plan in Section 10.10 of the 2008 Environmental Assessment. No significant impacts to socioeconomics are expected from Alternative 3.

4.12 Hazardous, Toxic, and Radioactive Wastes (HTRW)

Alternative 1 – No Action Alternative: The No Action Alternative would have no effect on any HTRW within or adjacent to the project area. See Section 11.0 in the 2008 Environmental Assessment for further details.

Alternative 2 – Maintain previously approved levee improvements: A former city dump was identified at the southwest corner of the proposed borrow area. It was described as having debris from a 1968 tornado. The limits of the disposal cells are unknown. The project sponsor would be responsible for costs of handling and removing any HTRW in the event any is discovered. If HTRW is discovered the contractor would resume work only at such a time as directed and agreed to by the USACE and project sponsor. By taking the necessary precautions described herein, it is not expected that Alternative 2 would result in any direct or indirect significant impact to known HTRW sites. See Section 11.0 in the 2008 Environmental Assessment for further details.

Alternative 3 – Modify previously approved levee improvements (Recommended Plan): The Recommended Plan would have identical concerns relative to HTRW concerns as described for Alternative 2. The Recommended Plan would implement the same precautions to avoid any direct or indirect significant impacts to known HTRW sites. Though the borrow area would be expanded to the area as seen on Figure 3, no HTRW sites or concerns were identified by USACE during April 2015 investigations.

5.0 Cumulative Impacts

The Council on Environmental Quality (CEQ) Regulations defines cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (CEQ, 1997). The cumulative impacts addressed in this document consist of the impacts of multiple actions that result in similar effects on the natural resources. The geographical areas of consideration are actions located within/along the Oakland Levee system. For reference, the cumulative impacts discussed in Section 14.0 of the 2008 Environmental Assessment would be similar to alternatives in this document. Mitigation, as discussed Section 14.0 of the 2008 Environmental Assessment, does not apply to this document because proposed alternatives herein do not require mitigation.

Cumulative impacts of the proposed action, consists of relatively minor adverse impacts to the natural environment and aesthetics, with overall positive benefits to the socio-economic environment based on an improved level of protection to the local infrastructure. The project action is not expected to induce development since this plan would result in modifications to an existing levee system. The proposed action would not involve a levee raise or additional levees, but would only correct existing geotechnical and structural weaknesses to increase the reliability of the flood risk management system for the Oakland Levee system in Topeka, KS.

Implementation of the project would involve temporary impacts to prime farmland identified as borrow sources, aesthetics, wildlife resources, recreation, and human environment thru construction- related noise and minor traffic disruptions. In addition, to reduce impacts to nesting birds, no construction activities in woodland areas would occur during April 1 to July 15. All trees would be removed during November to February to reduce impacts to northern long-eared bats.

The project induced impacts to agricultural areas are considered temporary because steps would be taken to allow these areas to return to agricultural use after borrow and construction operations. Such measures would likely include preservation of the top layer of soil, which would be returned to the site, minimizing excavation depths to reduce impacts to the drainage of fields, and excavating prior to or after the harvest season to minimize impacts to crops. In addition, no adverse direct or indirect impacts to aquatic resources or water quality are anticipated to occur from project construction activities. For all construction activities, Best Management Practices would be used to minimize the introduction of fuel, petroleum products, or other deleterious material from entering into the waterway and adjacent resources. Control measures would include use of erosion control fences; storing equipment, solid waste, and petroleum products above the ordinary high water mark and away from areas prone to runoff; and requiring that all equipment be clean and free of leaks. In addition, no disproportionate impacts to minorities and low-income groups, and sensitive populations are anticipated to occur from project-related activities.

Past actions such as the clearing of forest for timber and urban and industrial development, flood control, as well as the conversion of forest to agriculture have contributed to substantial adverse impacts to the Kansas River ecosystem. Loss of floodplains and wetlands to agriculture and development has caused loss of biodiversity over the last 100 years. In general, flood risk management reservoirs, dams and weirs have lead to ecological deterioration, increases in contamination, disruption of sediment transfer, and hindrances to fish passage to upstream reaches (Merritt and Cooper, 2000; Mant and Janes, 2006). However, the city water control structure on the Kansas River has positively helped by preventing the spread of invasive species, such as Asian carp upstream from its confluence with the Missouri River.

As the City of Topeka continues to grow and expand through residential development, transportation projects, and commercial development among other activities additional loss of woodland and other habitat types could occur. Other land changes have resulted from construction of levee systems and major changes in transportation over the past several decades (e.g. highway construction and improvements, bridge replacements and rehabilitations). Federal flood risk management involvement within the Kansas River levee units was initiated between the 1940's and the early 1950's, and again after the 1951 flood. The 1951 flood contributed to the support for building flood control reservoirs and improving levee systems throughout eastern Kansas. In Topeka, Federal flood risk management projects consisted of the construction of floodwalls, earthen levees, channel improvements and drainage structures for various levee units. Additional improvements to the levee system were completed in the late 1970s. Today, most of the project area is developed with residential, commercial and industrial development. No known actions have occurred in the project vicinity that would contribute the cumulative impacts associated with this project.

The impacts resulting from proposed modifications to the existing levee system consist of minor and short term impacts on the human environment and agriculture areas impacted from the project; as well as best management practices to avoid impacts to aquatic resources and water quality. Therefore, these project impacts are considered minor and insignificant when added to other past, present or future actions.

6.0 Compliance with Environmental Quality Statutes

Compliance with environmental laws is listed in Table 1.
Table 1: Compliance with environmental quality statutes.

Federal Policy	Compliance
Archeological Resources Protection Act, 16 U.S.C. 470, et seq.	Full Compliance
Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq.	Full Compliance
Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.	Full Compliance
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	Not Applicable
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full Compliance
Environmental Justice (Executive Order 12898)	Full Compliance
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not Applicable
Farmland Protection Policy Act, 7 U.S.C. 4201, et. seq.	Full Compliance
Federal Water Project Recreation Act, 16 U.S.C. 4601-12, et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.	Full Compliance
Floodplain Management (Executive Order 11988)	Full Compliance
Invasive Species (Executive Order 13122)	Full Compliance
Land and Water Conservation Fund Act, 16 U.S.C. 4601-4, et seq.	Not Applicable
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not Applicable
Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712	Full Compliance
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full Compliance
National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470a, et seq.	Full Compliance
Protection & Enhancement of the Cultural Environment (Executive Order 11593)	Full Compliance
Protection of Wetlands (Executive Order 11990)	Full Compliance
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Full Compliance
Wild and Scenic River Act, 16 U.S.C. 1271, et seq.	Not Applicable

NOTES: a. Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or post authorization).
b. Partial compliance. Not having met some of the requirements that normally are met in the current stage of planning.
c. Noncompliance. Violation of a requirement of the statute.
d. Not applicable. No requirements for the statute required; compliance for the current stage of planning.

7.0 Conclusion

Following an evaluation of environmental consequences, Alternative 3 has been identified as the Recommended Plan. This alternative best meets the purpose and need of the project as described in this document and in the 2008 Environmental Assessment. The Recommended Plan would not result in any significant adverse impacts, either directly, indirectly, or cumulatively to the human environment. Minor impacts could result from the removal of approximately 0.1 acres of treed habitat. This could have minor, although not significant, impacts on wildlife resources. Actions are incorporated into the plan to avoid any take of migratory birds. This plan would not likely adversely affect any threatened or endangered species. No wetlands would be impacted by this alternative. The Recommended Plan would likely have no affect on cultural resources. The plan would not significantly impact any Waters of the United States and the project sponsor or contractor would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from KDHE and/or other state and local permits if applicable.

8.0 List of Preparers

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