US Army Corps of Engineers

Lower Missouri River Jefferson City L-142 Flood Risk Management Feasibility Study

Final Feasibility Report and Integrated Environmental Assessment

Appendix F Public Involvement and Agency Coordination

July 2026

MISSOURI DEPARTMENT OF NATURAL RESOURCES

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1 INTRODUCTION

1.1 Project Purpose

The purpose of this study is to explore opportunities to reduce flood damages to properties and businesses along the left bank of the Missouri River near River Mile (RM) 142. Each alternative is evaluated for effectiveness, efficiency, completeness and acceptability. This report identifies the preferred alternative for reducing recurring flood damages in the project area and the federal interest in constructing that alternative. It also documents the formulation and selection process for the project recommendations as well as similar information for the final array of alternatives to the recommended plan. Implementation of this study could lead to a Federally supported construction component if a solution is found to be in the Federal interest.

The Integrated Feasibility Report and Environmental Assessment (IFR/EA) combines an evaluation of project feasibility and an environmental analysis to assess the impacts of proposed alternatives according to the National Environmental Policy Act (NEPA). NEPA requires that Federal agencies disclose the potential environmental consequences of a proposed action and allow for public review and comment on the proposed action. The Corps' Planning processes and policies also require public and agency involvement to seek input and feedback from partners, stakeholders, and agencies throughout the study process in order to assist in gathering information, evaluating and comparing alternatives and in consideration of selecting the recommended plan. This appendix has been created to describe those processes.

1.2 Federal and State Agency and Public Involvement Goals and Objectives

This appendix describes the framework for distributing and providing access to information regarding the development of the IFR/EA; promoting an understanding of the Corps' Planning and NEPA process; and providing opportunities for Federal and state agency and public involvement. The specific goal of the NEPA process is to disclose the effects of the proposed action and solicit comments from Federal, state and local entities including the public as well as to inform the public on the proposed action. The objectives of the Corps' Federal/state agency and public involvement program include:

- Fulfilling the NEPA requirements
- Maintaining community involvement in the study process by providing the public with project updates and opportunities to review and comment on alternatives
- Helping to formulate and evaluate alternatives for the planning process
- Providing opportunities for Federal/state agencies to provide input
- Using a variety of media including a website, handouts, slide presentations, in-person and virtual meetings, and news media releases to provide information, and
- Demonstrating how input was considered and incorporated during the study process.

1.3 Lead Agency

The Corps is responsible for managing the feasibility study process and ensuring that all environmental commitments are completed for this project.

1.4 Project Sponsor

The non-federal sponsor for this study is the Missouri Department of Natural Resources (MoDNR).

1.5 Coordinating Agencies

Federal and state agencies that were invited to provide feedback on the proposed project are:

- Environmental Protection Agency (EPA)
- Federal Emergency Management Agency (FEMA)
- USDA-Natural Resources Conservation Service (NRCS) Missouri
- Federal Aviation Administration (FAA)
- Missouri Department of Conservation (MDC)
- Missouri Department of Natural Resources (MoDNR)
- Missouri Department of Transportation (MoDOT)

A sample letter sent to agencies is attached to this appendix as Item 1.

1.6 Tribal Nations

Government-to-Government letters were distributed to the following tribal governments:

- Assiniboine and Sioux Tribes of Fort Peck
- Blackfeet Nation
- Cheyenne River Sioux Tribe
- Chippewa Cree Tribe of the Rocky Boys' Reservation
- Crow Creek Sioux Tribe
- Crow Nation
- Delaware Nation
- Delaware Tribe of Oklahoma
- Eastern Shoshone Tribe
- Flandreau Santee Sioux Tribe
- Fort Belknap Indian Community Gros Ventre and Assiniboine Tribes
- Ho-Chunk Nation
- Iowa Tribe of Kansas and Nebraska
- Iowa Tribe of Oklahoma
- Little Shell Chippewa Tribe
- Lower Brule Sioux Tribe
- Kaw Nation
- Kickapoo Tribe of Kansas
- Mandan, Hidatsa, & Arikara Nation
- Miami Nation of Oklahoma

Northern Arapaho Tribe
Northern Cheyenne Tribe

- Oglala Sioux Tribe
- Omaha Tribe
- Osage Nation
- Otoe-Missouria Tribe
- Pawnee Nation of Oklahoma
- Ponca Tribe of Nebraska
- Ponca Tribe of Oklahoma
- Prairie band Potawatomie Nation
- Rosebud Sioux Tribe
- Sac and Fox Nation of Missouri in Kansas and Nebraska
- Sac and Fox Nation of Oklahoma
- Sac and Fox Tribe of the Mississippi in Iowa
- Santee Sioux Nation
- Sisseton-Wahpeton Oyate
- Spirit Lake Tribe
- Standing Rock Sioux Tribe
- Turtle Mountain Band of Chippewa Indians
- Winnebago Tribe of Nebraska
- Wyandotte Nation
- Yankton Sioux Tribe

A sample letter sent to Tribal Nations is attached to this appendix as Item 2. The Osage Nation requested to be a formally designated cooperating agency for the study.

2 PUBLIC AND STAKEHOLDER MEETINGS

The following section documents the public and stakeholder meetings carried out for the study. These include study open houses for the public/stakeholders, public meetings on the draft report, meetings with individual landowners, and progress update meetings.

2.1 Public Open Houses

The first open house was held May 22, 2023 in Jefferson City. The USACE team provided an overview of the study, gold, objectives, and planning process. An initial set of measures and management themes were also shared. After the presentation, the public was invited to visit stations to discuss specific issues including environmental resources, levees, hydrology and hydraulics, and the feasibility study process. Maps of the area were also available to gather ideas from stakeholders.

2.2 Study Public Meetings

Public meetings were held November 13, 2023, February 27, 2024, April 25, 2024, and September 26, 2024. At these public meetings, the USACE team provided updates on the plan formulation and study progress, project objectives and initial alternative strategies and explained how those, and future alternatives would be evaluated. The presentations concluded with a timeline for the study and public involvement, and information on how interested parties could be involved in the study, either by providing input or sending questions to USACE or the NFS. The presentations used at the public meetings are available at the USACE website.

Specifically, at the April 25, 2024 meeting, the public was informed of the screening of CA1, raising the existing Capital View levee to 34' flood stage, which was a plan with a lot of local support. The public and stakeholders were informed that there was not federal interest in this alternative. At the September 26, 2024 meeting, USACE shared that the Tentatively Selected Plan (TSP) milestone was met, but with the understanding that the NFS must concur with the federally-preferred plan of CA13, Hybrid Alignment, Profile at 1% AEP prior to the next feasibility study milestone. If the current NFS did not agree, and a new NFS was not identified, the study would be terminated.

2.3 Meetings with Landowners

Landowners in the affected project area were invited not only to public meetings, but also to have one-on-one conversations about the potential project. These meetings were led primarily by the NFS, MoDNR. A summary of these meetings is attached to this appendix as Item 3.

2.4 Meetings with the Business Community

Businesses in the affected project area were invited not only to public meetings, but also to have one-on-one conversations about the potential project. USACE engaged numerous times throughout the process in order to understand the impacts of flooding to business operations, accurately capture potential benefits through a comprehensive benefits evaluation, and to understand potential impacts of a new levee to current operations. USACE was invited to speak to a group of businesses represented through the Jefferson City Regional Economic Partnership (JC-REP) on July 11, 2024. Questions included potential impacts to their businesses from a new levee, access if a new levee were constructed, and the potential for additional resiliency in

the area. Additional meetings were held by the NFS, MoDNR. A summary of their engagement with the business community is attached to this appendix as Item 4.

3 MEETINGS WITH AGENCIES

The Corps also held two agency kickoff meetings in March 2023.

For each of these meetings, the agenda focused on three areas of discussion: the feasibility study process, the study area and preliminary alternative strategies, and the environmental and cultural resources compliance process. The Corps provided an overview of each topic. Each overview was followed by a question-and-answer session specific to that topic. At the end of the meetings, representatives of agencies in attendance were given the opportunity to provide feedback.

Tribal Nations were invited to a meeting on June 6, 2023 for the Jefferson City L-142 study. The Osage Nation formal cooperating agency meeting was held May 8, 2024.

4 PUBLIC NOTICES

The public was updated periodically through news announcements on the public website and social media. An email distribution list was maintained and distributed to containing names gathered at public meetings, from online comments and emails, and from the NFS.

4.1 Press Releases

Press releases were sent out from the Kansas City District to promote the study and public engagement opportunities. The first release was sent May 15, 2023, and announced the May 22 public meeting. The second release was distributed November 6, 2023, and announced the November 13 public meeting. A third release dated February 20, 2024, announced the February 26 public meeting. The fourth press release was sent April 17, 2024, informing the public of the April 25 public meeting. A fifth press release, sent September 17, 2024, invited the public and interested stakeholders to the September 26 public meeting. Additional press releases will be used in the future to inform the public of events and opportunities for engagement.

4.2 Posting to Project Website

The project webpage located at https://www.nwk.usace.army.mil/Missions/Civil-Works/Civil-Works-Programs-And-Projects/Lower-Missouri-River-Basin/Jefferson-City-MO-L142/ is linked to the Kansas City District's website. The webpage provides links to study documents that are available for public review, a schedule, and information regarding public involvement opportunities.

5 PUBLIC COMMENTS

The draft Integrated Feasibility Report and Environmental Assessment was made available for a 55-day public review and comment period starting on 2 December 2024. The draft Finding of No Significant Impact was made available for a separate 30-day public review and comment period starting on 28 February 2025. USACE received 24 comments on these documents. **Table 1** documents which organizations and individuals submitted comments. **Table 2** describes these comments and provides USACE's responses.

Table 1. Public Comment Submissions

Public Comment Number	Commenter
JC-PC-01	Aaron Jeffries, Missouri Department of Conservation
JC-PC-02	Alan Kelley, Iowa Tribe of Kansas and Nebraska
JC-PC-03	Alan Kelley, Iowa Tribe of Kansas and Nebraska
JC-PC-04	Scott Tener, Federal Aviation Administration
JC-PC-05	Garry Trachsel
JC-PC-06	Peggy Smart, Smart Brothers Farms, Inc.
JC-PC-07	Peggy Smart, Smart Brothers Farms, Inc.
JC-PC-08	Garry Trachsel
JC-PC-09	Shane Kinne, Coalition to Protect the Missouri River
JC-PC-10	Jim Keeven, SelecTurf, Inc.
JC-PC-11	Jim Keeven, Renz Levee District
JC-PC-12	Caroline Pufalt, Sierra Club Missouri Chapter
JC-PC-13	Kelly Forck, Cole Junction Levee District and Rievaux Levee District
JC-PC-14	Sam Bushman, Jeff Hoelscher, & Harry Otto, Cole County Commission
JC-PC-15	Matt Vitello, Missouri Department of Conservation
JC-PC-16	Greg Callahan, Hitachi Energy North America
JC-PC-17	Julie A. Allen, Jefferson City Area Chamber of Commerce
JC-PC-18	Gary Plummer, Jefferson City Area Chamber of Commerce
JC-PC-19	Cameron Cotten, Jefferson City Area Board of Realtors, Inc.
JC-PC-20	Alan Kelley, Iowa Tribe of Kansas and Nebraska
JC-PC-21	Luke Holtschneider, Jefferson City Regional Economic Partnership
JC-PC-22	Greg Callahan, Hitachi Energy North America
JC-PC-23	Emily Pherigo, United States Fish and Wildlife Service
JC-PC-24	Ashley Grupe, Missouri Department of Natural Resources

Table 2. Public Comments and USACE Responses

Public Comment Number	Comment(s)	Response
JC-PC-01	"Please keep Matt and I in the loop related to Church Farm and the use of the levee for borrow. Our current agreement with OA requires MDC to maintain the current levee which of course could be amended for the greater good. In addition we need to be mindful of the private landowner inholding protected by the levee. We were proposing to repair the levee when the study showed little change in the Jeff City gauge. Let me know if we need to schedule a meeting."	USACE would continue its coordination with MDC including for the potential use of the Church Farm Conservation Area as a borrow site, as detailed in **Section 7.2**. USACE assumes the Church Farm Conservation Area would be used as a borrow source for the federal interest plan and no modifications would be made to the levee system that covers that area. **Section 4.1** has been updated to state this assumption clearly. Because no modification to the levee would be made at this location, USACE anticipates that the federal interest plan would not cause a change in flooding conditions experienced at the private landowner inholding.
JC-PC-02 JC-PC-03 JC-PC-20	"That area looks like an old river bottom. I have no concerns. I Concur No Significant Impact"	USACE acknowledges this feedback. **Section 2.2** identifies the study area's general setting as Missouri River floodplain.

Public Comment Number	Comment(s)	Response
JC-PC-04	"We appreciate the opportunity to comment on the proposed project. The Jefferson City Municipal Airport participates in the FAA's State Block Grant Program where planning responsibilities are delegated to the Missouri Department of Transportation. Please reach out to Kyle LePage, MoDOT Director of Aviation, for impacts to the airport. This project is adjacent to the Jefferson City Municipal Airport and may directly impact the safety or utility of the airport. Portions of the project are under runway approach paths. Above ground development must be formally submitted for airspace analysis. The project will require formal notice and review for airspace considerations under 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace. Please go to http://oeaaa.faa.gov and click on the "Notice Criteria Tool" found at the left-hand side of the page. We recommend a 120-day notification to accommodate the review process and issue our determination letter. More information on this process may be found at: http://www.faa.gov/airports/central/engineering/part77/ Several items may need to be checked such as any changes in ground elevation, structures, towers, poles, objects, and temporary construction equipment that exceed the notice criteria. For projects involving long routes, multiple locations will need to be checked."	USACE would continue its coordination with the FAA and MoDOT regarding potential impacts to the Jefferson City Memorial Airport. USACE would request a review for airspace considerations for any proposed activities within the vicinity of the airport, as appropriate. **Section 7.2** has been updated to state that the federal interest plan would require formal notice and review for airspace considerations before project implementation. USACE acknowledges the recommendation for a 120-day period for notification, review, and issuance of a determination letter.

Public Comment Number	Comment(s)	Response
JC-PC-05	"I am requesting that the proposed plan for the Capital view levee be revised to include funds to raise the Reveaux levee to withstand the extra waterflow caused by the new levee. I am requesting specifically that the Reveaux levee be raised on the upper end from hwy 94 to the Trachsel/Fowler line (approximately 11,000 feet) to the same level as the Capital view levee. Also from the Trachsel/Fowler line to the lower corner of the Reveaux levee at the Missouri River that the levee will be tapered to its existing level. I also propose that the dirt from this project should be hauled in from perhaps the prison farm because we do not have enough dirt on adjacent farms to raise the levee that high."	Hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Reveaux levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan, due to the federal interest plan's levee setback. Specifically, for the Reveaux levee, the overtopping annual exceedance probability is 14.4% (1/7 year) in the Future Without Project condition and 15.3% (1/7 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**. Borrow sites are identified within the report. For the Feasibility analysis, all borrow for the project is assumed to be obtained from the Church Farm leveed area and imported to the site.

Public Comment Number	Comment(s)	Response
JC-PC-05	"In the past all levees in this area have been maintained at a somewhat consistent level. This is caused by the corp of engineers and the amount of finances available in the districts. Our annual funding level is approximately $35,000. Your plan to spend $263,000,000 is enormous compared to Capital view's and Reveaux's budget. This amount of expenditure will change the river flow and surely cause extensive damage to our land during a flood above the 32 feet level."	As part of evaluation process, USACE considers potential impacts that each alternative could have on the people in and around the study area, which includes consideration of financial impacts. As stated in **Section 4.1** "Hydrology and Hydraulics", hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Missouri River flows would result in similar flow patterns and adjacent inundation probabilities in the existing and proposed conditions due to the federal interest plan's levee setback. The levee setback ensures the proposed levee does not fully interact with the Missouri River flow until most of the adjacent levees overtop. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**. Water surface elevation around the study area would be expected to slightly increase during select flood events, generally for storms greater than 10% AEP, which is comparable to a 2019-level-impact event (approximately 33-ft stage). Under these conditions, increases in depth would be located over areas that would be fully inundated in Future Without Project conditions regardless of project implementation (post levee overtopping).

Public Comment Number	Comment(s)	Response
JC-PC-05	"Your study is for 50 years into the future. We have had 5 floods in the past 50 years that have been at or above the 32 foot level. Those levee breaches have been 2 on our upper levee and 3 along the river. The addition of dikes and the Adrain Island on the Jefferson City side has changed the water flow and pushes more water our way. Your plan will increase the rate of flow of water and cause more pressure on our levee. Please prepare a detailed hydrology study to determine the potential impact of your proposed levee increase to 36 feet on our land with a 32 foot levee. I am certain that your new hydrology study will show a need to raise the South down river levee and the western levee along Nieman Creek to handle the change in flow patterns. Remember when you stop the flow of water at the levee you develop a dynamic head of water which we have seen as high as 2 feet. We certainly do not have the money or dirt to protect ourselves. A bad flood could wipe out a large portion of the land in the Reveaux levee district. This would be from sand and erosion. I object to this proposal unless you publish a study that shows there is no impact on our levee."	The Missouri River has experienced many major floods in recent history. This data has been used in our analysis in combination with the recently updated Missouri River Flow Frequency Analysis (2023) (hydrologic study) to ensure existing and projected future conditions have been fully accounted for. A detailed hydrology and hydraulic analysis at Jefferson City is provided in **Appendix A1** of the report. The hydraulic model for this study was calibrated to the 2019 flood event to ensure hydraulic patterns documented in the field are represented in our modeling. **Section 8.4** of **Appendix A1.3** details the approach taken to identify CA13 as the plan with federal interest. Special attention was taken during the development of alternatives to avoid impacts on adjacent properties both upstream and downstream of the project area. Any alternative with a substantial effect on adjacent properties was removed from consideration. USACE notes and acknowledges all comments both in favor and opposed to project implementation. This feedback is summarized in **Section 7.2** and provided in full in **Appendix F**.
JC-PC-05	"In talking to 3 of the Reveaux board members they do not approve of your plan and say they have stated that in several of your meetings. Also conversations with several land owners say they also object to your proposals."	USACE acknowledges this opposition to project implementation. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. This perspective is noted and considered in **Section 7.2**.

Public Comment Number	Comment(s)	Response
JC-PC-06	"I think the meeting should have been postponed because someone like me still could not venture out because of the slick spots on the roads and sidewalks. How can we participate in person if not given the opportunity?"	**Section 7.2** details the public scoping meetings that have been held for this study. USACE held public scoping meetings in May 2023, November 2023, February 2024, April 2024, September 2024, and January 2025. USACE has endeavored to provide multiple opportunities for in-person participation. The study's local sponsor has also been heavily involved in obtaining public feedback and meeting with stakeholders who show additional interest.

Public Comment Number	Comment(s)	Response
JC-PC-06 JC-PC-07	"I sent in information pertaining to the flooding inside of the Renz Levee whereby only one year in ten we were not able to plant and harvest a crop. There are a number of businesses within the confines of the Renz Levee as well as several hundred acres of farmland, YMCA soccer complex and JC Rec ball fields. I still do not understand how Jefferson City was allowed to place their sewer plant in the flood zone when we are unable to build there. Again, I cannot understand how the Jefferson City Sewer Plant was able to be built in the flood plain in Callaway County and yet we may be subject to flooding more often if this levee is constructed to protect that Plant."	USACE acknowledges the information submitted regarding the conditions and history of the area. Floodplain construction ordinances are implemented at the local and county level. It should be noted that the federal interest plan would reduce flood risk for the Jefferson City Memorial Airport, Missouri Air National Guard, Hitachi Energy, Capital Sand, and major highway corridors, in addition to the Jefferson City Regional Wastewater Treatment Plant. **Appendix A1** details the USACE's hydrological and hydraulic analysis. The federal interest plan was formulated with a setback from the river and Turkey Creek top of bank to minimize hydraulic impacts to adjacent levee districts and property owners during flood events. As stated in **Section 4.1** "Hydrology and Hydraulics", the hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Renz levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Specifically, for the Renz levee, the overtopping annual exceedance probability is 17.3% (1/6 year) in the Future Without Project condition and 17.3% (1/6 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**.

Public Comment Number	Comment(s)	Response
JC-PC-06	"The Goller levee is also in danger of overtopping due to the higher river level if the levee being considered is constructed. This levee is in danger of washing away because the Corps has rejected our request for bank stabilization partially caused by notched dykes. When this levee was built, there was several acres of land outside the levee to protect the levee. This problem has been ignored."	**Appendix A1** details USACE's analysis of the existing hydrological and hydraulic conditions, which includes previously constructed and modified infrastructure such as dikes. The hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Renz North levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Specifically, for the Renz North levee, the overtopping annual exceedance probability is 21.6% (1/5 year) in the Future Without Project condition and 21.6% (1/5 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3, Section 8.5.1.**

Public Comment Number	Comment(s)	Response
JC-PC-06	"How can DNR sponsor this levee project when it does not take care of other projects they service? Johnson Grass and other weeds are not controlled through Callaway County. There is a law to eradicate Johnson Grass through Callaway County. Also, there is a noxious weed that is not being contained along the Katy Trail through the Goller property. Rush is being spread onto the Goller farmland because it is not being eradicated. This weed requires expensive Chemicals to control it. Those Chemicals are so strong that the area it is used on will cause the farmland unproductive for an extended period, causing a loss of revenue to the owner. The Katy Trail only maintains a few feet on either side of the Trail. They also do not mow the area in Tebbetts around the fur shed where a mural was placed and weeds grow up in front of it. Locals use their time and expense to mow the area so it will not be an eyesore to our town. Next to the bathroom facility they do mow but the areas around the picnic tables is left so people have to wade in tall grass to sit there. These sites are parks and leave an impression on those who use the Katy Trail."	USACE and MoDNR are partnered on this feasibility study, but the non-federal partner for implementing the federal interest plan would be the City of Jefferson City, Missouri. As discussed in **Section 4.1** "Terrestrial Habitat", invasive species would be controlled in disturbed areas to prevent their spread. Native floodplain forest habitat would be restored in the Capital View Area borrow site. Based on comments provided in a Planning Aid Letter provided by the US Fish and Wildlife Service, forest communities like this one are able to compete with invasive plants. This letter is provided in **Appendix F**. The monitoring and adaptive management plan developed for this habitat restoration includes invasive species management. This document is provided in **Appendix C1**. As discussed in **Section 4.1** "Aesthetics and Recreation", USACE anticipates this habitat restoration would benefit the area's aesthetic value over the long-term.
JC-PC-07	"I have responded to the request to comment about the lomoriverstudy, but you have said that you have not received many comments."	USACE has documented all comments received during the public comment review period. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.
JC-PC-07	"My comments covered the area from Cedar Creek to Turkey Creek, that has farmland, sports complexes, sod farm and numerous other business within the confines of the Renz Levee between those two creeks. Businesses in that area feel any comment they make will not do any good as they feel the DNR and the Corps of engineers will not show their comments any consideration."	USACE is keenly interested in the thoughts and views of all stakeholders in this study and values all input provided through public comment and attendance at public meetings. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments received on this study are summarized in **Section 7.2** and provided in full in **Appendix F**.

Public Comment Number	Comment(s)	Response
JC-PC-07	"The cost of the levee alone and the area it covers should be proof enough without the financial problems it will cause to Jefferson City and the surrounding area within Renz Levee should be proof it is not a favorable conclusion."	To evaluate the federal interest plan, USACE has conducted an economic analysis that considers the cost of project implementation, the anticipated costs of future project maintenance, and the anticipated economic effects on local agriculture and business, among other considerations. **Chapter 5** of the main report details the comparison of plans, the evaluation of their total net benefits, and the plan selection. **Section 6.4** provides greater detail on the costs associated with the federal interest plan. Based on this analysis, USACE has determined that the federal interest plan would address the study's purpose and need in a cost-effective manner by reducing the costs associated with flooding over the long-term. USACE expects this to be achieved by maintaining access to jobs, transportation, emergency care, and critical infrastructure more frequently during flood events when compared to the current levee performance. As stated in **Section 4.1** "Hydrology and Hydraulics", the hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Renz levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Specifically, for the Renz levee, the overtopping annual exceedance probability is 17.3% (1/6 year) in the Future Without Project condition and 17.3% (1/6 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**.

Public Comment Number	Comment(s)	Response
JC-PC-08	"I want it recorded that as a downstream land owner I object to this levee proposal. As proposed this levee would have serious consequences for my land and the Reveaux levee district. As I stated, I own 2 farms in the Reveaux levee district."	USACE acknowledges this objection and carefully considered it and other comments received prior to identifying CA13 as the federal interest plan. The comments received on this study are summarized in **Section 7.2** and provided in full in **Appendix F**. Hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Reveaux levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan, due to the federal interest plan's levee setback. Specifically, for the Reveaux levee, the overtopping annual exceedance probability is 14.4%(1/7 year) in the Future Without Project condition and 15.3% (1/7 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**.

Public Comment Number	Comment(s)	Response
JC-PC-09	"To begin, CPMR would like to thank the Kansas City District for the time and intention put into Jefferson City spinoff study to date. From the beginning, CPMR's priority for this study was to ensure that local stakeholder input was prioritized via a rigorous outreach and public meeting process. Though reaching local consensus in the Jefferson City area was a known challenge, we appreciate your willingness to work collaboratively with the Missouri Department of Natural Resources, the University of Missouri and other organizations, such as CPMR, to ensure all voices were heard or had the opportunity to provide their input. At the same time, we have directly heard the concerns of many stakeholders who will be impacted by this project. A project of this nature will have a significant impact on individual stakeholders who own land and businesses in the study area, potentially altering their farms and business' productivity and long-term vitality. We empathize with and understand these stakeholders' hesitancy surrounding this project."	USACE is keenly interested in the thoughts and views of all stakeholders in this study. As detailed in **Section 7.2**, USACE held six public scoping meetings during the development of this feasibility report in May 2023, November 2023, February 2024, April 2024, September 2024, and January 2025 to solicit stakeholder perspectives. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments received on this study are summarized in **Section 7.2** and provided in full in **Appendix F**. **Chapter 4** of the main report details the consequences that would be anticipated from the implementation of any alternative in the final array. This evaluation includes consideration for the potential impacts experienced by these stakeholders.
JC-PC-09	"In general, CPMR is encouraged to see the City of Jefferson sign on as the non-federal sponsor. While there is still work to be done regarding gathering more broad stakeholder support around a Tentatively Selected Plan (TSP), we believe the process continuing to move forward is vital in order to keep the door open for increased flood risk resiliency in the Jefferson City reach of the river. Though the study process itself is lengthy, the time to construction of any project is many years out. This highlights the impact this potential project will have on future generations. In addition, we understand the project is at approximately 1% design, therefore there is still opportunity for stakeholder input to shape the final product. This can only happen if the study continues to move forward."	USACE acknowledges this perspective. This feedback is reflected in **Section 7.2** and in **Appendix F**. The final federal interest plan documentation for the feasibility – level study will conclude at an approximate 35% design. Further refinement of the design will be required if considered for construction implementation.

Public Comment Number	Comment(s)	Response
JC-PC-09	"With those concerns in mind, we believe the following questions and clarifications could provide additional information that will be useful to these stakeholders as the process moves forward: While the TSP, CA13 leaves part of the Capital View Levee in place, it still removes the western portion, opening up currently productive ground for increased flood risk. CA4 and CA8 are two of the alternatives that leave the whole of Capital View Levee in place. The report shows that each of these plans have negative net benefits. We understand that net benefits are the key factor in selecting a TSP. It would be helpful for stakeholders to have a full understanding of what drove the negative net benefits on each of these alternatives as well as any other major factors, such as conveyance impacts, beyond the high-level description included in the report."	Removal of portion of the existing Capital View levee along Turkey Creek is critical to project success and relieving flooding impacts for flows that have a higher likelihood of occurrence, within the 1 in 10 year (10% AEP) annual exceedance probability range. The removal of portions of Capital View levee directly reduces impacts on adjacent property owners. To evaluate the net benefits, USACE compares the annualized cost of implementing an alternative to the annualized benefits expected from it. This evaluation is summarized in **Section 3.5** of the main report and provided in full in **Appendix E**. In the case of this study, benefits include the reduction of flood damages and the prevention of traffic detours and delays caused by flooding impacts. For CA4 and CA8, USACE determined that the costs associated with building and maintaining these projects would be greater than the benefits that would be achieved. CA4 has a similar level of cost to the federal interest plan, but the levee would be constructed at a lower stage and thus overtop more frequently. CA8 would exclude benefits from some businesses and local stakeholders and negatively impacts access to the Katy Trail. All alternatives were discussed in public meeting settings, including the reasoning as to why certain alternatives were screened from consideration.

Public Comment Number	Comment(s)	Response
JC-PC-09	"With those concerns in mind, we believe the following questions and clarifications could provide additional information that will be useful to these stakeholders as the process moves forward: From a broader perspective USACE has continued to communicate that at this stage in the process the project is still at a low level of engineering design. It would be helpful for stakeholders to have a better understanding of what that means regarding the scope of possible design changes from now until final design. Stated more simply, what is on the table to be changed from this design and what cannot be changed?"	Project designs developed in this study are in a preliminary stage (approximately 35% to support the level of cost estimate) that would be further refined during the pre-construction engineering and design (PED) phase. At this time, USACE anticipates the basic details provided about the federal interest plan in **Section 3.4** in the main report would remain true regardless of refinements. USACE does not expect the levee stage (i.e., 41-feet), partial removal of Capital View Levee, or the critical infrastructure contained within the levee to change. Various disciplines identify opportunities for refinement in their appendix documents. Civil identifies levee alignment, utilities, recreational considerations, current land use, interior drainage and roadway infrastructure as some areas of refinement.

Public Comment Number	Comment(s)	Response
JC-PC-10	"I am very concerned that the L-142 levee proposal will substantially increase the river levels directly upstream of the project area. I farm just to the north of Turkey Creek and will have a 1 - 1.5 foot increase in water height. Our farm is protected by a private levee built with our own funds. The L-142 levee will cause increased hardship and problems for our farm and the potential for large economic loss in production."	**Appendix A1** details the USACE's hydrological and hydraulic analysis. The federal interest plan was formulated with a setback from the river and Turkey Creek top of bank to minimize hydraulic impacts to adjacent levee districts and property owners during flood events. As stated in **Section 4.1** "Hydrology and Hydraulics", the hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Increases to water surface elevations occur upstream of the federal interest plan in flow events greater than the 10% AEP (1/10 year), in which adjacent levees are overtopped in the Future Without Project scenario and flood depths would already exceed 10-feet in depth, resulting in stacking of water on top of water. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**.

Public Comment Number	Comment(s)	Response
JC-PC-10	"Our farm is protected by a private levee built with our own funds. When the levee was built I had to secure a "NO RISE" certificate for USACE that proved the levee would not increase water levels upstream on other landowners. Without this "No Rise" cetificate my levee could not have been built. I am confused that the same rule doesn't apply to the L-142 project. This was just one of many permits that had to be obtained through various agencies. I understand we are not a municipality or a huge global business, but the same standards that I had to work by are not being applied to the current proposal."	This project, like others undertaken by private entities, would also be subject to floodplain considerations and other permitting requirements. The development of the federal interest plan alignment and profile included incorporating levee setbacks to optimize levee height, incorporate critical infrastructure into the leveed area, and minimize changes to the base flood elevation. Construction of the federal interest plan's alignment would require a FEMA Conditional Letter of Map Revision (CLOMR) to document changes in floodplain hydraulics and base flood elevation (BFE) through the project area, which is applicable to both private and public projects. **Section 6.14** has been added to the main report to discuss coordination between USACE, FEMA, and local jurisdictions who participate in FEMA's National Flood Insurance Program. In efforts to fully understand project impacts, the hydraulic analysis for this study also quantifies and communicates impacts for a range of storm events from 50% (1/2 year) to 0.2% (1/500 year) storm events, in addition to considering impacts to the 1/100 year base flood elevation as required by FEMA for a CLOMR. It is of note that the setback proposed in the federal interest plan decreases the depth of Turkey Creek directly upstream of the proposed alignment in the most frequently occurring flows prior to adjacent levee overtopping, resulting in decreased loading of the directly adjacent upstream levees.

Public Comment Number	Comment(s)	Response
JC-PC-10	"I have read the entire Review Plan and if there is more information that I missed, I would I like to know."	The publicly released draft report and appendices were released along with the review plan. The report summarizes the full study process and contains the formulation of alternatives, the evaluation of anticipated impacts, and the selection of the Recommended Plan.
JC-PC-10	"I fear this levee proposal is for the benefit of many and the sacrifice of a few."	USACE acknowledges this feedback. USACE carefully considered this perspective, along with all other comments received, prior to identifying CA13 as the federal interest plan. Stakeholder perspectives such as this one are summarized in **Section 7.2** and provided in full in **Appendix F**.

Public Comment Number	Comment(s)	Response
JC-PC-11	"As President of the Renz Levee District I comment of behalf of the members of the district. After speaking with a number of landowners of the district there is great concern with increase in water levels due to the construction of the L-142 levee. The potential for catastrophic damage to the levee itself and the land that is protects could be irreparable. Increased height and longer duration of flooding was a common concern amongst the landowners. The Renz Levee District is opposed to the building of the L-142 Project."	USACE acknowledges this opposition to project implementation. USACE carefully considered this perspective prior to identifying CA13 as the federal interest plan. This perspective is noted and considered in **Section 7.2**. **Appendix A1** details the USACE's hydrological and hydraulic analysis. The federal interest plan was formulated with a setback from the river and Turkey Creek top of bank to minimize hydraulic impacts to adjacent levee districts and property owners during flood events. As stated in **Section 4.1** "Hydrology and Hydraulics", the hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Renz levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Specifically, for the Renz levee, the overtopping annual exceedance probability is 17.3% (1/6 year) in the Future Without Project condition and 17.3% (1/6 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**. It is of note that the setback proposed in the federal interest plan decreases the depth of Turkey Creek directly upstream of the proposed alignment in the most frequently occurring flows prior to adjacent levee overtopping, resulting in decreased loading of the directly adjacent upstream levees.

Public Comment Number	Comment(s)	Response
JC-PC-12	"Thank you for your continued work to engage Missourians in this effort to identify a plan which can reduce flood risk along the Missouri River in the Jefferson City area. We support the tentative alternative Hybrid CA13 as the best option available now. We appreciate the use of some non structural solution elements and the creation of additional environmental benefits as part of the proposal. Residents in the Jefferson City area and commuters to the Capital need more flood risk reduction. Given the power and variability of a river like the Missouri, an options which includes creating more room for the river to flow is a necessary approach."	USACE acknowledges this support for CA13. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**. As detailed in **Section 5.2**, USACE anticipates the federal interest plan would reduce flood risk for residents in the Jefferson City area and commuters to the state capitol. The federal interest plan would set the leveed area back from the Missouri River, partially restoring the river's floodplain access.

Public Comment Number	Comment(s)	Response
JC-PC-13	"Cole Junction Leeve Your study shows a potential increases of water level conditions of .3'-.4 on the west end (Church Farm), .75'-1.25' directly on the Leeve and it was stated in the meeting 1.5' at Grays Creek Mouth along the Cole junction Leeve system. Also the removal of the church farm Leeve. With this above information we have concerns of the increased risk of our Leeve system and protected properties within the area. What can be done to reduce these risk? How can we work to Improve the resiliency of this area? Thoughts needed moving forward for resiliency for all. • Elevate the existing Leeve to a level accounting for these increases. • Increase and add seep berms for the increase of water levels and durations of raised water levels. • Improve Storm and Seep water removal capacities and associated cost of operations. • Develop a flood gate on the Union Pacific Railroad river route due to increased river levels and less shielding due to removal of the Church Farm Leeve."	The scope of this study for structural improvements is limited to the existing Capital View leveed area. In accordance with current USACE regulation, select resiliency measures implemented on portion of a levee requires the full levee to be redesigned to meet federal levee standards. At this time, USACE does not anticipate borrow collection activities at the Church Farm Conservation Area would require the removal of the levee. USACE assumes this levee would be maintained. As stated in **Section 4.1** "Hydrology and Hydraulics", hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Cole Junction levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan. Similar Missouri River flows would result in similar flow patterns and adjacent inundation probabilities in the existing and proposed conditions due to the federal interest plan's levee setback. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**. Water surface elevation around the study area would be expected to slightly increase during select flood events, generally for storms greater than 10% AEP, which is comparable to a 2019-level-impact event. Under these conditions, increases in depth would be located over areas that would be inundated under FWOP conditions regardless (post levee overtopping). If the plan is considered for construction, full formulation of the federal interest plan would include identification of mitigation needed to compensate property owners due to change in hydraulic patterns.

Public Comment Number	Comment(s)	Response
JC-PC-13	"Rievaux Leeve Your study show a potential decrees in depth at this location. But it also stated that there is an increases in velocities with the increase of flow height with the project. With the above information we have concerns of our Leeve system and property within. What is being done to protect the concerns of these issues? How can we build more resiliensy on the upper Rievaux. The increased velocities at the lower end and higher river levels have grave concerns on the damages that will be imposed on our property and Leeve system. What can we do to harden and/or increases the existing Rievaux Leeve system. Could a Diversion berm added to focus water toward main channel?"	The scope of this study for structural improvements is limited to the existing Capital View leveed area. In accordance with current USACE regulation, select resiliency measures implemented on portion of a levee requires the full levee to be redesigned to meet federal levee standards. As stated in **Appendix A1, Section 8.5.3**, hydraulic modeling indicates that any changes to river velocities in the channel are within velocity parameters observed in existing flow conditions. Hydrologic and hydraulic modeling USACE has conducted for this study indicates that nearby levees (e.g., Rievaux levee) would not experience a detectable change in annual exceedance probability of overtopping with implementation of the federal interest plan, due to the federal interest plan's levee setback. Specifically, for the Rievaux levee, the overtopping annual exceedance probability is 20.7% (1/5 year) in the Future Without Project condition and 20.7% (1/5 year) in the federal interest plan condition. Hydraulic modeling for all considered alternatives was conducted and assessed for full understanding of any associated impacts. Modeling results regarding adjacent levees are described in greater detail in **Appendix A3**, **Section 8.5.1**.

Public Comment Number	Comment(s)	Response
JC-PC-14	"The Cole County Commission wishes to express our strong support for the Jefferson City L-142 Flood Risk Management Study and specifically supports Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increasing flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events. We strongly encourage USACE and MoDNR to adopt CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect the important regional assets in the area."	USACE acknowledges this support for CA13. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.
JC-PC-14 JC-PC-17 JC-PC-18 JC-PC-19	"Past flood events have repeatedly damaged or caused significant operational impacts to Jefferson City Memorial Airport, Jefferson City Regional Wastewater Treatment Plant, Missouri Air National Guard, Hitachi Energy, Capital Sand, and major highway corridors, which represent over $580 million in investments. The non-federal levee system is inadequate and poses an ongoing threat to the region's economic vitality and infrastructure reliability."	USACE acknowledges the importance of this critical infrastructure and its current vulnerability to flood risk in **Section 1.5** of the main report.
JC-PC-14 JC-PC-17 JC-PC-18 JC-PC-19	"By adopting CA-13 as the TSP, the USACE, and MoDNR will demonstrate their commitment to finding solutions acceptable to a variety of interests. The construction of a new federal levee system, proposed as CA-13, will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in North Jefferson City. The primary benefits of CA-13 include: • A 1% annual exceedance probability level of flood protection, reducing flood damage by $15.8 million annually • Allowing portions of the existing Capital View Levee to remain, maintaining existing levels of flood protection for agricultural lands outside the new levee • Minimizing private property impacts through strategic use of existing public right of way • Environmental benefits including increased wetland and riparian habitats • Minimized flood impacts to properties south of the Missouri River."	USACE acknowledges this feedback on the primary benefits of implementing the federal interest plan. This list of benefits is compatible with the list of the federal interest plan's benefits provided in **Section 5.2** of the main report.

Public Comment Number	Comment(s)	Response
JC-PC-15	"The Federal Tentatively Selected Plan, CA13, identifies Church Farm Conservation Area (CA) as a potential location from which to obtain borrow for construction of the proposed levee alignment. The Department is generally supportive of borrow material from Church Farm CA contributing to the success of the project. Appropriate excavation of borrow material can contribute to long term habitat development goals for the area. We recognize that many details remain to be clarified as the project would progress through the planning, engineering, and design phase and finally into construction. As those details are investigated, we request that coordination with Department staff occur well in advance of decisions on borrow location and extents, borrow area recovery, and logistics of access to and transport of borrow material."	Likely sources of borrow material for the implementation of the federal interest plan have been identified as a site within the Church Farm Conservation Area as detailed in **Section 6.7** Coordination with MDC and the implementation sponsor would continue during the design phase to refine the borrow area design including extents, borrow area recovery, and logistics of access to and transport of borrow material prior to any additional commitments.
JC-PC-16 JC-PC-22	"As a leading employer in Jefferson City where our team proudly manufactures transformers which are central to the reliability of our nation's energy grid and economy, we strongly express our support for the Jefferson City L-142 Flood Risk Management Study and specifically support the Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). We strongly encourage the quick adoption of CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect not only our operations but also the surrounding community, and other local businesses who remain at risk for future flooding. We look forward to doing our part to partner with USACE, MoDNR, City of Jefferson, and members of the communities we serve as the study progresses."	USACE acknowledges this support for CA13. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.

Public Comment Number	Comment(s)	Response
JC-PC-16 JC-PC-22	"Hitachi Energy is a global technology leader developing and manufacturing electrical infrastructure that powers America keeping the lights on for communities across the U.S. and fueling new economic sectors, including data centers and AI, through the ability to support growing demands from the grid. As our largest facility with over 1,200 team members, Hitachi Energy Jefferson City, serves a critical role for our company's ability to manufacture transformers. Repeated past flood damage and the probability of future flood events are a continued threat to our colleagues in our Jefferson City facility's ability to manufacturer and delivery these technologies. Past floods have threatened manufacturing operations, shifts, and employee's ability to access the facility. While Hitachi Energy has successfully put into place mitigation plans to ensure continuity of operations during these past flood events, significant improvements to the level of flood protection are critically needed to ensure operations at our Jefferson City facility including our team members, their families, and the local economy are protected from future flooding."	USACE acknowledges the importance of the Hitachi Energy Jefferson City facility and its current vulnerability to flood risk in **Section 1.5** and **Section 5.2** of the main report. As described in **Section 5.2**, USACE has determined that the federal interest plan would reduce this facility's reoccurring flood vulnerability.
JC-PC-16 JC-PC-22	"By adopting CA-13 as the TSP, the U.S. Army Corps of Engineers (USACE) and Missouri Department of Natural Resources (MoDNR) have demonstrated their commitment to engaging the community and finding solutions acceptable to a variety of interests. The construction of a new federal levee system will bolster flood resilience and contribute to the long-term sustainability of industries, domestic manufacturing, infrastructure, and agriculture in the study area."	USACE concurs that the implementation of the federal interest plan would enhance the study area's resiliency to future flood events and benefit the businesses and industries that operate within the study area, as detailed in **Section 5.2** of the main report.
JC-PC-17	"I am expressing my support for the Jefferson City L-142 Flood Risk Management Study. I specifically support Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increased flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events. I support USACE and MoDNR in adopting CA-13 as the TSP, as this is the only alternative that provides the increased flood protection necessary to protect the area's important regional assets."	USACE acknowledges this support for CA13. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.

Public Comment Number	Comment(s)	Response
JC-PC-18	"The Jefferson City Area Chamber of Commerce wishes to express our strong support for the Jefferson City L-142 Flood Risk Management Study and specifically supports Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increasing flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events. We strongly encourage USACE and MoDNR to adopt CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect the important regional assets in the area."	USACE acknowledges this support for CA13. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.
JC-PC-19	"The Jefferson City Area Board of Realtors® wishes to express our strong support for the Jefferson City L-142 Flood Risk Management Study and specifically supports Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increasing flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events. We strongly encourage USACE and MoDNR to adopt CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect the important regional assets in the area."	USACE acknowledges this support for CA13. USACE carefully considered all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.
JC-PC-19	"As Realtors® we are very concerned about protecting the Jefferson City Regional Wastewater Treatment plant. Often as not, the concern in Jefferson City and the surrounding communities with creating a new housing development is access to wastewater treatment facilities. Jefferson City can't afford to lose this irreplaceable public infrastructure, and the proposed levee will provide a great deal of protection to ensure proper functioning our water treatment facility."	This wastewater treatment plant and access thereto is within the area covered by the federal interest plan's levee alignment. USACE has identified the increased flood resiliency that the wastewater treatment plant and other critical infrastructure would receive as part of the federal interest plan's accomplishments (see **Section 6.2** of the main report) justifying the selection of CA13 as the federal interest plan.

Public Comment Number	Comment(s)	Response
JC-PC-21	"Pursuant to the Public Notice issued February 28, 2025, the Jefferson City Regional Economic Partnership (JCREP), the economic development organization for the Jefferson City area, wishes to express our continued support for the Jefferson City L-142 Flood Risk Management Study and specifically supports the draft FONSI for Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). By adopting CA-13 as the TSP, the USACE, and MoDNR have demonstrated their commitment to engaging the community and finding solutions acceptable to a variety of interests. The construction of a new federal levee system will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in the study area."	USACE acknowledges this support for CA13 as the. USACE carefully consider all comments received on this study, both those in favor of project implementation and those opposed, prior to identifying CA13 as the federal interest plan. The comments are summarized in **Section 7.2** and provided in full in **Appendix F**.
JC-PC-21	"Existing facilities within the study area represent over $580 million in investments. These facilities include: • Jefferson City Memorial Airport, which supports the Missouri Air National Guard, multiple State of Missouri agencies, and numerous private businesses. • Jefferson City Regional Wastewater Treatment Plant, which serves multiple communities in the area • U.S. Highway 54 and U.S. Highway 63, two major U.S. Highway corridors. These corridors are the only Missouri River crossings within 50 miles. • Hitachi Energy, one of the largest private employers in the area; Capital Sand Company, an essential facility during flood events; and other small businesses. Repeated past flood damage and the probability of future flood events are a continued threat to the sustainability of these facilities. Significant improvements to the level of flood protection and resiliency are necessary to secure the future of these facilities and the region's economy."	USACE acknowledges the importance of this critical infrastructure and its current vulnerability to flood risk in **Section 1.5** of the main report.

Public Comment Number	Comment(s)	Response
JC-PC-23	"This responds to your request of April 11, 2025, seeking concurrence from USFWS regarding impacts of the Lower Missouri River Jefferson City L-142 Flood Risk Management Study to species listed or proposed for listing under the Endangered Species Act. The following comments are provided in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.). The USFWS has reviewed the DRAFT Integrated Feasibility Report and EA noting that the tentatively selected plan is the Combined Alternative 13 Hybrid Alignment, 41-ft Stage, Partial Capital View Removal. Since the USACE has agreed that tree removal activities would abide by seasonal restrictions to avoid incidental take of listed tree-roosting bat species, the USFWS concurs with a "May affect, but not likely to adversely affect" determination for Indiana bat and northern long-eared bat. The tricolored bat and the monarch butterfly are proposed for listing as threatened and therefore a "Not likely to jeopardize the continued existence of the species" is an appropriate determination at this time. In the event that the final listing of these species happens before the completion of this project, it is recommended to reinitiate consultation."	USACE acknowledges and concurs with this feedback. In the event that the status of the potentially listed species changes prior to completion of the project, USACE would reinitiate consultation.
JC-PC-23	"As a cooperating agency in the implementation of the U.S. Army Corps of Engineers' (Corps or USACE) Lower Missouri River Basin Flood Risk and resiliency Study (LoMO), the U.S. Fish and Wildlife Service (Service) provides the following comments in place of a Planning Aid Letter (PAL) for the Jefferson City L-142 spin-off study pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 et seq.) and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347). If you would like to discuss any of these recommendations, please do not hesitate to reach out. It is my understanding that the USFWS Missouri River Recovery Office will be submitting a draft Coordination Act Report (CAR) for the encompassing Lower Missouri River Basin Flood Risk and Resiliency Study in July 2025. The draft CAR will provide recommendations for fish and wildlife resources and explain the benefits of such actions."	USACE acknowledges these recommendations. USACE will review the Coordination Act Report concerning the System Plan study and implement its recommendations to extent practicable.

Public Comment Number	Comment(s)	Response

JC-PC-23	"USFWS provided the following recommendations regarding borrow pits, riparian forests, and vegetation management:
	
	• Borrow pits
	  ○ Where possible, take fill from an existing levee that is being decommissioned.
	  ○ Borrow dirt from areas close to the river to increase opportunity for aquatic connectivity between the borrow pit and the Missouri River.
	  ○ Gently slope the sides of the borrow pits to reduce potential for erosion upon early establishment and provide a gradual transition across elevations. Recommended slopes are a minimum of 10:1 to a preferred 20:1. Lower slopes result in a higher diversity of plants colonizing across a wider moisture gradient.
	  ○ Position borrow pits on easements or acquired land seeking opportunities to expand habitats to areas currently lacking in diverse structure. To the extent possible, distribute borrow locations across river reaches to allow for habitat mosaics.
	• Riparian forests
	  ○ Leave riparian forests intact and plant more.
	  ○ Plant native trees and shrubs suitable for site soils. Suitable planting lists can be found in Ecological Site Descriptions for the appropriate soil type (see attached).
	  ○ Utilize native seeds and plants for revegetation, including native milkweed species.In addition to the attached plant lists, here's a list of Monarch Nectar Plants.
	• Vegetation management
	  ○ Avoid overspray of habitat with herbicides and insecticides. Follow application guidelines when managing weeds and insect pests.
	  ○ Plan mowing and any use of herbicides to avoid time periods when monarch eggs and caterpillars are present.
	  ○ Adopt burning practices that promote beneficial plants."
		USACE acknowledges these recommendations regarding borrow pits, riparian forests, and vegetation management. USACE concurs these recommendations would be beneficial for fish and wildlife resources. USACE would implement these recommendations to the extent practicable.

Public Comment Number	Comment(s)	Response
JC-PC-24	"This letter acknowledges that the Missouri Department of Natural Resources (MoDNR) has been made aware of the recommended plan for the Jefferson City Flood Risk Management project in Jefferson City, Missouri, and its need to obtain a Clean Water Act §401 Water Quality Certification before construction on this project can begin. Based on the information presented, MoDNR has no significant concerns, and agrees that there are no foreseen water quality issues that will arise as a result of this project. When/if funding is obtained for the project, MoDNR will coordinate with the U.S. Army Corps of Engineers Kansas City District on the requirements for a complete request for a §401 Water Quality Certification. Upon receipt of the materials necessary for a Water Quality Certification Request an official review and writing period can begin."	USACE acknowledges and concurs with this feedback. USACE would continue its coordination with MoDNR and would acquire a water quality certification for the federal interest plan prior to project implementation. USACE anticipates acquiring this certification in the project's PED phase.

Item 1

U.S. Fish and Wildlife Service Coordination Letter

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E. 12TH STREET, 635 FEDERAL BLDG
KANSAS CITY, MO 64106-2824

FEB 2 8 2023

CENWK-PMP-R

[redacted]
Missouri River Coordinator
U.S. Fish and Wildlife Service
PO Box 710
Yankton, SD 57078-0710

Dear [redacted]:

The Kansas City District, U.S. Army Corps of Engineers (USACE) and the Missouri Department of Natural Resources (MoDNR) are partnering on a General Investigation Study with integrated Environmental Assessment for the Lower Missouri River Jefferson City, Missouri Flood Risk Management Study. This study is authorized by Section 216 of the Water Resources Development Act of 2020, which authorizes modifications to projects in Iowa, Kansas, Nebraska, and Missouri under the Pick-Sloan Missouri River Basin Program and the Missouri River Bank Stabilization and Navigation Project (BSNP), including modifications to the authorized purposes of such projects to further flood risk management and resiliency. The study area is located along the Missouri River at Jefferson City, Missouri and surrounding areas of the unconstructed L-142 Levee Unit, which was proposed for Callaway County, Missouri approximately between Missouri River Mile 140 and 145. The purpose of the project is to investigate and provide a recommendation to reduce the risk to flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Jefferson City, Missouri and L-142 through structural and/or nonstructural means.

The enclosed figure identifies the study area, which is primarily situated between the confluences of the Missouri River with Turkey Creek and Niemans Creek. Flood risk management measures being considered in project designs include but are not limited to levee construction, floodwalls, seepage berms, and natural or nature-based features such as detention ponds, wetlands, and floodways. Project constraints include avoiding unacceptable impacts to the environment, cultural/tribal resources, other existing flood protection structures and areas along the Missouri River, private property, public infrastructure, and the authorized purposes of the Missouri River BSNP. Cost effectiveness is also being considered in plan formulation.

In accordance with the Fish and Wildlife Coordination Act (FWCA), Section 7 of the Endangered Species Act (ESA), and internal USACE policy, this letter is intended to notify and initiate coordination with the U.S. Fish and Wildlife Service (USFWS). An Information for Planning and Conservation (IPAC) report was obtained on February 20, 2023 (project code: 2023-0047332), which reported nine federally listed, proposed, or candidate species that may occur or could potentially be affected by activities in the

project area. They include the gray bat, Indiana bat, northern long-eared bat, tricolored bat (proposed endangered), pallid sturgeon, Topeka shiner, pink mucket (pearlymussel), scaleshell mussel, and monarch butterfly (candidate). No critical habitat was reported to be present. To facilitate our requirements under Section 7 of the Endangered Species Act, USACE is requesting concurrence that these are the only federally listed species that should be considered for potential effects.

USACE also intends to initiate coordination with USFWS to negotiate a scope of work to complete Fish and Wildlife Coordination Act activities in support of the study. We request that you please provide a point of contact for this purpose.

If your agency has any additional concerns, questions, or comments relative to the proposed project, please contact the project manager, [redacted] at [redacted]; or the environmental resources specialist, [redacted]. USACE will continue coordination efforts with the USFWS regarding the scoping of the project, FWCA, ESA, and the National Environmental Policy Act processes during the course of the Lower Missouri River Jefferson City L-142 Flood Risk Management Study. As a part of these coordination efforts, USACE intends to host an interagency meeting soon to provide resource agencies with an overview of the study and to coordinate the anticipated environmental review and permitting timeline.

Sincerely,

[redacted]

Chief, Environmental Resources Section

Enclosures

CC: [redacted]

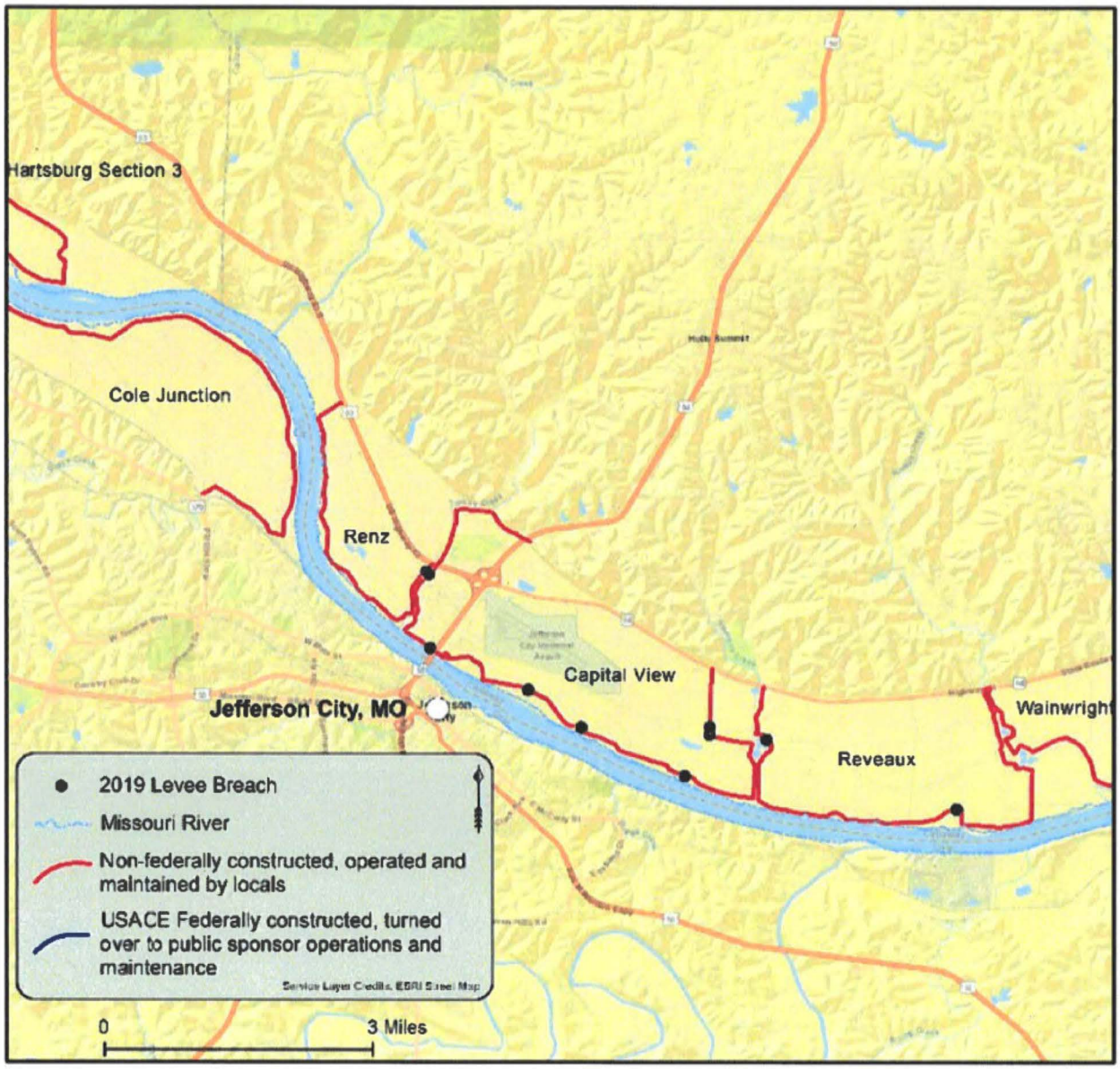

Figure 1: Initial Project Study Area

Item 2

Osage Nation Coordination Letter

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E. 12TH STREET, 635 FEDERAL BLDG
KANSAS CITY, MO 64106-2824

MAR 0 1 2023

CENWK-PMP-R

Subject: Lower Missouri River Jefferson City Levee-142 Flood Risk Management Study in Callaway County, Missouri

[redacted]
Tribal Historic Preservation Officer
Osage Nation
627 Grandview Ave.
Pawhuska, OK 74056

Dear [redacted]:

This letter is to inform your tribe that the Kansas City District, U.S. Army Corps of Engineers (USACE) and the Missouri Department of Natural Resources are partnering on a General Investigation Study with integrated Environmental Assessment for the proposed Lower Missouri River Jefferson City L-142 Flood Risk Management Study as authorized by Section 216 of the Water Resources Development Act of 2020, Public Law 116-260. The initial study area is located along the left descending bank of the Missouri River and encompasses the floodplain from approximately River Mile (RM) 140 to RM 145 near Jefferson City, Missouri and between the confluences of Turkey Creek and Niemans Creek with the Missouri River (Figure 1). The study is a spinoff project of the larger Lower Missouri River Flood Risk and Resiliency Study you were informed of in January 2021 and February 2022. This letter initiates consultation with your tribe including consultation under the National Historic Preservation Act (NHPA).

The purpose of the study is to investigate and recommend a plan to reduce the risk of flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Jefferson City, Missouri and L-142 through structural and/or nonstructural means, including natural or nature-based features. The study is in its early stages and no alternatives have been developed. USACE will fulfill our responsibilities under the NHPA with a Programmatic Agreement (PA) being developed for the larger overall Lower Missouri River Flood Risk Resiliency Study. USACE intends to host an informational tribal meeting for interested tribes on the study and meetings with consulting parties on the development of Lower Missouri River PA. You are also invited to participate in an interagency meeting hosted by USACE to provide resource agencies with an overview of the study and to coordinate the anticipated environmental review and permitting timeline. Information on these meetings will be sent to you in the near future.

At this time, we invite your tribe to consult on the project. If you have any questions or need additional information, please feel free to contact Kansas City District Tribal Liaison, [redacted]; Project Manager, [redacted] at [redacted]; or Environmental Specialist, Mr. [redacted].

Sincerely,

[redacted]

Chief, Environmental Resources Section

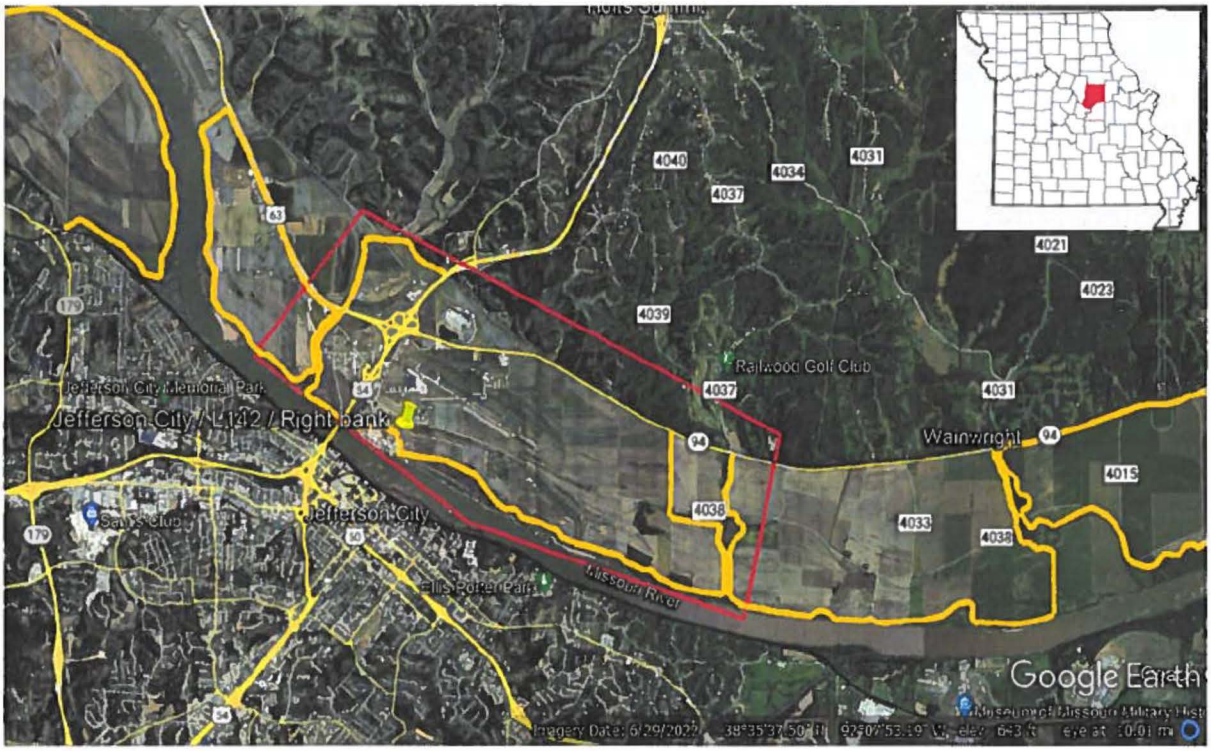

Figure 1: Jefferson City L-142 Initial Project Study Area

Item 3

Missouri Department of Conservation Coordination Letter

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E. 12TH STREET, 635 FEDERAL BLDG
KANSAS CITY, MO 64106-2824

FEB 2 8 2023

CENWK-PMP-R

[redacted]
Missouri Department of Conservation
2901 West Truman Boulevard
Jefferson City, MO 65102

Dear [redacted]:

The Kansas City District, U.S. Army Corps of Engineers (USACE) is and the Missouri Department of Natural Resources (MoDNR) are partnering on a General Investigation Study with integrated Environmental Assessment for the Lower Missouri River Jefferson City, Missouri Flood Risk Management Study. This study is authorized by Section 216 of the Water Resources Development Act of 2020, which authorizes modifications to projects in Iowa, Kansas, Nebraska, and Missouri under the Pick-Sloan Missouri River Basin Program and the Missouri River Bank Stabilization and Navigation Project (BSNP), including modifications to the authorized purposes of such projects to further flood risk management and resiliency. The study area is located along the Missouri River at Jefferson City, Missouri and surrounding areas of the unconstructed L-142 Levee Unit, which was proposed for Callaway County, Missouri approximately between Missouri River Mile 140 and 145. The purpose of the project is to investigate and provide a recommendation to reduce the risk to flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Jefferson City, Missouri and L-142 through structural and/or nonstructural means. USACE also coordinates with state fish and wildlife agencies on water resources development projects under the Fish and Wildlife Coordination Act (FWCA).

The enclosed figure identifies the study area, which is primarily situated between the confluences of the Missouri River with Turkey Creek and Niemans Creek. Flood risk management measures being considered in project designs include but are not limited to levee construction, floodwalls, seepage berms, and natural or nature-based features such as detention ponds, wetlands, and floodways. Project constraints include avoiding unacceptable impacts to the environment, cultural/tribal resources, other existing flood protection structures and areas along the Missouri River, private property, public infrastructure, and the authorized purposes of the Missouri River BSNP. Cost effectiveness is also being considered in plan formulation. In accordance with the FWCA, USACE requests any information your office may have concerning fish and wildlife resources within the vicinity of the project area that should be considered in the assessment.

This letter is to inform your agency of the study and environmental assessment. If your agency has any initial questions relative to the study, please contact the project manager, [redacted]

or the environmental resources specialist, [redacted] at [redacted]. USACE intends to host an interagency meeting soon to provide resource agencies with an overview of the study and to coordinate the anticipated environmental review and permitting timeline. USACE requests that your agency designates a point of contact to receive updates on this meeting and other future coordination.

Sincerely,

[redacted]

Chief, Environmental Resources Section

Enclosures

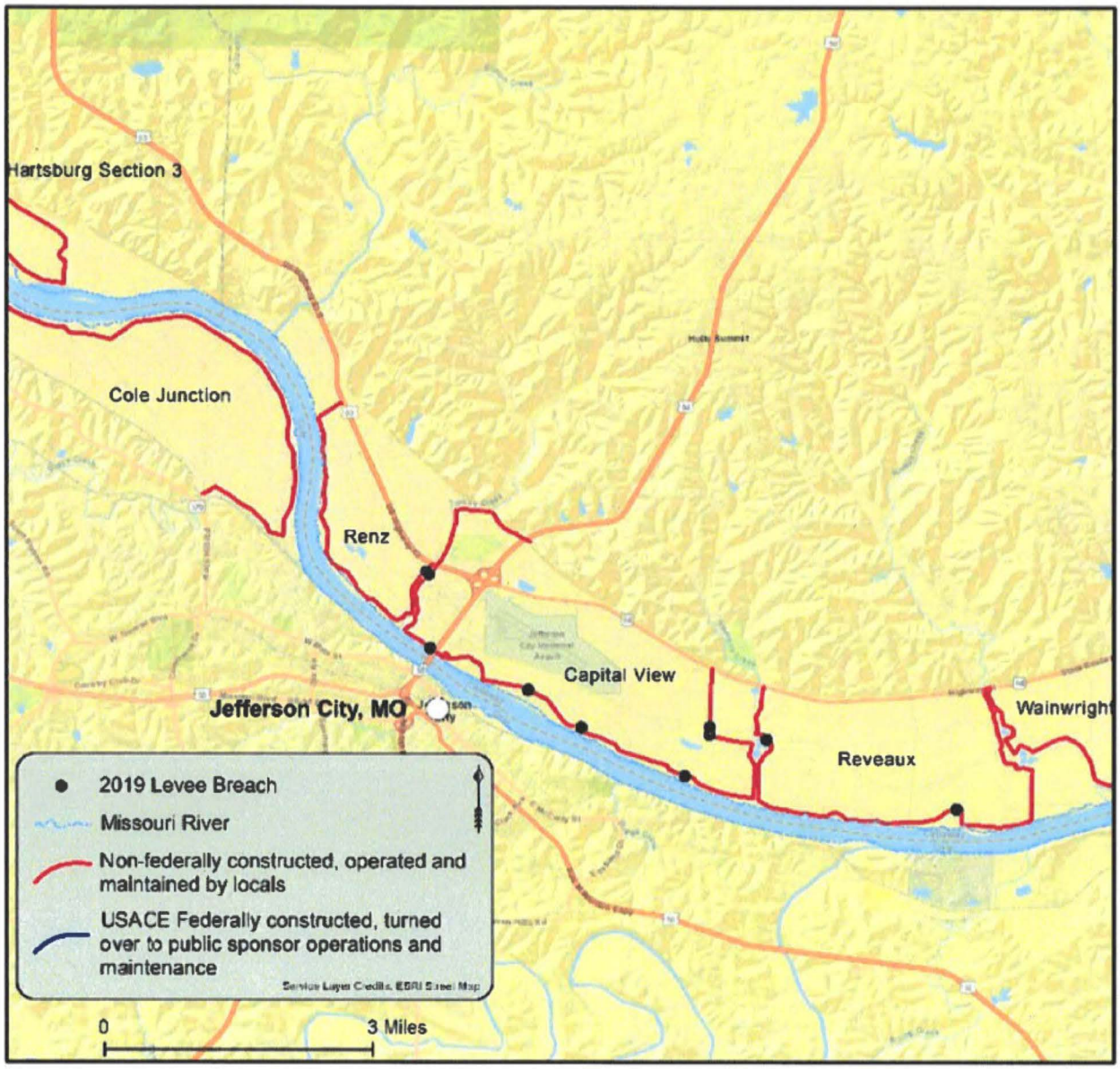

Figure 1: Initial Project Study Area

Item 4

Missouri Department of Natural Resources Business Engagement Summary

Jefferson City – Spinoff Stakeholder Outreach and Engagement

Missouri Department of Natural Resources – Water Resource Center

1.0 Background

This appendix documents the outreach efforts undertaken by the Missouri Department of Natural Resources (MoDNR) in facilitating discussions, workshops, and feedback from stakeholders on flooding issues and possible resiliency measures on the Lower Missouri River Flood Risk and Resiliency Feasibility Studies – Jefferson City Spinoff project. The main goal for MoDNR in stakeholder outreach for these studies was to increase community engagement and understanding of the process and to ultimately achieve community consensus or informed consent on a single alternative for MoDNR, as the Non-Federal Sponsor, to support the community's locally preferred plan.

2.0 Stakeholder Database

MoDNR compiled and maintained a stakeholder database containing 199 stakeholders that were engaged and provided multiple opportunities to participate and provide input on the measures, alternatives, and the study process. Stakeholders were contacted primarily through email, secondarily through phone calls, and lastly with typed letters. The database was used for invitations to public meetings, feedback sessions and routine stakeholder updates.

3.0 Feedback Session 1

MoDNR pioneered a new initiative by holding "open feedback sessions" where stakeholders could schedule a time or drop in to provide feedback or ask any questions related to the project. The first feedback session was held the day after the February 2024 public meeting. The feedback session opportunity was announced at the public meeting. There were no attendees to the inaugural feedback session.

4.0 Feedback Session 2

The second feedback session effort was held on March 27 and 28th of 2024. These provided a greater opportunity for information sharing as MoDNR was now in possession of the alternatives analysis for the 10% and 1% Annual Exceedance Probability (AEP) inundation maps for the study area. During these meetings, we met with many stakeholders in a total of seven sessions, and they were able to rate the alternatives with which they were comfortable, indifferent, and uncomfortable. The outcome of these sessions was that consensus was not achieved. Competing priorities rose to the top of the conversations. The most broadly accepted alternative was the CA1 alignment – reinforcing the current Capital View Levee and raising it to 34 feet. The most broadly unaccepted alternative was the CA12 alternative – No Action.

4.0 Feedback Session 2.5 – Targeted stakeholders

Following the April 25th public meeting, the CA1 (reinforce and raise current Capital View Levee) alternative was screened out of the options as it did not have federal interest. This resulted in another round of feedback sessions with targeted stakeholders that were major proponents of that alternative. MoDNR informed stakeholders with the updated information and worked to assess what the art of the possible was for stakeholders in the area. Potential State Programs such as the 'Rails to Trails' initiative

were discussed as a means to support leaving the southern end of Capital View levee in place in concert with the levee setback option. This would be a mechanism for the remaining Capital View levee to serve a public interest to potentially receive repair costs, as it is not a federal levee, and it would not be eligible for PL-8499 once the setback is constructed.

5.0 Workshop

Jefferson City Regional Economic Partnership (JCREP) held a workshop on July 11, 2024, with the goal of getting closer to community consensus without the raise/reinforcement of the current Capital View levee option. MoDNR attended and provided a presentation focused on feasibility study process and timeline.

6.0 Continuous Stakeholder meetings

After the workshop, MoDNR met in one-on-one and group sessions to continuously update stakeholders on new developments of the levee setback iterations, cost, borrow information, possible State programs, and the study schedule going forward; all with the goal of understanding stakeholder perspectives on the remaining option (a levee setback) and determining how that alignment could be modified to better reflect local interests while also maintaining federal interest. Numerous meetings were held between July 24th and September 24th informing 38 stakeholders on new study information. Key stakeholders are representatives from, but not limited to, Capital Sands, the Airport, Hitachi, landowners, Korte Tree Care, Delong's Inc, Capital Bluffs Event Center, the City of Jefferson, Capital View Levee Board, Callaway County Commission, and JCREP. Consensus remains unachieved as of September 26, 2024.

7.0 Attachments

Attachment A – Example of written stakeholder letters

Attachment A – Example Stakeholder Outreach Letter

Date

Name

Address

Dear Name:

You have been identified as a stakeholder in the Lower Missouri Flood Risk and Resiliency Studies – Jefferson City spin-off project because you own land or operate a business in the proposed study area. If this is incorrect, please let our team know at the contact information below.

As a stakeholder in this project, the Department of Natural Resources would appreciate your opinion on the current standings of the possible alternatives set for this project. The Department's mission as the Non-Federal Sponsor is to engage the community and to propose a plan to the Federal Sponsor, US Army Corps of Engineers, that **all** community members can live with. This plan is called the Tentatively Selected Plan (TSP) and will be proposed to the Army Corps by the first week of September.

Our team would like to meet with you to discuss current alternative options, receive your feedback, and answer questions you may have at this point. Please reach out to the contact below to schedule a meeting, or to decline participation in stakeholder outreach regarding this project.

We appreciate you working with us, and we look forward to meeting with you.

Contact: Elizabeth Kerby at 573-751-3682 or Elizabeth.kerby@dnr.mo.gov

Sincerely,

Chris Wieberg

Missouri Geological Survey Deputy Director

Item 5

Fish and Wildlife Coordination Act Material

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. Box 710
Yankton, South Dakota 57078

In Reply Refer to:
FWS/R6

March 14, 2024

Todd Gemeinhardt
U.S. Army Corps of Engineers
601 East 12th Street
Kansas City, Missouri 64106

Subject: Lower Missouri River Flood Risk and Resiliency System Plan compliance with the Fish and Wildlife Coordination Act: Planning Aid Letter #1 focused concerns for fish and wildlife resources in study.

Dear Todd Gemeinhardt,

The U.S. Army Corps of Engineers (Corps) requested assistance from the U.S. Fish and Wildlife Service (Service) on the Lower Missouri River Flood Risk and Resiliency System Plan (Project). The Corps provided to the Service the Project's Statement of Work providing a brief overview of a tiered response through multiple Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. 661 et seq.) Planning Aid Letter (PAL) responses leading to a full Coordination Act Report (CAR). This first PAL will describe the fish and wildlife resources by study reach as well as explaining fish and wildlife concerns and problems" as part of this Project's feasibility study. The Lower Missouri River Corridor (LMRC) includes the river and floodplain. Therefore, the Project's study reach, LMRC, is defined as starting approximately at Sioux City, Iowa, totaling 735 river miles to the confluence with the Mississippi River near St. Louis, Missouri. The Service coordinated with the Lower Missouri River state wildlife agencies, i.e., Nebraska, Iowa, Kansas, and Missouri, for their insights and recommendations to this Project. The Service will respond to any forthcoming Corps' requests under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*) in a separate process; therefore, this PAL is in response specifically to the FWCA actions recommended to the Corps for this Project.

The plant, fish, and wildlife concerns predominately within the LMRC focus on improving the quantity, diversity, and functionality of habitat to support species of concern. While the Bank Stabilization and Navigation Project (BSNP) serves many congressionally authorized purposes, it also led to the well documented alteration and loss of significant amounts of habitat supporting native species within the LMRC. The Service recognizes and supports the Corps' need to continue support of the authorized purposes within the LMRC, while we also encourage the

utilization of more nature-based solutions. Nature-based solutions would address some of the species' concerns through improved quantity, diversity, and functionality of habitats within the LMRC, while also continuing to support human interests and the authorized purposes. We recommend the utilization of woody materials, in place of or in conjunction with rock, to serve as nature-based river control structures in association with the continued maintenance of the BSNP. The utilization of woody materials would create a variety of microhabitats to benefit fish habitat diversity, as well as increase macroinvertebrates and their habitats creating a beneficial food source for aquatic organisms. Managing and ensuring the necessary levels of sand, gravel, and sediment to maintain a healthy composition (i.e., no bed degradation) will also increase habitat diversity. Similarly, adding to the riparian corridor through the Missouri River Bank Stabilization Fish and Wildlife Mitigation Project (Mitigation Project) will provide enhanced resiliency for human interests as well as many ecological benefits. More nature-based solutions like those listed above will be able to increase habitat quantity, diversity, and functionality while still meeting the Corps' Missouri River authorized purposes.

Specific to the Mitigation Project, the Service encourages the Corps to fulfill outstanding mitigation requirements due to the habitat alterations and losses associated with the construction of the BSNP. Another concern is the management of the existing Mitigation Project lands. Efforts should be made to shift towards more natural and passive management of existing Mitigation Project lands focused on replacing natural habitats in proportions to those lost due to the construction of the BSNP. We encourage the Corps to support the development of an Integrated Pest Management (IPM) Plan to control non-native invasives. Long-term support by the Corps for the continued Operation and Maintenance (O&M) needs of each site, including passive, natural vegetation management and active invasive species control, will ensure habitat needs and diversity are met within the LMRC on Missouri River Recovery Program mitigation lands. Focusing on locations on the Missouri River where levee realignment is supported locally, and in proximity with pinch points that could be rectified, would be another important concern to address with this Project. The creation of an efficient process for engagement with willing landowners, levee districts, and local communities around end-holdings to existing mitigation lands or pinch point locations working with the Corps should be prioritized to meet outstanding BSNP requirements.

In coordination with the state wildlife agencies of Nebraska, Kansas, Iowa, and Missouri, plant, fish, and wildlife resources of concern were categorized in several ways. Descriptions of plant, fish, and wildlife resources by the Project's specific study reaches are listed collectively for three study reaches in Nebraska; Table 1. Although, since most of the species of concern span the whole LMRC, not specific reaches, these species are instead described within focal species groups. First, the overall concern focuses on benthic native fish species and other small-bodied fish (e.g., pallid sturgeon, sturgeon chub, sicklefin chub, flathead chub). Secondly, other aquatic species of conservation concern for this Project are listed in Table 2. In addition, neotropical migrants and migratory wading birds, plants, and terrestrial wildlife species connected to an aquatic environment are important resources for focusing efforts. Creating and allowing for more terrestrial habitat, e.g., forests, native grasslands, and wetlands, will create a system where nutrient cycling can occur, providing more habitat for plant and wildlife species, assist in flow attenuation during high water events, and create aquatic insect habitat adjacent to the Missouri River creating more food sources for aquatic organisms, as examples. Preserving or adding to

the existing habitats, e.g., high-value riparian corridors, grassland, and forest, should also be a consideration as a benefit for the species of concern.

The Service appreciates the opportunity to provide FWCA recommendations for the Lower Missouri River Flood Risk and Resiliency System Plan via PAL #1 focusing on the plant, fish, and wildlife resources and concerns within the Lower Missouri River Corridor. The Service hopes this PAL, PAL #2, and the Coordination Act Report, will help guide the Corps in their final Lower Missouri River Flood Risk and Resiliency System Plan. If you have any questions regarding these recommendations, please contact me at Wayne_NelsonStastny@fws.gov or 605-660-5349.

Sincerely,

Wayne Nelson-Stastny
Missouri River Project Leader
Missouri River Recovery Office
U.S. Fish and Wildlife Service

Cc:
Kasey Whiteman, MDC, Missouri River, Northwest Regional Office
Kirk Steffenson, NEGPC, Missouri River Program Manager
John Reinke, KDWP, Fisheries Regional Supervisor
Chris Larson, IA DNR, Western & Missouri River, Regional Fisheries Supervisor
Mark Porath, USFWS, Nebraska ES Project Leader
John Weber, USFWS, Missouri ES Project Leader
Jason Luginbill, USFWS, Kansas ES Project Leader
Kraig McPeek, USFWS, Iowa ES Project Leader

Table 1. Nebraska Game and Parks Commission's specific comments to study reaches.

River Mile	Location	Concerns
734-635	Big Sioux River to Boyer River	This reach is characterized by a sediment deficit where the Missouri River is actively downcutting. As a direct result, the floodplain in this reach is vertically disconnected from the river, thereby reducing the required soil moisture to support the generation of early successional cottonwood dominated woodlands and groundwater interface wetlands. These communities are defined further in Nebraska's state wildlife action plan, the Nebraska Natural Legacy Project. These natural communities are important stopover and nesting habitats for a wide array of riparian forest-dependent migratory birds, including Bald Eagles and neotropical migrants. Existing riparian woodlands/forests along the Missouri River in this reach are aging. Concerns exist that once these forests die off, there will be little or no woodland/forested habitats left along this reach to support this suite of migratory birds.
635-606	Boyer River through Omaha	All terrestrial habitats along this reach are limited due to residential and industrial development. If opportunities to restore or create terrestrial habitats arise, Nebraska recommends prioritizing riparian forest communities due to their ability to compete with invasive plants and the potential benefits to migratory birds.
606-587	Platte River Mouth+, L-575	These 3 reaches are all characterized by aggradation due to sediment transport from the Platte River and other sources. Sedimentation combined with a more natural hydrograph has tended to lead to more dynamic river levels during high precipitation events. These reaches would benefit from more space within the floodplain. There are naturally occurring and restored habitats, including seasonally-connected, groundwater-interface, and perched floodplain wetlands, within these reaches that provide some value to wildlife and should be protected from flood risk if at all possible, or mitigated for to prevent a net loss of habitat. Similarly to other reaches upstream, if opportunities to restore or create terrestrial habitats arise, we recommend prioritizing riparian forest communities due to their ability to compete with invasive plants and the potential benefits to migratory birds.
587 – 522	to Holt County	
522 – 457	to Holt County (L-536) to St. Joseph	

Table 2. Within the Project area, species of concern are categories in major taxonomic groups to focus efforts. (Abbreviations under Federal or State Listed: T: Threatened species; E: Endangered species)

Scientific Name	Common Name	Taxonomic Group	Federal Listed	State Listed	Species of concern within each state
Ambystoma annulatum	Ringed Salamander	Amphibian			MO
Ambystoma tigrinum	Eastern Tiger Salamander	Amphibian			MO; IA
Anaxyrus cognatus	Great Plains Toad	Amphibian			MO; IA
Lithobates sylvaticus	Wood Frog	Amphibian			MO
Accipiter striatus	Sharp-shinned Hawk	Bird			NE; MO; IA; KS
Ammodramus henslowii	Henslow's Sparrow	Bird			NE; IA; KS
Asio flammeus	Short-eared Owl	Bird			NE; IA; KS
Calidris subruficollis	Buff-breasted Sandpiper	Bird			NE; IA; KS
Charadrius melodus	Piping Plover	Bird	T	T - NE	NE; IA
Coccyzus erythropthalmus	Black-billed Cuckoo	Bird			NE; IA; KS
Falco peregrinus	Peregrine Falcon	Bird			MO; IA; KS
Haliaeetus leucocephalus	Bald Eagle	Bird			NE; MO; IA; KS
Hylocichla mustelina	Wood Thrush	Bird			NE; MO; IA; KS
Ixobrychus exilis	Least Bittern	Bird			MO; IA
Lanius ludovicianus	Loggerhead Shrike	Bird			NE; MO; IA; KS
Porzana carolina	Sora	Bird			NE; MO; IA; KS
Rallus elegans	King Rail	Bird		E - MO	MO
Sternula antillarum athalassos	Interior Least Tern	Bird		T - NE	NE
Acipenser fulvescens	Lake Sturgeon	Fish		E - MO; T - NE	NE; MO
Alosa alabamae	Alabama Shad	Fish			MO
Alosa chrysochloris	Skipjack Herring	Fish			MO; IA
Ameiurus nebulosus	Brown Bullhead	Fish			MO
Anguilla rostrata	American Eel	Fish			MO; IA
Carpiodes velifer	Highfin Carpsucker	Fish			MO; IA
Cycleptus elongatus	Blue Sucker	Fish			NE; MO; IA
Fundulus dispar	Starhead Topminnow	Fish			MO
Fundulus kansae	Northern Plains Killifish	Fish			MO
Hybognathus argyritis	Western Silvery Minnow	Fish			NE; KS
Hybognathus hankinsoni	Brassy Minnow	Fish			MO; IA; KS
Hybognathus nuchalis	Mississippi Silvery Minnow	Fish			MO
Hybognathus placitus	Plains Minnow	Fish			NE; MO; IA; KS
Macrhybopsis gelida	Sturgeon Chub	Fish		E - NE	NE; MO; IA; KS

Macrhybopsis meeki	Sicklefin Chub	Fish			NE; MO; IA; KS
Notropis buchanani	Ghost Shiner	Fish			MO
Percina shumardi	River Darter	Fish			MO; IA; KS
Percopsis omiscomaycus	Trout-perch	Fish			MO; IA
Platygobio gracilis	Flathead Chub	Fish		E - MO	NE MO; IA; KS
Scaphirhynchus albus	Pallid Sturgeon	Fish	E	E - MO; E - NE	NE; MO; IA; KS
Apobaetis lakota	Lakota Mayfly	Invertebrate			NE; KS
Atrytone arogos iowa	Iowa Skipper	Insect - Lepidoptera			NE; KS
Attaneuria ruralis	Giant Stonefly	Invertebrate			MO
Boloria selene nebraskensis	Nebraska Fritillary	Insect - Lepidoptera			NE
Catocala nuptialis	Married Underwing	Insect - Lepidoptera			NE
Catocala whitneyi	Whitney Underwing	Insect - Lepidoptera			NE
Danaus plexippus	Monarch	Insect - Lepidoptera			NE
Euphyes conspicua buchholzi	Bucholz Black Dash	Insect - Lepidoptera			NE
Hesperia ottoe	Ottoe Skipper	Insect - Lepidoptera			NE; MO; IA; KS
Hydroperla fugitans	Austin Springfly	Invertebrate			MO; IA; KS
Problema byssus kumskaka	Byssus Skipper	Insect - Lepidoptera			NE; MO; IA; KS
Speyeria idalia	Regal Fritillary	Insect - Lepidoptera			NE; IA
Triops longicaudatus	Longtail Tadpole Shrimp	Invertebrate			MO
Lasionycteris noctivagans	Silver-haired Bat	Mammal			NE; MO
Lasiurus borealis	Eastern Red Bat	Mammal			NE
Lasiurus cinereus	Hoary Bat	Mammal			NE; MO
Mustela frenata	Long-tailed Weasel	Mammal			MO; KS
Myotis grisescens	Gray Myotis	Mammal	E	E - MO	MO; KS
Myotis lucifugus	Little Brown Myotis	Mammal			NE; MO; KS
Myotis septentrionalis	Northern Long-eared Myotis	Mammal	T	E - MO; T - NE	NE; MO; KS
Myotis sodalis	Indiana Myotis	Mammal	E	E - MO	MO; IA
Perimyotis subflavus	Tricolored Bat	Mammal			NE; MO
Poliocitellus franklinii	Franklin's Ground Squirrel	Mammal			MO; IA
Taxidea taxus	American Badger	Mammal			MO
Anodonta suborbiculata or Utterbackiana suborbiculata	Flat Floater	Mussel			NE; MO; IA; KS

Leptodea leptodon or Potamilus leptodon	Scaleshell Mussel	Mussel	E	E - NE	NE; MO
Alopecurus aequalis	Floating Foxtail Grass	Plant			MO
Bergia texana	Bergia	Plant			MO; KS
Boltonia decurrens	Decurrent False Aster	Plant	T	E - MO	MO
Carex missouriensis	Missouri Sedge	Plant			NE
Corispermum villosum	Oriental Tick-seed	Plant			MO
Cyperus diandrus	Umbrella Flatsedge	Plant			MO; IA
Cyperus schweinitzii	Schweinitz's Flatsedge	Plant			MO; KS
Eleocharis lanceolata	Lance-like Spike Rush	Plant			MO; KS
Fuirena simplex var. aristulata	An Umbrella Grass	Plant			NE; MO; KS
Juncus bufonius var. bufonius	Toad Rush	Plant			MO
Lygodesmia juncea	Skeleton Plant	Plant			MO; IA
Oenothera glaucifolia	Stenosiphon	Plant			MO
Oenothera nutans	Nodding Evening Primrose	Plant			MO
Paspalum setaceum var. setaceum	Slender Paspalum	Plant			MO; IA
Platanthera praeclara	Western Prairie Fringed Orchid	Plant	T	T - NE	NE; MO; IA; KS
Potentilla supina ssp. paradoxa	Bushy Cinquefoil	Plant			MO; KS
Primula fassettii	Amethyst Shooting Star	Plant			MO
Schoenoplectiella saximontana	Rocky Mountain Bulrush	Plant			NE; MO; KS
Scirpus pallidus	Pale Bulrush	Plant			MO; KS
Emydoidea blandingii	Blanding's Turtle	Reptile		NC - NE	NE; MO; IA
Pantherophis ramspotti	Western Foxsnake	Reptile			MO
Pituophis catenifer sayi	Bullsnake	Reptile		E - MO	MO; IA

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. Box 710
Yankton, South Dakota 57078

In Reply Refer to:
FWS/R6

March 14, 2024

Todd Gemeinhardt
U.S. Army Corps of Engineers
601 East 12th Street
Kansas City, Missouri 64106

Subject: Lower Missouri River Flood Risk and Resiliency System Plan compliance with the Fish and Wildlife Coordination Act: Planning Aid Letter #2 on fish and wildlife opportunities and input on Corps' preliminary list of structural and non-structural measures under consideration in the System Plan.

Dear Todd Gemeinhardt,

The U.S. Army Corps of Engineers (Corps) requested assistance from the U.S. Fish and Wildlife Service (Service) on the Lower Missouri River Flood Risk and Resiliency System Plan (Project). The Corps provided to the Service the Project's Statement of Work providing a brief overview of a tiered response through multiple Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. 661 et seq.) Planning Aid Letter (PAL) responses leading a full Coordination Act Report (CAR). This second PAL will explain "fish and wildlife opportunities and provide input on the Corps' preliminary list of structural and non-structural measures under consideration in the System Plan". Input will identify alternatives or measures that will make positive contributions to fish and wildlife concerns and/or mitigate adverse impacts" as part of this Project's feasibility study. The Lower Missouri River Corridor (LMRC) includes the river and floodplain. Therefore, the Project's study reach is defined as starting approximately at Sioux City, Iowa, totaling 735 river miles to the confluence with the Mississippi River near St. Louis, Missouri. The Service coordinated with the Lower Missouri River state wildlife agencies, i.e., Nebraska, Iowa, Kansas, and Missouri, for their insights and recommendations to this Project. The Service will respond to any forthcoming Corps' requests under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*) in a separate process; therefore, this PAL is in response specifically to the FWCA actions recommended to the Corps for this Project.

The plants, fish, and wildlife in the LMRC will benefit from actions focused on restoration and mitigation primarily through nature-based solutions. Actions that improve the quantity, diversity, and functionality of habitat as discussed as a concern in PAL #1 are important to

address species needs. Improving resiliency of the LMRC through nonstructural and nature-based solutions to reduce flood risk could address human concerns, as well as the needs of plants, fish, and wildlife through enhanced access to channel margins and floodplain habitat during higher water events. A current Missouri River location that demonstrates some of these concepts is M.U. Payne mitigation site from river mile 557.6 to 558.7 on the left descending bank (southeast of Nebraska City, NE, and the Hwy 2 Missouri River bridge, on the Iowa side of the Missouri River). This site consists of about one mile of river frontage that consisted of a levee realignment about four miles long and created an estimated 900 acres of previously levee protected floodplain. In total, the site is around 1,300 acres where 240 acres are wetland habitat. The diversity of habitat at this site creates important refugia for native species, including young-of-year fish, acting as a nursery. Another habitat example is Deer Island between river miles 670.7 and 672.4 (northwest of River Sioux, IA). While the river structures are currently still in place, adjusting the structures by lowering or shortening them in late 2016 to late 2017 appears to allow the structures to maintain their purpose while also allowing connection of low-lying land without impacting human interests and potentially enhancing flood risk resilience. The Service recognizes some of the mitigation sites contain preexisting tile drains on public land that were formerly agricultural lands. In cases where alterations to tile systems or drainage ditches on public land will not impact private lands, we suggest options such as rerouting drainages or ditches into wetlands or wet meadows. This would allow for percolation of drainage in a more natural way enhancing nutrient retention and reducing erosion issues.

Structural and non-structural measures should be assessed upon the overarching benefits to the plant, fish, wildlife, and floodplain, as well as the surrounding human communities. A previously used structural measure within the Missouri River, like notching of dikes, could provide benefits. Depending on the location and characteristics of the Missouri River, notching specific areas within a bend could help to widen the river and bring water to certain areas that would be beneficial to game fish habitat, e.g., catfish, while still maintaining authorized purposes. Based on previous notching on kicker dikes and first wing dikes, this measure was shown to be beneficial by creating a variety of habitat diversity, especially when water flow levels allowed fish to utilize this habitat. However, not all areas on the river are suitable for this notching measure due to differences in dikes based on location. Dikes in the upper parts of the Lower Missouri River are shorter than in lower part of the Lower Missouri River (i.e., NE vs MO dikes; pers. comm. Kirk Steffenson). Previous knowledge gained from notching and chute creation has shown that when chutes have length and sinuosity, they have more diversity and provide more habitat than shorter chutes. Native juvenile fish that were not typically found in the main channel were found in these locations. Routine monitoring and maintenance will likely be required to ensure that notching of dikes and chutes functionally continues as intended.

Another improvement to the structural measures on the Missouri River includes lessening the impacts or eliminating, in some cases, pinch points. We encourage the Corps to identify pinch points and potential levee realignments along with the engagement and support of local communities to help improve the habitat diversity for the Missouri River Basin as also discussed in PAL #1.

Incorporating various structural and non-structural measures or practices from multiple sources, some within the Corps and in coordination with other entities, will help diversify the habitat

available to the plant, fish, and wildlife within the LMRC. The Omaha and Kansas City Corps Districts should contact other Corps Districts, especially those working with similar large river systems to implement successful, innovative, and nature-based solutions from their systems to the Missouri River. Specifically, we encourage the Corps to gain insights on the implementation steps for the Upper Mississippi River Basin partners that implement their multi-million-dollar mitigation program to enhance various habitats. Based on the Upper Mississippi River Restoration Program website, a major focus of their program is habitat restoration projects. In Kansas, Benedictine Bottom is a Missouri River example of a project that produces substantial recreation opportunities through the restoration and diversification of natural habitats.

Utilizing other large river system's practices across the country could provide insights to innovative biotechnical bank stabilization practices on the Missouri River. Allowing a natural revegetation process to occur, with strategic planting practices, e.g., cottonwood plantings and live staking/pole planting like willow staking, can provide stability to the riparian corridor as well as Tribal support for culturally significant plantings. Educational information shared with private landowners on the benefits that vegetation can provide by stabilizing the streambank, additionally, slowing down and absorbing some of the high-water events could be more of a benefit. Other bioengineering practices could include deformable stone toe with bioengineering and bank lowering after installation method (Baird and Makar, 2011, through Reclamation SRH-2015-25 Report) or longitudinal stone toe protection with bioengineering. Kiem et al. (2002) also noted the woody material can benefit the physical aquatic habitat while also increasing fish cover. Other practices discussed in documents such as Reclamation SRH-2015-25 Report, further explains design considerations for engineered logjams, log vanes, log weirs, root wads, tree revetments, roughness logs, or toe logs. For the specific spin-off study locations, more focused recommendations could be provided to assess the current and future conditions at each site through a specific PAL per location. The Service acknowledges the concerns some voiced with increasing the vegetation, especially woody encroachment in the LMRC. We encourage the Corps to solicit specific concerns so a mutually understood concern statement can be investigated. The Corps should compile information to appropriate evaluate the concern and assess the issue on both public and private lands. Understanding and investigation of the specific concerns regarding woody encroachment should help guide future land practices on Mitigation Project lands.

Nationally, a Presidential Initiative stresses the importance to nature-based solutions similar to the Corps Engineering with Nature initiative. Within the initiative, nature-based solutions are described as "actions to protect, sustainably manage, or restore natural or modified ecosystems to address societal challenges, simultaneously providing benefits for people and the environment" (White House Council on Environmental Quality, 2022). Adding concepts from this document and other similar initiatives will be essential to ensuring the improved resiliency and flood risk reduction in the LMRC.

As stated in PAL #1, there is a diverse suite of plant, fish, and wildlife species of concern within the LMRC. One recommendation is to focus on the holistic approach to species management, not only focusing on listed species as the standard for success, but all species and human interests. A holistic approach also lends to sustainability as the needs of nature intersect and benefit the needs of humans living along the river. Integration of various Corp programs and

requirements and leveraging with other Federal and State agency programs, Native American Tribe initiatives, non-governmental organizations (NGOs), and local communities' interests and concerns would not only provide the most effective approach to addressing human interests, but also species concerns. Using a partnership approach, the resources and public land holdings may be leveraged between multiple agencies. Additionally, utilizing a multi-agency land aquation approach, working with, and using a framework from NGOs, e.g., The Nature Conservancy's "Large-Scale Levee Setback Playbook: Based on the Missouri River L-536 Levee Setback Project Partners' Experience" could help guide these efforts. One of the key takeaways from this playbook stresses the need to pre-disaster planning, which this current effort can be one step in that direction. The Service stresses the importance of working with willing landowners and on public land through multiple authorities, not only on the framework through the BSNP Fish and Wildlife Mitigation Program, to achieve habitat and species diversity. We encourage the Corps to leverage resources where possible, lay out a clear strategy including the development of a handbook specific to this effort, and consider a state-by-state matrix as part of the handbook.

The Service appreciates the opportunity to provide FWCA recommendations for the Lower Missouri River Flood Risk and Resiliency System Plan PAL #2 focusing on the plant, fish, and wildlife opportunities and structural and non-structural measures within the Lower Missouri River Corridor. The Service hopes this, PAL #1, and the Coordination Act Report will help guide the Corps in their final Lower Missouri River Flood Risk and Resiliency System Plan. Please direct any questions regarding these recommendations to me at Wayne_NelsonStastny@fws.gov or 605-660-5349.

Sincerely,

Wayne Nelson-Stastny
Missouri River Project Leader
Missouri River Recovery Office
U.S. Fish and Wildlife Service

Referenced:

Bureau of Reclamation Technical Service Center, Denver, Colorado Sedimentation and River Hydraulics Group, 86-68240, Report No.: SRH-2015-25, Bank Stabilization Design Guidelines. June 2015.

Large-Scale Levee Setback Playbook: Based on the Missouri River L-536 Levee Setback Project Partners' Experience. The Nature Conservancy. August 2021.

White House Council on Environmental Quality, White House Office of Science and Technology Policy, White House Domestic Climate Policy Office, 2022. Opportunities for

Accelerating Nature-Based Solutions: A Roadmap for Climate Progress, Thriving Nature, Equity, and Prosperity. Report to the National Climate Task Force. Washington, D.C.

CC:
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Final

Fish and Wildlife Coordination Act Report Section 2(b) Report

for the

Lower Missouri River Flood Risk and Resiliency System Plan

Prepared for:

U.S. Army Corps of Engineers
Omaha and Kansas City Districts

Prepared by:

U.S. Fish and Wildlife Service
Missouri River Recovery Office

March 2026

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (Corps) is authorized by Congress to manage the Missouri River. The Corps' Omaha and Kansas City Districts have partnered with the cooperating agencies of U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service (Service), Federal Emergency Management Agency, and Natural Resource Conservation Service state offices within Nebraska, Iowa, Missouri, and Kansas on the Lower Missouri River Flood Risk and Resiliency System Plan (further referred to as the System Plan). As a cooperating agency, each agency's role is to assist the Corps based on their technical expertise. Additionally, the Nebraska, Kansas, Iowa and Missouri state agencies are partnering agencies for this System Plan. The System Plan was authorized under the Water Resources Development Act of 2020 – Section 216(a) to investigate and provide recommendations relating to modification to projects in Nebraska, Iowa, Kansas, and Missouri authorized under the Pick-Sloan Missouri River Basin Program or to non-Federal publicly owned levees in the Lower Missouri River Basin to improve flood risk management and resiliency. Under this authority, the Corps plans to identify implementable plans to improve flood risk management benefits for the Lower Missouri River. Through the Fish and Wildlife Coordination Act (FWCA), in collaboration with the partnering state wildlife agencies, the Service is providing several conservation recommendations through this Coordination Act Report (CAR) and previous FWCA Planning Aid Letters (PALs).

1.0 PURPOSE, SCOPE, AND AUTHORITIES

1.1 PURPOSE

The Corps Omaha and Kansas City Districts were authorized by the Water Resources Development Act (WRDA) of 2020 – Section 216(a), to study and identify plans to provide flood risk resiliency in the Lower Missouri River. For this Lower Missouri River Flood Risk and Resiliency System Plan (System Plan), the Lower Missouri River is characterized as the approximately 735 miles from Sioux City, Iowa to St. Louis, Missouri where it meets the Mississippi River. As part of the states of Nebraska, Kansas, Iowa, and Missouri, the landscape and uses of the floodplain contains both rural and urban communities, and multiple land uses, e.g., transportation, agricultural, recreation (e.g., parks, sport fields, fishing, wildlife viewing, hiking/walking, birding, etc.), levee districts, and various industries. The Missouri River has provided many benefits to the American people since the Flood Control Act of 1944 (FCA) authorizing the Corps to construct, to date, about 400 miles of Federal levees as part of the Missouri River Levee System (MRLS). Over 500 miles of non-Federal levees, which consist of almost 100 non-Federal levee systems (i.e., privately owned levees) also occur within the System Plan area. The Corps' mission with this System Plan includes working with these 4 states, Tribal, other Federal agencies, and stakeholders towards a vision for a more resilient Lower Missouri River into the future, focusing on flood risk resiliency. The System Plan's objective is to identify measures to reduce flood damages while improving resiliency for future flood events and infrastructure.

The Fish and Wildlife Coordination Act (FWCA) – Section 2(b), through this Coordination Act Report (CAR), is the Service's formal response to the Corps' request and fulfills the Service's shared responsibilities under the FWCA of March 10, 1931, as amended (16 U.S.C. § 661-667e). With this CAR, the Service communicates the potential impacts of the proposed alternatives on trust fish and wildlife resources, highlighting the value of these resources and their significance to stakeholders (e.g., Federal and state agencies, local entities, Tribes, formal stakeholder groups, and the general public) in the Lower Missouri River. Also, this CAR discusses the Service's conservation recommendations for the Corps to consider in developing the final National Environmental Policy Act (NEPA) Programmatic Environmental Impact Statement (PEIS) for the System Plan. The purpose of providing these conservation recommendations is to minimize further loss of, or damage to, fish, wildlife, and plant resources in the Lower Missouri River, and to support future management and restoration of those resources (Smalley and Mueller 2004, p. I-28).

1.2 SCOPE

The Corps requested the Service to provide initial guidance in the form of FWCA Planning Aid Letters (PAL) during Fiscal Year 2022 leading to this CAR for the System Plan. The Service collaborated with the state fish and wildlife agencies in Nebraska, Kansas, Iowa, and Missouri on several occasions to specifically discuss the details and components stated within each PAL. The PAL #1 focused on the fish, wildlife, and plant resources of concern in the System Plan area. The PAL #2 explained the fish, wildlife, and plants opportunities for enhancement and ideas and resources for conservation recommendations to enhance or protect these resources within the System Plan area.

Utilizing the previous PALs written for the System Plan, this CAR's intent will further build on the topics within PAL #1 and #2 and further discuss benefits of the proposed or stated actions and recommendations. This CAR will not address the operation and maintenance of the Bank Stabilization and Navigation Project (BSNP) nor the Corps' Missouri River Recovery Program's Biological Assessment/Biological Opinion requirements.

The System Plan's geographic scope is within the states of Nebraska, Kansas, Iowa, and Missouri as stated above in section 1.1 Purpose. The Lower Missouri River System Plan's area includes the main channel, side channels and chutes, riparian corridors, wetlands, upland/terrestrial habitat, and other habitats within the bluff-to-bluff corridor.

In September 2024, the Corps finalized the Statement of Work (SOW) for the System Plan. The Service engaged with state fish and wildlife agencies in Nebraska, Kansas, Iowa, and Missouri to gather their insights and concerns for the plant, fish, and wildlife resources in the Lower Missouri River. The Service participated in several meetings hosted by the Corps online and in-person since the beginning of the System Plan, plus in-person public meetings hosted by Corps and Missouri Department of Natural Resources. The engagements the Service participated in, among multiple programs and with stakeholders, led to this CAR's development.

1.3 AUTHORITIES

1.3.1 Fish and Wildlife Coordination Act

The FWCA instructs the Service to analyze and describe the impacts of proposed Federal actions, specifically on streams or other bodies of water. In coordination with the state partnering agencies that oversee the wildlife resources in each state, the FWCA also brings their insights, concerns, and recommendations together with the Service's. Through providing recommendations to the Federal agency proposing a water development project, the goal of the FWCA is to minimize the impacts on fish and wildlife resources. The FWCA authorities to the Secretaries of the Departments of the Interior and Commerce highlight the importance, value, and significance of fish and wildlife. Additionally, the FWCA mandates equal consideration among other water resource development project elements via early coordination, collaboration, data sharing, interagency cooperation, and creation of best practices and alternatives for the fish and wildlife resources and restoration (Smalley and Mueller 2004, pp. 14-17).

The Service expects the Corps to consult under the Endangered Species Act (Act) – Section 7 consultations, conservation measures, and mitigation projects related to the System Plan. As the System Plan and associated spin-off projects develops, the Service will continue to assist via various authorities, e.g., National Environment Policy Act, to review and comment on project specific aspects as they develop.

1.3.2 Corps Congressional Authority on the Missouri River

The Corps operates the Missouri River Mainstem Reservoir System (Mainstem System) consisting of six dams and reservoirs with a capacity to store 72.4 million acre-feet (MAF) of water, the largest reservoir system in North America. The Mainstem System controls runoff from 279,480 square miles of the upper Missouri River basin. The Flood Control Act of 1944 (FCA) authorized the construction and operation of the Mainstem System. The FCA dams and reservoirs include Garrison Dam and Lake Sakakawea in North Dakota; Oahe Dam and Lake Oahe, Big Bend Dam and Lake Sharpe, Fort Randall Dam and Lake Francis Case and Gavins Point Dam and Lewis and Clark Lake in South Dakota. The construction of Fort Peck Dam/Fort Peck Lake in Montana was authorized in the Rivers and Harbors Act of 1935; however, the FCA incorporated the Fort Peck Dam along with the other five dams and reservoirs, as stated above, to form the Mainstem System. Today, the Corps operates the Mainstem System as an integrated system for the following eight congressionally authorized purposes: flood control, navigation, irrigation, hydropower, water supply, water quality, recreation, and fish and wildlife. The Corps operates the Mainstem System in accordance with the policies and procedures prescribed in the 2018 Missouri River Mainstem Reservoir System Master Water Control Manual (Master Manual). Modifications to the Master Manual are not being considered as part of development of the System Plan.

Beginning in 1912, Congress passed the first of several laws (Rivers and Harbors Acts of 1912, 1925, 1927, and 1935) to fund work by the Corps to further improve the Missouri River for navigation and in 1945 authorized the Missouri River Bank Stabilization and Navigation Project (BSNP). The BSNP consists mainly of wood pile and rock structures and revetments along the

Missouri River's outsides of bends and transverse dikes along the insides of bends to force the Missouri River into a channel alignment that is self-maintaining or self-scouring. This is different from most inland navigation systems, which are managed using locks with some associated dredging. Training structures allow for an open condition for the entire length of the project with no dredging required, under normal flow conditions. As authorized, the BSNP provides a 9-foot-deep channel with a minimum width of 300 feet during the navigation season from April 1 to November 30 between Sioux City, Iowa, and the mouth near St. Louis, Missouri, a length of 735 river miles (RM). Releases from the Mainstem System are necessary to provide the authorized navigation channel dimensions. Proposed actions being formulated as part of the System Plan must not adversely affect the BSNP.

Federal levees are authorized by Congress and have been designed and constructed by the Corps following their engineering standards. There are approximately 42 federal levee units, referring to names of levees, comprising 49 levee systems, referring to stand-alone leveed areas, constructed on the lower Missouri River. Thirty-six units, or 43 systems, are between Omaha, Nebraska and Kansas City, Missouri. Only six, R-351, L-246, Lower Chariton, New Haven, Monarch-Chesterfield, and Consolidated North County (often called L-15) are located downstream of the Kansas City Levees (RM 353). Federal levee projects surrounding large urban areas along the Missouri River have been constructed at Omaha, Nebraska; Council Bluffs, Iowa; St. Joseph, Missouri; Kansas City, Missouri and St. Louis, MO, with most of the remaining levees being mainly agricultural. Along the Missouri River, three Corps Districts, i.e., Omaha, Kansas City, and St. Louis, oversee federal levees. While most federal levee systems were authorized through the FCA as part of the agricultural MRLS, other federal levees were specifically authorized separately through a FCA or a Water Resource Development Act.

Local levee and drainage districts have built over 660 miles of levees according to National Levee Database data, which comprise 78 non-federal levee systems along the Lower Missouri River. Because these levees participate in the Corps' Public Law 84-99 (PL 84-99) Repair and Inspection Program, they are referred to as non-federal levees. While these levees reduce the frequency of flooding, most are not designed to perform during major or extreme floods. The non-federal levees that are active in the PL 84-99 program are required to cost share eligible post flood repairs at 20 percent of the total repair cost.

1.3.3 Cooperating State-led Fish and Wildlife Agencies

One major aspect of the FWCA is to collaborate and coordinate with state fish and wildlife agencies. These FWCA efforts help in a project's development for the protection, enhancement, and recovery of all species of fish and wildlife over the course of the System Plan area. The Service has hosted several meetings with the fish and wildlife agencies of Nebraska, Kansas, Missouri, and Iowa to gather their fish, wildlife, and plant concerns and areas where improvements can be made as a result of the System Plan.

Additionally, another aspect of the FWCA is to collaborate with the Tribal community. The Indigenous knowledge of the Missouri River should be considered through coordination efforts by the Corps. Gathering all the perspectives and voices within the Lower Missouri River Basin will be important in the implementation of the System Plan.

2.0 Relevant Prior FWCA Reports in the Missouri River Basin

Under the authority of the FWCA, the Service previously provided fish and wildlife recommendations to other Corps water development projects through PALs, CARs, and other documents for the Missouri River Basin. One of the more comprehensive CARs is the "Missouri River Stabilization and Navigation Project, Sioux City, Iowa to Mouth" completed in 1980 (further referred to as 1980 BSNP CAR). Other documents such as PALs, were written and shared with the Corps on topics related to habitat improvements and other Bank Stabilization and Navigation Project (BSNP) related habitat improvement activities. Each CAR, PAL, or other document was intended to ensure that fish and wildlife conservation receives equal consideration with components of the System Plan while striving to prevent, minimize, and mitigate adverse impacts on fish and wildlife habitats.

The 1980 BSNP CAR discussed recommendations from the 1912 Corps' authorization for the bank stabilization and channelization from Sioux City, Iowa to the mouth of the Missouri River at the Mississippi River. The overarching goal of this authorization/project was, in part, to maintain a navigation channel for commercial barge traffic and the associated fish and wildlife mitigation needs to address the habitat loss and degradation due to the navigation channel. As this report states "channelization has influenced land use and consequently fish and wildlife resources on 1,800,000 acres or 95% of the floodplain. Direct loses of approximately 100,300 acres of aquatic and 374,300 acres of terrestrial habitat types have occurred within the 300,000 acres formerly covered by the natural river and the immediately adjacent 364,000-acre active erosion zone." (1980 BSNP CAR). Due to the BSNP project, one indirect impact stemming from the channelization and levee construction, also led to an increase of adjacent land being converted to agricultural purposes. Further alteration of the Missouri River's floodplain was due to extensive systems of Federal, private, and public levees adding to the reduction of more fish and wildlife habitat. The overarching recommendation of the 1980 BSNP CAR was to restore 1/3 of the fish and wildlife terrestrial and aquatic habitat lost due to the construction of the BSNP project through a mitigation program, while also still meeting the goals of the BSNP. This CAR will echo similar recommendations and bring more recommendations of various habitat restoration techniques and concepts to light with the best available science considerations.

3.0 Study Area and Basin Extent

The System Plan will cover the study area of the Lower Missouri River from Sioux City, Iowa to the confluence with the Mississippi River near St. Louis, Missouri. The landscape consists of both urban and rural/agricultural areas, with around 400 miles of Federal levees called the Missouri River Levee System (MRLS) authorized by the 1944 Flood Control Act (more levee details are in section 1.3.2 of this CAR). Additionally, there are hundreds of additional miles of private levee systems in the study area.

Overall, the Missouri River Basin covers a portion of the Rocky Mountains, Great Plains, and the western part of the Midwest; parts of 10 states, from Montana to Missouri, as well as a small

portion in Canada. The Basin's total drainage area is 529,350 square miles. The Missouri River has been nicknamed the 'Big Muddy' due to vast amount of sediment carried down the river. However, due to the anthropogenic changes to this river system, it does not transport as much sediment as it once did, historically. The construction and operation of dams, levees, and channelization have altered the natural flow and temperature regimes of the river and reduced flood plain habitat.

4.0 Methods

One of a FWCA project's goal is to collaborate with other wildlife agencies. This CAR discusses the Service's recommendations and those provided to the Service from the state wildlife agencies of Nebraska, Kansas, Iowa, and Missouri. These efforts were led by the Service's analysis of impacts to the Missouri River plant, fish, and wildlife due to the System Plan's Federal water development spin-off project(s) recommendations. The Service identified key biological process and landscapes to support multiple recovery efforts for the Missouri River for the benefit of the American people. Instead of separating the species of concern by river sections, they are listed by importance in each state since many of the species are not endemic to a particular river section within the Missouri River Basin (Table 1).

4.1 Species Considered / Evaluated

The Service and state wildlife agencies evaluated species in or along the lower Missouri River considered to be of high importance within the states of Nebraska, Kansas, Iowa, and Missouri. Overall, guilds or taxonomic groups of these species include migratory and neotropical birds, migratory and interjurisdictional fish (i.e., fish managed by multiple governing bodies/states), and plants. A species can be of importance due to their socioeconomic value (e.g., fishing, hunting, substance living, and aesthetics), state species of concern, and ecological keystone species (Table 1; also described in PAL #1; however, Table 1 below has been updated since PAL #1). Species could also be identified through documents such as the Endangered Species Act or state equivalent, state wildlife action plans, priority habitats, and species of conservation concern within each state.

Table 1. Species of Concern within the System Plan. *As described in PAL #1 and expanded on in this CAR, the species evaluated within this CAR (and PAL #1) are grouped by their taxonomic group. Also described for each species is their scientific name, common name, if the species is Federally listed under the Act or if the species is state listed, then the state in which the species is state listed is included. Abbreviations for Federal or state listed species include T for threatened species, or E for endangered species.*

Scientific Name	Common Name	Taxonomic Group	Federal Listed	State Listed
Ambystoma annulatum	Ringed Salamander	Amphibian		
Ambystoma laterale	Blue-spotted Salamander	Amphibian		E – IA
Ambystoma tigrinum	Eastern Tiger Salamander	Amphibian		
Anaxyrus cognatus	Great Plains Toad	Amphibian		
Lithobates sylvaticus	Wood Frog	Amphibian		

Necturus maculosus	Mudpuppy	Amphibian		T – IA
Notophthalmus viridescens	Central Newt	Amphibian		T – IA
Rana areolate	Crawfish Frog	Amphibian		E – IA
Accipiter striatus	Sharp-shinned Hawk	Bird		
Ammodramus henslowii	Henslow's Sparrow	Bird		T – IA
Asio flammeus	Short-eared Owl	Bird		E – IA
Asio Otus	Long-eared Owl	Bird		T – IA
Buteo lineatus	Red-shouldered Hawk	Bird		E – IA
Calidris subruficollis	Buff-breasted Sandpiper	Bird		
Circus cyaneus	Northern Harrier	Bird		E – IA
Charadrius melodus	Piping Plover	Bird	T	T – NE; E – IA
Coccyzus erythropthalmus	Black-billed Cuckoo	Bird		
Falco peregrinus	Peregrine Falcon	Bird		
Haliaeetus leucocephalus	Bald Eagle	Bird		
Hylocichla mustelina	Wood Thrush	Bird		
Ixobrychus exilis	Least Bittern	Bird		
Lanius ludovicianus	Loggerhead Shrike	Bird		
Porzana carolina	Sora	Bird		
Rallus elegans	King Rail	Bird		E - MO
Sternula antillarum athalassos	Interior Least Tern	Bird		T – NE; E- IA
Tyto alba	Common Barn Owl	Bird		E- IA
Acipenser fulvescens	Lake Sturgeon	Fish		E - MO; T – NE; E- IA
Alosa alabamae	Alabama Shad	Fish		
Alosa chrysochloris	Skipjack Herring	Fish		
Ameiurus nebulosus	Brown Bullhead	Fish		
Ammocrypta clara	Western Sand Darter	Fish		T – IA
Anguilla rostrata	American Eel	Fish		
Carpiodes velifer	Highfin Carpsucker	Fish		
Cycleptus elongatus	Blue Sucker	Fish		
Esox americanus	Grass Pickerel	Fish		T – IA
Etheostoma chlorosomum	Bluntnose Darter	Fish		E- IA
Etheostoma mircoperca	Least Darter	Fish		E- IA
Etheostoma spectabile	Orangethroat Darter	Fish		T – IA
Fundulus dispar	Starhead Topminnow	Fish		
Fundulus kansae	Northern Plains Killifish	Fish		
Hybognathus argyritis	Western Silvery Minnow	Fish		
Hybognathus hankinsoni	Brassy Minnow	Fish		
Hybognathus nuchalis	Mississippi Silvery Minnow	Fish		
Hybognathus placitus	Plains Minnow	Fish		
Ichthyomyzon castaneus	Chestnut Lamprey	Fish		T – IA
Lampetra appendix	American Brook Lamprey	Fish		T – IA

Lota lota	Burbot	Fish		T – IA
Macrhybopsis gelida	Sturgeon Chub	Fish		E - NE
Macrhybopsis meeki	Sicklefin Chub	Fish		
Moxostoma duquesnei	Black Redhorse	Fish		T – IA
Notropis anogenus	Pugnose Shiner	Fish		E- IA
Notropis buchanani	Ghost Shiner	Fish		
Notropis heterolepis	Blacknose Shiner	Fish		T – IA
Notropis texanus	Weed Shiner	Fish		E- IA
Notropis topeka	Topeka Shiner	Fish		T – IA
Noturus nocturnus	Freckled Madtom	Fish		E- IA
Percina shumardi	River Darter	Fish		
Percopsis omiscomaycus	Trout-perch	Fish		
Platygobio gracilis	Flathead Chub	Fish		E - MO
Scaphirhynchus albus	Pallid Sturgeon	Fish	E	E - MO; E – NE; E- IA
Semotilus margarita	Pearl Dace	Fish		E- IA
Apobaetis lakota	Lakota Mayfly	Invertebrate		
Atrytone arogos iowa	Iowa Skipper	Insect - Lepidoptera		
Attaneuria ruralis	Giant Stonefly	Invertebrate		
Boloria selene nebraskensis	Nebraska Fritillary	Insect - Lepidoptera		
Catocala nuptialis	Married Underwing	Insect - Lepidoptera		
Catocala whitneyi	Whitney Underwing	Insect - Lepidoptera		
Coenonympha tullia	Ringlet	Insect		E – IA
Danaus plexippus	Monarch	Insect - Lepidoptera		
Euphydryas phaeton	Baltimore	Insect		T – IA
Euphyes conspicua buchholzi	Bucholz Black Dash	Insect - Lepidoptera		
Glaucopsyche lygdamus	Silvery Blue	Insect		T – IA
Hesperia dacotae	Dakota Skipper	Insect - Lepidoptera		E – IA
Hesperia ottoe	Ottoe Skipper	Insect - Lepidoptera		
Hydroperla fugitans	Austin Springfly	Invertebrate		
Problema byssus kumskaka	Byssus Skipper	Insect - Lepidoptera		T – IA
Poanes Massasoit	Mulberry Wing	Insect		T – IA
Oarisma poweskeik	Powesheik Skipperling	Insect		T – IA
Speyeria idalia	Regal Fritillary	Insect - Lepidoptera		
Triops longicaudatus	Longtail Tadpole Shrimp	Invertebrate		
Clethrionomys gapperi	Red-backed Vole	Mammal		E- IA
Cryptois parva	Least Shrew	Mammal		T – IA
Lasionycteris noctivagans	Silver-haired Bat	Mammal		
Lasionycteris noctivagans	Silver-haired Bat	Mammal		
Lasiurus borealis	Eastern Red Bat	Mammal		
Lasiurus cinereus	Hoary Bat	Mammal		
Mustela frenata	Long-tailed Weasel	Mammal		

Myotis grisescens	Gray Myotis	Mammal	E	E - MO
Myotis lucifugus	Little Brown Myotis	Mammal		
Myotis septentrionalis	Northern Long-eared Myotis	Mammal	T	E – MO; T – NE
Myotis sodalis	Indiana Myotis	Mammal	E	E – MO; E – IA
Perimyotis subflavus	Tricolored Bat	Mammal		
Poliocitellus franklinii	Franklin's Ground Squirrel	Mammal		
Perognathus flavescens	Plains Pocket Mouse	Mammal		E- IA
Spilogale putorius	Spotted Skunk	Mammal		E- IA
Synaptomys cooperi	Southern Bog Lemming	Mammal		T – IA
Taxidea taxus	American Badger	Mammal		
Alasmidonta viridis	Slippershell	Mussel		E – IA
Anodonta suborbiculata or Utterbackiana suborbiculata	Flat Floater	Mussel		
Anodontoides ferussacianus	Cylinder	Mussel		T – IA
Cumberlandia monodonta	Spectacle Case	Mussel		E – IA
Cyclonaias tuberculate	Purple Pimpleback	Mussel		T – IA
Ellipsaria lineolate	Butterfly	Mussel		T – IA
Fusconaia ozarkensis	Ozark Pigtoe	Mussel		E – IA
Lampsilis teres teres	Slough Sandshell	Mussel		E – IA
Lampsilis teres anodontoides	Yellow Sandshell	Mussel		E – IA
Lampsilis higginsi	Higgin's-eye Pearly Mussel	Mussel		E – IA
Leptodea leptodon or Potamilus leptodon	Scaleshell Mussel	Mussel	E	E - NE
Lasmigona Compressa	Creek Heelsplitter	Mussel		T – IA
Pleurobema sintoxia	Ohio River Pigtoe	Mussel		E – IA
Plethobasus cyphyus	Bullhead	Mussel		E – IA
Strophitus undulatus	Strange Floater	Mussel		T – IA
Tritogonia verrucosa	Buckhorn	Mussel		E – IA
Venustaconcha ellipsiformis	Ellipse	Mussel		T – IA4
Alopecurus aequalis	Floating Foxtail Grass	Plant		
Bergia texana	Bergia	Plant		
Boltonia decurrens	Decurrent False Aster	Plant	T	E - MO
Carex missouriensis	Missouri Sedge	Plant		
Corispermum villosum	Oriental Tick-seed	Plant		
Cyperus diandrus	Umbrella Flatsedge	Plant		
Cyperus schweinitzii	Schweinitz's Flatsedge	Plant		
Eleocharis lanceolata	Lance-like Spike Rush	Plant		
Fuirena simplex var. aristulata	An Umbrella Grass	Plant		
Juncus bufonius var. bufonius	Toad Rush	Plant		
Lygodesmia juncea	Skeleton Plant	Plant		
Oenothera glaucifolia	Stenosiphon	Plant		

Oenothera nutans	Nodding Evening Primrose	Plant		
Paspalum setaceum var. setaceum	Slender Paspalum	Plant		
Platanthera praeclara	Western Prairie Fringed Orchid	Plant	T	T - NE
Potentilla supina ssp. paradoxa	Bushy Cinquefoil	Plant		
Primula fassettii	Amethyst Shooting Star	Plant		
Schoenoplectiella saximontana	Rocky Mountain Bulrush	Plant		
Scirpus pallidus	Pale Bulrush	Plant		
Agkistrodon contortrix	Copperhead Snake	Reptile		E- IA
Emydoidea blandingii	Blanding's Turtle	Reptile		NC – NE; T – IA
Carphophis amoenus vermis	Western Worm Snake	Reptile		T – IA
Clemmys insculpta	Wood Turtle	Reptile		E- IA
Crotalus viridis	Prairie Rattlesnake	Reptile		E- IA
Eumecces obsoletus	Great Plains Skink	Reptile		E- IA
Heterodon nasicus	Western Hognose Snake	Reptile		E- IA
Kinosternon flavescens	Yellow Mud Turtle	Reptile		E- IA
Lampropeltis getulus	Speckled Kingsnake	Reptile		T – IA
Nerodia erythrogaster neglecta	Copperbelly Water Snake	Reptile		E- IA
Nerodia rhombifera	Diamondback Water Snake	Reptile		T – IA
Pantherophis ramspotti	Western Foxsnake	Reptile		
Pituophis catenifer sayi	Bullsnake	Reptile		E - MO
Ophisaurus attenuatus	Slender Glass Lizard	Reptile		T – IA
Sistrurus catenatus	Massasauga Rattlesnake	Reptile		E- IA
Sternotherus odoratus	Common Musk Turtle	Reptile		T – IA
Terrapene ornate	Ornate Box Turtle	Reptile		T – IA

4.2 Coordination and Collaboration

In the essence of the FWCA, the Service coordinated and collaborated with state fish and wildlife agencies in Nebraska, Kansas, Iowa, and Missouri. Specifically, these state agencies include: Nebraska Game and Parks Commission, Kansas Department of Wildlife and Parks, Iowa Department of Natural Resources, and Missouri Department of Conversation. The Service also hosted at least one formal meeting per PAL and met informally throughout the CAR with the state agencies. In addition, the Service internally coordinated efforts between state Ecological Service offices, led by the Missouri River Recovery Office. The goal of these interactions assists the Service in staying informed and enhances the information sharing and recommendations for the System Plan.

5.0 Resources

The study area for the System Plan includes the landscape and land use from bluff to bluff of the Lower Missouri River. The Service selected the main, influential aquatic and terrestrial landscapes in the study area that will be affected in a positive way, e.g., improved habitat, natural

characteristics to these landscapes, improved connectivity throughout the landscapes and neighboring communities, etc., due to the System Plan. These overall landscapes include rivers, reservoirs, riparian corridors, wetlands, and upland/terrestrial habitats.

5.1 Rivers

Rivers make up one of the more significant resources for the System Plan. The Service, in this CAR, characterizes rivers by including the local streams and tributaries, sloughs, chutes, shallow water habitat, and side channels of the Lower Missouri River. The local streams and tributaries add to the flow of the Lower Missouri River and can be areas that provide habitat for various life stages of the species of concern. Additionally, sloughs, chutes, shallow water habitat, and side channels of the Lower Missouri River also provide the diversity of habitat necessary for a wide array of fish, wildlife, and plants.

Historical and current management on the Missouri River has impacted the fish, wildlife, and plant resources. By mid-1912, Congress directed the Corps to create a six-foot deep navigation channel from Kansas City, MO to the mouth near St. Louis, MO. By 1927, this same effort went further upstream, up to Sioux City, IA. In 1945, Congress expanded the Corps' authorization to further deepen the main channel to a nine-foot-deep navigation channel and at least a 300-foot-wide navigation channel from Sioux City, IA to the mouth. The total distance of this self-scouring navigation channel is approximately 735 miles long. Due to the formerly dynamic river being channelized through this overall effort, flows, guided by dikes, levees, and revetments, help to maintain the authorized purpose of navigation, while also adding some streambank protection to nearby cities and infrastructure in the floodplain. The natural flow regime on the Missouri River Basin has been altered through the construction and operation of mainstem dams, including alterations in the tributaries due to at least 75 tributary dams, as of the 2002 report (National Research Council, 2002). The impacts of these management actions have altered the Missouri River Basin, resulting in changes to in-stream flow, disconnections of the floodplain, chutes that have become backwaters (i.e., alterations to chutes have reduced its capacity to be side-channel habitat), and islands that are no longer in some stretches of the Missouri River. Estimates from the 1980 BSNP CAR looked at the habitat changes from 1880 to 1980 (Service 1980 – Figure 4). Over this 100-year period, the estimated values of the approximate percentages of channel and flood plain in various habitat types changed drastically for specific habitat types: from 2 % to 8 % for deep swift channel water; 15 % to 2 % for shallow quiet water and marsh; 13 % to 1 % for sandbar and sand dune; 3 % to 0.5 % for islands; 67 % to 0.5 % for bottomland hardwood; and 0 % to 88 % for agricultural crop (Service 1980). Similarly, estimated acres of habitat losses due to the BSNP in the former natural channel and meander belt from 1912 to 1980 within Nebraska, Iowa, Kansas, and Missouri, include 100,300 acres of aquatic habitat loss, 65,300 acres loss of island and sandbars associated with the former natural channel, and 114,100 acres from terrestrial and wetland (non-woodland) habitat and 194,900 acres loss of woodland habitat, plus a loss of 127 shoreline miles (from 1879-1980 but missing data from 1912) shared in Table 1 (Service, 1980). Over the next two decades, due to further land-use changes, channelization, inundation, and levees constructed, estimates of around 3 million acres of natural river and floodplain habitat were changed (National Research Council, 2002). Over the years, alterations to the Missouri River's water temperatures (due largely to the dams/reservoirs), flow, and turbidity/sediment regimes have continued to affect the ecology and

structure/characteristics of the Missouri River. The altered water temperatures downstream of the dams, specifically for the Lower Missouri River, Gavins Point Dam, affect fish species due to the colder water being released from the stratified reservoirs; however, not as greatly below Gavins Point Dam due to the shallower and less stratified Lewis and Clark Lake (Service 2018). The altered flow regime throughout the Missouri River system, because of the dam/reservoir system, also effects the hydrograph, i.e., the peaks and valleys of the flows. The Missouri River also has an altered turbidity and sediment regime attributing to many changes within and adjacent to the river, e.g., land use changes. The Missouri River carries less sediment and is less turbid than the ecosystem the native species evolved in, creating concerns for the native species' ability to survive, find food resources, effectively reproduce, provide suitable habitat for all life stages and functions, and support effective predator/prey relationships (Service 2018). Amongst all these many factors, the Corps continue to maintain their Congressionally authorized purposes, through the ongoing operation and maintenance actions.

5.2 Reservoirs and Lakes

The Missouri River Basin has both man-made reservoirs and natural lakes. However, the reservoir system was created in the Upper Basin above Sioux City, IA, which is outside the scope of the System Plan. Within the Lower Missouri River, there are a handful of natural horseshoe shaped oxbow lakes (e.g., Big Lake at DeSoto National Wildlife Refuge; Carter Lake, Iowa; Browning Lake at Rosecrans Memorial Airport – St. Joseph, MO; Creve Coeur Lake, St. Louis, MO), as well as narrow oxbow lakes, as a result of the meandering of the Missouri River pre-BSNP. Many of these oxbow lakes are associated with conservation areas, wildlife management areas, and the similarly named areas managed by state or Federal conservation partners as a resource for fish, wildlife, and plants.

5.3 Riparian Corridor

A riparian corridor is characterized as the immediate area/habitat where an aquatic habitat transitions into an upland/terrestrial habitat. This area is typically a mix of low-lying plants such as grasses and native flowers, shrubs, and trees. The soils here are tolerant to wet conditions, some of which may be able to hold water in support of wetland habitat. On the other hand, sand and gravel bars, flood-scoured areas, blue holes (i.e., deep water holes near rivers due to a limestone collapse, sometimes caused by flooding), and other aquatic features may exist in the riparian corridor. The frequency of over-streambank-flows or high-water events are often greater in riparian corridors then in the uplands and often expected. During high-water events, riparian corridors may support early life history forms of aquatic species, i.e., fish. The riparian corridor is a highly productive and important habitat landscape for the river and the fish, wildlife, and plant resources of the Lower Missouri River Basin.

5.4 Wetlands

Wetland ecosystems are highly productive and an important ecosystem on the landscape. A wetland can often be within a river's riparian corridor. This resource allows for a unique plant community and can also be habitat for migratory birds, and a nursery for young fish and other aquatic organisms, while having connection to a river during high water events. A wetland can

also be a good natural source for flood storage or seasonal absorption of water. However, due to the management and anthropogenic changes in the Missouri River Basin and across the Midwest, many wetlands have been eliminated.

5.5 Upland/Terrestrial Habitat

An upland/terrestrial landscape is outside the normal inundation area of a river and the soil composition is without the capacity to hold water for a period-of-time (i.e., not wetland soils). High water events do not typically flood upland habitats or have a major influence on them. Trees and other vegetation within these habitats add to the diversity of wildlife, including insects, and plants within the System Plan area. This mixture of landscapes allows for the uplands near a river system to provide habitat for mammals, reptiles, amphibians, birds, and insects, while also supporting the aquatic life in the river.

A rock bluff can also be part of the upland of a major river such as the Lower Missouri River. At various points of the Missouri River, a rock bluff may allow for a small or large riparian corridor, or none at all (i.e., the river's water is next to the rock bluff). A rock bluff can also provide habitat for rare plants and niches for small wildlife to thrive, e.g., bats may find refuge on or in the bluff while next to a great source of insects from a nearby river. Allowing and supporting a diverse habitat in the upland/terrestrial habitat can help connect all the biological communities across the whole floodplain, from rock bluff on one side to the other side. Historically river channel meandering was constrained by rock bluffs at certain points of the Lower Missouri River. Overall, a river system is made up of a combination of connected landscapes which are essential for a functional ecosystem, both to the physical attributes and fish, wildlife, and plant resources.

6.0 Impacts to Fish, Wildlife, and Plant Resources

A key part of the FWCA is evaluating how a water development project affects fish and wildlife. Partners with the Service on this FWCA response include the state wildlife agencies of Nebraska, Kansas, Iowa, and Missouri. Many of the species of concern to the System Plan span the whole Missouri River system, not specific Missouri River stretches. Consequently, several groups/guilds of fish, wildlife, and plants have been identified as a concern to agencies as they have provided their overall concerns to help assess System Plan effects. The benthic native fish species, including other small-bodied fish (e.g., sturgeon chub, sicklefin chub, and flathead chub) should be a major focus for the Corps. These fish guilds are important to the Missouri River ecosystem due to their historical significance, trophic levels, predator/prey interactions, and indicators of the ecosystem recovery success. Macroinvertebrates are important prey by supporting young invertivores fish. Without the habitat to support macroinvertebrates, some aquatic species including benthic native fish and other small-bodied fish will have further recovery delays. Although native mussels are challenging to observe in expansive, deep river systems, their ecological significance should not be underestimated. Additional aquatic species of concern are listed above with their state location of significance listed (Table 1).

In addition to the aquatic ecosystem, the other resource types discussed in Section 5 serve as habitats for species of particular concern and importance. Neotropical migratory birds including shorebirds, raptors, songbirds, thrushes, waterfowl, and vireos, utilize connectivity and habitats from the aquatic ecosystems to the riparian corridor and upland/terrestrial ecosystem and resources. Reductions in the different resources greatly shrink the available and viable habitat for this bird guild. Increasing the viable varieties and quality of habitats including riparian corridor, wetland, grassland, savannah, and forest habitats will automatically increase nature-based solutions leading to Missouri River restoration and resiliency, while reducing impacts of nutrient influences to the Missouri River.

The riparian and upland/terrestrial resources provide the necessary habitat for the mammals, reptiles/amphibians, and plants of concern. Typically, bat species will use the riparian corridor next to a body of water as a food source due to the increased number of insects coming from the waterbody. Additionally, some bats prefer to roost within tree snags or loose tree bark in the upland areas. The upland habitat is home to other mammals, amphibians, and reptiles of concern like the long-tailed weasel, Franklin's Ground Squirrel, American Badger, Western Foxsnake, Bullsnake, and Blanding's Turtle. Plants are an important guild of species across all the discussed resources. The plants of concern range from aquatic/wetland to riparian and upland/terrestrial. Like the fish and wildlife species of concern, plants are important as ground cover, erosion control or protection, food source, and habitat for pollinators.

Conversely, invasive fish, wildlife, and plants are not desired in the Lower Missouri River Basin. The protection against invasives is important. During various actions on the Missouri River, from maintenance and restoration projects, it is important to sterilize construction equipment from accidently transporting invasive plants or their seeds from one site to another. Controlling invasive plants such as Autumn Olive, Bush Honeysuckle, Callery (Bradford) Pear, Common Reed, Johnson Grass, Multiflora Rose, Musk Thistle, Purple Loosestrife, Reed Canary Grass, Sericea Lespedeza, and Teasel are important to ensure native plant diversity throughout the Missouri River Basin. Invasive fish and wildlife have moved from one location to another by various means. Aquatic organisms like the invasive carp, Northern snakehead, and zebra mussels create havoc and disrupt an ecosystem. Other invasive species can include feral hogs and emerald ash borers. Being mindful to help stop the spread of invasive species will allow for diverse native species to thrive in the Lower Missouri River.

All Federal agencies conducting a project need to follow several Federal Acts. One of the unique aspects of the FWCA is the inclusion of all fish and wildlife of concern. The Endangered Species Act Section 7, for consultation with the Service on Federally listed species, is a separate process that may include a more select list of species, specifically Federally listed plants and animals that the Corps will need to consider. Some of the Federally listed species include the pallid sturgeon, piping plover, several bat species, multiple plants, among other species. A separate process will be conducted as spin-off projects from the System Plan will unfold in specific locations for the Endangered Species Act Section 7 consultation.

7.0 Conservation Recommendations

The Lower Missouri River supports a wide variety of services from ecological, economic, cultural, to commercial. The Service recognizes the multiple authorized purposes managed by the Corps are essential for thriving communities for the American people. In addition, the Service and Corps also work toward the ability for a project to support healthy habitats for fish, wildlife, and plants. An overarching recommendation to lessen a project's impacts is to mitigate. Mitigation typically starts with assessing the ability of a project to avoid negative impacts to species and habitat, then minimize those impacts, and lastly providing off-site mitigation for specific species and habitat, ideally as close to the impacted project area. Avoiding and minimizing a project's impacts are considered to have a higher likelihood of success, in the viewpoint of the Service. Conservation recommendations provided by the Service can help guide the Federal agency in reducing a project's impacts to support diverse and healthy habitats, creating resiliency for people, landscapes, and resources, and be supportive for fish, wildlife, and plant resources. Therefore, the Service offers the following conservation recommendations to help benefit the species of concern, landscape, and the American people, while also supporting the goals and the Corps' authorized purposes on the Missouri River.

7.1 Corps – Engineering with Nature

One initiative within the Corps that the Service suggests incorporating in the System Plan is Engineering with Nature (EWN). The goal of EWN is the intentional alignment of natural and engineering processes to efficiently and effectively deliver economic, ecological, and social benefits through collaboration. The ability to use nature itself within the System Plan will help provide restorative actions, resiliency, increase the benefits while decreasing the demands on the natural resources, and minimizing the size of the System Plan's area. Main areas and principles for the System Plan to focus on include: integrating science and engineering practices in aspects or components of the System Plan; integrating as many aspects from an ecological, economic, and social/community benefits perspective; strengthen the normal ecological aspects to help lessen additional resources that would be needed, increase effectiveness and reduce maintenance needs, and lengthen the longevity of that site; and increase collaboration efforts with the goals to streamline, reduce delays, and increase effective infrastructure. Using the EWN process should also include science-based collaboration with partners, stakeholders, adjacent landowners, and species-focused workgroups to increase the likelihood of practice adoption and voluntary implementation of sustainable practices on adjacent landowners' property.

There are several specific EWN focused strategies and actions the Service recommends assisting the Corps in protecting fish, wildlife, and plants of concern, and enhancing their habitats. One strategy includes working toward enhancing the strength of the Corps' partnerships and collaboration with key influencers in the Lower Missouri River. Enhancing partnerships can be done by continuing to meet local landowners where they are, increasing the level of effective communication with adjacent landowners, local governments and levee districts, and state and Federal agencies will further support the System Plan. Adding a social science aspect to the System Plan will help with these connections and communication.

Physical EWN strategies and conservation actions can be diverse and innovative based on emerging science, technological, and engineering design advances. Integrating a species' habitat

into the engineered structures (e.g., dikes, levees, etc.) will help serve both purposes, one for the human needs and another for the species needs. Incorporating woody materials and vegetation into engineered rock structures can provide food-rearing, nesting, resting, and foraging habitat for a host of species. Adding engineered logjams of pile driving logs as part of BSNP structures, similar to a practice done by the Corps Districts on the Lower Mississippi River, in the channel can create new aquatic habitat and potentially new recreational fishing areas. Levee realignment is a proven successful practice in the Lower Missouri River after the extensive 2019 flooding of L-536. With supportive communities and levee districts, this levee realignment is a showcase project for effective partner communication, reducing the flood risk, and enhancing ecological benefits. In conjunction with a levee realignment, using native plants on restoration and streambank projects will help provide habitat and bank stabilization during high water events.

As part of the EWN program, there are several tools available to the Corps for project ideas and development. The EWN website can be a great source of information and project examples across many landscapes. The EWN Project Mapper (https://ewn.erdc.dren.mil/pro-map/) is a useful tool to help view these projects, EWN principles utilized, other highlighted EWN aspects, and data that could help future project planning, design, and construction. Filtering the variety of projects related to the infrastructure type, or ecosystem and social benefits, can also be done using the Project Mapper. Other resources provided by the Corps like native plant assemblages, the 'National Large Wood Manual', and other research publications on the EWN website can also bring further innovative ideas to the Lower Missouri River. Using a combination of practices based on the surrounding ecosystem, social, and economic needs, with open communication to the surrounding communities, will help usher the Lower Missouri River projects into the future. We suggest the combination of utilizing EWN tools with resource experts from state fish and wildlife agencies, Tribes, Federal agencies, and individuals from local communities to determine specific projects that meet the core principles of EWN mentioned above.

7.2 Corps – Hydrologic Engineering Center

The Corps' Hydrologic Engineering Center (HEC) was created in 1964 on the West Coast to be the technical hydrologic engineering experts. Over the course of the next several decades HEC experts became available to provide hydrologic engineering support from the West to the East Coast. Since that time, HEC expanded their expertise to water resource planning and management. With a mix of research, training provided, planning assistance, and technical assistance, HEC tries to be the source for the latest developments in this field. One example of HEC's ability for planning and technical assistance is the River Analysis System (RAS; collectively referred to as HEC – RAS). The HEC – RAS software assists in multiple flow, sediment transport, and water quality modeling that could support the System Plan. Learning more about the various Corps' actions on the Lower Missouri River, through modeling, will help future projects to be sustainable, restorative, and resilient.

7.3 Other Corps Recommendations

Additional recommendations that the Corps could implement throughout the System Plan are varied. Adding levee tiebacks to major tributary connections could help protect the levee system. The addition of land created by a levee realignment on the Missouri River could provide the river more floodplain and riparian habitat for both wildlife and fish during high water events and improve flood risk resiliency for human interests. In locations where the size or width of the river is appropriate for such action and sufficient public land is available continued creation of chutes and backwaters should be considered and pursued as feasible. These actions will help create more habitat and increase resiliency. Additional recommendations for a more flood resilient system can be varied, but the intent is to improve ecological benefits while also enhancing flood risk resiliency for local communities. Protections to stabilize eroding streambanks, particularly the tributaries to the Missouri River, can be achieved by implementing several stream restoration techniques. Trapezoidal rock trenches can stabilize the streambank when it erodes, by releasing the rock and allowing it to fall into place when the bank erodes. This streambank protection technique is one example for the streambank to self-heal by self-launching the rocks into place for protection when other natural practices are not available. Other examples include longitudinal stone toe streambank protection, adding woody debris or engineered logjams (specified on the navigation maps), site specific grade control structures, and several other stream restoration techniques. These and other stream restoration techniques would create gradual steps towards a flood resilient Missouri River, while policies incorporating more EWN and other ecosystem friendly practices can better align with the needs of both nature and communities.

It is the Service's understanding that current Corps' policy (Engineer Regulation 1105-2-103, December 2023) requires selecting a project plan that maximizes net benefits across four accounts: National Economic Development (NED), Regional Economic Development (RED), Environmental Ecosystem Quality (EQ), and Other Social Effects (OSE). NED focuses on economic costs, RED considers local economic impacts, EQ evaluates effects on ecosystems and historical resources, and OSE addresses additional social impacts. Prioritizing ecosystem services may incur higher initial costs but can reduce long-term maintenance and support sustainability. Revised processes are needed to better support EQ-based actions for lasting environmental and community benefits.

Working with partner agencies through other programs to continue to support restoration and ecosystem projects will further broaden the EWN concepts. A recent project on the Lower Mississippi River, Loch Leven was a 6,000-acre island previously protected by a private ring levee to allow the owners to farm the land. Due to many high-water events over the last couple decades, farming this island became increasingly difficult. The owners were able to enroll part of the island in the Wetland Reserve Program (WRP) and other acres into the Wetland Reserve Enhancement Partnership (WREP). Both WRP and WREP help to protect high value land for fish, wildlife, and plants, often through restoring habitats, reconnecting various landscape features together, improving the hydrology, plus more. Also, working with state or county/local governments, in conjunction with their emergency management plan, can also highlight areas for increasing flood resiliency and provide another avenue of funding to a project or add to the funding for a project. Partnerships with other agencies and organizations will be essential to moving a project forward with innovative thoughts, practices, and funding.

7. 4 Other River Restoration Programs

The Upper Mississippi River Restoration (UMRR) Program was authorized by Congress under the 1986 Water Resources Development Act (WRDA). The UMRR became the first large river monitoring and restoration program in the United States. Like most new programs, the initial years for the UMRR were contentious between the various groups and organizations. Today, the UMRR Program has effective and collaborative partnerships through all the 15 different organizations, including the public, private landowners, and non-governmental organizations. Aspects of the program include habitat restoration activities, innovative engineering, monitoring, and research. Over 75 habitat projects have been added to the landscape or in the design/construction phase since the beginning of UMRR, resulting in approximately 100,000 acres of habitat projects improving critical fish and wildlife resources. The UMRR Program can help provide innovative solutions to mimic, as appropriate on the Lower Missouri River, while also meeting interests on the Missouri River.

While there are differences between the Mississippi and Missouri rivers, concepts and ideas from the Mississippi River can translate to benefits on the Missouri River. In conversation with a Missouri Department of Conservation biologist, the following actions on the UMRR benefiting the Mississippi River's fish, wildlife, and plants could apply to other river systems. The purchase of river adjacent land from willing landowners helps provide more public land; therefore, recreational access, as well as creating more room for the river in its floodplain, improving flood risk resiliency. When using rock for streambank protection that is outside the instream BSNP authority, placing smaller rock at the base then gradually adding larger sized rock going up the streambank protection could create more habitat for species or adding woody materials within rock structures, e.g., for mussel recruitment, rearing habitat, and invertebrate production. Creating a slightly different dike design, such as a Z-dike utilized on the Mississippi River, next to the channel alignment could create better aquatic habitat. Other innovative flood resiliency ideas for the Missouri River can come from several UMMR projects: Deer Island; Ted Shanks Conservation Area; Gabaret Island (and the adjacent Chouteau Island and Mosenthein Island); Piasa and Eagle's Nest Habitat Rehabilitation and Enhancement Project; and the Navigation and Ecosystem Sustainability Program (NESP; a program working toward navigation improvements and ecosystem restoration). Piloting other innovative flood resiliency actions from the UMRR on the Missouri River could also result in benefits to the people, fish, wildlife, and plants.

7.5 Other Recommendations

The Missouri River system faces various challenges, which can be addressed by increasing resilience for both people and nature. One way is to have project designs that enhance the existing natural functioning features on the landscape, conserve critical areas, enhance resiliency, and monitor for success while simultaneously supporting strong communities and economies, nature and reducing impacts from natural disasters. One goal in project development can be to lessen societal challenges, mitigate for necessary impacts to nature, and enhance habitats. System Plan aspects that also connect and influence nature for societal benefit, combat societal challenges (e.g., natural disasters, food and water insecurity, and increase recreational access), deliver multiple benefits to both nature and society (e.g., natural spaces create wildlife habitat,

improve air and water quality, improve recreation and aesthetics, and increase property values), and designed with goals of effectiveness and efficiency.

Some project designs may have larger costs initially; however, the maintenance costs are typically lower for the life of the project creating an overall return-on-investment. Generally, some project designs can also be more durable since they incorporate natural processes and landscape into a project and are designed to withstand changing conditions. An additional value to some project designs is the active and continued engagement with the community and stakeholders to deliver economic benefits and protect assets and livelihoods. Benefits for natural project designs include improving transportation safety and protecting infrastructure, improving water quality and stormwater management for neighboring communities, increasing recreation and educational opportunities, and reducing flooding and erosion to communities and their infrastructure.

Designs working within the floodplain will help bring resiliency to the river system, when synergistic with the community needs. Design practices like levee setbacks supported by local communities, give more room for a river's floodplain to adapt and allow for more protection for adjacent landowners and infrastructure, all while providing more aquatic and terrestrial habitat. Adding or enhancing other aquatic features like wetlands, tributaries, and side channels can be essential to specific fish, wildlife, and plants, such as breeding, feeding, and sheltering habitat for fish, insects, birds, reptiles, amphibians, and native vegetation. Removing and managing the floodplain for invasive plants will also be key to a levee realignment. A larger functioning floodplain may also reduce the impacts of a high-water event by allowing the water to infiltrate to the groundwater aquifers, reduce erosion via vegetated ground vs. bare ground, and provide additional resilience to adjacent communities. Further, a diverse vegetated floodplain will improve water quality and provide more pollinator habitat. Connecting the floodplain through lowering the floodplain directly adjacent to the river, as implemented in 'Room for the River' in the Netherlands (Figure 1), also includes strategies aimed at the integration of floodplain development and spatial land-use planning to meet socio-economic needs, encouragement of ecological conservation, and awareness of biodiversity (Chan et al. 2022). These efforts utilize wide stakeholder involvement. Collectively this novel approach is considered to represent a progression towards sustainable flood risk resiliency.

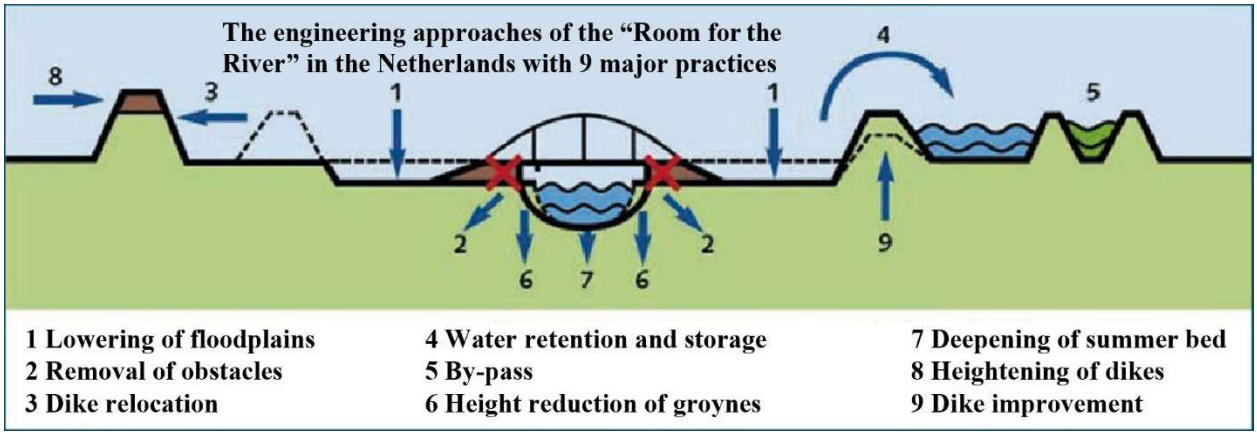

Figure 1. Room for the Rivers (Chan et al. 2022)

One final consideration in any project design is monitoring. Monitoring any project will help ensure project success or steps towards the intended goal. The learning that can come from monitoring on the Lower Missouri River will allow scientists to enhance and adapt for the next project. Another project consideration is creating a design that will lower the needs for maintenance overall; however, traditional maintenance like vegetation management (e.g., management of invasive plants) will be necessary. After the initial site maintenance and after new native vegetation has been established, less vegetation maintenance will be necessary, even during drought conditions due to a native plant's adaptability to adapt to the local conditions. Native plants can also lead to more native species due to habitat conditions that are more suitable to them than non-native or invasive vegetation. Although long-term maintenance will be needed until the project design/site becomes established, the long-term natural site conditions will provide many benefits to the ecosystem. Adding certain project designs will help protect communities, lower overall project costs, restore ecosystems, and address societal challenges while creating simultaneous benefits for the American people, communities, and nature.

Throughout this CAR, a few specific examples and recommendations were presented to improve the Lower Missouri River's flood risk resiliency and increase the benefits to the natural ecosystem. Continuing and expanding the engagements with river engineers, ecologists, and especially stakeholders and local communities along the Lower Missouri River will greatly improve the success of this System Plan and its associated spin-off projects.

8.0 Resources and References

Chan, F. K. S., Yang, L. E., Mitchell, G., Wright, N., Guan, M., Lu, X., Wang, Z., Montz, B., and Adekola, O.: Comparison of sustainable flood risk management by four countries – the United Kingdom, the Netherlands, the United States, and Japan – and the implications for Asian coastal megacities, Nat. Hazards Earth Syst. Sci., 22, 2567–2588, https://doi.org/10.5194/nhess-22-2567-2022, 2022.

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U.S. Army Corps of Engineers (Corps). Hydrologic Engineering Center (https://www.hec.usace.army.mil)

U.S. Army Corps of Engineers (Corps) The Nature Conservancy – Sustainable Rivers Program https://www.iwr.usace.army.mil/

U.S. Army Corps of Engineers (Corps). – Mississippi River Restoration Program https://www.fws.gov/partner/upper-mississippi-river-restoration-program

National Research Council. 2002. *The Missouri River Ecosystem: Exploring the Prospects for Recovery*. Washington, DC: The National Academies Press. https://doi.org/10.17226/10277.

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U.S. Fish and Wildlife Service (Service). 2018. Biological Opinion. Operation of the Missouri River Mainstem Reservoir System, the Operation and Maintenance of the Bank Stabilization and Navigation Project, the Operation of Kansas River Reservoir System, and the Implementation of the Missouri River Recovery Management Plan. Denver, CO.

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Headlee, Max R CIV USARMY CENWK (USA)

From: Pherigo, Emily K <emily_pherigo@fws.gov>
Sent: Wednesday, June 4, 2025 10:05 AM
To: Headlee, Max R CIV USARMY CENWK (USA)
Subject: [Non-DoD Source] Fw: [EXTERNAL] FW: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study
Attachments: 107B_F015_Sandy-LoamyFloodplainForest_MO_FY19.pdf; 107B_F016 _LoamyFloodplainForest_MO_FY19.pdf; 107B_F017_ClayeyFloodplainForest_MO_FY19.pdf

Hi Max,
This responds to your request of April 11, 2025, seeking concurrence from USFWS regarding impacts of the Lower Missouri River Jefferson City L-142 Flood Risk Management Study to species listed or proposed for listing under the Endangered Species Act. The following comments are provided in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.).

The USFWS has reviewed the DRAFT Integrated Feasibility Report and EA noting that the tentatively selected plan is the Combined Alternative 13 Hybrid Alignment, 41-ft Stage, Partial Capital View Removal. Since the USACE has agreed that tree removal activities would abide by seasonal restrictions to avoid incidental take of listed tree-roosting bat species, the USFWS concurs with a "May affect, but not likely to adversely affect" determination for Indiana bat and northern long-eared bat.

The tricolored bat and the monarch butterfly are proposed for listing as threatened and therefore a "Not likely to jeopardize the continued existence of the species" is an appropriate determination at this time. In the event that the final listing of these species happens before the completion of this project, it is recommended to reinitiate consultation.

As a cooperating agency in the implementation of the U.S. Army Corps of Engineers' (Corps or USACE) Lower Missouri River Basin Flood Risk and resiliency Study (LoMO), the U.S. Fish and Wildlife Service (Service) provides the following comments in place of a Planning Aid Letter (PAL) for the Jefferson City L-142 spin-off study pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 et seq.) and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347).

- Borrow pits
    - Where possible, take fill from an existing levee that is being decommissioned.
    - Borrow dirt from areas close to the river to increase opportunity for aquatic connectivity between the borrow pit and the Missouri River.
    - Gently slope the sides of the borrow pits to reduce potential for erosion upon early establishment and provide a gradual transition across elevations. Recommended slopes are a minimum of 10:1 to a preferred 20:1. Lower slopes result in a higher diversity of plants colonizing across a wider moisture gradient.
    - Position borrow pits on easements or acquired land seeking opportunities to expand habitats to areas currently lacking in diverse structure. To the extent possible, distribute borrow locations across river reaches to allow for habitat mosaics.
- Riparian forests

    - Leave riparian forests intact and plant more.
    - Plant native trees and shrubs suitable for site soils. Suitable planting lists can be found in Ecological Site Descriptions for the appropriate soil type (see attached).
    - Utilize native seeds and plants for revegetation, including native milkweed species.In addition to the attached plant lists, here's a list of Monarch Nectar Plants.
- Vegetation management
    - Avoid overspray of habitat with herbicides and insecticides. Follow application guidelines when managing weeds and insect pests.
    - Plan mowing and any use of herbicides to avoid time periods when monarch eggs and caterpillars are present.
    - Adopt burning practices that promote beneficial plants.

If you would like to discuss any of these recommendations, please do not hesitate to reach out. It is my understanding that the USFWS Missouri River Recovery Office will be submitting a draft Coordination Act Report (CAR) for the encompassing Lower Missouri River Basin Flood Risk and Resiliency Study in July 2025. The draft CAR will provide recommendations for fish and wildlife resources and explain the benefits of such actions.

Thanks for the opportunity to review! Please contact me with any questions or if project plans are modified that would necessitate additional consultation.

Have a good day,

Emily Pherigo
Deputy Field Supervisor
Missouri Ecological Services Field Office
US Fish and Wildlife Service

office: 573-306-5864
cell: 573-864-5185

e-mail: emily_pherigo@fws.gov

From: Simmons, Bryan R <Bryan_Simmons@fws.gov>
Sent: Tuesday, April 15, 2025 11:07 AM
To: Pherigo, Emily K <emily_pherigo@fws.gov>
Subject: Fw: [EXTERNAL] FW: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study

Bryan Simmons
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service

From: Headlee, Max R CIV USARMY CENWK (USA) <Max.R.Headlee@usace.army.mil>
Sent: Friday, April 11, 2025 11:27 AM
To: Weidinger, Valerie <valerie_weidinger@fws.gov>; NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>
Cc: Simmons, Bryan R <Bryan_Simmons@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>
Subject: [EXTERNAL] FW: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good morning,

The original link I sent out is no longer functional. However, the FONSI, draft report, and supporting materials for the Jeff City FRM study can all be accessed here:

https://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Public-Notices/Article/3980633/lower-missouri-jefferson-city-l-142-flood-risk-management-study/

Please let me know if you have any comments pursuant to the Fish and Wildlife Coordination Act. The Corps is also seeking concurrence from USFWS regarding a "May affect, but not likely to adversely affect" determination for Indiana bat, northern long-eared bat, tricolored bat, and monarch butterfly. Please let me know if you have any questions.

Thank you,
Max

From: Headlee, Max R CIV USARMY CENWK (USA)
Sent: Wednesday, March 26, 2025 7:16 AM
To: Weidinger, Valerie <valerie_weidinger@fws.gov>; NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>
Cc: Simmons, Bryan R <bryan_simmons@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>
Subject: FW: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study

Good morning,

This is just a reminder that the public comment period for the Jefferson City flood risk management study ends on 30 March 2025.

Please let me know if you have any comments pursuant to the Fish and Wildlife Coordination Act. This study has two Planning Aid Letters at the Lower Missouri River System Plan level, so please let me know if you have any project-specific recommendations.

Please let me know if you have any questions.

Thank you,
Max

From: Headlee, Max R CIV USARMY CENWK (USA)
Sent: Friday, February 28, 2025 3:07 PM
To: Weidinger, Valerie <valerie_weidinger@fws.gov>; NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Simmons, Bryan R <bryan_simmons@fws.gov>
Cc: Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>
Subject: RE: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study

Correction: the previous email had an outdated public notice attached. The close date for this public comment period is 30 March 2025.

Thank you,

Max Headlee
Environmental Resources Specialist
US Army Corps of Engineers, Kansas City District
Office: (816) 389-3134

From: Headlee, Max R CIV USARMY CENWK (USA)
Sent: Friday, February 28, 2025 2:59 PM
To: Weidinger, Valerie <valerie_weidinger@fws.gov>; NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Simmons, Bryan R <bryan_simmons@fws.gov>
Cc: Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>
Subject: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study

Good afternoon,

Please see the attached Public Notice for the Draft Finding of No Significant Impact (FONSI) for the Lower Missouri Jefferson City L-142 Flood Risk Management Study. This is a follow up to the previously held public review of the draft integrated feasibility report and environmental assessment the Corps drafted for this same study. At the time of that earlier public review, the study did not have a Tentatively Selected Plan (TSP) and so no FONSI was drafted. The Corps has now identified a TSP for this study and so we are initiating a 30-day public review for the draft FONSI. The draft documents are available for viewing online at the following link:

https://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Public-Notices/Article/4082671/lower-missouri-jefferson-city-l-142-flood-risk-management-study-callaway-county/

The Corps is seeking concurrence from USFWS regarding a “May affect, but not likely to adversely affect” determination for Indiana bat, northern long-eared bat, tricolored bat, and monarch butterfly. The TSP includes vegetation removal activities that may affect these species. Approximately 21 acres of wooded habitat would be removed that may provide suitable summer roosting sites for tree-roosting bats. All tree removal activities would occur during the inactive period for these species (November 1 – March 31). Please refer to the draft integrated report and EA for additional detail.

Please call or email me for any comments or questions about the draft FONSI or associated documents.

Thank you,

Max Headlee
Environmental Resources Specialist
US Army Corps of Engineers, Kansas City District
Office: (816) 389-3134

Item 6

Other U.S. Fish and Wildlife Service Coordination

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

In Reply Refer To: 07/07/2026 19:24:18 UTC
Project Code: 2023-0047332
Project Name: Lower Missouri Jefferson City L-142

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).
New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. **Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region S7 Technical Assistance website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests

for a Conditional Letter of Map Revision (CLOMR) from FEMA. Please contact the appropriate POC at Missouri Ecological Services for any additional consultation needs.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the Species website.

Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on

uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

If your project is eligible, you may choose to use the Missouri Determination Key (Dkey) within IPaC. The Dkey provides an optional, streamlined process to help you evaluate potential effects and, when appropriate, generate the documentation needed for section 7 consultation. Projects that reach a "may affect" outcome through the key will still require coordination with our office. Otherwise, if you determine that any part of your project may affect a federally listed species or any other trust resource identified in this Official Species List, please contact the Missouri Ecological Services Field Office to continue coordination. When you write to request consultation or submit project correspondence, include the Consultation Tracking Number in the header of your letter. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.
We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

John Weber

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
(573) 234-2132

PROJECT SUMMARY

Project Code: 2023-0047332
Project Name: Lower Missouri Jefferson City L-142
Project Type: Flooding
Project Description: The purpose of the project is to investigate and provide a recommendation to reduce the risk to flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Jefferson City, MO and L-142 through structural and/or nonstructural means. The study will investigate and update the analysis for L-142, which is an unconstructed unit of the Missouri River Levee System (MRLS) authorized by the 1941 (Public Law) and 1944 Flood Control Acts, and develop a sustainable project to protect critical investment and lives. This will be conducted through evaluating the affected area, formulating measures by utilizing existing information to the extent practicable, building an array of alternative plans, and recommending an alternative for implementation.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.6251857,-92.2111397850642,14z

Counties: Boone , Callaway , and Cole counties, Missouri

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P7QCOWAU5NA47ANFWOSWAOJBBY/documents/generated/9456.pdf	Endangered
Indiana bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P7QCOWAU5NA47ANFWOSWAOJBBY/documents/generated/9456.pdf	Endangered
Northern Long-Eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P7QCOWAU5NA47ANFWOSWAOJBBY/documents/generated/9456.pdf	Endangered
Tricolored bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P7QCOWAU5NA47ANFWOSWAOJBBY/documents/generated/9456.pdf	Proposed Endangered

FISHES

NAME	STATUS
Pallid sturgeon *Scaphirhynchus albus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7162 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P7QCOWAU5NA47ANFWOSWAOJBBY/documents/generated/9456.pdf	Endangered

INSECTS

NAME	STATUS
Monarch butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Western regal fritillary *Argynnis idalia occidentalis*	Proposed Threatened

NAME STATUS

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/12017

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Max Headlee
Address: 601 E 12th Street
City: Kansas City
State: MO
Zip: 64106
Email max.r.headlee@usace.army.mil
Phone: 8163893134

From: Simmons, Bryan R
To: Headlee, Max R CIV USARMY CENWK (USA)
Cc: Weber, John S; NelsonStastny, Wayne
Subject: [Non-DoD Source] Lower Missouri River Jefferson City Missouri Flood Risk Management Study
Date: Wednesday, March 1, 2023 5:12:19 PM

Max,

I will serve as the U.S. Fish and Wildlife Service primary contact for this project regarding the FWCA and ESA components for this portion of the Missouri River. Regarding the species list, the Topeka Shiner, Pink Mucket, and Scaleshell do not occur within the Missouri River. However, the latter two are known to occur within the Osage River. Thus, we recommend considering the Pink Mucket and Scaleshell if the project area of influence also includes the Osage River. Note the official species list remains valid for 90 days. Therefore, please update the list and continue to track the project as needed using the referenced IPaC number, 2023-0047332.

Sincerely,

Bryan Simmons
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office

Headlee, Max R CIV USARMY CENWK (USA)

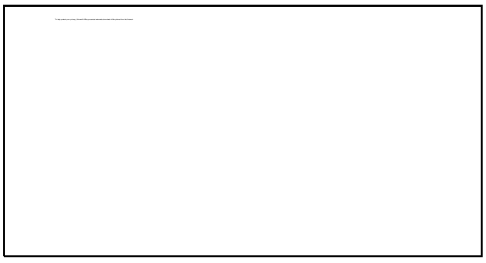
From: Emanuel, Mary E <mary_emanuel@fws.gov>
Sent: Monday, August 26, 2024 9:02 AM
To: Headlee, Max R CIV USARMY CENWK (USA)
Subject: [Non-DoD Source] Re: Eagle Permit and Seasonal Restrictions on Activity

Hi Max,

The recommendations from the MO state DNR are fine and basically in line with our recommendations. If you'd like more specifics about when we would potentially recommend getting an eagle disturbance permit, you can visit our website, https://www.fws.gov/story/do-i-need-eagle-take-permit

As far as nesting dates go, I understand your frustration, there are a lot of dates floating around. I'm not sure why IPaC says that August is the only month without eagle nesting activity, we wouldn't make those kinds of recommendations if you reached out about whether to get a permit or not. In April, the USFWS released changes to the Eagle Rule and nesting dates on a state-by-state basis were updated. For our purposes, the nesting season in Missouri runs from December 15th-July 15th which is very similar to the state's recommendations. It could be possible that eagles don't show up and begin using a nest until January (especially in the more northern part of the state), but once the eagles do show up, it should be considered an active nest. The dates are guidelines and help structure work schedules, but presence of eagles is more important.

For example, if eagles are not seen using a nest past mid-April, the Service would consider that nest to be inactive for the year. If you have more questions about your project and eagles, feel free to reach back out.



Do I need an eagle take permit? | U.S. Fish & Wildlife Service

How to avoid bald eagle nest disturbance, also known as a loss of productivity. How can I avoid impacts to nesting bald eagles?

www.fws.gov

Thank you,

Mary Emanuel
Wildlife Biologist, Permitting
USFWS, Region 3, Migratory Birds Permit Office
5600 American Blvd. W, Suite 990
Bloomington, MN 55437
(612) 713-5441
Mary_Emanuel@fws.gov

From: Max Headlee <usfws@fws.gov>
Sent: Monday, August 26, 2024 8:07 AM
To: Harrison, Larry <larry_harrison@fws.gov>
Subject: Eagle Permit and Seasonal Restrictions on Activity

U.S. FISH & WILDLIFE SERVICE

This email has been generated by the "send a message" contact form on your FWS.gov profile.
Submitted on Mon, 08/26/2024 - 13:07
Name Provided:
Max Headlee
Email Provided:
max.r.headlee@usace.army.mil
Subject
Eagle Permit and Seasonal Restrictions on Activity

Message
Hello,

I am an environmental resources specialist with the US Army Corps of Engineers, Kansas City District. I am currently working on a feasibility study near Jefferson City, Missouri that may involve activities around a bald eagle nest. I have received some guidance from the Missouri Department of Conservation on how to avoid incidental take of bald eagles, and I would like to confirm this guidance directly with the US Fish and Wildlife Service. The guidance I have received is as follows:

1. Establish a buffer of at least 660 feet between project activities and nests (including active and inactive nests).
2. If project activities are within 660 feet of the nest, please restrict activities to outside the nesting season. The nesting season in Missouri is January 1 through July 15.
3. If these recommendations cannot be implemented, incidental take of bald eagles may occur and a permit from USFWS may be necessary.
4. Do not clear nests or nest trees.

Does this guidance sound correct to you? I would like confirmation partly because the IPaC website (Project Code 2023-0047332) indicates that the breeding season for bald eagles is the entire year except August. I am unsure if the breeding season range shown on the website is meant to represent the breeding season for just the local population of eagles or for the entire population of eagles across the country. It should not be a problem for the Corps to use seasonal restrictions, but I would like to confirm the timing of those restrictions.

Please feel free to reach back out to me via email (max.r.headlee@usace.army.mil) or by phone (816-389-3134).

Thank you,
Max Headlee

Submitted from https://www.fws.gov/staff-profile/larry-harrison

Working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

fws.gov

Item 7

Missouri Department of Conservation Coordination

Missouri Department of Conservation

Missouri Department of Conservation's Mission is to
protect and manage the forest, fish, and
wildlife resources of the state and to
facilitate and provide opportunities for all citizens to
use, enjoy and learn about these resources.

Natural Heritage Review Level Three Report: Species Listed Under the Federal Endangered Species Act

There are records of species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

Foreword: Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this report is to provide information to federal, state and local agencies, organizations, municipalities, corporations, and consultants regarding sensitive fish, wildlife, plants, natural communities, and habitats to assist in planning, designing, and permitting stages of projects.

PROJECT INFORMATION

Project Name and ID Number: Lower Missouri River Jefferson City, Missouri Flood Risk Management Study #12399
Project Description: The Kansas City District, U.S. Army Corps of Engineers (USACE) is and the Missouri Department of Natural Resources (MoDNR) are partnering on a General Investigation Study with integrated Environmental Assessment for the Lower Missouri River Jefferson City, Missouri Flood Risk Management Study. This study is authorized by Section 216 of the Water Resources Development Act of 2020, which authorizes modifications to projects in Iowa, Kansas, Nebraska, and Missouri under the Pick-Sloan Missouri River Basin Program and the Missouri River Bank Stabilization and Navigation Project (BSNP), including modifications to the authorized purposes of such projects to further flood risk management and resiliency. The study area is located along the Missouri River at Jefferson City, Missouri and surrounding areas of the unconstructed L-142 Levee Unit, which was proposed for Callaway County, Missouri approximately between Missouri River Mile 140 and 145. The purpose of the project is to investigate and provide a recommendation to reduce the risk to flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Jefferson City, Missouri and L-142 through structural and/or nonstructural means.
Project Type: In-stream / Riverine Activities and Projects, Levees and similar flood control structures (construction, modification, maintenance)
Contact Person: Max Headlee
Contact Information: max.r.headlee@usace.army.mil or (816) 389-3134

Disclaimer: This NATURAL HERITAGE REVIEW REPORT identifies if a species or natural community tracked by the Natural Heritage Program is known to occur within or near the project area submitted, and shares recommendations to avoid or minimize project impacts to sensitive species or natural habitats. Incorporating information from the Natural Heritage Program into project plans is an important step in reducing impacts to Missouri's sensitive natural resources. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information.

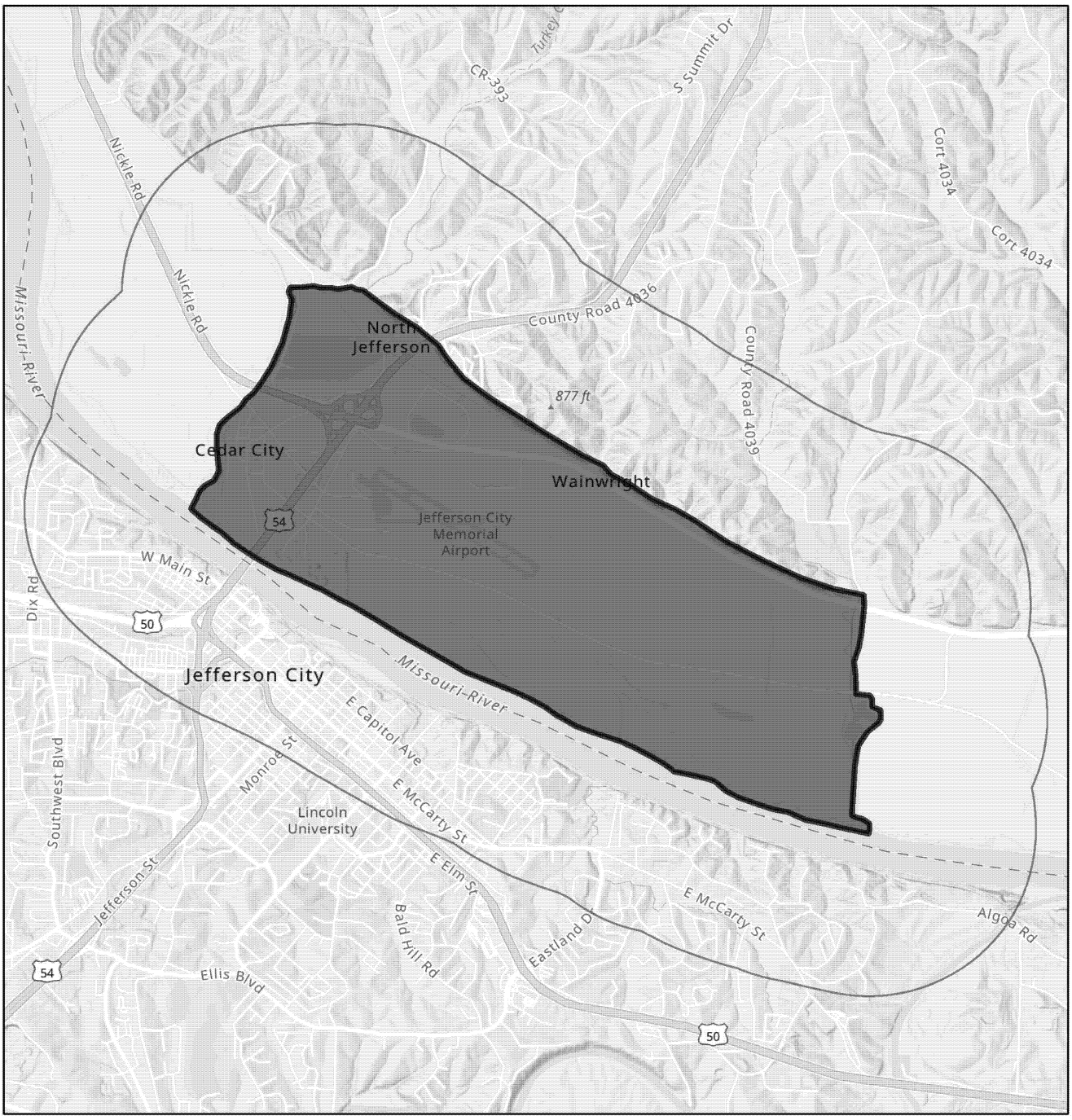
This Natural Heritage Review Report is not a site clearance letter for the project. Rather, it identifies public lands and records of sensitive resources located close to and/or potentially affected by the proposed project. If project plans or location change, this report may no longer be valid. Because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, reports include information about records near but not necessarily on the project site. Lack of an occurrence record does not mean that a sensitive species or natural community is not present on or near the project area. On-site verification is the responsibility of the project. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts and additional information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination: Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. This report does not fulfill Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit IPaC: Home (fws.gov) to initiate USFWS Information for Planning and Conservation (IPaC) consultation. Contact the Columbia Missouri Ecological Field Services Office (573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203) for more information.

Transportation Projects: If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or visit Home Page | Missouri Department of Transportation (modot.org) for additional information on recommendations.

PRELIMINARY REPORT

Lower Missouri River Jefferson City, Missouri Flood Risk Management Study



March 16, 2023

1:53,992

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Buffered Project Boundary

Project Boundary

Esri, NASA, NGA, USGS, Missouri Dept. of Conservation, Missouri DNR, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

Species or Communities of Conservation Concern within the Area:

There are records of species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

Email (preferred): NaturalHeritageReview@mdc.mo.gov
MDC Natural Heritage Review
Science Branch
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Other Special Search Results:

The project occurs on or near public land, Jefferson City (Carl R Noren Access), Jefferson City Blue Armory, Jefferson City Cooper Drive, Jefferson Landing State Historic Site, please contact MDC, MOARNG, DNR.

Project Type Recommendations:
Recommendations for Best Management Practices are under development.

Project Location and/or Species Recommendations:

Endangered Species Act Coordination - If this project has the potential to alter habitat (e.g. tree removal, projects in karst habitat) or cause direct mortality of bats, please coordinate directly with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act. Indiana bats *(Myotis sodalis*, federal- and state-listed endangered) and **Northern long-eared bats** (*Myotis septentrionalis,* federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April.

Bald Eagle: The project location submitted and evaluated is within the geographic range of nesting Bald Eagles in Missouri. Bald Eagles (*Haliaeetus leucocephalus*) may nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. Adults begin nesting activity in late December and January and young birds leave the nest in late spring to early summer. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: Do I need an eagle take permit? | U.S. Fish & Wildlife Service (fws.gov) if eagle nests are seen.

Gray Bat: The submitted project location is within the range of the Gray Myotis (i.e., Gray Bat) in Missouri. Depending on habitat conditions of your project's location, Gray Myotis (*Myotis grisescens*, federal and state-listed endangered) could occur within the project area, as they forage over streams, rivers, lakes, and reservoirs. Avoid entry or disturbance of any cave inhabited by Gray Myotis and when possible retain forest vegetation along the stream and from the cave opening to the stream. Please see Best Management Practices for Construction and Development Projects Gray bat (mo.gov).

Karst: This county has known karst geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are Species of Conservation Concern) are influenced by changes to water quality; please check your project site for any karst features and make every effort to protect groundwater in the project area. Additional information and specific recommendations are available at Management Recommendations for Construction and Development Projects Affecting Missouri Karst Habitat (mo.gov).

Pallid Sturgeon: The project location submitted and evaluated is located within or adjacent to the Mississippi or Missouri rivers. Pallid Sturgeons (*Scaphirhynchus albus*, federal- and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of some major tributaries). Any project that modifies big river habitat or impacts water quality should consider the possible impact to pallid sturgeon populations. See Pallid Sturgeon Best Management Practices (mo.gov) for Best Management Practices. Additional coordination with the U.S. Fish and Wildlife Service under the Endangered Species Act may be necessary (U.S. Fish and Wildlife Service, Ecological Services, 101 Park DeVille Drive, Suite A, Columbia, Missouri 65203-0007; phone 573-234-2132.)

Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See Managing Invasive Species in Your Community | Missouri Department of Conservation (mo.gov) for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (>140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

Streams and Wetlands – Clean Water Act Permits: Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (Kansas City District Regulatory Branch (army.mil)) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification (Section 401 Water Quality Certification | Missouri Department of Natural Resources (mo.gov)), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit Wastewater Permits | Missouri Department of Natural Resources (mo.gov) for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below:

Email (preferred): NaturalHeritageReview@mdc.mo.gov
MDC Natural Heritage Review
Science Branch
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Miscellaneous Information

FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

See Missouri Species and Communities of Conservation Concern Checklist (mo.gov) for a complete list of species and communities of conservation concern. Detailed information about the animals and some plants mentioned may be accessed at Mofwis Search Results. Please contact the Missouri Department of Conservation to request printed copies of any materials linked in this document.

PRELIMINARY REPORT

Missouri Department of Conservation

Missouri Department of Conservation's Mission is to
protect and manage the forest, fish, and
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PROJECT INFORMATION

Project Name and ID Number: Lower Missouri River Jefferson City, Missouri Flood Risk Management Study - Church Farm Area #12794
Project Description: This is an addition to the previous Natural Heritage Review Report produced for the Lower Missouri River Jefferson City, Missouri Flood Risk Management Study (NHR ERT ID: 12399). While construction activities for this project were initially expected only to occur downstream on the north bank of Missouri River between Turkey and Niemans Creeks, MDNR and MDC have suggested that the Corps also consider utilizing the Church Farm Conservation Area upstream in Cole County. The area is being considered for measures that would compliment the flood risk management purpose of the downstream activities in Callaway County, such as detention basins. The Church Farm area might also be utilized for mitigation purposes via wetland restoration.
Project Type: In-stream / Riverine Activities and Projects, Levees and similar flood control structures (construction, modification, maintenance)
Contact Person: Max Headlee
Contact Information: max.r.headlee@usace.army.mil or (816) 389-3134

Disclaimer: This NATURAL HERITAGE REVIEW REPORT identifies if a species or natural community tracked by the Natural Heritage Program is known to occur within or near the project area submitted, and shares recommendations to avoid or minimize project impacts to sensitive species or natural habitats. Incorporating information from the Natural Heritage Program into project plans is an important step in reducing impacts to Missouri's sensitive natural resources. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information.

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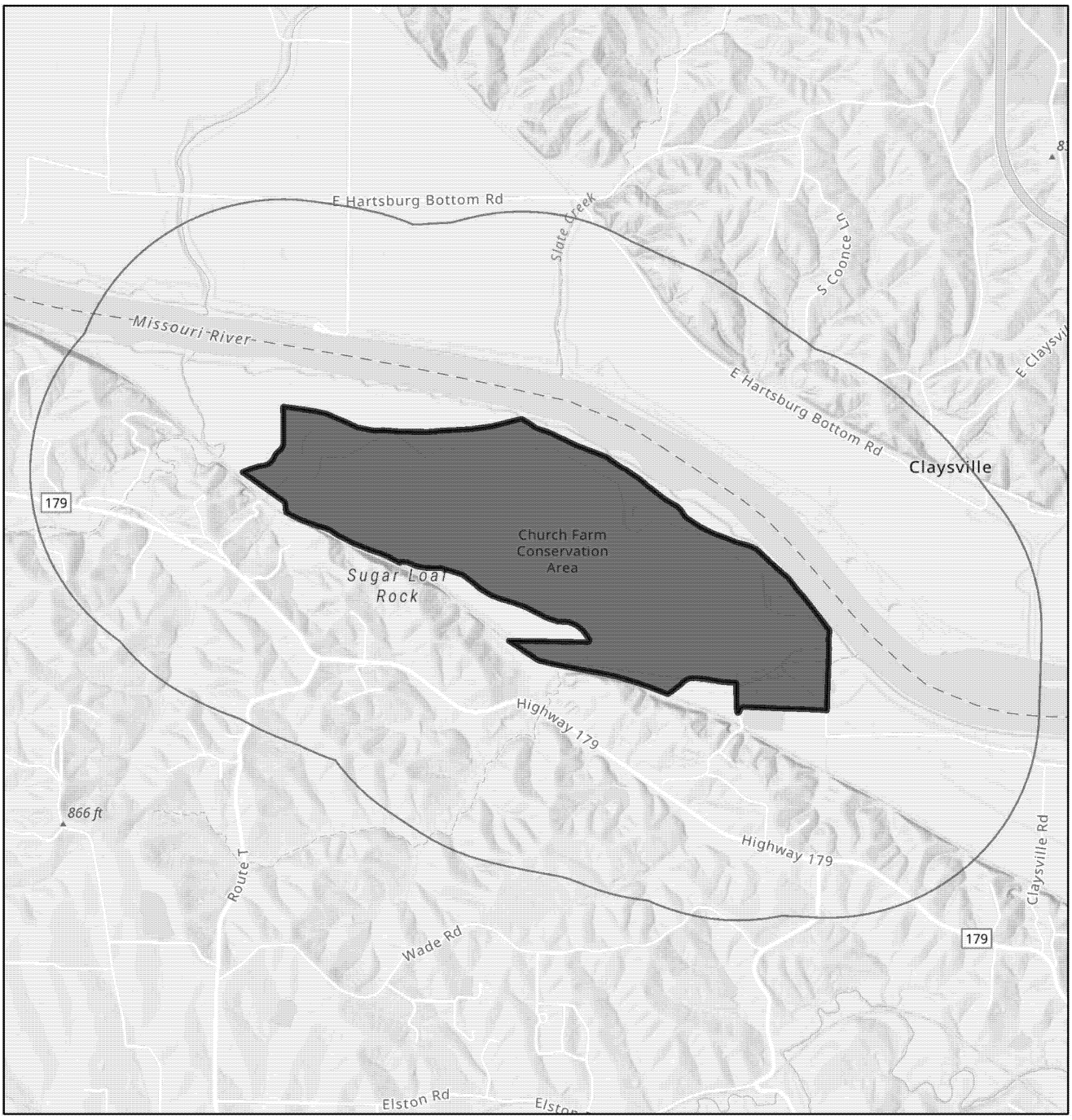
PRELIMINARY REPORT

ssouri River Jefferson City, Missouri Flood Risk Management Study - Church



May 22, 2023

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Buffered Project Boundary

Project Boundary

Esri, NASA, NGA, USGS, Missouri Dept. of Conservation, Missouri DNR, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

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MDC Natural Heritage Review
Science Branch
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Other Special Search Results:

No results have been identified for this project location.

Project Type Recommendations:
Recommendations for Best Management Practices are under development.

Project Location and/or Species Recommendations:

Endangered Species Act Coordination - If this project has the potential to alter habitat (e.g. tree removal, projects in karst habitat) or cause direct mortality of bats, please coordinate directly with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act. Indiana bats *(Myotis sodalis*, federal- and state-listed endangered) and **Northern long-eared bats** (*Myotis septentrionalis,* federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April.

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For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below:

Email (preferred): NaturalHeritageReview@mdc.mo.gov
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Miscellaneous Information

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STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

See Missouri Species and Communities of Conservation Concern Checklist (mo.gov) for a complete list of species and communities of conservation concern. Detailed information about the animals and some plants mentioned may be accessed at Mofwis Search Results. Please contact the Missouri Department of Conservation to request printed copies of any materials linked in this document.

PRELIMINARY REPORT

Missouri Department of Conservation

Natural Heritage Review Report

May 16, 2023

Science Branch
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Kelly Rezac
NaturalHeritageReview@mdc.mo.gov
(573) 522 - 4115 ext. 3182

Max Headlee
US Army Corps of Engineers
Max.R.Headlee@usace.army.mil

NHR ERT ID:	12399	NHR ERT Level:	3
Project type:	Flood Control		
Location/Scope:	North bank of Missouri River between Turkey and Niemans Creeks		
County:	Callaway		
Project Title:	Lower Missouri River Jefferson City, Missouri Flood Risk Management Study		
Query received:	3/20/2023		

This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and records of sensitive resources located close to and/or potentially affected by the proposed project. If project plans or location change, this report may no longer be valid. Because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, reports include information about records near but not necessarily on the project site. Lack of an occurrence record does not mean that a sensitive species or natural community is not present on or near the project area. On-site verification is the responsibility of the project. These records serve as one reference and additional information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed to avoid or minimize impacts. More information is at Natural Areas | Missouri Department of Conservation (mo.gov) and Missouri Fish and Wildlife Information System (MOFWIS).

Level 3: Records of federal-listed (also state-listed) species or critical habitats near the project site:

- **Missouri River:** The Missouri River (together with its tributary mouths) is home to many aquatic species of federal and state concern, including federal-listed Pallid Sturgeon, state-listed Lake Sturgeon, Flathead Chub, and others. Bluffs, banks, and floodplains may also include habitat used by listed Gray bats, Indiana bats and Bald Eagles. All these are sampled at points but must be assumed to be present in suitable habitats through extended river reaches.
  - Terrestrial projects that manage construction and include operation plans to avoid runoff of sediment or pollutants are unlikely to affect the aquatic species.
  - Regulations enforced by other agencies to protect water quality and human health are generally adequate to protect the needs of wildlife as well.
  - Projects that place fill in or discharge water to the river are subject to federal permits, and strict observance of conditions required in those permits is important to minimize risk of damage to endangered species.
    - See General Recommendations for additional information on minimizing impacts to aquatic resources.

Natural Heritage records indicate **Pallid Sturgeon** and **Bald Eagle** occur within the project area.

- **Pallid Sturgeon:** Pallid Sturgeons (*Scaphirhynchus albus*, federal and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of major tributaries). Although Pallid Sturgeon are not expected to occur at the project site, any project that impacts water quality should consider the possible impact to Pallid Sturgeon populations that occur in downstream-connected rivers. See https://mdc.mo.gov/sites/default/files/2020-06/PallidSturgeonBMP.pdf for Best Management Practices.

- **Bald Eagles:** Bald Eagles (*Haliaeetus leucocephalus*) nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: Do I need an eagle take permit? | U.S. Fish & Wildlife Service (fws.gov) if eagle nests are seen.

Natural Heritage records indicate that **Gray Bats** occur less than one mile from the project area.

- **Gray Bats:** Gray Bats (*Myotis grisescens*, federal and state-listed endangered) occur in Callaway County and could occur in the project area, as they forage over streams, rivers, and reservoirs. Avoid entry or disturbance of any cave inhabited by gray bats and when possible retain forest vegetation along the stream and from the gray bat cave opening to the stream. Please see Best Management Practices for Construction and Development Projects Gray bat (mo.gov).

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. **Contact U.S. Fish & Wildlife Service** (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132) for Endangered Species Act coordination and concurrence information).

Level 2: Records of state-listed (not federal-listed) endangered species AND / OR state-ranked (not state-listed endangered) species and natural communities of conservation concern. The Department tracks these species and natural communities due to population declines and/or apparent vulnerability.

Natural Heritage records indicate Lake Sturgeon and Flathead Chub occur within the project area.

- **Lake Sturgeon:** Lake Sturgeon (*Acipenser fulvescens*) are widely distributed in North America. In Missouri, they are found in the Mississippi and Missouri Rivers but have also been known to occur in the larger tributaries of those two rivers. Lake Sturgeon are listed as either threatened or endangered throughout most of its original range in the United States. Over-harvest appears to have been responsible for the greatest decline in abundance of the Lake Sturgeon. Pollution and restriction of migratory movements due to construction of dams have compounded the problems of over- exploitation. Please see Best Management Practices for Construction and Development Projects Lake Sturgeon (mo.gov).

- **Flathead Chub:** Flathead Chub's (*Platygobio gracilis,* State-listed Endangered), historical range included the entire length of the Missouri and Mississippi River to the Arkansas state line. Their habitat can vary from turbid waters in swift currents to clear pools and small creeks. Please see Best Management Practices for Construction and Development Projects Flathead Chub (mo.gov).

Natural Heritage records indicate the following state-ranked species near the project area:

Scientific Name	Common Name	State Rank	Proximity (miles)	Primary Habitat
Anaxyrus cognatus	Great Plains Toad	S3	<1	Grassland matrix, Row/close grown crops, Ephemeral pools, Wet ditches
Attaneuria ruralis	Giant Stone	S3	<1	River/stream

Calephelis muticum	Swamp Metalmark	S3	<3	Fen/seep, Shrub swamp, Swamp, Shallow oxbow/slough
Carpiodes velifer	Highfin Carpsucker	S2	<3	River/stream
Hybognathus argyritis	Western Silvery Minnow	S2	<1	River/stream
Hybognathus placitus	Plains Minnow	S2	<1	River/stream
Leitneria pilosa ssp. ozarkana	Corkwood	S2	<3	Swamp, Wet ditches, Shallow oxbow/slough, Roadside/railroad
Ligumia recta	Black Sandshell	S2	<5	River/stream
Macrhybopsis gelida	Sturgeon Chub	S3	<1	River/stream
Mustela frenata	Long-tailed Weasel	S3	<4	Habitat generalist, Savanna/Shrub/Woodland matrix, Forest matrix, Grassland matrix
Notropis buchanani	Ghost Shiner	S2	<3	River/stream
Primula fassettii	Amethyst Shooting Star	S2	<2	Bluff
Taxidea taxus	American Badger	S3	<1	Grassland matrix, Savanna pasture/orchard, Row/close grown crops

State Rank Definitions:

- S1: Critically imperiled in the state because of extreme rarity of or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically, 5 or fewer occurrences or very few remaining individuals (<1,000).
- S2: Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (6 to 20 occurrences or few remaining individuals).
- S3: Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.
- S4: Uncommon but not rare, and usually widespread in the nation or state. Possible cause of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.
- S#S#: Range Rank: A numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status.
- ?: Denotes inexact or uncertain numeric rank.
- SU: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

There are no regulatory requirements associated with this status, however we encourage voluntary stewardship to minimize the risk of further decline that could lead to listing.

STATE ENDANGERED species are protected under the Wildlife Code of Missouri (3CSR10-4.111).
See the Missouri Species And Communities Of Conservation Concern Checklist (mo.gov) for a complete list.

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific Natural Heritage records):

- **Stream Protection:** Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. Best management recommendations relating to streams and rivers may be found at Best Management Practices for Construction and Development Projects Affecting Missouri Rivers and Streams (mo.gov).

- **Conservation Opportunity Areas:** The project is within Missouri River and Mid-Missouri Riverlands Conservation Opportunity Areas. COAs are key landscapes that represent the greatest opportunities for sustainable conservation of the Missouri's diverse flora and fauna and the natural communities they depend upon, including: grasslands (including prairie and savanna), glades, forests and woodlands, wetlands, caves and karst, and rivers and streams. COAs have been identified based on several factors, including the diversity and rarity of species and natural communities present, and the comparative likelihood/importance of projects to maintain them in the area over time. COAs have no regulatory role, but do reflect interest as a planning tool from multiple government agencies, non-governmental organizations and citizen groups to facilitate conservation in the area. Maintenance of high quality natural terrestrial and aquatic communities will help provide important habitat for the COA's biodiversity. Funding might be available to manage for important habitats within the COA. Please contact Missouri Department of Conservation for more information.

- **Contact Area Manager:** This project is within Carl R Noren Access. Please contact area manager, Scott Voney (573-815-7900) if project activities will impact this CA.

- **Indiana Bats and Northern Long-eared Bats: If this project has the potential to alter habitat (e.g. tree removal, projects in karst habitat) or cause direct mortality of bats, please coordinate directly with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.** Though Indiana bats are not known to occur in the project area, these species should be assumed present wherever habitat exists, and though Northern Long-eared bats are not known to occur in the project area, these species should be assumed present because they occur in Cole County and could occur in the project area. Indiana Bats *(Myotis sodalis*, federal and state-listed endangered) and Northern Long-eared Bats (*Myotis septentrionalis,* federal-listed endangered) hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana Bats and/or Northern Long-eared Bats, especially from September to April.

- **Karst:** Callaway and Cole County have known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area. Please see Management Recommendations for Construction and Development Projects Affecting Missouri Karst Habitat (mo.gov).

- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, larvae, and aquatic plant material may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - Remove any mud, soil, trash, plants (or plant material) or animals from equipment before leaving any water body or work area.

- Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≥140° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Natural Heritage records largely reflect sites visited by specialists in the last 30 years. Many privately owned tracts have not been surveyed and could host remnants of species once but no longer common.

Missouri Department of Conservation

Natural Heritage Review Report

August 14, 2023

Science Branch
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Kelly Rezac
NaturalHeritageReview@mdc.mo.gov
(573) 522 - 4115 ext. 3182

Max Headlee
USACE
max.r.headlee@usace.army.mil

NHR ERT ID:	12794	NHR ERT Level:	3
Project type:	Flood control		
Location/Scope:	Church Farm Conservation Area		
County:	Cole		
Project Title:	Lower Missouri River Jefferson City, Missouri Flood Risk Management Study - Church Farm Area		
Query received:	6/20/2023		

This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and records of sensitive resources located close to and/or potentially affected by the proposed project. If project plans or location change, this report may no longer be valid. Because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, reports include information about records near but not necessarily on the project site. Lack of an occurrence record does not mean that a sensitive species or natural community is not present on or near the project area. On-site verification is the responsibility of the project. These records serve as one reference and additional information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed to avoid or minimize impacts. More information is at Natural Areas | Missouri Department of Conservation (mo.gov) and Missouri Fish and Wildlife Information System (MOFWIS).

Level 3: Records of federal-listed (also state-listed) species or critical habitats near the project site:

Natural Heritage records indicate several federal and state-listed endangered species associated with the nearby Missouri River, including the federally endangered Pallid Sturgeon. There is a Bald Eagle nest located within Church Farm CA at approximately 38.661944, -92.291667. Please follow federal guidelines below.

- **Bald Eagles:** Bald Eagles (*Haliaeetus leucocephalus*) nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: Do I need an eagle take permit? | U.S. Fish & Wildlife Service (fws.gov) if eagle nests are seen.

  Following USFWS Incidental Take Guidelines: To avoid the incidental take of bald eagles we recommend:
  - a buffer of at least 660 feet between project activities and the nests (including active and inactive nests).
  - If project activities are within 660 feet of the nest, please restrict activities to outside the nesting season. The nesting season in Missouri is January 1 – July 15.
  - If these recommendations cannot be implemented, incidental take of bald eagles may occur and a permit from USFWS may be necessary.
  - Do not clear nests or nest trees.

- **Pallid Sturgeon:** Pallid Sturgeons (*Scaphirhynchus albus*, federal and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of major tributaries). Any project that modifies big river habitat or impacts water quality should consider the possible impact to Pallid Sturgeon populations. See

https://mdc.mo.gov/sites/default/files/2020-06/PallidSturgeonBMP.pdf for Best Management Practices.

- **Missouri River:** The Missouri River (together with its tributary mouths) is home to many aquatic species of federal and state concern, including federal-listed Pallid Sturgeon, state-listed Lake Sturgeon, Flathead Chub, and others. Bluffs, banks, and floodplains may also include habitat used by listed Gray bats, Indiana bats and Bald Eagles. All these are sampled at points but must be assumed to be present in suitable habitats through extended river reaches.
  - Terrestrial projects that manage construction and include operation plans to avoid runoff of sediment or pollutants are unlikely to affect the aquatic species.
  - Regulations enforced by other agencies to protect water quality and human health are generally adequate to protect the needs of wildlife as well.
  - Projects that place fill in or discharge water to the river are subject to federal permits, and strict observance of conditions required in those permits is important to minimize risk of damage to endangered species.

  See General Recommendations for additional information on minimizing impacts to aquatic resources.

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. **Contact U.S. Fish & Wildlife Service** (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132) for Endangered Species Act coordination and concurrence information).

Level 2: Records of state-listed (not federal-listed) endangered species AND / OR state-ranked (not state-listed endangered) species and natural communities of conservation concern. The Department tracks these species and natural communities due to population declines and/or apparent vulnerability.

Natural Heritage records indicate state-listed endangered Lake Sturgeon and Flathead Chub occur within the Missouri River at the project area.

- **Lake Sturgeon:** Lake Sturgeon (*Acipenser fulvescens*) are widely distributed in North America. In Missouri, they are found in the Mississippi and Missouri Rivers but have also been known to occur in the larger tributaries of those two rivers. Lake Sturgeon are listed as either threatened or endangered throughout most of its original range in the United States. Over-harvest appears to have been responsible for the greatest decline in abundance of the Lake Sturgeon. Pollution and restriction of migratory movements due to construction of dams have compounded the problems of over- exploitation. Please see Best Management Practices for Construction and Development Projects Lake Sturgeon (mo.gov).

- **Flathead Chub:** Flathead Chub's (*Platygobio gracilis,* State-listed Endangered), historical range included the entire length of the Missouri and Mississippi River to the Arkansas state line. Their habitat can vary from turbid waters in swift currents to clear pools and small creeks. Please see Best Management Practices for Construction and Development Projects Flathead Chub (mo.gov).

Natural Heritage records indicate the following state-ranked species near the project area:

Scientific Name	Common Name	State Rank	Proximity (miles)	Primary Habitat
Phlox bifida	Bifid Phlox	S1	<2	Forest upland, Bluff

Anaxyrus cognatus	Great Plains Toad	S3	<1	Grassland matrix, Row/close grown crops, Ephemeral pools, Wet ditches
Taxidea taxus	American Badger	S3	<2	Grassland matrix, Savanna pasture/orchard, Row/close grown crops
Oenothera glaucifolia	Stenosiphon	S2	<1	Glade complex
Carpiodes velifer	Highfin Carpsucker	S2	<1	River/stream
Hybognathus argyritis	Western Silvery Minnow	S2	<4	River/stream
Hybognathus placitus	Plains Minnow	S2	<1	River/stream
Macrhybopsis gelida	Sturgeon Chub	S3	<1	River/stream
Notropis buchanani	Ghost Shiner	S2	<4	River/stream
Calephelis muticum	Swamp Metalmark	S3	<5	Fen/seep, Shrub swamp, Swamp, Shallow oxbow/slough
Leitneria pilosa ssp. ozarkana	Corkwood	S2	<5	Swamp, Wet ditches, Shallow oxbow/slough, Roadside/railroad

State Rank Definitions:

- S1: Critically imperiled in the state because of extreme rarity of or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically, 5 or fewer occurrences or very few remaining individuals (<1,000).
- S2: Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (6 to 20 occurrences or few remaining individuals).
- S3: Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.
- S4: Uncommon but not rare, and usually widespread in the nation or state. Possible cause of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.
- S#S#: Range Rank: A numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status.
- ?: Denotes inexact or uncertain numeric rank.
- SU: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

There are no regulatory requirements associated with this status, however we encourage voluntary stewardship to minimize the risk of further decline that could lead to listing.

STATE ENDANGERED species are protected under the Wildlife Code of Missouri (3CSR10-4.111).
See the Missouri Species And Communities Of Conservation Concern Checklist (mo.gov) for a complete list.

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific Natural Heritage records):

- **Contact Area Manager:** Please contact Church Farm Conservation Area manager, Kristen Goodrich (573-522-4115 Ext.3827) to coordinate project activities.

- **Flood control:** This project should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any Clean Water Act permit conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate disturbed areas to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crown vetch and sericea lespedeza. Please see Best Management Practices for Construction and Development Projects Affecting Missouri Rivers and Streams (mo.gov).

- **Karst:** Cole County has known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area. Please see Management Recommendations for Construction and Development Projects Affecting Missouri Karst Habitat (mo.gov).

- **Gray Bats:** Gray Bats (*Myotis grisescens*, federal and state-listed endangered) occur in Cole County and could occur in the project area, as they forage over streams, rivers, and reservoirs. Avoid entry or disturbance of any cave inhabited by gray bats and when possible retain forest vegetation along the stream and from the gray bat cave opening to the stream. Please see Best Management Practices for Construction and Development Projects Gray bat (mo.gov).

- **Indiana Bats and Northern Long-eared Bats: If this project has the potential to alter habitat (e.g. tree removal, projects in karst habitat) or cause direct mortality of bats, please coordinate directly with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.**

  Though Indiana and Northern Long-eared bats are not known to occur in the project area, these species should be assumed present because they occur in Cole and/or Boone County and could occur in the project area. Indiana Bats *(Myotis sodalis*, federal and state-listed endangered) and Northern Long-eared Bats (*Myotis septentrionalis,* federal-listed endangered) hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana Bats and/or Northern Long-eared Bats, especially from September to April.

- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, larvae, and aquatic plant material may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - Remove any mud, soil, trash, plants (or plant material) or animals from equipment before leaving any water body or work area.

- Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≥140° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Natural Heritage records largely reflect sites visited by specialists in the last 30 years. Many privately owned tracts have not been surveyed and could host remnants of species once but no longer common.

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters
2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180
Telephone: 573-751-4115 ▲ www.MissouriConservation.org

JASON A. SUMNERS, Director

January 27, 2025

Max Headlee
U.S. Army Corps of Engineers
Environmental Resources Section, Civil Works Program Branch
601 East 12th Street
Kansas City, MO 64106

Mr. Headlee:

Thank you for the opportunity to review and provide comments on the Draft Integrated Feasibility Report and Environmental Assessment for the Lower Missouri Jefferson City L-142 Flood Risk Management Study. The Missouri Department of Conservation (Department) is the agency responsible for forest, fish, and wildlife resources in Missouri. As such, we actively participate in review when proposed regulations or projects might affect those resources. Our comments and recommendations are for your consideration.

The Federal Tentatively Selected Plan, CA13, identifies Church Farm Conservation Area (CA) as a potential location from which to obtain borrow for construction of the proposed levee alignment. The Department is generally supportive of borrow material from Church Farm CA contributing to the success of the project. Appropriate excavation of borrow material can contribute to long term habitat development goals for the area.

We recognize that many details remain to be clarified as the project would progress through the planning, engineering, and design phase and finally into construction. As those details are investigated, we request that coordination with Department staff occur well in advance of decisions on borrow location and extents, borrow area recovery, and logistics of access to and transport of borrow material.

The Department appreciates the commitment of the U.S. Army Corps of Engineers and Missouri Department of Natural Resources to public engagement and involvement throughout the study process. If you have any questions regarding these comments, please contact me at 573-522-4115 extension 3191, or by email at matt.vitello@mdc.mo.gov.

Sincerely,

MATT VITELLO, P.E.
POLICY COORDINATOR

COMMISSION

MARGARET F. ECKELKAMP, Washington
STEVEN D. HARRISON, Rolla
MARK L. McHENRY, Kansas City
RAYMOND T. WAGNER JR., Town and Country

Item 8

Memorandum of Agreement to Address Aircraft-Wildlife Strikes

Memorandum of Agreement Between
the Federal Aviation Administration,
the U.S. Air Force,
the U.S. Army,
the U.S. Environmental Protection Agency,
the U.S. Fish and Wildlife Service, and
the U.S. Department of Agriculture
to Address Aircraft-Wildlife Strikes

PURPOSE

The signatory agencies know the risks that aircraft-wildlife strikes pose to safe aviation.

This Memorandum of Agreement (MOA) acknowledges each signatory agency's respective missions. Through this MOA, the agencies establish procedures necessary to coordinate their missions to more effectively address existing and future environmental conditions contributing to aircraft-wildlife strikes throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety, while protecting the Nation's valuable environmental resources.

BACKGROUND

Aircraft-wildlife strikes are the second leading causes of aviation-related fatalities. Globally, these strikes have killed over 400 people and destroyed more than 420 aircraft. While these extreme events are rare when compared to the millions of annual aircraft operations, the potential for catastrophic loss of human life resulting from one incident is substantial. The most recent accident demonstrating the grievous nature of these strikes occurred in September 1995, when a U.S. Air Force reconnaissance jet struck a flock of Canada geese during takeoff, killing all 24 people aboard.

The Federal Aviation Administration (FAA) and the United States Air Force (USAF) databases contain information on more than 54,000 United States civilian and military aircraft-wildlife strikes reported to them between 1990 and 1999[1]. During that decade, the FAA received reports indicating that aircraft-wildlife strikes, damaged 4,500 civilian U.S. aircraft (1,500 substantially), destroyed 19 aircraft, injured 91 people, and killed 6 people. Additionally, there were 216 incidents where birds struck two or more engines on civilian aircraft, with damage occurring to 26 percent of the 449 engines involved in these incidents. The FAA estimates that during the same decade, civilian U.S. aircraft sustained $4 billion worth of damages and associated losses and 4.7 million hours of aircraft downtime due to aircraft-wildlife strikes. For the same period,

[1] FAA estimates that the 28,150 aircraft-wildlife strike reports it received represent less than 20% of the actual number of strikes that occurred during the decade.

USAF planes colliding with wildlife resulted in 10 Class A Mishaps[2], 26 airmen deaths, and over $217 million in damages.

Approximately 97 percent of the reported civilian aircraft-wildlife strikes involved common, large-bodied birds or large flocks of small birds. Almost 70 percent of these events involved gulls, waterfowl, and raptors (Table 1).

About 90 percent of aircraft-wildlife strikes occur on or near airports, when aircraft are below altitudes of 2,000 feet. Aircraft-wildlife strikes at these elevations are especially dangerous because aircraft are moving at high speeds and are close to or on the ground. Aircrews are intently focused on complex take-off or landing procedures and monitoring the movements of other aircraft in the airport vicinity. Aircrew attention to these activities while at low altitudes often compromises their ability to successfully recover from unexpected collisions with wildlife and to deal with rapidly changing flight procedures. As a result, crews have minimal time and space to recover from aircraft-wildlife strikes.

Increasing bird and wildlife populations in urban and suburban areas near airports contribute to escalating aircraft-wildlife strike rates. FAA, USAF, and Wildlife Services (WS) experts expect the risks, frequencies, and potential severities of aircraft-wildlife strikes to increase during the next decade as the numbers of civilian and military aircraft operations grow to meet expanding transportation and military demands.

SECTION I.

SCOPE OF COOPERATION AND COORDINATION

Based on the preceding information and to achieve this MOA's purpose, the signatory agencies:

A. Agree to strongly encourage their respective regional and local offices, as appropriate, to develop interagency coordination procedures necessary to effectively and efficiently implement this MOA. Local procedures should clarify time frames and other general coordination guidelines.

B. Agree that the term "airport" applies only to those facilities as defined in the attached glossary.

C. Agree that the three major activities of most concern include, but are not limited to:

1. airport siting and expansion;

[2] See glossary for the definition of a Class A Mishap and similar terms.

2. development of conservation/mitigation habitats or other land uses that could attract hazardous wildlife to airports or nearby areas; and

3. responses to known wildlife hazards or aircraft-wildlife strikes.

D. Agree that "hazardous wildlife" are those animals, identified to species and listed in FAA and USAF databases, that are most often involved in aircraft-wildlife strikes. Many of the species frequently inhabit areas on or near airports, cause structural damage to airport facilities, or attract other wildlife that pose an aircraft-wildlife strike hazard. Table 1 lists many of these species. It is included solely to provide information on identified wildlife species that have been involved in aircraft-wildlife strikes. It is not intended to represent the universe of species concerning the signatory agencies, since more than 50 percent of the aircraft-wildlife strikes reported to FAA or the USAF did not identify the species involved.

E. Agree to focus on habitats attractive to the species noted in Table 1, but the signatory agencies realize that it is imperative to recognize that wildlife hazard determinations discussed in Paragraph L of this section may involve other animals.

F. Agree that not all habitat types attract hazardous wildlife. The signatory agencies, during their consultative or decisionmaking activities, will inform regional and local land use authorities of this MOA's purpose. The signatory agencies will consider regional, local, and site-specific factors (e.g., geographic setting and/or ecological concerns) when conducting these activities and will work cooperatively with the authorities as they develop and implement local land use programs under their respective jurisdictions. The signatory agencies will encourage these stakeholders to develop land uses within the siting criteria noted in Section 1-3 of FAA Advisory Circular (AC) 150.5200-33 (Attachment A) that do not attract hazardous wildlife. Conversely, the agencies will promote the establishment of land uses attractive to hazardous wildlife outside those siting criteria. Exceptions to the above siting criteria, as described in Section 2.4.b of the AC, will be considered because they typically involve habitats that provide unique ecological functions or values (e.g., critical habitat for federally-listed endangered or threatened species, ground water recharge).

G. Agree that wetlands provide many important ecological functions and values, including fish and wildlife habitats; flood protection; shoreline erosion control; water quality improvement; and recreational, educational, and research opportunities. To protect jurisdictional wetlands, Section 404 of the Clean Water Act (CWA) establishes a program to regulate dredge and/or fill activities in these wetlands and navigable waters. In recognizing Section 404 requirements and the Clean Water Action Plan's goal to annually increase the Nation's net wetland acreage by 100,000 acres through 2005, the signatory agencies agree to resolve aircraft-wildlife conflicts. They will do so by

avoiding and minimizing wetland impacts to the maximum extent practicable, and will work to compensate for all associated unavoidable wetland impacts. The agencies agree to work with landowners and communities to encourage and support wetland restoration or enhancement efforts that do not increase aircraft-wildlife strike potentials.

H. Agree that the: U.S. Army Corps of Engineers (ACOE) has expertise in protecting and managing jurisdictional wetlands and their associated wildlife; U.S. Environmental Protection Agency (EPA) has expertise in protecting environmental resources; and the U.S. Fish and Wildlife Service (USFWS) has expertise in protecting and managing wildlife and their habitats, including migratory birds and wetlands. Appropriate signatory agencies will cooperatively review proposals to develop or expand wetland mitigation sites, or wildlife refuges that may attract hazardous wildlife. When planning these sites or refuges, the signatory agencies will diligently consider the siting criteria and land use practice recommendations stated in FAA AC 150/5200-33. The agencies will make every effort to undertake actions that are consistent with those criteria and recommendations, but recognize that exceptions to the siting criteria may be appropriate (see Paragraph F of this section).

I. Agree to consult with airport proponents during initial airport planning efforts. As appropriate, the FAA or USAF will initiate signatory agency participation in these efforts. When evaluating proposals to build new civilian or military aviation facilities or to expand existing ones, the FAA or the USAF, will work with appropriate signatory agencies to diligently evaluate alternatives that may avoid adverse effects on wetlands, other aquatic resources, and Federal wildlife refuges. If these or other habitats support hazardous wildlife, and there is no practicable alternative location for the proposed aviation project, the appropriate signatory agencies, consistent with applicable laws, regulations, and policies, will develop mutually acceptable measures, to protect aviation safety and mitigate any unavoidable wildlife impacts.

J. Agree that a variety of other land uses (e.g., storm water management facilities, wastewater treatment systems, landfills, golf courses, parks, agricultural or aquacultural facilities, and landscapes) attract hazardous wildlife and are, therefore, normally incompatible with airports. Accordingly, new, federally-funded airport construction or airport expansion projects near habitats or other land uses that may attract hazardous wildlife must conform to the siting criteria established in the FAA Advisory Circular (AC) 150/5200-33, Section 1-3.

K. Agree to encourage and advise owners and/or operators of non-airport facilities that are known hazardous wildlife attractants (See Paragraph J) to follow the siting criteria in Section 1-3 of AC 150/5200-33. As appropriate, each signatory agency will inform proponents of these or other land uses about the land use's potential to attract hazardous species to airport areas.

The signatory agencies will urge facility owners and/or operators about the critical need to consider the land uses' effects on aviation safety.

L. Agree that FAA, USAF, and WS personnel have the expertise necessary to determine the aircraft-wildlife strike potentials of various land uses. When there is disagreement among signatory agencies about a particular land use and its potential to attract hazardous wildlife, the FAA, USAF, or WS will prepare a wildlife hazard assessment. Then, the appropriate signatory agencies will meet at the local level to review the assessment. At a minimum, that assessment will:

1. identify each species causing the aviation hazard, its seasonal and daily populations, and the population's local movements;

2. discuss locations and features on and near the airport or land use attractive to hazardous wildlife; and

3. evaluate the extent of the wildlife hazard to aviation.

M. Agree to cooperate with the airport operator to develop a specific, wildlife hazard management plan for a given location, when a potential wildlife hazard is identified. The plan will meet applicable FAA, USAF, and other relevant requirements. In developing the plan, the appropriate agencies will use their expertise and attempt to integrate their respective programmatic responsibilities, while complying with existing laws, regulations, and policies. The plan should avoid adverse impacts to wildlife populations, wetlands, or other sensitive habitats to the maximum extent practical. Unavoidable impacts resulting from implementing the plan will be fully compensated pursuant to all applicable Federal laws, regulations, and policies.

N. Agree that whenever a significant aircraft-wildlife strike occurs or a potential for one is identified, any signatory agency may initiate actions with other appropriate signatory agencies to evaluate the situation and develop mutually acceptable solutions to reduce the identified strike probability. The agencies will work cooperatively, preferably at the local level, to determine the causes of the strike and what can and should be done at the airport or in its vicinity to reduce potential strikes involving that species.

O. Agree that information and analyses relating to mitigation that could cause or contribute to aircraft-wildlife strikes should, whenever possible, be included in documents prepared to satisfy the National Environmental Policy Act (NEPA). This should be done in coordination with appropriate signatory agencies to inform the public and Federal decision makers about important ecological factors that may affect aviation. This concurrent review of environmental issues will promote the streamlining of the NEPA review process.

P. Agree to cooperatively develop mutually acceptable and consistent guidance, manuals, or procedures addressing the management of habitats attractive to

hazardous wildlife, when those habitats are or will be within the siting criteria noted in Section 1-3 of FAA AC 5200-33. As appropriate, the signatory agencies will also consult each other when they propose revisions to any regulations or guidance relevant to the purpose of this MOA, and agree to modify this MOA accordingly.

SECTION II.
GENERAL RULES AND INFORMATION

A. Development of this MOA fulfills the National Transportation Safety Board's recommendation of November 19, 1999, to form an inter-departmental task force to address aircraft-wildlife strike issues.

B. This MOA does not nullify any obligations of the signatory agencies to enter into separate MOAs with the USFWS addressing the conservation of migratory birds, as outlined in Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, dated January 10, 2001 (66 *Federal Register*, No. 11, pg. 3853).

C. This MOA in no way restricts a signatory agency's participation in similar activities or arrangements with other public or private agencies, organizations, or individuals.

D. This MOA does not alter or modify compliance with any Federal law, regulation or guidance (e.g., Clean Water Act; Endangered Species Act; Migratory Bird Treaty Act; National Environmental Policy Act; North American Wetlands Conservation Act; Safe Drinking Water Act; or the "no-net loss" policy for wetland protection). The signatory agencies will employ this MOA in concert with the Federal guidance addressing wetland mitigation banking dated March 6, 1995 (60 *Federal Register*, No. 43, pg. 12286).

E. The statutory provisions and regulations mentioned above contain legally binding requirements. However, this MOA does not substitute for those provisions or regulations, nor is it a regulation itself. This MOA does not impose legally binding requirements on the signatory agencies or any other party, and may not apply to a particular situation in certain circumstances. The signatory agencies retain the discretion to adopt approaches on a case-by-case basis that differ from this MOA when they determine it is appropriate to do so. Such decisions will be based on the facts of a particular case and applicable legal requirements. Therefore, interested parties are free to raise questions and objections about the substance of this MOA and the appropriateness of its application to a particular situation.

F. This MOA is based on evolving information and may be revised periodically without public notice. The signatory agencies welcome public comments on this MOA at any time and will consider those comments in any future revision of this MOA.

G. This MOA is intended to improve the internal management of the Executive Branch to address conflicts between aviation safety and wildlife. This MOA does not create any right, benefit, or trust responsibility, either substantively or procedurally. No party, by law or equity, may enforce this MOA against the United States, its agencies, its officers, or any person.

H. This MOA does not obligate any signatory agency to allocate or spend appropriations or enter into any contract or other obligations.

I. This MOA does not reduce or affect the authority of Federal, State, or local agencies regarding land uses under their respective purviews. When requested, the signatory agencies will provide technical expertise to agencies making decisions regarding land uses within the siting criteria in Section 1-3 of FAA AC 150/5200-33 to minimize or prevent attracting hazardous wildlife to airport areas.

J. Any signatory agency may request changes to this MOA by submitting a written request to any other signatory agency and subsequently obtaining the written concurrence of all signatory agencies.

K. Any signatory agency may terminate its participation in this MOA within 60 days of providing written notice to the other agencies. This MOA will remain in effect until all signatory agencies terminate their participation in it.

SECTION III. PRINCIPAL SIGNATORY AGENCY CONTACTS

The following list identifies contact offices for each signatory agency.

Federal Aviation Administration
Office Airport Safety and Standards
Airport Safety and
Compliance Branch (AAS-310)
800 Independence Ave., S.W.
Washington, D.C. 20591
V: 202-267-1799
F: 202-267-7546

U.S. Air Force
HQ AFSC/SEFW
9700 Ave., G. SE, Bldg. 24499
Kirtland AFB, NM 87117
V: 505-846-5679
F: 505-846-0684

U.S. Army
Directorate of Civil Works
Regulatory Branch (CECW-OR)
441 G St., N.W.
Washington, D.C. 20314
V: 202-761-4750
F: 202-761-4150

U.S. Environmental Protection Agy.
Office of Water
Wetlands Division
Ariel Rios Building, MC 4502F
1200 Pennsylvania Ave., SW
Washington, D.C. 20460
V: 202-260-1799
F: 202-260-7546

U.S. Fish and Wildlife Service
Division of Migratory Bird Management
4401 North Fairfax Drive, Room 634
Arlington, VA 22203
V: 703-358-1714
F: 703-358-2272

U.S. Department of Agriculture
Animal and Plant Inspection Service
Wildlife Services
Operational Support Staff
4700 River Road, Unit 87
Riverdale, MD 20737
V: 301-734-7921
F: 301-734-5157

Signature Page

Original Signed by:
Woodie Woodward **12/17/2002**

Associate Administrator for Airports, Federal Aviation Administration — Date

Original Signed by:
Kenneth W. Hess **27 May 2003**

Chief of Safety, U. S. Air Force — Date

Original Signed by:
R.L. Brownlee **December 9, 2002**

Assistant Secretary of the Army (Civil Works), U.S. Army — Date

Original Signed by:
G. Tracy Mehan, III **1/17/03**

Assistant Administrator, Office of Water, U.S. Environmental Protection Agency — Date

Original Signed by:
Paul R. Schmidt **7/29/03**

Assistant Director, Migratory Birds and State Programs, U.S. Fish and Wildlife Service — Date

Original Signed by:
Richard D Curnow **9 January 2003**

Acting Deputy Administrator, Wildlife Services U.S. Department of Agriculture — Date

GLOSSARY

This glossary defines terms used in this MOA.

Airport. All USAF airfields or all public use airports in the FAA's National Plan of Integrated Airport Systems (NPIAS). Note: There are over 18,000 civil-use airports in the U.S., but only 3,344 of them are in the NPIAS and, therefore, under FAA's jurisdiction.

Aircraft-wildlife strike. An aircraft-wildlife strike is deemed to have occurred when:

1. a pilot reports that an aircraft struck 1 or more birds or other wildlife;
2. aircraft maintenance personnel identify aircraft damage as having been caused by an aircraft-wildlife strike;
3. personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;
4. bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified; or
5. the animal's presence on the airport had a significant, negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal)

(Source: *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

Aircraft-wildlife strike hazard. A potential for a damaging aircraft collision with wildlife on or near an airport (14 CFR 139.3).

Bird Sizes. Title 40, Code of Federal Regulations, Part 33.76 classifies birds according to weight:

small birds weigh less than 3 ounces (oz).
medium birds weigh more than 3 oz and less than 2.5 lbs.
large birds weigh greater than 2.5 lbs.

Civil aircraft damage classifications. The following damage descriptions are based on the *Manual on the International Civil Aviation Organization Bird Strike Information System*:

Minor: The aircraft is deemed airworthy upon completing simple repairs or replacing minor parts and an extensive inspection is not necessary.

Substantial: Damage or structural failure adversely affects an aircraft's structural integrity, performance, or flight characteristics. The damage normally requires major repairs or the replacement of the entire affected component. Bent fairings or cowlings; small dents; skin punctures; damage to wing tips, antenna, tires or brakes, or engine blade damage not requiring blade replacement are specifically excluded.

Destroyed: The damage sustained makes it inadvisable to restore the aircraft to an airworthy condition.

Significant Aircraft-Wildlife Strikes. A significant aircraft-wildlife strike is deemed to have occurred when any of the following applies:

1. a civilian, U.S. air carrier aircraft experiences a multiple aircraft-bird strike or engine ingestion;
2. a civilian, U.S. air carrier aircraft experiences a damaging collision with wildlife other than birds; or
3. a USAF aircraft experiences a Class A, B, or C mishap as described below:

    A. **Class A Mishap:** Occurs when at least one of the following applies:
        1. total mishap cost is $1,000,000 or more;
        2. a fatality or permanent total disability occurs; and/or
        3. an Air Force aircraft is destroyed.
    B. **Class B Mishap:** Occurs when at least one of the following applies:
        1. total mishap cost is $200,000 or more and less than $1,000,000; and/or
        2. a permanent partial disability occurs and/or 3 or more people are hospitalized;
    C. **Class C Mishap:** Occurs when at least one of the following applies:
        1. cost of reported damage is between $20,000 and $200,000;
        2. an injury causes a lost workday (i.e., duration of absence is at least 8 hours beyond the day or shift during which mishap occurred); and/or
        3. an occupational illness causing absence from work at any time.

Wetlands. An ecosystem requiring constant or recurrent, shallow inundation or saturation at or near the surface of the substrate. The minimum essential characteristics of a wetland are recurrent, sustained inundation or saturation at or

near the surface and the presence of physical, chemical, and biological features indicating recurrent, sustained inundation, or saturation. Common diagnostic wetland features are hydric soils and hydrophytic vegetation. These features will be present, except where specific physiochemical, biotic, or anthropogenic factors have removed them or prevented their development.

(Source the 1987 Delineation Manual; 40 CFR 230.3(t)).

Wildlife. Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring there of (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this MOA, "wildlife" includes feral animals and domestic animals while out of their owner's control (14 CFR 139.3, *Certification and Operations: Land Airports Serving CAB-Certificated Scheduled Air Carriers Operating Large Aircraft (Other Than Helicopters)*)

Table 1. Identified wildlife species, or groups, that were involved in two or more aircraft-wildlife strikes, that caused damage to one or more aircraft components, or that had an adverse effect on an aircraft's flight. Data are for 1990-1999 and involve only civilian, U.S. aircraft.

Birds	No. reported strikes
Gulls (all spp.)	874
Geese (primarily, Canada geese)	458
Hawks (primarily, Red-tailed hawks)	182
Ducks (primarily Mallards.)	166
Vultures (primarily, Turkey vulture)	142
Rock doves	122
Doves (primarily, mourning doves)	109
Blackbirds	81
European starlings	55
Sparrows	52
Egrets	41
Shore birds (primarily, Killdeer & Sandpipers)	40
Crows	31
Owls	24
Sandhill cranes	22
American kestrels	15
Great blue herons	15
Pelicans	14
Swallows	14
Eagles (Bald and Golden)	14
Ospreys	13
Ring-necked pheasants	11
Herons	11
Barn-owls	9
American robins	8
Meadowlarks	8
Buntings (snow)	7
Cormorants	6
Snow buntings	6
Brants	5
Terns (all spp.)	5
Great horned owls	5
Horned larks	4
Turkeys	4
Swans	3
Mockingbirds	3
Quails	3
Homing pigeons	3
Snowy owls	3
Anhingas	2

Birds	No. reported strikes
Ravens	2
Kites	2
Falcons	2
Peregrine falcons	2
Merlins	2
Grouse	2
Hungarian partridges	2
Spotted doves	2
Thrushes	2
Mynas	2
Finches	2
Total known birds	2,612

Mammals	No. reported strikes
Deer (primarily, White-tailed deer)	285
Coyotes	16
Dogs	10
Elk	6
Cattle	5
Bats	4
Horses	3
Pronghorn antelopes	3
Foxes	2
Raccoons	2
Rabbits	2
Moose	2
Total known mammals	340

Ring-billed gulls were the most commonly struck gulls. The U.S. ring-billed gull population increased steadily at about 6% annually from 1966-1988. Canada geese were involved in about 90% of the aircraft-goose strikes involving civilian, U.S. aircraft from 1990-1998. Resident (non-migratory) Canada goose populations increased annually at 13% from 1966-1998. Red-tailed hawks accounted for 90% of the identified aircraft-hawk strikes for the 10-year period. Red-tailed hawk populations increased annually at 3% from 1966 to 1998. Turkey vultures were involved in 93% of he identified aircraft-vulture strikes. The U.S. Turkey vulture populations increased at annually at 1% between 1966 and 1998. Deer, primarily white-tailed deer, have also adapted to urban and airport areas and their populations have increased dramatically. In the early 1900's, there were about 100,000 white-tailed deer in the U.S. Current estimates are that the U.S. population is about 24 million.

Item 9

Memorandum of Understanding between the U.S. Army Corps of Engineers and Osage Nation

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E. 12TH STREET, 635 FEDERAL BLDG
KANSAS CITY, MO 64106-2824

AUG 2 4 2023

EXECUTIVE OFFICE

Andrea A. Hunter, Ph.D.
Director
Osage Nation Historic Preservation Office
627 Grandview Ave.
Pawhuska, OK 74056

Dear Dr. Hunter:

The Kansas City District, U.S. Army Corps of Engineers (USACE) and the Missouri Department of Natural Resources (MoDNR) are partnering on two General Investigation studies with integrated Environmental Assessments (EA) for the proposed Lower Missouri River Brunswick L-246 and Jefferson City L-142 Flood Risk Management Studies as authorized by Section 216 of the Water Resources Development Act of 2020, Public Law 116-260. At the March 23, 2023 Interagency Meeting for these studies, the Osage Nation requested to participate in the NEPA process as a cooperating agency. In accordance with regulations pertaining to NEPA (Title 40 of the Code of Federal Regulations [CFR], part 1501.8, Section 2045 of WRDA 2007 [Section 2045], and Section 1005 of the Water Resources Reform and Development Act [WRRDA] of 2014 [Section 1005]), we are formally inviting the Osage Nation to become a cooperating agency for the development of the Brunswick L-246 and Jefferson City L-142 Feasibility Report with integrated EA. Your designation as a cooperating agency does not imply you support the proposed projects, nor does it diminish or otherwise modify the tribe's sovereign nation status or role as a consulting tribal nation under applicable federal laws, regulations, and Executive Orders.

In accordance with the Council on Environmental Quality (CEQ) 2022 implementing regulations for NEPA (40 CFR § 1501.8), USACE requests, as the lead agency, your assistance and participation in the NEPA process in the following ways:

a. Participate in Cooperating Agency meetings (anticipated to occur on a quarterly basis).

b. Provide information to the plan formulation process to assist in developing alternative plans that avoid impacts to important tribal resources in the study areas. An in-person or virtual meeting between the Osage Nation Historic Preservation Office and USACE project delivery team members working on alternatives development would be the primary means of sharing this information.

c. Review the draft report in advance of release to the general public and agencies.

As per 40 CFR § 1501.10, please designate a point of contact and an alternate to participate in the coordinated review process of the study. Please provide your written acceptance or declination of this invitation within 30 days of receipt of this letter. Should you decline to accept our invitation to be a cooperating agency, we request that you also provide a copy of your response to CEQ as specified at 40 CFR § 1501.8. A copy of the Implementation Guidance for Section 1005 of the WRRDA 2014 that explains updated guidance on NEPA cooperating

agency collaboration and coordinated review timelines can be found at this link: https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/1375.

Enclosed please find a draft Cooperating Agency Memorandum of Agreement for each study. We request that you provide any suggested comments or revisions to the MOA with your response to this cooperating agency invitation. If your agency has any initial questions relative to the study, please contact the Brunswick L-246 project manager, Mr. Damon Slaughter at damon.b.slaughter@usace.army.mil or (816) 389-3191; or the Jefferson City L-142 project manager, Ms. Colleen Roberts at Colleen.M.Roberts@usace.army.mil or (816) 389-3017. USACE Kansas City District appreciates your interest and willingness to participate in these studies. We look forward to working with you throughout the process.

Sincerely,

Travis J. Rayfield, PE, PMP
Colonel, Corps of Engineers
District Commander

Enclosures

MEMORANDUM of UNDERSTANDING
BETWEEN

THE U.S. ARMY CORPS OF ENGINEERS and OSAGE NATION
FOR

THE LOWER MISSOURI RIVER BRUNSWICK L-246 FLOOD RISK MANAGEMENT STUDY and ENVIRONMENTAL ASSESSMENT in CHARITON COUNTY, MISSOURI

Introduction

The National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*) (NEPA) directs the Federal government to make use of all practicable means to improve and coordinate Federal plans, functions, programs, and resources to enhance the quality of the environment. The Council on Environmental Quality's (CEQ) regulations for implementing NEPA allow Federal agencies (as a lead agency) to invite Tribal, State, and Local governments, as well as other Federal agencies, to serve as a Cooperating Agency (CA) for the preparation of an environmental document. CEQ 40 CFR Section 1501.8(a) essentially states the lead agency can request any Federal agency with jurisdiction to be a CA as well as "any other Federal agency with special expertise with respect to any environmental issue," including States, Tribes, and local governments with similar qualifications.

MOU Purpose

The purpose of this Memorandum of Understanding (MOU) is to provide a foundation for collaboration related to the Lower Missouri River Brunswick L-246 Flood Risk Management Study (hereafter the "L-246 Study") between the lead federal agency, the U.S. Army Corps of Engineers (Corps) and the signatory CA, the Osage Nation. This MOU will outline the responsibilities of the lead agency and CA in a partnering process to coordinate the review and information sharing on the L-246 Study.

Study Background

The L-246 is a constructed unit of the Missouri River Levee System (MRLS) authorized by the 1941 and 1944 Flood Control Acts (P.L. 228, 77th Congress, 1st Session and P.L. 534, 78th Congress, 2nd Session). Section 216 of the Water Resources Development Act of 2020 authorizes modification to projects in Iowa, Kansas, Nebraska, and Missouri authorized under the Pick-Sloan Missouri River Basin Program and the Missouri River Bank Stabilization and Navigation Project, including modifications to the authorized purposes of such projects to further flood risk management and resiliency.

The MRLS L-246 levee system reduces flooding risks to approximately 26,817 acres of Missouri, Grand, and Chariton River floodplain in Chariton County, MO. The levee system includes 34.5 miles of earthen levee along the Missouri, Grand and Chariton Rivers, and along Palmer Creek. The Corps completed construction on MRLS L-246 and turned it over to the local sponsor, Brunswick-Dalton Drainage District, in 1981. The local sponsor now operates and maintains the levee system.

A 2016 Corps screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at 1%. The levee has previously overtopped in 1993 and 2019. In these floods, water flowing over the top of the levee eroded the slope and lead to a breach of the levee. Both times, the levee performed as designed until water reached the top and exceeded the designed capacity.

The screening found overtopping to be the highest risk driver, however, all levees have the potential to breach prior to water flowing over the top. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths greater than 10 feet, which could result in life loss and economic consequences.

The area behind the levee is predominately agricultural with some residences and associated farm structures. The 2016 Corps screening level risk assessment estimated a leveed area population of approximately 100, with a property and agricultural product value of approximately $35 Million.

The Corps is partnering with the Missouri Department of Natural Resources to investigate and provide a recommendation to reduce the risk to flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Brunswick, Missouri and L-246 through structural and/or nonstructural means. The study will investigate and update the analysis for L-246 and develop a sustainable project to protect critical investment and lives. This will be conducted through evaluating the affected area, formulating measures by using existing information to the extent practicable, building an array of alternative plans, and recommending an alternative for implementation. The Corps will conduct an environmental assessment in accordance with NEPA as part of the L-246 Study to assess potential environmental and social effects of any proposed actions or modifications.

Study Schedule
Work is to begin once the MOU is signed and is expected to conclude August 31, 2026, unless the schedule is modified by mutual agreement of the Corps and Osage Nation. Below is a *tentative* timeline showing key milestones in the L-246 Study and subject to change.

- Tentatively Selected Plan (TSP) Milestone Meeting – 16 OCT 2024
- Draft Report Complete – 21 NOV 2024
- Public 30-Day Review EA Start – 13 DEC 2024
- Draft Final Report Complete – 8 JAN 2026
- Final Report Complete – 20 MAY 2026

Tasks and Deliverables
The MOU signatories will seek opportunities to cooperate in efforts to promote solutions to support the Congressionally authorized purposes of the L-246 Study in accordance with applicable laws, regulations, and policies. The Corps and the Osage Nation will regularly share information and data as outlined below to work towards a TSP that best promotes the conservation, understanding, management, and sustainable use of the Nation's land and water

resources. Collaboration for the following activities is requested to be conducted in Calendar Year 2023 and 2024:

Activities by the Corps

1. Conduct Cooperating Agency meetings between the MOU signatories on a quarterly basis, frequency subject to change by agreement of the two parties.
2. Organize a plan formulation meeting to be held in-person or virtually between the Osage Nation Historic Preservation Office and project delivery team members as part of the alternatives development process.
3. Provide the draft report in advance of release to the general public and agencies.
    a. Respond to all comments and recommendations made by the Osage Nation within one week of receipt of this input.

Activities by the Osage Nation

1. Attend plan formulation and cooperating agency meetings in person or virtually.
    a. Provide information to the plan formulation process to assist in developing alternative plans that avoid impacts to tribal resources in the study area.
    b. Provide suggestions for measures to avoid, minimize, or mitigate potential impacts to tribal resources.
2. Review draft and final report.
    a. Provide input regarding impact to tribal resources from potential flood risk management measures.
    b. Provide input on preliminary draft report within three weeks of receipt.
    c. Provide comments and recommendations in a brief email, letter, or memorandum for record (MFR) for incorporation in the final report.

Principles

I. It is mutually agreed and understood by all parties that this MOU is neither fiscal nor a funds obligations document. Any endeavor involving reimbursement or contribution of funds between the parties to the MOU will be handled in accordance with applicable laws, regulations, and procedures. Such endeavors, if any, will be outlined in a separate agreement and shall be independently authorized by appropriate statutory authority.

II. This MOU is intended to improve cooperation between the signatories and is not intended to create any right or benefit, substantive or procedural, enforceable by law by any party against the United States, its agencies, its officers, or any person.

III. This MOU may be modified as necessary, by mutual agreement of all signatories and a written amendment.

IV. Any party may terminate this MOU by providing 45 days written notice. Otherwise, this MOU will remain in effect until April 30, 2026.

Travis J. Rayfield 23 Aug 23
Colonel, Corps of Engineers
District Commander

_____

Dr. Andrea A. Hunter
Director, Historic Preservation Office
Osage Nation

MEMORANDUM of UNDERSTANDING
BETWEEN

THE U.S. ARMY CORPS OF ENGINEERS and OSAGE NATION
FOR

THE LOWER MISSOURI RIVER JEFFERSON CITY L-142 FLOOD RISK MANAGEMENT STUDY and ENVIRONMENTAL ASSESSMENT in CALLAWAY COUNTY, MISSOURI

Introduction

The National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*) (NEPA) directs the Federal government to make use of all practicable means to improve and coordinate Federal plans, functions, programs, and resources to enhance the quality of the environment. The Council on Environmental Quality's (CEQ) regulations for implementing NEPA allow Federal agencies (as a lead agency) to invite Tribal, State, and Local governments, as well as other Federal agencies, to serve as a Cooperating Agency (CA) for the preparation of an environmental document. CEQ 40 CFR Section 1501.8(a) essentially states the lead agency can request any Federal agency with jurisdiction to be a CA as well as "any other Federal agency with special expertise with respect to any environmental issue," including States, Tribes, and local governments with similar qualifications.

MOU Purpose

The purpose of this Memorandum of Understanding (MOU) is to provide a foundation for collaboration related to the Lower Missouri River Jefferson City L-142 Flood Risk Management Study (hereafter the "L-142 Study") between the lead federal agency, the U.S. Army Corps of Engineers (Corps) and the signatory CA, the Osage Nation. This MOU will outline the responsibilities of the lead agency and CA in a partnering process to coordinate the review and information sharing on the L-142 Study.

Study Background

Unit L-142 is an unconstructed unit of the Missouri River Levee System (MRLS) authorized by the 1941 and 1944 Flood Control Acts (P.L. 228, 77th Congress, 1st Session and P.L. 534, 78th Congress, 2nd Session). Section 216 of the Water Resources Development Act of 2020 authorizes modification to projects in Iowa, Kansas, Nebraska, and Missouri authorized under the Pick-Sloan Missouri River Basin Program and the Missouri River Bank Stabilization and Navigation Project, including modifications to the authorized purposes of such projects to further flood risk management and resiliency.

The intent of the L-142 levee was to address flooding concerns along the northern side of the Missouri River near Jefferson City, Missouri. The floodplain at this location exhibits locally and regionally important infrastructure, such as an airport and a manufacturing plant, as well as agricultural lands. A design for the L-142 levee was proposed in a 2001 General Reevaluation Report (GRR) and Environmental Assessment produce by the Corps. However, some local and regional stakeholders opposed the proposed levee, such as farmers, St. Louis-based

environmental groups, and businesses along the south side of the river. The local sponsor for the GRR, the City of Jefferson City, Missouri, declined to move the proposed design forward towards construction.

Today, the L-142 area is protected by the Capital View Drainage District levee system. This levee system includes 7.3 miles of earthen levee along the Missouri River and reduces flood risk to approximately 3,300 acres of Missouri River floodplain. This levee was not designed or constructed by the Corps. The Capital View Drainage District owns, operates, and maintains this levee.

A 2015 Corps screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 10%. The levee overtopped in 1993, 1995, and 2019. In these floods, water flowing over the top of the levee eroded the slope and lead to a breach of the levee. The screening found overtopping to be the highest risk driver, however, all levees have the potential to breach prior to water flowing over the top. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths up to 6 feet, which could result in life loss and economic consequences.

The area behind the levee is predominately agricultural with some residences and associated farm structures as well as the Jefferson City Memorial Airport. The 2015 Corps screening level risk assessment estimated a leveed area population of approximately 600, a property value of approximately $4.8 million, and an agricultural product value of approximately $600,000.

The Corps is partnering with the Missouri Department of Natural Resources to investigate and provide a recommendation to reduce the risk to flood damage and improve resiliency for property, businesses, agriculture, and infrastructure in and around the area of Jefferson City, Missouri and L-142 through structural and/or nonstructural means. The study will investigate and update the analysis for L-142 and develop a sustainable project to protect critical investment and lives. This will be conducted through evaluating the affected area, formulating measures by using existing information to the extent practicable, building an array of alternative plans, and recommending an alternative for implementation. The Corps will conduct an environmental assessment in accordance with NEPA as part of the L-142 Study to assess potential environmental and social effects of any proposed actions or modifications.

Study Schedule
Work is to begin once the MOU is signed and is expected to conclude April 30, 2026, unless the schedule is modified by mutual agreement of the Corps and Osage Nation. Below is a *tentative* timeline showing key milestones in the L-142 Study and subject to change.

- Tentatively Selected Plan (TSP) Milestone Meeting – 7 JUN 2024
- Draft Report Complete – 19 AUG 2024
- Public 30-Day Review EA Start – 19 AUG 2024
- Draft Final Report Complete – 8 SEP 2025
- Final Report Complete – 23 JAN 2026

Tasks and Deliverables
The MOU signatories will seek opportunities to cooperate in efforts to promote solutions to support the Congressionally authorized purposes of the L-142 Study in accordance with applicable laws, regulations, and policies. The Corps and the Osage Nation will regularly share information and data as outlined below to work towards a TSP that best promotes the conservation, understanding, management, and sustainable use of the Nation's land and water resources. Collaboration for the following activities is requested to be conducted in Calendar Year 2023 and 2024:

Activities by the Corps
1. Conduct Cooperating Agency meetings between the MOU signatories on a quarterly basis, frequency subject to change by agreement of the two parties.
2. Organize a plan formulation meeting to be held in-person or virtually between the Osage Nation Historic Preservation Office and project delivery team members as part of the alternatives development process.
3. Provide the draft report in advance of release to the general public and agencies.
    a. Respond to all comments and recommendations made by the Osage Nation within one week of receipt of this input.

Activities by the Osage Nation
1. Attend plan formulation and cooperating agency meetings in person or virtually.
    a. Provide information to the plan formulation process to assist in developing alternative plans that avoid impacts to tribal resources in the study area.
    b. Provide suggestions for measures to avoid, minimize, or mitigate potential impacts to tribal resources.
2. Review draft and final report.
    a. Provide input regarding impact to tribal resources from potential flood risk management measures.
    b. Provide input on preliminary draft report within three weeks of receipt.
    c. Provide comments and recommendations in a brief email, letter, or memorandum for record (MFR) for incorporation in the final report.

Principles
I. It is mutually agreed and understood by all parties that this MOU is neither fiscal nor a funds obligations document. Any endeavor involving reimbursement or contribution of funds between the parties to the MOU will be handled in accordance with applicable laws, regulations, and procedures. Such endeavors, if any, will be outlined in a separate agreement and shall be independently authorized by appropriate statutory authority.

II. This MOU is intended to improve cooperation between the signatories and is not intended to create any right or benefit, substantive or procedural, enforceable by law by any party against the United States, its agencies, its officers, or any person.

III. This MOU may be modified as necessary, by mutual agreement of all signatories and a written amendment.

IV. Any party may terminate this MOU by providing 45 days written notice. Otherwise, this MOU will remain in effect until April 30, 2026.

Travis J. Rayfield 23 AUG 23
Colonel, Corps of Engineers
District Commander

_____

Dr. Andrea A. Hunter
Director, Historic Preservation Office
Osage Nation

Item 10

Missouri Department of Natural Resources Coordination

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Mike Kehoe
Governor

Kurt U. Schaefer
Director

9/15/2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers
Kansas City District
601 E. 12th Street
Kansas City, Missouri 64106

Dear Max Headlee,

This letter acknowledges that the Missouri Department of Natural Resources (MoDNR) has been made aware of the recommended plan for the Jefferson City Flood Risk Management project in Jefferson City, Missouri, and its need to obtain a Clean Water Act §401 Water Quality Certification before construction on this project can begin.

Based on the information presented, MoDNR has no significant concerns, and agrees that there are no foreseen water quality issues that will arise as a result of this project.

When/if funding is obtained for the project, MoDNR will coordinate with the U.S. Army Corps of Engineers Kansas City District on the requirements for a complete request for a §401 Water Quality Certification. Upon receipt of the materials necessary for a Water Quality Certification Request an official review and writing period can begin.

If any questions arise relating to this letter or MoDNR and the §401 Water Quality Certification process, please email 401@dnr.mo.gov.

Thank you for helping to protect Missouri's aquatic resources.

Sincerely,

WATER PROTECTION PROGRAM,

Ashley Grupe
Operating Permits Section Chief

Item 11

Miami Tribe of Oklahoma Coordination

Miami Tribe of Oklahoma
3410 P St. NW, Miami, OK 74354 ● P.O. Box 1326, Miami, OK 74355
Ph: (918) 541-1300 ● Fax: (918) 542-7260
www.miamination.com

Via email: timothy.m.meade@usace.army.mil

March 16, 2023

Timothy Meade, Tribal Liaison
Department of the Army
U.S. Army Corps of Engineers, Kansas City District
601 E. 12th St.
635 Federal Bldg
Kansas City, MO 64106

Re: Lower Missouri River Jefferson City Levee-142 Flood Risk Management Study, Callaway County, Missouri – Comments of the Miami Tribe of Oklahoma

Dear Mr. Meade:

Aya, kweehsitoolaani– I show you respect. The Miami Tribe of Oklahoma, a federally recognized Indian tribe with a Constitution ratified in 1939 under the Oklahoma Indian Welfare Act of 1936, respectfully submits the following comments regarding Lower Missouri River Jefferson City Levee-142 Flood Risk Management Study in Callaway County, Missouri.

The Miami Tribe offers no objection to the above-referenced project at this time, as we are not currently aware of existing documentation directly linking a specific Miami cultural or historic site to the project site. However, given the Miami Tribe's deep and enduring relationship to its historic lands and cultural property within present-day Missouri, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project, the Miami Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery. In such a case, please contact me at 918-541-8966 or by email at THPO@miamination.com to initiate consultation.

The Miami Tribe accepts the invitation to serve as a consulting party to the proposed project. In my capacity as Tribal Historic Preservation Officer I am the point of contact for consultation.

Respectfully,

Diane Hunter

Diane Hunter
Tribal Historic Preservation Officer

Item 12

Public Review Comments

Headlee, Max R CIV USARMY CENWK (USA)

From: Fanning, Erin <Erin.Fanning@dnr.mo.gov>
Sent: Wednesday, December 11, 2024 12:14 PM
To: Niemann-Harper, Ginger CIV USARMY CENWK (USA); Roberts, Colleen M CIV USARMY CENWK (USA); Headlee, Max R CIV USARMY CENWK (USA)
Cc: Kerby, Elizabeth; Goddard, Aaron; Weller, Michael; Wieberg, Chris
Subject: [Non-DoD Source] FW: U.S. Army Corps of Engineers Planning Public Notice: DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study

FYI

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Program Director
Water Resources Center
Missouri Department of Natural Resources
(573) 751-6253
(573) 751-8475 fax

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

From: Aaron Jeffries <Aaron.Jeffries@mdc.mo.gov>
Sent: Wednesday, December 4, 2024 2:46 PM
To: Fanning, Erin <Erin.Fanning@dnr.mo.gov>
Cc: Wieberg, Chris <chris.wieberg@dnr.mo.gov>; Buntin, Dru <Dru.Buntin@dnr.mo.gov>; Vitello, Matt <Matt.Vitello@mdc.mo.gov>
Subject: Re: U.S. Army Corps of Engineers Planning Public Notice: DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study

Erin

Thank you for the report. Please keep Matt and I in the loop related to Church Farm and the use of the levee for borrow.

Our current agreement with OA requires MDC to maintain the current levee which of course could be amended for the greater good. In addition we need to be mindful of the private landowner inholding protected by the levee.

We were proposing to repair the levee when the study showed little change in the Jeff City gauge. Let me know if we need to schedule a meeting.

Aaron

Get Outlook for iOS

From: Fanning, Erin <Erin.Fanning@dnr.mo.gov>
Sent: Monday, December 2, 2024 2:32 PM

To: Fanning, Erin <Erin.Fanning@dnr.mo.gov>
Cc: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>; Goddard, Aaron <Aaron.Goddard@dnr.mo.gov>; Weller, Michael <michael.weller@dnr.mo.gov>; Wieberg, Chris <chris.wieberg@dnr.mo.gov>; 'colleen.m.roberts@usace.army.mil' <colleen.m.roberts@usace.army.mil>; 'Niemann-Harper, Ginger CIV USARMY CENWK (USA)' <Ginger.R.Harper@usace.army.mil>
Subject: RE: U.S. Army Corps of Engineers Planning Public Notice: DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study

UPDATE: The links are now live. Please see email below as well as the USACE website here (DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study > Kansas City District > Planning Public Notices) for additional information.

Please visit the link above to access the public notice, draft report, and appendices. Please feel free to reach out if you need any support in accessing this information.

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Program Director
Water Resources Center
Missouri Department of Natural Resources
(573) 751-6253
(573) 751-8475 fax

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

From: Fanning, Erin
Sent: Wednesday, November 27, 2024 5:36 PM
To: Fanning, Erin <Erin.Fanning@dnr.mo.gov>
Cc: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>; Goddard, Aaron <Aaron.Goddard@dnr.mo.gov>; Weller, Michael <michael.weller@dnr.mo.gov>; Wieberg, Chris <chris.wieberg@dnr.mo.gov>; colleen.m.roberts@usace.army.mil; 'Niemann-Harper, Ginger CIV USARMY CENWK (USA)' <Ginger.R.Harper@usace.army.mil>
Subject: RE: U.S. Army Corps of Engineers Planning Public Notice: DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study

UPDATE: We have been made aware that the links on the USACE website are not allowing access to the files, and we appreciate the prompt feedback. USACE is now aware of the issue and is working towards resolution. We will send a follow up email once the issue is resolved.

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Program Director
Water Resources Center
Missouri Department of Natural Resources
(573) 751-6253
(573) 751-8475 fax

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

From: Fanning, Erin
Sent: Wednesday, November 27, 2024 5:08 PM
To: Fanning, Erin <Erin.Fanning@dnr.mo.gov>
Cc: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>; Goddard, Aaron <Aaron.Goddard@dnr.mo.gov>; Weller, Michael <michael.weller@dnr.mo.gov>; Wieberg, Chris <chris.wieberg@dnr.mo.gov>; colleen.m.roberts@usace.army.mil; Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>
Subject: U.S. Army Corps of Engineers Planning Public Notice: DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study

In an effort to amplify the U.S. Army Corps of Engineers Kansas City District (USACE) Public Notice for the DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study, we are sharing the following information to our distribution list for the Lower Missouri Jefferson City Feasibility Study community members and stakeholders who have engaged in the study process.

The DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study has been posted on USACE website here: DRAFT Lower Missouri Jefferson City L-142 Flood Risk Management Study > Kansas City District > Planning Public Notices.

The following information is included from USACE with the notice:

> *Published Nov. 27, 2024*
> *Expiration date: 1/27/2025*
>
> *The U.S. Army Corps of Engineers, Kansas City District (USACE) has prepared a Draft Integrated Feasibility Report and Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) as part of the Lower Missouri Jefferson City L-142 Flood Risk Management Study (Study). The Draft Integrated EA was prepared to assess and document potential effects to the human and natural environment of the proposed action. The USACE anticipates that the proposed action would not result in significant degradation to the environment. The Draft Integrated EA and supporting information are provided with issuance of this Public Notice to initiate a 60-day public review and comment period.*
>
> *This Public Notice and Study-related information are being provided to solicit public input on the proposed action. Any interested party is invited to submit to this office written facts or objections relative to the proposed action, both favorable and unfavorable in nature. All comments will be accepted and made part of the public record. Copies of all comments, including names and addresses of commenters, may be provided to applicants upon request. The USACE will consider all pertinent comments in preparing final documentation for completion of the NEPA process through the completion of a Finding of No Significant Impact (FONSI).*

Please visit the link above to access the public notice, draft report, and appendices. Please feel free to reach out if you need any support in accessing this information.

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Program Director
Water Resources Center
Missouri Department of Natural Resources
(573) 751-6253
(573) 751-8475 fax

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

Headlee, Max R CIV USARMY CENWK (USA)

From: Alan Kelley <akelley@iowas.org>
Sent: Tuesday, December 17, 2024 1:51 PM
To: Headlee, Max R CIV USARMY CENWK (USA)
Subject: [Non-DoD Source] Re: Public Review of the Draft Integrated Feasibility Report and EA for the Jefferson City Flood Risk Management Study

Project No: 2024-004-CW
US Army Corps of Engineers Issue Date: November 27, 2024 Kansas City District Close Date: January 27, 2024

I Have No Concerns

On Tue, Dec 3, 2024 at 10:46 AM Headlee, Max R CIV USARMY CENWK (USA) <Max.R.Headlee@usace.army.mil> wrote:
>
> Good morning,
>
>
>
> Please see the attached Public Notice for the Draft Integrated Feasibility Report and Environmental Assessment for the Lower Missouri Jefferson City L-142 Flood Risk Management Study. The public comment period goes through 27 January 2025. The draft documents are available for viewing online at the following link:
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> BLOCKEDhttps://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Pu
> blic-Notices/Article/3980633/draft-lower-missouri-jefferson-city-l-142
> -flood-risk-management-study/
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>
> Please call or email me for any comments or questions about the draft EA or associated documents.
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>
> Thank you,
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>
> Max Headlee
>
> Environmental Resources Specialist
>
> US Army Corps of Engineers, Kansas City District
>
> Office: (816) 389-3134
>
>

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Alan Kelley
Deputy THPO
Iowa Tribe of KS & NE
3345 Thrasher RD
White Cloud KS 66094
785-351-0080

Headlee, Max R CIV USARMY CENWK (USA)

From: Alan Kelley <akelley@iowas.org>
Sent: Tuesday, December 31, 2024 8:30 AM
To: Headlee, Max R CIV USARMY CENWK (USA)
Cc: Summerlin, Joe; Amber.Tilley@epa.gov; josh.tapp@epa.gov; bryan.murdie@fema.dhs.gov; Teri.Toye@fema.dhs.gov; rick.nusz@fema.dhs.gov; Hackett, Billy; Erin.Fanning@dnr.mo.gov; Vitello, Matt; Craig Crisler (craig.crisler@mdc.mo.gov); machelle.watkins@modot.mo.gov; Kyle LePage; Brian N. Boehmer; Hamilton, Chris - NRCS, Columbia, MO; andrew.rackers@usda.gov; NelsonStastny, Wayne; Weidinger, Valerie; Weber, John S; Simmons, Bryan; Anderson, Amy (FAA); Johnson, Jim (FAA); Tener, Scott (FAA); moshpo@dnr.mo.gov; billquackenbush@ho-chunk.com; Iowa Tribe of Kansas and Nebraska; thpo@kawnation.gov; lyork@miamination.com; jarell.grant@theomahatribe.com; Benjamin M. Bressoud; ewhitehorn@omtribe.org; james.bfletcher@peoriatribe.com; janc@PoncaTribe-ne.gov; liana.hesler@ponca-nsn.gov; Gary.bahr@sacandfoxks.com; Sac & Fox Nation, Oklahoma; Buffalo, Jonathan; Niemann-Harper, Ginger CIV USARMY CENWK (USA); Meade, Timothy M CIV USARMY CENWK (USA)
Subject: [Non-DoD Source] Re: Public Review of the Draft Integrated Feasibility Report and EA for the Jefferson City Flood Risk Management Study

Thank you for the information.
That area looks like an old river bottom.

I Have no Concerns

On Mon, Dec 30, 2024 at 12:17 PM Headlee, Max R CIV USARMY CENWK (USA) <Max.R.Headlee@usace.army.mil> wrote:
>
> Good afternoon,
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>
> This is a reminder that the public comment period for the Draft Integrated Feasibility Report and Environmental Assessment for the Lower Missouri Jefferson City L-142 Flood Risk Management Study goes through 27 January 2025. The draft documents are available for viewing online at the following link:
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>
> BLOCKEDhttps://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Pu
> blic-Notices/Article/3980633/draft-lower-missouri-jefferson-city-l-142
> -flood-risk-management-study/
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> Thank you to those who have already submitted comments.
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> In addition, the USACE and the Missouri Department of Natural Resources will be holding a public meeting to receive comments and questions about the draft report in person. This meeting will be held on 8 January 2025 at the Lewis and

Clark State Office Building located at 1101 Riverside Drive, Jefferson City, Missouri. The doors will open at 5:15 PM and the meeting will be 5:30-7:30 PM.
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> Please let me know if you have any questions.
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>
>
> Thank you,
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>
> Max Headlee
>
> Environmental Resources Specialist
>
> US Army Corps of Engineers, Kansas City District
>
> Office: (816) 389-3134
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>
> From: Headlee, Max R CIV USARMY CENWK (USA)
> Sent: Tuesday, December 3, 2024 10:45 AM
> To: Summerlin, Joe <summerlin.joe@epa.gov>; Amber.Tilley@epa.gov;
> josh.tapp@epa.gov; bryan.murdie@fema.dhs.gov; Teri.Toye@fema.dhs.gov;
> rick.nusz@fema.dhs.gov; Hackett, Billy <billy.hackett@dnr.mo.gov>;
> Erin.Fanning@dnr.mo.gov; Vitello, Matt <Matt.Vitello@mdc.mo.gov>;
> Craig Crisler (craig.crisler@mdc.mo.gov) <craig.crisler@mdc.mo.gov>;
> machelle.watkins@modot.mo.gov; Kyle LePage <Kyle.Lepage@modot.mo.gov>;
> Brian N. Boehmer <Brian.Boehmer@modot.mo.gov>; Hamilton, Chris - NRCS,
> Columbia, MO <chris.hamilton@usda.gov>; andrew.rackers@usda.gov;
> NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>; Weidinger, Valerie
> <valerie_weidinger@fws.gov>; Weber, John S <John_S_Weber@fws.gov>;
> Simmons, Bryan R <bryan_simmons@fws.gov>; Anderson, Amy (FAA)
> <Amy.Anderson@faa.gov>; Johnson, Jim (FAA) <jim.johnson@faa.gov>;
> Tener, Scott (FAA) <scott.tener@faa.gov>; moshpo@dnr.mo.gov;
> billquackenbush@ho-chunk.com; akelley@iowas.org; lfoster@iowas.org;
> thpo@kawnation.gov; lyork@miamination.com;
> jarell.grant@theomahatribe.com; Benjamin M. Bressoud
> <benjamin.bressoud@osagenation-nsn.gov>; ewhitehorn@omtribe.org;
> james.bfletcher@peoriatribe.com; janc@PoncaTribe-ne.gov;
> liana.hesler@ponca-nsn.gov; Gary.bahr@sacandfoxks.com; Sac & Fox
> Nation, Oklahoma <chris.boyd@sacandfoxnation-nsn.gov>; Buffalo,
> Jonathan <director.historic@meskwaki-nsn.gov>
> Cc: Niemann-Harper, Ginger CIV USARMY CENWK (USA)
> <Ginger.R.Harper@usace.army.mil>; Meade, Timothy M CIV USARMY CENWK
> (USA) <Timothy.M.Meade@usace.army.mil>
> Subject: Public Review of the Draft Integrated Feasibility Report and
> EA for the Jefferson City Flood Risk Management Study
>

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> Good morning,
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> Please see the attached Public Notice for the Draft Integrated Feasibility Report and Environmental Assessment for the Lower Missouri Jefferson City L-142 Flood Risk Management Study. The public comment period goes through 27 January 2025. The draft documents are available for viewing online at the following link:
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> blic-Notices/Article/3980633/draft-lower-missouri-jefferson-city-l-142
> -flood-risk-management-study/
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> Please call or email me for any comments or questions about the draft EA or associated documents.
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>
> Thank you,
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>
> Max Headlee
>
> Environmental Resources Specialist
>
> US Army Corps of Engineers, Kansas City District
>
> Office: (816) 389-3134
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Alan Kelley
Deputy THPO
Iowa Tribe of KS & NE
3345 Thrasher RD
White Cloud KS 66094
785-351-0080

Headlee, Max R CIV USARMY CENWK (USA)

From: Tener, Scott (FAA) <scott.tener@faa.gov>
Sent: Thursday, January 2, 2025 9:17 AM
To: Headlee, Max R CIV USARMY CENWK (USA)
Cc: Kyle LePage; Brian N. Boehmer
Subject: [Non-DoD Source] RE: Public Review of the Draft Integrated Feasibility Report and EA for the Jefferson City Flood Risk Management Study

We appreciate the opportunity to comment on the proposed project. The Jefferson City Municipal Airport participates in the FAA's State Block Grant Program where planning responsibilities are delegated to the Missouri Department of Transportation. Please reach out to Kyle LePage, MoDOT Director of Aviation, for impacts to the airport.

Airspace Considerations:
This project is adjacent to the Jefferson City Municipal Airport and may directly impact the safety or utility of the airport. Portions of the project are under runway approach paths. Above ground development must be formally submitted for airspace analysis.

The project will require formal notice and review for airspace considerations under 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace. Please go to http://oeaaa.faa.gov and click on the "Notice Criteria Tool" found at the left-hand side of the page. We recommend a 120-day notification to accommodate the review process and issue our determination letter. More information on this process may be found at:
http://www.faa.gov/airports/central/engineering/part77/

Several items may need to be checked such as any changes in ground elevation, structures, towers, poles, objects, and temporary construction equipment that exceed the notice criteria. For projects involving long routes, multiple locations will need to be checked.

Please let me know if you have any questions,

Scott Tener
Environmental Program Manager

FAA Central Region Airports Division
901 Locust St., Room 364
Kansas City, Missouri 64106-2325
T 816.329.2639 | F 816.329.2611
http://www.faa.gov/airports/central/

From: Headlee, Max R CIV USARMY CENWK (USA) <Max.R.Headlee@usace.army.mil>
Sent: Monday, December 30, 2024 12:17 PM
To: Summerlin, Joe <summerlin.joe@epa.gov>; Amber.Tilley@epa.gov; josh.tapp@epa.gov; bryan.murdie@fema.dhs.gov; Teri.Toye@fema.dhs.gov; rick.nusz@fema.dhs.gov; Hackett, Billy <billy.hackett@dnr.mo.gov>; Erin.Fanning@dnr.mo.gov; Vitello, Matt <Matt.Vitello@mdc.mo.gov>; Craig Crisler (craig.crisler@mdc.mo.gov) <craig.crisler@mdc.mo.gov>; machelle.watkins@modot.mo.gov; Kyle LePage <Kyle.Lepage@modot.mo.gov>; Brian N. Boehmer <Brian.Boehmer@modot.mo.gov>; Hamilton, Chris - NRCS, Columbia, MO <chris.hamilton@usda.gov>; andrew.rackers@usda.gov; NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>; Weidinger, Valerie <valerie_weidinger@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Simmons, Bryan

<bryan_simmons@fws.gov>; Anderson, Amy (FAA) <Amy.Anderson@faa.gov>; Johnson, Jim (FAA) <jim.johnson@faa.gov>; Tener, Scott (FAA) <scott.tener@faa.gov>; moshpo@dnr.mo.gov; billquackenbush@ho-chunk.com; akelley@iowas.org; Iowa Tribe of Kansas and Nebraska <lfoster@iowas.org>; thpo@kawnation.gov; lyork@miamination.com; jarell.grant@theomahatribe.com; Benjamin M. Bressoud <benjamin.bressoud@osagenation-nsn.gov>; ewhitehorn@omtribe.org; james.bfletcher@peoriatribe.com; janc@PoncaTribe-ne.gov; liana.hesler@ponca-nsn.gov; Gary.bahr@sacandfoxks.com; Sac & Fox Nation, Oklahoma <chris.boyd@sacandfoxnation-nsn.gov>; Buffalo, Jonathan <director.historic@meskwaki-nsn.gov>
Cc: Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>; Meade, Timothy M CIV USARMY CENWK (USA) <Timothy.M.Meade@usace.army.mil>
Subject: RE: Public Review of the Draft Integrated Feasibility Report and EA for the Jefferson City Flood Risk Management Study

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

This is a reminder that the public comment period for the Draft Integrated Feasibility Report and Environmental Assessment for the Lower Missouri Jefferson City L-142 Flood Risk Management Study goes through 27 January 2025. The draft documents are available for viewing online at the following link:

https://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Public-Notices/Article/3980633/draft-lower-missouri-jefferson-city-l-142-flood-risk-management-study/

Thank you to those who have already submitted comments.

In addition, the USACE and the Missouri Department of Natural Resources will be holding a public meeting to receive comments and questions about the draft report in person. This meeting will be held on 8 January 2025 at the Lewis and Clark State Office Building located at 1101 Riverside Drive, Jefferson City, Missouri. The doors will open at 5:15 PM and the meeting will be 5:30-7:30 PM.

Please let me know if you have any questions.

Thank you,

Max Headlee
Environmental Resources Specialist
US Army Corps of Engineers, Kansas City District
Office: (816) 389-3134

From: Headlee, Max R CIV USARMY CENWK (USA)
Sent: Tuesday, December 3, 2024 10:45 AM
To: Summerlin, Joe <summerlin.joe@epa.gov>; Amber.Tilley@epa.gov; josh.tapp@epa.gov; bryan.murdie@fema.dhs.gov; Teri.Toye@fema.dhs.gov; rick.nusz@fema.dhs.gov; Hackett, Billy <billy.hackett@dnr.mo.gov>; Erin.Fanning@dnr.mo.gov; Vitello, Matt <Matt.Vitello@mdc.mo.gov>; Craig Crisler (craig.crisler@mdc.mo.gov) <craig.crisler@mdc.mo.gov>; machelle.watkins@modot.mo.gov; Kyle LePage <Kyle.Lepage@modot.mo.gov>; Brian N. Boehmer <Brian.Boehmer@modot.mo.gov>; Hamilton, Chris - NRCS, Columbia, MO <chris.hamilton@usda.gov>; andrew.rackers@usda.gov; NelsonStastny, Wayne <wayne_nelsonstastny@fws.gov>; Weidinger, Valerie <valerie_weidinger@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Simmons, Bryan R <bryan_simmons@fws.gov>; Anderson, Amy (FAA) <Amy.Anderson@faa.gov>; Johnson, Jim (FAA) <jim.johnson@faa.gov>; Tener, Scott (FAA) <scott.tener@faa.gov>; moshpo@dnr.mo.gov; billquackenbush@ho-chunk.com; akelley@iowas.org; lfoster@iowas.org; thpo@kawnation.gov; lyork@miamination.com;

jarell.grant@theomahatribe.com; Benjamin M. Bressoud <benjamin.bressoud@osagenation-nsn.gov>; ewhitehorn@omtribe.org; james.bfletcher@peoriatribe.com; janc@PoncaTribe-ne.gov; liana.hesler@ponca-nsn.gov; Gary.bahr@sacandfoxks.com; Sac & Fox Nation, Oklahoma <chris.boyd@sacandfoxnation-nsn.gov>; Buffalo, Jonathan <director.historic@meskwaki-nsn.gov>
Cc: Niemann-Harper, Ginger CIV USARMY CENWK (USA) <Ginger.R.Harper@usace.army.mil>; Meade, Timothy M CIV USARMY CENWK (USA) <Timothy.M.Meade@usace.army.mil>
Subject: Public Review of the Draft Integrated Feasibility Report and EA for the Jefferson City Flood Risk Management Study

Good morning,

Please see the attached Public Notice for the Draft Integrated Feasibility Report and Environmental Assessment for the Lower Missouri Jefferson City L-142 Flood Risk Management Study. The public comment period goes through 27 January 2025. The draft documents are available for viewing online at the following link:

https://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Public-Notices/Article/3980633/draft-lower-missouri-jefferson-city-l-142-flood-risk-management-study/

Please call or email me for any comments or questions about the draft EA or associated documents.

Thank you,

Max Headlee
Environmental Resources Specialist
US Army Corps of Engineers, Kansas City District
Office: (816) 389-3134

Headlee, Max R CIV USARMY CENWK (USA)

From: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Sent: Wednesday, January 8, 2025 6:03 PM
To: Headlee, Max R CIV USARMY CENWK (USA)
Subject: [Non-DoD Source] FW: Garry Trachsel input on theLower Missouri River Flood Risk and Resiliency

See below - Public Comment Submission for Garry Trachsel on LoMO Jefferson City study

Thank you.

Best,
Elizabeth Kerby, EIT
Environmental Engineer
Water Resources Center
Missouri Department of Natural Resources
573-751-3682

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

From: Garry Trachsel <cgtrachsel@gmail.com>
Sent: Monday, January 6, 2025 1:33 PM
To: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Cc: aboessen@yahoo.com; trachselc@gmail.com; WA Rootes <wa.rootes@gmail.com>; kelly forck <kelly@forck.com>; Larry Beck <larryfbeck@aol.com>
Subject: Garry Trachsel input on theLower Missouri River Flood Risk and Resiliency

Elizabeth can you ensure that this gets read and entered into the meeting minutes for your January 8th meeting. Also ensure that this is used as input for the January 31st deadline.
January 6,2025

To: Elizabeth.Kerby@dnr.mo.gov

Copy: Reveaux levee district members

Beck Larry <larryfbeck@aol.com>,
Boessen David <Aboessen@yahoo.com>,
Kelly Forck kelly@forck.com, teddy hellbusch, Clarence Trachsel

Subject: **Lower Missouri River Flood Risk and Resiliency studies input from downstream land owner**

My name is Garry Trachsel and I own approximately 260 acres in the Reveaux levee district with 200 acres located adjacent to the Missouri River. I have owned land in the Reveaux district since 1978.

I am requesting that the proposed plan for the Capital view levee be revised to include funds to raise the Reveaux levee to withstand the extra waterflow caused by the new levee. I am requesting specifically that the Reveaux levee be raised on the upper end from hwy 94 to the Trachsel/Fowler line (approximately 11,000 feet) to the same level as the Capital view levee. Also from the Trachsel/Fowler line to the lower corner of the Reveaux levee at the Missouri River that the levee will be tapered to its existing level. I also propose that the dirt from this project should be hauled in from perhaps the prison farm because we do not have enough dirt on adjacent farms to raise the levee that high.

In the past all levees in this area have been maintained at a somewhat consistent level. This is caused by the corp of engineers and the amount of finances available in the districts. Our annual funding level is approximately $35,000. Your plan to spend $263,000,000 is enormous compared to Capital view's and Reveaux's budget. This amount of expenditure will change the river flow and surely cause extensive damage to our land during a flood above the 32 feet level.

Your study is for 50 years into the future. We have had 5 floods in the past 50 years that have been at or above the 32 foot level. Those levee breaches have been 2 on our upper levee and 3 along the river. The addition of dikes and the Adrain Island on the Jefferson City side has changed the water flow and pushes more water our way. Your plan will increase the rate of flow of water and cause more pressure on our levee.

Please prepare a detailed hydrology study to determine the potential impact of your proposed levee increase to 36 feet on our land with a 32 foot levee. I am certain that your new hydrology study will show a need to raise the South down river levee and the western levee along Nieman Creek to handle the change in flow patterns. Remember when you stop the flow of water at the levee you develop a dynamic head of water which we have seen as high as 2 feet. We certainly do not have the money or dirt to protect ourselves. A bad flood could wipe out a large portion of the land in the Reveaux levee district. This would be from sand and erosion. I object to this proposal unless you publish a study that shows there is no impact on our levee.

In talking to 3 of the Reveaux board members they do not approve of your plan and say they have stated that in several of your meetings. Also conversations with several land owners say they also object to your proposals.

Garry Trachsel

[redacted]

[redacted]

[redacted]

Headlee, Max R CIV USARMY CENWK (USA)

From: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Sent: Thursday, January 9, 2025 12:06 PM
To: Headlee, Max R CIV USARMY CENWK (USA); Niemann-Harper, Ginger CIV USARMY CENWK (USA)
Cc: Fanning, Erin; Goddard, Aaron; Weller, Michael; Wieberg, Chris
Subject: [Non-DoD Source] FW: Public Meeting - Lower Missouri River FRRS - Jefferson City

FYI – Comment Submission from Peggy Smart.

Elizabeth

From: Peggy Smart <wesmart74@aol.com>
Sent: Thursday, January 9, 2025 11:09 AM
To: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Subject: Re: Public Meeting - Lower Missouri River FRRS - Jefferson City

I think the meeting should have been postponed because someone like me still could not venture out because of the slick spots on the roads and sidewalks. How can we participate in person if not given the opportunity? I sent in information pertaining to the flooding inside of the Renz Levee whereby only one year in ten we were not able to plant and harvest a crop. There are a number of businesses within the confines of the Renz Levee as well as several hundred acres of farmland, YMCA soccer complex and JC Rec ball fields.
I still do not understand how Jefferson City was allowed to place their sewer plant in the flood zone when we are unable to build there. The Goller levee is also in danger of overtopping due to the higher river level if the levee being considered is constructed. This levee is in danger of washing away because the Corps has rejected our request for bank stabilization partially caused by notched dykes. When this levee was built, there was several acres of land outside the levee to protect the levee. This problem has been ignored.
How can DNR sponsor this levee project when it does not take care of other projects they service? Johnson Grass and other weeds are not controlled through Callaway County. There is a law to eradicate Johnson Grass through Callaway County. Also, there is a noxious weed that is not being contained along the Katy Trail through the Goller property. Rush is being spread onto the Goller farmland because it is not being eradicated. This weed requires expensive Chemicals to control it. Those Chemicals are so strong that the area it is used on will cause the farmland unproductive for an extended period, causing a loss of revenue to the owner.
The Katy Trail only maintains a few feet on either side of the Trail. They also do not mow the area in Tebbetts around the fur shed where a mural was placed and weeds grow up in front of it. Locals use their time and expense to mow the area so it will not be an eyesore to our town. Next to the bathroom facility they do mow but the areas around the picnic tables is left so people have to wade in tall grass to sit there. These sites are parks and leave an impression on those who use the Katy Trail.
Peggy Smart

Missi Vineyard

Smart Brothers Farms, Inc.
[redacted]

On Wednesday, January 8, 2025 at 03:21:02 PM CST, Kerby, Elizabeth <elizabeth.kerby@dnr.mo.gov> wrote:

Hello all,

This is a confirmation that the Lower Missouri River Flood Risk and Resiliency Studies – Jefferson City spin off public meeting for tonight at 5:30 pm, **remains as planned.** The location is the Lewis and Clark State Office Building, LaCharrette/Nightingale Creek conference rooms on the lower level.

We hope to see you there!

Best,

Elizabeth Kerby, EIT

Environmental Engineer

Water Resources Center

Missouri Department of Natural Resources

573-751-3682

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Headlee, Max R CIV USARMY CENWK (USA)

From: LoMo River Study
Sent: Wednesday, January 15, 2025 11:48 AM
To: Headlee, Max R CIV USARMY CENWK (USA); Niemann-Harper, Ginger CIV USARMY CENWK (USA)
Subject: FW: [Non-DoD Source] Comment period

FYI Comment from Peggy Smart on the Jeff City project.

Colleen

From: Peggy Smart <wesmart74@aol.com>
Sent: Wednesday, January 15, 2025 11:17 AM
To: LoMo River Study <LoMoRiverStudy@usace.army.mil>
Subject: [Non-DoD Source] Comment period

I have responded to the request to comment about the lomoriverstudy, but you have said that you have not received many comments. My comments covered the area from Cedar Creek to Turkey Creek, that has farmland, sports complexes, sod farm and numerous other business within the confines of the Renz Levee between those two creeks. Businesses in that area feel any comment they make will not do any good as they feel the DNR and the Corps of engineers will not show their comments any consideration. The cost of the levee alone and the area it covers should be proof enough without the financial problems it will cause to Jefferson City and the surrounding area within Renz Levee should be proof it is not a favorable conclusion. Again, I cannot understand how the Jefferson City Sewer Plant was able to be built in the flood plain in Callaway County and yet we may be subject to flooding more often if this levee is constructed to protect that Plant.
Peggy Smart

Missi Vineyard
Smart Brothers Farms, Inc.
[redacted]
[redacted]

Headlee, Max R CIV USARMY CENWK (USA)

From: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Sent: Wednesday, January 22, 2025 8:52 AM
To: Headlee, Max R CIV USARMY CENWK (USA); Niemann-Harper, Ginger CIV USARMY CENWK (USA)
Cc: Fanning, Erin; Weller, Michael; Goddard, Aaron; Wieberg, Chris
Subject: [Non-DoD Source] FW: Garry Trachsel input on theLower Missouri River Flood Risk and Resiliency

Further comment submission from Garry Trachsel.

Elizabeth

From: Garry Trachsel <cgtrachsel@gmail.com>
Sent: Tuesday, January 21, 2025 6:15 PM
To: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Cc: Garry Trachsel <cgtrachsel@gmail.com>
Subject: Fwd: Garry Trachsel input on theLower Missouri River Flood Risk and Resiliency

Elizabeth, can you let me know if this gets into the public records before January 30th. I believe that is the time for public comment on this levee.
I want it recorded that as a downstream land owner I object to this levee proposal. As proposed this levee would have serious consequences for my land and the Reveaux levee district. As I stated, I own 2 farms in the Reveaux levee district.
Garry Trachsel
[redacted]

---------- Forwarded message ---------
From: **Garry Trachsel** <cgtrachsel@gmail.com>
Date: Mon, Jan 6, 2025 at 12:32 PM
Subject: Garry Trachsel input on theLower Missouri River Flood Risk and Resiliency
To: <Elizabeth.Kerby@dnr.mo.gov>
Cc: aboessen@yahoo.com <aboessen@yahoo.com>, <trachselc@gmail.com>, WA Rootes <wa.rootes@gmail.com>, kelly forck <kelly@forck.com>, Larry Beck <larryfbeck@aol.com>

Elizabeth can you ensure that this gets read and entered into the meeting minutes for your January 8th meeting. Also ensure that this is used as input for the January 31st deadline.
January 6,2025

To: Elizabeth.Kerby@dnr.mo.gov

Copy: Reveaux levee district members

Beck Larry <larryfbeck@aol.com>,
Boessen David <Aboessen@yahoo.com>,
Kelly Forck kelly@forck.com, teddy hellbusch, Clarence Trachsel

Subject: **Lower Missouri River Flood Risk and Resiliency studies input from downstream land owner**

My name is Garry Trachsel and I own approximately 260 acres in the Reveaux levee district with 200 acres located adjacent to the Missouri River. I have owned land in the Reveaux district since 1978.

I am requesting that the proposed plan for the Capital view levee be revised to include funds to raise the Reveaux levee to withstand the extra waterflow caused by the new levee. I am requesting specifically that the Reveaux levee be raised on the upper end from hwy 94 to the Trachsel/Fowler line (approximately 11,000 feet) to the same level as the Capital view levee. Also from the Trachsel/Fowler line to the lower corner of the Reveaux levee at the Missouri River that the levee will be tapered to its existing level. I also propose that the dirt from this project should be hauled in from perhaps the prison farm because we do not have enough dirt on adjacent farms to raise the levee that high.

In the past all levees in this area have been maintained at a somewhat consistent level. This is caused by the corp of engineers and the amount of finances available in the districts. Our annual funding level is approximately $35,000. Your plan to spend $263,000,000 is enormous compared to Capital view's and Reveaux's budget. This amount of expenditure will change the river flow and surely cause extensive damage to our land during a flood above the 32 feet level.

Your study is for 50 years into the future. We have had 5 floods in the past 50 years that have been at or above the 32 foot level. Those levee breaches have been 2 on our upper levee and 3 along the river. The addition of dikes and the Adrain Island on the Jefferson City side has changed the water flow and pushes more water our way. Your plan will increase the rate of flow of water and cause more pressure on our levee.

Please prepare a detailed hydrology study to determine the potential impact of your proposed levee increase to 36 feet on our land with a 32 foot levee. I am certain that your new hydrology study will show a need to raise the South down river levee and the western levee along Nieman Creek to handle the change in flow patterns. Remember when you stop the flow of water at the levee you develop a dynamic head of water which we have seen as high as 2 feet. We certainly do not have the money or dirt to protect ourselves. A bad flood could wipe out a large portion of the land in the Reveaux levee district. This would be from sand and erosion. I object to this proposal unless you publish a study that shows there is no impact on our levee.

In talking to 3 of the Reveaux board members they do not approve of your plan and say they have stated that in several of your meetings. Also conversations with several land owners say they also object to your proposals.

Garry Trachsel

[redacted]

[redacted]

[redacted]

COALITION TO PROTECT THE MISSOURI RIVER

490 SE 300 Rd, Clinton, Missouri 64735 – (573) 301-9835

January 24, 2025

Colleen Roberts, PE
Senior Program Manager
U.S. Army Corps of Engineers
Kansas City District

Re: Lower Missouri River Study; Jefferson City L-142 Draft Report

Dear Mrs. Roberts:

The Coalition to Protect the Missouri River (CPMR) appreciates the opportunity to comment on the draft report for the Lower Missouri Jefferson City L-142 Flood Risk Management Study.

CPMR, established in 2001, is made up of more than 30 members in six states and supports the responsible management of Missouri River resources, as well as the maintenance and enhancement of congressionally authorized purposes of the river, including flood risk reduction, navigation and water supply. We also support science-based habitat restoration for endangered or threatened species, provided that management actions are responsibly conducted and properly balanced with our members' interests.

To begin, CPMR would like to thank the Kansas City District for the time and intention put into Jefferson City spinoff study to date. From the beginning, CPMR's priority for this study was to ensure that local stakeholder input was prioritized via a rigorous outreach and public meeting process. Though reaching local consensus in the Jefferson City area was a known challenge, we appreciate your willingness to work collaboratively with the Missouri Department of Natural Resources, the University of Missouri and other organizations, such as CPMR, to ensure all voices were heard or had the opportunity to provide their input.

In general, CPMR is encouraged to see the City of Jefferson sign on as the non-federal sponsor. While there is still work to be done regarding gathering more broad stakeholder support around a Tentatively Selected Plan (TSP), we believe the process continuing to move forward is vital in order to keep the door open for increased flood risk resiliency in the Jefferson City reach of the river. Though the study process itself is lengthy, the time to construction of any project is many years out. This highlights the impact this potential

project will have on future generations. In addition, we understand the project is at approximately 1% design, therefore there is still opportunity for stakeholder input to shape the final product. This can only happen if the study continues to move forward.

At the same time, we have directly heard the concerns of many stakeholders who will be impacted by this project. A project of this nature will have a significant impact on individual stakeholders who own land and businesses in the study area, potentially altering their farms and business' productivity and long-term vitality. We empathize with and understand these stakeholders' hesitancy surrounding this project.

With those concerns in mind, we believe the following questions and clarifications could provide additional information that will be useful to these stakeholders as the process moves forward:

- While the TSP, CA13 leaves part of the Capital View Levee in place, it still removes the western portion, opening up currently productive ground for increased flood risk. CA4 and CA8 are two of the alternatives that leave the whole of Capital View Levee in place. The report shows that each of these plans have negative net benefits. We understand that net benefits are the key factor in selecting a TSP. It would be helpful for stakeholders to have a full understanding of what drove the negative net benefits on each of these alternatives as well as any other major factors, such as conveyance impacts, beyond the high-level description included in the report.

- From a broader perspective USACE has continued to communicate that at this stage in the process the project is still at a low level of engineering design. It would be helpful for stakeholders to have a better understanding of what that means regarding the scope of possible design changes from now until final design. Stated more simply, what is on the table to be changed from this design and what cannot be changed?

We appreciate USACE's willingness to respond to comments in writing. We believe clarification surrounding the above questions will help the process continue to move forward.

Respectfully,

Shane Kinne

Shane Kinne
Executive Director
Coalition to Protect the Missouri River

Headlee, Max R CIV USARMY CENWK (USA)

From: LoMo River Study
Sent: Sunday, January 26, 2025 1:00 PM
To: Headlee, Max R CIV USARMY CENWK (USA); Niemann-Harper, Ginger CIV USARMY CENWK (USA)
Cc: Roberts, Colleen M CIV USARMY CENWK (USA)
Subject: FW: Jefferson City Flood Risk Management Draft Report

Please include the below in the public comments for Jeff City.

From: jim@selecturfsod.com <jim@selecturfsod.com>
Sent: Sunday, January 26, 2025 5:51 AM
To: LoMo River Study <LoMoRiverStudy@usace.army.mil>
Subject: Jefferson City Flood Risk Management Draft Report

CAUTION: Your email client may display clickable links. The data in this email is provided without modification, as the user entered it. Before you click or use any link provided in this email, please confirm the authenticity of the link.

Name	Jim Keeven
Organization	SelecTurf, Inc.
Email	jim@selecturfsod.com
Phone	[redacted]
Comments: What questions or comments do you have regarding the Jefferson City Flood Risk Management Draft Report?	I am very concerned that the L-142 levee proposal will substantially increase the river levels directly upstream of the project area. I farm just to the north of Turkey Creek and will have a 1 - 1.5 foot increase in water height. Our farm is protected by a private levee built with our own funds. When the levee was built I had to secure a "NO RISE" certificate for USACE that proved the levee would not increase water levels upstream on other landowners. Without this "No Rise" cetificate my levee could not have been built. I am confused that the same rule doesn't apply to the L-142 project. This was just one of many permits that had to be obtained through various agencies. The L-142 levee will cause increased hardship and problems for our farm and the potential for large economic loss in production. I understand we are not a municipality or a huge global business, but the same standards that I had to work by are not being applied to the current proposal. I have read the entire Review Plan and if there is more information that I missed, I would l like to know. I fear this levee proposal is for the benefit of many and the sacrifice of a few.

Ref Id: iVk4-K-LLUe2NgVuLwhiqQ

Headlee, Max R CIV USARMY CENWK (USA)

From: LoMo River Study
Sent: Sunday, January 26, 2025 1:00 PM
To: Headlee, Max R CIV USARMY CENWK (USA); Niemann-Harper, Ginger CIV USARMY CENWK (USA)
Cc: Roberts, Colleen M CIV USARMY CENWK (USA)
Subject: FW: Jefferson City Flood Risk Management Draft Report

Please include the below in the public comment for Jeff City.

From: jim@selecturfsod.com <jim@selecturfsod.com>
Sent: Sunday, January 26, 2025 6:04 AM
To: LoMo River Study <LoMoRiverStudy@usace.army.mil>
Subject: Jefferson City Flood Risk Management Draft Report

CAUTION: Your email client may display clickable links. The data in this email is provided without modification, as the user entered it. Before you click or use any link provided in this email, please confirm the authenticity of the link.

Name	Jim Keeven
Organization	Renz Levee District/ president
Email	jim@selecturfsod.com
Phone	[redacted]
Comments: What questions or comments do you have regarding the Jefferson City Flood Risk Management Draft Report?	As President of the Renz Levee District I comment of behalf of the members of the district. After speaking with a number of landowners of the district there is great concern with increase in water levels due to the construction of the L-142 levee. The potential for catastrophic damage to the levee itself and the land that is protects could be irreparable. Increased height and longer duration of flooding was a common concern amongst the landowners. The Renz Levee District is opposed to the building of the L-142 Project.

Ref Id: DhFutaz1pkCqBc1MprShSw

Headlee, Max R CIV USARMY CENWK (USA)

From: LoMo River Study
Sent: Monday, January 27, 2025 8:47 AM
To: Niemann-Harper, Ginger CIV USARMY CENWK (USA); Headlee, Max R CIV USARMY CENWK (USA)
Cc: Roberts, Colleen M CIV USARMY CENWK (USA)
Subject: FW: Jefferson City Flood Risk Management Draft Report

Please add to the public comments.

Colleen

From: carolinepufalt@gmail.com <carolinepufalt@gmail.com>
Sent: Sunday, January 26, 2025 8:51 PM
To: LoMo River Study <LoMoRiverStudy@usace.army.mil>
Subject: Jefferson City Flood Risk Management Draft Report

CAUTION: Your email client may display clickable links. The data in this email is provided without modification, as the user entered it. Before you click or use any link provided in this email, please confirm the authenticity of the link.

Name	Caroline Pufalt
Organization	Sierra Club MO chapter
Email	carolinepufalt@gmail.com
Phone	[redacted]
Comments: What questions or comments do you have regarding the Jefferson City Flood Risk Management Draft Report?	Thank you for your continued work to engage Missourians in this effort to identify a plan which can reduce flood risk along the Missouri River in the Jefferson City area. We support the tentative alternative Hybrid CA13 as the best option available now. We appreciate the use of some non structural solution elements and the creation of additional environmental benefits as part of the proposal. Residents in the Jefferson City area and commuters to the Capital need more flood risk reduction. Given the power and variability of a river like the Missouri, an options which includes creating more room for the river to flow is a necessary approach.

Ref Id: EHX2GTt1TEa3Inii8i7TlQ

Headlee, Max R CIV USARMY CENWK (USA)

From: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Sent: Monday, January 27, 2025 9:46 AM
To: Headlee, Max R CIV USARMY CENWK (USA); Niemann-Harper, Ginger CIV USARMY CENWK (USA)
Cc: Weller, Michael; Goddard, Aaron; Fanning, Erin; Wieberg, Chris
Subject: [Non-DoD Source] FW: Concerns of the Lower Missouri River Flood Risk and Resiliency Feasibility Study - Jefferson City

FYI - comment submission from Kelly Forck below.

Thanks,
Elizabeth

-----Original Message-----
From: Kelly Forck <kelly@forck.com>
Sent: Saturday, January 25, 2025 4:27 PM
To: Kerby, Elizabeth <Elizabeth.Kerby@dnr.mo.gov>
Subject: Concerns of the Lower Missouri River Flood Risk and Resiliency Feasibility Study - Jefferson City

Elizabeth Kerby

I Kelly Forck am a property owner, have business operations and a Board member of the Cole Junction and Rievaux Leeve Districts in the area of study and proposed Leeve project.

My concerns of the proposed project

Cole Junction Leeve
Your study shows a potential increases of water level conditions of .3'-.4 on the west end (Church Farm), .75'-1.25' directly on the Leeve and it was stated in the meeting 1.5' at Grays Creek Mouth along the Cole junction Leeve system. Also the removal of the church farm Leeve.

With this above information we have concerns of the increased risk of our Leeve system and protected properties within the area. What can be done to reduce these risk? How can we work to Improve the resiliency of this area?

Thoughts needed moving forward for resiliency for all.

Elevate the existing Leeve to a level accounting for these increases.
Increase and add seep berms for the increase of water levels and durations of raised water levels.
Improve Storm and Seep water removal capacities and associated cost of operations.
Develop a flood gate on the Union Pacific Railroad river route due to increased river levels and less shielding due to removal of the Church Farm Leeve.

Rievaux Leeve
Your study show a potential decrees in depth at this location. But it also stated that there is an increases in velocities with the increase of flow height with the project.

With the above information we have concerns of our Leeve system and property within. What is being done to protect the concerns of these issues?

How can we build more resiliensy on the upper Rievaux. The increased velocities at the lower end and higher river levels have grave concerns on the damages that will be imposed on our property and Leeve system.

What can we do to harden and/or increases the existing Rievaux Leeve system. Could a Diversion berm added to focus water toward main channel?

Respectfully,

Kelly Forck

[redacted]

SAM BUSHMAN
Presiding Commissioner
(573) 634-9113

JEFF HOELSCHER
Eastern District Commissioner
(573) 634-9112

HARRY OTTO
Western District Commissioner
(573) 634-9111

DEBBIE MALZNER
Finance Officer
(573) 634-9162

JILL LAHUE
County Counselor
(573) 634-9107

MELODY WELSCHMEYER
Administrative Assistant
(573) 634-9110

Cole County Commission

311 East High Street, Jefferson City, MO 65101
(573) 634-9110 FAX (573) 634-8031

January 21, 2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street, Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study

Mr. Headlee;

The Cole County Commission wishes to express our strong support for the Jefferson City L-142 Flood Risk Management Study and specifically supports Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increasing flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events.

Past flood events have repeatedly damaged or caused significant operational impacts to Jefferson City Memorial Airport, Jefferson City Regional Wastewater Treatment Plant, Missouri Air National Guard, Hitachi Energy, Capital Sand, and major highway corridors, which represent over $580 million in investments. The non-federal levee system is inadequate and poses an ongoing threat to the region's economic vitality and infrastructure reliability.

By adopting CA-13 as the TSP, the USACE, and MoDNR will demonstrate their commitment to finding solutions acceptable to a variety of interests. The construction of a new federal levee system, proposed as CA-13, will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in North Jefferson City. The primary benefits of CA-13 include:

- A 1% annual exceedance probability level of flood protection, reducing flood damage by $15.8 million annually
- Allowing portions of the existing Capital View Levee to remain, maintaining existing levels of flood protection for agricultural lands outside the new levee
- Minimizing private property impacts through strategic use of existing public right of way
- Environmental benefits including increased wetland and riparian habitats
- Minimized flood impacts to properties south of the Missouri River.

We strongly encourage USACE and MoDNR to adopt CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect the important regional assets in the area.

Sincerely,

Sam Bushman	Jeff Hoelscher	Harry Otto
Presiding Commissioner	Eastern District Commissioner	Western District Commissioner

Hitachi Energy

January 27, 2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street, Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study

Mr. Headlee:

As a leading employer in Jefferson City where our team proudly manufactures transformers which are central to the reliability of our nation's energy grid and economy, we strongly express our support for the Jefferson City L-142 Flood Risk Management Study and specifically support the Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP).

Hitachi Energy is a global technology leader developing and manufacturing electrical infrastructure that powers America keeping the lights on for communities across the U.S. and fueling new economic sectors, including data centers and AI, through the ability to support growing demands from the grid. As our largest facility with over 1,200 team members, Hitachi Energy Jefferson City, serves a critical role for our company's ability to manufacture transformers.

Repeated past flood damage and the probability of future flood events are a continued threat to our colleagues in our Jefferson City facility's ability to manufacturer and delivery these technologies. Past floods have threatened manufacturing operations, shifts, and employee's ability to access the facility. While Hitachi Energy has successfully put into place mitigation plans to ensure continuity of operations during these past flood events, significant improvements to the level of flood protection are critically needed to ensure operations at our Jefferson City facility including our team members, their families, and the local economy are protected from future flooding.

By adopting CA-13 as the TSP, the U.S. Army Corps of Engineers (USACE) and Missouri Department of Natural Resources (MoDNR) have demonstrated their commitment to engaging the community and finding solutions acceptable to a variety of interests. The construction of a new federal levee system will bolster flood resilience and contribute to the long-term sustainability of industries, domestic manufacturing, infrastructure, and agriculture in the study area.

We strongly encourage the quick adoption of CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect not only our operations but also the surrounding community, and other local businesses who remain at risk for future flooding. We look forward to doing our part to partner with USACE, MoDNR, City of Jefferson, and members of the communities we serve as the study progresses.

Please do not hesitate to reach out if myself or our team can be of assistance as you examine the economic impacts as the process moves forward.

Greg Callahan
Factory Manager
Hitachi Energy North America

January 21, 2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street, Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study

Mr. Headlee:

I am expressing my support for the Jefferson City L-142 Flood Risk Management Study. I specifically support Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increased flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events.

Past flood events have repeatedly damaged with significant operational impacts the Jefferson City Memorial Airport, Jefferson City Regional Wastewater Treatment Plant, Missouri Air National Guard, Hitachi Energy, Capital Sand, and major highway corridors, representing over $580 million in investments. The inadequate non-federal levee system threatens the region's economic vitality and infrastructure reliability.

By adopting CA-13 as the TSP, the USACE and MoDNR demonstrate their commitment to finding solutions acceptable to area stakeholders. The construction of a new federal levee system proposed as CA-13 will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in North Jefferson City. The primary benefits of CA-13 include:

- A 1% annual exceedance probability level of flood protection, reducing flood damage by $15.8 million annually
- Allowing portions of the existing Capital View Levee to remain by maintaining the existing levels of flood protection for agricultural lands outside the new levee
- Minimizing private property impacts through the strategic use of the existing public right of way
- Providing environmental benefits, including increased wetland and riparian habitats
- Minimizing flood impacts to properties south of the Missouri River

I support USACE and MoDNR in adopting CA-13 as the TSP, as this is the only alternative that provides the increased flood protection necessary to protect the area's important regional assets.

Sincerely,

Julie A. Allen, CPA , PMP, MPA
Jefferson City Area Chamber of Commerce,
Government Relations Committee

Jefferson City Area Chamber of Commerce

January 27, 2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street, Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study

Mr. Headlee:

The Jefferson City Area Chamber of Commerce wishes to express our strong support for the Jefferson City L-142 Flood Risk Management Study and specifically supports Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increasing flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events.

Past flood events have repeatedly damaged or caused significant operational impacts to Jefferson City Memorial Airport, Jefferson City Regional Wastewater Treatment Plant, Missouri Air National Guard, Hitachi Energy, Capital Sand, and major highway corridors, which represent over $580 million in investments. The non-federal levee system is inadequate and poses an ongoing threat to the region's economic vitality and infrastructure reliability.

By adopting CA-13 as the TSP, the USACE, and MoDNR will demonstrate their commitment to finding solutions acceptable to a variety of interests. The construction of a new federal levee system, proposed as CA-13, will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in North Jefferson City. The primary benefits of CA-13 include:

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- Environmental benefits including increased wetland and riparian habitats
- Minimized flood impacts to properties south of the Missouri River.

We strongly encourage USACE and MoDNR to adopt CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect the important regional assets in the area.

Sincerely,

Gary Plummer
President/CEO

your business OUR focus.

213 Adams Street, PO Box 776 • Jefferson City, MO 65101 • t: 573.634.3616 f: 573.634.3805

JEFFERSON CITY AREA BOARD OF REALTORS®

JEFFERSON CITY AREA BOARD OF REALTORS®, INC.
1906 BUBBA LANE
JEFFERSON CITY, MO 65109-5634
573/636-6721 EMAIL: contact@jcabor.com

The Voice of Real Estate® in the Jefferson City Area

February 4, 2025

Max Headlee, Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street
Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study

Mr. Headlee:

The Jefferson City Area Board of Realtors® wishes to express our strong support for the Jefferson City L-142 Flood Risk Management Study and specifically supports Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP). The study's focus on increasing flood protection and improved flood resiliency for North Jefferson City is critical to safeguard essential public infrastructure, transportation assets, regional business and manufacturing facilities, and agricultural lands from repeated damage due to flood events.

Past flood events have repeatedly damaged or caused significant operational impacts to Jefferson City Memorial Airport, Jefferson City Regional Wastewater Treatment Plant, Missouri Air National Guard, Hitachi Energy, Capital Sand, and major highway corridors, which represent over $580 million in investments. The non-federal levee system is inadequate and poses an ongoing threat to the region's economic vitality and infrastructure reliability.

As Realtors® we are very concerned about protecting the Jefferson City Regional Wastewater Treatment plant. Often as not, the concern in Jefferson City and the surrounding communities with creating a new housing development is access to wastewater treatment facilities. Jefferson City can't afford to lose this irreplaceable public infrastructure, and the proposed levee will provide a great deal of protection to ensure proper functioning our water treatment facility.

By adopting CA-13 as the TSP, the USACE, and MoDNR will demonstrate their commitment to finding solutions acceptable to a variety of interests. The construction of a new federal levee system, proposed as CA-13, will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in North Jefferson City. The primary benefits of CA-13 include:

- A 1% annual exceedance probability level of flood protection, reducing flood damage by $15.8 million annually
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- Minimizing private property impacts through strategic use of existing public right of way
- Environmental benefits including increased wetland and riparian habitats
- Minimized flood impacts to properties south of the Missouri River.

We strongly encourage USACE and MoDNR to adopt CA-13 as the TSP, as this is the only alternative which provides the increased flood protection necessary to protect the important regional assets in the area.

Sincerely,

Cameron Cotten, 2025 President
Jefferson City Area Board of Realtors®, Inc.

REALTOR® A registered collective membership mark which identifies a real estate professional who is a member of the NATIONAL ASSOCIATION OF REALTORS® and subscribes to its strict Code of Ethics.

Headlee, Max R CIV USARMY CENWK (USA)

From: Alan Kelley <akelley@iowas.org>
Sent: Tuesday, March 4, 2025 2:03 PM
To: Headlee, Max R CIV USARMY CENWK (USA)
Subject: [Non-DoD Source] Re: Public Review of Draft FONSI for the Jefferson City Flood Risk Management Study

Public Review of Draft FONSI for the Jefferson City Flood Risk Management

I Concur No Significant Impact

On Fri, Feb 28, 2025 at 3:08 PM Headlee, Max R CIV USARMY CENWK (USA) <Max.R.Headlee@usace.army.mil> wrote:
>
> Correction: the previous email had an outdated public notice attached. The close date for this public comment period is 30 March 2025.
>
>
>
> Thank you,
>
>
>
> Max Headlee
>
> Environmental Resources Specialist
>
> US Army Corps of Engineers, Kansas City District
>
> Office: (816) 389-3134
>
>
>
> From: Headlee, Max R CIV USARMY CENWK (USA)
> Sent: Friday, February 28, 2025 2:58 PM
> To: Summerlin, Joe <summerlin.joe@epa.gov>; R7_NEPA@epa.gov;
> bryan.murdie@fema.dhs.gov; Teri.Toye@fema.dhs.gov;
> rick.nusz@fema.dhs.gov; Hackett, Billy <billy.hackett@dnr.mo.gov>;
> Erin.Fanning@dnr.mo.gov; Vitello, Matt <Matt.Vitello@mdc.mo.gov>;
> Craig Crisler (craig.crisler@mdc.mo.gov) <craig.crisler@mdc.mo.gov>;
> machelle.watkins@modot.mo.gov; Kyle LePage <Kyle.Lepage@modot.mo.gov>;
> Brian N. Boehmer <Brian.Boehmer@modot.mo.gov>; Hamilton, Chris - NRCS,
> Columbia, MO <chris.hamilton@usda.gov>; andrew.rackers@usda.gov;
> Anderson, Amy (FAA) <Amy.Anderson@faa.gov>; Johnson, Jim (FAA)
> <jim.johnson@faa.gov>; Tener, Scott (FAA) <scott.tener@faa.gov>;
> moshpo@dnr.mo.gov; billquackenbush@ho-chunk.com; akelley@iowas.org;
> lfoster@iowas.org; thpo@kawnation.gov; lyork@miamination.com;
> jarell.grant@theomahatribe.com; Benjamin M. Bressoud
> <benjamin.bressoud@osagenation-nsn.gov>; ewhitehorn@omtribe.org;
> james.bfletcher@peoriatribe.com; janc@PoncaTribe-ne.gov;

> liana.hesler@ponca-nsn.gov; Gary.bahr@sacandfoxks.com; Sac & Fox
> Nation, Oklahoma <chris.boyd@sacandfoxna on-nsn.gov>; Bu alo,
> Jonathan <director.historic@meskwaki-nsn.gov>
> Cc: Niemann-Harper, Ginger CIV USARMY CENWK (USA)
> <Ginger.R.Harper@usace.army.mil>; Meade, Timothy M CIV USARMY CENWK
> (USA) <Timothy.M.Meade@usace.army.mil>
> Subject: Public Review of Draft FONSI for the Jefferson City Flood
> Risk Management Study
>
>
>
> Good afternoon,
>
>
>
> Please see the attached Public Notice for the Draft Finding of No Significant Impact (FONSI) for the Lower Missouri Jefferson City L-142 Flood Risk Management Study. This is a follow up to the previously held public review of the draft integrated feasibility report and environmental assessment the Corps drafted for this same study. At the time of that earlier public review, the study did not have a Tentatively Selected Plan (TSP) and so no FONSI was drafted. The Corps has now identified a TSP for this study and so we are initiating a 30-day public review for the draft FONSI. The draft documents are available for viewing online at the following link:
>
>
>
> BLOCKEDhttps://www.nwk.usace.army.mil/Media/Public-Notices/Planning-Pu
> blic-Notices/Article/4082671/lower-missouri-jefferson-city-l-142-flood
> -risk-management-study-callaway-county/
>
>
>
> Please call or email me for any comments or questions about the draft FONSI or associated documents.
>
>
>
> Thank you,
>
>
>
> Max Headlee
>
> Environmental Resources Specialist
>
> US Army Corps of Engineers, Kansas City District
>
> Office: (816) 389-3134
>
>

--
Alan Kelley

Deputy THPO
Iowa Tribe of KS & NE
3345 Thrasher RD
White Cloud KS 66094
785-351-0080

JEFFERSON CITY
Regional Economic Partnership

March 26, 2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street, Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study
FONSI Comment

Mr. Headlee:

Pursuant to the Public Notice issued February 28, 2025, the Jefferson City Regional Economic Partnership (JCREP), the economic development organization for the Jefferson City area, wishes to express our continued support for the Jefferson City L-142 Flood Risk Management Study and specifically supports the draft FONSI for Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP).

Existing facilities within the study area represent over $580 million in investments. These facilities include:

- Jefferson City Memorial Airport, which supports the Missouri Air National Guard, multiple State of Missouri agencies, and numerous private businesses.
- Jefferson City Regional Wastewater Treatment Plant, which serves multiple communities in the area
- U.S. Highway 54 and U.S. Highway 63, two major U.S. Highway corridors. These corridors are the only Missouri River crossings within 50 miles.
- Hitachi Energy, one of the largest private employers in the area; Capital Sand Company, an essential facility during flood events; and other small businesses.

Repeated past flood damage and the probability of future flood events are a continued threat to the sustainability of these facilities. Significant improvements to the level of flood protection and resiliency are necessary to secure the future of these facilities and the region's economy.

By adopting CA-13 as the TSP, the USACE, and MoDNR have demonstrated their commitment to engaging the community and finding solutions acceptable to a variety of interests. The construction of a new federal levee system will bolster flood resilience and contribute to the long-term sustainability of industries, infrastructure, and agriculture in the study area.

We look forward to working with USACE, MoDNR, and the City of Jefferson to continue building community support for the project as the study progresses.

Respectfully,

Luke Holtschneider

Luke Holtschneider
President/CEO

Hitachi Energy

March 27, 2025

Max Headlee
Environmental Resources Specialist
U.S. Army Corps of Engineers, Kansas City District
Attn: Environmental Resources Section, Civil Works Program Branch
601 East 12th Street, Kansas City, MO 64106

RE: Jefferson City L-142 Flood Risk Management Study

Mr. Headlee:

As a leading employer in Jefferson City where our team proudly manufactures transformers which are central to the reliability of our nation's energy grid and economy, we strongly express our support for the Jefferson City L-142 Flood Risk Management Study and specifically support the Combined Alternative-13 (CA-13) as the Tentatively Selected Plan (TSP).

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Repeated past flood damage and the probability of future flood events are a continued threat to our colleagues in our Jefferson City facility's ability to manufacturer and delivery these technologies. Past floods have threatened manufacturing operations, shifts, and employee's ability to access the facility. While Hitachi Energy has successfully put into place mitigation plans to ensure continuity of operations during these past flood events, significant improvements to the level of flood protection are critically needed to ensure operations at our Jefferson City facility including our team members, their families, and the local economy are protected from future flooding.

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Please do not hesitate to reach out if myself or our team can be of assistance as you examine the economic impacts as the process moves forward.

Greg Callahan
Factory Manager
Hitachi Energy North America