



DEPARTMENT OF THE ARMY  
OFFICE OF THE CHIEF OF ENGINEERS  
2600 ARMY PENTAGON  
WASHINGTON, DC 20310-2600

DAEN (1105)

AUG 29 2026

SUBJECT: Smoky Hill River, Kansas, Aquatic Ecosystem Restoration Chief's Report

MEMORANDUM FOR THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on aquatic ecosystem restoration recommendations for the Smoky Hill River, Saline County, Kansas. It is accompanied by the report of the Kansas City District and Northwestern Division engineer(s). This study is a final response to the authorization in Section 216 of the Flood Control Act of 1970, Public Law (P.L.) 91-611, (33 U.S.C. § 549a).

2. In 1951, a reported 0.2% (1/500 year) annual exceedance probability (AEP) flood occurred within the City of Salina, Kansas. As a result of the economic and social losses, a Flood Risk Management (FRM) project authorized in the Flood Control Act of 1954, P.L. 83-780 was implemented in 1961 along the Smoky Hill River in Salina, Kansas by the U.S. Army Corps of Engineers (USACE). The project consisted of new levees and a 1.1 mile channelized reach, which reduced flows through downtown Salina by cutting off and isolating a 6.8 mile reach of the original Smoky Hill River. Due to environmental impacts from the original FRM project, a new aquatic ecosystem restoration study under the USACE Continuing Authorities Program (CAP) was initiated with the City of Salina, Kansas as the non-federal sponsor in 2018. Due to estimated restoration costs exceeding the CAP per project federal cost-sharing limit, the CAP study was converted into the USACE General Investigations (GI) Program in 2024. The Smoky Hill River Aquatic Ecosystem Restoration GI study is being conducted under the authority of Section 216 of the Flood Control Act of 1970. Pre-construction engineering and design activities, if funded, will continue under the same Section 216 authority.

3. The reporting officers recommend authorization of a project to restore and provide 56.8 net Average Annual Habitat Units (AAHUs) of ecosystem structure, form, and function. The Recommended Plan would remove approximately 105,000 cubic yards of accumulated channel sedimentation, restore 67 acres of in-stream aquatic habitat, hydraulically reconnect 6.8 miles of the Smoky Hill River corridor, and provide 37 acres of emergent wetland habitat within and near the Old Channel that was degraded with implementation of the previous USACE FRM Project. The Recommended Plan is the National Ecosystem Restoration (NER) Plan that addresses habitat quality, quantity, and connectivity problems in the Old Channel. The Recommended Plan includes the following features:

a. Construction of a sediment forebay located at the upstream confluence of the Smoky Hill River and Old Channel.

- b. Excavation of Reaches 1 and 2 to remove excess sediment.
- c. Excavation of accumulated sediment in Reaches 1 and 2 with variable depth profiles and channel configurations for restoration of riffle, pool, run, and glide habitats.
- d. Construction of emergent wetland shelves with a stoplog weir structure to manage wetland and pool water surface elevations within Reach 1.
- e. Removal of the existing Western Star Mill Weir and replacement with five step pool features.
- f. Placement of excavated sediment between Lakewood Lake and the Old Channel to restore emergent wetland habitat in Reach 2.
- g. Construction of a stoplog weir feature in Reach 2 to manage Lakewood Lake emergent wetland habitat and Old Channel pool habitat.

4. The City of Salina, Kansas is the non-federal cost sharing sponsor for all features of the project. Based on October 2025 price levels, the estimated total project first cost is \$54,234,000. The total project first cost includes the value of lands, easements, rights-of-way, relocations, and disposal areas (LERRDs) estimated to be \$10,789,000. The current project plan requires (a) the standard Temporary Work Area Easements for staging and access; (b) the standard Road Easements for perpetual maintenance access; and (c) the standard Fee Estate for the lands required for aquatic ecosystem restoration. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986 (33 U.S.C. § 2213), as follows:

- a. The federal share of the project first cost for initial construction is estimated at \$35,252,100 and the non-federal share is estimated at \$18,981,900, which equates to 65 percent federal and 35 percent non-federal. The non-federal sponsor will receive credit for the value of LERRDs, included in the estimate, toward the non-federal share.
- b. The additional annual cost of operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for the Recommended Plan is estimated to be \$348,280. OMRR&R activities include those necessary to manage inflows to the project area, facilitate water delivery through the Old Channel, manage sediment transport through the system, maximize habitat quality, or minimize project-related risks. The non-federal sponsor will be responsible for 100 percent of the cost of project OMRR&R.
- c. The estimated project first cost includes monitoring costs of \$613,000 and adaptive management costs of \$558,000. Cost shared monitoring will occur for up to 10 years beginning upon completion of each functional portion of the project.

5. Based on a 3.25% discount rate and a 50-year period of analysis, the equivalent average annual costs are estimated at \$2,330,000. The average annual cost per habitat unit for the restoration is \$41,000, with an average annual cost per acre of \$22,404.

6. The Recommended Plan would restore and reconnect 6.8 miles of in-stream aquatic and riparian corridor habitat within the Old Channel. This project would directly address the national emphasis on ecological connectivity as outlined in the Council on Environmental Quality's 2023 guidance on ecological connectivity and wildlife corridors.

7. The project would restore nationally significant aquatic and emergent wetland habitats specified for conservation and restoration in the City of Salina's Master Plan and in the Clean Water Act (CWA). The Project would restore and create emergent wetland habitat within the Central Flyway, which would provide a critical refuge and stopover site for migratory bird species. Three Audubon Important Bird Areas are located within 60 miles of the project area and include the Flint Hills Region, Quivira National Wildlife Refuge, and Cheyenne Bottoms National Wildlife Refuge. Restored aquatic and wetland habitats would also help with protection of listed migratory Endangered Species Act (ESA) species such as the whooping crane and monarch butterfly by improving habitat conditions within the study area.

8. The restoration of water flows within the Old Channel are central to City of Salina downtown revitalization plans. Restoration of the Old Channel provides water-based recreational opportunities to the City of Salina, which were lost with construction of the FRM project. The City of Salina plans to revitalize bridges, culverts, and recreational amenities within the project area, which will be compatible with restoration features. While not included in the recommended plan, the City of Salina will construct modifications to seven bridges and one culvert. These local actions are necessary to implement the NER plan. Public participation in the planning process has indicated strong public interest in ecosystem restoration of the Old Channel, to include support from the Friends of the Smoky Hill River.

9. The Smoky Hill River Restoration Project provides net public benefits across a wide variety of areas. First and foremost, the project supports and complements Salina's master plan, restoring 6.8-miles of the Old Channel corridor into a riverine setting, effectively revitalizing a significant area of the city. Salina, Kansas serves a local population of approximately 53,000 and a broader regional workforce of approximately 120,000, with numerous high-skill jobs and educated communities. The project establishes a restored ecosystem centerpiece that fosters social cohesion and public health through new trail networks and kayak launches, connecting communities around active green-spaces available to families, students, and retirees. Economically, the revitalized Old Channel corridor would act as a recruitment tool for Salina's high-wage aviation and technology sectors—offering urban amenities to attract young professionals. As a result of these benefits, the proposed Smoky Hill River restoration project aligns with the current administration's priorities for jobs and economic

development, and long-term net public benefits can be expected by the restoration and revitalization of the area.

10. All compliance with required applicable environmental laws and regulations has been completed. A Programmatic Agreement (PA) has been entered into by USACE, the Kansas State Historic Preservation Office (SHPO), and the City of Salina with the Pawnee Nation, Friends of the Smoky Hill River, the Smoky Hill Museum, and the Salina Certified Local Government as invited signatories. This PA outlines activities for compliance with the National Historic Preservation Act within potentially affected areas prior to construction. Coordination with the U.S. Fish and Wildlife Service (USFWS) resulted in a may affect but not likely to adversely affect the Threatened and Endangered whooping crane and the proposed monarch butterfly.

11. In accordance with USACE policy on the review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and rigorous review process. The comprehensive review process included District Quality Control (DQC) Review, Agency Technical Review (ATR), and Headquarters Policy and Legal Compliance review to confirm the planning analyses, alternative design and safety, and the quality of decisions. Washington-level review indicates that the plan recommended by the reporting officers complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies, as well as other administrative and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies, were considered and all comments from public reviews have been addressed and incorporated into the final report documents where appropriate.

12. USACE decision documents recognize cost risk and uncertainty surrounding implementation. All cost estimates will carry a degree of uncertainty. The estimated total project first cost for the Recommended Plan at the 80% confidence interval is estimated at \$54,234,000. This project carries a degree of uncertainty such that if the main drivers described below are realized, the first cost for the Recommended Plan could increase to approximately \$62,725,000. The recommended plan has various construction and non-construction components. These components range from 35 to 100 percent in project definition. The overall recommended plan is at 35 percent design. Based on the recommended project design of the construction components and scope definition of the non-construction components, the total project cost is designated as a Class 3 estimate. The total project first cost includes a contingency value of \$10,371,000, which is approximately 24 percent of the estimated base project cost of \$43,863,000. The cost contingencies are intended to cover cost and schedule increases due to the identified project risks and their probability of occurrence. Changes to assumptions or the basis of design can result in additional risks not currently identified.

13. For the Recommended Plan project first costs, the currently known major uncertainty drivers include the following: 1) forebay crest gate structure gates

assumptions, 2) modification / differing conditions prior to construction, 3) variability in market conditions and bidding assumptions, 4) contracting assumptions including a firm-fixed price, lump sum contract approach, 5) escalation, and 6) potential structural design modifications. As the project moves into the next phases, USACE will focus risk management and mitigation on the primary cost and other significant risk drivers to the extent within USACE control. However, there still exists the potential for other unanticipated and uncontrollable changes in environmental or economic conditions that could further increase the total project first cost beyond the current estimate and/or necessitate changes in the project's design.

14. In full consideration of the risks as documented in the preceding paragraphs in this report, I concur with the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that the Smoky Hill River, Kansas Aquatic Ecosystem Restoration General Investigation be authorized in accordance with the reporting officers' Recommended Plan for an estimated total project first cost of \$54,234,000 with such modifications as may be advisable. Federal implementation of the project for ecosystem restoration includes, but is not limited to, the following items of local cooperation to be undertaken by the non-federal sponsor in accordance with applicable federal laws, regulations, and policies:

a. Provide the non-federal share of project costs including 35 percent of construction costs allocated to ecosystem restoration, as further specified below:

i. Provide, during design, 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project; and

ii. Provide all lands, easements, relocations, rights-of-way, and disposal areas required to implement the project.

iii. Provide, during construction, any additional contribution necessary to make its total contribution equal to 35 percent of construction costs.

b. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) that might reduce the outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function;

c. Ensure that the project or lands, easements, relocations, rights-of-way, and disposal areas required for the project shall not be used as a mitigation banks or crediting associated with any other project;

d. Operate, maintain, repair, rehabilitate, and replace the project or functional portion thereof at no cost to the federal Government, in a manner compatible with the project's

authorized purposes and in accordance with applicable federal laws and regulations and any specific directions prescribed by the federal Government;

e. Hold and save the federal Government free from all damages arising from design, construction, operation, maintenance, repair, rehabilitation, and replacement of the project, except for damages due to the fault or negligence of the federal Government or its contractors;

f. Perform, or ensure performance of, any investigations for hazardous toxic, and radioactive wastes (HTRW) that are determined necessary to identify the existence and extent of any HTRW regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq., and any other applicable law, that may exist in, on, or under real property interests that the federal Government determines to be necessary for construction, operation, and maintenance of the project;

g. Agree, as between the federal Government and the Sponsor, to be solely responsible for the performance and costs of cleanup and response of any HTRW regulated under applicable law that are located in, on, or under real property interests required for construction, operation, and maintenance of the project, including the costs of any studies and investigations necessary to determine an appropriate response to the contamination, without reimbursement or credit by the federal Government;

h. Agree, as between the federal Government and the Sponsor, that the Sponsor shall be considered the owner and operator of the project for the purpose of CERCLA liability or other applicable law, and to the maximum extent practicable shall carry out its responsibilities in a manner that will not cause HTRW liability to arise under applicable law; and

i. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, (42 U.S.C. §§ 4630, 4655) and the Uniform Regulations contained in 49 C.F.R. § 24, in acquiring real property interests necessary for construction, operation, and maintenance of the project including those necessary for relocations, and placement area improvements; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

15. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, these recommendations may be modified before they are transmitted to higher authority as proposals for authorization and implementation funding. However, prior to transmittal to higher authority, the sponsor, the states,

DAEN (1105)

SUBJECT: Smoky Hill River, Kansas, Aquatic Ecosystem Restoration Chief's Report

interested federal agencies, and all other parties will be advised of any modifications and will be afforded an opportunity to comment further.

16. The point of contact for this report is Mr. Ryan A. Fisher, Executive Deputy for Civil Works and Emergency Operations, at (202)-761-0100 or via email at [ryan.a.fisher@usace.army.mil](mailto:ryan.a.fisher@usace.army.mil).

A handwritten signature in black ink, appearing to read 'W H G', with a long horizontal stroke extending to the right.

WILLIAM H. GRAHAM, JR  
Lieutenant General, USA  
Chief of Engineers