MIAMI, OKLAHOMA AND VICINITY
GRAND (NEOSHO) RIVER BASIN, OKLAHOMA AND KANSAS
RECONNAISSANCE REPORT
SECTION 905(B) (WRDA 86) ANALYSIS

1. STUDY PURPOSE

The purpose of this report is to document a Federal and local interest in addressing water resource problems in the Grand (Neosho) River Basin in northeastern Oklahoma, particularly in the vicinity of Miami, Oklahoma. This report utilizes data developed for the 1989 Corps of Engineers "Miami, Oklahoma and Vicinity Reconnaissance Report" which documented extensive flooding problems in the community of Miami and identified economically justified solutions to those problems. That report recommended that cost-shared Feasibility studies be initiated; however, Miami city officials declined to participate at that time and the study was deferred. Flooding continues to be a major problem in the study area and along with other water resource problems, cannot be resolved without Federal assistance. The State of Oklahoma has assumed a vital leadership role and initiated efforts to participate in a Feasibility study to solve the water resource problems in northeastern Oklahoma.

Water resource issues in other areas within the Grand River Basin could potentially have Federal and local interest also. The Quapaw Tribe of Oklahoma has expressed their concern about the impaired ecosystem of Beaver Creek, which is located in the Spring River watershed of the Grand River Basin.

If Federal and local interest is confirmed, a feasibility report will be forwarded to Congress with a recommendation for authorization. This study found that there is a Federal interest in initiating a feasibility investigation. This analysis fulfills requirements of a Section 905(b) (WRDA 86) analysis, documents the basis for this finding, and establishes the scope of the feasibility phase.

2. STUDY AUTHORITY

The Congressional authority for the study area is provided by Section 208 of the Flood Control Act of 1965, Public Law 89-298, approved 27 October 1965. The wording in the authority reads as follows:

> "The Secretary of the Army is hereby authorized and directed to cause surveys for flood control and allied purposes, including channel and major drainage improvements, and floods aggravated by or due to wind or tidal effects, to be made under the direction of the Chief of Engineers, in drainage areas of the United States and its territorial possessions, which include the localities specifically named in this section. After the regular or formal reports made on any survey authorized by this section are submitted to Congress, no supplemental or additional report or estimate shall be made unless authorized by law except that the Secretary of the Army may cause a review of any examination or survey

to be made and a report thereon submitted to Congress, if such review is required by the national defense or by changed physical or economic conditions.

...

Grand (Neosho) River, Oklahoma and Kansas (including navigation)"

3. LOCATION OF PROJECT/CONGRESSIONAL DISTRICTS

a. The project location is in Ottawa County, Oklahoma. Ottawa County is located in the northeastern corner of Oklahoma and borders Kansas and Missouri.

b. The State of Oklahoma is the non-Federal sponsor for the feasibility phase.

c. The study area lies within the jurisdiction of Representative Brad Carson (OK-2)

4. PRIOR STUDIES, REPORTS, AND EXISTING WATER PROJECTS

a. Prior studies and reports pertinent to this investigation are summarized below.

(1) Miami, Oklahoma, and Vicinity - Grand (Neosho) River, Oklahoma and Kansas, by the U.S. Army Corps of Engineers, 1989. The study identified 15 economically feasible, structural solutions to flooding at Miami, Oklahoma. The economic feasibility of the alternatives indicated a strong potential for Federal interest.

(2) Tar Creek Flood Protection Study, by the U.S. Army Corps of Engineers, 1987. The study identified two economically feasible plans to reduce flood damages along Tar Creek.

(3) Miami Flood Insurance Study, by the Federal Emergency Management Agency, 1988.

(4) Ottawa County Flood Insurance Study, by the Federal Emergency Management Agency, 1988.

(5) Grand Lake, Oklahoma, Real Estate Adequacy Study, by the U.S. Army Corps of Engineers, 1998. The study examined flooding, backwater effects, and adverse impacts to the lands adjacent to Grand Lake.

(6) Governor Frank Keating's Tar Creek Superfund Task Force Report, by the Office of the Secretary of the Environment, October 2000.

5. PLAN FORMULATION

During a study, the six planning steps set forth in the Water Resource Council's Principles and Guidelines are repeated to focus the planning effort and eventually to select and recommend a plan for authorization. The six planning steps are: (1) specify problems and opportunities, (2) inventory and forecast conditions, (3) formulate alternative plans, (4) evaluate effects of alternative plans, (5) compare alternative plans, and (6) select recommended plan. The phases of the planning process typically differ in the emphasis placed on each step. In the iterations conducted during the reconnaissance phase, the step of specifying problems and opportunities is emphasized, although the other steps are not ignored. The initial screening of preliminary plans that results from the other steps is critical to scoping of the follow-on feasibility phase studies. The following presents the reconnaissance study findings.

a. Existing Conditions. The Grand (Neosho) River heads in the Flint Hills region of Morris County, Kansas, and flows southeasterly more that 300 river miles in Kansas, then southerly about 164 river miles across northeastern Oklahoma to it confluence with the Arkansas River near Muskogee, Oklahoma. The total drainage area of the Grand River is about 12,520 square miles.

Tar Creek has a total drainage area of 53.3 square miles, and joins the Grand River just upstream of the U.S. Interstate 44 crossing. The stream originates in Cherokee County, Kansas, and flows in a southerly direction through Ottawa County to its junction with the Grand River. Communities located in the study area include Miami, Commerce, Picher, Cardin, and Quapaw.

The fan-shaped watershed is about 16 miles long, and averages about 3.3 miles wide. The extreme upper portion of the basin is devoted to agricultural purposes before the stream traverses about 6 miles of mining area. The lower portion of the basin is also devoted to agricultural purpose except that portion occupied by developments in Miami.

The average slope of Tar Creek is about 10.4 feet per mile. In the lower 7.5 miles of Tar Creek, the creek flows reasonably straight in a floodplain varying in width from about 1,800 feet to about 3,800 feet.

b. Identified Problems. Several problems with the potential for both Federal and local sponsor interest were identified. Primary concerns identified during the problem identification activities center around flood control and ecosystem restoration in the Tar Creek watershed.

(1) Problems. The 1989 Reconnaissance Report identified that flood damages occur with relative frequency along Tar Creek and less frequently along the Grand (Neosho) River. Flooding along Tar Creek causes frequent flood damages to the communities of Miami, Commerce, and Picher, Oklahoma. Recent major flooding occurred in October 1986, March 1990, June 1990, July 1992, December 1992, May 1993, September 1993, April and May 1994, and June 1995. Additionally, the Tar Creek watershed ecosystem is severely impaired due to more than 80 years of mining activities.

The concerns of the State of Oklahoma include both the flooding issues identified in the 1989 report, and ecosystem restoration issues particularly as they pertain to the Tar Creek watershed. The mining activities resulted in a poorly drained watershed, and Tar Creek is commonly bank-full of water, even during non-flood periods. Water resource planning related concerns include chronic flooding, ecosystem impairment, poor water quality, subsidence, chat piles, mine shafts, health effects, and Native American issues.

The water resource problems are interrelated. The Environmental Protection Agency has been addressing the contamination from mining waste in Ottawa County since the early 1980's. The "Miami, Oklahoma, and Vicinity Reconnaissance Study" was conducted in the late 1980's to address any water resources problems that might be within the purview of the U.S. Army Corps of Engineers. At that time, the primary interest was specific to the flooding situation along Tar Creek at Miami, Oklahoma.

To date, a comprehensive watershed solution has not been identified. Due to the magnitude and complexity of the issues related to the Tar Creek watershed ecosystem, it is anticipated that participation of various Federal and local governmental entities will be required to develop and implement a comprehensive watershed plan, with each agency being involved in accordance with its statutory authorities and funding capabilities. The multi-agency approach has been coordinated with the State of Oklahoma, Tribal governments, the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, the Environmental Protection Agency, and local governments.

By letter of 27 August 2001, Oklahoma Governor Frank Keating requested that the U.S. Army Corps of Engineers develop a comprehensive solution for Tar Creek. The Fiscal Year 2002 Energy and Water Development Bill demonstrated congressional support for involvement of the Corps of Engineers by including $300,000 to initiate a Miami, Oklahoma, and Vicinity feasibility study.

(2) Expected Future Conditions. Without assistance, frequent flooding and drainage problems will continue to plague the communities of Miami, Commerce, Picher, Cardin, and other areas of Ottawa County. Flood insurance will mitigate the tangible personal losses due to flooding, but the communities' trauma and intangible losses resulting from the flooding will continue. The Tar Creek watershed ecosystem will not improve to acceptable levels in the foreseeable future. Watershed ecosystem improvements will continue to be severely limited by a harsh environment. Catastrophic subsidence events are possible and the local economy will remain depressed indefinitely. Given the limited local financial resources, it is doubtful that any action will be taken without Federal assistance.

c. Planning Objectives and Planning Constraints.

(1) National Objectives. The national or Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements.

- Contributions to National Economic Development (NED) are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the nation.

- A second objective, National Ecosystem Restoration (NER), is in response to legislation and administration policy. This objective is to contribute to the nation's ecosystems through ecosystem restoration, with contributions measured by changes in the amounts and values of habitat.

(2) **Public Concerns.** There are numerous public concerns associated with the Tar Creek watershed. Public concerns include chronic flooding, extensive subsidence, open or poorly sealed mine shafts, impaired water quality from abandoned mine discharges, remaining mine tailings, depressed local economy, health affects, and Native American issues. Native American concerns apply to both the Tar Creek and Spring River watersheds and include their cultural plant, aquatic, and wildlife food resources.

(3) **Study Planning Objectives.** The national objectives of NED and NER are general statements and are not specific enough for direct use in plan formulation. The water and related land resource problems and opportunities identified in this study are stated as specific planning objectives to provide focus for formulating alternatives. These planning objectives reflect problems and opportunities and represent desired positive changes in without project conditions.

(a) The purpose of the feasibility study is to identify a comprehensive and coordinated combination of recommended actions to reduce flooding and restore the watershed ecosystem to acceptable levels. Various partners and stakeholders would undertake implementation of the actions. The actions will address water resource related concerns including, but not limited to, flooding, ecosystem restoration, water quality, subsidence, chat piles, and mine shafts. Due to the complexity of the watershed issues, monitoring and adaptive management activities will be incorporated into the recommended actions.

(b) In accordance with Section 904 of the Water Resources Development Act of 1986, other matters that will be addressed when identifying planning objectives include the prevention of loss of life and the preservation of cultural and historical values.

(4) **Planning Constraints.** Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions that should not be violated. The planning constraints identified for these studies are as follows:

(a) Any recommended project must be justified under established Federal planning criteria.

(b) The recommended actions must be acceptable and supported by the local sponsor. The local sponsor must provide cost sharing in excess of the Federal limitation and maintain and operate the completed project.

(c) Project alternatives must comply with the Endangered Species Act, NEPA, and other applicable environmental laws and regulations.

d. Problems Warranting Federal Participation. Serious problems with regard to flood damage reduction and ecosystem restoration exist in the study area, and are likely to persist in the future in the absence of Federal action. These are purposes with high legislative and budgetary priorities.

e. Alternative Plans. The U.S. Army Corps of Engineers policy (ER 1105-2-100) is that the planning process shall address the Nation's water resources needs in a systems context and explore a full range of alternatives in developing solutions. The policy states that, "alternative plans shall not be limited to those the Corps of Engineers could implement directly under current authorities. Plans that could be implemented under the authorities of other Federal agencies, State and local entities and non-governmental interests should also be considered."

Due to the complexity of water resource related issues in the Tar Creek Watershed, more emphasis will be required for the identification and evaluation of alternatives following the signing of a Feasibility Cost Sharing Agreement. Existing information from the March 1989 "Draft Miami, Oklahoma, and Vicinity Reconnaissance Report" and the October 2000 Report prepared by Governor Keating's Tar Creek Superfund Task Force was used to document the initial identification and evaluation of the following potential alternatives

(1) No Action. The National Environmental Policy Act (NEPA) requires that the Corps consider the option of "no action" as one of the alternatives. No action is the condition reasonably expected to prevail over the period of analysis, given current conditions and trends, and assuming the Federal Government takes no action to achieve the planning objectives. This plan, also known as the without project condition, forms the basis from which all other alternative plans are measured.

(2) Non-Structural Measures. The 1989 Reconnaissance Study indicated that several small areas along Tar Creek might be appropriate for a buy-out based on the flooding history. Evaluations will be required to determine economic feasibility.

Based on the myriad environmental, health, and safety problems in the Tar Creek watershed, the Governor Keating Task Force Report included the recommendation that the feasibility of the potential relocation of the communities of Picher and Cardin should be explored as part of a comprehensive watershed plan.

(3) Structural Measures. The 1989 Reconnaissance Study identified 15 structural alternative plans to reduce flooding at Miami, Oklahoma. The alternatives included 14 levee plans and a flood control reservoir on Quapaw Creek.

The Governor Keating Task Force recommended that a flood control reservoir along with both traditional and engineered wetlands be incorporated as part of a comprehensive watershed plan to reduce flooding and improve the impaired ecosystem.

(4) **Preliminary Plans.** Preliminary plans are combinations of one or more management measures that survive initial screening. None of the measures previously discussed are eliminated from further consideration.

f. Preliminary Evaluation of Alternatives. With the No Action plan, expected annual flood damages of about $3,807,000 were estimated within the floodplain of Tar Creek, based on the updated values from the 1989 reconnaissance report. Although there has been very little if any development within the 100-year floodplain, the town of Miami continues to grow, increasing development in the 500-year floodplain and causing increased runoff and flooding problems. The drainage problems in the upper Tar Creek Basin have continued to increase since 1989 and, absent Federal involvement, will not improve. Current costs for alternatives evaluated in the 1989 reconnaissance report range from $1,400,000 to $27,100,000 with average net benefits of $66,000 to $2,200,000. This estimate includes annual benefits for flood damage reduction. The estimated benefit-to-cost ratio (BCR) for the various alternatives would meet the Federal criterion of a BCR of at least 1.

In addition to the potential flood control benefits, features to improve the existing environment in the study area will be evaluated during the Feasibility Phase. Those features, possibly in combination with those identified in the 1989 report, could provide restoration of important habitat in the study area and provide flood control to the downstream areas. Important habitat types in the Tar Creek area include tallgrass prairie, upland forest, floodplain forest, and aquatic habitats. The expected benefits of restoring these habitat types to acceptable levels include improving 1) habitat diversity of a severely degraded environment; 2) food and cover for a variety of wildlife, including mammals, birds, reptiles, and amphibians; 3) critical nesting habitat for bird species; 4) travel corridors for wildlife; 5) habitat conditions for resident and migratory waterfowl and shorebirds; 6) aquatic habitat for native species; and 7) the value and function of wetlands in the form of flood water runoff detention, filtration of sediments, nutrient recycling and waste assimilation and groundwater recharge and discharge into Tar Creek.

A task force established by the Governor of Oklahoma to evaluate potential solutions to the problems of the Tar Creek area issued a report in October 2000. That report identified a concept plan that would include features to address multiple problems and issues in the area, including flood control, ecosystem restoration, water quality, and other health and human safety issues. Preliminary evaluation of that concept indicates that a comprehensive approach, which would include features for flood control, ecosystem restoration, and other purposes, may provide the best alternative solution to the problems and needs of the basin. Such a concept would require the involvement and expertise of multiple Federal and State agencies in a watershed approach to water resource management.

6. FEDERAL INTEREST

Based on the preliminary initial identification and evaluation of alternatives, there is potential for the partnering of various Federal, State, Tribal, and local interests to implement a comprehensive watershed project to reduce flooding and restore the ecosystem to acceptable

levels. Alternatives identified as a part of this study would potentially provide both NED and NER benefits sufficient to justify implementation.

Flood reduction and ecosystem restoration are outputs with a high budget priority and primary missions of the Corps of Engineers. It is anticipated that other Federal agencies, such as the Environmental Protection Agency, would implement component features consistent with their statutory authorities. Therefore, there is a Federal interest in conducting this feasibility study.

7. PRELIMINARY FINANCIAL ANALYSIS

The State of Oklahoma, the non-Federal sponsor, will be required to provide 50% of the cost of the feasibility phase. Attachment 1 is a letter of intent from the local sponsor stating their willingness and ability to pursue the feasibility study and share in its cost.

8. SUMMARY OF FEASIBILITY STUDY ASSUMPTIONS / EXCEPTIONS

- A geographical information system (GIS) will be used to present study data in a geo-spatial referenced format.
- The study schedule assumes that the sponsor will fully support the schedule.
- The cost estimate assumes no problems with HTRW materials.
- The study will include NEPA EIS documentation.
- The cost estimate for report preparation assumes that only the main report (with NEPA document) will be reproduced on paper. The technical appendices will be reproduced as a CD-ROM.

9. FEASIBILITY PHASE MILESTONES

Milestone	Description	Duration (mo)	Cumulative (mo)
F1	Initiate Study and EIS	0	0
F2	Public Workshop /Scoping Meeting	2	2
F3	Feasibility Scoping Meeting	3	5
F4	In Progress Review	4	9
F5	Alternative Formulation Briefing	10	19
F6	Draft Feasibility Report/EIS	4	23
F7	Final Public Meeting	1	24
F8	Feasibility Review Conference (if needed)	1	25
F9	Final Report to Division	4	29
F10	DE's Public Notice	1	30
F11	Chief's Report	6	36

10. FEASIBILITY PHASE COST ESTIMATE

Feasibility Phase Task	Total ($)	Federal ($)	Local ($) Cash In-Kind
1. Public Involvement	300,000	100,000	200,000
2. Real Estate Rights-of-entry	100,000	25,000	75,000
3. Environmental Impact Studies	1,175,000	425,000	750,000
4. Economic Studies	75,000	75,000	
4. Project Management	200,000	100,000	100,000
5. Plan Formulation	260,000	150,000	110,000
6. Engineering / Design	1,540,000	800,000	740,000
7. Real Estate Report	100,000	100,000	
8. Independent Technical Review	100,000	100,000	
9. Report Preparation (including GIS)	225,000	100,000	125,000
10. Washington Level Review Contingency	25,000	25,000	
11. Study Contingency	100,000	100,000	
Total Cost	4,200,000	2,100,000	2,100,000

11. RECOMMENDATIONS

The study recommendation is that the Tulsa District proceed with a cost-shared feasibility study to examine alternatives and recommend actions to address the myriad water resource concerns in portions of the Grand River watershed, particularly in the vicinity of Miami, Oklahoma. The State of Oklahoma is the local cost-sharing sponsor. A preliminary time and cost estimate to conduct the feasibility study is $4,200,000 over 36 months. Refined time and cost estimates are part of the Project Management Plan submitted at the completion of the reconnaissance phase.

12. POTENTIAL ISSUES AFFECTING INITIATION OF FEASIBILITY

Initiation of the cost-shared feasibility phase is contingent upon an executed FCSA. Failure to achieve an executed FCSA will result in termination of the study. There are no apparent issues at this time that impact implementation of the feasibility phase.

13. VIEWS OF OTHER RESOURCE AGENCIES

Initial coordination meetings with other resource agencies occurred on several occasions. Participants of the 6 September 2001, Council on Environmental Quality meeting included representatives from the State of Oklahoma, U.S. Army Corps of Engineers, Environmental Protection Agency, Department of Interior, and the Bureau of Indian Affairs. The primary purpose of the meeting was to establish a process to maximize Federal support. Agency representatives at the 2 October 2001 follow-up coordination meeting at EPA Region 6

Headquarters in Dallas, Texas identified a plan of action. Agency representatives agree that working through a U.S. Army Corps of Engineers General Investigations Feasibility Study, in conjunction with and at the same time as an EPA Remedial Investigations/Feasibility Study, will be the best way to maximize Federal technical abilities and fully utilize Federal authorities to solve complex problems of the study area.

14. PROJECT AREA MAP

Attachment 2 is a map of the study area.

Date

ROBERT L. SUTHARD, JR.
Colonel, U.S. Army
District Engineer

BRIAN C. GRIFFIN
SECRETARY OF ENVIRONMENT

FRANK KEATING
GOVERNOR

STATE OF OKLAHOMA

OFFICE OF THE
SECRETARY OF ENVIRONMENT

5 December 2001

Colonel Robert L. Suthard, Jr.
District Engineer, Tulsa District
U.S. Army Corps of Engineers
1645 South 101st East Avenue
Tulsa, OK 74128-4608

RE: State of Oklahoma's interest in sponsoring Miami and vicinity feasibility study

Dear Col. Suthard:

Miami, Oklahoma and surrounding communities, including the Tar Creek watershed, are experiencing extensive problems including severe flooding and ecosystem impairment. It is my understanding that the Corps of Engineers is authorized and now funded to conduct a cost-shared feasibility study of problems and opportunities in this area under its General Investigations Program.

Further, I understand that the State of Oklahoma's cost-sharing responsibility during the feasibility phase would be fifty percent, all of which could be provided by "in-kind" services. The Project Management Plan developed during our negotiations for the feasibility cost-sharing agreement will outline the study tasks, as well as the proposed schedule and cost of those tasks. Ultimately, this feasibility study could lead to a recommendation to Congress for construction of remedies, which would be done in cooperation between the State, affected Tribes, and one or more Federal agencies.

Finally, I fully understand that this letter is not a contractual obligation on the part of the State of Oklahoma or the Corps, and either party may discontinue the project development process at any time. However, it is my sincere hope that we can move forward in a cooperative and accelerated fashion in order to develop a final, comprehensive solution that will address the myriad, nationally renowned environmental problems exhibited in the Miami area and, in particular, the Tar Creek watershed.

Sincerely,

Brian C. Griffin

CC: Mark S. Coleman, Oklahoma Department of Environmental Quality
Tamara R. Summerfield, Quapaw Tribe of Oklahoma

3800 North Classen Boulevard • Oklahoma City, Oklahoma 73118
(405) 530-8995 • fax (405) 530-8999

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Attachment 1 – Sponsor Letter

Miami, Oklahoma, and Vicinity

Key to Features

Road Classification

Limited Access

Highways

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Attachment 2 – Project Area Map