SECTION 905(B) (WRDA 86) ANALYSIS
CIMARRON RIVER BASIN IN OKLAHOMA AND KANSAS

1. STUDY AUTHORITY

a. This Section 905(b) (WRDA 86) Analysis is an initial response to the Energy and Water Development Appropriations Bill, 2000, which reads in part:

> "Cimarron River Basin, Oklahoma and Kansas- The Committee recommendation includes funding for a reconnaissance study of environmental restoration and flood control opportunities within the Cimarron River Basin in Oklahoma and Kansas."

b. A Corps of Engineers study team initiated the reconnaissance phase of the study in December 1999 using $100,0000 in funds appropriated in Fiscal Year 2000 to conduct the study.

2. STUDY PURPOSE

The purpose of this reconnaissance phase of the study was to determine if there was a Federal interest in providing environmental restoration or flood control improvements in the Cimarron River Basin of Oklahoma and Kansas. If a Federal interest is determined, a feasibility report will be prepared and forwarded to Congress with a recommendation for authorization. This reconnaissance study found that there is a Federal interest in continuing the study into the feasibility phase. This Section 905(b) (WRDA 86) Analysis documents the basis for this finding and establishes the scope of the feasibility phase. As the document that establishes the scope of the feasibility study, the Section 905(b) (WRDA 86) Analysis is the basis of the Scope of Work chapter in the Project Study Plan.

3. LOCATION OF PROJECT/CONGRESSIONAL DISTRICTS

a. The study area is located in southwestern Kansas and northern Oklahoma. The Cimarron River originates in New Mexico near both the Colorado-New Mexico and the Oklahoma-New Mexico State lines. The river flows southeasterly for 698 miles and has a drainage basin of about 18,927 square miles. The basin is approximately 550 miles long and averages 40 miles in width. The river terminates in the Cimarron arm of Lake Keystone in northeastern Oklahoma.

The basin is mainly agricultural, with minimal urbanization. The basin areas in Kansas and western Oklahoma are very arid. In Kansas and Oklahoma, the river flows are more abundant than in New Mexico and Colorado, but the water quality is poor. The Cimarron River contributes a large amount of highly mineralized water to the Arkansas River. The primary causes of the mineralized water are natural mineral deposits, salt plains, and saline springs. The study team identified water resources problems and opportunities at the following locations: Meade Lake State Park, near Meade, Kansas; Liberal, Kansas; Lake Carl Blackwell, near

Stillwater, Oklahoma; Guthrie, Oklahoma; Kingfisher County, Oklahoma; and Turkey Creek near Enid, Oklahoma.

b. This analysis proposes two interim feasibility studies. - a study of the Kingfisher Creek watershed in Kingfisher County, Oklahoma, sponsored by the Kingfisher County Conservation District and a study of the Turkey Creek watershed near Enid, Oklahoma, sponsored by the Oklahoma Conservation Commission.

c. The study area lies within the jurisdiction of the following Congressional Districts: Jerry Moran (KS-1), Frank D. Lucas (OK-6), Ernest J. Istook (OK-5), and Wes Watkins (OK-3).

(1) The study area for Kingfisher County lies within Oklahoma District 6, represented by Congressman Frank Lucas.

(2) The study area for Turkey Creek lies within Oklahoma District 6, represented by Congressman Frank Lucas.

4. PRIOR STUDIES, REPORTS, AND EXISTING WATER PROJECTS

a. The study team reviewed the following reports as part of this study:

(1) Kingfisher Creek, Summary of Watershed Status, by the U.S. Department of Agriculture Natural Resources Conservation Service, updated in 1995 from a 1962 feasibility study. This study looked at the feasibility of a series of small lakes in the Kingfisher Creek watershed to be used for flood control storage.

(2) Hydrologic Investigation of the Cimarron River, by the U.S. Army Corps of Engineers for the Oklahoma Water Resources Board, July 1991. The study purpose was to provide data to assist in managing Oklahoma's stream water resources in the Cimarron River Basin.

(3) Initial Appraisal Study, Cimarron River Keystone to Perkins, Oklahoma, by the U.S. Army Corps of Engineers, 1989. The study addressed stream bank erosion problems along the Cimarron River between Perkins, Oklahoma, and Keystone Lake. Erosion along the river was found to be a problem, but solutions were not justified economically.

(4) Kingfisher and Uncle John's Creeks Local Flood Protection Project, DPR and Draft EIS, by the U.S. Army Corps of Engineers, 1986. These reports detail a combination levee and floodwall plan to protect the city of Kingfisher, Oklahoma, from flooding by Kingfisher and Uncle John's Creeks. The plan was justified economically but did not have local support.

(5) Survey Report on Cimarron River and Tributaries, New Mexico, Oklahoma, Colorado, and Kansas, by the U.S. Army Corps of Engineers, 1970. This report listed a series of improvements for flood control, water supply, chloride control, recreation, and fish and wildlife that would address existing water resources problems in the Cimarron River Basin.

5. PLAN FORMULATION

During a study, six planning steps that are 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 emphasis that is placed on each of the planning steps will differ depending on the phase of the study. The step of specifying problems and opportunities is emphasized during the reconnaissance phase, 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 subparagraphs present the results of the reconnaissance phase. Future iterations of the planning steps during the feasibility phase will refine this information.

a. **Identified Problems.** This study identified water resource problems in six areas; however, only two areas have local support for continuing into the feasibility phase at this time.

Meade Lake in Meade County, Kansas, was constructed by a Federal agency in the late 1920's. The lake has become eutrophic, with nutrient levels higher than Federal standards. The Kansas Department of Wildlife and Parks manages the lake as part of Meade State Park. This lake provides an important source of water-based recreation for southwest Kansas, as well as habitat for waterfowl and fish. Originally, the lake was spring fed, but the water table has dropped due to increased irrigation. The lake is now supplied by a well, and currently covers about 60 acres.

Liberal, Kansas, is constructing several floodwater detention ponds that have potential to become good quality wildlife habitat. The city expressed interest in obtaining help establishing vegetation to provide cover and food for wildlife. However, the small scope of the project and the limited time schedule may be better served by one of the Continuing Authorities Programs.

Lake Carl Blackwell, a 3,300-acre lake near Stillwater, Oklahoma, was constructed by Federal agencies in 1937. The lake provides recreation, fish and wildlife habitat, and minimal flood control. Due to current dam safety requirements, the dam will have to be rehabilitated or breached. If it is breached, the existing fish and wildlife habitat will be converted into less valuable habitat. Oklahoma State University (OSU) owns and operates the lake.

Guthrie, Oklahoma, has a history of flooding from Cottonwood Creek and Bird Creek. The city participated in a permanent relocation plan for many structures in the Cottonwood Creek floodplain about 7 years ago. The city expressed interest in restoring the Cottonwood Creek floodplain to a more natural state through efforts such as construction of wetlands and restoration of riverine habitat along sections of Cottonwood Creek.

The Kingfisher County Conservation District is seeking help to replace wetlands lost to agricultural uses and to provide habitat for fish, migratory waterfowl, and other birds. Kingfisher County, Oklahoma, is largely agricultural. As in most farming regions, wetlands were drained or filled to create more farmland. Wetlands also serve to recharge groundwater, remove excess nutrients from water, and provide incidental flood storage as well as wildlife habitat.

Section 303(d) of the Clean Water Act requires each state to prepare a prioritized list of the State's impaired waters and report this to the U.S. Environmental Protection Agency every 2 years. This list is known as the 303(d) list. Kingfisher Creek is a number 2 priority on the 1998 Oklahoma 303(d) list.

Turkey Creek is located in Garfield County, west of Enid, Oklahoma. The Oklahoma Conservation Commission is seeking help to do riparian restoration on Turkey Creek. The creek is a number 2 priority on the 1998 Oklahoma 303(d) list. The riparian ecosystem is degraded in many areas, mainly as a result of farming and grazing practices. Drummond Flats, a 40- to 50-acre historic wetlands, was filled and used as farmland. It began as a 12-square-mile salt lake probably during the Pleistocene and over time naturally evolved into a wetland.

(1) **Existing Conditions.**

Meade Lake State Park is managed for recreation, fishing, and duck hunting. The water level is maintained largely by well water, with rare large storm events also contributing. The last time the lake flowed over the spillway was over 20 years ago. The lake is eutrophic, with nutrient levels exceeding Federal standards. About 25 years ago, the lake was drained and partially rehabilitated by removing 70,000 cubic yards of nutrient rich silt. Grass carp were introduced to the lake to control excess aquatic vegetation. The lake was refilled in 1977 by a large storm event. Sediment buildup, along with nutrient loading, has continued to be a problem.

Liberal, Kansas, plans to add one or two storm water detention sites and enlarge an existing pond, Frog Pond. Frog Pond currently provides habitat for birds and fish. It also offers recreational opportunities for the adjacent low-income neighborhood. Another existing treated wastewater detention site located northeast of the city, on Tucker Street, is used for local runoff and may be used for floodwater conveyed from the central part of the city. This pond currently has minimal vegetation and is of minimal use to wildlife. With adequate vegetation to provide proper cover and food, this pond has the potential to provide good habitat within an urban area. The pond is located in a commercial area near a meat packing plant and has the potential of providing relatively undisturbed habitat because of its location. The unpleasant odor could discourage recreational uses.

Lake Carl Blackwell. The dam no longer meets the safety requirements of the U.S. Army Corps of Engineers or the State of Oklahoma. The dam is owned and maintained by OSU and provides a backup water supply for the city of Stillwater, Oklahoma. The Fishing and Wildlife Cooperative Unit at OSU uses the lake for research activities. The lake provides habitat for fish and birds. In 1997, the Oklahoma Department of Wildlife Conservation began

establishing new fisheries for hybrid striped bass and saugeye. The lake also supports several campgrounds and recreation areas and is the largest source of water-based recreation for the region.

Guthrie, Oklahoma, has a history of flooding from Cottonwood Creek. The city permanently relocated many of the structures in the floodplain. This area is now a greenbelt, but provides only minimal habitat for wildlife. The city is interested in restoring the floodplain to a more natural state that would support more wildlife.

Kingfisher County, Oklahoma, is an agricultural county with some income from oil and gas wells. About 58% of the 331.5-square-mile Kingfisher Creek watershed is cropland, and 35% is rangeland. Historically, wetlands in farmlands were drained or filled to provide larger areas of useable farmland. Kingfisher County has large areas of hydric soils, indicating past existence of wetlands. Most of the watershed is open land, which provides little or no cover for wildlife. Some existing stock ponds provide resting sites for waterfowl, and small areas of woodland in a natural state provide food and cover for wildlife.

Turkey Creek, Oklahoma. The creek is a number 2 priority on the 1998 Oklahoma 303(d) list. As a result of farming and grazing practices, the riparian ecosystem has degraded in many areas. Lack of a buffer zone of riparian vegetation along some reaches of the creek contributes to excess sedimentation and high nutrient levels. Riparian vegetation also provides cover and food for terrestrial species and shade for aquatic and amphibian species. Drummond Flats is used as farmland and does not function as a wetland to provide habitat for waterfowl, flood storage, and groundwater recharge.

(2) **Expected Future Conditions.**

Meade Lake will likely continue to degrade. Nutrient loading will eventually have a detrimental effect on fish in the lake, and aquatic habitat will be degraded. Recreational use of the lake will be curtailed.

Liberal, Kansas. Construction to increase the size of the existing Frog Pond will destroy most of the existing trees and vegetation. The existing detention pond on the north side of the city will continue to provide only minimal wildlife habitat.

Lake Carl Blackwell. At this time, it is difficult to determine the most likely future condition of the lake. Eventually, the dam will have to be rehabilitated or breached. It is unlikely that OSU will have funds to rehabilitate the dam without Federal participation. If it is breached, the lake and its excellent aquatic habitat as well as the water-based recreational opportunities that it presently provides will be lost.

Guthrie, Oklahoma. The Cottonwood Creek floodplain will remain as a grass-covered open area with existing streets and utility poles still in place. A more natural floodplain would optimize the area for wildlife habitat. The structures remaining in the floodplain will continue to suffer flood losses and require flood insurance subsidies.

Kingfisher County, Oklahoma. Areas of the Kingfisher Creek watershed will remain underutilized for wildlife habitat. Other benefits from wetlands, such as groundwater recharge, erosion control, natural water treatment, and natural flood storage, will not be realized.

Turkey Creek, Oklahoma. The watershed will likely continue to degrade as the sparse riparian vegetation allows further erosion to continue. Riverine and terrestrial habitat in the watershed will continue to disappear. Agricultural runoff from cropland and grazing areas will further degrade aquatic habitat. Drummond Flats will continue to function as poor cropland.

(3) **Planning Objectives and Planning Constraints.**

(a) **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.

(b) **Public Concerns.** During the course of the reconnaissance study, a number of public concerns were identified. The study authorization expressed initial concerns. Coordination with the sponsors and some initial coordination with other agencies provided additional input. Of the six identified problem areas, only Kingfisher County and Turkey Creek have local support to proceed to the feasibility phase at this time. Public concerns related to establishing planning objectives and constraints for these studies are:

(i) In Kingfisher County, there are concerns over loss of habitat and loss of the natural flood control mechanisms provided by wetlands.

(ii) The Oklahoma Conservation Commission and other State agencies are concerned about degradation of the riparian ecosystem along much of Turkey Creek. The stream is on the Oklahoma 303(d) list of impaired waters.

(c) **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 the formulation of alternatives. These planning

objectives reflect the problems and opportunities and represent desired positive changes in without-project conditions. The planning objectives are:

(i) Objectives for the Kingfisher County Interim feasibility study:

(1) Increase available waterfowl and fish habitat in the Kingfisher Creek watershed.
(2) Increase water based recreation opportunities available in the Kingfisher Creek watershed.

(ii) Objectives for the Turkey Creek Interim feasibility study:

(1) Restore terrestrial riparian habitat that improves the function of the Turkey Creek ecosystem.
(2) Improve degraded aquatic habitat in Turkey Creek.

(d) **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:

(i) General Constraints:

(1) Any recommended project must be justified under established Federal planning criteria.
(2) The recommended project must be acceptable and supported by a local sponsor. The local sponsor must provide cash in excess of the Federal limitation and maintain and operate the completed project.
(3) Project alternatives will comply with the Endangered Species Act and other applicable environmental laws and regulations.

(ii) Specific Constraints for the Kingfisher County Interim feasibility study:

(1) The sponsor's funding capability is limited. This constraint may limit the scope of the study.

(iii) Specific Constraints for the Turkey Creek Interim feasibility study:

(1) Minimize impacts to agricultural operations to the extent possible while still restoring the riparian ecosystem in the Turkey Creek watershed.
(2) Develop construction alternatives that minimize disturbance to aquatic habitat.

(4) **Problems Warranting Federal Participation**.

Kingfisher County. As in most farming regions, wetlands were drained or filled to create more farmland. The Kingfisher County Conservation District is seeking help from the Corps to replace lost wetlands in the Kingfisher Creek watershed and provide fish and wildlife habitat. The wetlands would also serve to recharge groundwater and provide incidental flood storage as well as reduce sediment load in the watershed.

Turkey Creek. The riparian ecosystem is degraded. Habitat for fish and wildlife is reduced. In some reaches of the creek, the habitat was destroyed.

b. **Alternative Plans.** This study considered a variety of measures. Some measures were infeasible due to technical, economic, or environmental constraints. Each measure was assessed. The study team determined whether each measure should be retained in the formulation of alternative plans. Descriptions and results of evaluations of the measures considered in this study follow:

(1) **No Action.** The Corps must consider "No Action" as one of the alternatives to comply with requirements of the National Environmental Policy Act (NEPA). No Action is the condition reasonably expected to prevail over the period of analysis given current conditions and trends and assuming that no project is implemented by the Federal Government to achieve the planning objectives. No Action, which is synonymous with the Without-Project Condition, forms the basis from which all other alternative plans are measured.

(2) **Non-Structural Measures**.

Turkey Creek. The non-structural measure considered is re-establishment of riparian vegetation along degraded reaches of the creek.

(3) **Structural Measures.**

Kingfisher County. This measure considered construction of small dams to create small wetlands/lakes in the Kingfisher Creek watershed. The feasibility phase will optimize the number and location of the sites. The reconnaissance study considered 47 sites.

Turkey Creek

(a) Construction of pools and riffles to provide aquatic habitat and grade control in appropriate reaches of the creek is a viable alternative.

(b) Restoration of historic Drummond Flats wetland is a viable alternative.

(4) **Combination of Structural and Nonstructural Measures.**

Turkey Creek. The following measures can be combined: construction of pools and riffles to provide aquatic habitat in appropriate reaches of the creek and re-establishment of riparian vegetation communities to provide terrestrial habitat.

(5) **Separable Features**.

Kingfisher County. Each wetland/lake site is separate and can be constructed alone or constructed on a phased implementation schedule.

Turkey Creek. Plans (a) and (b) above can be implemented separately and restoring the riparian vegetation could be implemented separately.

b. **Preliminary Plans.** Preliminary plans are composed of one or more management measures that survived initial screening. Descriptions and results of evaluations of the preliminary plans that were considered in this study follow:

(1) **Preliminary Plans Eliminated from Further Consideration.**

Kingfisher County. Preliminary screening eliminated 32 of the 47 sites considered, due to poor location for aquatic habitat or higher than average cost. The study team rejected total of 30 sites because they would not provide good quality habitat for aquatic or wetland species, and 2 were dropped because the estimated cost per surface acre of water was much higher than the other sites. Feasibility studies will address the remaining 15 sites.

(2) **Preliminary Plans for Further Consideration.**

Kingfisher County. The alternative plans are all variations of the size and locations of the proposed wetlands and small lakes.

Turkey Creek

(1) Restoration of the riparian vegetation community,
(2) Construction of pools and riffles to provide for grade control as well as aquatic habitat, as an alternative and in combination with the riparian plantings.
(3) Restoration of 40 to 50 acres of Drummond Flats wetlands in conjunction with the riparian restoration.

d. **Preliminary Evaluation of Alternatives.**

Kingfisher County. Wetlands provide numerous environmental benefits, such as wildlife habitat, groundwater recharge, sediment control, and non-point source pollution control. Expected outputs are 150 to 600 acres of good quality wetland and aquatic habitat. Preliminary estimates on costs range from $5 million to $25 million. The feasibility studies will determine location, size, and number of sites for the project.

Turkey Creek. Since stream morphology is a determining factor in the success of riparian vegetation communities; feasibility studies will determine the channel morphology parameters. The feasibility studies will use these factors to determine measures for riparian restoration. The feasibility studies will consider construction of pools and riffles to provide for grade control as well as aquatic habitat as an independent alternative and as a part of the riparian plantings. Expected outputs are 10 to 30 stream miles of good quality aquatic habitat restored and protected and 40 to 50 acres of wetlands restored. Water quality will improve as the riparian vegetation becomes established and improves creek stability. Preliminary estimates of cost range from $4 to $8 million.

6. FEDERAL INTEREST

Based on the preliminary screening of alternatives, an alternative for Kingfisher County and an alternative for Turkey Creek can likely address ecosystem restoration in an economically justified, environmentally acceptable manner in the feasibility phase. Ecosystem restoration is an output with a high budget priority. There is, therefore, a Federal interest in conducting the feasibility studies. There is also a Federal interest in other related outputs of the alternatives, including flood control, water quality, recreation, and other social effects. All the alternatives for the Kingfisher County interim feasibility study will involve opportunities for recreation, such as fishing or hunting. There may also be incidental flood control benefits depending on the size and location of the wetlands constructed. The alternatives for Turkey Creek will provide water quality and aesthetic benefits and may involve some recreational opportunities.

7. PRELIMINARY FINANCIAL ANALYSIS

As the non-Federal sponsors for the studies, the Oklahoma Conservation Commission and the Kingfisher County Conservation District will be required to provide 50% of the cost of the feasibility phase. Attachment 1 is a letter of intent from each of the local sponsors stating their willingness and ability to pursue the interim feasibility study and to share in its cost and an understanding of the cost sharing required for potential project construction.

8. SUMMARY OF FEASIBILITY INTERIM FEASIBILITY STUDY ASSUMPTIONS AND EXCEPTIONS

a. Kingfisher

(1) More detailed mapping will be done to facilitate the hydrology and hydraulics analysis. A geographical information system (GIS) will be used to present data in a geo-spatial referenced format.
(2) The study schedule assumes that the sponsor will fully support the schedule. Coordination will continue on this item.
(3) The cost estimate assumes no problems with HTRW materials.
(4) The real estate estimate for LERRD's will be based on a gross appraisal; the detailed Real Estate Design Memo will be part of the plans and specifications phase.
(5) Only the main report will be reproduced on paper. The technical appendices will be reproduced as a compact disk.
(6) Any sites that would require mitigation for any reason will be eliminated from consideration.
(7) Only minimal geotechnical exploration and testing will be done.

b. Turkey Creek

(1) The number of stream miles restored will be determined during feasibility studies.
(2) A Coordination Act Report from the U.S. Fish and Wildlife Service will not be necessary.
(3) Existing mapping will be used if possible. A GIS will be used to present data in a geo-spatial referenced format.
(4) The study schedule assumes that the sponsor will fully support the schedule. Coordination will continue on this item.
(5) The cost estimate assumes no problems with HTRW materials.
(6) The real estate estimate for LERRD's will be based on a gross appraisal; the detailed Real Estate Design Memo will be part of the plans and specifications phase.
(7) Only the main report will be reproduced on paper. The technical appendices will be reproduced as a compact disk.

(8) The implementation cost estimate assumes that there are no significant historical or cultural sites in the study area.

9. FEASIBILITY PHASE MILESTONES

KINGFISHER COUNTY

Milestone	Description	Duration (months)	Cumulative (months)
1	Initiate Study	0	0
2	Public WorKansashop #1 (scoping)	3	3
3	Feasibility Scoping Meeting	2	5
4	Field Investigations	4	9
5	Decision Milestone at $100,000	*	10
6	Plan Formulation	4	13
7	Alternative Formulation Briefing	2	15
8	Public WorKansashop #2	4	19
9	Draft Feasibility Report	6	25
10	Policy Compliance Review	2	27
11	Complete Final Report	2	29
12	Report Approvals	3	31
13	DE's Public Notice	1	32
14	Chief's Report	6	38

TURKEY CREEK

Milestone	Description	Duration (months)	Cumulative (months)
1	Initiate Study	0	0
2	Public WorKansashop #1 (scoping)	3	3
3	Feasibility Scoping Meeting	2	5
4	Field Investigations	4	9
5	Decision Milestone at $100,000	*	10
6	Plan Formulation	4	13
7	Alternative Formulation Briefing	2	15
8	Public WorKansashop #2	4	19
9	Draft Feasibility Report	6	25
10	Policy Compliance Review	2	27
11	Complete Final Report	2	29
12	Report Approvals	3	31
13	DE's Public Notice	1	32
14	Chief's Report	6	38

10. FEASIBILITY PHASE COST ESTIMATE

Note: The In-Kind Services are estimates. The amounts will be decided during negotiations on the PSP for each study.

KINGFISHER COUNTY

Major Work Items	Total Study Costs	Sponsor	Federal
Public Involvement	$ 20,000	$ 10,000	$ 10,000
Environmental Studies	$100,000	$ 50,000	$ 50,000
Economic Studies	$ 20,000	$ 10,000	$ 10,000
Project Management/Planning	$ 75,000	$ 37,500	$ 37,500
Engineering/Design	$288,000	$144,000	$144,000
Report Preparation	$ 28,000	$ 14,000	$ 14,000
Real Estate Studies	$ 30,000	$ 15,000	$ 15,000
Washington Level Review (5%)	$ 34,000	$ 17,000	$ 17,000
Contingency (10%)	$ 67,000	$ 33,500	$ 33,500
Subtotal IN-KIND SERVICES		$100,000	
Subtotal CASH FUNDS		$231,000	
TOTALS	$662,000	$331,000	$331,000

TURKEY CREEK

Major Work Items	Total Study Costs	Sponsor	Federal
Public Involvement	$ 20,000	$ 10,000	$ 10,000
Environmental Studies	$200,000	$100,000	$100,000
Economic Studies	$ 20,000	$ 10,000	$ 10,000
Project Management/Planning	$ 75,000	$ 37,500	$ 37,500
H&H	$ 30,000	$ 25,000	$ 5,000
Design/Cost Engineering	$ 20,000	$ 0	$ 20,000
Report Preparation	$ 28,000	$ 14,000	$ 14,000
Real Estate Studies	$ 30,000	$ 15,000	$ 15,000
Washington Level Review (5%)	$ 25,000	$ 12,500	$ 12,500
Contingency (10%)	$ 50,000	$ 25,000	$ 25,000
Subtotal IN-KIND SERVICES		$124,500	
Subtotal CASH FUNDS		$124,500	
TOTALS	$498,000	$249,000	$249,000

11. POTENTIAL ISSUES AFFECTING INITIATION OF FEASIBILITY PHASE

a. Continuation of these studies into the cost-shared feasibility phase is contingent upon executing the Feasibility Cost Sharing Agreement (FCSA) for each interim feasibility study. Failure to achieve an executed FCSA within 18 months of the beginning of the reconnaissance phase may result in termination of the interim feasibility study. There are no apparent issues for any of the studies at this time that impact on implementation of the feasibility phase.

b. The schedule for signing the FCSA for the Kingfisher County interim feasibility study is January 2001. The schedule for signing the FCSA for the Turkey Creek interim feasibility study is in June 2001. The study start is scheduled for October 2001. The later dates are due to the sponsor's funding constraints. Based on the schedule of milestones in Paragraph 9, expected completion of the feasibility report for Kingfisher County is in March 2004, with a potential Congressional Authorization in WRDA 2006. Expected completion of the feasibility report for Turkey Creek is in December 2004, with a potential Congressional Authorization in WRDA 2007.

12. VIEWS OF OTHER RESOURCE AGENCIES

The study team did only limited and informal coordination with other resource agencies because of the funding and time constraints of the reconnaissance phase,. The agencies expressed the following views:

a. The Natural Resources Conservation Service participated in preliminary scoping and is supportive of the Kingfisher County study.

b. The U.S. Fish and Wildlife Service supports the restoration of wetlands in Kingfisher County and the Turkey Creek watershed.

c. The Oklahoma Water Resources Board is supportive of the studies.

13. PROJECT AREA MAP

Attachment 2 provides a map of the reconnaissance study area. Attachment 3 provides maps for the Kingfisher County interim feasibility study area and the Turkey Creek interim feasibility study area.

14. RECOMMENDATIONS

I recommend that the U.S. Army Corps of Engineers, Tulsa District proceed with two cost-shared interim feasibility studies.

a. The Kingfisher County Conservation District will cost share the Kingfisher County interim feasibility study. A preliminary cost estimate for the Kingfisher County feasibility study is $662,000; the preliminary estimate for the study schedule is about 3 years. The Project Study Plan will refine these estimates.

b. The Oklahoma Conservation Commission will cost share the Turkey Creek interim feasibility study. A preliminary cost estimate for the Turkey Creek feasibility study is $498,000; the preliminary estimate for the study schedule is about 3 years. The Project Study Plan will refine these estimates.

3 August 2000
Date

FOR Lawrence M. Norton

LEONARDO V. FLOR
Colonel, U.S. Army
District Engineer

Lawrence M. Norton
Lieutenant Colonel, U.S. Army
Acting District Engineer

ATTACHMENT 1

Kingfisher County Conservation District
2110 South Main
Kingfisher, OK 73750
PHONE (405) 375-5373 FAX (405) 375-3201

06/27/2000

Col. Leonardo Flor
District Engineer
Tulsa District, Corps of Engineers
1645 South 101st East Ave.
Tulsa, OK 74128-4609

Dear Col. Flor,

This is to request assistance from the Corps of Engineers for Kingfisher County water resource problems. Kingfisher County is interested in restoring lost wetlands in the Kingfisher Creek watershed. I understand that the Corps of Engineers can conduct a cost-shared feasibility study of our water resources problems under the General Investigations Program.

A group of local county and state officials with environmental interests have been working on a proposal to create wetlands in the Kingfisher Creek basin that would provide some flood control storage and lessen the impact of the creek flooding in addition to restoring lost wildlife habitat. I understand that the local cost share for the feasibility study would be 50 percent; up to half of which can be provided as in-kind services. I also understand that preconstruction engineering and design and construction for environmental restoration measures area cost-shared at a maximum of 65 percent Federal and a minimum of 35 percent by the local sponsor. The local sponsor provided all the lands, easements, rights-of-way, relocations and disposal areas needed for the project as part of their share of the project.

The purpose of this letter is to express the intent of the Kingfisher County Conservation District to enter into negotiations for the feasibility phase. The Project Study Plan developed during the negotiations will describe the study activities, proposed schedule and cost of the study. I understand that this letter is not a contractual obligation on the part of either the Corps or the conservation district and either party may discontinue the project development process at any time.

Thank you for your attention to my request. We look forward to working with the Corps to help solve the problems in the Kingfisher Creek Watershed.

Sincerely

Greg Borel

cc: East Canadian County CD
Blaine County CD
Cimarron Valley CD
Central North Canadian River CD

MASON MUNGLE
EXECUTIVE DIRECTOR

BEN POLLARD
ASSISTANT DIRECTOR

STATE OF OKLAHOMA
OKLAHOMA CONSERVATION COMMISSION

Col. Leonardo Flor
District Engineer
Tulsa District, Corps of Engineers
1645 South 101st East Ave.
Tulsa, OK 74128-4609

July 28, 2000

Dear Col. Flor:

The Oklahoma Conservation Commission (OCC) would like the Tulsa District Corps of Engineers (COE) to participate in a watershed restoration project in the Turkey Creek watershed located, primarily, in Garfield County, Oklahoma. The OCC is developing plans to implement a watershed scale Clean Water Act §319 Non-Point Source pollution demonstration project that involves education, restoration, and demonstration of alternative practices. The OCC is intent on improving the Turkey Creek watershed: by addressing sources of nutrient and bacterial pollution; by preventing stream bank erosion; by restoring wetland and riparian habitat; and by creating economic incentives to adopt effective best management practices that protect the human and natural environment. It has come to my attention, that the COE has authority to participate in restoration activities in the Cimarron River watershed. As you are probably aware, Turkey Creek is a tributary of the Cimarron River.

The OCC would be interested in partnering with the COE under one of the funding sources available, for instance §206 of the Water Resources Development Act of 1996 or a General Investigations Program feasibility study. Given the anticipated scale and scope of this effort, the OCC would like to partner with other agencies to maximize time, talent, and economic resources.

The purpose of this letter is to express the intent of the OCC to enter into a dialogue with the COE to discuss the scope of the project and develop plans for the "Feasibility Phase". The

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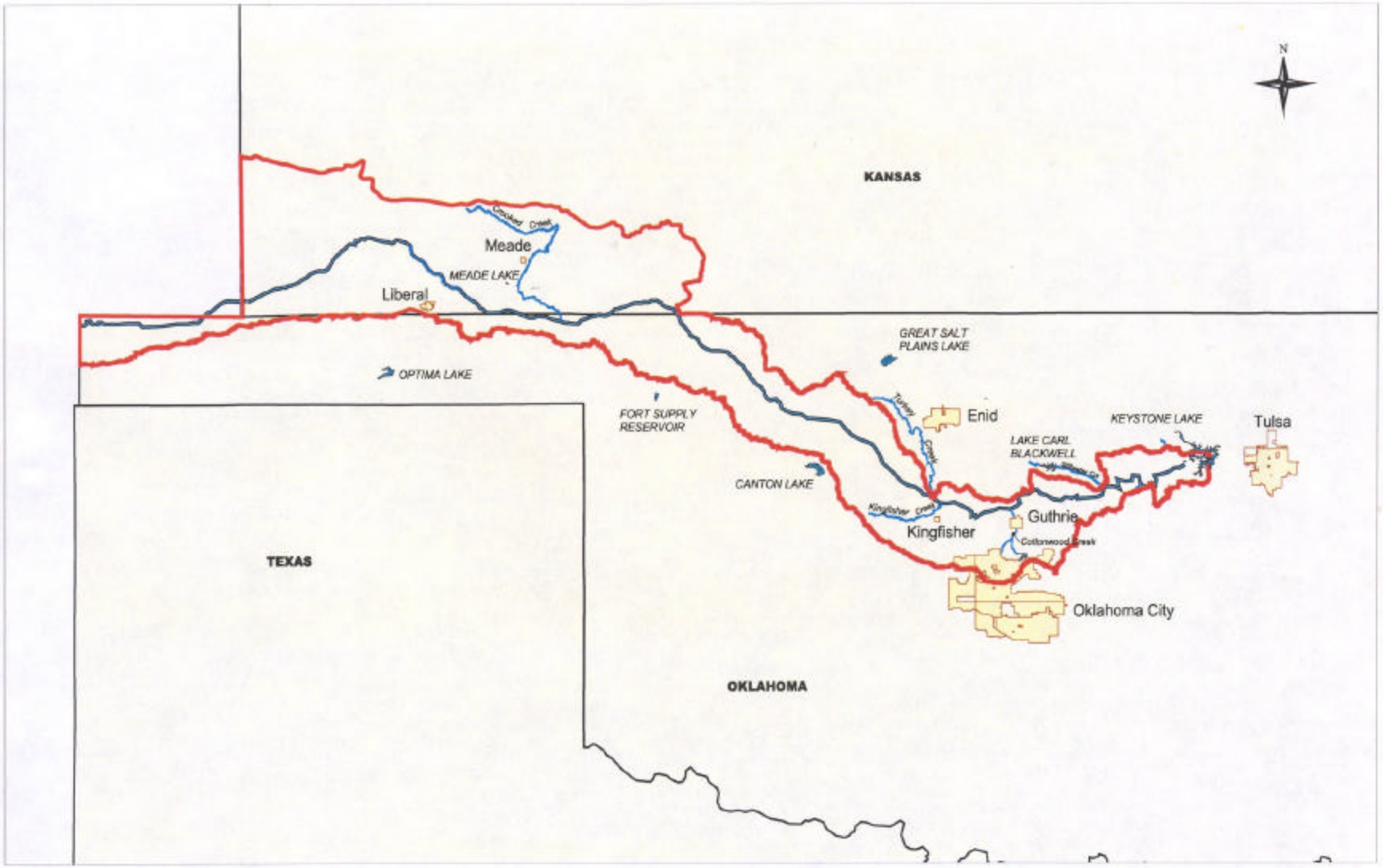
"Project Study Plan", developed during the negotiations, will describe the study activities, proposed schedule and cost of the study. If the feasibility study is the best way to meet the OCC's needs, we would be willing and capable of participating in cost-shared feasibility studies. I understand that this letter is not a contractual obligation on the part of either the Corps or the Conservation Commission, and either party may discontinue the project development process at any time.

Thank you for your time and attention. I look forward to working with the COE to help address the problems in the Turkey Creek Watershed.

Sincerely,

Scott Stoodley, Ph.D.
Director of Water Quality Programs

ATTACHMENT 2



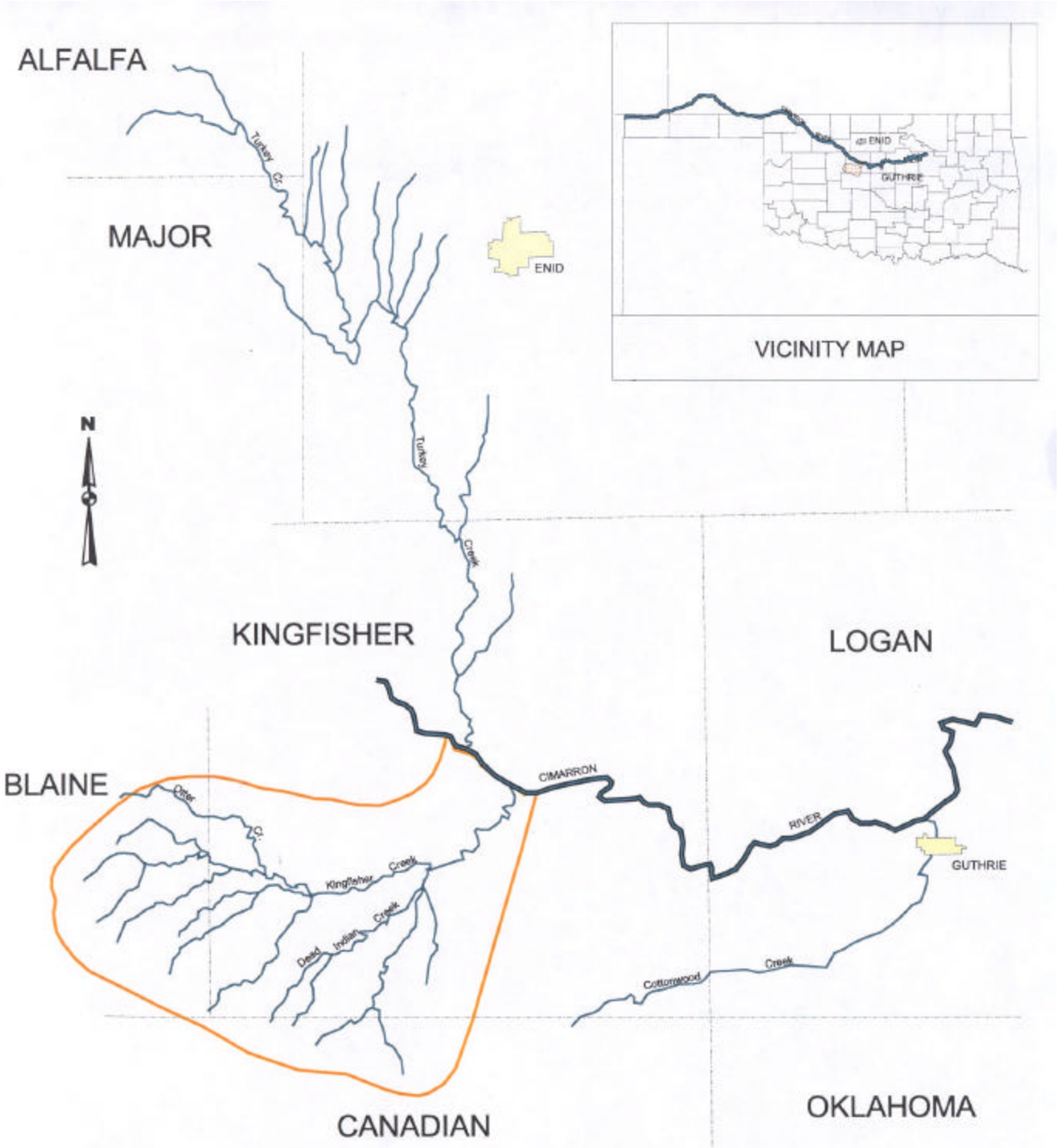
LEGEND:

Cimarron Major Basin

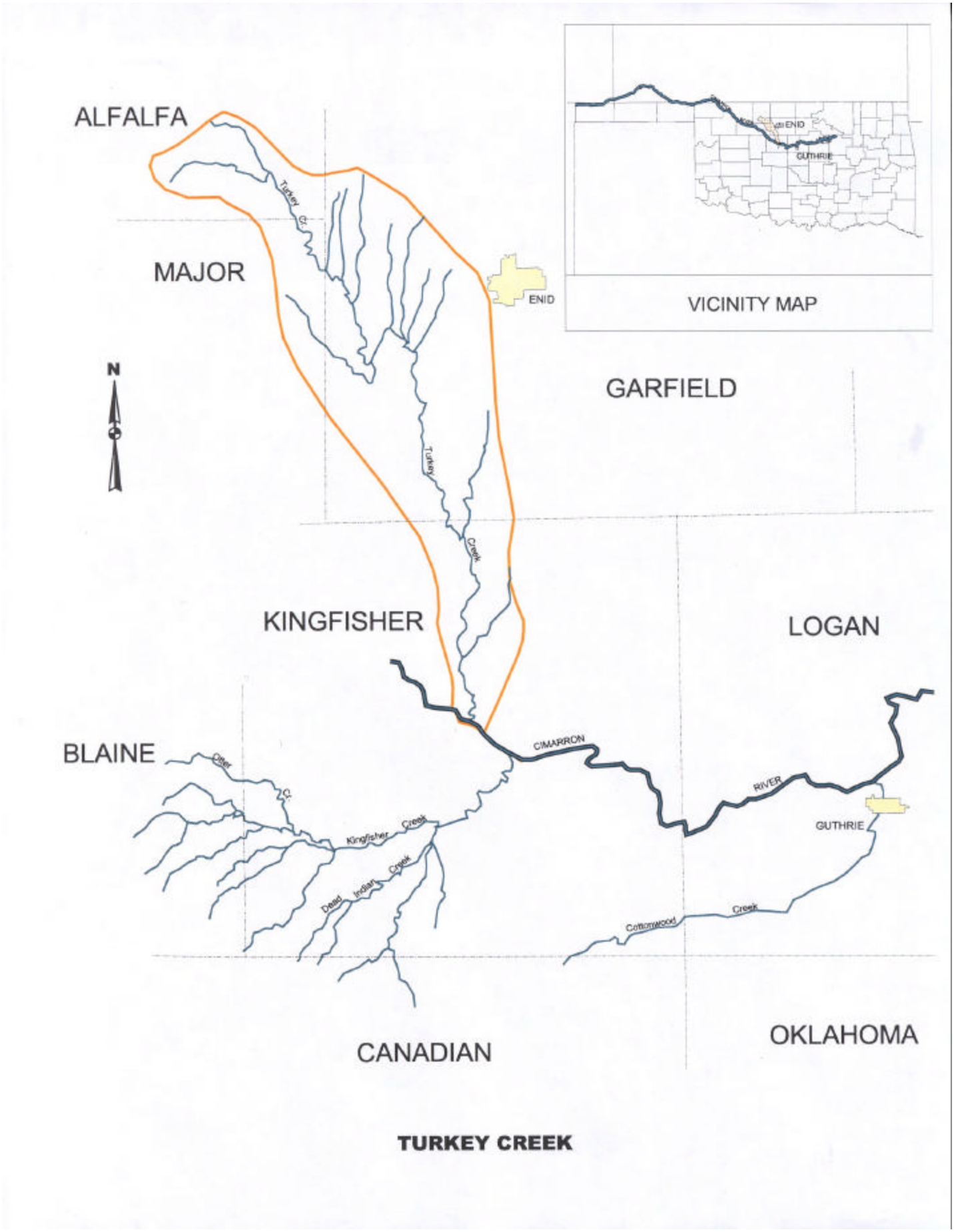
Cimarron River

CIMARRON RIVER BASIN
Oklahoma and Kansas

ATTACHMENT 3



KINGFISHER CREEK



TURKEY CREEK