

**Project:** 6

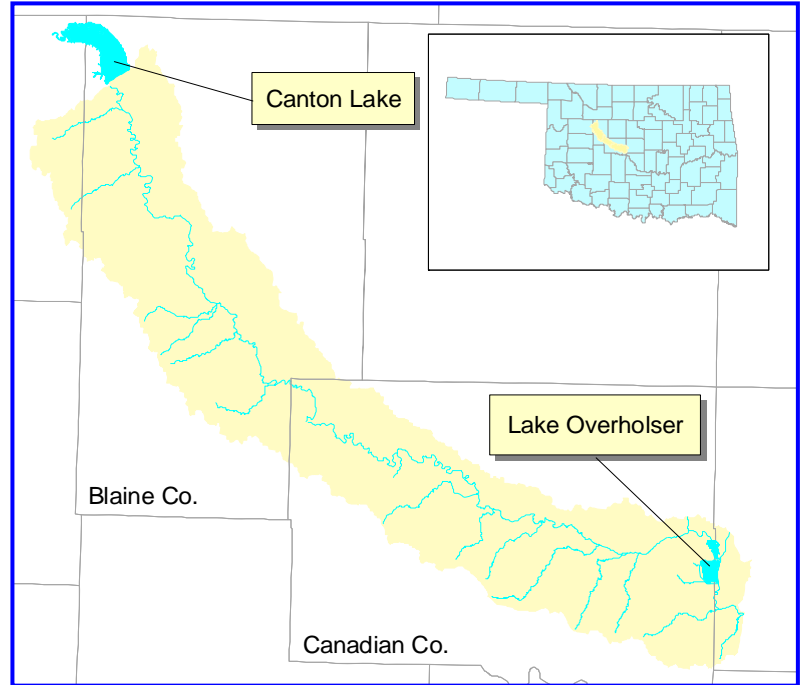
**Agency:** Oklahoma Conservation Commission

**Title:** North Canadian River Watershed Implementation Project

**INTRODUCTION:**

**Project Location:**

The North Canadian River between Lakes Canton and Overholser is located in the Central Great Plains and Cross Timbers Ecoregions in west-central Oklahoma. Extending from Dewey through Blaine and Canadian to Oklahoma counties, the watershed covers approximately 680 square miles. The HUC 11 watersheds included in this project are 11100301060, 11100301070, and 11100301080, and the Oklahoma watershed ID of this segment of the river is 520530.



The North Canadian River extends across much of the state of Oklahoma, from the panhandle to Lake Eufaula in east-central, Oklahoma.

## Problem Statement

The North Canadian River Watershed between Lakes Canton and Overholser extends through wheat and pasture/rangeland in the west to growing urban areas of El Reno and Yukon in the eastern portion of the watershed.

Water samples at various locations along the North Canadian River have repeatedly exceeded Oklahoma water quality standards for *Enterococcus* and turbidity. As a result, this segment of the North Canadian River is on the 2004 303(d) list as impaired for pathogens and turbidity. Other 303(d) listed waterbodies within the watershed include Lake Overholser and El Reno Lake, which are impaired by turbidity, and Shell Creek, which is impaired for pathogens and low dissolved oxygen. In addition, the Lake Overholser watershed up to the Canton Dam was designated a nutrient-limited watershed in 2006 due to TSI values exceeding 62 in the lake.

Initial research indicates a large nonpoint source component in the impairment problems of the North Canadian watershed. Recent efforts to address water quality issues in this watershed include NRCS EQIP programs through the Blaine County Conservation District in Blaine County and through the East Canadian County and Central North Canadian River Conservation Districts in Canadian County. A portion of this watershed lies in the "Cheyenne & Arapaho Indian Lands Special Emphasis Area," which covers 75,560 acres in Blaine, Canadian, Custer, Dewey, Kingfisher, Roger Mills and Washita counties. These programs are focused primarily on reduction of soil erosion. Both the USGS and the OWRB have permanent monitoring stations at several points in the watershed.

The Oklahoma Department of Environmental Quality (ODEQ) has released drafts of two TMDLs for bacteria loading to the North Canadian River. The 2005 TMDL recommended an 88% reduction in *Enterococcus*, the most stringent of the three bacteria criteria examined, based on data collected from 1997-2003 (ODEQ 2005). The Association of Central Oklahoma Governments (ACOG), in partnership with ODEQ, drafted a TMDL in March 2006, which overlaps slightly with the previous document and includes the watershed downstream. This TMDL, based on watershed data collected between May 2003 and September 2003, recommended a 73% fecal coliform load reduction and a 96% *Enterococcus* load reduction to restore beneficial use support to the North Canadian River in Canadian County (ODEQ 2006).

The TMDLs did not differentiate between sources of loading within the watershed but instead recommended equivalent percentage reductions from both point and nonpoint sources. Urban areas in the watershed will have increased pressure to improve their phase II stormwater permits to address bacterial loading and to ensure that their point sources are fully compliant with permits. Although TMDLs have not yet been completed for turbidity or nutrients, it is safe to assume that reductions in bacteria will address at least some of the significant sources of nutrients and turbidity.

At the same time urban sources are addressed, agricultural sources will need to reduce bacteria, sediment, and nutrient loading. A 1999-2000 study completed by the

Oklahoma Water Resources Board for the city of Oklahoma City suggest a potential, but not definitive link between the five CAFOs in the watershed and bacteria loading to the river. The report noted that there was “no direct connection between CAFO runoff and the North Canadian River”, although it was possible for some of the bacteria in the river to originate from the CAFOs. In addition, according to ODAFF, there have been no reported performance problems for CAFOs in the watershed (ODEQ, 2005). Therefore, reductions in agricultural sources of bacteria, sediment, and nutrients will likely need to focus in pasture/rangeland and cropland, yet consider additional potential sources such as streambank erosion, septic systems, and county road erosion.

In 2004, the three conservation districts in the watershed, the Blaine County CD, Central North Canadian River CD and the East Canadian County CD joined together in order to seek assistance for a program in the area to address water quality problems. They recognized that the importance of the agricultural industry in the watershed, coupled with degradation of water quality in the North Canadian (the primary alluvial recharge area for many rural and metropolitan drinking water sources) called for the local agricultural community to demonstrate its willingness to do its part to address water pollution. Their goal in developing a partnership and pursuing programs was to successfully demonstrate the value and efficiency of voluntary efforts to address nonpoint source pollution.

**Objective:**

A Watershed Based Plan (WBP) has been drafted for the watershed. TMDLs drafted for the watershed have set a bacterial load reduction of at least 73%. The TMDLs and future evolutions of the WBP may further define the water quality problems and identify additional measures needed to achieve water quality improvements in the North Canadian River Watershed. This project will focus on the nonpoint source (NPS) water quality problems identified to date. Agricultural and urban activities appear to be the major NPS sources of impact. Most urban activities that are likely contributing are under regulatory control of MS IV and NPDES permits. Therefore, activities in this workplan will focus on reduction of agricultural impacts to the watershed. The activities in this work program will become major components of future evolutions of the WBP and will be revisited once additional TMDLs or other major activities in the watershed are complete.

Based on the knowledge gained through similar watersheds in this portion of the State, the objective of this project is to initiate a watershed scale effort to reduce NPS loading and eliminate threats and impairments to the North Canadian River Watershed between Canton and Overholser. In accomplishing this goal, loadings as established in the TMDL and concentrations specified in Water Quality Standards will eventually be met. The education, implementation, and monitoring activities outlined in this work plan are only the first step in what should be a long-term effort to achieve the objective.

## **Overview:**

This project will be managed by the OCC with oversight from the Office of the Secretary of Environment. Judith Wilkins, OCC's Environmental Project Coordinator will be the overall Project Manager although completion of individual tasks will be the responsibility of various individuals as detailed later. The project activities will be funded three years of the program, to be continued at a later date with additional 319 and other sources of funding. Activities funded under this workplan will begin in September, 2007 and end in August 2010. Certain activities may be contracted out to insure completion of a quality product in a timely, cost effective manner. Further discussion of the project overview is detailed under each project task.

Potential sources in the watershed include both agricultural and urban sources. The development of the TMDL will require urban areas to take steps to address sources within their control; however agricultural sources, although largely unregulated, have indicated their desire to be part of the solution through the actions of the three conservation districts in seeking assistance. This initial effort will focus on reduction of agricultural sources although later programs may include components that address urban sources.

This project was developed based on the nine key components of a watershed based plan. Although not all components of the WBP are addressed specifically in the workplan, it was developed to work towards the goals and activities outlined in the WBP.

## **Project Tasks:**

### **Task 6.1. Targeting Nonpoint Source Pollution<sup>1</sup>**

Task Description: The North Canadian River Watershed covers about 118 square miles in central and west-central Oklahoma. TMDLs have determined load reductions required to meet primary body contact recreation, but little has been done to pinpoint the location or concentration of sources or to verify whether or not certain land uses and potential sources contribute to the problem. In addition, TMDLs have not been developed for sediment and nutrients which also cause water quality impairments in the watershed.

Available resources are inadequate to blanket the entire watershed with best management practices to reduce NPS pollution from all sources. Therefore, the program will focus practices, selecting agricultural areas where they are needed the most and where the environmental benefit will be maximized. OCC will utilize a targeting process funded under the FY 2004 program for this effort. The FY 2004 effort will include results specific to this section of the North Canadian River Watershed and

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<sup>1</sup> Completion of targeting under the FY 2004 NPS Technical Support Project will allow the Watershed Based Plan to be updated and help tie TMDL load reduction goals more specifically to potential sources in the North Canadian River Watershed by identifying critical areas for implementation.

will also provide preliminary goals for nutrient and sediment reduction to meet water quality standards.

Task Objective: The objective of this task is to define the method used to target resources at the most significant sources and in the most cost-effective manner in the North Canadian River Watershed. Completion of this task will also identify, more specifically, the critical areas of the watershed in which measures must be implemented to reduce NPS pollution, and be used to update a portion of component (c) of a watershed based plan.

Task Activities: The result of the targeting effort will be a detailed map of areas in the North Canadian River Watershed most likely producing the greatest nutrient, sediment, and bacterial loading. In addition, estimated loadings from subwatersheds will be provided in both a map and tabular form such that the greatest contributing subwatersheds can be targeted first by the Project Coordinator. This will suggest agricultural areas of the watershed where the most efficient load reduction can be accomplished. The targeting report will also suggest nutrient and sediment reduction goals necessary to meet water quality standards in the watershed.

Targeting efforts will be coordinated with the local NRCS offices that are actively assisting with the program. The purpose of this coordination includes leveraging of funds to our mutual benefit. If it is determined that an individual does not meet our particular needs for this program, they may still be suited to enroll in one of the many USDA programs. For example, EQIP provides funding for many practices that the 319 program will not. If a landowner cannot participate in 319, then they may choose to pursue an EQIP contract. In this fashion, both agencies will benefit from the relationship and work towards our mutual goals. Targeting results will also be shared with NRCS offices and Conservation Districts in the watershed.

The targeting has been contracted out to the Oklahoma State University Department of Biosystems and Agricultural Engineering, who has previous experience conducting similar exercises, as part of the FY 2004 project and therefore will not be funded under this project.

The Environmental Project Coordinator (Judith Wilkins, funded annually under the implementation task of OCC Implementation of NPS Management Program Projects such as FY 2007/2008 Project 2) will be responsible for insuring that the targeting contractors remain on schedule and that reports and tasks are completed in a timely manner.

Task Schedule:

Subtask #	Milestone Description	Completion Date
6.1.1	Receive results from contractor in report form	August 2007
6.1.2	Meet with Conservation District to discuss results of first	September 2007

	stage	
6.1.3	Develop an implementation plan for the program that defines the practices, cost-share rates, and areas of the watershed that will be targeted through the program in addition to setting load reduction goals for the initial portion of the program	November 2007

\* No funding for these tasks is provided with this workplan

Deliverables:

Subtask #	Deliverable	Due Date
6.1.1	Targeting Results	August 2007
6.1.3	Pre-implementation Plan	November 2007

## **Task 6.2. Project Local Management.**

Task Description: Task two involves employing a Project Coordinator and establishing a Watershed Advisory Group. The Project Coordinator will coordinate the planning effort on water quality issues in the North Canadian River Watershed and write conservation plans. The coordinator will also work with the various groups in the watershed to reduce duplication of efforts. The coordinator will be responsible for the tasks listed below.

- Identify landowners in need of conservation plans and write conservation plans to address NPS-related water quality problems based on the results of stage one targeting. These plans will include animal waste plans and nutrient management plans, as necessary. Residential landowners who live within the targeted area will also be encouraged to participate.
- Coordinate the Watershed Advisory Group (WAG).
- Coordinate planning efforts with NRCS, Conservation Districts, and other groups as necessary.
- In coordination with the education coordinator/plan writer, assist with local citizen meetings in the watershed on water quality issues.
- Represent the Project Interests at Conservation District Board Meetings.
- Cooperate with NRCS to insure that water quality concerns are addressed.
- In coordination with the education coordinator/plan writer, hold periodic meetings with the various groups working in the watershed.
- Participate in the educational programs in the watershed.
- Compile photographs of implementation sites, before and after implementation
- Review landowner progress in meeting contracted goals.

The Coordinator's position is a full time position, with duration of three years from September 2007 through August 2010.

The Watershed Advisory Group will be made up of local citizens from the watershed, representing each of the major stakeholder groups such as Conservation Districts, cattlemen, wheat farmers, cities, tribes, etc. The WAG will represent the best interests

of the watershed to recommend the practices and cost-share rates that will be offered through this program.

The three Conservation Districts will provide substantial support for the implementation of this project. The Districts will provide clerical support for the program and participate in the educational activities. The Districts will also provide office and telephone service for the project staff. Support will be provided to the participating district to help offset the office space, telephone, and clerical workload costs. The Conservation Districts will also recommend potential WAG members to the OCC.

Task Objective: The objective of this task is to insure localized project input and management.

Task Schedule:

Subtask #	Description	Milestones
6.2.1	Establish district support agreements	September 2007
6.2.2	Hire Project Coordinator	September 2007
6.2.3	Select a WAG and hold first meeting	September 2007

Task 6.2 Deliverables

Subtask #	Description	Due Date
6.2.3	WAG and Conservation District Meeting Minutes and Agendas	With final report

Task 6.2 Budget:

Position	Salary	Fringe	Travel	Contractual	Supplies
On-site Coordinator*	\$97,878	\$31,964	3,000	Lease Vehicle \$14,400	\$7,250
District support agreements				\$36,000	

\* Position not included nor funded in FY 2007/2008 319(h) Projects 2 - 4.

**Task 6.3. Implement Practices and Achievable Water Quality Improvements**

**Task 6.3.1 Watershed Based Plan Updates**

A Watershed Based Plan (WBP), addressing the nine key elements identified in FY 2004 319 guidance has been developed for the North Canadian River Watershed. *The Nonpoint Source Program and Grants Guidelines for States and Territories for FY 2004 and Beyond* requires a Watershed Based Plan (WBP) to be completed prior to implementation using incremental funds. The WBP is intended to be an evolving document, revised upon completion of major efforts in the watershed. The WBP will continue to evolve, as the targeting and additional TMDLs are completed, and as results of the first phase of activities in the watershed reveal whether or not further implementation is necessary to achieve beneficial use support.

As a component of the WBP, specific areas in the watershed will be targeted for installation of Best Management Practices that can reduce NPS loads related to nutrients, sediment, and fecal bacteria. The location of these critical areas will be selected through the methodology described in Task 6.1. The practices that will be promoted will focus on: 1) implementing the reduction goal for bacterial, sediment, and nutrient loading to the North Canadian River in accord with the initial goals specified in the watershed based plan, and 2) implementing additional objectives of the Watershed Based Plan. Best Management Practices will also be promoted that will reduce pollutants from the sources identified in Oklahoma's Integrated Report and pollutants identified by recent monitoring programs.

The current Watershed Based Plan specifies loading reduction goals specific to the bacterial TMDLs. Controls necessary to meet these reductions should also result in reduction in nutrient and sediment loading. Completion of the targeting which is expected prior to the beginning of this project will also set preliminary goals for nutrient and sediment loading believed necessary to meet water quality standards. Once that targeting has been completed, the Watershed Based Plan will be updated to include more specific goals and strategies to meet those goals.

Project Conservation Plans and agreements will be developed by the OCC and implemented by the Conservation District and NRCS representatives as part of this project. Following the development of these plans and agreements, an appendix to the Watershed Based Plan will be drafted that will detail the location and nature of practices planned for the watershed and to fine-tune the estimate of load reduction potential from those practices

### **Task 6.3.2 BMP Implementation**

This sub-task describes the implementation of practices projected for the North Canadian River Watershed. The BMPs that will be implemented in the watershed will focus on reduction of nutrient, sediment, and bacteria loading. A Watershed Advisory Group will be assembled to suggest practices and cost-share rates. Examples of practices that will be suggested to the WAG include (1) riparian establishment to include fencing, vegetative establishment, off-site watering, livestock shelters and incentive payments; (2) buffers zone establishment to include fencing and incentive payments; (3) streambank stabilization to include fencing and vegetative plantings; (4) animal waste storage facilities; (5) no-till farming; (6) pasture management/pasture establishment; (7) heavy use areas, (8) nutrient management, (9) on-site wastewater systems (septic systems), (10) grade stabilization structures, (11) terraces, and (12) grassed waterways.

Oversight of implementation will be the responsibility of the Project Coordinator with assistance from the three Conservation Districts and additional OCC staff. The OCC staff will draft the farm plans and agreements between the landowner and conservation district to implement approved practices. Distribution of funds will follow the pattern

established with previous projects such as the 2003 Spavinaw Creek Implementation Project and the 2005 Fort Cobb Watershed Implementation Project.

Implementation will occur on cooperator farms, residences, or commercial properties. The landowners selected through the targeting practices delineated earlier will implement practices on a cost-share basis. This mechanism will occur much in the same way as in other priority watershed projects.

Success of these practices should help spread the efforts to remaining parts of the watershed. The conservation districts, using the locally led State cost-share program, will glean information from the project on the Best Management Practices that will reduce nutrient loading to the streams in the North Canadian River Watershed.

A detailed plan for the initial phase of implementation will be appended to the finalized Watershed Based Plan, once the initial signup period is complete. This plan will detail the location of needs, the location of the initial cooperators, and the initial planned practices. This plan will also evaluate, on a subwatershed level, the load reduction likely to result from the planned practices. It is likely that not all producers in the critical areas will be willing or able to participate initially in the project. This implementation plan will allow project planners to evaluate the completeness of the initial effort and such that a follow-up effort can be developed as necessary to target producers who did not participate in the initial program but who could have a significant impact on water quality in the watershed. This plan will be presented to NRCS (at the state and local levels) to facilitate cooperation between the 319 program and the use of EQIP funds.

### **Task 6.3.3 Tracking of BMP Implementation**

A GIS data layer of farm plans will be created and maintained by the Project Coordinator. BMPs as planned and implemented will be tracked for future watershed modeling and for reporting project performance. Project staff will make regular site visits to assess progress in implementing planned BMPs. Semiannual progress reviews will formally assess cooperator performance. Where implementation problems are identified, the Project Coordinator will follow through with plan revisions or cancellation of the cooperator's agreement and reallocation of the funds to implement practices elsewhere within the project area. Details will be summarized in the project final report.

The final report will attempt, where possible, to report on BMPs implemented in the watershed through other means such as through the EQIP program, the State-funded, locally-led cost-share program, and solely through landowner funding. NRCS does not routinely release this information and therefore, it is unknown to what extent USDA program information can be reported. As possible, implementation data will be presented in a GIS format. At a minimum, financial information concerning EQIP and locally led cost-share funds will be presented. In addition, load reductions expected due to 319 implementation of practices will be estimated using a watershed-based model such as SWAT or StepL.

Task Objective: The purpose of this task is to implement those practices to reduce NPS loading to the North Canadian River.

Task Schedule:

Subtask #	Milestone Description	Due Date
6.3.1.a	Appendix to WBP that includes the specific Pre-Implementation Plan (6.1.3) for this project which will provide greater detail on practices to be implemented as part of this project and expected results. Appendix will also summarize initial practices that are planned through the initial obligation periods and predict load reductions that could result from that implementation.	January 2008
6.3.1.b	Presentation of specific Pre-Implementation Plan (6.1.3 and 6.3.1.a) to state and local level NRCS to facilitate cooperation between the 319 program and EQIP	January 2008
6.3.2	BMP Implementation	January 2008 – August 2010
6.3.3	Tracking of BMP Implementation	January 2008 – August 2010

Deliverables:

Subtask #	Description	Due Date
6.3.1	Appendix to WBP that includes specific Pre-Implementation Plan for this project which will provide greater detail on practices to be implemented as part of this project and expected results. Appendix will also summarize initial practices that are planned through the initial obligation periods and predict load reductions that could result from that implementation	January 2008

Task Budget:

Total Implementation	Producer Input	State Funds for BMP Implementation	Federal Funds for BMP Implementation
\$779,637	\$100,000	\$410,999	\$268,638

**Task 6.4 Watershed Education Program**

This project is intended to affect long-term behavioral changes of watershed residents and users that will assure continued protection of water quality in the North Canadian

River Watershed. Substantial effort in this project is devoted to selecting and implementing practices essential for this goal. The education program must ensure widespread adoption of these practices over the entire watershed. The education program must also be established in a fashion such that it will continue past the life of the project.

**Task 6.4.A.** The education program will be guided and implemented by the Project Education Coordinator/Plan Writer and the Conservation Districts. The North Canadian River education program will be developed around the following goals:

- (1) Involving landowners in the targeted areas in education programs designed to explain the water quality problems and what can be done to reduce potential agricultural impacts.
- (2) The project education coordinator/plan writer will write monthly articles for area newsletters and/or newspapers about project activities.
- (3) Work with Conservation Districts on a Blue Thumb program in the watershed.
- (4) Form an Education Watershed Advisory Group to set additional goals for the program.
- (5) Exhibits – develop a display for the project that can be used to educate the public on the 319 Program. Display should include basic information on the program, its cooperators, and contact people of ongoing programs in the watershed.
- (6) Develop a recognition program for project cooperators.
- (7) Track how participation in the education program has changed people’s behaviors. Project Education coordinator will follow five to ten percent of people intercepted through different aspects of this and related project activities and will contact them on an annual basis throughout the project period to determine whether they have made any changes that would affect NPS pollution.
- (8) Assist the project coordinator with plan conservation/farm plan development as needed.

Task Objective: The purpose of this task is to develop an education program that will help the citizens of the North Canadian River Watershed reduce NPS pollution.

Task Schedule:

Subtask #	Milestone Description	Due Date
6.4.1	Conduct at least semiannual education programs (6 total) for producers to focus on NPS pollution in the watershed and potential solutions producers can help work towards, specific BMPs, etc.	At least two per year between September 2007 and August 2010
6.4.2	Publish at least monthly articles in newsletters or newspapers (36 total)	September 2007 to August 2010
6.4.3	Hold Blue Thumb Training in	March 2008

	watershed	
6.4.4	Develop a display on program that is showcased at a minimum of 4 fairs, home shows, trade shows, or similar events each year during the project.	March 2008
6.4.5	Develop a recognition program for local cooperators- articles, certificates, signs, etc. Program must have WAG approval	November 2007
6.4.6	Tracking behavioral change	Throughout project

\*Position not included or funded under FY2007/2008 319(h) Projects 2-4.

Deliverables:

Subtask #	Description	Due Date
6.4.1	Three copies of all education materials produced during the project and summary of behavioral change <sup>2</sup>	Included with final report

Measures of Success

Overall success of this task will be assessed largely by tracking behavioral change. At least thirty percent of people reached through the project will enact some sort of behavioral change to protect water quality and reduce NPS pollution.

Task Budget:

Position	Salary	Fringe	Travel	Contractual	Supplies
Project Education Coordinator/Plan Writer	\$63,148	\$25,843	3,500	Lease Vehicle \$14,400	\$22,475

\*Position not included or funded under FY2007/2008 319(h) Projects 2-4.

**Task 6.5. Measurement of Success**

Water Quality monitoring is ongoing in this portion of the North Canadian River Watershed, including Oklahoma Water Resources Board monitoring sites on the River and in Canton Lake and Lake Overholser. This monitoring has identified numerous water quality problems as shown in the introductory paragraphs of this work plan. In addition, under Task 6.1, critical areas will be identified in the watershed that are suspected to contribute most significantly to NPS loading in the watershed. This information could provide a baseline for comparison to evaluate changes in water quality and potential sources over the project period.

<sup>2</sup> Fliers, Brochures, and other educational materials produced through the project will be forwarded to EPA for approval prior to the time they are distributed for use in the project.

### **Subtask 6.5.1: Follow-up GIS evaluation of Land Use/Land Cover Changes.**

The ultimate measure of success of the project will be restoration of beneficial use support in the North Canadian River and Lake Overholser. A monitoring program is proposed below to evaluate this success. However, due to the extent of the problem in the North Canadian River, it is unlikely that water quality standard attainment will be measurable at the end of the project period. Therefore, water quality monitoring to evaluate success of the project will be supplemented by comparing the level of implementation completed through the project with the level of implementation suggested as necessary in task 6.1. This effort will suggest additional implementation and funding that may be necessary to result in significant water quality improvement.

### **Subtask 6.5.2. Water Quality Monitoring**

Due to the number of changes ongoing in the watershed relative to past projects, TMDL recommendations, and other factors, it is important to continue to monitor water quality in the system.

OCC will install autosamplers on the North Canadian River, one below Canton Dam, one above Lake Overholser, and perhaps one upstream of the city of El Reno. These autosamplers will be used to collect continuous, flow-weighted samples. In addition, OCC will conduct routine physico-chemical monitoring at autosampler sites, along with collection of bacteriological samples weekly during the recreation season. Biological and habitat monitoring will not be completed as part of this project because the presence of upstream and downstream reservoirs are likely to have a more significant impact on the fishery than this project and the project size is unlikely to significantly impact habitat availability in the North Canadian River. Water Quality Monitoring will begin once the QAPP is approved, and continue throughout the length of the project.

To focus on the parameters of concern, and to reduce monitoring expenses, water quality samples will be analyzed only for total phosphorus, nitrate-nitrogen, nitrite-nitrogen, ammonium nitrogen, total Kjeldahl nitrogen, total coliform, *E. coli*, and *Enterococcus* bacteria. Field parameters to be collected include dissolved oxygen, pH, temperature, turbidity, conductivity and instantaneous discharge, and alkalinity. The QAPP will be submitted by September 2007.

The Oklahoma Water Resources Board, USGS, and metropolitan areas in the watershed conduct water quality monitoring in the Watershed. Data from these sources will also be evaluated according to Oklahoma's water quality standards and Use Support Assessment Protocols to determine whether or not measurable water quality changes have occurred as a result of project efforts.

### **Subtask 6.5.3.**

In addition, OCC will document success with before and after photos of implementation sites. Initial photos will be taken at the time of farm plan preparation. Secondary photos will be taken immediately following BMP installation. Final photos will be taken near the end of the project. This documentation will be summarized in the final report.

Additional measures of success include:

- Full implementation of BMPs as planned in task 6.3.
- A substantial part of the project funding is going toward personnel to work in the watershed to establish and or update conservation plans. The goal for this effort is for 50% of the targeted farms in the North Canadian Watershed to have current conservation plans. We will expect that 60% of those will actively implement the practices recommended in the plans. Subsequent programs will attempt to increase the number of current conservation plans.
- To reach a significant reduction (at least 20%) in load, based on water quality modeling such as SWAT or StepL.

The results of these efforts, along with the project, will be detailed in the project final report.

**Task Schedule:**

Task #	Milestone Description	Due Date
Task 6.5.1	Follow-up GIS evaluation	August 2010
Task 6.5.2	Water Quality Monitoring QAPP	September 2007
Task 6.5.3	Photodocumentation of BMPs	Throughout the project

**Deliverables<sup>3</sup>:**

Subtask #	Description	Due Date
6.5.1	Follow-up GIS evaluation	August 2010
6.5.2	Water Quality Monitoring QAPP	September 2007
6.5.3	Photodocumentation QAPP	November 2007
6.5.4	Final Report	December 2010

**Task Budget:**

Subtask #	Contractual	Supplies	Equipment
6.5.2	\$23,940	\$3,000	\$18,000

\*monitoring completed by staff funding under 2007-2010 Rotating Basin Monitoring Program Projects

**Total Project Outputs:**

Task #	Description	Person Responsible	Due Date
6.1.1	Targeting Results	Contractor	August 2007
6.1.3	Pre-implementation report	Project Coordinator	November 2007
6.2.3	WAG and Conservation District Meeting Minutes and Agendas	Project Coordinator	With final report

<sup>3</sup> To be completed by OCC tech writers funded under FY 2006 – 2010 Project 2.

6.3.1	Appendix to WBP that includes specific Pre-Implementation Plan for this project which will provide greater detail on practices to be implemented as part of this project and expected results	Project Coordinator	January 2008
6.4.1	Three copies of all education materials produced during the project and summary of behavioral change study	Project Coordinator	Included with final report
6.5.1	Follow-up GIS evaluation	OCC Tech Writers	August 2010
6.5.2	Water quality monitoring QAPP	OCC Tech Writers	September 2007
6.5.3	Photodocumentation QAPP	OCC Tech Writers	Nov. 2007
6.5.4	Final Report	OCC Tech Writers	December 2010
6.5.5	Semi-annual Reports	Project Coordinator	February and August

**Project Management:**

This project will be managed by the Oklahoma Conservation Commission in cooperation with the Office of the Secretary of the Environment. The Oklahoma Conservation Commission will provide oversight for all project activities. NRCS will provide technical support and administration of USDA programs.

**Project Duration:**

Three years.

**Project Budget:**

Project 6. North Canadian River Watershed Project			
State	\$510,999		
Federal	\$633,436		
Total	\$1,144,435		
Object Class Categories	State	Federal	Total
a. Personnel	\$0	\$161,026	\$161,026
b. Fringe Benefits	\$0	\$57,807	\$57,807
c. Travel	\$0	\$6,500	\$6,500
d. Equipment	\$0	\$18,000	\$18,000
e. Supplies	\$0	\$32,725	\$32,725
f. Contractual	\$0	\$88,740	\$88,740
g. Construction	\$0	\$0	\$0
h. Other	\$510,999	\$268,638	\$779,637
i. Total Direct Charges (sum of 6a-6h)	\$510,999	\$633,436	\$1,144,435
j. Indirect Charges	\$0	\$0	\$0

k. TOTALS (sum of i and j)	\$510,999	\$633,436	\$1,144,435
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