

WORK PLAN  
FOR  
UPPER WHITE RIVER BASIN WATERSHED INITIATIVE

Funding Request: \$300,000

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*(updated)*

Submitted by

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- A. Schedule
- B. Budget
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## 1.0 Introduction

The Upper White River Basin (UWRB) consists of three 8-digit hydrologic units: James River Basin, Beaver Lake Basin, and Bull Shoals Lake Basin. The basin covers a total of 2,112,474 acres and includes four major reservoirs, Beaver Lake, Table Rock Lake, Lake Taneycomo, and Bull Shoals Lake as well as 300 miles of river. Over one million people in Arkansas and Missouri live in the 21 counties which comprise the basin.



**Figure 1 – Upper White River Basin and sub-basins**

The UWRB contains a significant number of nationally ranked features. In 2003 the Milken Institute ranked the Fayetteville-Rogers-Springdale (AR) region as the top regional economy. The U. S. Census Bureau ranked Bentonville as the 44th fastest growing community in the entire nation in the first two years of the 21<sup>st</sup> Century. In both Missouri and Arkansas, the fastest growing counties for the last two census periods have been located within the Upper White River Basin. A Missouri state funded analysis reports that the Springfield-Branson (MO) area is the 'engine' that is maintaining the remainder of the Missouri economy with a special focus on the area's nationally recognized Tourism and Recreation Industry.

Population in the Basin's counties grew by 31% in the 90's. Many of the watershed's listed Clean Water Act 303(d) impairments are at least partly linked to urbanization. Urbanization increases erosion, quantity of runoff due to impervious surfaces, and decreases water quality due to intensively maintained lawns. (James River WRAS)

These economic and demographic changes have created significant challenges to efforts focused on maintaining or improving water quality. While the area has more than sufficient ground and surface water sources for current domestic and commercial use, the quality of that water has trended downward as evidenced by numerous scientific studies. The stressors include general population growth, population

growth focused in areas reliant on septic tanks for wastewater treatment, run-off in increasingly urbanized areas, and run-off from agriculture operations. A recent NRCS funded study ranked the UWRB as 13<sup>th</sup> in the nation among all watersheds in danger of pollution from nutrient runoff.

The Foundation's original application for the Watershed Initiative Grant included a significant focus on reducing the impacts of poultry litter in the basin. That focus has significantly shifted in the current workplan because of the number of projects and initiatives which were initiated during and after the application was formulated. The State of Arkansas will implement legislation starting in 2004 to prohibit the spreading of all nutrients, including chicken litter, in the watershed unless management plans show that all new phosphorus and nitrogen will be absorbed in the next 12 months. The states of Missouri, Arkansas and Oklahoma are cooperating on a series of projects to identify alternative uses for poultry litter in all three states. The Missouri General Assembly has created a special committee to recommend changes in public policy to reduce the environmental impact of the poultry industry with a final report to be issued by December 31, 2003. The Missouri Department of Natural Resources is operating a poultry litter exchange website based on Oklahoma's successful system. The James River Basin Partnership has received a Clean Water Act Section 319 grant to identify those areas within that basin where soil types, topography and farming practices predict that fertilizer litter is not likely to cause environmental problems. The Environmental Protection Agency has initiated a one year schedule of intensive monitoring at four sites along the Kings River in Arkansas as a result of a dispute over Clean Water Act Section 303(d) listing of that river.

There are a significant and growing number of disassociated water quality improvement projects taking place in the watershed (see appendix A). The efforts are being done as local educational institutions, state/federal agencies, or Non-Governmental Agencies (NGO's) decide to undertake a project to meet their particular needs or interests. Because there is no coordinated effort or plan of approach, the projects, while providing some important information neither significantly moves the debate on public policy toward an identifiable goal, nor are they demonstrably improving the quality of streams, lakes and rivers in the watershed.

The UWRB has a number of watershed groups with varying degrees of activity. There is an existing Total Maximum Daily Load (TMDL) for the James River (MO) as well as a Watershed Restoration Action Strategy (WRAS). A WRAS has also been completed for the Beaver Lake watershed, although the Kings River Basin Watershed, a sub-watershed of the Beaver Lake watershed, is beginning the process of developing a watershed management plan for that geographic area.

This project will seek to determine how best to bring focus to future research, rehabilitation, restoration and planning projects within the larger watershed.

## 2. Project Description by Task

Task 1 – Assemble the human capital, and scientific resources necessary to develop a Watershed Management Plan for the three 8 digit HUC codes within the UWRB.

Task 2 – Monitor the Water Quality Impact of Eliminating Septic Tanks within a Defined Area.

### Task 3 – Create a Unified GIS-based Database of all Available Watershed Data

Specific tasks and subtasks are discussed below

#### 2.1. Task 1 – Assemble the human capital, and scientific resources necessary to develop a future Watershed Management Plan for the three HUC codes within the UWRB.

##### 2.1.1. Improve bi-state coordination of existing and future watershed groups representing areas within the basin

##### 2.1.1.1. Improve coordination and communication of UWRB Non-Governmental Organizations (NGO's)

The UWRB currently has at least nine identified watershed groups, plus numerous stream teams and "Friends of ---" organizations. However coordination and communication has been limited primarily to the four Missouri Watershed groups (Watershed Committee of the Ozarks, James River Basin Partnership, Table Rock Lake Water Quality, Inc. and Upper White River Basin Foundation). These groups have undertaken a number of joint projects including Legislative Briefings and the Lakes Area Water Quality Summit in March 2003. The directors of all four groups meet monthly to review joint projects, evaluate new joint initiatives and discuss upcoming individual projects and how they can benefit other groups.

Because of the geographic and hydrologic focus of three of the four groups, there has been little reason for coordination with similar groups in Arkansas, although James River Basin Partnership has provided technical assistance to at least one group. The application for the EPA Watershed Initiative Grant was the first significant, sustained effort involving all four groups from Missouri plus the Beaver Lake Watershed Partnership, the Kings River Basin Partnership and the Leatherwood Creek Association three from Arkansas.

##### 2.1.1.2. Establish the Upper White River Basin Watershed Administrative Council

To promote improved bi-state awareness of water quality issues in the basin, the grant will have a Watershed Administrative Council composed of the Directors of the nine current self-identified watershed groups including the four previously cited Missouri groups, plus the Beaver Lake Watershed Partnership, the Kings River Basin Partnership, the Leatherwood Creek Association, the Association for Beaver Lake Environment and the Audubon Society of Northwest Arkansas. The Council will meet at least twice per year to review the progress of the grant and evaluate plans for the coming six months. Additionally the meetings will be used for updates on individual watershed activities and plans.

##### 2.1.1.3. Conduct the next Upper White River Basin Forum

For three years, the Governors and environmental agencies of Arkansas and Missouri jointly hosted the White River Basin Forums as a conference to share research and discuss ongoing efforts to address joint problems of water pollution in the basin. The last forum was in the fall of 2001. The directors of MDNR and ADEQ implemented a new schedule for the bi-state Forum that would schedule it in odd numbered years so that each state conduct their own state watershed conferences in the even numbered years. No Forum was held in 2003.

Because of deep budget cuts in both states, but more significantly in Missouri, it is unlikely that the Forums will return in the foreseeable future. The UWRB has lost a significant venue in which to regularly exchange data, technology and policy advances, and policy concerns.

The Upper White River Basin Foundation will sponsor the next forum in 2006 for the purpose of giving the region's NGO's equal footing at a conference that has largely been controlled by the state environmental agencies and education institutions. The agenda will revolve around the issues and recommendations developed by the Upper White River Basin Watershed Summit

The Upper White River Basin Forum is a separate event from either the Arkansas Upper White River Basin Water Quality Summit (See Task 2.1.2.1) or the Upper White River Basin Water Quality Summit (See Task 2.1.2.2). Participants in the Arkansas Summit will be solicited for their background and community leadership. Active participation in the basin-wide event will be by invitation only and will generally be limited to individuals who have participated in their state's individual Summit.

**PURPOSE:** The Forum is designed to attract all of stakeholder groups for an exchange on scientific studies, industry projects, and state policy initiatives among other potential topics which have the potential to reduce surface water contamination in the watershed. The targeted audience will be active scientific researchers, academic institutions, watershed groups, industrial innovators, and environmental NGO's. As a bi-annual event, the Forum plays a key role in institutionalizing ongoing communication over water quality issues between various organizations and agencies in both states.

On the other hand, delegates selection to the Summit meetings will be designed to insure balanced representation of stakeholder groups from both states with an agenda structured to identify and recommend changes to residents in both states.

- 2.1.1.3.1. Utilize the resources and contacts of the Administrative Council to promote the event in their area and recruit both presenters and attendees.
- 2.1.1.3.2. Secure statements of support for the forum from the Arkansas Department of Environmental Quality, Water Resources Center/University of Arkansas, Arkansas Soil and Water Conservation Commission, and Missouri Department of Natural Resources.
- 2.1.1.3.3. Provide all registrants with copies of the UWRB Watershed Summit final report
- 2.1.1.3.4. Seek commitments of support from attendees for the recommendations of the Summit
- 2.1.1.3.5. Publish the Forum proceedings with copies to political leaders at the county, state and federal level.

2.1.2. Identify key community leaders in both states and educate them on their role in water quality management

2.1.2.1. Conduct the Arkansas Upper White River Basin Water Quality Summit  
The watershed groups in the Missouri half of the UWRB earlier in 2003 held a Water Quality

Summit (see attached Summit Final Report (Attachment C)) focusing on needed public policy changes and public initiatives in the Show Me State. Delegates to the summit were solicited by an environmental facilitator/mediator hired by the four groups to assist in the summit organization and administration. A broad range of community and business leaders from all parts of the Missouri basin were recruited and educated on water quality issues over a six month period. A similar project would be planned in Arkansas.

PURPOSE: To identify, organize and publish the key water quality issues regarding the Upper White River Basin from civic, business and NGO leaders in Northwest Arkansas and develop a list of quantifiable recommendations to address those issues.

- 2.1.2.1.1. Retain a qualified environmental mediator/facilitator through a Request for Proposal process to recruit and educate approximately 30 delegates on water quality issues and potential solutions as well as how those issues differ by state. Delegates will be selected through a combined process of invitation and application.
- 2.1.2.1.2. Task the Watershed Administrative Council with the responsibility to organize the event
- 2.1.2.1.3. Work with environmental mediator/facilitator to identify a broad range of delegates and develop briefing materials
- 2.1.2.1.4. Conduct briefings of Northwest Arkansas Leaders over a 6 month period
- 2.1.2.1.5. Conduct the Arkansas Upper White River Basin Water Quality Summit
- 2.1.2.1.6. Administrative Council identifies common concerns for further project evaluation.

While the Upper White River Basin is located in both states, administrative control over the basin is divided by a state line and federal regional lines. For this reason it is structurally difficult to identify bi-state priority issues and potential solutions. There is no administrative structure, nor venue, at the state or federal government level to promote cooperative efforts. This will be the first structured effort to develop consensus solutions across state and federal lines within the basin.

PURPOSE: To create a set of consensus issues and recommendations that respect the differences between the two states, while addressing root causes of water quality degradation of concern to residents of both states.

- 2.1.2.2. Conduct a Joint Arkansas/Missouri UWRB Water Quality Summit
  - 2.1.2.2.1. Task the Administrative Council with the responsibility to organize the event.
  - 2.1.2.2.2. Recruit delegates from each previous state-based summit plus other knowledgeable state leaders as appropriate plus the Administrative Council to convene a bi-state summit
  - 2.1.2.2.3. Utilize the same qualified environmental mediator/facilitator who will have already established a relationship with at least half the delegates.
  - 2.1.2.2.4. Identify areas of joint concerns, potential solutions and responsible parties for implementation

- 2.1.2.2.5. Utilize participants to develop a citizen driven Watershed Management Steering Committee for the entire basin as an integral part of the human resources alluded to in task 2.1.

### 2.1.3. Assist in Developing King's River Watershed Management Plan

The Kings River Basin Partnership is currently beginning the process of developing a watershed management plan for the Arkansas portion of this sub-basin. All work is being done by volunteers with the result that effective planning may take several years. Both the James River Basin Partnership in Missouri and the Upper White River Basin Foundation have worked with the leadership of the Arkansas group to provide technical assistance and advice.

- 2.1.3.1 Assist the Kings River Basin Partnership (KRBP) to hire a qualified individual to organize and facilitate the development of a Watershed Management plan to be completed within an 18 month schedule.
- 2.1.3.2 Select through competitive bids a qualified company or individual to conduct a watershed assessment for the Kings River Basin in Missouri and Arkansas.
- 2.1.3.3 Provide for professional training, oversight and basic quality control on volunteer water quality sampling. Services will be provided in conjunction with GIS data analysis done by the University of Arkansas.
- 2.1.3.4 Compile a Watershed Management Plan for the Kings River in Arkansas and Missouri.

## 2.2. Task 2 Monitoring Water Quality Impact of Eliminating Septic Tanks within a defined area

Standard septic tank/drain field systems are the most widely used method of on-site wastewater treatment outside of the basin's two major metropolitan centers. Most of the significant growth in a region, which is nationally ranked for its rate of growth, is taking place outside of areas served by sanitary sewers. Failure to adequately consider the impact of such widespread and growing use in the eco region may cause significant environmental and economic problems for years to come.

The goal of this sub-task will be to develop scientifically qualified data to demonstrate that elimination of standard septic tanks with leach fields within the Ozarks Eco Region can have a measurable impact on the quality of streams, rivers and lakes.

The EPA has funded (Clean Water Section 319 Grant) one study on Table Rock Lake through Table Rock Lake Water Quality, Inc. (***EVALUATION OF MOVEMENT OF SEPTIC SYSTEM EFFLUENT FROM LAKE DEVELOPMENT INTO NEAR-SHORE AREAS OF TABLE ROCK LAKE, December 2001***) which has documented the widespread failure of systems around the lake. The monitoring conducted as part of this grant will document the immediate and downstream impacts of standard septic systems on nutrient contaminants for non-lakeside developments.

The Foundation is already working with the newly incorporated Village of Bradleyville to

replace current on-site wastewater treatment systems from all the homes in the Village utilizing county and state grants and loans. The Foundation's partners include the Village Board of Trustees, Taney County Sewer District, and Missouri Department of Natural Resources. The community is located along Beaver Creek in extreme northeast Taney County downstream from the Mark Twain National Forest and other minimally impacted lands.

#### 2.2.1 Initiate a sub-grant to conduct water quality monitoring in the Bradleyville area

We will expand an existing partnership with the Bull Shoals Field Station of Southwest Missouri State University (SMSU) to implement a testing protocol to meet or exceed the Environmental Protection Agency monitoring standards. The field station has conducted water quality monitoring in the area for years and they have both institutional and personnel experience in this particular area of the watershed.

2.2.1.1 Academic Staff from SMSU will conduct data gathering and analysis during the entire length of the project.

2.2.1.2. Assess local site characteristics for the drainage area around the community.  
We will consult with a variety of local, state and federal sources to assess the soil types and morphology, depth to bedrock, slopes, land cover and other criteria to modify projected basin-wide impacts as scientifically appropriate.

2.2.2. Recruit a multi-disciplinary Scientific Review Committee  
The role of the committee will be to assist the Foundation in evaluating the data collected by SMSU and to advise on the impact and the most scientifically accurate way to present the data to the general public. The Committee will meet at least twice per year, but may meet more often depending on circumstances and need.

The Foundation will make every effort to recruit scientists from academic institutions in both states, as well as credentialed scientists from private businesses, or other state or federal agencies to serve on the committee.

PURPOSE: To ensure that data analysis and presentation of quantitative data is done in a manner that is scientifically defensible while generally understandable by the general public.

2.2.2.1 Provide the data and data analysis to a broad audience

2.2.2.2 Work with the faculty at SMSU or other Universities and graduate students to utilize the data as the basis for a submission to at least one peer reviewed published study.

2.2.2.3 Utilize the data analysis developed in all appropriate public presentations made by Foundation staff.

2.2.2.4 Develop a Website based approach for the display of data and analysis showing basin impacts.

2.3 Task 3 –Create a unified GIS based database of all available watershed data

2.3.1 Establish a partnership involving the University of Arkansas, Southwest Missouri State University and the Upper White River Basin Foundation to create an inventory of existing GIS data layers

2.3.1.1. Establish a subgrant with each institution to cover their costs of research

2.3.1.2. Recruit additional assistance from county, state and federal agencies collecting data in the 22 county area

2.3.1.3. Develop an EPA approvable QAPP

2.3.1.4. Harmonize data through a scientifically verifiable methodology to account for variances in data collection protocols

2.3.1.5. Identify one or more repositories for the data

2.3.1.6. Establish an administrative and financial process for updating the database during the course of the project.

2.3.2 Identify missing GIS data layers necessary to develop a watershed management plan

2.3.2.1. Develop a scientific and financial plan for accumulating the missing data layers.

2.3.2.2. Develop a prioritized list for development of each GIS layer

3. QUALITY ASSURANCE REQUIREMENTS

3.1. Both the University of Arkansas and Southwest Missouri State University research faculty have significant background and experience in developing both Quality Management Plans (QMP) and Quality Assurance Project Plans (QAPP). Since the Universities will be under contract to collect and analyze data, the agreement will mandate development of successfully approved QMP and QAPP.

3.2 An EPA approved QAPP will be required before project funds will be expended to pay for the data collected for this task

4. SCHEDULE

See attachment A for the detailed schedule

5. BUDGET

See attachment B for the detailed schedule

6. REPORTING

6.1 The director will file a quarterly report of grant activities occurring in the previous three months with the required offices and individuals.

6.2 The report shall be cumulative indicating activities prior to the current quarter as well as activities in the current quarter