

ARIDLANDSINSTITUTE

@ Woodbury University

DESIGN INNOVATION AT THE NEXUS OF WATER, ENERGY, AND CLIMATE CHANGE

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An Updated Watershed-Based Plan for the Lower Embudo Watershed, New Mexico

March 1, 2013 —March 1, 2015

Project Overview:

The US Environmental Protection Agency [EPA] and the New Mexico Environment Department, Surface Water Quality Bureau [NMED] have recently green-lighted a watershed-based planning process for addressing urgent water and land-use issues for the Lower Embudo Valley. The two-year process, funded by the federal Clean Water Act Section 319(h), is a direct outgrowth of ongoing efforts in the Embudo Valley community to form a long-term, collaborative program for ecological restoration and stabilization of soils, arroyos, acequias, and streams in the valley. The objective is to produce an updated Watershed-Based Plan (WBP) for watersheds within the lower Rio Embudo drainage, northern New Mexico. A project area map is attached.

What is a watershed-based plan?

A watershed-based plan is a powerful tool for protecting water resources so that they continue to meet community goals. A watershed-based plan respects community values, customs, and aspirations; assembles detailed natural resource information; identifies threats to water supply and water quality; guides rational land use decisions; and allows the community to consider innovative tools for resource protection. A watershed-based plan is also a management tool, used at the local, regional and state levels of government, to plan for future resource conservation in a rational, efficient and economic manner. A quality watershed-based plan clearly communicates what a community values and wishes to preserve.

Why is this project necessary?

This project builds on important work done by members of the Lower Embudo Valley in the Watershed Management Plan of 2007, facilitated by Environmental Health Consultants; the Rio Arriba County Comprehensive Plan, 2008; “Planning and Design Assistance for Water- and Energy-Wise Communities,” a collaboration of the Arid Lands Institute and the people of the Lower Embudo Valley, 2009-2012; erosion control and restoration studies conducted by Earth Works Institute and the Embudo Valley Acequia Association, 2009-2010; the Forest Guild NEPA planning initiative in the Trampas watershed, 2011-present; and the River Ecosystem Restoration Initiative led by the Santa Fe Watershed Alliance and Ecotone, 2011-2013.

This project builds on earlier work by focusing on a quantitative approach to assessing the watershed. The EPA has identified sediment, specifically total suspended sediment as a leading cause of river impairments. Suspended sediment can carry with it nutrients, bacteria, contaminants, trace metals, semi-volatile organic compounds and pesticides, affecting the ecological function of rivers and watersheds. The lower reaches of the Rio Embudo and its tributaries are listed as impaired with turbidity and excessive sedimentation as leading causes. Determining total suspended sediment loads within the Rio Embudo is a critical first step in prioritizing watershed-scale water and soil erosion management strategies.

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How will this project work?

Over two years, this project will:

- Provide science-based, quantitative information on specific pollutant loads;
- Identify and characterize surface water impairments;
- Develop prioritization methods for action; and
- Identify specific management measures for reducing or eliminating the flow of pollutants in impaired stream systems.

The project is led by Peter Arnold, Director of Research, Arid Lands Institute; Jan-Willem Jansens, Ecological Planner, Ecotone; Estevan Arellano, Community Coordinator; and Jack Veenhuis, hydrology expert.

At all stages, the project will mobilize, engage, and inform community members. Project teams comprised of local community-members will be trained to operate data-gathering instruments for field sampling. Teams will measure, monitor, and report stream flows (volume) and sediment and turbidity (quality) in order to precisely locate the sources of greatest stress on the watershed's streams. Community surveys and stream-monitoring data will be integrated with land cover, soil loss, and remote sensing data to produce high-resolution geospatial models. Community review of maps and models will inform feasibility assessment of alternative management measures and priority areas.

The goal is to develop a plan that directs new erosion-control infrastructures, land uses, and/or future development to areas most suited for it and away from areas least suited to it, empowering the people of the Lower Embudo Valley to strategically adapt their watershed to changes in the economy and the environment.

Interested in Learning More?

We invite all interested individuals, groups, acequia commissioners and parciantes to help this effort over the next two years. We seek responsible community members wishing to contribute at any level, from participating in occasional workshops to serving as trained members of field sampling teams. Our first public meeting to launch the project was held Saturday, July 13, 2013 at the Mission Embudo, Dixon, NM.

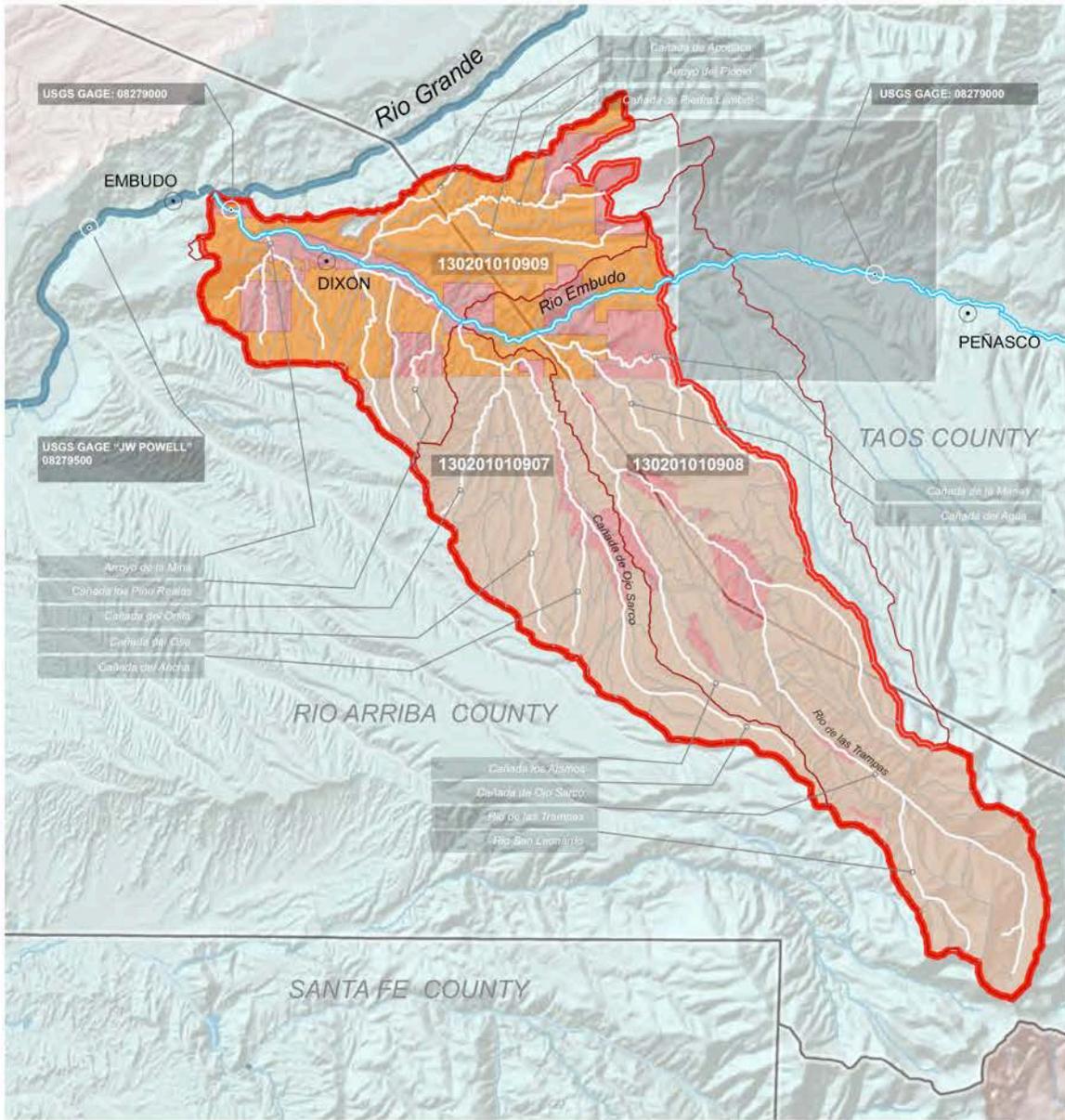
Please feel free to contact us with questions you may have about this project.

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Project Overview Map:



- FOREST SERVICE
- BLM
- STATE + PRIVATE
- PUEBLO

- PROJECT BOUNDARY
- BOUNDARY OF HUC_12: 13020101907/908/909
- STREAM COURSES: ephemeral + perennial
- SUB-WATERSHED BOUNDARY

