



# SUMMARY REPORT ON CONSTRUCTION AND MAINTENANCE OF RURAL ROADS WORKSHOP - OCTOBER 11, 2008

(Funded by a grant from the United States Environmental Protection Agency  
and the Arizona Department of Environmental Quality)

Flexibility  
success when

was the key to suc-  
cess planning this workshop!!!

From Bill Zeedyk's first visit to the site in April, it was necessary to change the workshop format several times. The final format accommodated the new medical challenges of the original site host and expanded the learning opportunity of participants from strategies addressing low, flat, alluvial conditions to seeing how applications also worked for grades with more clay, gravelly soils.

After several brainstorming sessions via phone, Bill arrived early the morning of the 11th to revisit the original site to modify the plan since the actual groundwork could not be done, and to visit a new site with different erosion parameters. Bill's extensive knowledge base allowed him to reference both project areas seamlessly in his presentation and to masterfully guide an exciting excursion in the field.

Due to threatening weather conditions, approximately 25 participants packed into the St. David Domestic Water District office - just a few miles from the site. None minded the limited space since the varied background of attendees - small property owners, ranchers, heavy equipment operators, Cooperative Extension Agents - made for lively discussions during Bill's two-hour Powerpoint. Presentation.

Bill visually illustrated the "Laws of Physics" and the implications for road design and maintenance. Highlights included:

- 1) As road grade steepens, drainage features must be closer together.
- 2) Maintaining vegetative cover increases roughness and reduces erosion, reducing the sediment load being transported by road runoff and the amount of sediment available to clog ditches and drainage features.
- 3) Drainage features need to be more closely spaced on fine grained soils.
- 4) Drainage features with grades less steep than the road surface or road ditch will tend to become

clogged with deposited sediments as runoff velocity decelerates.

- 5) A well vegetated buffer zone at the edge of the road will tend to disperse flow, reduce runoff velocity and collect sediment from road runoff.

Many participants re-evaluated their own maintenance efforts as Bill illustrated common actions that result in roadways pooling water or becoming rivers during rain events that increase the destructive capabilities ten fold. Continually increasing the width of the road, back blading to dress up ditches or cut slopes, and creating berms were just a few of the "careless or uninformed maintenance operations" mentioned by Bill that create serious drainage complications.

Along with the presentation, Bill's publication "Water Harvesting from Low-Standard Rural Roads" provided important technical information for planning and applying treatments.

Participants armed with manuals, umbrella's and make shift raincoats, headed to the project area for an additional two hours plus. By starting at the top of the drainage, Bill identified numerous opportunities for rolling dips, placement of multiple lead out ditches, slope changes, and ditch management that would effectively drain the roads and supply water to adjacent vegetation.

With the weather holding, participants were able to practice the pragmatic approach of identifying the "first change, last chance, best chance, and no chance" in selecting drainage points based upon steepness of road grade and soil texture as related to erodability of the road surface.

Due to the overwhelming response of the participants, CWA is co-ordinating watershed stakeholders for a subsequent Zeedyk workshop.

## **WORKSHOP ADDRESSED FOLLOWING IN GRANT PROPOSAL:**

**Project Site Four includes implementing new road blading strategies and neighborhood network to prevent practices impacting adjacent properties.**

**August 22, 2005—  
occurred after uproad action taken and first 9/10”  
rain event.**



**September 9th, 2005—bank collapsed.**





## PHOTO GALLERY OF WORKSHOP:

*Bill Zeedyk, wildlife biologist and 35-year veteran with the Forest Service, introduced strategies to read the land in order to work with natural drainage patterns versus fighting the laws of physics.*



*Many of the 25 property owners, ranchers, heavy-equipment operators realized how some of their previous efforts may have fallen within the “uninformed maintenance operations” that contributed to eroding conditions.*

*Participants had an opportunity to develop a management plan for two different sites, identifying key opportunities for rolling dips and multiple lead out ditches based upon slope, soil type, and adjacent vegetation.*



*It's all about protecting the health of our watershed!*