

SMWP PRIORITIZED IMPLEMENTATION TABLE

PROJECT NAME	ESTIMATED COST (includes admin. and mgmt.)	LOCATION	SEDIMENT REDUCTION*+	NITROGEN REMOVAL*+	PHOSPHORUS REMOVAL*+
DSILT Projects					
HIZMS: High Impact Zone Mitigation Sites	\$25,000 per 1/4 acre SITE X 3 =\$75,000	300 to 500 feet elevation, between Waipuilani and Keokea Gulches, shovel ready	3tons/year/site X 3 = 9 tons/year	60 to 90%	60 to 90%
Riparian Protection and Restoration	\$48,000/1,000 feet, fencing and seeded fabric rolls installed	300 to 500 feet elevation, between Waipuilani and Keokea Gulches, shovel ready	.5 tons/year/1,000 feet	40 to 50%	40 to 50%
Excavated Basins in Series-Pilot Project	\$216,000/8000cu.ft. X 3 = \$648,000	300 to 500 feet elevation, between Waipuilani and Keokea Gulches	6 tons/year/basin X 3 = 18 tons/year	40 to 50%	40 to 50%

*Dependent on storm events +Refer to *Grass and Shrub Riparian Buffer Removal of Sediment, Phosphorus, and Nitrogen from Simulated Runoff*, Journal of American Water Resources Association, Vol. 43, No. 5, October 2007.

In addition to the above three sediment reduction strategies, the following **Studies and Projects** are recommended:

NAME	ESTIMATED COST	BENEFITS
Pi'ilani Detention Basin #1-Utilization Feasibility Study	\$30,000	Utilizing existing basin to remove sediment from Waipu'ilani stormwater flows
Coral Reef Rejuvenation Feasibility Study	\$30,000	Utilization study to allow this new technology in Hawaii
South Maui R-1 Reuse Area Expansion	~\$1,000,000	Utilization of all reclaimed water on the land rather than injecting it into the aquifer

Recommended **Educational Workshops** and programs to promote water quality best management practices follow:

NAME	ESTIMATED COST	NUMBER OF PEOPLE	BENEFITS
Unpaved Roads Workshop	\$2500	20-30	Education about erosion control and water harvesting
Rotational Grazing Workshop	\$2500	20-30	Education about increased productivity and reduced soil loss from erosion
Gulch Awareness Workshop	\$2500	20-30	Education about gulch drainage functions and managing debris

Additional Water Quality Education Opportunities (**WQualEdOp**)

NAME	ESTIMATED COST	BENEFITS
LID (Low Impact Development) Strategies	\$5000	Email campaign and workshop disseminating information to builders, contractor associations, County Public Works and Planning
NEMO (Nonpoint Education for Municipal Officials)	\$5000	Email campaign and workshop disseminating information to County departments
SEEP (Stormwater and Erosion Education Program)	\$5000	Email campaign and workshop disseminating information to equipment operators, contractor association, etc.

SUMMARY

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1. No mo' data, no mo' load estimates.... No mo' load estimates, no mo' load reduction estimates! Auwe!
2. To make WQ improvements sooner than later, practical and common sense solutions can provide relief.
3. Sediment is the obvious focus in this watershed. Three **DSILT projects** provide duplicatable BMPs for implementation.
4. The three **studies** recommended will lead to future water quality projects.
5. Education, in order to change behavior, is the focus of the **workshops**
6. **WQualEdOps** can help prepare present and future planners for the challenges ahead

DETAILS

1. No mo' data..... The Watershed Plan for Southwest Maui concluded that data does not currently exist which could support pollutant load modeling for this watershed. A future water quality monitoring program is recommended. However, a load reduction strategy can be developed in the near term without this data.
2. Through the WAG process, stakeholders suggested using practical methods of WQ improvements, based on observation and reasoning. It was the consensus of the group that efforts should focus on cleaning up the muddy stormwaters which periodically flood the urban coastal areas and reef.
3. Erosion control and sediment reduction BMPs are needed to bring the water quality up to acceptable levels. A demonstration area was selected, on and near two of the largest gulches, to install certain practices to clean up the waters. First, vegetated buffers are recommended as one of the best methods of managing sediment laden runoff from isolated high impact zones where exposed soils are vulnerable to erosion. Second, riparian fenced buffers will stabilize steambanks now in jeopardy due to ungulate traffic, and will filter runoff from adjacent lands. And third, the CWRM endorsed method of utilizing a series of excavated basins to settle out sediments from captured stormwaters coming down the gulches, then returning the cleaner water to the stream. These three methods can also be installed in other problematic areas in the watershed with predictable results, and will be used to further educate the landowners and managers in the area about ways to cope with their soil erosion challenges.

4. A study is proposed to determine the feasibility of using a portion of the existing 50 acre foot Pi'ilani detention basin volume to remove sediment from stormwater coming down Waipu'ilani Gulch. This huge basin appears to be over-designed and under-utilized, and should be considered an asset for WQ improvements. A second study is recommended to explore ways to change rules and laws preventing a proven new reef building technology from being used in Hawaii to rebuild degraded reefs. The third study, the Kihei R-1 Expansion Plan, has been completed, but needs to be funded and installed in order to reuse all of the available reclaimed water rather than injecting it into the aquifer.
5. Three workshops to educate land users about better ways to manage unpaved roads, rotational grazing, and gulches are proposed. This effort anticipates WQ improvements over the long term as changes to existing practices are made. The workshops can be repeated periodically, and other similar workshops can be added to this educational program.
6. The three WQualEdOps recommended are currently-available programs which can be used to further the cause of changing the laws and regulations controlling the building and construction industry to be more WQ friendly.