Ala Wai Watershed Project

Quarterly Stakeholder Meeting

May 1, 2009

Agenda

- **Overview of Agenda (5 min.)**
- **Project Overview (15 min.)**
  - Goals and objectives
  - Budget and schedule constraints
  - Process and milestones
  - Feasibility Scoping Meeting Report requirements
- **Update on Ala Wai Watershed Project (25 min.)**
  - Overview of process
    - Problems and sub-objectives
    - Baseline conditions
    - Forecasting (Future without project conditions)
    - Conceptual measure development
    - Stakeholder involvement activities (Townscape)
- **Discussion of Stakeholder Involvement Strategy (30 min.)**
- **BREAK (10 min.)**
- **Upcoming activities and path forward (15 min.)**
- **Update on associated projects/activities (20 min.)**
  - Woodlawn bridge chute structure (FEMA/DLNR)
  - Grant proposals
  - Others?

Project Goal and Objectives

- Improve the overall quality of the Ala Wai watershed, from the crest of the Ko`olau Mountains to the nearshore waters, while minimizing the risk of flood damages to the public.

  - Flood Damage Reduction
  - Water Quality
  - Recreation
  - Stakeholder Involvement
  - Ecosystem Restoration
  - Water Supply
  - Infrastructure Maintenance
  - Coastal Issues

Overview of USACE Planning Process

- Feasibility Scoping Meeting Report (FSMR)
- Alternatives Formulation Briefing (AFB) Package
- Draft Feasibility Study/Environmental Impact Statement (EIS)
- Final Feasibility Study/Environmental Impact Statement (EIS)

Purpose of FSMR

- "To bring the USACE vertical team, the non-Federal Sponsor, and resource agencies together to reach agreement on the problems and solutions to be investigated during the feasibility study and the scope of analysis required." (ER 1105-2-100)
- At a minimum, FSMR should include:
  - detailed description of problems and opportunities
  - statements of specific planning objectives and constraints
  - detailed description of future without project conditions
  - description of applicable management measures
  - results of preliminary plan formulation and evaluation (screening)
  - results of preliminary coordination and public involvement

Overview of Process for Completion of FSMR

Time

Step	Objectives				% complete for FSMR	Status
	Flood Damage Reduction	Ecosystem Restoration	Water Quality	Other Objectives [1]		
Identify problems and develop objectives	Professional judgement and technical expertise (with TAT)	Professional judgement and technical expertise (with TAT)	Professional judgement and technical expertise (with TAT)	Professional judgement and technical expertise (with TAT)	100% [2]	In progress - problems documented, development of more focused objectives underway
Baseline conditions	Hydrology & hydraulics (H&H) modeling (existing conditions)	Ecosystem valuation (existing conditions)	WARMf (existing conditions)	Qualitative assessment	100% [2]	In progress - H&H modeling underway; ecosystem model and WARMf to be conducted
Forecasting	H&H modeling (future without project)	Ecosystem valuation (future without project)	WARMf (future without project)	Qualitative assessment	100% [2]	To be completed
Identify conceptual measures	Professional judgement and technical expertise (with TAT)				80-90% [3]	Multiple measures developed as part of Manoa Watershed Study; additional measures to be identified as needed
Site and refine measures	Spatial analysis framework Professional judgement and technical expertise				10-20% [3]	To be completed
Combine measures into alternatives	Alternatives screening criteria Spatial analysis framework Evaluation model				5-10% [3,4]	To be completed
Evaluate alternatives	Evaluation model				5% [3]	To be completed

[1] Other objectives include recreation, water supply, infrastructure maintenance and stakeholder involvement.
[2] Does not preclude adjustments in future phases
[3] Remainder of effort to be completed during Alternatives Formulation Briefing (AFB) phase.
[4] Preliminary grouping of alternatives is not required for FSMR but will be included if time permits.

Documentation of Problems

"There is no study without planning objectives and there are no objectives without carefully defined problems and opportunities. These simple facts and this simple linkage between problems and objectives make this step the most important in the planning process…If the underlying causes of a problem are not identified, the solutions can end up being superficial and unsuccessful."

-Corps Planning Guidance (IWR Report 96-R-21)

Documentation of Problems

	Statement of Problem	Location								Possible Causes	References (or Data Gaps)	Effects	References (or Data Gaps)	Historic and/or Future Conditions
		Upper watershed	Makiki	Manoa	Palolo	M-P Drainage Canal	Hausten Ditch	Ala Wai Canal	Nearshore Waters	Outside of Channels					
Physical	Modified high-flow hydrology	x	x	x	x						* Channelization * Channel hardening		* Degradation of habitat * Extreme velocities		
	Modified low-flow hydrology	x	x	x	x						* Stream diversions? * Channel modifications (changes in channel morphology) * Channel hardening (e.g., hardening may restrict groundwater from seeping into streams) * Reduced rainfall (climate change)	* Check CWRM GIS data for location of diversions * Statewide Trends in Streamflow Characteristics (USGS, 2004)	* Loss of habitat for native aquatic species * Increased densities of alien aquatic species * Increased water temperatures * Lower dissolved oxygen levels	Kinzie, R.A., et.al. Effects of Water Removal on a Hawaiian Stream Ecosystem, 2004.	* Development pressures are expected to continue into future * Rainfall rates are expected to continue to drop
	Degraded channel form (i.e., simplified planform, geometry, and profile)		x	x	x	x					* Channelization and adjacent development	* Brasher (USGS Water Resources Investigations Report 03-4256)	* Decreased structural diversity * Loss of habitat for native aquatic species		* Development pressures are expected to continue into future
	Degraded migratory pathways (fragmented longitudinal connectivity)		x	x	x	x	x	x	x		* Channelization and construction of in-stream structures * Alteration of pathway to marine habitat (via Ala Wai Canal)	Biological and Habitat Assessment of Palolo Stream (Kido, 2008)	* Decreasing recruitment and reproduction of native species		
	Loss of adjacent floodplain (fragmented lateral connectivity)		x	x	x						* Channelization and adjacent development	* Brasher (USGS Water Resources Investigations Report 03-4256)	* Decreased habitat structure * Decreased retention of flood waters * Reduction in sediment and nutrient capture and storage * Increased water temperatures (loss of shade)		* Virtually no riparian habitat remains in the developed portion of watershed
	Channel bank instability and erosion	x	x	x	x						* Channelization and adjacent development * Loss of riparian habitat (increase of invasives with shallow roots)	* Brasher (USGS Water Resources Investigations Report 03-4256)	* Increased sediment input to channels * Decreased habitat structure		Ongoing; erosion expected to continue
	Excessive deposition of sediments		x	x	x	x	x	x			* Feral ungulates in upper watershed * Invasive plants with shallow root systems * Bank instability * Exposed soils at nearby construction sites	* Albezia increases exposed soils and erosion by preduding understory species; may be link with increased occurrence of pig wallows (JB Friday, pers. comm. with Gene Dashiell) * KMWP Management Plan and Cory, 2000 for feral pigs * Check for references from Greg Bruland	* Smothers habitat, food supply and eggs of native aquatic species * Sediment accumulation in the Ala Wai Canal has been estimated at 8,000 - 10,500 yds^3/yr * High cost of dredging (check amount) * Impacts to nearshore and marine habitats (e.g., decreased recruitment of coral reef)	* KMWP Management Plan	Ongoing; erosion expected to continue

Development of Sub-objectives

- What will sub-objectives be used for?
  - To guide the information gathering process for assessment of baseline conditions
  - To drive the development of measures
  - To evaluate the relative effectiveness of different alternatives

Characteristics of Good Objectives

- Specific
- Flexible
  - accommodate different ways to achieve objective
- Measureable
- Attainable
  - can be challenging, but also realistic
- Congruent
  - attainment of one objective should not preclude the attainment of another
- Acceptable
- Should avoid:
  - absolute target
  - identifying solution

Ecosystem Restoration

- Preserve, restore, or reverse the degradation of natural watershed function and processes, where possible, throughout the watershed, including the urban areas
  - Modify channel conditions to improve habitat and connectivity for native aquatic species
  - Improve migratory pathway for native amphidromous species
  - Improve floodplain functions in urbanized portion of watershed
  - Reduce sediment inputs to streams, Ala Wai Canal and nearshore waters
  - Increase extent and connectivity of riparian habitat

Stakeholder Involvement

- Develop and implement a stakeholder collaboration process that will result in attainment of project objectives and foster a long-term sense of *kuleana* for the watershed
  - Involve many stakeholders
  - Provide guidance on measures and alternatives
  - Support project implementation
  - Encourage private and public watershed stewardship