Alluvial Fan Task Force

California Department of Water Resources Project

Minutes Plenary Meeting #6
Friday, May 16, 2008
Riverside County Workforce Development Center
1151 Spruce Street
Riverside, CA 92507

Members Present: Sara Agahi, Danielle Borish (for San Bernardino County Supervisor Paul Biane), Dale Casey, Georgia Celehar, Tom Davis, Mike Fox, Steven Hernandez (for Riverside Supervisor Marion Ashley), Kern County Supervisor Jon McQuiston, Eric Shamp, John McCarthy, Norman Meek, Dave Mlynarski, Brian Moore (for Ali Sahabi), Tom O'Keefe, Stephanie Pincetl, Mark Pisano, Paul Quill, Lee Reader, Tom Scott, Christine Sloan, Scott Steinmetz, Chris Stone, Joan Taylor, Iovanka Todt (for Marty Teal), Sergio Vargas, Ralph Wagner, Kathleen Webb, Dusty Williams, Duane Young

State and Federal Representatives Present: Chris Adams, Scott Dawson, Greg Krzys, Ray Lenaburg, Stephan Lorenzato, Maria Lorenzo-Lee, Allan Oto (for Ricardo Pineda), Mark Stuart, Rene Vermeeren (for Tammy Conforti).

Technical Consultants Present: Susan Lien Longville, Susan Carpenter, Cameron Barrows, Bo Cutter, Suzie Earp, Doug Hamilton, Gigi Hanna, Jeremy Lancaster, Lynn Merrill, Lisa Pierce, Massoud Rezakhani, Bill Short, Tom Spittler, Boykin Witherspoon.

Members Absent: Los Angeles County Supervisor Michael Antonovich, San Diego County Supervisor Bill Horn, Mark Grey, Rick Iger, Chuck Lackey, Vana Olson, Ray Torres.

State and Federal Representatives Absent: Mike Anderson, Steve Cowdin, Dave Gutierrez, Pete Sorenson, Rebecca Wagoner.

Others Present: Bart Brizee, Sean Carlson, Tina Czudez, Mekbib Degaga, Tesfaye Denyssie, David Garcia, Chris McCarthy, Stuart McKibbin, Terry Rogers, Julie Rynerson-Rock.

Meeting called to order: at 9:30 a.m. by AFTF Facilitator, Susan Carpenter.

Welcome:

- Meeting Host, Coachella Valley Water Agency
- Mark Stuart, AFTF chair, announced that the next meeting will be in Bakersfield, at the Petroleum Club.

AFTF Business: Minutes of the AFTF Plenary Meeting 5, April 11, were reviewed and approved by AFTF Task Force members.

The AFTF Coordinator and technical consultants reviewed the AFTF Subcommittee Strategy, Progress and Local Planning Tools that would inform the rest of the task force's efforts.

A. Overview:
Susan Longville said that the group should not be worried at this point about whether their recommendations would fall under the model ordinance or the proposed design guidelines because the suggestions would be reviewed by legal counsel to clarify the implications of each suggestion and its placement in the final product produced by the task force.

A draft of the finished product will be distributed to task force members in fall 2008 and then the task force will reconvene to take final action on it.

B. Flood Management Subcommittee:
Doug Hamilton, chair of the Flood Management Subcommittee, presented six tools to be used for evaluating proposed projects:

1. Identify the presence of an alluvial fan so that there is a distinction between alluvial fans and streams with erodeable stream banks. Floods emanating off of an alluvial fan behave with more uncertainty and can cause risks that are substantially different from flooding that occurs in an area subject to traditional riverine flooding.

2. Use available data to identify existing hazards on alluvial fan areas. The hazards can include or be a consequence of an assortment of elements related to the natural environment including vegetation type (or presence of vegetation), lithology, geology, topography, climate, and temporary landscape changes such as those that occur as a result of wildfire. It is important to identify the existing hazards on the fan for purposes of understanding the possible behavior of an alluvial fan during a flood event. Additionally, characteristics of the hazards dictate the mitigation strategies required.

3. Define the active and inactive areas of a fan. Active regions of the fan are areas where the hazards described in Tool 2 would be significant to consider in the analysis of alluvial fan flooding. Active and inactive areas can be distinguished through determining the history of flooding patterns on the fan, demarking areas of the fan that consist of Holocene and Pleistocene deposits, and performing field inspections, among other methods.

4. Establish the appropriate level of hazard protection. The 100-year peak flow (or the flood with a 1 percent probability of occurring in a given year) is the minimum flow that needs to be considered in developing flood protection measures. There are circumstances where flows greater than the 100-year peak flow may need to be considered.

5. Identify the studies necessary to demonstrate that the proposed project would be protected from the design flood. FEMA's minimum requirements for developing structural flood control measures for alluvial fan flooding are described in Chapter 44, Section 65.13(c)(1) of the Code of Federal Regulations.

6. Incorporate multiple objectives into the mitigation measures. Incorporating multiple objectives into the mitigation measures designed to safeguard life and property from the hazards of alluvial fan flooding can provide solutions to more than one regional problem or provide added benefits beyond flood protection. For example, devising a retention or detention area that would attenuate peak flows emanating from an alluvial fan could simultaneously serve as a groundwater recharge area and/or a debris basin. Other measures may be developed to preserve habitat or migratory pathways for wildlife while providing flood protection.

D. Watershed Subcommittee: Cameron Barrows, AFTF technical consultant, presented the eight tools suggested by the Watershed Subcommittee.
He suggested using GIS to create maps with overlays that indicate areas of particular concern, especially those areas with parallels between the eco-hazards. Maps would indicate the following:

1. Eco T&E: Areas of known habitat for state or federally listed threatened or endangered species,). These areas include the known habitat and buffer areas identified by USFWS or DFG. Any construction in these zones must have specific provisions for avoidance of impacts on the species of concern or mitigation approved by state and federal resource agencies.

2. Eco H20: Areas critical to water supply. These areas may include areas of groundwater recharge or areas where recharge zones have been described in a ground water management plan. Areas of highest recharge potential occur in unconsolidated loose Holocene sediments where soil permeability is relatively high, generally corresponding to the fan apex and active channels that receive inflow from upland basins. These areas also include springs or seeps. These areas may also include consideration of water quality and may apply to lands that if altered would release chemicals harmful to water supplies. Development in this zone shall not obstruct capture, storage, or conveyance of water.

3. Eco Corr: Areas supporting important corridors of migration, transit or dispersal for native species of plants, animals and sediments that are critical to sustain their habitats. Development in these areas shall not obstruct the corridor functions and ability for animals, plant or sediment materials to be moved within the corridor. Corridors can be defined either as connecting the alluvial fan habitats to other, nearby habitats, or the

alluvial fan itself may be the corridor between lowland (valley bottom) and upland (mountain) habitats. The connected habitats would be significant if identified as part of a regional habitat conservation network. Climate change and the needs of species to move in order to remain within their preferred temperature-moisture envelope is an important consideration for maintaining these corridors.

4. Eco Stream: Areas demarked by active stream channels, often, but not always, including adjacent riparian plants. On inactive fan surfaces these areas include floodplains associated with 10% annual chance flow floodplain. On active fan surfaces these areas are characterized by plant community structure based on historical records (for the past 100 years if available). Development in this zone should be minimal and restricted to paths and roads providing pedestrian access or traversing the zone**.**

5. Eco Pattern: Areas of important ecological patterns not reflected in other eco-zones. These areas may include gradients of soils, stream sediments, nutrients, vegetation, particular patches of plants, soils, or rocks, or other characteristics that are clearly tied to an important local ecosystem element, function, or process. Development in these areas should sustain the key pattern underlying the zone designation.

6. Eco Culture**:** Areas of particular cultural significance. These areas may include archeological sites, landscapes or particular features highly valued by the community, religiously significant sites, or other areas of important watershed resources. Development in these areas should sustain the key cultural values and, where feasible, the specific cultural icons and images underlying the zone designation**.**

7. Eco Dist: Areas where natural alluvial fan features, species, habitat, drainage, and other values have been dramatically disturbed, altered, or completely destroyed. Development in these areas should be encouraged in place of development in other zones.

Multi-Hazard Subcommittee: Tom Spitler, co-chair of the Multihazard sub-committee, presented his proposed tools to consider the residual risks of flooding. They are:

1. Examine risks to health and safety specific to alluvial fans that are identified in CEQA, under Geology and Soils (including surface fault rupture, strong seismic shaking, seismic-related ground failure, including liquefaction, landslides, and unstable geologic unit or unstable soil, including expansive soil) and Hazards and hazardous materials (including emergency response and emergency evacuation, and wildfire).

2. Examine risks to health and safety not identified in CEQA – Other laws, rules and regulations, including sites for adequate, long-term disposal of accumulated sediment in debris basins and early warning systems for fires and floods

3. Examine other environmental issues identified in CEQA, including:

Aesthetics

Agricultural resources

Air Quality (Cumulative Impacts of development)

Biological Resources

Cultural Resources

Geology and Soils

Water and Water Quality

Landuse

Mineral Resources

Population and housing

Public Services

Recreation

Transportation

Utilities

4. Examine methods to identify long-term costs of alluvial fan development, including:

Costs of "piecemealing"

Inadequate insurance coverage by homeowners and renters

Inadequate federal and state recovery monies

Maintenance costs

Hidden costs, such as evacuation and sheltering

Cost of continuing technical evaluation.

Costs of continuing investment to adjust to new, or newly perceived, public safety concerns.

Bo Cutter continued discussing Multi-hazard Subcommittee tools and said there are trade-offs between the up-front and long-term costs and presented his tools for (the) considering multiple hazards:

1. Identifying the Financial Vehicles for Ongoing Maintenance of Flood Management Facilities, including:

Geologic Hazard Abatement Districts (GHADs)
Flood Control or Stormwater Assessment Districts
Mello-Roos Community Facilities District

2. Geospatial Decision Support Tools to share the compiled Risk data layers organized to help County officials as well as the public understand where potential Alluvial Fan Risk areas are located. Data layers will include:

Alluvial Fan GIS Dataset Footprint by County
FRAP data for Erosion Potential after Fires by County
Population **Growth Projection 2020 & 2040 by County**
Preliminary DFIRM
Risk Hazard Areas by Flood Zone designations
Multi-Hazard data overlay
Other overlays as identified by Subcommittees

Lisa Pierce, GIS specialist with the Water Resources Institute, further discussed the benefits of using Geospatial decision support tools, including communicating general risk to the public, layers that compare values of alluvial fan development with hazards, and the ability to combine Fire Risk Assessment areas with watershed boundaries.

Susan Longville said that, although the information is available, it doesn't often get to the desks of local planners. Lisa confirmed that using counties as a baseline in the map tools is easy to do.

Tom Spitler said that the point of the tools is not to stop developers, but to give them tools to decide if a particular area is financially feasible to develop before getting far in the process.

Design and Construction: Boykin Witherspoon, co-chair of the Design and Construction Subcommittee presented four tools from that committee:

1. Base line Ordinance Review. This planning tool would give counties a list of preferred ordinances. The goal would be to have a listing of the baseline ordinances that all counties have and to demonstrate what counties are doing that goes beyond the base line.

Focus on site design and construction materials and methods that can be used at the parcel / individual level to reduce the risk associated with debris flow that generally conform to the UBC categories for example:

- Residential Substantial Improvements
- Commercial
- Mobile

Develop a summary of existing ordinances based on existing classifications found in county ordinances and General Plan, LHMP and other plan categories. Method: Review and summarize like categories using the flood related ordinance table being developed at CalPoly. The goal would be to have a listing of the baseline ordinances that all counties have and to demonstrate what counties are doing that goes beyond the base line.

2. Best Management Practices, Programs and Design Guidelines. Develop a list of recommended best management practices, programs and guidelines to mitigate the risk associated with development on alluvial fans and to manage the alluvial fan environment with multi objective criteria. These will include guidelines for incorporating BMP's into General Plans, LHMP's and other types of plans as well as recommendations on how compliance can be built into existing permit review processes.
Examples could include specifications and language for early warning systems, methods for education the public about alluvial fan risk/value and evacuation and clean up management.

The following deployment variables for the BMP's will be considered:

- Geography and or location on the alluvial Fan (i.e. active, inactive, ridge, swale.)
- Potential for fire / landslide
- Proposed land use
- Density of development
- Maintainability
- Eco Zones from watershed sub committee

3. New/Other Site Ordinance. Develop a list of recommended ordinances not currently being employed that would fit within the existing classifications to augment the existing baseline recommendations.

Focus on NEW/OTHER site design and construction materials and methods that can be used at the parcel / individual level to reduce the risk associated with debris flow that generally conform to the UBC categories. The site level design and construction materials and methods would look specifically at reducing risk by addressing the following:

- Debris flow control and deflection
- Scour protection
- Adherence to existing and potential flow paths (respect for existing topography)
- High velocity flows
- Clean up and post event management
- Avoidance

The following deployment variables for the ordinances will be considered:

- Geography and or location on the alluvial Fan (i.e. active, inactive, ridge, swale.)
- Potential for fire / landslide
- Proposed land use
- Density of development
- Maintainability
- Eco Zones from watershed sub committee

4. New/Other Subdivision and Planned Development Ordinance. Develop a list of recommended ordinances primarily aimed at subdivision and or planned development categories that address the site layout and grading techniques for large multiunit developments. The primary purpose of this tool is to augment existing development ordinances with a frame work for multi-objective ordinances for promoting and sustaining multiple aspects of the alluvial fan environment.

Focus on new/other master planning ordinances and procedures is aimed at reducing debris flow risk with multiple parcel site layout and design including:

- Site selection
- Street layout
- Pad orientations
- Lot sizing
- Density recommendations

The subdivision and planned development ordinances will look specifically at reducing risk and promoting and sustaining the alluvial fan environment by addressing the following:

- Debris flow control and deflection
- Scour protection
- Adherence to existing and potential flow paths (respect for existing topography)
- High velocity flows
- Clean up and post event management
- Avoidance (same issues as site level but at a different scale)

The following deployment variables for the ordinances will be considered:

- Geography and or location on the alluvial Fan (i.e. active, inactive, ridge, swale.)
- Potential for fire / landslide
- Proposed land use
- Density of development
- Maintainability
- Eco Zones from watershed sub committee

Lynn Merrill, AFTF technical consultant, presented two more tools from the Design and Construction Subcommittee:

5. Asset management of flood facilities as part of planning process in both existing and proposed developments. Appropriate consideration needs to be given at the local government level regarding the life-cycle maintenance of flood management measures included in substantial new developments. Using the EPA 10-Step Asset Management Process as a basis to establish a methodology that addresses life-cycle issues of flood management infrastructure for both existing and proposed flood management assets and includes assessment of existing asset conditions, and determination of remaining useful life of existing facilities, replacement costs of those facilities and proposed life expectancy, and determination of maintenance levels to maintain the service levels. Methodology should include a calculation of the size and type of materials that may be collected within a given infrastructure component such as debris basins, channels, etc., an estimate of the frequency of routine and post-event maintenance necessary to maintain the service level of the infrastructure, the quantities of materials that may need to be removed after each event, the haul-routes and depositories for materials, and the costs associated with this maintenance cycle. In addition, this will include establishing the life expectancy of the asset in order to determine remaining service life, adequacy to meet existing or proposed service levels, replacement costs and targeted date for replacement.

6. Establish procedure and protocols for evaluation of evacuation routes including public works access for debris management in new developments. Most evacuation plans focus on responding to fires where the focus is on moving residents safely out of an affected area and moving emergency personnel in. These plans do not take into consideration the movement of public works personnel and equipment into the affected area to remove

debris, clear roadways and to install temporary protection measures around threatened properties to prevent additional loss. The proposed tool should incorporate methodologies that provide adequate ingress for public works departments to move safely into a neighborhood while evacuations occur simultaneously. This may mean assessing potential debris flow locations within a new development and designing roadways wide enough to permit two-directional traffic during evacuations, establishing open space which can be used to store debris or temporary divert flows, or other design considerations.

The subcommittees convened to continue their work.

During lunch, Georgia Celehar made a presentation about Coachella Valley and its alluvial fans.

The subcommittees reconvened to continue their work.

Meeting Adjourned: 3 p.m.
Next Meeting:
Friday, July 25, 2008
Hosted by Kern County Supervisor Jon McQuiston
At the Petroleum Club, 5060 California Ave., Bakersfield CA 93309

Minutes respectfully submitted to the AFTF members by Gigi Hanna, AFTF Administrative Coordinator. Please contact ghanna@csusb.edu if corrections are necessary.