ALLUVIAL FAN TASK FORCE

What are Alluvial Fans?
Alluvial fans are gently sloping fan-shaped landforms that are created over long periods of time by the natural deposition of eroded sediment from an upland source. They are a common landform seen at the base of semi-arid mountain ranges and serve as natural buffers between fire-prone mountain ranges and flooding. Flooding on alluvial fans is different from flooding of rivers and coasts. Paths of flooding and debris flows on alluvial fans may be uncertain, making development challenging.

Alluvial fans within Southern California. From left: Joshua Tree, San Bernardino County; Santa Rosa Mountains, San Diego County; and Whitewater area of Riverside County. (Source: Jeremy Lancaster, California Geological Survey)

What is the Alluvial Fan Task Force and Its Mission?
In 2004, following a tragic post-fire debris flow in San Bernardino County, the Governor signed Assembly Bill 2141. The Director of the State Department of Water Resources (DWR) convened the Alluvial Fan Task Force (Task Force or AFTF) in December 2007 when funding to support the Task Force was secured from a Federal Emergency Management Agency (FEMA) grant and State match was authorized by Assembly Bill 466. DWR announced a partnership with the California State University, San Bernardino Water Resources Institute to coordinate the following Task Force activities:

- Review the state of knowledge regarding alluvial fan floodplains;
- Determine future research needs;
- Develop a voluntary locally-adopted model ordinance for communities subject to flooding on alluvial fans with tools for local governments considering future development on alluvial fans;
- Develop local planning tools to assist local communities evaluate development on alluvial fans; and
- Prepare recommendations relating to alluvial fan floodplain management.

While alluvial fans can be found throughout California, Assembly Bill 2141 recognized the long history of alluvial fan flooding in Southern California and the critical need to provide decision support tools for local governments. Therefore, the Task Force focused on the alluvial fan floodplain issues in the 10-county Southern California area of San Bernardino, Riverside, Los Angeles, Ventura, Santa Barbara, San Luis Obispo, Kern, Orange, Imperial and San Diego.

The Task Force consisted of 33 representatives with a broad range of interests. Members included elected officials, represented by five County Supervisors from Kern, Los Angeles, Riverside, San Diego and San Bernardino counties and representatives from the development and environmental communities, local floodplain managers and associated state and federal agencies. Over 30 months, 10 plenary meetings were held by the Task Force members to discuss and share information on the complex issues concerning floodplain management and land use decisions on alluvial fans. The work of the Task Force concluded with the following deliverables:

- The Integrated Approach: Hazard and Resource Evaluation for Sustainable Development on Alluvial Fans (Integrated Approach);
- Model Ordinance for Governing Planning and Development on Alluvial Fans (Model Ordinance); and
- Findings and Recommendations Report

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The Integrated Approach

The Integrated Approach (or IA) consists of a suite of local planning tools for pre-project screening that are designed to assist local communities that need to plan for and evaluate future development proposals on alluvial fans. The tools provide a method for planners to evaluate hazards, resources, and site-specific issues in alluvial fan areas that are proposed for development. This evaluation helps determine, in the pre-project phase, whether new development can be designed to promote flood management sustainability, by avoiding the most hazardous areas and conserving the most valuable resources. Flood management tools are included that are consistent with FEMA guidelines to analyze alluvial fan flood hazards and to formulate flood hazard protection.

The Model Ordinance

The Task Force authorizing legislation also directed that a Model Ordinance (MO) be developed to assist city and county governments in the planning and development activities on alluvial fan areas. The MO provides a process and guidance to implement the local planning tools presented in the IA to provide better informed land use decisions for development proposals on alluvial fans areas. The MO was designed to ensure that land use decisions achieve three critically important objectives:

- Minimize flooding and other hazards that may result by locating development on alluvial fans;
- Minimize the costs and damages that may result from these hazards; and
- Preserve and maximize the flood protection, environmental and other beneficial values that alluvial fans provide.

The Findings and Recommendations Report

The Findings and Recommendations Report describes the extensive “state of knowledge” review of alluvial fans including the history of alluvial fan flooding in the Southern California area, lessons learned from development of these areas, and the nature of alluvial fan flood hazards and physical characteristics of alluvial fan flooding hazards. Several findings were made including the need for better understanding of alluvial fan flooding and the lack of consideration of other hazards and beneficial values of alluvial fans in planning and decision making. As a result of these findings, the Task Force members formulated recommendations for future actions.

The Task Force recommendations were categorized into the following four areas:

- Advance the Understanding of Alluvial Fan flooding and flood hazards;
- Integration of Information on Other Hazards, Beneficial Values, and Long-Term Costs for Local Land Use Decisions;
- Enhanced Support for Local Land Use Decisions; and
- Technical Assistance and Funding.

Next Steps

While the work of the Task Force has concluded, there remain several important issues that need further attention as summarized in the Findings and Recommendations Report. Some of these issues include providing appropriate outreach and training to local governments and interested public on the use and application of the IA. Also the needs and proposed recommendations of the Task Force will require funding and technical assistance from State, federal, and local governments. As directed by Assembly Bill 2141, the findings and recommendations of the Task Force will be submitted to DWR and the State legislature for possible future action.

For more information, visit: www.http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/alluvial_fan_maps.cfm