

## Summary of San Diego IRWM Integrated Flood Management Study

### Overview:

A key element of the 2013 IRWM Plan Update is to include flood/watershed management as another of the water resources that can be part of the regional water planning. Flooding is a chronic problem that is experienced throughout the San Diego County region, even with a semi-arid climate, which can result in significant losses and economic damages. However, flood and stormwater runoff generated from watersheds can also represent a valuable water resource that can be managed successfully rather than just being typically viewed as a hazard. Floodplain management and flood hazard mitigation is extremely complex with multiple issues and different watershed responses throughout the region to storm/rainfall events. There is not a one size fits all solution, but comprehensive planning is required on a watershed basis to develop an implementable system-wide answer. This regional study is not the traditional watershed/flood management planning document since it does not provide specific regional flood mitigation projects as a conventional masterplan would provide. However, the report is intended as a “guidance document” to facilitate an integrated water resources approach to flood management. This assessment is based on readily available information to perform planning level risk assessment in order to provide high level recommendations. In addition, it defines general applicable strategies/approaches, as well as provides planning level tools, to guide flood management decision making on a watershed basis.

### Integrated Flood Management - Definition:

Integrate Flood Management (IFM) is an approach that varies from traditional flood protection with a focus on maximizing the efficient use/net benefit of a floodplain while promoting public safety. IFM is a process that promotes an integrated, rather than fragmented, approach to flood management, and that recognizes the connection of flood management actions to water resources management, land use planning, environmental stewardship, and sustainability. Flood risk management requires the holistic development of a long-term strategy, balancing current needs with future sustainability. Incorporating sustainability means looking for way of working towards identifying opportunities to enhance the performance of a watershed system as a whole. The approach embraces an understanding that with responsible planning of the watershed to take care in protecting the natural integrity of the floodplain and to ensure the maximum value will be realized from protecting key natural resources. The focus of integrated planning is on balancing the community flood management needs with the environmental opportunities and watershed resources which will ensure an acceptable solution with the flexibility to adapt to future changes. A sustainable flood and water management approach would recognize the:

- Interconnection of flood risk management actions within broader water resources management, ecosystems, and land use planning
- Value of coordinating across geographic and agency boundaries
- Need to evaluate opportunities and potential impacts from a system perspective
- Importance of environmental stewardship and sustainability
- Need for system flexibility and resiliency in response to changing conditions, such as climate change and population growth

### Study Process:

The objective of this planning study is to develop planning level tools and processes and the guidance framework/structure for regional collaborative planning of watershed and flood risk management as well.

1. Facilitate development of a watershed / floodplain managers *stakeholder forum*
2. Develop technical understanding and database of *existing flooding problems / flood risks*
3. Define the different regional watershed *goals and objectives*
4. Identify the *global opportunities and constraints* as the basis for potential strategies.
5. Develop possible *global watershed management strategies / approaches* that embody IFM.
6. Preparation of cohesive *guidance document* to define planning program and global IFM strategies
7. Identify a screening process for selection of beneficial IFM projects that includes *prioritization evaluation criteria*.

**Key Issues:**

Today flood management projects face increased stakeholder involvement, land use constraints, changing regulatory requirements, and new environmental considerations. These issues have led to an increase in the cost of flood management. Addressing these issues will require a move away from the traditional approach to developing flood management projects. Many of these issues were identified during the stakeholder meetings that were conducted as part of the flood management study process.

- Projects require extensive stakeholder involvement, which increases project planning costs.
- Flood management responsibility is fragmented. There is not a centralized agency coordinating all the flood management activities within the County which make San Diego unique.
- Different methodologies and inadequate data make risk assessment complex and costly to complete.
- Land use decisions may not adequately prioritize public safety.
- Delayed permit approvals and complex permit requirements are obstacles to flood risk reduction.
- Flood management projects are not prioritized from a “watershed” system-wide or multi-benefit perspective.
- Flood risk funding as well as long term funding for operations and maintenance.

**Identified Integrated Flood Management Strategies:**

These approaches and the management actions within them serve as a toolkit of potential actions that local agencies can use to address flood-related issues, and advance IFM throughout the Region’s watersheds.

<b>Land Use Planning</b> <ul style="list-style-type: none"> <li>• Floodplain Basis</li> <li>• Watershed Basis</li> </ul>	<b>Restoration of Natural Floodplain Functions</b> <ul style="list-style-type: none"> <li>• Promote natural hydro/geomorphic process</li> <li>• Protect and restore native floodplain habitats</li> <li>• Invasive species reduction</li> </ul>
<b>Floodplain Management</b> <ul style="list-style-type: none"> <li>• Floodplain Mapping/Risk Assessment</li> <li>• Land Acquisition and Easement</li> <li>• Building Code and Flood-proofing</li> <li>• Retreat</li> <li>• Flood Risk Awareness (Education)</li> <li>• Flood Insurance</li> </ul>	<b>Flood infrastructure</b> <ul style="list-style-type: none"> <li>• Levee/Floodwalls</li> <li>• Channels and bypasses</li> <li>• Retention and detention basins</li> <li>• Streambank stabilization</li> <li>• Debris mitigation structure</li> </ul>
<b>Reservoir and Floodplain Storage</b> <ul style="list-style-type: none"> <li>• Storage operations</li> <li>• Groundwater recharge</li> </ul>	<b>Flood Emergency Management</b> <ul style="list-style-type: none"> <li>• Flood preparedness</li> <li>• Emergency response</li> <li>• Post flood recovery</li> </ul>

**Recommendations:**

This study identified a general framework for the application of an integrated flood management approach throughout the County on a regional basis that will ensure maximizing water resources benefits. Based on the findings, the following actions are recommended to advance the use of IFM on a county-wide basis for development of flood management solutions:

1. Increase collaboration/communication of agencies responsible municipal and regional floodplain management which will increase effectiveness of flood management.
2. Improve understanding and accuracy of regional and local flood risks on a watershed basis.
3. Develop regional watershed database to assist in flood management planning that will provide a data exchange of information for all watershed stakeholders as well as sharing of information between public agencies to foster collaboration.
4. Develop watershed based planning, which includes collaboration with all the different stakeholder groups to minimize conflicts and define specific watershed goals.
5. Initiate understanding and awareness of “integrated flood management” (IFM) for agencies and the community.
6. Identify applicable IFM strategies on a watershed basis that can be utilized within the County to assist agency’s understanding on how IFM can be implemented given the nature of the types of flood hazards within the County.
7. Develop watershed planning guidance program implementing IFM through different land planning regulations and collaboration with agencies during the development planning process.