



## 9. TECHNICAL ANALYSIS

### 9.1 TECHNICAL DATA USED FOR PLAN DEVELOPMENT

The IRWMP builds on the extensive planning and technical studies that have been conducted for the Newport Bay and Newport Coast Watersheds.

#### 9.1.1 Planning Studies

The planning studies identified opportunities and constraints for watershed projects, including habitat protection and restoration, restoration of ecosystem processes, creek restoration for flood control and water quality, stormwater programs to protect water quality, use of water quality treatment wetlands, runoff reduction through landscape conservation programs, and an array of other studies related to habitat, water quality, and water supply. The studies conducted by the Corps include a reconnaissance report that documented baseline conditions (US ACOE, 1999). Preparation of the SAMP for San Diego Creek included a planning-level wetland delineation and geospatial characterization and assessment of riparian ecosystem integrity in the San Diego Creek Watershed (US ACOE, 2008).

#### 9.1.2 Technical Studies

The technical studies were scientifically based and measured dry- and wet-weather flows, constituents of concern, effectiveness of BMPs for water quality, bioaccumulation, sources and their contribution to water quality degradation, effects of hydromodification in creek channels, and toxicity. Annual monitoring reports that are prepared for each of the four TMDLs include water quality measurements as specified in the TMDL. An annual monitoring report is also prepared for the Orange County NPDES permit, and OCHCA performs weekly water quality monitoring within the watersheds. Each of these studies and regular reports has been used in the development of the Plan because they identify where specific actions are needed and offer scientifically based recommendations for strategies.

#### 9.1.3 Engineering Studies

The IRWMP also incorporates the agencies' adopted master plans for water, wastewater, and recycled water systems, each of which includes a detailed engineering analysis of current system conditions, future service demands, and system improvements. This extensive knowledge base, which incorporates planning studies, science-based technical studies, and engineering studies, has allowed the development of the Plan by means of an informed stakeholder process. Because of this valuable resource, watershed management issues and conflicts have been clearly

identified, the objectives directly correspond to those issues, and implementation of the strategies and projects has been selected based on the findings and recommendations of these engineering studies.

### 9.2 EVALUATION OF PLAN PERFORMANCE

For each implemented project in this IRWMP, there will be a project monitoring and performance plan and a quality assurance project plan that will include water quality monitoring, assessment of habitat improvements, and measurements of water supply enhancements. The performance plan will address how the project will result in measurable improvements in water quality, watershed condition, water supply, capacity for effective watershed management, and other measurable benefits. The lead project proponent will be responsible for providing updates to the Newport Bay Watershed committees on an as-needed basis, depending on the project.

In addition to state-compatible data measurements, individual projects will establish other indicators of success as applicable. Project monitoring and performance evaluation components that are already being implemented within the watersheds or will be implemented in conjunction with the IRWMP are the following:

- Measurements indicating improved water quality
- Acres of wetland restored
- Feet of stream channel stabilized
- Photographic documentation
- Reduction in potable water demands due to conservation programs
- Increased local water supplies—groundwater, desalted, recycled—that offset imported water demand
- Increased community awareness and participation
- Increased level of collaboration measured by number of projects with multiple partners or supporters

Each project monitoring and performance plan will incorporate components that are designed to accomplish the following:

- Characterize the baseline water quality of the affected water body and/or identify the baseline water quantity available to the water supplier
- Describe the manner in which the proposed activities will be implemented (if applicable)
- Determine the effectiveness of the water or watershed restoration or management activities in preventing or reducing pollution, improving water

quality, conserving water, increasing water supply, providing public access, or other water management strategies

- For stream restoration, environmental and habitat protection and improvement, wetlands enhancement and creation projects, and other similar projects, determine, to the extent feasible, the changes in the pattern of flow in affected streams, including reduction of flood flows and increases in spring, summer, and fall flows that result from project implementation
- Determine, to the extent feasible, the economic benefits resulting from the changes
- Other project-appropriate environmental monitoring that will provide data that is relevant for determining the status of the Newport Bay and Newport Coast Watersheds.

Much baseline data for the various projects have been provided by previous planning, technical, and engineering studies and existing monitoring programs. Additional information that will be used to evaluate IRWMP and project performance is included within the local and regional plans, documents, and programs identified in Section 10.

### 9.3 ADAPTIVE MANAGEMENT

The IRWMP incorporates the principles of adaptive management; therefore, the project monitoring and performance plan, quality assurance project plan, and project update reports will be critical to the long-term success of this planning process. The Newport Bay Watershed committees will periodically discuss implementation of the IRWMP, collaborative opportunities, the status of existing projects, proposals for new projects that meet the objectives and strategies of the IRWMP, available resources, and the need for IRWMP refinement.

A similar methodology will be used to adapt project operations and Plan implementation to ensure progress toward achieving the objectives. This may be required when administrative, budget, schedule, or other factors present constraints to the original project plan or when project performance is not meeting the expected targets for water quality improvements, habitat restoration, or water supply enhancements. Adaptive management allows the evaluation of options such as identifying additional partners, implementing additional strategies, identifying further data gaps and the means to obtain the information, restructuring some program elements within the parameters of available funding and regulatory approvals, and incorporating the results of recently completed studies that have bearing on current projects. The Newport Bay Watershed committees will evaluate

project and IRWMP results and consider various options where needed to improve performance or increase benefits.