EXECUTIVE SUMMARY

The primary purpose of this Mission Statement Milestone Report (Report) is to define a concise mission statement of the Shasta Lake Water Resources Investigation. This primarily includes a process of identifying pertinent water and related resource problems, needs, and opportunities; planning objectives for the feasibility study; and constraints, principles, and criteria under which plan formulation is to be accomplished. This Report highlights: significant water resources and related projects and programs, existing and potential without-project future conditions, development of the mission statement, potential water resource management measures and concept plans, a public outreach program strategy, and major future actions.

BACKGROUND

The U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region (Reclamation) in 2000 re-initiated a feasibility scope investigation to evaluate the potential of enlarging Shasta Dam for increased water supply and operational flexibility. Increases in demands for water supplies and attention to ecosystem needs in the Central Valley of California have renewed interests on expanding the facility. The Shasta Lake Water Resources Investigation is being conducted under the general authority of Public Law (PL) 96-375 (1980).

The Shasta Dam and Reservoir Project was completed in 1944 by Reclamation for the purpose of flood control, irrigation water supply, municipal and industrial (M&I) water supply, hydropower generation, fish and wildlife conservation, and navigation. The 533-foot high (above streambed) Shasta Dam and 4.55 million acre-foot (MAF) reservoir are located on the upper Sacramento River in Northern California about 9 miles northwest of the City of Redding. The Shasta Dam Project significantly influences flows and other water conditions in the Sacramento River as far downstream as the Sacramento-San Joaquin River Delta.

A number of existing projects influence water resources studies for the Shasta Lake Water Resources Investigation. Examples include Reclamation's Central Valley Project (CVP), the State of California's State Water Project (SWP), and Sacramento River Flood Control Project by the U.S. Army Corps of Engineers (Corps). In addition, there are numerous water resources programs that significantly effect activities within the region. Two of the most influential programs are activities related to the Central Valley Project Improvement Act (CVPIA) and the CALFED Bay-Delta Program. This investigation is being accomplished recognizing the goals and objectives for these and other water resources projects and programs.

- **CVPIA –** The CVPIA, signed into law in October 1992, fundamentally changed authorization of the CVP by including fish and wildlife protection, restoration, and mitigation as project purposes. The CVPIA identified a number of specific measures to accomplish the new purpose. To address anticipated impacts of these measures on deliveries to CVP agricultural and municipal contractors, CVPIA directed Reclamation to prepare a plan to identify a least-costly plan to increase the yield of the CVP an amount equal to the redirected supplies. Reclamation is in the process of preparing this plan.

- **CALFED –** The CALFED Bay-Delta Program is a cooperative effort among the State of California, various Federal agencies, and involved environmental, urban, and agricultural

communities and organizations to address resources problems consisting of water quality, ecosystem quality, water supply reliability, and levee system integrity. CALFED program implementation began following circulation of the final programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR), and the signing of the Record of Decision (ROD) in August 2000. The Preferred Program Alternative (PPA) in the CALFED ROD consists of programmatic elements, which set the long-term direction of the program to meet its mission statement and objectives. The water storage program and seven interrelated programs in the PPA consists of actions to expand surface storage capacity in the Central Valley by approximately 4.5 MAF and implement a major expansion of groundwater storage by an additional 0.5 to 1.0 MAF. Enlarging Shasta Dam is one of five surface water projects identified in the PPA.

PROBLEMS AND NEEDS

Based on existing and potential future physical, environmental, and socio-economic conditions in the study area, the major identified water resources and related problems and needs include:

- **Anadromous Fish Survival –** Due to a number of environmental factors, the population of Chinook salmon has declined in the Central Valley. To address this problem in the Sacramento River, various actions have been undertaken ranging from establishing minimum flow requirements in the river to structural changes at Shasta Dam. There is still, however, a residual need for effective actions to benefit the salmon, especially in the dry and critically dry years. The need for cooler water will likely increase should requirements contained in the December 2000 ROD for the Trinity River Decision, which will reduce diversions of cooler water from the Trinity River to the Sacramento River, be implemented.

- **Water Supply Reliability –** Demands for water in California exceed available supplies. As the population of the Central Valley grows, the need to maintain a healthy and vibrant industrial and agricultural economy will increase as the demand for adequate amounts of water supply becomes more acute. Even with aggressive water conservation, increased water recycling, and other water management measures, demands will exceed supplies. To avoid major impacts to the economy and overall environment of California, there is a significant need to increase the reliability of water supplies to meet the future demands.

- **Other Resources Needs –** Other identified problems and needs include: the need for restoring environmental values in the Shasta Lake area and downstream along the Sacramento River; the need for additional flood control along the upper Sacramento River; growing demands for new energy sources in California; and increased need for additional water-oriented recreation in the upper Sacramento River area.

PLAN FORMULATION RATIONALE

The basic plan formulation rational for the Shasta Lake Water Resources Investigation includes: (1) identifying existing and without-project future resource conditions; (2) defining likely water resources problems and needs in the study area; (3) developing specific planning objectives, constraints, principles, and criteria, and an overarching mission statement; (4) formulating and comparing potential alternative plans to address the study objectives consistent with the mission

statement; (5) selecting a plan for recommended implementation; and (6) preparing and processing a feasibility report for Congressional action. This rational is to be documented in four major study phases. The first is the Mission Statement Phase, which focuses on defining the mission statement for the Investigation. As mentioned, this first phase is the primary purpose of this Report. The second is the Initial Plans Phase, which is to identify potential resource management measures to address the study objectives and formulate, coordinate, and compare an initial set of alternative plans. This phase is to be followed by the Alternative Plans Phase for the purpose of formulating specific alternative plans to address the planning objectives; evaluate, coordinate, and compare the plans; and identify a plan for tentative recommendation. The last phase is the Recommended Plan Phase for the purpose of completing the formulation of the tentatively recommended plan and preparing, coordinating, and processing a feasibility report for Washington-level consideration.

STUDY OBJECTIVES AND MISSION STATEMENT

The identified problems and needs in relation to the study authority were translated into primary and secondary (opportunity) planning objectives that include:

- **Primary Objectives –**

    - Increase the survival of anadromous fish populations in the Sacramento River primarily upstream from the Red Bluff Diversion Dam.

    - Increase water supplies and water supply reliability for agricultural, M&I, and environmental purposes to the CVP to help meet future water demands with a primary focus on modification of Shasta Dam and Reservoir.

- **Secondary Objectives –** To the extent possible through pursuit of the primary planning objectives, include as opportunities, features to help:

    - Preserve and restore ecosystem resources in the Shasta Lake area and long the upper Sacramento River.

    - Reduce flood damages along the Sacramento River.

    - Develop additional hydropower capabilities at Shasta Dam.

    - Provide additional water-related recreational opportunities in the Shasta Lake area.

In addition to the planning objectives, a set of planning constraints, principles, and criteria were developed to help focus the planning process. The primary constraints and principles include: study authorization; applicable laws, regulations, and policies; the CALFED ROD; and guiding plan formulation principles. The fundamental planning criteria for use in comparing and evaluating developed alternatives includes: completeness; effectiveness; efficiency; and acceptability.

Based on identified problems and needs, relationships to other programs and projects, and Federal planning guidance, the following mission statement was developed:

"To develop an implementable plan primarily involving the modification of Shasta Dam and Reservoir to promote increased survival of anadromous fish populations in the upper Sacramento River; increased water supply reliability to the Central Valley Project; and to the extent possible through meeting these objectives, include features to benefit other identified ecosystem, flood control, and related water resources needs."

CONCEPT PLANS

Preliminary resource management measures are identified to address the planning objectives. From these preliminary management measures, five concepts are identified. These resource management measures and concept plans will be further developed and additional alternatives formulated as the investigation continues. The concepts include:

- **Enlarge Shasta – Low Option Concept –** This concept is primarily one of the projects identified in the CALFED ROD. Its main feature consists of enlarging Shasta Reservoir about 290,000 acre-feet by raising the dam 6.5 feet. The increased storage would be used to increase CVP system reliability and to benefit anadromous fish survival along the upper Sacramento River. The concept could also incorporate ecosystem restoration through establishment or expansion of existing riverine, riparian, and wetland resources at available locations not yet identified around Shasta Lake and along the Sacramento River upstream from Red Bluff.

- **Enlarge Shasta – Expanded Option Concept –** This concept primarily consists of enlarging Shasta Dam and Reservoir an amount larger than suggested in the CALFED ROD. Studies are continuing, however, likely increased sizes range from raising the dam 6.5 feet as in the low option concept, up to about 30 feet. Higher raises are also being assessed. The enlarged storage space would be used to help increase CVP system reliability and to benefit anadromous fish survival along the upper Sacramento River. It would also incorporate ecosystem restoration through establishment or expansion of existing riverine, riparian, and wetland resources at available locations not yet identified around Shasta Lake and along the Sacramento River upstream from Red Bluff.

- **Conjunctive Use Concept –** The major components of this concept consist of: (1) enlarging Shasta Reservoir about 290,000 acre-feet as above for water supply reliability and anadromous fish survival; (2) developing a conjunctive use storage area, either groundwater or offstream surface water storage, for carryover storage into dry years; and (3) constructing ecosystem restoration features near Shasta Reservoir and along the upper Sacramento River.

- **Non-Structural Concept –** This concept primarily consists of reoperating Shasta Dam and Reservoir for increased water supply reliability and increasing the real-time flood control operation reliability of Shasta Dam.

- **Multiple Interest Concept –** The major components of this concept include a combination of: (1) enlarging Shasta Reservoir between 290,000 acre-feet and about 1 MAF by raising the dam between about 6.5 feet and 30 feet, respectively, for water supply reliability and anadromous fish survival; (2) developing a conjunctive use storage area, either groundwater or offstream surface water storage, for carryover storage into dry years; (3) reoperating Shasta Dam and Reservoir for increased water supply reliability; (4) increasing the real-time flood control

operation reliability of Shasta Dam; and (5) constructing ecosystem restoration features near Shasta Reservoir and along the upper Sacramento River.

FUTURE ACTIONS

The next major step in the feasibility study process is to expand the definition and evaluation of potential resource management measures that address the study objectives. This will include reviewing the concept plans and formulate the most applicable of the measures into various alternative plans. Future efforts will include evaluating, comparing, and refining the alternative plans, selecting and displaying a recommended plan, and completing the feasibility report. Emphasis in upcoming studies will be in plan formulation including hydraulic and hydrologic system modeling, designs and cost estimates, and environmental impact evaluations and documentation.

Major emphasis will also be placed on implementing a Strategic Agency and Public Involvement Plan (Plan) for the Shasta Lake Water Resources Investigation. The Plan is being designed as a manual to assist the Project Coordination Team to effectively communicate with those individuals, groups and agencies that are affected by or can benefit from enlargement or modification of Shasta Dam. It is anticipated that this plan will be amended as the Project evolves. It is included as an appendix to this report.

Based on completing the Initial Alternatives Phase in late-2003, a draft feasibility report and EIS/EIR could be completed for release to the public and other Federal agencies for review in mid-2005 and a final feasibility report in mid-2006. With possible Congressional authorization in 2007, detailed project designing could be initiated in 2007, followed by initiation of construction in about 2009. The initial phase of construction would include real estate acquisition, continuation of detailed designs, acquisition of necessary permits, and minor relocations. The construction period would likely range from three to six years depending on the selected plan.