CHAPTER 1. INTRODUCTION

In 2001, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) initiated the Upper San Joaquin River Basin Storage Investigation (Investigation). The Investigation is a feasibility study evaluating alternatives to develop water supplies from the San Joaquin River that could contribute to restoration of, and improve water quality in, the San Joaquin River and enhance conjunctive management and exchanges to provide high-quality water to urban areas. The Investigation is one of five surface water storage studies recommended in the CALFED Bay-Delta Program (CALFED) Programmatic Environmental Impact Statement/Report (PEIS/R) Record of Decision (ROD) of August 2000.

The Investigation is being prepared in two phases. Phase 1, which included preliminary screening of initial storage sites, was completed in October 2003. Initially, 17 surface water storage sites were considered, of which 6 were retained for further analysis. Phase 2 began in January 2004 with formal initiation of environmental review processes consistent with Federal and State of California (State) regulations, and will continue through completion of all study requirements. The Investigation will culminate in a Feasibility Report (FR) and supporting environmental documents consistent with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) (WRC, 1983), Reclamation directives, DWR guidance, and applicable environmental laws. Reclamation and DWR are coordinating the Investigation with the California Bay-Delta Public Advisory Committee (BDPAC), which provides advice to the Secretary of the United States Department of the Interior (Secretary) regarding the implementation of the CALFED Program, and the California Bay-Delta Authority (CBDA), which provides general oversight and coordination of all CALFED activities.

To facilitate coordination with other agencies and related ongoing studies, preparation of the FR will include two interim planning documents: an Initial Alternatives Information Report (IAIR) and a subsequent Plan Formulation Report (PFR). The IAIR describes without-project conditions and water resources problems and needs; defines study objectives and constraints; screens surface water storage measures; describes groundwater storage measures development; and identifies preliminary water operations rules and scenarios. Retained storage measures and preliminary water operations scenarios will be included in initial alternatives. This IAIR will be used as an initial component of the FR. The PFR will present the results of initial alternatives evaluation, identify refinements of the alternatives, and define a set of final alternatives. A Draft FR will evaluate and compare the final alternatives and identify a recommended plan. A Draft Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) will be included with the Draft FR. Following public review and comment, a final FR/EIS/EIR will be prepared.

Topics Addressed in the Initial Alternatives Information Report

- Without-project conditions
- Water resources problems and needs
- Study objectives and constraints
- Surface water storage measures screening
- Groundwater storage measures development
- Preliminary water operations rules and scenarios

BASIS OF INVESTIGATION

The San Joaquin River basin experiences several water resources problems that could be alleviated through the development and management of additional water supplies. These problems include ecosystem conditions in the San Joaquin River, water quality of the San Joaquin River, and groundwater overdraft in the eastern San Joaquin Valley. In addition, opportunities exist to address related water resources needs, including flood protection, hydropower generation, and recreation, through the development of additional water supply.

The purpose of the Investigation is to formulate and evaluate alternatives that develop additional San Joaquin River water supply primarily involving enlarging Friant Dam and Millerton Lake, or a functionally equivalent storage program in the region. As described in the CALFED ROD, the developed water supply would be managed to contribute to the restoration of, and improve water quality in, the San Joaquin River and enhance conjunctive management and exchanges to provide high-quality water to urban areas. To the extent possible through meeting these primary objectives, alternatives will include features to address identified flood control, hydropower, recreation, and other related water resources opportunities.

STUDY AREA EMPHASIS

As described in CALFED documents, the upper San Joaquin River basin comprises the San Joaquin River and tributary lands upstream of its confluence with the Merced River. Changes in San Joaquin River flows could affect this reach and the San Joaquin River as it continues to the Sacramento-San Joaquin Delta (Delta). Friant Dam, on the San Joaquin River, currently serves water to the eastern San Joaquin Valley from Chowchilla in the north to Bakersfield in the south. Releases from Friant Dam that reach Mendota Pool via the San Joaquin River could provide a supply to Mendota Pool water user demands otherwise served from Delta exports, and thereby provide water supplies for other south-of-Delta (SOD) water users.

The study area emphasis for the Investigation therefore encompasses the San Joaquin River watershed upstream of Friant Dam, the San Joaquin River from Friant Dam to the Delta, and the portions of the San Joaquin and Tulare Lake hydrologic regions served by the Friant-Kern and Madera canals, as highlighted in **Figure 1-1**. The study area includes all potential storage sites under consideration, the region served by the Friant Division of the Central Valley Project (CVP), the eastern San Joaquin Valley groundwater basins, and the portion of the San Joaquin River most directly affected by the operation of Friant Dam. As described in **Chapter 3**, the study area includes a primary study area and an extended study area.

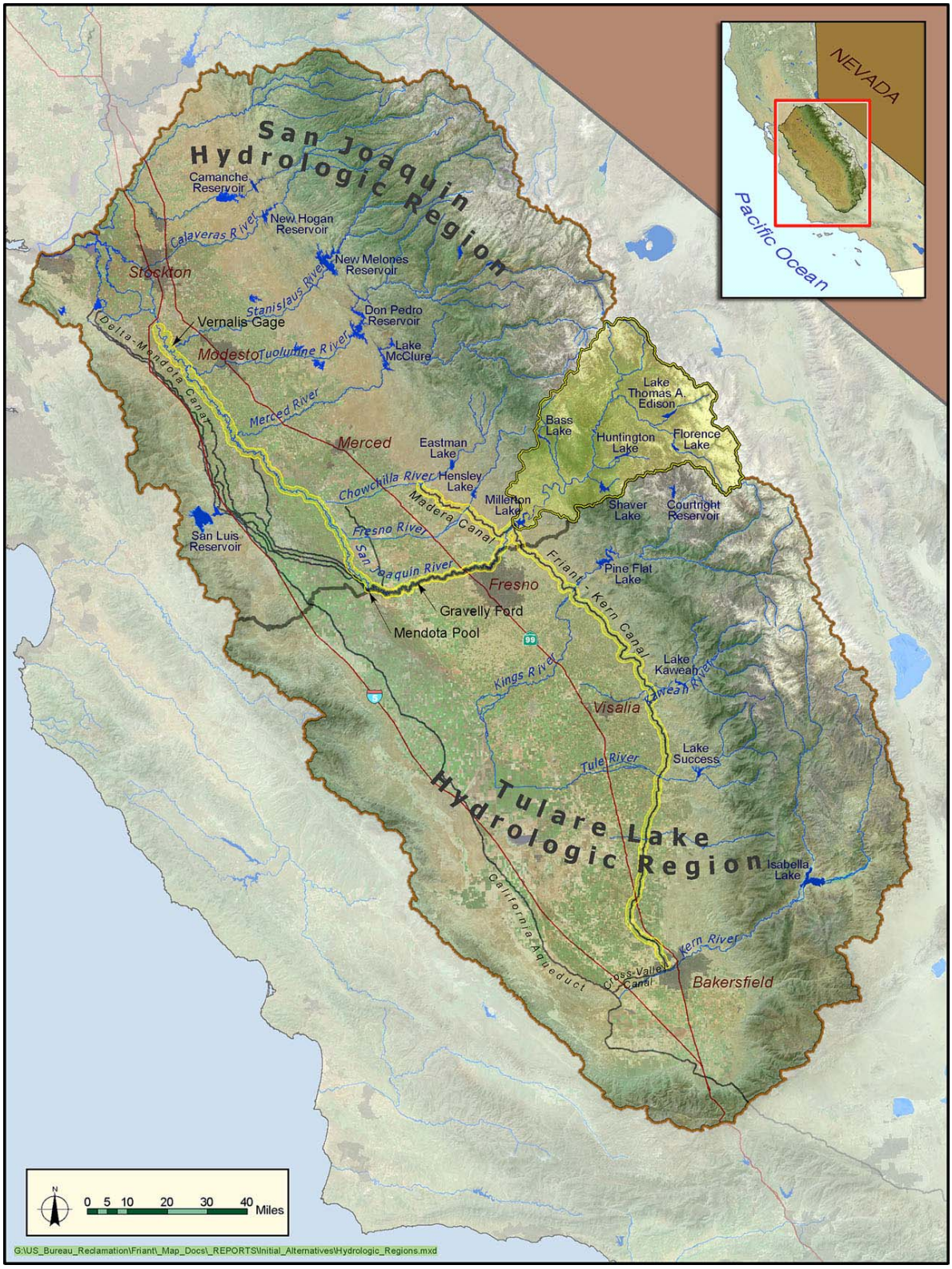

FIGURE 1-1.
UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION
STUDY AREA EMPHASIS

STUDY AUTHORIZATION AND GUIDANCE

Federal and State of California authorizations for preparing the FR are described below.

Federal Authorization

Federal authorization for the Investigation was initially provided in Public Law (PL) 108-7, Division D, Title II, Section 215, the omnibus appropriations legislation for fiscal year 2003, enacted in February 2003. This act authorized the Secretary to conduct feasibility studies for several storage projects identified in the CALFED ROD, including the Upper San Joaquin River Basin Storage Investigation:

> The Secretary of the Interior, in carrying out CALFED-related activities, may undertake feasibility studies for Sites Reservoir, Los Vaqueros Reservoir Enlargement, and Upper San Joaquin Storage projects. These storage studies should be pursued along with ongoing environmental and other projects in a balanced manner.

Subsequent authorization for the Investigation was provided in PL 108-361, Title I, Section 103, Subsection (d)(1)(A)(ii), the Water Supply, Reliability, and Environmental Improvement Act, signed October 25, 2004:

> Planning and feasibility studies for the following projects requiring further consideration – …(II) the Upper San Joaquin River storage in Fresno and Madera Counties.

This authorization to prepare a FR on water storage was identified separately from several other provisions in the same act that authorized Federal participation in groundwater management and storage projects and actions to improve water quality in the lower San Joaquin River at or near Vernalis. Reclamation is the responsible Federal agency for preparing the FR and the EIS.

State of California Authorization

DWR is the State lead agency for the Investigation and preparation of the EIR. Section 227 of the State of California Water Code authorizes DWR to participate in water resources investigations:

> The department may investigate any natural situation available for reservoirs or reservoir systems for gathering and distributing flood or other water not under beneficial use in any stream, stream system, lake, or other body of water. The department may ascertain the feasibility of projects for such reservoirs or reservoir systems, the supply of water that may thereby be made available, and the extent and character of the areas that may be thereby irrigated. The department may estimate the cost of such projects.

Guidance in the CALFED ROD

The principal objective of the CALFED Bay-Delta Program is to develop a comprehensive, long-term strategy to provide reliable water supplies to cities, agriculture, and the environment while restoring the overall health of the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta). The CALFED ROD recommended numerous projects and actions to increase water supply reliability, improve ecosystem health, increase water quality, and improve Delta levee stability.

Several program elements were defined that, in combination, would help attain the overall goals of CALFED. The storage program element includes five investigations of potential increased surface storage capabilities at various locations in the Central Valley, including the upper San Joaquin River basin, as well as efforts to increase groundwater storage through conjunctive management. For the upper San Joaquin River basin, the CALFED ROD states:

> … 250-700 [thousand acre-feet (TAF)] of additional storage in the upper San Joaquin watershed… would be designed to contribute to restoration of and improve water quality for the San Joaquin River and facilitate conjunctive water management and water exchanges that improve the quality of water deliveries to urban communities. Additional storage could come from enlargement of Millerton Lake at Friant Dam or a functionally equivalent storage program in the region.

SURFACE WATER STORAGE MEASURES RETAINED FROM PHASE 1

Six sites for enlarging an existing or developing a new reservoir were retained from Phase 1 of the Investigation. Each site could be configured at various storage sizes, with each configuration identified as a measure. Surface water storage sites retained from Phase 1 include:

- **Raise Friant Dam**. Enlarging Millerton Lake by raising Friant Dam up to 140 feet.
- **Temperance Flat Reservoir**. Constructing Temperance Flat dam and reservoir at one of three potential dam sites on the San Joaquin River, between Friant and Kerckhoff dams, at River Mile (RM) 274, RM 279, or RM 286.
- **Fine Gold Reservoir**. Constructing a dam and reservoir on Fine Gold Creek to store water diverted from the San Joaquin River or pumped from Millerton Lake.
- **Yokohl Valley Reservoir**. Constructing a dam and reservoir in Yokohl Valley to store water conveyed from Millerton Lake by the Friant-Kern Canal and pumped into the reservoir.

SURFACE WATER STORAGE MEASURES SUGGESTED DURING SCOPING

As noted in the Phase 1 Information Report, most of the surface water storage measures retained from Phase 1 would result in a net loss in power generation. In March 2004, Reclamation and DWR held a series of scoping meetings to initiate development of an EIS and EIR. During scoping, power utilities that own and operate hydropower projects in the upper San Joaquin River basin raised concerns about impacts of lost power generation and the ability of retained measures to develop adequate replacement power. These hydropower stakeholders suggested five additional potential reservoir sites that could store water supplies from the upper San Joaquin River without adversely affecting existing hydropower facility operations.

Suggested storage measures include the **Granite Project** (Granite Creek and Graveyard Meadow reservoirs) and **Jackass-Chiquito Project** (Jackass and Chiquito reservoirs) on tributaries to the San Joaquin River upstream of Mammoth Pool, and the **RM 315 Reservoir** on the San Joaquin River between Redinger Lake and Mammoth Pool. The scoping comments also suggested combining these upstream storage measures with a gravity diversion tunnel from Kerckhoff Lake to a Fine Gold Reservoir. The locations of the surface water storage sites retained from Phase 1 and sites suggested during scoping are shown in **Figure 1-2.**

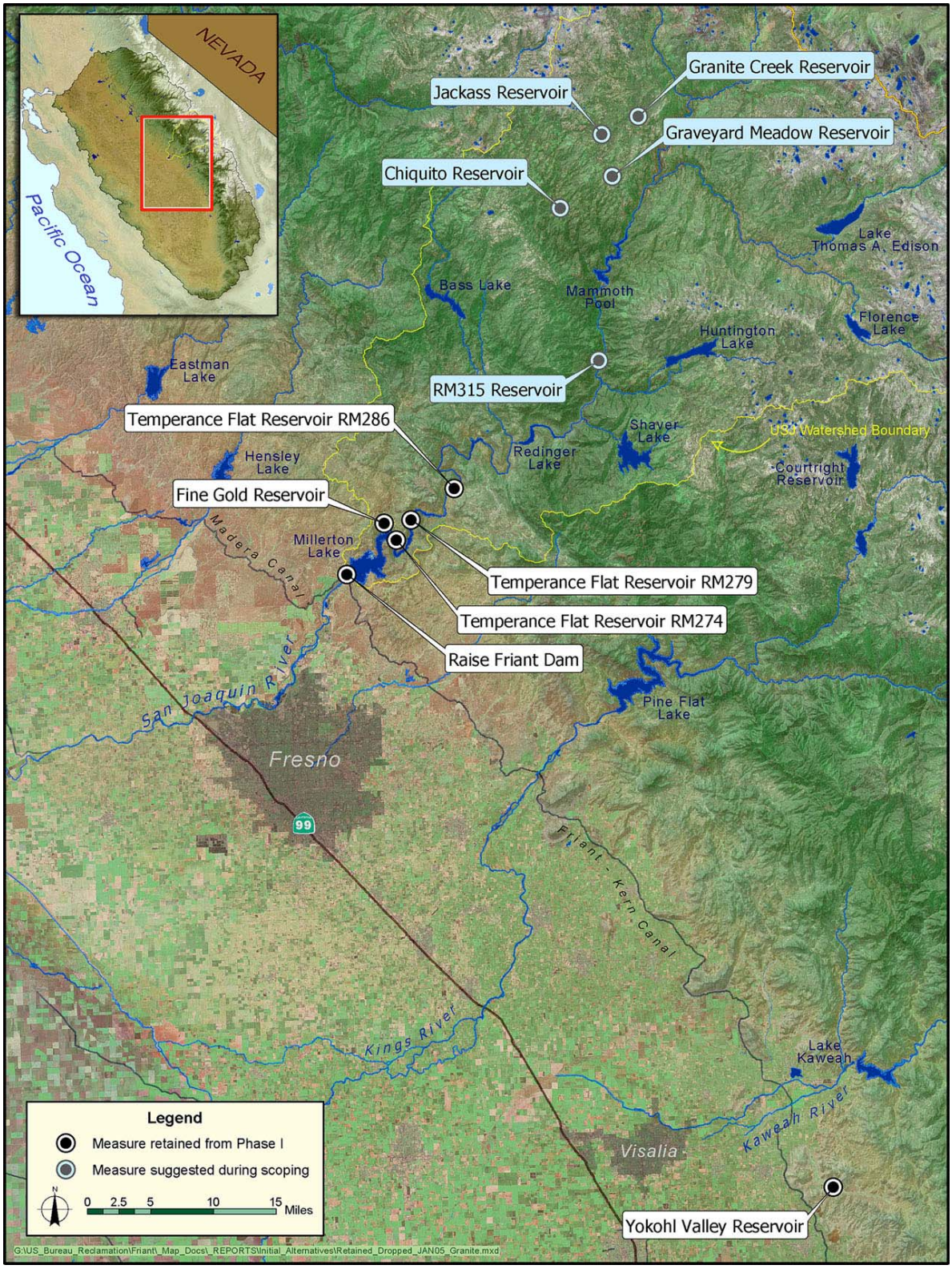

FIGURE 1-2.
SURFACE WATER STORAGE SITES RETAINED FROM PHASE 1 AND SUGGESTED DURING SCOPING

PURPOSE AND SCOPE OF THIS REPORT

The primary purpose of this IAIR is to describe the formulation of initial alternatives to address planning objectives established for the Investigation. From these initial alternatives, detailed alternative plans will be developed in the remainder of the feasibility study. The scope of the report includes the following topics:

- Description of existing and likely future water resources and related conditions in the study area, and related problems, needs, and opportunities being addressed in the study.
- Development of planning objectives to address identified problems, needs, and opportunities.
- Identification of planning constraints, guiding principles, and criteria for the Investigation.
- Identification and evaluation of individual water resources management measures to address the planning objectives.
- Identification of a set of measures and operations scenarios to be included in initial alternatives that will be further developed in the feasibility study.
- Identification of potential major future actions for the feasibility study.

This IAIR will be used as an initial component of the FR. Conclusions and recommendations regarding further evaluations are expected to evolve as the study progresses.

REPORT ORGANIZATION

In addition to this introduction, the IAIR includes several chapters. **Chapters 2, 3,** and **4** highlight related studies, projects, and programs; define existing and projected future without-project water and related resources conditions; and describe fundamental problems being addressed in the Investigation. **Chapter 5** describes the plan formulation process; defines planning objectives for the Investigation; and identifies planning constraints, principles, and criteria. **Chapter 6** describes potential resources management measures that could address the planning objectives and identifies measures carried forward for inclusion into initial alternatives.

Chapter 7 describes storage measures and operations scenarios of initial alternatives for further development. **Chapter 8** describes public stakeholder and agency involvement in the Investigation. **Chapter 9** describes next steps to be completed during plan formulation and several issues that may need to be addressed before completing the FR. **Chapter 10** lists the document preparers. **Chapter 11** presents references used in the preparation of this report. A glossary is provided in **Chapter 12**.

The IAIR also includes several technical appendices that provide detailed information on specific technical topics. An **Engineering Technical Appendix** (TA) presents assumptions, designs, and cost estimates for storage measures and related features. A **Water Operations TA** describes water operations strategies to be included in initial alternatives. A **Hydropower TA** evaluates impacts to existing hydropower facilities, pumping requirements, and potential hydropower generation for the surface water storage measures considered in the IAIR. A **Flood Damage Reduction TA** presents results of preliminary evaluations of additional flood storage at Friant Dam on flood protection in the San Joaquin River basin.

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