CHAPTER 4. PLAN FORMULATION

This chapter describes the status of the plan formulation process for the Investigation. This includes a description of the planning approach, development of the Phase 1 study purpose, initial evaluations to help further refine project objectives, consideration of surface storage options, an approach to define functional equivalence, and an concepts for preliminary alternatives development. Plan formulation is an on-going process that will continue to evolve, as results of technical studies become available and additional stakeholder input is received. The following sections describe the general approach that is being applied and presents results of preliminary evaluations that have completed to date.

Phase 1 Investigation Planning Approach

The Phase 1planning approach is designed to identify opportunities for water storage development, estimate the extent to which water resources problems could be addressed by new storage, and identify the types of users that would participate in the development of a storage project or program. As shown in Figure 4-1, the Investigation includes a multi-track process that includes the planning process, evaluation tools, operations studies, and assessment of potential storage options. A brief description of tasks in each of the tracks shown in Figure 4-1 is provided in the discussions that follow. To date, the Investigation has proceeded about half way through the second column in Figure 4-1.

Throughout the planning process, the Investigation is supported by input from CALFED agencies and stakeholders. Public outreach, which includes a series of workshops that provide periodic updates to stakeholders on the progress of the Investigation and to receive comments and suggestions on completed and planned work, is described later in this chapter.

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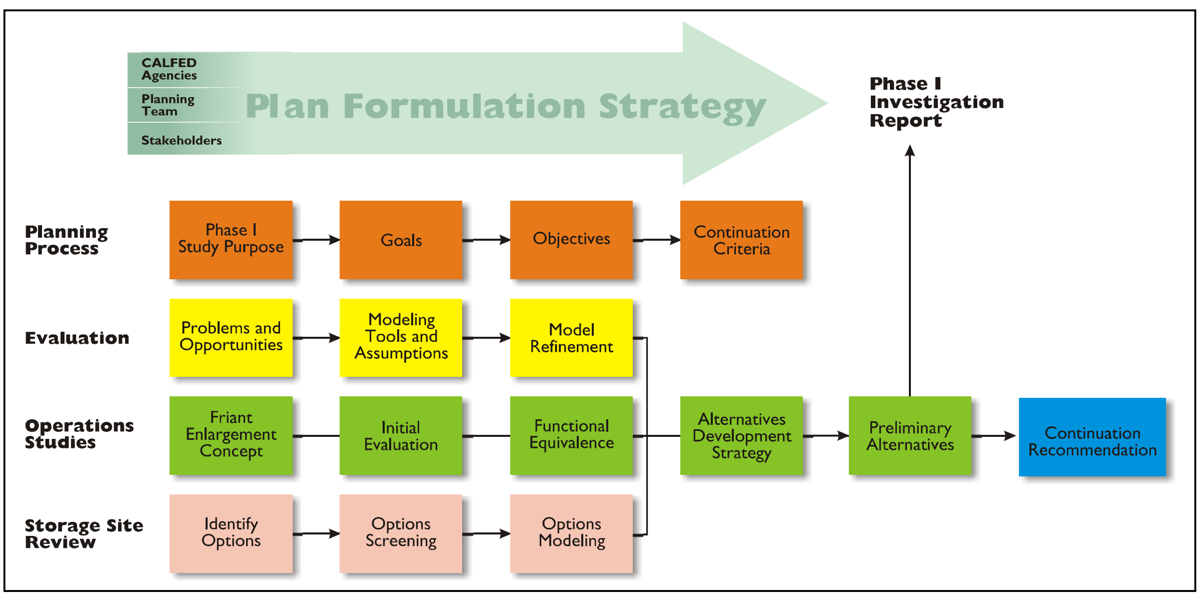

FIGURE 4-1. PHASE 1 INVESTIGATION PLANNING APPROACH

PLANNING PROCESS

The planning process began with a definition of the purpose for the Investigation. From that purpose, a set of goals was to be addressed were defined. The goals are general in nature and provide direction for the Investigation. As the planning process proceeds, however, objectives will be refined. Lastly, a set of continuation criteria will be developed and applied to results from technical studies to determine if continued study should be recommended for Phase 2.

Phase 1 Study Purpose

As explained in Chapter 3, the CALFED ROD provided guidance on initial problems to be addressed by the Investigation and a range of potential storage capacity to be considered. The ROD did not, however, provide quantitative objectives to be achieved or provide clarity on the how to identify a functionally equivalent storage program. As discussed previously, the Investigation is being conducted in a two-phase process. Phase 1 includes an appraisal-level evaluation to determine if additional study is warranted; Phase 2, if conducted, would include a feasibility study and related environmental compliance documentation to support project authorization. A draft study purpose statement has been developed to guide activities during Phase 1:

> ***"Determine if CALFED agencies should pursue a water storage feasibility study that could meet the CALFED goals for Upper San Joaquin River Basin storage and assist in solving other regional problems."***

As evident from the study purpose statement, a primary objective of Phase 1 is to complete technical studies sufficient to support a decision to continue with more detailed project development. At this time, the study team anticipates that decisions or recommendations to continue with preparation of a feasibility study would be made by Reclamation, DWR, CALFED management, and stakeholders who could be involved in project development. Although much of the information needed to support decisions by these parties is similar, the decision-making processes will vary from agency to agency. Agency-specific information will be required as technical studies are developed and results are presented. The strategy described below focuses on common information that would likely be needed to support decision-making by all interested parties.

Goals for Storage in the Upper San Joaquin River Basin

As discussed in Chapter 1, the goals for new storage in the Upper San Joaquin River Basin were presented in the CALFED ROD. These included: *"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…*"The ROD also recommended that other regional water resources needs be considered in the development of projects. The problems and opportunities being addressed by the Investigation, as presented in Chapter 3, are consistent with CALFED goals and direction.

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Planning Objectives

The general objectives for additional surface water storage in the Upper San Joaquin River Basin – additional water for river restoration, water quality, and water supply reliability – were described previously. More specific or quantitative objectives have not yet been established. Phase 1 studies are designed to help identify how storage could contribute to each goal. More specific objectives will be established during Phase 2.

Continuation Criteria

Later in Phase 1, when results from technical studies are more complete and a range of accomplishments can be displayed, two fundamental considerations will likely guide the decision to continue with more detailed study in Phase 2.

1. Can alternatives that meet CALFED ROD and participating agency goals be defined?
2. If so, what types of participants would be involved in continued study and potential project implementation?

These questions are very broad in nature and will be addressed with more detailed criteria. The first question will be evaluated using criteria related to a more specific definition of project goals and objectives. This will be accomplished through model simulations that identify how additional storage could address Investigation objectives and aid in addressing other regional water resources needs. Operations studies described in later sections will be used to guide this process. The second question will be addressed using criteria that focuses on issues of importance to Federal and state decision-makers, and potential user groups.

EVALUATION TOOLS

As described previously, the Phase 1 Investigation will identify amount of water supply that could be developed for each study objective with new storage. The CALSIM II model is being used to simulate water operations and estimate water quantities. CALSIM II was developed jointly by Reclamation and DWR to represent the integrated operation of water supply projects in the Central Valley.

Prior to the Investigation, the CALSIM II model included a highly generalized representation of the Friant Division that could not simulate changes in project operations in response to changes in demands or facility configurations. As part of this Investigation, the CALSIM II model was modified to reflect the decision-making process used to allocate water supplies at Friant Dam. The revised model includes logic that determines the allocation of Class 1 and Class 2 water supplies and the availability of Section 215 water for diversion to the Friant-Kern and Madera canals based on hydrologic conditions.

Historical operations demonstrate that the timing and pattern of demands for Class 1 and Class 2 water depend on the availability of Section 215 water and the total quantity of water allocated on an annual basis. The revised CALSIM II model logic applies water demand patterns for Class 1, Class 2, and Section 215 water supplies based upon calculated allocations. A description of CALSIM modifications and a comparison of the results to historical deliveries are included in Appendix A. As demonstrated in Appendix A, results from simulated operations compare closely with actual historical operations. The revised CALSIM II that includes Friant operations is used as a benchmark for the Investigation.

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OPERATIONS STUDIES

The CALFED ROD indicated that the Investigation consider raising Friant Dam to increase storage in Millerton Lake by 250 TAF to 700 TAF, or develop a functionally equivalent storage program. A series of single-purpose evaluations, based on a representation of an enlarged Millerton Lake, are being used to define the extent to which additional storage could address Investigation objective and in part, to identify the functional equivalence of other storage options. To date, single-purpose evaluations have been made only for the Friant Enlargement Concept, as described below. Single-purpose model evaluations will be made for other storage options during the next few months.

Friant Enlargement Concept Single Purpose Evaluations

Initial model evaluation is based on a conceptual enlargement of Millerton Lake, and the use of additional water supply toward Investigation objectives. For these analyses, the storage capacity of Millerton Lake is increased by 700 TAF in the CALSIM II model, from the current capacity of 520 TAF to an enlarged capacity of 1,220 TAF. The model simulations are being run to identify the quantity of water that could be available for each Investigation purpose if the additional water supply created by new storage were operated solely to meet that purpose. The evaluations do not include any changes to the flood storage rules currently in place. Evaluations of different flood control rules would be included in Phase 2 studies.

The single-purpose evaluations for the Friant Enlargement Concept address the three goals of the Investigation – river restoration, water quality, and water supply reliability. Each single-purpose evaluation includes a generalized operation of the expanded reservoir to specifically address one project objective. Operations for one objective can also contribute to other project objectives and opportunities. For example, releases to the San Joaquin River for river restoration would also contribute to improved water quality in the river.

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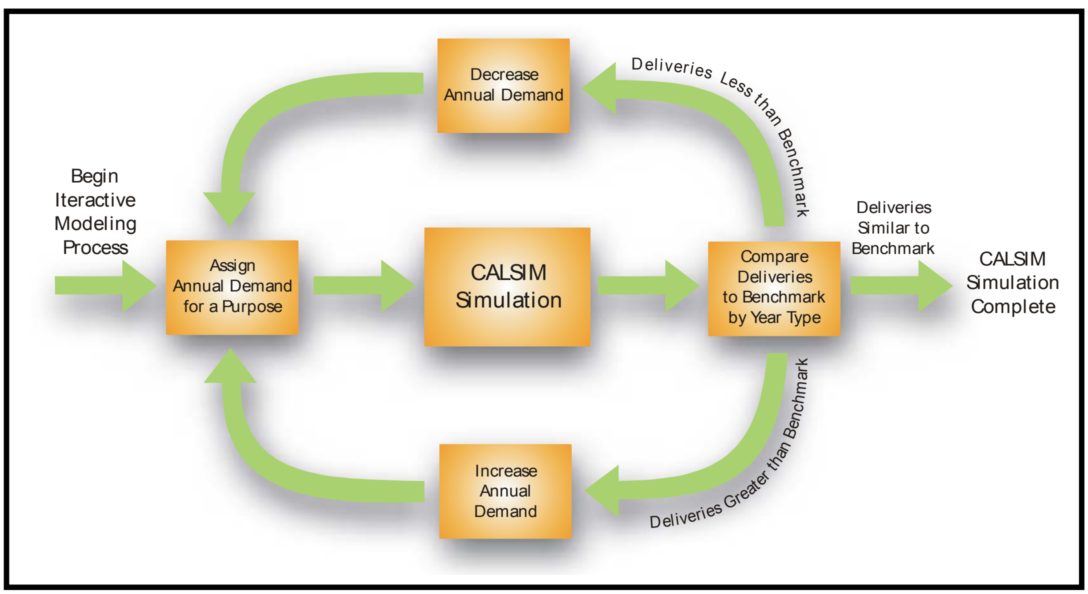

FIGURE 4-2. MODELING APPROACH FOR SINGLE-PURPOSE RIVER RESTORATION AND WATER QUALITY EVALUATIONS

Enlarging the storage capacity of Millerton Lake would result in year-to-year changes in water storage conditions, which would affect the amount of Class 1, Class 2 and Section 215 water that is available. To identify how new storage could contribute to project objectives without causing an unaccounted re-allocation of existing supplies, a modeling constraint was established.

The single-purpose evaluations for river restoration and water quality used an iterative approach, shown in Figure 4-2, to estimate the annual amount of water that would be available to the purpose without increasing or decreasing deliveries to current water users. For both the river restoration and water quality single-purpose evaluations, two model runs were made using different constraints to maintaining long-term annual water deliveries. Although neither scenario would result in the same distribution of water deliveries between the different classes of water as the benchmark simulation, the results provide initial information regarding the total amount of water that additional storage could provide.

Modeling Scenario 1 – This approach would maintain long-term average total annual deliveries over the simulation period. This approach applied a constant annual demand for either river restoration or water quality and compared the resulting long-term average deliveries to the benchmark simulation. The annual demand for restoration or water quality was modified until the long-tem average deliveries were similar. Although the long-term annual deliveries were similar between the single-purpose evaluations and the benchmark, this approach resulted in wide variations in the year-to-year distribution of annual deliveries, as compared to the benchmark. The results from this approach were presented to stakeholders, who requested modifications that would further limit the year-to-year variation of water deliveries.

Modeling Scenario 2 – This approach would maintain long-term average total annual deliveries by each water year type. Annual restoration and water quality demands for each year type were modified until a set of demands was established that would result in average deliveries for each year type similar to the benchmark. This approach resulted in a wide variation in the annual quantity of water that could be provided for restoration or water quality.

It is important to note that both modeling scenarios are based on the annual reservoir operational approach that is currently applied to Millerton Lake. In the calculation of annual water supply availability, the model assumes that minimum end-of-year storage would be at 130 TAF, or the approximate level of the canal outlets. If the enlarged reservoir were operated with an objective to carry-over water supply from one year to the next, the results presented in the following sections would differ. In particular, the wide variation in water quantities between different year types would be reduced and more water would likely be available during critically dry years.

The single-purpose evaluations described below identify an initial range of potential accomplishments that may be possible with the development of additional water storage. This range does not constitute a set of potential project alternatives and does not reflect the engineering and environmental issues that would be associated with the construction of an enlarged Friant Dam and Millerton Lake. Chapter 5 describes the preliminary engineering and environmental review of surface water storage sites, including the enlargement of Friant Dam and Millerton Lake.

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San Joaquin River Restoration Single Purpose Evaluations

As described in Chapter 3, a flow requirement for restoration of the San Joaquin River cannot be determined at this time because a restoration objective has not been established. To determine how additional storage could provide water supplies to support restoration of the San Joaquin River, a range of ecosystem demands were placed on Millerton Lake. The model was run in an iterative manner until the constraints of maintaining long-term average annual water supply delivieries, as described above, was satisfied.

The monthly variation of flow (March through the following February) was based on the percentage distribution of monthly flows under an unimpaired condition. The variation of unimpaired flows for all year types was reviewed and found to be similar on a percentage basis. Therefore, the same percent distribution shown was used in all years. A summary of model results is presented in Table 4-1.

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TABLE 4-1
SUMMARY OF FRIANT ENLARGEMENT CONCEPT RIVER RESTORATION SINGLE-PURPOSE EVALUATIONS

Water Year Type	Annual Releases from Friant Dam for River Restoration (TAF)	Estimated Seepage to Groundwater (TAF)	Annual Volume Reaching Mendota Pool (TAF)
Modeling Scenario 1 – Constant Amount in all Water Years			
All year types	152	72	80
Modeling Scenario 2 – Variable Amount by Water Year Types			
Wet	252	72	180
Above Normal	142	72	70
Below Normal	92	72	20
Dry	212	72	140
Critically Dry	30	30	0

Notes:
Assume Millerton Lake storage at 1,220 TAF
Water year types based on San Joaquin River 60-20-20 Index
Hydrologic water year from October through following September
Water released from March through following February
Long-term simulation of monthly operations based on 1922 – 1994 hydrologic record

As noted in Table 4-1, some water released from Friant Dam for restoration purposes would seep to groundwater before reaching Mendota Pool. The San Joaquin River Habitat Restoration Plan estimated a monthly seepage amount of 6 TAF under constant flow conditions, which would total about 72 TAF on an annual basis. Although this water would not be available for restoration of the San Joaquin River below Gravelly Ford, it would help reduce groundwater overdraft in the area. Water that reaches Mendota Pool would be available to meet water demands. Most of the water identified in Table 4-1 that reaches Mendota Pool would reduce Delta demands by a similar amount and would contribute to improved water quality in the San Joaquin River, as described in the following section.

San Joaquin River Water Quality Single-Purpose Evaluations

As described in Chapter 3, water quality in the San Joaquin River could be improved if water is released from Friant Dam for delivery to Mendota Pool in lieu of Delta water. In general, water released from Friant Dam is of better quality than water exported from the Delta. An increase in the quantity of better quality water to Mendota Pool from Friant Dam, and a corresponding decrease of Delta water, would improve the quality of source water to agricultural and refuge areas. This in turn would result in improved quality of discharge to the San Joaquin River.

Two modeling scenarios were run for the Friant Enlargement Concept water quality single-purpose evaluation, as summarized in Table 4-2. Both scenarios were based on the assumption that water would be released from Friant Dam for water quality purposes during the three-month period of July through September, when water quality conditions in the San Joaquin River are most severe. Seepage to groundwater is based on an estimate of 12 TAF per month for intermittent flow conditions in the river provided by the San Joaquin River Habitat Restoration Plan.

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TABLE 4-2
SUMMARY OF FRIANT ENLARGEMENT CONCEPT WATER QUALITY SINGLE-PURPOSE EVALUATIONS

Water Year Type	Annual Releases from Friant Dam for Water Quality (TAF)	Estimated Seepage to Groundwater (TAF)	Annual Volume Reaching Mendota Pool (TAF)
Modeling Scenario 1 – Constant Amount in all Water Years			
All year types	138	36	108
Modeling Scenario 2 – Variable Amount by Water Year Types			
Wet	286	36	250
Above Normal	136	36	100
Below Normal	51	36	15
Dry	176	36	140
Critically Dry	16	16	0

Notes:
Assume Millerton Lake storage at 1,220 TAF
Water year types based on San Joaquin River 60-20-20 Index
Hydrologic water year from October through following September
Water released from March through following February
Long-term simulation of monthly operations based on 1922 – 1994 hydrologic record

The San Joaquin River Exchange Contractors would use Friant water reaching Mendota Pool and the demand for Delta water at the Mendota Pool would be similarly reduced. Seepage to groundwater would help reduce groundwater overdraft in the area. Note that seepage estimates in critically dry years exceeds releases from Friant Dam for both the restoration flow and water quality evaluations. This results partially from the assumption that Friant would continue to be operated as an annual reservoir will not explicit carry-over requirements. Future simulations will address this generalization.

Water Supply Reliability Single Purpose Evaluations

Single-purposes evaluations for water supply reliability focused on increasing the amount of water delivered to meet current water delivery demands on Friant Dam. Water would be diverted to the Madera and Friant-Kern canals based on Class 1, Class 2, and Section 215 demands using the same logic as the benchmark simulation. The reservoir would be operated as an annual reservoir, with no explicit carry-over requirement. In effect, annual deliveries are based on the objective of delivering as much of the annual supply as possible. When annual supplies exceed annual demands, incidental carry-over would provide additional water for the following year.

Table 4-3 provides a summary of changes in total annual deliveries from Friant Dam for both the constant annual demand scenario and the water year variable scenario, as compared to the benchmark simulation. These quantities reflect the total of Class 1, Class 2, and Section 215 deliveries, but does not indicate how the relative delivery of water under these contract types differ. In general, deliveries of Class 1 water would increase in some, but not all, years when less than full Class 1 contract amounts would have been delivered in the benchmark scenario. Deliveries of Class 2 water also would increase, although these increases were partially offset by a reduction in Section 215 deliveries. Table 4-3 lists the net effect of these changes.

TABLE 4-3
SUMMARY OF FRIANT ENLARGEMENT CONCEPT WATER SUPPLY RELIABILITY SINGLE-PURPOSE EVALUATIONS

Water Year Type	Change in Annual Delivery from Friant Dam (TAF)
Modeling Scenario 1 – Constant Amount in all Water Years	
All year types	132
Modeling Scenario 2 – Variable Amount by Water Year Types	
Wet	178
Above Normal	93
Below Normal	106
Dry	247
Critically Dry	53

Notes:
Assume Millerton Lake storage at 1,220 TAF
Water year types based on San Joaquin River 60-20-20 Index
Hydrologic water year from October through following September
Water delivered from March through following February
Long-term simulation based on 1922 – 1994 hydrologic record

The total annual change in water supply shown in Table 4-3 does not account for potential reductions in deliveries to Mendota Pool or changes in groundwater seepage that result from

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reductions in the frequency of flood control releases from Friant Dam. These distinctions will be made in future evaluations.

Summary of Friant Enlargement Concept Single-Purpose Evaluations

The results of the single-purpose evaluations for river restoration and water quality are strongly influenced by assumptions regarding the preservation of current water uses. The use of long-term average annual deliveries results in a constant amount of additional water every year, but does not account for the resulting changes in conjunctive water management. Scenarios that vary the demand by water year type result in a wider range of annual water amounts that may more accurately reflect the variability of water supply that could result from additional storage.

As indicated in previous discussions, the enlargement of Millerton Lake by 700 TAF would increase the availability of water for each of the purposes evaluated. In general, the long-term average annual quantity of water for any purpose would range from about 75 TAF to over 150 TAF. The evaluations indicate that an annual amount ranging from 176 TAF to 247 TAF would be available during dry water years, depending on the single-purpose objective. However, these same simulations indicate that very little water would be available during critically dry years.

The wide variation in annual water amounts available for the three purposes is due, in part, to the operational assumptions applied to the initial evaluations. The operation of a larger Millerton Lake as an annual reservoir limits the availability of carry-over storage to cases where demands during wet and above normal years are less than total available supply. The unique succession of hydrologic water years from the 1922 through 1994 period of record contains more dry years than critically dry years following these situations. As a result, the additional water available from incidental carry-over storage is most beneficial in successive dry years.

While the use of annual reservoir operating logic may be adequate to demonstrate opportunities for additional conjunctive management of surface water and groundwater, it may not be well suited for an assessment of river restoration or water quality capabilities. Further refinement of reservoir operating objectives will be required to identify how water could be carried-over to successive years to support more consistent water quality and river restoration demands.

Detailed flood evaluations are not being made as part of the Phase 1 Investigation. However, monthly flood releases for the single purpose evaluations were compared to the benchmark scenario. In all three single-purpose evaluations, the increased storage capacity would reduce the frequency of months in which flood releases would be made to the San Joaquin River by about half the frequency of the benchmark scenario. The magnitude of flood releases by monthly volume in the single-purpose evaluations is also be lower than the magnitude of flood releases in the benchmark scenario, except during extremely wet years.

The calculation of flood control benefits of additional storage will be evaluated during Phase 2 studies. This will require the use of daily or hourly time-step models to identify peak flood flow rates and duration. Changes in downstream damages will be calculated using models that reflect the risk of flooding due to failures of the conveyance system.

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APPRAISAL ANALYSIS OF SURFACE STORAGE OPTIONS

The CALFED ROD recommended that the Investigation consider enlarging Friant Dam and Millerton Lake or develop a functionally equivalent storage program that would increase available water supplies to support river restoration, improve river water quality, and increase water supply reliability. Alternatives to enlarging Millerton Lake by 700 TAF may include single facilities, or a combination of new and modified facilities that in combination provide functionally equivalent accomplishments. This section describes the approach being applied to identify and select potential storage sites for inclusion in project alternatives.

Storage Options Screening Approach

A review of previous regional water resources studies identified 16 potential surface storage options for initial consideration. This list included the enlargement of two existing reservoir (Lake Kaweah and Lake Success) that were dropped from further consideration in the Investigation because their enlargement has already been authorized for construction by the Corps of Engineers. The remaining 14 sites include a combination of enlargements to existing reservoirs and construction of new reservoirs. Some of the options are located in the Upper San Joaquin River Basin, others are located in watersheds that are served by the Friant Division or would be operated as off-canal storage along the Friant-Kern Canal.

Initial review of the storage sites focused on technical and environmental issues associated with the potential construction of each facility. This initial review has been completed, as described below, and is summarized in Chapter 5.

The next step will include operational modeling of retained options to identify how they could contribute to meeting project objectives. This work is beginning, and is described in general terms below. Following modeling of potential options, the storage sites will be compared on the basis of their ability to contribute to project objectives, cost, and potential environmental issues.

Initial Screening of Storage Site Options

Technical studies were conducted to identify engineering features and major issues of environmental concern that would be associated with each surface storage site. Chapter 5 of this report describes the scope of those efforts, summarizes the results of the analyses for each potential site, and presents recommendations regarding which surface storage options should be retained for further study. More detailed information is presented in a series of technical memoranda that were prepared for each storage site considered in the initial screening.

The initial screening focused on the potential construction-related issues of the surface storage options. The review attempted to determine if fundamental issues at any site would preclude the construction of the required facilities, prevent the developed water from being used, create environmental impacts that would be unmitigable, or create conditions under which permits by regulatory agencies or approved by decision-makers would be unlikely. Table 4-1 lists storage options that were identified, and the results of the initial review. A discussion of each site evaluated is included in Chapter 5.

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TABLE 4-4
SUMMARY OF STORAGE OPTION INITIAL SCREENING RESULTS

Storage Option	Initial Review Results	Comments
Merced River Watershed		
Montgomery Reservoir	Dropped	Water quality concerns
San Joaquin River Watershed		
Friant Dam Enlargement	Retained	
Fine Gold Creek Reservoir	Retained	Pumped storage from Millerton Lake
Temperance Flat Reservoir	Retained	One potential dam site (RM279)
Kerckhoff Enlargement	Retained	
Mammoth Pool Enlargement	Retained	
"Big" Dry Creek Watershed		
Big Dry Creek Flood Detention Basin Modifications	Dropped	Retrofit of existing facility
Kings River Watershed		
Pine Flat Dam Enlargement	Retained	Exchange for Friant deliveries
Mill Creek Reservoir	Dropped	Environmental concerns
Rodgers Crossing Reservoir	Dropped	Recreation and other environmental concerns
Dinkey Creek Reservoir	Dropped	Recreation, land use, and other environmental concerns
Kaweah River Watershed		
Enlarge Lake Kaweah	In future without project	Authorized for construction by Corps of Engineers
Dry Creek Reservoir	Dropped	Environmental concerns
Yokohl Valley Reservoir	Retained	Off-canal storage
Tule River Watershed		
Enlarge Lake Success	In future without project	Authorized for construction by Corps of Engineers
Hungry Hollow Reservoir	Dropped	Foundation and environmental concerns

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Modeling of Retained Options

Storage sites retained for further consideration following the initial review will be modeled to identify the extent to which they can contribute to project objectives. Each storage site will be represented in the simulation model to evaluate how it would be operated in combination with existing facilities to increase water supplies for the three primary purposes, as described previously. The analytical approach will be similar to the single-purpose evaluations described above in the Friant Enlargement Concept.

A schematic of CALSIM model modifications to support storage options modeling are shown in Figure 4-3. It should be noted that not all of the storage options retained in Table 4-4 are identified in the schematic. Rather, a generalized modeling approach will be used to represent potential sites based on how they would be integrated to the existing project.

Two reservoir nodes will be added upstream of Millerton Lake to represent Temperance Flat Reservoir and Kerchkoff Lake. Modifications to Mammoth Pool will be represented by a pre-processed operation that provides modified inflow to Millerton Lake. The simulation of Fine Gold Creek Reservoir includes a diversion facility for pumped storage. Water will be pumped from Millerton Lake into Fine Gold Creek Reservoir and drawn in later months.

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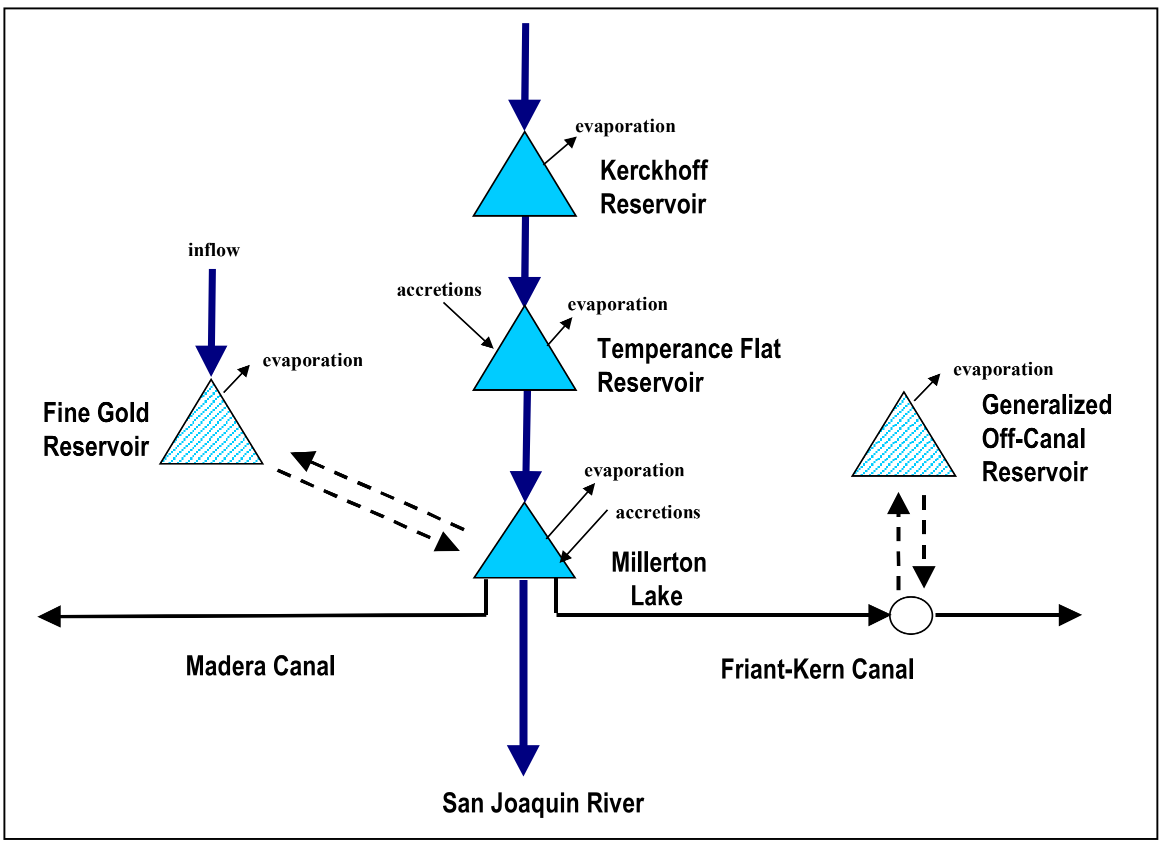

FIGURE 4-3. CALSIM SCHEMATIC FOR SIMULATION OF RETAINED STORAGE SITE OPTIONS

As indicated in Table 4-4, one potential reservoir site along the Friant-Kern canal, Yokhol Valley Reservoir was retained for operational evaluation. For initial evaluations, this site will be represented as a generic off-canal reservoir that will be sized to represent to different options under consideration. Assumptions regarding pumping capacity will be made to reflect the range of pumping considered. Water will be released from Millerton Lake and conveyed to these facilities by the Friant-Kern Canal during wet periods when canal capacity is available. At later times, water would be released from off-canal storage to contractors in lieu of releases from Millerton Lake.

The simulation of an enlarged Pine Flat Lake will be based on a generalized exchange scenario for coordinated Millerton Lake and Pine Flat operations. Early in the year, Millerton Lake water would be delivered to Pine Flat water users, thereby creating additional space in Millerton Lake to capture additional San Joaquin River flow. Similarly, the additional space in Pine Flat Reservoir would be available to store water that would have otherwise been delivered to contractors. Later in the year, Pine Flat water would be delivered to the Friant-Kern Canal in lieu of releases from Millerton Lake.

PUBLIC INVOLVEMENT DURING THE INVESTIGATION

As described in previous sections, the Investigation addresses issues of interest and concern to stakeholders engaged in local and regional water resources planning. The public involvement program features a series of interactive public workshops that enable stakeholders to provide input to the plan formulation and to stay informed regarding the planning process. The public involvement program also includes an outreach component to provide information and materials to a broad group of interested parties.

Stakeholder Workshops

The interactive component of the public involvement program includes a structured series of workshops and meetings held at various locations in the study area. The workshops provide opportunities to hear presentations by the project team, take part in discussions regarding plan formulation, and provide recommendations regarding the planning process, analyses, and project documents. To date, this process has included three general workshops and one topic-oriented working session. Figure 4-4 depicts the workshop series, which is designed to provide opportunities for involvement at key milestones in the planning process. The topics covered in each workshop were selected to provide updated information to stakeholders and receive important and timely input to the Investigation.

Participants in the workshop series include representatives of water agencies; counties; State and Federal agencies; water districts; environmental interest groups; and others with an interest in the Investigation. Detailed summaries of the workshops are prepared, distributed to the participants, and posted on the project website. The following descriptions briefly summarize workshops completed to date.

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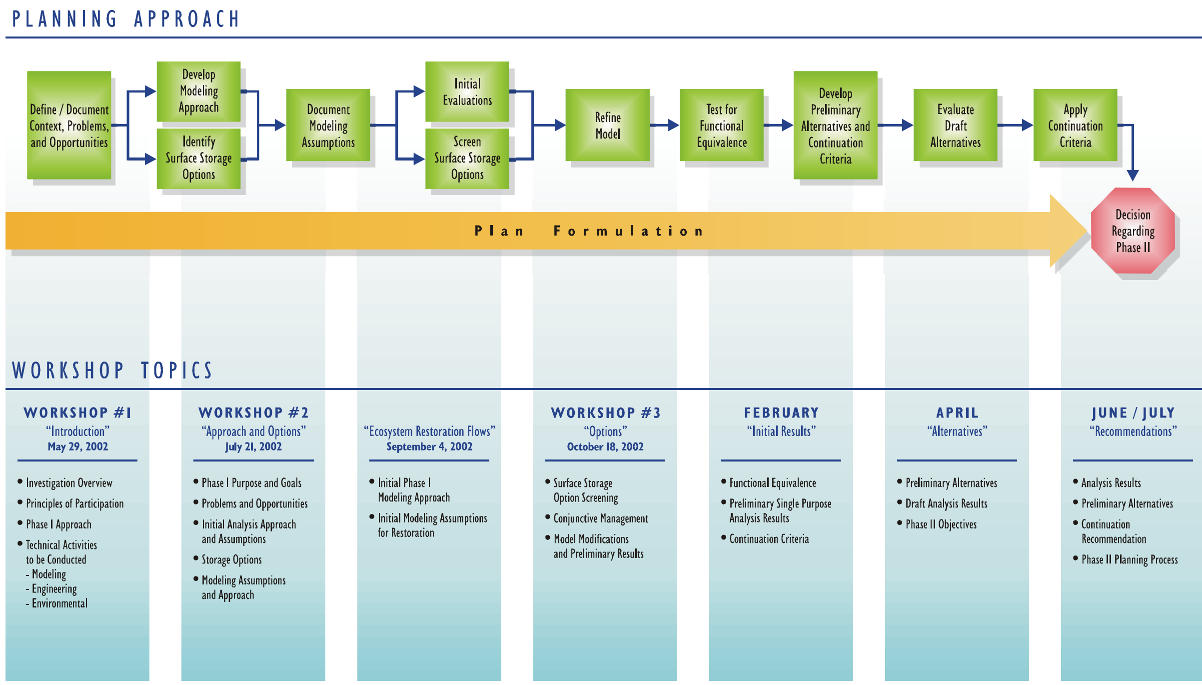

FIGURE 4-4. STAKEHOLDER WORKSHOPS

Workshop 1 – Introduction

The initial workshop, held on May 29, 2002 in Fresno, initiated the stakeholders' participation in the Investigation. The workshop included presentations and discussions on the objectives of the Investigation and included a review of the origins and authorities for the study. The project team presented the Phase I approach and explained the types of water resources problems that the Investigation would focus on during analyses. During a brainstorming session, participants described problems that they felt the study should address, and noted special considerations for the planning process. The plan for technical activities was also presented.

Workshop 2 – Approaches and Options

Workshop 2, held on July 31, 2002 in Modesto, provided an overview of the study approach and clarified the goals of the Investigation. Prior to the workshop, participants were provided a description of water resources problems and opportunities as they relate to the Investigation (See Chapter 3). Presentations and discussions centered on this information. Participants commented on the approach for addressing water quality, ecosystem, and water supply reliability problems and discussed the initial analysis concept (See Chapter 4). The project team presented a preliminary list of storage options identified in the Investigation. Additional presentations introduced the hydrologic models and modeling assumptions that would be used for Investigation analyses. During this workshop, a need was identified for a separate discussion of Friant Dam release patterns to use in the initial evaluation of ecosystem restoration opportunities. This separate discussion was held at an Ecosystem Restoration Flows workshop, described below.

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Working Session – Ecosystem Restoration Flows

An working session focused on Ecosystem Restoration Flows was held on September 4, 2002 in Madera. Because many participants in this meeting had not attended previous Investigation workshops, this meeting included a review of the Investigation's goals and approach. Presentations covered the hydrologic model to be used, the assumptions and constraints in the model, and information needs. Participants provided recommendations and information, where possible, to aid in identifying the appropriate Friant Dam release patterns for inclusion in Investigation analyses.

Workshop 3 – Storage Options and Modeling Overview

Workshop #3, held on October 18, 2002 in Los Banos, updated participants on the Investigation progress and presented preliminary results of option screening and model simulations. Presentations covered the Investigation's context within the CALFED program and explained the formal review process to be used for study documents. The project team provided the draft results of the Investigation's initial surface storage option screening. (See Chapter 5 for descriptions of the options and a summary of the screening process). A presentation and accompanying facilitated discussion centered on the interrelationship of the conjunctive Water Management Program and its integration with the Investigation. The modeling team described modifications to the hydrologic model and provided a sample of analysis results.

Future Workshops

Public participation in the Investigation will continue throughout Phase I. Future public workshops will address hydrologic modeling analysis results, descriptions of preliminary alternatives, and the study continuation recommendations.

Public Outreach

The outreach component of the public involvement program includes mailings and e-mail notifications of project announcements and materials, along with a project website3 that makes project documents and data available publicly. In addition, project representatives correspond with interested groups and individuals and provide briefings to share information and answer questions as requested.

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[3] http://www.mp.usbr.gov/sccao/storage

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