CALFED Off-stream Storage Program and Proposition 204

Presented at the Off-stream Storage Workshop
November 6, 1997
Red Bluff

CALFED Bay-Delta Program Studies

The CALFED Bay Delta Program was started by Governor Wilson in 1992. In his April 6, 1992 Water Policy Address he committed his administration to developing a comprehensive, balanced solution to the water problems facing the state, and especially to fixing the Bay-Delta system. He said that we need to address all the issues, involve all the interested parties. He said all options were on the table.

In 1994 the state and federal agencies agreed to work together on a comprehensive solution. A framework agreement between all the agencies was signed in June, 1994 which committed them to work together to coordinate Delta operations, to set interim protective standards for the Delta, and to develop a long-term comprehensive solution for the Bay-Delta system. The Bay-Delta Oversight Council was expanded to include federal participation and renamed the Bay-Delta Advisory Council. The CALFED Bay-Delta Program was established in 1995 with Lester Snow as its Executive Director. It draws staff from state and federal agencies as well as a wide range of consultants.

The mission of the Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.

While the problem area focuses on the Delta and part of the Bay, the solution area encompasses the entire watersheds of the Sacramento and San Joaquin

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Rivers, the service areas which receive export water from the Delta, and the coastal Pacific Ocean.

The problems facing the Bay-Delta system include declining wildlife and fisheries, inadequate water quality, inadequate water supply reliability, and an inadequate levee system.

A wide range of actions are being contemplated to help address these problems, including habitat restoration, both in the Delta and upstream, reducing the effects of diversion on fisheries, improvements in water use efficiency, improvements in water quality, particularly through contaminant source controls, improvements in levees, and improvements in storage and conveyance facilities.

These facilities fall into two major categories:

Delta conveyance components, which comprise structural changes in the Delta to reduce the harmful effects of export diversion on fisheries and water quality; and

Storage facilities which we are evaluating include surface storage reservoirs, groundwater storage facilities and programs, and canals or pipelines to which can get water to and from these facilities. Storage facilities include on-stream and off-stream reservoirs upstream of the Delta, in-Delta storage, and storage facilities associated with the export facilities which draw water from the Delta.

The various storage and conveyance components which CALFED included in its initial evaluation are listed in Table 1 and Table 2.

Our charge under the CALFED Bay Delta Program, as laid out by the Governor in 1992 and reinforced by subsequent agreements among the key state and federal agencies and stakeholders, is to take a comprehensive look at a very wide range of potential storage and conveyance facilities to determine which, if any, combinations should be recommended for implementation.

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Proposition 204 Off-stream Storage Study

Proposition 204 was passed by the voters in November 1996. Among its many provisions was language and funding authorizing the Department of Water Resources to conduct feasibility and environmental investigations for, "Off-stream storage upstream of the Delta that will provide storage and flood control benefits in an environmentally sensitive and cost-effective manner." It is generally understood that this language was intended to apply to off-steam storage in the Sacramento Valley.

Program Coordination

There is clearly overlap between the two programs in that both require that we investigate off-stream storage in the Sacramento Valley. There is good reason to coordinate both programs to prevent duplication of effort and to get the maximum benefit from the study efforts.

In addition, there are several key environmental laws which specify how new projects must be evaluated before they are built. These laws include the National Environmental Policy Act, the California Environmental Quality Act, the Endangered Species Act, the California Endangered Species Act, and the Clean Water Act. In general, these laws require that a reasonable range of alternatives to a proposed project be evaluated and that steps be taken to minimize and mitigate for environmental impacts.

Perhaps the most difficult evaluation challenge is posed by the Clean Water Act. Regulatory Guidelines for implementing this act require that for projects which impact wetlands or waters of the United States the least environmentally damaging practicable alternative be selected. This is a two part test: First the range of practicable alternatives needs to be determined. Second, among those practicable alternatives, the least environmentally damaging alternative must be selected. This is not necessarily the most cost effective alternative.

Thus even though there may be a great deal of interest in a particular reservoir site, if the feasibility study called for by Proposition 204 is to lead to a real project in the future, it must include a broad enough range of alternatives, rigorously evaluated, to meet the requirements of the law.

Our proposed approach to this challenge is to conduct the broad evaluation of a wide range of alternatives under the CALFED Bay-Delta Program, and then focus the Proposition 204 study funds on one or more off-stream storage projects which are practicable and minimize environmental impacts.

Ideally these steps would be undertaken in sequential order, with regulatory agencies, stakeholders, and the study team moving forward together. First an inventory of possible projects would be assembled, the then evaluated in several passes at increasingly more rigorous levels of detail. Obvious losers would be screened out first without too much study effort, then increasing levels of effort would be expended to evaluate the more promising projects. Finally, the most promising alternative would be developed and evaluated in great detail.

The problem is that we really don't have the time to do all these steps sequentially and still be responsive to what we believe to be the mandate of Proposition 204. We believe that there is an expectation that off-stream storage options in the Sacramento Valley be investigated concurrently with the CALFED Bay-Delta Program so that there is enough information for people to decide whether or not it makes sense to include them in the preferred CALFED alternative.

The screening process has not yet been completed. It has proven to be extremely difficult to meet the rigorous requirements of the law, given the very large study area and range of options available. We do not have the same level of detailed information available for the many potential projects, which have been variously looked at over a range of many decades. Environmental information is especially patchy. It would be prohibitively expensive to study all the potential sites in detail, and it would probably be a big waste of money too. Instead, we have been working with the regulatory agencies to develop a screening approach which meets the requirements of the law, using the available information.

Rather than wait for this process to be completed, we have taken a calculated risk: Based on what we do know, we have made educated guesses as to which projects will likely prove to be the more promising and focused additional effort on those.

First, we selected 23 storage and conveyance components for pre-feasibility evaluation (Table 3 and 4). Costs were brought up to a uniform 1996 level, and facilities designs were reviewed at a fairly cursory level.

Second, CALFED and DWR Northern District staff mutually selected four off-stream storage projects for more detailed evaluation under the Proposition 204 study program. The four projects selected for study are the Red Bank Project, the Thomes-Newville Project, the Sites Project, and the Colusa Project.

What we risk in making these decisions is that once the screening process is completed we may need to backtrack and study other potential projects in detail. Conversely, one or more of the projects may prove to have serious flaws.

While we understand that there is a lot of interest in the valley in developing additional surface storage as part of a comprehensive solution for the Bay-Delta system, we also realize that any project can have serious impacts. As part of the Proposition 204 studies we will need to carefully evaluate impacts to local land use, economic effects, environmental effects, and other considerations.

A key part of making this study a success is collaboration with all interested parties, particularly those who could be directly affected. We are therefore committed to making this an open process, where you have access to the information we are developing and can help direct this study. We need to hear from you tonight how you feel we might best accomplish that goal. We look forward to working with you as this study moves forward.

Table 1
Surface Water Storage Components

Component	Location	Type	Description	Storage Capacity	$/Acre Foot of Storage ($)
West Side Sacramento Valley					
Clair Engle Lake Enlargement	Trinity County Trinity River	Enlarged Existing On-Stream Storage	Develop in conjunction with pump/conveyance facility; transports Shasta storage to Clair Engle.	Additional 4,800 TAF (G)	N/A
Colusa Reservoir Complex	Colusa/Glenn Counties Funks Creek	Off-Stream Storage	Storage for new westside canal and Sacramento River flows.	3,000 TAF (G) 2,900 TAF (A)	405 (A)
Cottonwood Creek Reservoir Complex	Tehama/Shasta Counties Cottonwood Creek	Combined On-stream and Off-Stream Storage	Storage for new westside canal and Sacramento River flows. Includes Dutch Gulch and Tehama Reservoirs.	1,600 TAF (G)	475 (G)
Fiddlers Reservoir	Tehama/Shasta Counties M.F. Cottonwood Creek	On-Stream Storage	Storage for new westside canal and Sacramento River flows.	310 to 545 TAF (G) 270 to 388 TAF (A)	585 @ 383 TAF (A)
Gallatin Reservoir	Tehama County Elder Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities.	183 TAF (G) 176 TAF (A)	175 (A)
Glenn Reservoir	Glenn/Tehama Counties Stony Creek	Off-Stream Storage	Storage for Tehama-Colusa Canal or new westside canal.	8,206 TAF (G)	419 (G)
Hulen Reservoir	Shasta County N.F. Cottonwood Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities.	96 to 244 TAF (G) 93 to 180 TAF (A)	513 @180 TAF (A)
Lake Berryessa Enlargement	Napa County Putah Creek	Off-Stream Storage	Storage for North Bay Aqueduct and/or new westside canal.	Existing-1,600 TAF (G) Additional-11,400 TAF (G)	261 for additional 11,200 TAF (A)
Red Bank Project (Dippingvat-Schoenfi	Tehama County S.F. Cottonwood Creek	Off-Stream Storage - Schoenfield Reservoir; On-Stream Storage - Dippingvat Reservoir	Provide flood control and water supply opportunities.	Dippingvat-104 TAF(G) Schoenfield-250 TAF(G)	401 (G)
Rosewood Reservoir	Shasta/Tehama Counties Salt Creek and Dry Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities.	155 TAF (G)	TBD
Shasta Lake Enlargement	Shasta County Sacramento River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	Additional 9,750 TAF (G) (4,550 TAF existing) (G)	402 for additional 9,750 TAF (G)
Sites Reservoir	Colusa and Glenn Counties Funks & Stone Corral Cks	Off-Stream Storage	Storage for Tehama-Colusa Canal or new westside canal.	1,200 to 1,800 TAF (G) 1,160 to 1,760 TAF (A)	263 @1,760 TAF (G)
Thomes-Newville Reservoir	Glenn County Thomes & Stoney Creek	Off-Stream Storage	Storage for Tehama-Colusa Canal or new westside canal.	1,841 TAF (G)	590 (G)

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Surface Water Storage Components

Component	Location	Type	Description	Storage Capacity	$/Acre Foot of Storage ($)
East Side Sacramento Valley					
Allen Camp Reservoir	Modoc County Pit River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	195.6 TAF (G) 185 TAF (A)	155 @195.6 TAF (A)
Auburn Reservoir	Placer County N.F. American River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	315 to 2,300 TAF (G) @2,300 TAF (G)	649 @2,270 TAF (A)
Bella Vista Reservoir	Shasta County Little Cow Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities in the northern Sacramento Valley.	139 TAF (A) 146 TAF (G)	393 (A) 138 TAF (A)
Coloma Reservoir	El Dorado County S.F. American River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	710 TAF (G)	N/A
Deer Creek Meadows Reservoir	Tehama County Deer Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities.	200 TAF (G) 178 TAF (A)	126 (A)
Folsom Reservoir Enlargement	El Dorado, Placer, and Sacramento Counties American River	Enlarged Existing On-Stream Storage	Increase regulating capabilities and yield opportunities.	Additional 366 TAF (G) (974 TAF existing) (G)	1,336 for additional 366 TAF (G)
Freemans Crossing Reservoir	Yuba/Nevada Counties Middle Yuba River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	300 TAF (G) 295 TAF (A)	764 (A)
Garden Bar Reservoir	Sutter County Bear River	On-Stream Storage	Provide water supply opportunities in conjunction with Camp Far West and Oroville Reservoirs.	245 TAF (G)	800 (G)
Kosk Reservoir	Shasta County Pit River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	800 TAF (G)	N/A
Marysville Reservoir	Yuba County Yuba River	On-Stream Storage	Increase regulating capabilities and yield opportunities from the Yuba River.	916 TAF (G) 896 TAF (A)	1,198 (A)
Millville Reservoir	Shasta County South Cow Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities.	206 TAF (G) 200 TAF (A)	275 (A)
Squaw Valley Reservoir	Shasta County Squaw Valley Creek	Combined Off-Stream and On-Stream Storage	Storage for Sacramento River flows.	400 TAF (G)	N/A
Tuscan Buttes Reservoir	Tehama County Paynes & Inks Creeks	Off-Stream Storage	Surplus flows from the Sacramento River would be diverted into a forebay-afterbay adjacent to the river from which water would be pumped into Tuscan Reservoir.	3,675 to 5,500 TAF (G)	482 @3,675 TAF (G)
Waldo Reservoir	Yuba County Dry Creek	Off-Stream Storage	Storage for Yuba River flows.	60 to 300 TAF (G)	567 @300 TAF (G)
Wing Reservoir	Shasta County Inks Creek	On-Stream Storage	Increase regulating capabilities and yield opportunities.	244 TAF (G)	287 (G)

Table 1
Surface Water Storage Components

Component	Location	Type	Description	Storage Capacity	$/Acre Foot of Storage ($)
In-Delta					
Chain of Lakes Facility	Sacramento/San Joaquin Delta	Island Storage in Delta	A chain of contiguous island storage facilities from the north Delta to the export Facilities.	300 to 600 TAF	TBD
In-Delta Storage	Sacramento/San Joaquin Delta	Island Storage in Southern Delta	Island storage in the southern Delta for surplus Delta flows.	230 TAF	TBD
South-of-Delta Aqueduct Storage					
Garzas Reservoir	Stanislaus County Garzas Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	139 to 1,754 TAF (A)	1,308 to 2,597 (A)
Ingram Canyon	Stanislaus County Ingram Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	333 to 1,201 TAF (A)	2,135 to 2,245 (A)
Kettleman Plain	Kings County Kettleman Hill	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	133 to 283 TAF (A)	1,495 to 2,406 (A)
Little Salado-Crow Reservoir	Stanislaus County Crow Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	132 to 250 TAF (A)	2,301 to 3,484 (A)
Los Banos Grandes	Merced County Los Banos Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	276 to 2,000 TAF (A)	549 to 1,369 (A)
Los Vaqueros Enlargement	Contra Costa County Kellogg Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	Additional 200 TAF (G) (100 TAF (G) under const.)	TBD
Orestimba Reservoir	Stanislaus County Orestimba Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	295 to 1,137 TAF (A)	1,600 to 2,142 (A)
Panoche Reservoir	Fresno County Silver Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	158 to 2,647 TAF (A)	1,149 to 2,532 (A)
Quinto Creek Reservoir	Merced/Stanislaus County Quinto Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	332 to 381 TAF (A)	1,925 to 2,246 (A)
Romero Reservoir	Merced County Romero Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	184 TAF (A)	2,559 (A)
San Luis Reservoir Enlargement		Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	Additional 390 TAF (A)	1,960
Sunflower Reservoir	Kings/Kern Counties Avenal Creek	Off-Stream Storage	Off-aqueduct storage for the California Aqueduct or the Delta-Mendota Canal.	322 to 535 TAF (A)	1,374 to 1,925

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Component	Location	Type	Description	Storage Capacity	$/Acre Foot of Storage ($)
San Joaquin Valley					
Clay Station	Sacramento County Laguna Creek	Off-Stream Storage	Storage for American River flows.	170 TAF (G)	
Cooperstown Reservoir	Stanislaus County	Off-Stream Storage	Storage for Stanislaus and Tuolumne River flows.	609 TAF (G)	
Deer Creek Reservoir	Sacramento County near Rancho Murietta	Off-Stream Storage	Storage for American River flows.	600 TAF (G)	
Duck Creek Reservoir	San Joaquin County Calaveras watershed	Off-Stream Storage	Storage for Mokelumne and Calaveras River flows.	100 TAF (G)	
Farmington Reservoir Enlargement	San Joaquin County Littlejohns Creek	Combined On-Stream and Off-Stream Storage	conservation storage of surplus Stanislaus River flows conveyed through the Upper Farmington	100 TAF (A)	2,360 (G)
Millerton Lake Enlargement	Fresno County San Joaquin River	On-Stream Storage	Increase flow regulating opportunities.	520 to 1,400 TAF	
Montgomery Reservoir	Stanislaus County Dry Creek	Off-Stream Storage	Capture and store spills from Lake McClure.	240 TAF (G)	N/A
Nashville Reservoir	El Dorado/Sacramento Counties - Cosumnes Riv	Combined Off-Stream and On-Stream Storage	Storage for Cosumnes River flows.	900 TAF (G)	617 (G)
Pardee Reservoir Enlargement	Calaveras/Amador Counties Mokelumne River	On-Stream Storage	Increase regulating capabilities and yield opportunities.	Additional 150 TAF (G) (210 TAF existing) (G)	1,509 for additional 150 TAF (G)
South Gulch Reservoir	San Joaquin County South Gulch tributary to Calaveras River	Off-Stream Storage	Store flows from the Calaveras and Stanislaus Rivers.	180 TAF (G)	522 (G)

(A) = Active Storage Capacity
(G) = Gross Storage Capacity

Table 2
Conveyance Component Inventory

Component	Location	Conveyance Facility Map Location	Type	Description	Conveyance Capacity
Conveyance to Storage North of the Delta					
Berryessa Intertie	Sacramento River to Lake Berryessa	1	New conveyance facility	Water would be pumped from the Sacramento River to Lake Berryessa.	5,000 cfs
Chico Landing Intertie	Sacramento River to Tehama-Colusa Canal	3	New conveyance facility	This conveyance facility would convey water from the Sacramento River to the Tehama-Colusa Canal where it would be pumped to off-stream storage.	5,000 cfs
Glenn County Reservoirs to Lake Berryessa Conveyance Facility	Connects proposed Glenn county reservoirs to Lake Berryessa	9	New conveyance facility	Water would be conveyed by tunnel from proposed reservoirs in Glenn County to Lake Berryessa.	10,000 cfs
Keswick-Cottonwood Tunnel	Keswick Reservoir to proposed Cottonwood Creek storage facilities	13	New conveyance facility	Tunnel would deliver available flows from Keswick Reservoir to proposed Cottonwood Creek storage facilities.	10,000 cfs
Oroville Intertie (Cross Valley Conduit)	Lake Oroville to the Tehama-Colusa Canal	17	New conveyance facility	Multiple large-diameter pipelines would convey available flows from Lake Oroville to off-stream storage facilities on the west side of the Sacramento Valley.	5,000 cfs
Shasta-Clair Engle Tunnel	Shasta Lake to Clair Engle Lake	19	New conveyance facility	Tunnel would deliver available storage from Shasta Lake to Clair Engle Lake.	10,000 cfs
Tehama-Colusa Canal Enlargement	Red Bluff Diversion to canal terminus	21	Enlarged existing conveyance facility	Increase the capacity of the canal from Red Bluff Diversion to the terminus of the canal to 5,000 cfs. The extent of the enlargement depends on the off-stream storage facility being served.	5,000 cfs
Tehama-Colusa Canal Extension	From the existing terminus to Solano County	22	Expanded existing conveyance facility	The existing Tehama-Colusa Canal would be extended from its present terminus to the proposed Lake Berryessa Winters Pumping Plant.	5,000 cfs
Westside Sacramento Valley Conveyance, Alternative A	Shasta Lake to proposed reservoirs on the west side of the Sacramento Valley	24	New conveyance facility	Connects Shasta Lake with proposed reservoirs on the west side of the Sacramento Valley to move excess storage from Shasta Lake to off-stream storage facilities. Alignment would be along the Coastal Range.	10,000 cfs
Westside Sacramento Valley Conveyance, Alternative B	Shasta Lake to proposed Sites Reservoir	25	New conveyance facility	Connects Shasta Lake with proposed reservoirs on the west side of the Sacramento Valley to move excess storage from Shasta Lake to off-stream storage facilities. Alignment would be parallel to the Sacramento River on the valley floor.	10,000 cfs

Table 2
Conveyance Component Inventory

Component	Location	Conveyance Facility Map Location	Type	Description	Conveyance Capacity
Conveyance to Storage South of the Delta					
Delta-Mendota Canal	Clifton Court Forebay to Mendota Pool	4	Enlarged existing conveyance facility	Increased canal capacity would deliver water to the proposed Mid-Valley Canal--North Branch and Main Branch.	2,000 cfs
East Side Canal	Folsom South Canal to Merced River	5	New conveyance facility	Would convey American and Sacramento River water to the San Joaquin Valley, terminating at the San Joaquin River.	5,000 cfs
East Side Canal Extension	Merced River to Kern River	6	New conveyance facility	Would extend the proposed East Side Canal to the Kern County line and potentially to the Cross Valley Canal to deliver water to the California Aqueduct.	5,000 cfs
Friant-Kern Canal Enlargement	Friant-Kern Intertie (junction point south of Kings River) to White River	8	Enlargement of conveyance facility	The Mid-Valley Canal, Main Branch Intertie would connect the Mendota Pool to the Friant-Kern Canal. Enlargement of the Friant-Kern Canal would be required to accommodate the additional flows from the intertie.	1,500 cfs
Mid-Valley Canal (Main Branch Intertie)	Mendota Pool to Friant-Kern Intertie	16	New conveyance facility	Canal would deliver water from the Mendota Pool to the Friant-Kern Canal. The Friant-Kern Canal would need to be enlarged as part of this alternative.	1,500 cfs
Mid-Valley Canal (Main Branch)	Mendota Pool to White River	14	New conveyance facility	The main branch of the Mid-Valley Canal would go south from Mendota Pool down the center of the east side of the valley and terminate at White River.	1,500 cfs
Mid-Valley Canal (North Branch)	Mendota Pool to Chowchilla	15	New conveyance facility	The North Branch would divert water out of Mendota Pool to a terminus at the Chowchilla River.	500 cfs
San Joaquin East-West Aqueduct	Merced River to California Aqueduct and Delta-Mendota Canal	18	New conveyance facility	The Newman Wasteway would be converted to a water supply aqueduct with an intake on the Merced River. A series of low-lift pumping plants would lift the water to the Delta-Mendota Canal or the California Aqueduct.	4,300 cfs

Table 2
Conveyance Component Inventory

Component	Location	Conveyance Facility Map Location	Type	Description	Conveyance Capacity
Delta Conveyance					
Chain of Lakes Isolated Facility	Sacramento River in North Delta to Clifton Court Forebay	2	New conveyance facility	A chain of Delta islands would be converted into water storage reservoirs, connected by large inverted siphons. The chain of lakes would act as an isolated Delta conveyance facility and a storage facility.	15,000 cfs
Folsom South Canal Enlargement/Extension	Folsom South Canal at Hood-Clay Canal to proposed East Side Canal	7	Enlargement and extension of existing conveyance facility	The Folsom South Canal would be extended to the proposed East Side Canal (Littlejohns Creek) and its capacity would be increased.	7,000-5,500 cfs
Hood-Clay Canal	Sacramento River at Hood--Freeport to Folsom South Canal	10	New conveyance facility	A new conveyance facility would link the Sacramento River with the Folsom South Canal via a diversion near Hood on the Sacramento River.	5,000 cfs
Improved Through-Delta Conveyance	North and south Delta	11	Improve existing Delta channels	The channel capacity of selected Delta channels would be increased by dredging and levee setbacks to increase the ability to move water from the north Delta to the CVP and SWP Delta export facilities.	Variable
Isolated Delta Conveyance Facility, Canal	Sacramento River at Hood--Freeport to Clifton Court Forebay	12 a	New conveyance facility	A 42-mile canal with a screened intake in the Hood or Freeport area on the Sacramento River. The canal would convey water directly to Clifton Court Forebay and would include siphon crossings of major Delta channels.	5,000, 10,000 and 15,000 cfs
Isolated Delta Conveyance Facility, Pipeline	Sacramento River at Hood--Freeport to Clifton Court Forebay	12 b	New conveyance facility	A 42-mile buried pipeline with a screened intake in the Hood or Freeport area on the Sacramento River. The pipeline would convey water directly to Clifton Court Forebay and would include siphon crossings of major Delta channels.	5,000 cfs
Ship Channel Conveyance	Upstream of Bryte to Isolated Conveyance Facility	20	New conveyance facility	The Sacramento Ship Channel would serve as part of a conveyance system which would convey water from the Sacramento River to Clifton Court Forebay. The facility would include a tunnel crossing of the Delta in the western Delta area.	5,000, 10,000 and 15,000 cfs

Table 2
Conveyance Component Inventory

Component	Location	Conveyance Facility Map Location	Type	Description	Conveyance Capacity
Upper Eastside Foothills Conveyance Facility	Sacramento River (upstream of Feather River confluence) and Feather River (upstream of Sacramento River confluence) to Eastside Canal or Folsom South Canal	23	New conveyance facility	Screened diversions on Sacramento River and Feather River would convey 7,000 cfs through a new conveyance facility at the Folsom South Canal.	7,000 cfs

Table 3

Surface Water Storage Components

West Side Sacramento Valley

Lake Berryessa Enlargement
Cottonwood Creek Reservoir Complex
Red Bank Reservoir Complex
Montgomery Reservoir
Sites/Colusa Reservoir Project
Shasta Lake Enlargement
Thomes-Newville Reservoir Complex

South-of-Delta Off-Aqueduct Storage

Los Banos Grandes
Orestimba Reservoir
San Luis Reservoir Enlargement
Los Vaqueros Reservoir Enlargement

San Joaquin Valley

Millerton Lake Enlargement

In-Delta

In-Delta Storage Project

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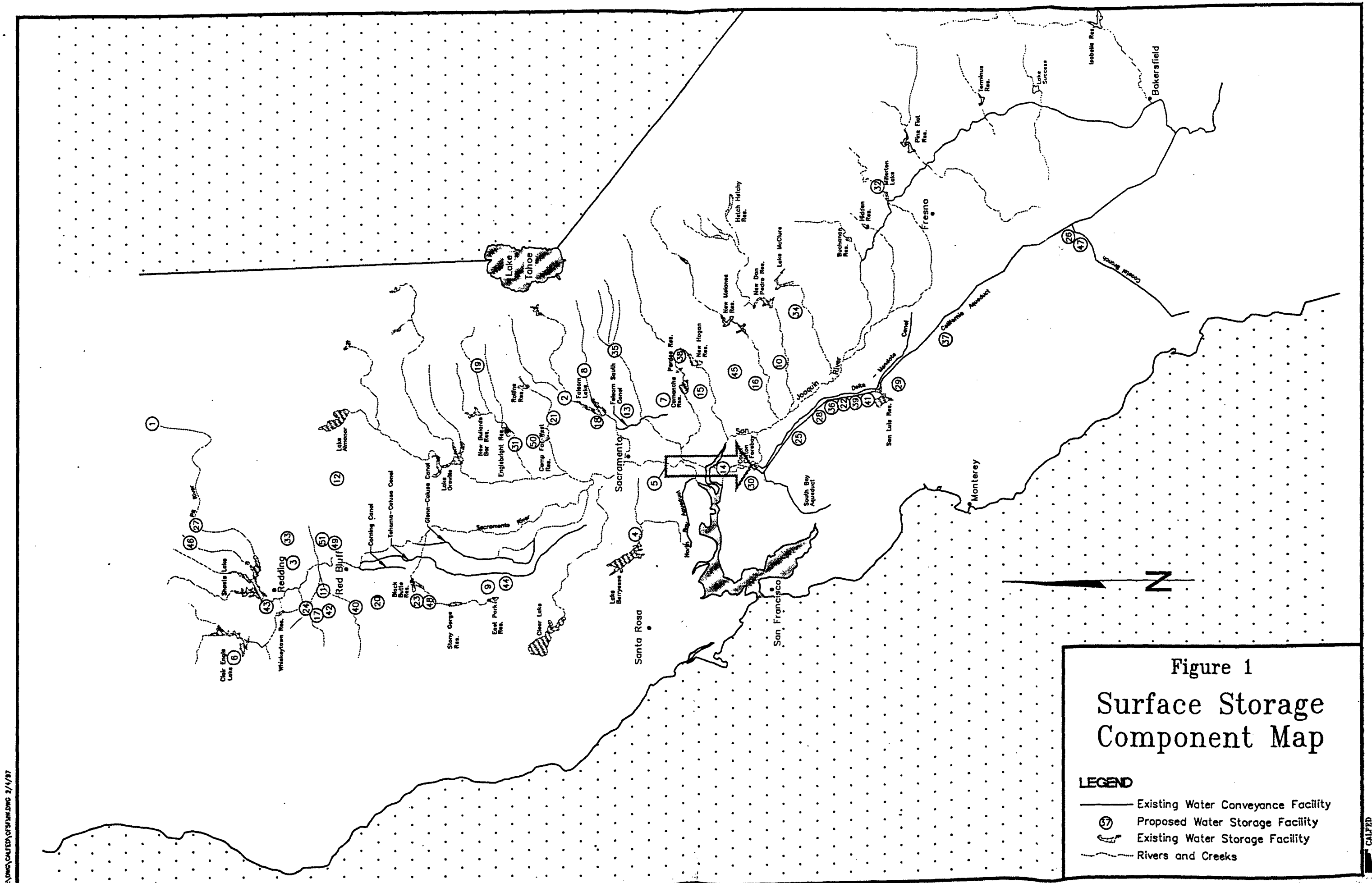

Figure 1

Surface Storage Component Map

LEGEND

- Existing Water Conveyance Facility
- (57) Proposed Water Storage Facility
- Existing Water Storage Facility
- Rivers and Creeks

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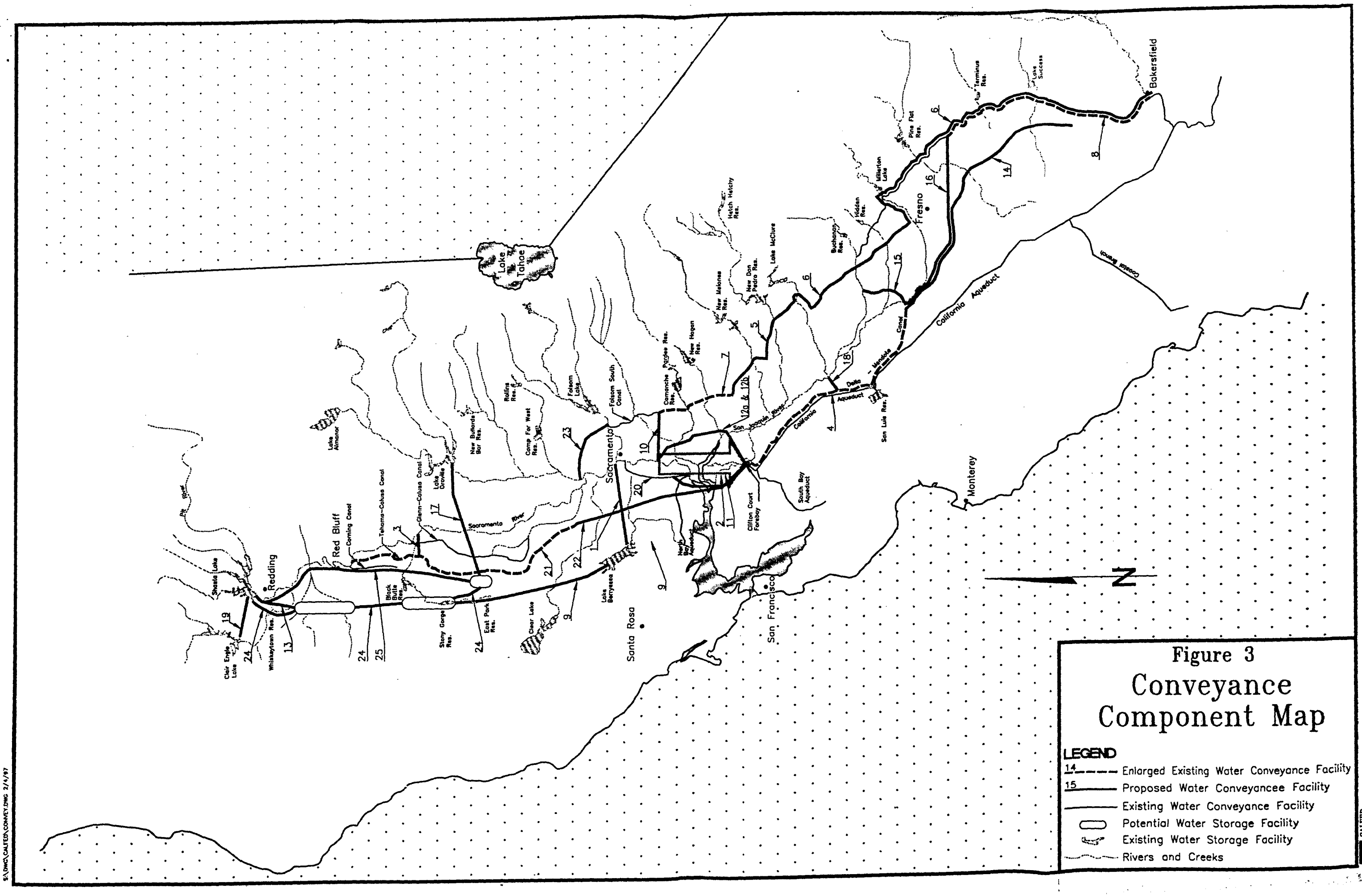

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Table 4

Conveyance Components

Storage Conveyance

Chico Landing Intertie
Lake Berryessa Intertie
Mid-Valley Canal
Tehama-Colusa Canal Extension

Delta Conveyance

Chain of Lakes Project
Isolated Delta Conveyance Facility
Multiple Intakes Option
Improved Through-Delta Conveyance Facility
Western Delta isolated Conveyance Facility

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