



CALFED BAY-DELTA PROGRAM

PHASE II ALTERNATIVE DESCRIPTIONS UPDATE – JUNE 1997

Background

This UPDATE describes the three comprehensive solution alternatives developed during Phase I of the CALFED Bay-Delta Program, and provides further Programmatic detail of various configurations being assessed as the primary early focus of Phase II. These alternatives represent a broad range of potential solution actions to address environmental and water management problems associated with the Bay-Delta system.

Some of the storage and conveyance facility components in these alternative descriptions are identified with a range of values setting forth possible capacities. These figures have been used to provide a context for analyses presently underway; they should not be considered final and are subject to change during public and agency deliberations relating to selection of a draft preferred alternative.

Initial impact analyses (to more specifically outline and define potential positive and negative consequences arising from implementation of any particular alternative configuration) are currently being developed by Program staff. As with other work product, these analyses will be subject to public review, critique, and possible revision.

The foundation of each alternative is comprised of four common programs: ecosystem restoration, water quality, water use efficiency, and levee system integrity. The variables distinguishing each of the alternatives are the storage and conveyance components. (Detailed descriptions of the objectives of the common programs and their conceptual underpinnings are available upon request.)

Implementation of the four common programs will remain relatively constant regardless of which alternative is implemented. While specific actions carried out to achieve goals and targets of the common programs may differ somewhat to reflect differences in the overall configuration of an alternative, the goals and targets themselves will not vary to any significant degree.

Each common program is being designed to focus its efforts on actions that, to the greatest extent practicable, will provide multiple benefits. The Program seeks to maximize efficiencies through linkages serving more than one of the Program's key areas of

concern: ecosystem quality, water quality, levee system vulnerability, and water supply reliability. The Program's intent is to make the total greater than the sum of its parts.

For example, the water quality common program focuses on source control and reducing levels of water quality parameters of concern within the Bay-Delta system. Storage configurations within the alternatives will provide more or less opportunity to manage flow and diversion timing which can contribute to the achievement of water quality goals as established by the water quality common program.

Physical differences between the alternatives lie mainly in the method of transporting water through and/or around the Delta, and the amount and general location of additional water storage included as part of their functional design. While there are three conveyance options, 17 different configurations of those options are being investigated by the Program, and they are each briefly described in this UPDATE.

Analysis in Phase II also includes development of acceptable operational policies and strategies. Additionally, a package of draft institutional and operational assurances, intended to ensure that the program is implemented tomorrow as it is designed and agreed to today, will be incorporated as part of the preferred alternative.

Finally, it is possible that the Phase II process will result in an abandonment of some of the 17 configurations developed to date and/or a coalescing of others. Consequently, the selected draft preferred alternative may not be one of the variants contained herein but a mixture of more than one configuration.

Alternative 1 relies upon the common programs to achieve program goals with only minimal changes to the present Delta configuration. As outlined below, new fish screens, some additional infrastructure, various storage possibilities, and potential operational improvements differentiate the three configurations of Alternative 1.

Generalized Configuration of Alternative 1

Common Programs				Delta Configuration	Water Storage
Ecosystem Restoration	Water Quality	Water Use Efficiency	Levee System Integrity	Varies from existing Delta channels with no conveyance modifications to select south Delta modifications	Varies from no new storage to: 3.0 MAF Upstream (Sac) 2.0 MAF Off-Aqueduct 200 TAF In-Delta 500 TAF Sac. Valley GW 500 TAF San Joaquin GW

The numbers are not fixed; they are conceptual and representative of the range to be studied.

Alternative 1A overlays implementation of the four common programs on the current system. No new storage or conveyance facilities are proposed.

In addition to implementing the four common programs, Alternative 1B proposes new fish screens at the Banks and Tracy Pumping Plants as well as an intertie between the Tracy Pumping Plant and Clifton Court Forebay.

Building upon Alternatives 1A and 1B, Alternative 1C adds new surface and groundwater storage facilities throughout the watershed. Significant operational changes will also be a component of this alternative. In addition, to better utilize the new storage (which will be apportioned to various beneficial uses), there would be some minimal channel improvements in the Delta to allow an increase of South Delta exports to the full existing physical capacity at Banks Pumping Plant.

This alternative combines the common programs with significant modifications of through Delta channels to improve water conveyance across the Delta. Combinations of four potential conveyance configurations and three new storage configurations differentiate the five variations of this alternative.

Alternative 2A implements the four common programs and provides for more efficient water movement across the Delta by significantly improving conveyance from the Sacramento River through a new screened intake at Hood to modified Delta channels. Improvements adjacent to Snodgrass Slough, the North Fork of the Mokelumne

River, and Old River near Clifton Court Forebay are included in this Alternative, as are new fish screens at the Tracy and Banks Pumping Plants, an intertie between the pumping plants, and an operable barrier or equivalent in the South Delta. This alternative does not provide for additional water storage.

Generalized Configuration of Alternative 2

Common Programs				Delta Configuration	Water Storage
Ecosystem Restoration	Water Quality	Water Use Efficiency	Levee System Integrity	Varies from channel modifications primarily for water conveyance to extensive modifications for water conveyance and habitat restoration	Varies from no new storage to: 3.0 MAF Upstream (Sac) 500 TAF Upstream (SJ) 2.0 MAF Off-Aqueduct 200 TAF In-Delta 500 TAF Sac. Valley GW 500 TAF San Joaquin GW

The numbers are not fixed; they are conceptual and representative of the range to be studied.

Alternative 2B is the same as Alternative 2A except that it adds new surface and groundwater storage facilities throughout the watershed.

Alternative 2C combines and integrates the four common programs with three new diversion locations for Tracy and Banks Pumping Plants. The new diversions could be used separately or in combination to provide increased operational flexibility. New

in-Delta water storage would receive water from one of these new diversions. The alternative also includes new fish screens at the Tracy and Banks Pumping Plants, and an intertie between the pumping plants.

Alternative 2D implements the four common programs and provides for more efficient water movement across the Delta by significantly improving conveyance from the Sacramento River through a new screened intake at Hood to modified Delta channels. Improvements adjacent to Snodgrass Slough, the South Fork of the Mokelumne River, and Old River near Clifton Court Forebay are included in this Alternative, as are new fish screens at the Tracy and Banks pumping plants, an intertie between the pumping plants, and an operable barrier or equivalent in the south Delta at the head of Old river. In addition, new storage adjacent to the aqueduct will be developed south and downstream of the Delta.

Alternative 2E implements the four common programs and is very similar to Alternative 2D, except it replaces the intake at Hood to convey Sacramento River water into the central Delta with a weir structure leading to a wide conveyance system with associated habitat areas at Tyler Island.

This alternative adds an isolated facility to the through Delta modifications of Alternative 2 which together combine with the common programs to move water through and around the Delta. Combinations of seven potential conveyance configurations and two new storage configurations differentiate the nine variations of this alternative.

The mission of the CALFED 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.

Generalized Configuration of Alternative 3

Alternative 3A combines and integrates the four common programs with North and South Delta channel modifications designed to improve water conveyance and a small (5,000 cfs) open channel isolated facility. This alternative is considered the "minimal" option for the dual Delta conveyance alternative. It also includes new fish screens at the Tracy and Banks Pumping Plants, an intertie between the pumping plants, and operable barriers or equivalent in the south Delta. This alternative provides no new water storage.

Common Programs				Delta Configuration	Water Storage
Ecosystem Restoration	Water Quality	Water Use Efficiency	Levee System Integrity	Through-Delta channel modifications vary from those primarily for water conveyance to those for water conveyance with extensive habitat restoration. Isolated facility varies from small (5,000 cfs) to large (15,000 cfs).	Varies from no new storage to: 3.0 MAF Upstream (Sac) 500 TAF Upstream (SJ) 2.0 MAF Off-Aqueduct 200 TAF In-Delta 500 TAF Sac. Valley GW 500 TAF San Joaquin GW

The numbers are not fixed; they are conceptual and representative of the range to be studied.

Alternative 3B combines and integrates the four common programs with North and South Delta channel modifications designed for water conveyance, a small (5,000 cfs) isolated facility constructed as an open channel, and surface and groundwater storage. This alternative is the same as Alternative 3A except that it provides additional water storage facilities.

Alternative 3C combines and integrates the four common programs with North and South Delta channel modifications designed for water conveyance and a small (5,000 cfs) isolated facility constructed as a pipeline. It also includes new fish screens at the Tracy and Banks Pumping Plants, an intertie between the pumping plants, and

operable barriers or equivalent in the South Delta. The alternative provides no new water storage. This alternative is identical to Alternative 3A except for the facilities associated with the pipeline configuration.

Alternative 3D combines and integrates the four common programs with North and South Delta channel modifications designed for water conveyance, a small (5,000 cfs) isolated facility constructed as a pipeline, and surface and groundwater storage. This alternative is identical to Alternative 3B except for the facilities associated with the pipeline configuration.

Alternative 3E combines and integrates the four common programs with North Delta channel modifications designed to improve water conveyance, a large (15,000 cfs) isolated facility constructed as an open channel, and surface and groundwater storage. The alternative is similar to Alternative 3B except for the size of the isolated facility, Old River will not be enlarged, nor will an operable barrier be constructed at the head of Old River.

Alternative 3F combines and integrates the four common programs with a combined isolated storage and conveyance facility to transfer Sacramento River flow across the Delta to Clifton Court Forebay. A connected chain of up to eight lakes, created by flooding Delta islands, would convey water via siphons and pumps beneath Delta channels.

Alternative 3G combines and integrates the four common programs with North and South Delta channel modifications designed for water conveyance efficiencies. It also modifies the Sacramento Deep Water Ship Channel so that it can be used as a water

conveyance facility with 5,000 cfs capacity and constructs a western Delta conveyance tunnel and channel to convey the water to the pumping plants. This alternative also includes additional surface and groundwater storage.

Alternative 3H combines and integrates the four common programs with modified conveyance in the North and South Delta designed for water conveyance and significant habitat restoration, a small (5,000 cfs) isolated facility constructed as an open channel, and surface and groundwater storage.

Alternative 3I combines and integrates the four common programs with three new diversion locations for Tracy and Banks Pumping Plants and surface and groundwater storage. The new diversions could be used separately or in combination to provide increased operational flexibility. One new in-Delta water storage would receive water from one of these new diversions. The alternative also includes new fish screens at the Tracy and Banks Pumping Plants and an intertie between the pumping plants. This alternative is similar to Alternative 2C with one diversion extended to Hood and new surface and groundwater storage.

CALFED Bay-Delta Program

1416 Ninth Street, Suite 1155
Sacramento, CA 95814

CALFED Agencies:

CA Resources Agency
CA Dept. of Fish and Game
CA Dept. of Water Resources
CA Environmental Protection Agency
State Water Resources Control Board

U.S. Environmental Protection Agency
U.S. Dept. of the Interior
U.S. Fish and Wildlife Service
U.S. Bureau of Reclamation
U.S. Dept. of Commerce
National Marine Fisheries Service