
DECISION PROCESS TO DRAFT PREFERRED ALTERNATIVE

This document describes the process to reduce/refine the alternatives and select the draft preferred alternative. The draft preferred alternative will be the alternative that CALFED agencies believe would best fulfill the CALFED Bay-Delta Program's mission, given environmental, technical, and economic considerations.

The process begins with 17 alternative variations to meet the Program objectives for the Bay-Delta system. Through a narrowing and evaluation process, a draft preferred alternative will be developed near the end of 1997 for inclusion in the draft programmatic EIR/EIS. Following revisions after public comment, a final preferred alternative will be selected and included in the final EIR/EIS near the end of 1998.

Summary of Decision Process

Information necessary for selection of a draft preferred alternative will come from several ongoing efforts (see Attachment I for more detail) including:

- Impact analysis
- Prefeasibility studies
- Other institutional input (such as ESA consultations, etc.)
- Implementation strategy (assurances plan, financial plan)
- Technical workgroups

As these efforts progress, the amount of information available to make decisions about each of the alternatives will increase and become more refined. Each step in the process may result in changes in some or all of the initial 17 alternatives. It is conceivable that the alternatives evaluated in Step 2 of the process and the eventual draft preferred alternative will differ in some way from the original 17 alternatives. The process is designed to make use of this information as it becomes available and includes two basic steps:

Step 1 - Alternatives Narrowing - The intent of this step is twofold: (1) eliminate or modify those alternatives that have technical problems; and (2) reduce the number of alternatives that achieve the same Delta conveyance function. By looking primarily at engineering/technical feasibility and costs, some conveyance configurations (and associated alternatives) can be eliminated or modified to improve performance.

Step 2 - Detailed Evaluation - The intent of this step is to array information about how well each of the remaining alternatives meets the Program objectives and solution principles, and to array the resultant impacts attributable to each alternative. The alternatives with the higher relative ranking will be compared for overall balance and inherent tradeoffs using the solution principles. The information will be used by

CALFED agencies and stakeholders to compare and contrast the alternatives leading to selection of a draft preferred alternative. As more information becomes available from impact analysis, prefeasibility studies, technical workgroups, etc., efforts outlined in Step 1 will be repeated to determine if additional alternatives should be eliminated or modified.

Step 1 - Alternative Narrowing

The intent of this step is twofold: (1) eliminate or modify those alternatives that have technical problems; and (2) reduce the number of alternatives that achieve the same Delta conveyance function.

The alternatives narrowing is not intended to provide the detailed evaluations necessary to select the draft preferred alternative. This step provides a "coarse" screen for the alternatives which can be eliminated or modified based on the available information. Program solution principles have been applied throughout development of the 17 alternative variations and will also be used in their evaluations. Not enough information will be available for complete evaluation with solution principles until Step 2. However, the evaluation contained in this alternative narrowing step can be considered a "coarse" application of the "implementable" solution principle.

The focus of Step 1 is on the Delta conveyance used with each alternative. Most alternatives have unique conveyance configurations that can be compared and evaluated in this narrowing process. Current recommendations from technical workgroups, modeling results, prefeasibility studies, preliminary information from impact analysis and other information will be used in the evaluation. The following criteria will be used in the alternative narrowing step:

Identify and eliminate technical problems (technical problems not evident when the alternatives were formulated and which severely limit an alternative's success);

- Identify alternatives with engineering/technical problems which must be resolved for the alternatives to proceed.
- Modify each alternative, if possible, to remove the technical problems.
- If modifications to the alternative can not solve the problem, the alternative is not practicable and will be eliminated.

Reduce the number of alternatives (that achieve the same Delta conveyance function);

- Identify alternatives that meet Program objectives approximately the same and achieve the same Delta conveyance function.
- Use engineering/technical and cost evaluations to compare the Delta conveyance. Consider adverse impacts of each alternative. If the one alternative has significantly higher costs for conveyance and/or greater adverse impacts, it is not practicable and will be eliminated from further consideration.

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- Repeat above analysis with other alternatives.

Step 1 will be completed in August 1997. The procedure will eliminate those alternatives with major technical problems and those that are not cost effective compared to similar performing alternatives. The procedure will retain those alternatives that represent unique solutions to problems in the Bay-Delta system. The key to this step is documentation of the information and the reasoning behind eliminating or modifying each alternative.

Step 2 - Detailed Evaluations

This step will simultaneously consider how well each alternative meets the Program objectives, the resultant beneficial or adverse impacts, and how well each meets the solution principles. This step focuses on the differences between the alternatives while recognizing that many portions of the alternatives are the same. Key information will be ranked and displayed for each alternative.

Looking simultaneously at all the information on how well the alternatives meet the objectives, impacts, and solution principles would make selection of a preferred alternative very difficult due to the large amount of information. Many portions of the alternatives do not vary from one alternative to another. Therefore the performance of certain aspects of the alternatives will be the same for some Program objectives and impacts. For example, one objective for ecosystem quality is to "**Increase Amount of High Quality Tidal Slough Habitat** to allow increased primary biological production". Each alternative includes the same target of 100 to 150 miles for restoration of tidal slough habitat. Therefore, there is no difference between the alternatives for this objective and no need to focus on the information to help select a draft preferred alternative.

On the other hand, there are aspects that do differ between alternatives and it is these aspects, or distinguishing characteristics, that will be used to select the draft preferred alternative. The distinguishing characteristics between the alternatives are the ones dependent on the storage/conveyance configurations and on the resultant water flows.

Several characteristics have been identified for each of the four CALFED problem areas that distinguish areas where the alternatives may differ. Attachment II shows how each of these distinguishing characteristics are linked to objectives, impacts, and solution principles. Following are the distinguishing characteristics and the criteria that will be used to provide the needed information to distinguish the alternatives:

Water Quality

All alternatives include a program to reduce the total pollutant load entering the Delta and to manage the timing of pollutant discharges. The major water quality characteristics

which may vary by alternative are:

- **In-Delta water quality.** - In-Delta water quality may get better or worse depending on the method for Delta conveyance. Delta Simulation Model (DSM) runs will model Delta salinity distributions under a wide range of hydrologic conditions for each alternative. The DSM will also model Delta circulation (flow patterns) which affects salinity and related water quality parameters. The complex salinity and flow relationships will be evaluated to determine relative performance of each alternative.
- **Export drinking water quality.** - Water exported for drinking water could have better or worse water quality. Diversion location and information from the DSM runs will be used to estimate bromide levels as an indicator of export water quality. The DWR disinfection byproducts model will be used to estimate organic carbon concentrations at key export locations. Alternatives with the lowest estimated bromide levels and total organic carbon at key diversion locations will be given preference in the ranking.

Ecosystem Quality

All alternatives include approximately the same level of habitat restoration, screening of unscreened non-project diversions, environmental flow, and other improvements described in the Ecosystem Restoration Program Plan. The major ecosystem quality characteristics which may vary by alternative are:

- **Export diversion effects on fisheries.** - Export diversion effects on fisheries could get better or worse. The number of project diversions and the locations and the amount of water diverted at each location varies by alternative. A relative qualitative ranking will depend on the species commonly present at the diversion location, timing at which endangered species are present, the flexibility in diversion timing provided by storage and multiple intakes, protection for upstream and downstream migrants, and the total quantity and timing of exported flow. The qualitative assessment will provide the highest rank to the alternative with the fewest negative diversion effects on the aquatic environment.
- **Delta flow circulation.** - The Delta Simulation Model results show Delta circulation (flow patterns) which affects movement (transport) of fish and entrainment. A relative qualitative assessment will provide the highest rank to the alternative with the greatest net benefit to fishery resources.
- **Storage and Release of Non-environmental Water.** - Water stored and released for non-environmental uses may provide some indirect fisheries/habitat benefits or adverse impacts. Model runs of system operations will provide a coarse measure

of expected changes in flow patterns. The timing and degree of these changes will determine the extent to which fisheries or habitats will benefit or incur adverse impacts. Consideration of changes in flows (e.g. Sacramento and San Joaquin River flows) to transport fish to the Delta will be considered. A relative qualitative ranking will be developed.

Levee System Integrity

Protection for in-Delta land use, infrastructure, and water quality is essentially the same for all alternatives. The location and configuration of levees may vary somewhat to accommodate the habitat and conveyance features for each alternative but these changes do not result in different levels of protection or risk to the system. The major system integrity characteristic which may vary by alternative is:

- **Risk to export water supply facilities and operations.** - Risk to water supply facilities and operations can change depending on the method of Delta conveyance. While the levee system integrity program seeks the same level of protection for all alternatives, risk to the export water supply is lessened by alternatives using an isolated Delta conveyance. The alternatives with the lowest risk to water supply will be given the highest ranking.

Water Supply Reliability

The major water supply characteristics which may vary by alternative are:

- **Water supply opportunities.** - Water supply opportunities will vary among the alternatives. Modeling runs of system operations (DWR Simulation Model) provide estimates of the water supply opportunities for each alternative. Relative comparisons of the increase, or decrease, in water supply opportunities will be used to compare the alternatives. In general, CALFED will give greatest consideration to changes in average annual water supplies, rather than water supply indicators focusing on dry or critical period supplies.
- **Water transfer opportunities.** - Water transfer opportunities will vary among the alternatives. Modeling runs of system operations will be used to estimate the physical capacity (upper limit) of the export facilities available to facilitate water transfer with each alternative. The amount of water that the market may be willing to transfer for different water costs will be estimated to provide another estimate of the water potentially transferable with each alternative. Relative comparisons of the increase, or decrease, in transferable water will be used to evaluate the alternatives. The highest rank will be given to the alternative with the best match between transport opportunity and demand for transfers.

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- **System operational flexibility.** - System operational flexibility may vary among the alternatives. A relative qualitative ranking will depend on the diversion location(s), the flexibility in diversion timing provided by storage and multiple water diversion intakes. The qualitative assessment will provide the highest rank to the alternative with the most flexibility for water supply operations.
 - **South Delta channel stages.** - The south Delta channel stages (water levels) may vary among the alternatives. A relative qualitative ranking will depend on the location of the intakes for the south Delta pumping plants, conveyance configuration, and the use of flow barriers. Delta Simulation Model runs will also show Delta circulation as mentioned above under water quality.

Other Distinguishing Characteristics

- **Total costs.** - Total costs will vary among alternatives. Capital and operating costs will be estimated from prefeasibility analyses. All costs will be annualized or capitalized for a relative ranking of the alternatives; alternatives with the lowest cost will be given the highest rank. This analysis will be performed under the assumption that the financial principles remain the same for each alternative but that a preliminary indication of cost breakdown between the general public and user groups may be available.
- **Assurances and effectiveness.** - Assurances and effectiveness may vary among the alternatives. A relative qualitative ranking will give the highest rank to the alternative judged to have the best assurance package.
- **Habitat disturbance.** - Habitat disturbance from implementing each alternative will vary. This information will be available directly from the impact analysis for the EIR/EIS. The highest rank will be given the alternative with the least habitat disturbance.
- **Land use changes.** - Land use changes will vary by alternative. This information will be available directly from the impact analysis for the EIR/EIS. This will be a summary including such items as the amount of agricultural land that goes out of production due to the implementation of the Program, etc. The alternatives will be given relative rankings. The highest ranking will be given to the alternative with the least land use change.
- **Socio-economic impacts.** - Socio-economic impacts will vary among the alternatives. The highest rank will be given the alternative with the least socio-economic impacts (such as impacts on commercial and recreational fishing, farm workers, and other third party impacts).

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- **Consistency with the solution principles.** - Solution principles embody the balancing (considering tradeoffs and incremental differences between alternatives) of all the distinguishing characteristics. The relative qualitative rankings of the alternatives against the solution principles will consider each alternative cost, assurances, ability to satisfy the Program objectives, and to minimize impacts.

A need for additional distinguishing characteristics may become apparent as more detailed information on benefits and adverse impacts is developed. Attachment II provides more information on how alternative performance will be displayed for Program objectives, impacts, and solution principles.

The decision-makers will be provided with a matrix (decision matrix) containing information on how alternatives perform on key issues (distinguishing characteristics, objectives, impacts, solution principles) of interest. The decision matrix will be developed using several supporting matrices containing more detailed information. These supporting matrices will provide a thorough documentation and summary of how results were derived.

A recommended draft preferred alternative will be included with the decision matrix. This effort will require simultaneously examining how well alternatives meet the Program objectives, the resultant impacts, costs, assurances, and solution principles in a balanced fashion. Selection of a recommended draft preferred alternative will be based on the collective judgement of CALFED staff and CALFED agencies.