

APPENDIX D

Alternatives Analysis

Appendix D
**Imperial Irrigation District Water
Conservation and Transfer Project**

EIR/EIS Alternatives Analysis Report

Lead Agencies

Imperial Irrigation District

US Bureau of Reclamation

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1. Introduction

1.1 Purpose of Alternatives Analysis

The purpose of this alternatives analysis (alternatives report) is to identify a reasonable range of feasible alternatives to be evaluated in the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the Proposed Project, as required by the California Environmental Quality Act (CEQA) guidelines (Section 15126.6) and the National Environmental Policy Act (NEPA).

CEQA Guidelines. The CEQA guidelines, Section 15126.6, Consideration and Discussion of Alternatives to the Proposed Project, provides:

"(a) Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553 and *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376)."

NEPA Regulations. The Council on Environmental Quality Regulations for Implementing NEPA, Section 1502.14, Alternatives Including the Proposed Action, provides:

"This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the affected environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives that were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include the alternative of no action.
- (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives."

1.2 Alternatives Analysis Process

The focus of the alternatives analysis under CEQA and NEPA is to identify alternatives which have the potential to reduce the potential significant impacts of the Proposed Project.

The potentially significant impacts, based on preliminary environmental analysis, are primarily impacts associated with the Salton Sea. The water conservation and transfer included in the Proposed Project would reduce flows to the Salton Sea, which would result in a decline in elevation, surface area and an increase in salinity. These effects would cause significant impacts to water quality, air quality biological resources including fish and birds, recreation resources and aesthetics of the Salton Sea. However, depending on the HCP option selected as part of the Proposed Project, these impacts may be either reduced or avoided. Additionally, impacts to agricultural resources may be significant in the IID water service area as a result of fallowing for conservation.

On the Lower Colorado River, there may be some biological and hydrological impacts due to the change in the point of diversion from Imperial Dam to Parker Dam. The change in the point of diversion will have the effect of reducing the flow between the points by 300 AF/year. Biological conservation measures proposed for the LCR would likely mitigate these potential impacts.

To prepare the alternatives analysis, a comprehensive list of all potential alternatives was compiled. Potential alternatives for this project were identified from comments received during the scoping process; the environmental review process for the Program EIR, which was being prepared for the Quantification Settlement Agreement (QSA); and through discussions with Imperial Irrigation District (IID) and San Diego County Water Authority (SDCWA) engineers and other water resource professionals familiar with the IID system and the region.

To the extent possible, available information about each alternative was gathered to allow a comparison of alternatives. Potential alternatives were then subjected to screening criteria to identify the alternatives recommended for full evaluation in the Draft EIR/EIS. Alternatives that do not survive the screening criteria will be described in the Draft EIR/EIS as "alternatives that were considered but eliminated" and the reasons for their elimination will be documented. Surviving alternatives will be included for analysis in the Draft EIR/EIS.

Screening criteria were developed based on CEQA and NEPA requirements and the Proposed Project objectives (below). The criteria were designed to eliminate alternatives considered to be infeasible, and to identify alternatives that could reasonably meet most of the Proposed Project objectives while minimizing the environmental impacts.

1.3 Project Objectives and Purpose and Need

Under the CEQA guidelines, § 15124(b), an EIR must include a "statement of objectives sought by the proposed project." These objectives are used to develop the range of alternatives to be considered in the EIR. Under the CEQA guidelines, § 15126.6(a), quoted above, alternatives analyzed in the EIR must be able to "feasibly attain most of the basic objectives of the project." IID's Proposed Project objectives and the purpose and need for the Proposed Project as determined by Reclamation are further described below.

1.3.1 IID's Objectives

IID's underlying objective for the Proposed Project is to meet the terms of, and implement, the IID/SDCWA Transfer Agreement, the QSA, and the Habitat Conservation Plan (HCP). The IID/SDCWA Transfer Agreement and the QSA state contractually acceptable terms for the conservation and transfer of a substantial amount of Colorado River water from IID's water service area to more urban areas of Southern California, which are in need of more reliable water supplies.

IID has determined that a water conservation and transfer project would provide a means of developing a conservation program within the IID water service area, while benefiting the recipients of the conserved water. IID has also determined that a water conservation and transfer project will implement directives from the State Water Resources Control Board (SWRCB) to develop a conservation program, and will protect IID's historic Colorado River water rights. Under California laws designed to encourage water conservation and voluntary transfers, title to conserved water remains with the transferor. On this basis, IID can allow conserved water to be used by another entity while retaining its historic water rights, which have been, and continue to be, the basis for economic activity in the Imperial Valley. In addition to funding implementation costs of conservation measures, environmental mitigation costs, and the costs of mitigating third-party impacts, IID anticipates that proceeds from the sale of conserved water would provide economic benefits to IID, and to cooperating landowners and tenants in the Imperial Valley.

Both the IID/SDCWA Transfer Agreement and the QSA are contractual agreements that are intended to facilitate the varied goals of the contracting parties. Thus, the Proposed Project objectives are to meet the proponents' goals for each agreement. These goals are listed below, under the applicable agreement.

1.3.1.1 IID/SDCWA Transfer Agreement

The goals of the IID/SDCWA Transfer Agreement for IID are to:

- Conserve water and convey it in a market-based transaction that provides payment to IID sufficient to fund a water conservation program, including the cost of on-farm and system improvements, environmental mitigation costs, and other implementation costs.
- Develop a water conservation program that includes the participation of Imperial Valley landowners and tenants so that on-farm and system-based conservation measures could be implemented.
- Implement a water conservation and transfer program without impairing IID's historic senior-priority water rights, in a manner consistent with state and federal law.
- Provide an economic stimulus to Imperial Valley's agricultural economy and the surrounding community.

The goals of the IID/SDCWA Transfer Agreement for SDCWA are to

- Acquire an independent, alternate, long-term water supply to provide drought protection and increased reliability for planned growth in municipal, domestic, and agricultural uses.
- Diversify its sources of water supply and reduce its current dependence on a single source for imported water to enhance the reliability of its water supply.
- Establish a stable, competitive price for a significant portion of its water supply.

1.3.1.2 QSA

The following goals of the QSA are the collective goals of its proponents –(IID, SDCWA, Coachella Valley Water District [CVWD], and the Metropolitan Water District of Southern California [MWD]):

- Settle, by consensus agreement, longstanding disputes regarding the quantity, priority, use, and transferability of Colorado River water.
- Agree on a plan for the future distribution of Colorado River water among IID, CVWD, MWD, and SDCWA for up to 75 years, based on Colorado River water budgets for IID, CVWD, MWD, and SDCWA.
- Facilitate agreements and actions which, when implemented, will enhance the certainty and reliability of Colorado River water supplies available to IID, CVWD, MWD, and SDCWA, and will assist these agencies in meeting their water demands within California's apportionment of Colorado River water.

- Identify agreed-on terms and conditions for the conservation and transfer of specific amounts of Colorado River water within California.
- Provide incentives to promote conservation of Colorado River water.

1.3.1.3 HCP

For IID, the goal of the HCP is to minimize and mitigate the impacts of any take of covered species that might occur as a result of its implementation of the IID/SDCWA Transfer Agreement, the QSA, and continuation of its routine Operation and Maintenance (O&M) activities.

1.3.2 Reclamation's Purpose and Need

The Secretary exercises functions similar to a water master to fulfill the BCPA, adopted regulations, and the Decree. Reclamation delivers water to users in the Lower Basin states of Arizona, California, and Nevada, which have legal rights through entitlements to Colorado River water. Reclamation maintains that before water could be released from federal reservoirs, federal requirements of reasonable and beneficial use must be met. Reclamation is responsible for implementing these regulations. Reclamation is also responsible for accounting for its delivery and consumptive use of Colorado River water by each diverter and each state on an annual basis, as well as for approving annual water orders and administering the delivery of water from storage to each point of diversion. For Reclamation, the underlying purpose and need of the Proposed Project is to facilitate implementation of the IID/SDCWA Transfer Agreement and the QSA.

1.4 Screening Criteria

According to CEQA guidelines, an alternative can be eliminated if it fails to meet "most" of the Proposed Project objectives, if it does not avoid the significant impacts of the Proposed Project, or if it is "infeasible"--§ 15126.6(c).

Screening criteria have been developed to evaluate potential alternatives and eliminate those that do not qualify for detailed assessment as an alternative in the Draft EIR/EIS, in accordance with CEQA guidelines.

Project Objectives Criteria:

There are several very specific project objectives defined by the terms of both the IID/SDCWA Transfer Agreement and the QSA as enumerated above. The project objectives criteria below (C1 and C2) represent the most essential aspects of those objectives.

C1. Will the alternative provide SDCWA with a reliable source of water to assist in diversifying its water supply sources and meeting projected demands in average and dry years. A core objective of the Proposed Project is to reduce SDCWA's reliance on water from MWD, and to protect it from severe shortages during drought periods. *An alternative that does not aid in achieving that objective would be eliminated from further consideration.*

C2. Will the alternative implement a meaningful and substantial conservation program consistent with SWRCB directives without impairing IID's historic water rights. In both Decision 1600 (SWRCB 1984) and Order 88-20 (SWRCB 1988), SWRCB instructed IID to develop and implement a meaningful water conservation plan and noted that conservation in excess of 300,000 KAFY is a reasonable long-term goal of the plan. To pass this criterion, alternatives must provide a substantial conservation plan and preserve IID's historic water rights.

Reduction of Impact Criteria:

C3. Will the alternative reduce the environmental impacts of the Proposed Project?

The purpose of the alternatives analysis is to identify alternatives that minimize the impacts of the Proposed Project; therefore, when applying this criteria, the following should be considered:

1) Does the alternative reduce or avoid the potential significant impacts of the Proposed Project (water quality, biological, recreation and aesthetic impacts to the Salton Sea)? (If not, it can be ruled out), and (2) Does the alternative result in new, potentially significant impacts that were not associated with the Proposed Project (this is a factor in determining feasibility). Overall, an alternative should have "substantial environmental advantages."

Feasibility Criteria:

CEQA guidelines define feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors" (§ 15364).

Also, § 15126.6(f) states that the following factors might be taken into account when addressing the feasibility of alternatives: site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site.

C4. Is the alternative technically feasible and reliable? To pass this criterion, an alternative must utilize proven technology and be designed to ensure reliability of operation.

C5. Is the alternative institutionally and legally feasible? To pass this criterion, an alternative must not face major obstacles from governmental agencies to obtaining discretionary permits and approvals that are necessary to implement the alternative.

C6. Can the alternative be implemented within a timeframe that fulfills SDCWA reliability requirements? SDCWA currently needs to enhance its reliability to protect its customers from drought; therefore, an alternative that could take up to 10 years to develop and construct would not meet this criteria. Additionally, timing is a critical element of the SDCWA/IID Water Transfer Agreement, the QSA and the California 4.4 Plan.

Other Criteria

C7: Does the alternative meet the transfer objectives of the QSA? To meet this criterion, an alternative must include transfer of up to 100KAF to CVWD and/or MWD.

1.5 Alternative Analysis Results

Fourteen alternatives (including sub-alternatives) were initially identified for evaluation. Screening criteria were then applied to those 14 alternatives. The performance of each of these alternatives, evaluated against the screening criteria, is documented in this alternatives report. Of the 14 alternatives, 5, including the Proposed Project and the No Project alternative, are recommended for further evaluation in the Draft EIR/EIS, based on the screening analysis.

Table D-1: Alternative Analysis Summary shows how each alternative performed against each of the screening criteria. The table indicates which alternatives would be carried forward for analysis in the Draft EIR/EIS, and which have been eliminated from further consideration. The table also summarizes the rationale for inclusion or exclusion of each of the considered alternatives. Table D-2: Alternatives Summary provides a summary of relevant available information for each alternative.

TABLE D-1
Alternative Analysis Summary

Type of Criteria	Screening Criteria								Rationale for Evaluation in EIR/EIS
	Project Objectives		Reduce Impacts	Feasibility			Project Specific		
	C1: Provide SDCWA with reliable source	C2: Support cons. and protect IID's water rights	C3 : Minimize Env. Impacts compared to the Proposed Project	C4: Technically Feasible and Reliable	C5: Institutionally and Politically feasible	C6: Implementable within reasonable schedule	C7: Meets QSA transfer objectives	Evaluate in EIR/EIS?	
Alternative									
Proposed Project	Pass	Pass	N/A1	Pass	Pass	Pass	Pass	Yes	N/A – This is the Proposed Project and impacts of alternatives will be compared to impacts of the Proposed Project.
1. No Project	Required for Evaluation by CEQA and NEPA							Yes	Required by CEQA and NEPA
2. 130 KAFY Water Conservation and Transfer (Meet Minimum of IID/SDCWA Transfer Agreement Only)	Pass	Pass	Pass	Pass	Maybe	Pass	Fail	Yes	Meets primary objectives and potentially reduces impacts when compared to the Proposed Project - reduced conservation and transfer reduces impacts to Salton Sea and LCR.
3. 230 KAFY Water Conservation and Transfer (Meet Minimum of QSA and IID/SDCWA Transfer Agreement)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Yes	See rationale for Alternative 2 above.
4. 300 KAFY Water Conservation and Transfer (Meet Minimum of QSA and IID/SDCWA Transfer Agreement) - Following Only	Pass	Maybe	Pass	Pass	Maybe	Pass	Pass	Yes	Meets primary objectives and potentially reduces impacts when compared to the Proposed Project - following reduces impacts to the Salton Sea.
5. Water Treatment and Reuse	Pass	Pass	Fail	Fail	Maybe	Unknown	Pass	No	Does not reduce impacts compared to the proposed project, may include additional impacts associated with construction of facilities and disposal of treatment byproducts.
6. Alternative Conveyances									
6a. Connect Coachella Canal to CRA	Pass	Pass	Fail	Pass	Maybe	ST-F; LT - P2	Pass	No	Reduces impacts to LCR because does not require change in diversion point on LCR, however impacts to LCR with Proposed Project can be fully mitigated. Significant construction and potentially operation impacts associated with constructing 10 miles of conveyance facilities for this alternative prevent this alternative from reducing impacts compared with the Proposed Project, which does not require construction of facilities other than for conservation measures.
6b. Extend the AAC to SDCWA system	Pass	Pass	Fail	Pass	Pass	ST-N LT-Y	Pass	No	Reduces impacts to LCR because does not require change in diversion point on LCR for 200 or 250 out of 300K (transfers to MWD would be diverted at Parker, however impacts to LCR with Proposed Project can be fully mitigated. Significant construction and potentially operation impacts associated with constructing 150 miles of conveyance facilities for this alternative prevent this alternative from reducing impacts compared with the Proposed Project, which does not require construction of facilities other than for conservation measures.
6c. New conveyance from LCR to SDCWA in Mexico	Pass	Pass	Fail	Pass	Maybe	ST-F LT-P	Pass	No	Reduces impacts to LCR because does not require change in diversion point on LCR for 200 or 250 out of 300K (transfers to MWD would be diverted at Parker, however impacts to LCR with Proposed Project can be fully mitigated. Significant construction

TABLE D-1
Alternative Analysis Summary

Type of Criteria	Screening Criteria								Rationale for Evaluation in EIR/EIS
	Project Objectives		Reduce Impacts	Feasibility			Project Specific		
	C1: Provide SDCWA with reliable source	C2: Support cons. and protect IID's water rights	C3 : Minimize Env. Impacts compared to the Proposed Project	C4: Technically Feasible and Reliable	C5: Institutionally and Politically feasible	C6: Implementable within reasonable schedule	C7: Meets QSA transfer objectives	Evaluate in EIR/EIS?	
6d. Expand capacity of the CRA	Pass	Pass	Fail	Unknown	Unknown	Fail	Pass	No	and potentially operation impacts associated with constructing 150 miles of conveyance facilities for this alternative prevent this alternative from reducing impacts compared with the Proposed Project, which does not require construction of facilities other than for conservation measures.
6e. Construct a New Aqueduct Parallel to the CRA	Pass	Pass	Fail	Pass	Pass	ST-F LT-P	Pass	No	Does not reduce impacts compared to the Proposed Project, since diversion would also be at Parker Dam. In addition this alternative has significant additional impacts associated with >100 miles of construction required to expand existing CRA. Additionally this alternative may not be politically feasible.
7. Other Conservation/Transfer	Fail	Fail	Unknown	N/A	Fail	Unknown	Unknown	No	Cannot guarantee reliable supply, particularly during drought periods when it is most needed and could compromise IID's water rights because it does not implement a water conservation program in IID as required by the SWRCB. Also, may not reduce impacts when compared to the Proposed Project, depending on origin of water and method of conveyance.
8. Maximize Local Supplies in SDCWA-Desalination	Maybe	Fail	Unknown	Pass	Unknown	ST-F LT-P	Fail	No	Impacts, such as energy use, disposal of byproducts, encroachment onto sensitive marine habitats, associated with development of this alternative may be greater than the Proposed Project. Also the project may not be economically feasible.
9. CVP and SWP Supplies	Fail	Fail	Unknown	Unknown	Pass	Pass	Fail	No	Cannot guarantee reliable supply, particularly during drought periods when it is most needed and could compromise IID's water rights because it does not implement a water conservation program in IID as required by the SWRCB. Also, may not reduce impacts when compared to the Proposed Project, depending on origin of water to be purchased and method of conveyance.
10. Water Banking	Unknown	Fail	Pass	Pass	Pass	Pass	Fail	No	Cannot guarantee reliable supply, particularly during drought periods when it is most needed and could compromise IID's water rights because it does not implement a water conservation program in IID as required by the SWRCB. Also, may not reduce impacts when compared to the Proposed Project, depending on origin of water banked and methods of conveyance.

Notes:

¹ F6 is not rated for this alternative because this criteria is intended to identify alternatives which have the potential to minimize environmental impacts when compared to the proposed project.

² ST-F LT-P means that the project does not meet the criteria in the Short Term but does in the Long Term.

TABLE D-2
Alternatives Summary

	Water Conserved by IID	Point of Diversion on LCR	Salton Sea Elevation (2077)¹	Salton Sea Salinity (2077)	Construction Required
Proposed Project: All Conservation Measures	Up to 300 KAFY	Parker Dam (for transfers to SDCWA or MWD) Imperial Dam (for transfers to CVWD)	-246 feet msl	138 g/l	As needed to install conservation measures
1. No Project	None	Imperial Dam	-235 feet msl	85 g/l	None
2. 130 KAFY Water Conservation and Transfer (On-farm Irrigation System Improvements Only)	Up to 130 KAFY	Parker Dam	-238 feet msl	98 g/l	As needed to install conservation measures
3. 230 KAFY Water Conservation and Transfer (Any combination of conservation measures)	Up to 230 KAFY	Parker Dam (for transfers to SDCWA or MWD) Imperial Dam (for transfers to CVWD)	-243 feet msl	121 g/l	As needed to install conservation measures
4. 300 KAFY Water Conservation and Transfer - Fallowing Only	Up to 300 KAFY	Parker Dam (for transfers to SDCWA or MWD) Imperial Dam (for transfers to CVWD)	-236 feet msl	89 g/l	None
5. Water Treatment and Reuse	Up to 300 KAFY	Parker Dam (for transfers to SDCWA or MWD) Imperial Dam (for transfers to CVWD)	No modeling available, however impacts to the Salton Sea would be much greater since 2x the drainage is required to create the same amount of conservation as the Proposed Project.	TBD	60 acres
6. Alternative Conveyances					
6a. Connect Coachella Canal to CRA	Up to 300 KAFY	Imperial Dam	-246 feet msl	138 g/l	Approximately 10 miles
6b. Extend the AAC to SDCWA	Up to 300	Up to 200 KAFY at Imperial Dam; up	-246 feet msl	138 g/l	Approximately 150

TABLE D-2
Alternatives Summary

	Water Conserved by IID	Point of Diversion on LCR	Salton Sea Elevation (2077)¹	Salton Sea Salinity (2077)	Construction Required
system	KAFY	to 100 KAFY at Parker Dam (to MWD)			miles
6c. New conveyance from LCR to SDCWA in Mexico	Up to 300 KAFY	Up to 200 KAFY at Imperial Dam; up to 100 KAFY at Parker Dam (to MWD)	-246 feet msl	138 g/l	Approximately 100 miles
6d. Expand capacity of the CRA	Up to 300 KAFY	Parker Dam (for transfers to SDCWA or MWD) Imperial Dam (for transfers to CVWD)	-246 feet msl	138 g/l	Approximately 240 miles
6e. Construct a New Aqueduct Parallel to the CRA	Up to 300 KAFY	Parker Dam (for transfers to SDCWA or MWD) Imperial Dam (for transfers to CVWD)	-246 feet msl	138 g/l	Approximately 240 miles x140 ft. width
7. Other Conservation/Transfer	None – water conserved in other District	Unknown – Potentially upstream of Parker Dam?	-235 feet msl	85 g/l	Depends on availability of existing conveyance
8. Maximize Local Supplies in SDCWA-Desalination	None	N/A	-235 feet msl	85 g/l	Depends on facilities
9. CVP and SWP Supplies	None	N/A	-235 feet msl	85 g/l	None
10. Water Banking					

Note: ¹ Based on Salton Sea Model developed by Reclamation (Reclamation 2001). Values shown assume highest level of conservation achieved for each alternative.

2. Screening Criteria Analysis

This section includes a summary description of the Proposed Project and potential project alternatives, and an explanation of how each measures up against the screening criteria. Additionally, for each alternative, a conclusion is drawn regarding whether or not the alternative would be carried forward for additional analysis in the Draft EIR/EIS, or eliminated from further consideration.

Proposed Project – 300 KAFY Water Conservation and Transfer Meets Maximum Transfer Amounts under IID-SDCWA Transfer Agreement and QSA).

The Proposed Project includes the implementation of the water conservation and transfer project described in the IID/SDCWA Transfer Agreement. If the QSA is finalized and implemented, the Proposed Project would also include the modified IID/SDCWA transfer, and the additional water transfer to CVWD and/or MWD described in the QSA.

The IID/SDCWA Transfer Agreement is a long-term transaction between IID and SDCWA involving the conservation by IID of a primary amount between 130 KAFY and 200 KAFY, and the subsequent transfer of all or a portion of the conserved water to SDCWA. The IID/SDCWA Transfer Agreement also provides for the transfer of an additional "discretionary amount" of up to 100 KAFY. The conserved water would consist of Colorado River water that otherwise would be diverted by IID for use within IID's water service area in Imperial County, California. The water is intended for use within SDCWA's service area in San Diego County, California. Water would be diverted from the Lower Colorado River (LCR) at Parker Dam and conveyed via the Colorado River Aqueduct (CRA) to the SDCWA service area, pursuant to an exchange agreement between SDCWA and MWD. Following by individual landowners and farmers is not permitted under the terms of the IID/SDCWA Water Transfer Agreement for the conservation of the first 200 KAFY.

Under the terms of the QSA, SDCWA would be limited to the primary amount of conserved water (130-200 KAFY). An additional amount of 100 KAFY would be transferred to either the Coachella Valley Water District (CVWD) or the Metropolitan Water District (MWD). Following is not prohibited by the QSA.

For the purposes of the environmental assessment of the Proposed Project, it is assumed that water conservation would occur through the implementation of a broad range of conservation measures, which may vary from year to year, or even from season to season, depending on farmer participation, weather and other physical conditions, agricultural market conditions, and other variable factors. The conservation measures might include the following:

- On-farm irrigation system improvements, including on-farm irrigation management techniques
- Water delivery system improvements
- Water treatment and reuse measures
- Fallowing

Details of various conservation measures are included in Chapter 2 Project Description of the IID Water Conservation and Transfer EIR/EIS.

Water conservation within the IID water service area would result in a decrease in the amount of agricultural drainage reaching the Salton Sea, which would affect salinity levels and Sea elevations.

Proposed Project Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce environmental impacts	N/A*
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Unknown
C6: Implementable within reasonable time period	Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: This alternative is the Proposed Project, and it meets the Proposed Project objectives. It is designed to provide SDCWA with an alternative and reliable water source. It uses proven conservation technologies. The Proposed Project does not appear to pose any insurmountable permitting issues. Because it does not require any large-scale construction prior to implementation, the Proposed Project would be implementable within a reasonable time period. C2 is given a rating of Pass with the assumption that fallowing will not implement fallowing if there is any uncertainty that fallowing would be considered a reasonable and beneficial use of IID's water rights. Also, the IID/SDCWA Transfer Agreement prohibits the use of fallowing as a conservation measure under IID's contracts with participating landowners. Unless this is changed, the amount of conserved water that landowners could generate by fallowing would be limited by contractual restrictions.

*C3 is not rated for the Proposed Project because this criterion is intended to identify alternatives that could minimize environmental impacts when compared to the Proposed Project.

CONCLUSION: This alternative will be assessed in the Draft EIR/EIS as the Proposed Project.

Alternative 1: No Project (As Required by CEQA and NEPA)

The No Project alternative is the scenario under which the Proposed Project is not constructed, permitted, or implemented. The No Project alternative is not the environmental status quo. Rather, it is defined as “existing environmental conditions” as well as what would reasonably be expected to occur in the foreseeable future if the Proposed Project were not approved, based on current plans and consistent with available infrastructure (CEQA Guidelines, §15126.6[e][2]). Under the No Project alternative, the IID/SDCWA Transfer Agreement would not be implemented, the QSA would not be finalized and implemented, and the HCP would not be finalized and implemented.

The No Project Alternative is not evaluated in this analysis because it is required by CEQA and NEPA and will be carried forward into the Draft EIR/EIS.

Alternative 2: 130 KAFY Water Conservation and Transfer (Meets Minimum Requirements of IID-SDCWA Water Transfer Agreement Only)

This alternative is a scaled back version of the Proposed Project and includes only the minimum amount of water transfer allowable under the terms of the IID-SDCWA Transfer Agreement (130 KAFY). This alternative would not implement the QSA provisions for transfer of up to 100 KAFY to CVWD and/or MWD. The 130 KAFY would be conserved using on-farm irrigation system improvements only. Other terms would be the same as for the transfer to SDCWA under the Proposed Project.

Alternative 2 Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Maybe
C3: Reduce environmental impacts	Pass
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Maybe
C6: Implementable within reasonable time period	Pass
C7: Meets QSA transfer objectives	Fail

EXPLANATION: This alternative meets most of the Proposed Project objectives, albeit to a lesser extent than the Proposed Project. It does provide SDCWA with an alternative and reliable water source; however, the water source would be a smaller supply than the Proposed Project. This alternative uses proven conservation technologies and is cost effective. It does not appear to pose any insurmountable permitting issues; however, because this alternative only includes transfer of 130 KAFY, CVWD and MWD could raise objections because they would not receive water from this reduced level of transfer (compared to the Proposed Project, from which they would receive up to 100KAF) and, as a result, it may impede implementation of the QSA. Because this alternative does not require any large-scale construction prior to implementation, it could be implemented within a reasonable time period. C2 and C5 are given a rating of Maybe because failure to implement the QSA means that longstanding disputes among IID, CVWD, and MWD regarding the allocation of Colorado River water will not be resolved. This alternative fails C7.

Because this alternative results in a significantly smaller reduction in drainage to the Salton Sea, it has the potential to substantially reduce the significant environmental impacts associated with increased salinity when compared to the Proposed Project.

CONCLUSION: This alternative will be carried forward for evaluation in the Draft EIR/EIS.

Alternative 3: 230 KAFY Water Conservation and Transfer – All Conservation Measures (Meets Minimum Transfer Amounts under IID-SDCWA Transfer Agreement and QSA)

This alternative is similar to Alternative 1, the Proposed Project, except that the minimum primary transfer amount is transferred to SDCWA under the IID/SDCWA Transfer Agreement (130 KAFY), and 100 KAFY is transferred to CVWD and/or MWD pursuant to the QSA. Thus, the total amount of water conserved and transferred is reduced to 230 KAFY rather than to 300 KAFY, as provided for under the Proposed Project. Conservation could be accomplished using any combination of conservation measures.

All other terms of the Proposed Project remain the same.

Alternative 3 Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Reduce environmental impacts	Pass
C3: Protect IID's water rights	Pass
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Pass
C6: Implementable within reasonable time period	Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: This alternative meets most of the Proposed Project objectives. It would provide SDCWA with an alternative and reliable water source. It does not impair IID's water rights, it utilizes proven conservation technologies, and it is cost effective. This alternative does not appear to pose any insurmountable permitting issues. This alternative is implementable within a reasonable time period because it does not require any large-scale construction prior to implementation. Because this alternative results in a smaller reduction in drainage to the Salton Sea, it has the potential to reduce the significant environmental impacts associated with increased salinity and reduced elevation when compared to the Proposed Project.

CONCLUSION: This alternative will be carried forward for evaluation in the Draft EIR/EIS.

Alternative 4: 300 KAFY - Fallowing as Exclusive Conservation Method:

This alternative is similar to the Proposed Project, except that fallowing lands within the IID water service area is the exclusive means of conserving up to 300 KAFY for transfer.

For purposes of analyzing the impacts of fallowing, it is assumed that lands would be taken out of production, and that the total amount of water historically delivered to the fallowed land would be treated as conserved water. To conserve 300 KAFY by land retirement, about 50,000 acres would be required to be fallowed. (These predicted acreages were developed using the IID Conservation Model.) To predict the amount of land required for a target conservation quantity, the model randomly selected farm locations and sizes. The actual historical water usage of those parcels would be used to calculate the amount of conserved water that could be generated, and the total amount of fallowed land that would be required. Because participation by landowners in the fallowing program would be voluntary, actual acreage might vary depending on the actual historical water usage of the land fallowed. This alternative would assess implementation of fallowing in various ways, including short-term and long-term land retirement, and rotational fallowing.

Alternative 4 Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Maybe
C3: Reduce environmental impacts	Pass
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Maybe
C6: Implementable within reasonable time period	Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: The fallowing of lands to develop conserved water for transfer is a controversial issue within the Imperial Valley, and has been opposed by members of the community based on potential socio-economic impacts to third parties. The IID Board has adopted a policy that landowners participating in the conservation plan should not be compensated for fallowing as a means of conserving water for transfer. In addition, the IID/SDCWA Transfer Agreement currently prohibits fallowing as a means of conservation under IID's contracts with participating landowners for the first 200 KAFY. The QSA does not prohibit fallowing.

This alternative would commit IID to a single conservation method over the term of the Proposed Project. It does not provide flexibility to IID to vary the components of the conservation program. Also, it does not further IID's objective of using the conservation program to encourage and finance on-farm and system facilities and improvements, nor does

it respond directly to SWRCB directives. Therefore, this alternative receives a Maybe for C2.

As a condition to implementation of this alternative, IID may require assurances from state and federal regulators that use of water conserved by fallowing is a reasonable and beneficial use in compliance with IID's water rights. Nevertheless, this alternative may provide a means for meeting some of the basic Proposed Project objectives, and for potentially reducing the environmental impacts of the Proposed Project (because impacts to the Sea would be less, and because no construction is involved).

Modeling over the project period of 75 years shows that fallowing would substantially reduce environmental impacts compared to the Proposed Project. Alternative 4 would result in lower salinity (93 g/L compared to 144 g/L) and reduced elevation decline (-236 MSL compared to -246 MSL) because it would allow more drain water to continue to flow to the Salton Sea. Therefore, it receives a Pass for C3.

CONCLUSION: This alternative will be carried forward for further analysis in the Draft EIR/EIS.

Alternative 5: Treatment/Reuse

Treatment/Reuse technology conserves water by collecting agricultural drainage, treating it, and reusing it for irrigation.

Each year an estimated 1,000,000 AF of water flows from the IID drainage system into the Salton Sea. This drainage water comprises canal operational discharge, tile and tailwater from farms, subsurface seepage, stormwater, municipal and industrial effluent, and other miscellaneous drainages. This alternative would reclaim drainage water to produce irrigation-quality water while meeting all applicable discharge and waste disposal requirements.

To achieve a capacity of up to 300KAF (to fulfill the requirements of the IID/SDCWA transfer agreement and the QSA), the alternative could either construct a small number of centrally located, large-scale plants or several decentralized smaller capacity water reclamation plants, to collect and treat drain water. Most likely, an initial project phase to demonstrate feasibility would treat 100 KAFY, producing 50 KAFY of water to be reused for irrigation. At full-scale, as much as 5-600KAF would be required for processing to produce 300 KAFY of reclaimed water for reuse in IID, and thus conserved in IID.

Treatment would require silt removal, salt removal, and nitrate and selenium removal. The percentage of treated water that can be reclaimed for reuse is dependent on the quality of the source drainage water and the quality limitations imposed on the process effluent stream. At present, it is estimated that two-thirds to one-half of the processed volume can be reclaimed based on the anticipated water quality.

Disposal of waste streams from the treatment process is a potential obstacle to implementation of this alternative. Anticipated waste streams from the treatment process and potential disposal options are shown below:

Waste Product Quantities and Disposal Options		
Waste Product	Estimated Quantity	Anticipated Disposal Method
Sediment	1,000 lbs per AF of processed water	Make available as fill dirt for agricultural and road construction projects
Fluidized bed sludge	5-40 lbs biological floc per AF of processed water	Landfill disposal or application as fertilizer
Selenium adsorption media	Quantity unknown	Media recycled for base material recovery
Wastewater effluent stream	25-50% of processed water	Return to drainage system under permit requirements to be established by the RWQCB

Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce environmental impacts	Fail
C4: Technically feasible and reliable	Fail
C5: Institutionally and politically feasible	M– Depends on ability to meet permitting requirements.
C6: Implementable within reasonable time period	Unknown
C7: Meets QSA transfer objectives	Pass

EXPLANATION: This alternative might provide SDCWA with an alternate and reliable water source, and would protect IID's water rights. However, this alternative would not reduce environmental impacts to the Salton Sea when compared to the Proposed Project; therefore, and fails C3. In addition to an increased reduction in flows to the sea, this alternative would also have impacts associated with the construction of treatment plants and disposal of treatment byproducts. The technology proposed with this alternative is proven; however, because the large-scale quantities of water proposed to be reclaimed in a series of plants is unprecedented, and disposal issues are unresolved, this alternative fails C4.

Similarly, it is unknown how long it may take to site, design, permit, and construct 10 water reclamation treatment plants. Therefore, it is unknown if this alternative could meet C6.

CONCLUSION: This alternative has been eliminated from further consideration.

Alternative 6: Alternative Conveyances:

This series of five sub-alternatives (6a-6e) considers alternative conveyances for transferring water from the Lower Colorado River to the SDCWA service area. Alternative 1, the Proposed Project, includes conveying water to SDCWA via MWD's Colorado River Aqueduct (CRA) and an exchange agreement between SDCWA and MWD. For the purposes of this analysis, it is assumed that the transfer quantities and conservation measures would be the same as for the Proposed Project; only the conveyance would differ (i.e., up to 300 KAF would be transferred, as described in the terms of the IID/SDCWA Transfer Agreement and in the QSA).

6a. Connect Coachella Canal to the CRA: This alternative would connect the Coachella Canal to the CRA by adding a new pipeline and associated facilities between these two canals west of the city of Coachella. This option would retain the current diversion point on the Lower Colorado River at Imperial Dam, and water would be conveyed via the AAC and the Coachella Canal to the CRA (for use in the MWD, CVWD or SDCWA service areas). (The Proposed Project requires a change in the diversion point from Imperial Dam to Parker Dam for conserved water transferred to SDCWA or MWD.)

Alternative 6a Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce Environmental Impacts	Fail
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Maybe
C6: Implementable within reasonable time period	Short-Term – Fail Long-Term - Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: This alternative might reduce potential environmental impacts on the Lower Colorado River when compared to the Proposed Project because water would be diverted at Imperial Dam, downstream of Parker Dam. The diversion would avoid the impacts associated with the reduction of flows in the Lower Colorado River caused by the change in the diversion point required under the Proposed Project.

However, this alternative would result in new, potentially significant impacts associated with the construction of the new pipeline facilities. Without an investigation of the pipeline corridor, it is unknown if these impacts would be greater than the Proposed Project. However, construction of a 10-mile pipeline in an area known to contain habitat for the endangered and special-status species is likely to have significant impacts. Considering that the impacts to the LCR with the Proposed Project can be fully mitigated, it is likely that this

alternative would not substantially reduce environmental impacts when compared to the proposed project. Additionally, impacts to the Salton Sea would not be reduced with this alternative. Therefore, this alternative fails C3.

Although it would not be possible to construct the project in the short-term, it could be constructed and available for a significant portion of the 75-year life of the IID/SDCWA Transfer Agreement. Since IID and Reclamation do not own or control the site of the new facilities, this alternative may be legally or technically difficult to implement.

CONCLUSION: Because this alternative would not reduce impacts when compared to the Proposed Project, this alternative has been eliminated from further consideration.

Alternative 6b. Extend the AAC to SDCWA System:

This alternative would connect the All American Canal (AAC) to the SDCWA system via a new pipeline between the western end of the AAC and the San Vicente Reservoir within Imperial and San Diego Counties. Like Alternative 6a, this alternative would retain the current diversion point, at Imperial Dam, on the Colorado River for water transferred to San Diego, and would avoid the environmental impacts of the change in the diversion point required under the Proposed Project. However, water transferred to MWD under the terms of the QSA would require a change in the point of diversion to convey water via the CRA to the MWD service area. This alternative may also require a canal parallel to the AAC, from the eastern portion of the extension, east to Imperial Dam because the AAC may not have sufficient capacity to carry the transfer water.

This alternative would require pump stations to deliver water from the LCR to the SDCWA service area with significant energy requirements.

This alternative is currently undergoing feasibility evaluation by SDCWA as a separate project in the Regional Water Facilities Master Plan scheduled for completion in April 2002.

Alternative 6b Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce environmental impacts	Fail
C4: Technically feasible and reliable	Maybe
C5: Institutionally and politically feasible	Pass
C6: Implementable within reasonable time period	Short Term – Fail Long Term - Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: The environmental impacts of 150 miles of construction are likely to be significantly greater than the LCR impacts of the Proposed Project, which would be reduced by this alternative (but not eliminated; up to 100 KAF would be diverted at Parker for MWD, as per QSA conditions). Depending on the final route selection, the construction corridor would likely intersect habitat for endangered species along the border, particularly bighorn sheep, and compliance with the ESA would be required. Additionally, lining of the AAC, which might be required for this alternative, would potentially impact groundwater, particularly under federal lands. Also, pump stations would be required to deliver water from the LCR to SDCWA via this new conveyance, resulting in additional environmental impacts related to energy generation and consumption.

The impacts to the Salton Sea would not be reduced with this alternative, but would remain the same as the Proposed Project. Because impacts to the LCR can be mitigated with the Proposed Project, and because the impacts of constructing 150 miles of pipeline are likely to be significant, this alternative fails C3 for not reducing the impacts of the Proposed Project.

This alternative is currently undergoing feasibility evaluation by SDCWA as a separate project in the Regional Water Facilities Master Plan scheduled for completion in April 2002.

CONCLUSION: Because this alternative does not reduce environmental impacts when compared to the Proposed Project, it has been eliminated from further consideration.

Alternative 6c. New conveyance from LCR to SDCWA in Mexico:

This alternative assumes that water conserved by IID would be transferred to SDCWA via a new conveyance that would be constructed in Mexico. The Regional Colorado River Conveyance Feasibility Study, a privately funded project, is currently evaluating several conveyance alignments wholly in the US, wholly in Mexico, and combinations of these alignments, to distribute water to both countries. Three alignments have been identified in Mexico.

Several obstacles to the construction of a conveyance in Mexico that would transfer water from the LCR to SDCWA have been identified. These obstacles include costs, endangered species impacts, and international legal issues. Conceptual design, geology explorations, and cost estimates for the Mexican alignments are expected in early 2002.

Alternative 6c Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce environmental impacts	Fail
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Maybe
C6: Implementable within reasonable time period	Short Term- Fail Long Term- Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: The environmental impacts of more than 100 miles of construction are likely to be significantly greater than the LCR impacts of the Proposed Project, which would be reduced (but not eliminated, because water delivered to MWD would be diverted at Parker Dam) by this alternative. Depending on the final route selection, it is likely that the construction corridor would intersect habitat for endangered species, particularly bighorn sheep along the border. Also, a pump station would be required to deliver water from the LCR to SDCWA via this new conveyance, resulting in additional environmental impacts related to energy generation and consumption.

The impacts to the Salton Sea would not be reduced with this alternative, but would remain the same as the Proposed Project. Because impacts to the LCR can be mitigated with the Proposed Project, and because the impacts of constructing 150 miles of pipeline are likely to be significant, this alternative fails C3 for not reducing the impacts of the Proposed Project.

This alternative is currently undergoing feasibility evaluation by SDCWA as a separate project in the Regional Water Facilities Master Plan scheduled for completion in April 2002.

CONCLUSION: Because this alternative does not reduce environmental impacts when compared to the Proposed Project, it has been eliminated from further consideration.

Alternative 6d. Expand capacity of the CRA:

SDCWA conducted an engineering study in 1996 to evaluate conveyance options to transfer water from IID to the SDCWA service area (Black & Veatch 1996). That report included an option of expanding the capacity of the Colorado River aqueduct by 200 KAFY.

Alternative 6d Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce environmental impacts	Fail
C4: Technically feasible and reliable	Unknown
C5: Institutionally and politically feasible	Unknown
C6: Implementable within reasonable time period	Fail
C7: Meets QSA transfer objectives	Pass

EXPLANATION: This alternative would not reduce any environmental impacts associated with the Proposed Project because it would also require a change in the diversion point from Imperial Dam to Parker Dam, and it would introduce new, potentially significant impacts associated with the construction required to expand the CRA.

It is not known if it would be feasible to expand the CRA, or if that proposal would be institutionally acceptable to MWD, the owner of the CRA. The cost of this alternative was reported to be more than the cost of constructing an entirely new conveyance from Parker Dam to the SDCWA service area (SDCWA 2001).

CONCLUSION: Because this alternative does not reduce impacts when compared to the Proposed Project, this alternative has been eliminated from further consideration

Alternative 6e. Construct a new aqueduct parallel to the CRA:

The same engineering report described in the discussion of Alternative 6d (Black & Veatch 1996), included an option of building a new pipeline parallel to the existing CRA.

Alternative 6e Screening Criteria	
C1: Provide SDCWA with reliable source	Pass
C2: Protect IID's water rights	Pass
C3: Reduce environmental impacts	Fail
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Pass
C6: Implementable within reasonable time period	Short-Term – Fail Long-Term – Pass
C7: Meets QSA transfer objectives	Pass

EXPLANATION: This alternative would not reduce any environmental impacts associated with the Proposed Project because it would also require a change in the diversion point, from Imperial Dam to Parker Dam. In addition, it would introduce new, potentially significant impacts associated with the construction required to construct a new pipeline parallel CRA. The pipeline would also have operational impacts if the pipeline required any aboveground facilities that would prevent migration of wildlife.

CONCLUSION: Because this alternative does not reduce impacts when compared to the Proposed Project, this alternative has been eliminated from further consideration

Alternative 7 – Alternative Transfers:

This alternative considers the possibility of agricultural water districts, other than IID, conserving and transferring water to SDCWA.

Opportunities may exist to transfer Colorado River water to SDCWA, CVWD, and/or MWD from other agricultural water districts with Colorado River water entitlements in the Upper Basin states. Transferring water from Upper Basin states may be less reliable than water from IID, depending on each state's laws regarding required approvals for out-of-state transfers. In-state users may have priority for "surplus" water supplies.

Transferring water from districts other than IID would avoid the impacts to the Salton Sea resulting from conservation within the IID service area, and would avoid any other impacts resulting from conservation activities within IID.

There is also the possibility of a water transfer from the Palo Verde Irrigation District, in which PVID would fallow its land and the conserved water would be diverted to the CRA. (This transfer alternative is included in the No Project Alternative 1b of the QSA PEIR).

Alternative 7 Screening Criteria	
C1: Provide SDCWA with reliable source	Fail
C2: Protect IID's water rights	Fail
C3: Reduce environmental impacts	Unknown
C4: Technically feasible and reliable	N/A
C5: Institutional and politically feasible	Fail
C6: Implementable within reasonable time periods	Unknown
C7: Meet QSA transfer objectives	Unknown

EXPLANATION: This alternative might not provide SDCWA with a reliable supply of water because users within the Upper Basin states would likely be unable to transfer water out of state without first making it available to other in-state users. For this reason, this alternative fails C1. This alternative could adversely impact IID's water rights, because it would not serve IID's objective to develop an on-farm and system conservation program to increase irrigation efficiency, and does not implement SWRCB directives to IID, thereby increasing the potential for challenges to its water use, when compared to the Proposed Project.

Environmental impacts to the LCR could be more severe than for the Proposed Project because water could be diverted upstream of Parker Dam, depending on the conveyance

facilities used to deliver water. However, this alternative would eliminate impacts associated with conservation in the IID service area, including impacts to the Salton Sea. Because impacts to LCR have not been defined for this alternative, it receives an Unknown for C3.

Additionally, the economics of this alternative are unknown. Given the growing demand for water in the upper basin states, the institutional and political feasibility of transferring water out of that area into California is uncertain.

CONCLUSION: Because this alternative fails to meet the project objectives and may not reduce environmental impacts when compared to the proposed project, it has been eliminated from further consideration.

Alternative 8. Maximize Local Supplies in SDCWA Service Areas and Develop 200 KAFY Desalination Facility:

Under this alternative, SDCWA would maximize the development of all potential local water supplies and develop 200 KAFY of seawater desalination capacity. No water would be transferred from IID. The increase in local water supplies would diversify SDCWA sources and increase their overall reliability. SDCWA's 2000 Urban Water Management Plan projects the local water supplies that would be developed and the amount of additional water that could potentially become available, as shown on the table below.

It is assumed that CVWD cannot increase its local groundwater supply because it is currently operating in overdraft conditions and is seeking to increase recharge to its aquifer, as described in the Coachella Valley Groundwater Management Plan EIR (CVWD 2000).

Potential Local Water Supply Sources	
Source	Potential 2020 Quantity (AFY)
Conservation	93,200
Surface water	85,600
Groundwater	59,500
Water recycling	53,400
Desalination	25,000
TOTAL	316,700
Source: SDCWA, Urban Water Management Plan, 2000	

Although SDCWA only projects 25,000 AFY of water from desalination in its Urban Water Management Plan, this alternative proposes 200 KAFY of desalination capacity. Desalination was selected as the only local water source that has significant potential to be expanded beyond what is already planned by SDCWA.

Currently, the largest membrane-based seawater desalination plant now under construction in the U.S. is in Tampa, Florida, where the Poseidon Resources Corporation and the Covanta Energy Corporation will be producing 25 million gallons (17,885 AFY) of water per day for about \$1.75 per thousand gallons, the lowest rate in the world. But the estuarine waters of Tampa Bay are far less salty than the ocean, cutting desalting costs.

In Trinidad, Ionics is building what will be the biggest ocean-desalination plant in the Western Hemisphere, with an output of 29 million gallons per day (32,120 AFY) at about \$2.50 per thousand gallons. IDE's plant in Cyprus provides 16 million gallons of drinkable

water a day for a similar price. But with improving technology and economies of scale, contractors for planned Israeli projects are expected to keep the cost close to \$2 per thousand gallons. (NY Times, June 2001).

For this alternative, it is assumed that either one or more desalination facilities would be constructed with a total capacity of 200,000 AFY in the SDCWA service area. Specific details about this conceptual alternative have not been developed. However, the two major obstacles for this alternative would be siting issues and the provision of an energy supply. Ideally, a desalination facility could be co-located with a power plant to obtain a reliable power supply and utilize existing power plant cooling water facilities for seawater intake and discharge of blended concentrate (brine). Securing a reliable and cost-effective energy supply for such a large capacity of desalination would be a determining factor in assessing the feasibility of this alternative.

Alternative 8 Screening Criteria	
C1: Provide SDCWA with reliable source	Maybe
C2: Protect IID's water rights	Fail
C3: Reduce environmental impacts	Unknown
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Unknown
C6: Implementable within reasonable time period	Short-Term – Fail Long-Term - Pass
C7: Meets QSA transfer objectives	Fail

EXPLANATION: This alternative might adversely impact IID's water rights because it would not serve IID's objective to develop an on-farm and system conservation program to increase irrigation efficiency. In addition, it would not implement SWRCB directives to IID, thereby increasing the potential for challenges to its water use when compared to the Proposed Project. Therefore, this alternative fails C2.

Additionally, the two biggest obstacles to implementation of this alternative are facility siting and securing an energy supply that can be guaranteed as economically feasible for the long-term. Siting constraints along the coast of California cannot be underestimated; the "Unknown" rating for C5 reflects the uncertainty of finding a suitable site and successfully gaining the required approvals. Similarly, without knowing where a plant may be located, the possibility of reducing environmental impacts when compared to the Proposed Project is Unknown (C3).

However, it is reasonable to assume that significant impacts would result from construction and operation of a large desalination facility that would require withdrawal of significant amount of water (potentially from an area of environmental sensitivity), disposal of brine concentrate, and generation and use of a significant amount of energy. Poseidon Resources

Corporation prepared a feasibility study in July 2001 to evaluate the potential of a seawater desalination project at the Encina Power Plant in the City of Carlsbad. The study showed that the potential costs for a 50 mgd (56,000 AFY) project were competitive with development of other local water supplies. This is currently considered the maximum amount potentially feasible at this site because it can be supported by the existing power plant and nearby water distribution facilities. Additional studies will need to be conducted to determine feasibility for amount beyond 50 mgd at this site. Another potential location for a seawater desalination facility is at the South Bay Power Plant, where additional studies are still required to determine feasibility for any desalination to occur. The South Bay site does not possess ready access to the ocean for concentrate (brine) discharge from the desalination process. Therefore, brine disposal is the primary constraint to developing a project at this location. The feasibility of seawater desalination in the required volumes remains extremely speculative. Because of these challenges, if implemented, this alternative would require several years before water would be available for consumers in the SDCWA service area. Therefore, it fails C6 for the short-term, but passes for the possibility of providing a supply for the long-term.

CONCLUSION: Because this alternative fails to meet the primary Proposed Project objectives of providing SDCWA with a reliable supply, and protecting IID's water rights, and because this alternative, depending on site location, might not reduce environmental impacts when compared to the Proposed Project, it has been eliminated from further consideration.

Alternative 9 - CVP and SWP Supplies:

This alternative considers other potential supplies within California that could be purchased and delivered to SDCWA. The two main sources of additional supplies in California include the transfers from the State Water Project's Water Bank, and transfers from the Central Valley Project.

SWP Water Bank: The state water project may have capacity that could be used for wheeling supplies transferred from Northern or Central California. The State Water Bank already exists to facilitate water transfers from willing sellers to water-short districts. Created in 1991 as a drought emergency measure, the Department of Water Resources (DWR) created the bank, purchased water from sellers for \$125/AF, and sold the water for \$175/AF. SDCWA purchased 21,600 AF in 1991. The bank has recently facilitated transfers ranging from 10,000 AF to 127,000 AF.

CVP Transfers: Transfers among CVP contractors or users have been ongoing informally for several years. Between 1981 and 1989, more than 1,200 such transfers were made to meet agricultural needs. Because these transfers do not require a change in Reclamation's water rights permits or the CVP, they are not subject to SWRCB jurisdiction.

In addition to transfers between individual contractors, two groups of contractors have set up permanent transfer pooling systems. The pools establish banks where participants can deposit water when they have excess, and can withdraw water when they need it.

Passage of the Central Valley Project Improvement Act (CVPIA) has provided the opportunity for CVP water to be considered a major potential resource for Southern California. The CVPIA allows not only districts, but individual farmers to transfer water. Districts only have veto rights if the transfer is more than 20 percent of their contracted CVP supply. These requirements have simplified the transfer of CVP water to other areas of the state.

The major obstacle to securing these supplies is that the water would require use of MWD conveyance facilities to reach SDCWA, and these facilities do not have enough capacity under existing operations, and might not be available to wheel additional supplies to SDCWA.

Alternative 9 Screening Criteria	
C1: Provide SDCWA with reliable source	Fail
C2: Protect IID's water rights	Fail
C3: Reduce environmental impacts	Unknown
C4: Technically feasible and reliable	Unknown
C5: Institutionally and politically feasible	Pass
C6: Implementable within reasonable time period	Pass

C7: Meets QSA transfer objectives	Fail
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EXPLANATION: Water transfers from other sources in California to SDCWA might supplement their existing supply; however, it is unlikely that they could provide SDCWA with a reliable source in the event of a drought period. – Therefore, C1 is rated Fail.

This alternative may adversely impact IID's water rights because it would not serve IID's objective to develop an on-farm and system conservation program to increase irrigation efficiency, and it would not implement SWRCB directives, thereby allowing the potential for challenges to its water use. Therefore, this alternative fails C2. Without specific transfer terms, it is speculative to state whether this alternative could minimize environmental impacts when compared to the Proposed Project.

Additionally, due to conveyance capacity constraints, C4 is rated Unknown. This alternative would not meet the QSA transfer objectives.

CONCLUSION: Because this alternative does not meet the Proposed Project objectives to supply SDCWA with a reliable alternative water supply and protect IID's water rights, it has been eliminated from further consideration. Additionally, it is uncertain if this project could reduce environmental impacts when compared to the Proposed Project. However, it should be noted that SDCWA might pursue some transfers from these sources as a supplement to its overall supply.

Alternative 10: Water Banking

This alternative is modeled after the water banking concept currently under development between the Central Arizona Project and the Southern Nevada Water Authority (SNWA). The Arizona Water Banking Agreement will allow Nevada and other states to store unused and surplus Colorado River water in Arizona's groundwater aquifer for future use.

Nevada will pay to have any unused portion of Colorado River water diverted to Arizona, which will store the water in an underground aquifer. When Nevada needs the water—for example, 10,000 AF—it will use its "credits" from the groundwater bank and pump an additional 10,000 AF from the Colorado River. Arizona will then use the 10,000 AF of stored groundwater that had been deposited, and pump less from the Colorado River.

The Arizona Water Banking Agreement allows Nevada to store as much as 1.2 MAF of water in Arizona—about four years' worth of its annual allocation. Nevada plans to participate in the banking process over the next 15 years, and to use the supply when needed, probably after 2015.

Arizona created the Arizona Groundwater Banking Authority in 1996 after initial discussions of the concept. In creating the Banking Authority the state legislation also allowed the creation of an interstate bank to give Nevada and California the opportunity to bank water in Arizona.

In November 1999, Reclamation released regulations governing interstate water banking. These regulations create a framework under which contracts among appropriate parties may be negotiated. (Source: www.snwa.com)

In this alternative, a similar water banking concept would be developed and implemented. SDWCA would pay to have surplus water, if available from the LCR, banked in the depleted aquifer of CVWD. When water is needed, SDCWA would then pay CVWD to use groundwater in exchange for CVWD's LCR water supply. SDCWA would divert CVWD's LCR supply at Parker Dam.

Alternative 10 Screening Criteria	
C1: Provide SDCWA with reliable source	Unknown
C2: Protect IID's water rights	Fail
C3: Reduce environmental impacts	Pass
C4: Technically feasible and reliable	Pass
C5: Institutionally and politically feasible	Pass
C6: Implementable within reasonable time period	Pass
C7: Meets QSA transfer objectives	Fail

EXPLANATION: It is unlikely, or at least unknown, if this alternative could provide SDCWA with a reliable water source because the quantity of surplus water available for banking in CVWD aquifers is unknown. The available amount of water would fluctuate yearly based on supply and demand of other higher priority water users. Further analysis is necessary to evaluate whether this alternative could provide SDCWA with a reliable source and become a viable project.

Additionally, this alternative might adversely impact IID's water rights because it would not serve IID's objective to develop an on-farm and system conservation program to increase irrigation efficiency. Also it would not implement SWRCB directives to IID, thereby increasing the potential for challenges to its water use, when compared to the Proposed Project. Therefore, this alternative fails C2.

This alternative does have the potential to reduce impacts when compared to the Proposed Project. It would reduce impacts to the Salton Sea, and it could improve groundwater conditions in CVWD.

CONCLUSION: Because this alternative would not meet the primary project objectives of providing SDCWA with a reliable water supply and protecting IID's water rights, it has been eliminated from further consideration.