

DRAFT ENVIRONMENTAL IMPACT STATEMENT
PAJARO VALLEY WATER MANAGEMENT AGENCY – REVISED BMP PROJECT

Lead Agency: U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region,
Fresno, California

This Environmental Impact Statement (EIS) has been prepared in compliance with the National Environmental Policy Act (NEPA) and U.S. Bureau of Reclamation (Reclamation) procedures.

In the coastal areas and throughout much of the groundwater basin of the Pajaro Valley, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater from the Pacific Ocean to move inland, where it mixes with fresh water. Seawater intrusion, documented since the 1950's, increasingly is degrading water quality, and limiting the utility of groundwater for irrigation and domestic purposes. These conditions are not expected to improve without the elimination of groundwater pumping in areas adjacent to the coast and development and delivery of additional water supplies. The Pajaro Valley Water Management Agency (PVWMA) needs to prevent further overdraft of the groundwater basin and to halt seawater intrusion. The purpose of the proposed project is to meet these needs by providing quality water for the long-term sustainability of agricultural irrigation and production. Under the proposed project, PVWMA would import water supplies to the PVWMA service area from the San Joaquin Valley, either from other Central Valley Project (CVP) contractors or non-CVP contractors, using CVP facilities (the Import Water Project); and would also develop a recycled water supply and distribution system (the Water Recycling Project). These actions require Reclamation approval of connection of a pipeline to the Santa Clara Conduit of the Central Valley Project (CVP); and the provision of federal funds for the design, planning, and construction of the Watsonville Area Water Recycling Project under PL102-575, Title XVI, Section 1619, as amended. Reclamation examines the use of CVP water and associated impacts in the PVWMA service area in this EIS. Specific proposals for Reclamation's approval of future CVP water transactions for delivery of CVP water to PVWMA will be analyzed in separate environmental analysis.

This Draft EIS evaluates a no action alternative (Alternative A) as required by NEPA and two action alternatives to meet the purpose of and need for the project: Alternative B, Water Recycling Project and Import Water Project; and Alternative C, Import Water Project only. PVWMA is the applicant for the Import Water Project. PVWMA and the City of Watsonville are the applicants for the Water Recycling Project.

Reclamation's focus is on components of the Water Recycling Project that follow Reclamation's "Guidelines for Preparing, Reviewing, and Processing Water Reclamation and Reuse Project Proposals Under Title XVI of Public Law 102-575, as Amended," December 1998. Only those components of the local Water Recycling Project that qualify as Title XVI components—the Recycled Water Facility, a 4,200-foot-long pipeline, the Integrated Coastal Distribution System, an 8-mile pipeline to the supplemental wells (part of the Import Pipeline), and the supplemental wells—are the focus of the Federal Title XVI action.

The Revised Basin Management Plan Projects EIS focuses on the impacts of project construction and operation, including impacts on land use, water resources, geology and soils, threatened and endangered species, cultural resources, air quality, and socioeconomics. The EIS also fulfills the requirements of Executive Orders 11988 (floodplain management), 11990 (protection of wetlands), and 12898 (Environmental Justice).

For further information regarding this EIS, contact Ms. Lynne Silva, U.S. Bureau of Reclamation South-Central California Area Office, 1243 N. Street, Fresno, CA 93721, (559)487-5807.

Statement Number: _____

Filing Date: _____

Comments on the EIS must be submitted by: _____

SUMMARY

S.1 PURPOSE OF AND NEED FOR THE PROJECT

The Pajaro Valley Water Management Agency (PVWMA) is responsible for managing groundwater resources in the Pajaro Valley, located along the central coast of California. The PVWMA service area encompasses approximately 79,600 acres of irrigated agricultural lands, native and non-irrigated lands, the City of Watsonville, and unincorporated urban communities. Agriculture is the most significant economic industry in the valley. High value crops include strawberries, bush berries, lettuce, apples, flowers, artichokes and a variety of other vegetables.

In the coastal areas and throughout much of the groundwater basin of the Pajaro Valley, groundwater overdraft has caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater from the Pacific Ocean to move inland, where it mixes with fresh groundwater. Seawater intrusion, documented since the 1950's, increasingly is degrading groundwater quality, and limiting the utility of groundwater for irrigation and domestic purposes. PVWMA needs to prevent further overdraft of the groundwater basin and halt seawater intrusion. The purpose of the proposed action is to meet these needs by providing quality surface water and recycled water for the long-term sustainability of agricultural irrigation and production in lieu of existing groundwater pumping.

The actions described in this document are part of PVWMA's Water Supply Project (described in Appendix A, Project History and Alternatives Development). The purposes of the Water Supply Project are:

- To prevent long-term seawater intrusion, groundwater overdraft, land subsidence, and water quality degradation;
- To manage existing and supplemental water supplies to control overdraft and to provide for present and future water needs;
- To create a reliable, long-term water supply, which has been identified as an important cornerstone of the long-term economic vitality of agricultural business in the Pajaro Valley;
- To develop water conservation programs; and
- To recommend a program that is cost effective and environmentally sound.

S.2 ROLE OF BUREAU OF RECLAMATION

The proposed action requires the Bureau of Reclamation (Reclamation) approval of connection of a pipeline to the Santa Clara Conduit of the Central Valley Project (CVP); and the provision of federal funds for the design, planning, and construction of the Watsonville Area Water Recycling Project under PL102-575, Title XVI, Section 1619, as amended. Reclamation examines the use of CVP water and associated impacts in the PVWMA service area in this EIS. Specific proposals for Reclamation’s approval of future CVP water transactions for delivery of CVP water to PVWMA will be analyzed in separate environmental analysis.

Reclamation’s focus is on components of the Water Recycling Project that follow Reclamation’s “Guidelines for Preparing, Reviewing, and Processing Water Reclamation and Reuse Project Proposals Under Title XVI of Public Law 102-575, as Amended,” December 1998. Only those components of the local Water Recycling Project that qualify as Title XVI components—the Recycled Water Facility, 4,200-foot-long pipeline, the Integrated Coastal Distribution System, an 8-mile pipeline to the supplemental wells (part of the Import Pipeline), and the supplemental wells—are the focus of the Federal Title XVI action.

S.3 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The alternatives evaluated in this EIS are:

- Alternative A: No Action
- Alternative B: Water Recycling Project and Import Water Project
- Alternative C: Import Water Project Only

Alternatives B and C have two facilities in common:

- **Import Water Project.** Under either Alternative B or C, an Import Pipeline would be constructed. Many of the impacts of the Import Water Project (e.g., impacts to threatened and endangered species) are associated with facility construction, which would essentially be the same under either alternative (although the average diameter of the pipeline would be six inches larger for Alternative C, the construction corridor—and therefore the construction-phase impacts—would be the same).
- **Integrated Coastal Distribution System (ICDS).** The ICDS would be the same under either alternative.

ALTERNATIVE A: NO ACTION

Alternative A—No Action, required under NEPA, describes likely future conditions in the Pajaro Valley in the event that neither action alternative is implemented. Given the consequences of continued pumping (permanent loss of farmland due to increasingly saline groundwater and soil conditions), PVWMA or another entity would pursue other actions as described below to address overdraft and seawater intrusion. For purposes of analysis, it is assumed that PVWMA, the state

(by statutory adjudication), or a court (in response to litigation brought by a landowner or water user in the basin) would implement pumping restrictions throughout the groundwater basin. In order to stop seawater intrusion, the “Basinwide Pumping Restrictions” scenario would require that pumping be reduced from 69,000 afy (current conditions) to 24,000 afy via pumping limits and other demand management measures. The Harkins Slough project, which provides 1,100 afy, is complete and currently in operation. Other local water supply projects are not likely to be implemented by PVWMA because the relatively small supply of water they would provide would not justify the construction costs.

ALTERNATIVE B: WATER RECYCLING PROJECT AND IMPORT WATER PROJECT

Table S-1 summarizes Alternatives B and C. **Figure S-1** presents an overview of the project components.

Both action alternatives, Alternatives B and C, would generate sufficient water (17,400 afy) to meet near-term (year 2007) demands in conjunction with PVWMA’s other projects. The alternatives differ in the amount of water from either source, as shown in **Table S-1**.

Alternative B—Water Recycling Project and Import Water Project includes the two largest water projects of PVWMA’s Water Supply Program and incorporates seasonal or wet-year out-of-basin banking of CVP water or water from another source outside the Pajaro Valley.

The recycled water supply under Alternative B includes the quantity of recycled water (4,000 afy) that can be generated and used, following blending with nonrecycled water, during the irrigation season (generally April through October). The recycled water would undergo tertiary treatment at the proposed Recycled Water Facility and would meet Title 22 standards. This 4,000 af must be blended with 10,000 af of high quality CVP water or groundwater to reduce the salinity so that the blended recycled water is of such quality that it can be used for agricultural irrigation. The blended recycled water would have salinity concentrations or levels that are acceptable to continue irrigation of existing types of agricultural crops that are less salt-tolerant in the coastal zone (primarily strawberries).

FEATURES OF ALTERNATIVE B

As part of Alternative B, the following facilities would be constructed:

- A water recycling facility adjacent to the Watsonville Wastewater Treatment Facility;
- A 22-mile-long pipeline (“Import Pipeline”) to allow PVWMA to take delivery of CVP contract water or water from another source, and to provide blend water for recycled water;
- An Integrated Coastal Distribution System (ICDS);

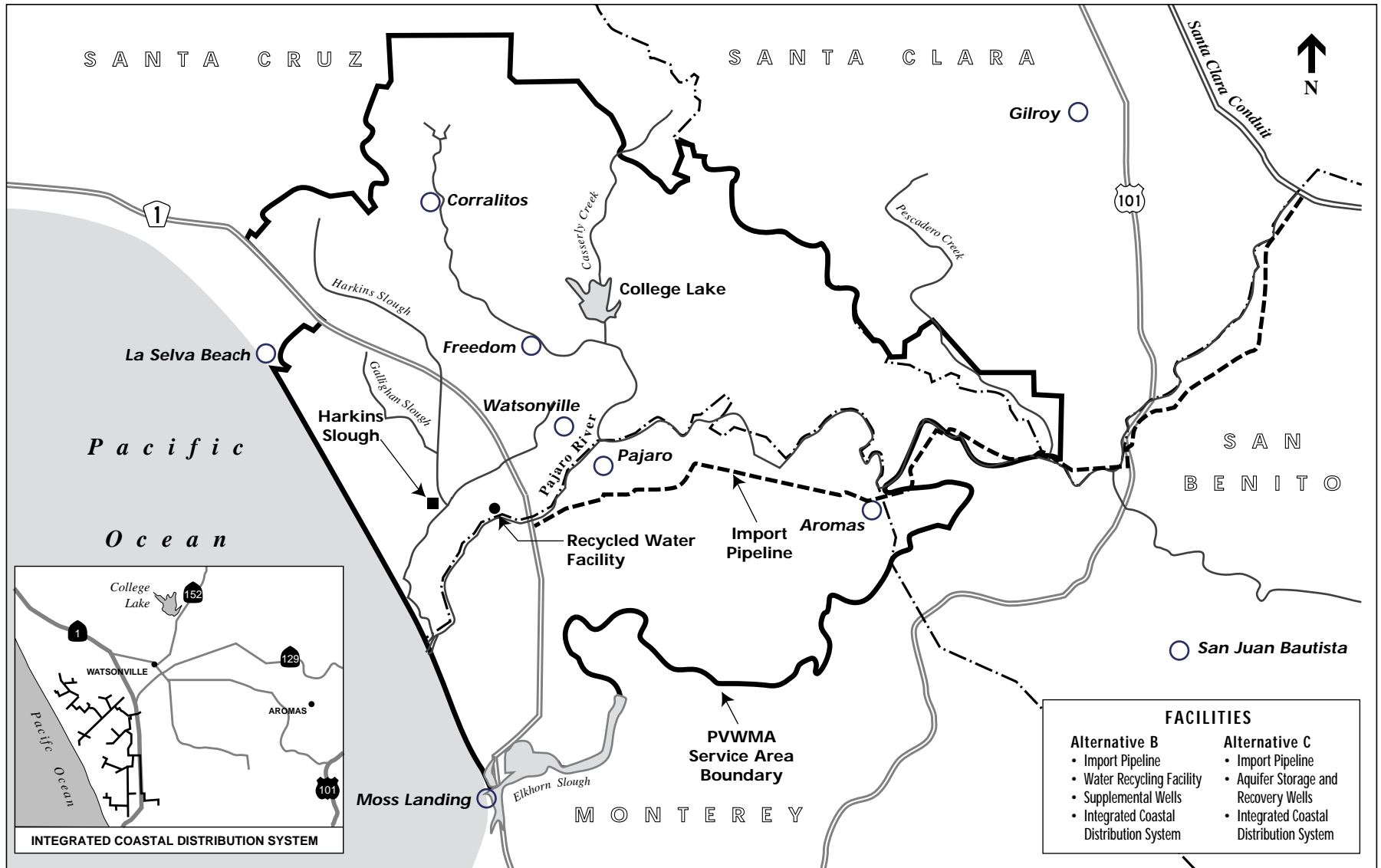
**TABLE S-1
COMPARISON OF EIS ALTERNATIVES B AND C**

Alternative B Water Recycling Project and Import Water Project	Alternative C Import Water Project Only
<p>Recycled Water. Includes:</p> <ul style="list-style-type: none"> ▪ Production of 4,000 afy of recycled water. ▪ Blending the recycled water with import water and groundwater. ▪ Use during irrigation season (Apr.-Oct.). 	<p>No water recycling.</p>
<p>Imported Water. Includes:</p> <ul style="list-style-type: none"> ▪ Delivery to and use of 13,400 afy of CVP water in the Pajaro Valley. Sources above and beyond Mercy Springs Water District assignment to be determined.^a ▪ Temporary storage (conjunctive use) in a groundwater basin outside Pajaro Valley (to be determined). 	<p>Imported Water. Includes:</p> <ul style="list-style-type: none"> ▪ Delivery to and use of 17,400 afy of CVP water in the Pajaro Valley. Sources above and beyond Mercy Springs Water District assignment to be determined.^a ▪ Temporary storage (conjunctive use) in a groundwater basin outside Pajaro Valley (to be determined).
<p>Facilities</p> <ul style="list-style-type: none"> ▪ Import Pipeline, average 54-inch diameter, approximately 22 miles long.^b ▪ Connection to Santa Clara Conduit (San Felipe Unit, CVP) ▪ Recycled Water Facility at the Watsonville Wastewater Treatment Facility. ▪ Integrated Coastal Distribution System (ICDS) approximately 31 miles of pipeline to deliver water to growers in the Pajaro Valley.^c ▪ Pipeline (approximately 4,200 linear feet) connecting Recycled Water Facility to ICDS. ▪ Supplemental wells (5) for blending, peaking, and dry-year supply. 	<p>Facilities</p> <p>Import Pipeline, average 60-inch diameter, 22 miles long.^b Same alignment as Alternative B.</p> <p>Same</p> <p>None</p> <p>Same</p> <p>None</p> <p>10 Injection/extraction wells</p> <ul style="list-style-type: none"> ▪ 2,000-gallons-per-minute (gpm) extraction rate ▪ 500 gpm injection rate

^a Refer to Section 4.11 for discussion of PVWMA's proposal to purchase the Broadview Water District.

^b The Import Pipeline is not considered a component of the Title XVI water recycling project.

^c A portion of the ICDS was built as part of the Harkins Slough project. The entire ICDS, including the Harkins Slough portion, would qualify for Title XVI funding. Consequently, all portions of the ICDS, built and not built, are evaluated in this EIS.



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Figure S-1
Overview of Project Components

- 4,200 linear feet of pipeline to connect the water recycling facility to the Import Pipeline and ICDS; and
- Five supplemental wells to provide blend water for recycled water.

Only those components of the local water recycling project that qualify as Title XVI components—the Recycled Water Facility, 4,200-foot-long pipeline, the Integrated Coastal Distribution System, and the supplemental wells—are the focus of the Federal Title XVI action. The Import Pipeline is not considered a component of the Title XVI water recycling project.

ALTERNATIVE C: IMPORT WATER PROJECT ONLY

Table S-1 summarizes Alternative C—Import Water Project Only. Alternative C excludes the Water Recycling Project. Alternative C includes an increase in imported water supply to make up for the lack of a recycled water supply.

FEATURES OF ALTERNATIVE C

As part of Alternative C, the following facilities would be constructed:

- The 22-mile-long Import Pipeline to allow PVWMA to take delivery of CVP contract water or water from another source;
- The ICDS; and
- 10 injection/extraction wells to store imported water.

S.4 THE PREFERRED ALTERNATIVE

Alternative B—Water Recycling Project and Import Water Project is PVWMA’s preferred alternative and is consistent with the agency’s overall Water Supply Project. Reclamation has not identified a preferred alternative, but will do so prior to publication of the Final EIS.¹

S.5 SUMMARY COMPARISON OF ALTERNATIVES

Under the No Action Alternative, or the future without the project, many changes would occur in the project area. To better assess the differences among the alternatives, **Table S-2** presents the environmental consequences of each action alternative compared against the environmental consequences that would result under the No Action Alternative, described in detail in Chapter 4.

¹ Section 1508.28(b)(5) of NEPA requires that the EIS state all controversial or unresolved issues. Refer to Section 3.1.1 for a summary of issues raised during the scoping process. The primary issue to be resolved is the selection of the preferred alternative by Reclamation.

ENVIRONMENTAL CONSEQUENCES OF NO ACTION ALTERNATIVE VERSUS ACTION ALTERNATIVES

The primary differences between the No Action Alternative and the two action alternatives relate to water resources, land use, socioeconomics, environmental justice, and impacts associated specifically with facility construction and operation.

WATER RESOURCES

No Action Alternative

Under the No Action Alternative pumping would be reduced from 69,000 afy (current conditions) to 24,000 afy in order to halt seawater intrusion. Of the 24,000 afy available for urban and agriculture use, it is assumed that urban uses would continue to extract 11,800 afy from the groundwater basin consistent with current practice, while the water supply for agriculture would be restricted to 12,200 afy, an 80 percent reduction over current conditions.

Action Alternatives

Both action alternatives provide sufficient water to stop seawater intrusion without reducing supplies to agriculture. Either alternative would result in temporary impacts to local water resources (dewatering, potential for soil erosion and transport of contaminants downstream) and would entail construction of facilities (mostly pipelines) within the FEMA-designated flood hazard zone.

LAND USE

No Action Alternative

Assuming that all the remaining agricultural production would be strawberries (the crop with the highest net return), the 12,200 afy of groundwater available for agricultural use under the No Action Alternative would be sufficient for approximately 4,700 acres of strawberry production. It is expected that approximately 25,660 acres of existing farmland would no longer be used as irrigated agriculture since no groundwater would be available. The fallowing of 25,660 acres of land would cause property values to decline precipitously, creating pressure for conversion of the land to other uses (such as urbanization). The amount of urbanization that could occur under the No Action Alternative is speculative.

Action Alternatives

By comparison, the action alternatives would remove an obstacle to growth by improving the reliability of the groundwater basin for agricultural uses, as well as non-agricultural, urban uses. Improving the reliability of the urban water supply could facilitate growth, and implementation of either action alternative could accommodate an amount of growth that is consistent with regional

growth projections. Whether the amount of lands that would be urbanized under the No Action Alternative would be less than, equal to, or greater than growth indirectly induced by implementation of either Alternative B or C cannot be determined without speculation.

The action alternatives would result in relatively minor *direct* impacts to agriculture: the permanent loss of less than 10 acres of prime farmland for facility construction (Alternative B) and less than one acre (Alternative C) and temporary disruption of farming activities during pipeline construction.

SOCIOECONOMICS

No Action Alternative

Agricultural Production

Total Pajaro Valley agricultural production is estimated to be approximately \$530 million. The reduction of approximately 47,000 afy in agricultural water use under the Basinwide Pumping Restrictions scenario would result in approximately 25,660 acres of lost agricultural production, with an annual value estimated at \$372 million.²

Property Values

Most of the lands currently used for irrigated agriculture would likely change to rangeland. As a result, property values would decrease dramatically: annual lease rates per acre could decline to less than \$15 from current levels (estimated at \$1,500 to \$2,200) while the sale value of land per acre would drop from its current price (estimated at \$25,000 to \$35,000) to less than \$1,000.

Employment and the Regional Economy

The reduction in the region's agricultural production would decrease the area's agricultural employment and sales. The economic losses would be represented by both (1) the reduced annual economic activity from the lost productive use of the previously irrigable farmland, and (2) capital value losses from reduced land values. The decrease in agricultural production represents a loss of approximately 11,530 jobs: 9,225 agricultural worker jobs (a 20.8 percent decrease), 335 indirect jobs (in agricultural and business support services), and 1,970 induced jobs (such as general retail and service workers).³

Action Alternatives

Compared with the No Action Alternative, the action alternatives would have a major positive long-term impact on the region's agricultural economy.

² Since there is considerable multiple cropping in the Pajaro Valley (multiple crops on the same property), agricultural production acreage is greater than farmland acreage.

³ The magnitude of indirect and induced impacts was estimated using an IMPLAN input-output model and economic multipliers developed from the area by ADE.

Agricultural Production

Both action alternatives would preserve agricultural production in the Pajaro Valley.

Under both action alternatives, the cost of water would increase to support the costs of the project. Under Alternative B, the estimated increases in water costs for higher value crop rotations is 1.8 percent to 2.1 percent for delivered imported water and 0.7 percent to 0.8 percent for farmers that continue to pump groundwater. Under Alternative C, the estimated increases in water costs for higher value crops are 1.9 percent to 2.2 percent for delivered water and 0.8 percent to 0.9 percent for groundwater. The increased cost of water would increase growers' production costs and lower the net returns per unit of production. Increased water conservation and better management practices could mitigate these impacts.

Property Values

If the current farming operators are unable to absorb and/or adapt to the reduction in their net returns then market forces would likely reduce land rents. For example, the net water-cost increase for growers using delivered water--*assuming no cost savings from conservation, management or grower profitability*--could be as much as \$460 per acre under Alternative B and as much as \$490 per acre under Alternative C (in both cases, the increase would be less for growers using groundwater). Assuming a current lease rate of \$2,200 per acre, the lease reduction would decrease annual rent to \$1,740 per acre for Alternative B and \$1,710 for Alternative C (compared with \$15 per acre under the No Action Alternative). A decrease in land lease rates would reduce property values for landowners; however, in comparison with the No Action Alternative, land prices would remain far higher than if the land's viability for irrigated agricultural production was lost due to pumping restrictions.

Employment and the Regional Economy

Relative to the No Action Alternative, it is estimated that there would be a net gain of nearly \$365 million (slightly more for Alternative B) and more than 9,000 jobs that would be saved. The net present value of the annual agricultural production saved under either action alternative is estimated to be nearly \$5.1 billion.

On the basis of proposed water price schedules, the total increase in annual water costs for agriculture would be up to \$7.2 million for Alternative B and \$7.9 million for Alternative C. Although some of the construction spending would generate short term economic benefits to the regional economy, the majority of the water costs would instead be used as debt service for project construction. This impact is expected to result in at most loss of \$7.2 million in earnings and 179 agricultural jobs for Alternative B, and \$7.9 million and 196 agricultural jobs for Alternative C.

ENVIRONMENTAL JUSTICE

No Action Alternative

The No Action Alternative would not result in disproportionate adverse human health or environmental impacts on minority and/or low-income populations. The reduction of agricultural production would result in job losses in the agriculture sector, quantified above under Socioeconomics. The majority of the jobs that would be eliminated are held by economically disadvantaged minorities.

Action Alternatives

Neither of the action alternatives would result in disproportionate adverse human health or environmental impacts on minority and/or low-income populations. The action alternatives would be expected to result in a fraction of the lost jobs (including those held by economically disadvantaged minorities) associated with the No Action Alternative, quantified above under Socioeconomics.

IMPACTS FROM FACILITY CONSTRUCTION AND OPERATION

There are a number of impacts that would occur under the action alternatives that would not occur under the No Action Alternative. Many of the environmental consequences associated with the action alternatives relate to facility construction and operation. Examples include the permanent loss of prime farmland at water production facilities, disturbance of threatened and endangered species and their habitats, and potential disturbance of cultural resources. Refer to **Table S-2** for details.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE B VERSUS ALTERNATIVE C

The primary differences between the two action alternatives relate to impacts from construction and operation of the Recycled Water Project and Socioeconomics.

CONSTRUCTION AND OPERATION OF THE RECYCLED WATER PROJECT (ALTERNATIVE B)

Alternative B includes development of water recycling to produce 4,000 afy of recycled water to be blended and used for irrigation. Under Alternative C, that 4,000 afy would come from sources outside the Pajaro Valley (to be determined).

Construction and operation of the Recycled Water Project would result in impacts that would not occur under Alternative C. These impacts are described in Chapter 4, and include the permanent loss of 8 acres of prime farmland for construction of the Water Recycling Facility, as well as a number of temporary construction impacts (increased erosion, etc.).

CONSTRUCTION AND OPERATION OF INJECTION/EXTRACTION WELLS (ALTERNATIVE C)

Alternative C includes development of injection/extraction wells for temporary storage of imported water. When water is injected under pressure into an aquifer, hydrogeologic effects such as “groundwater mounding” can occur as the underlying aquifer accommodates the additional water. Depending on the underlying geology, the mounding can create adverse conditions, potentially including changes in groundwater migration patterns, reduced groundwater supply to users located within the injection/extraction area of influence, hydrofracturing, surface seepage and flooding. Refer to Section 4.4.3 for discussion of this impact.

Injection/extraction wells are not proposed under Alternative B.

SOCIOECONOMICS

The differences between Alternatives B and C relative to agricultural production, property values, employment and the regional economy are described above under the heading *Environmental Consequences of No Action Alternative Versus Action Alternatives*.

CUMULATIVE IMPACTS

Section 4.11 of this Draft EIS evaluates cumulative impacts. Implementation of Alternative B or C, in conjunction with CVP contract assignments to PVWMA, could contribute to cumulative changes in agricultural practices and land use in the San Joaquin Valley (e.g., land retirement). However, these changes are primarily occurring due to economic and environmental conditions. These changes often result in the need for less CVP water on those lands, resulting in requests for approval of water service transactions. Under the No Action Alternative, those conditions will continue. Agricultural practices and land uses in the San Joaquin Valley would not change significantly with implementation of either Alternative B or Alternative C.

Within the PVWMA service area, other planned projects, in combination with Alternative B or C, could result in cumulative impacts associated with facility construction. Implementation of measures specified in Appendix D of this EIS would reduce the project’s contribution to cumulative construction-phase impacts.

S.6 ORGANIZATION OF THIS EIS

This Draft EIS had been organized into the following chapters

1. **Purpose and Need.** The chapter describes the purpose of and need for the proposed project, overdraft and seawater intrusion conditions, historic and future water use and supply, federal actions related to the proposed project, related environmental documents, and uses of the EIS.

2. **Alternatives Including the Proposed Project.** This chapter summarizes the alternatives development process, and describes in detail the characteristics of Alternative A: No Action; Alternative B, Water Recycling Project and Import Water Project; and Alternative C: Import Water Project Only.
3. **Affected Environment.** This chapter presents the general setting of the proposed project and describes resources in the PVWMA service area that would be affected by implementation of any of the alternatives. This chapter is organized by resource (3.5 Vegetation, Fish and Wildlife; 3.6 Cultural Resources; etc).
4. **Environmental Consequences.** This chapter summarizes environmental consequences associated with the three alternatives considered in the EIS. This chapter is organized by resource (4.5 Vegetation, Fish and Wildlife; 4.6 Cultural Resources; etc). The environmental consequences of each alternative are described for each resource area.
5. **Consultation and Coordination.** The section discusses compliance with specific Federal review and consultation requirements (e.g., Endangered Species Act, Fish and Wildlife Coordination Act, etc).
6. **List of Preparers.** This chapter identifies those involved in prepared the EIS.
7. **References.** This chapter lists reference materials used in preparation of the EIS.
8. **Acronyms, Abbreviations and Glossary.** This section defines acronyms, abbreviations and terms used in the EIS.

**TABLE S-2
SUMMARY COMPARISON OF ALTERNATIVES' IMPACTS**

Item	Alternative A: No Action	Alternative B (Preferred): Water Recycling and Import Water Projects	Alternative C: Import Water Project
Land Use			
Effects on Agriculture	Loss of irrigation to an estimated 25,660 acres of prime farmland. Possible conversion of irrigated agriculture to municipal and industrial uses.	Permanent loss of less than 10 acres of prime farmland. Temporary disruption of farming during facility construction.	Permanent loss of less than 1 acre of prime farmland. Same as Alternative B
Geology, Soils, Seismicity and Hazardous Materials			
Unstable slopes and slope failure	No effect	Steep slopes occur along pipeline alignments at riverbanks, drainage channels, and Bolsa de San Cayetano	Same as Alternative B
Surface fault rupture hazards	No effect	Import Pipeline crosses active faults	Same as Alternative B
Liquefaction hazards	No effect	Soils in the vicinity of the proposed facilities are susceptible to ground failure by liquefaction	Same as Alternative B
Strong groundshaking hazards	No effect	Project area subject to strong ground shaking	Same as Alternative B
Soils subject to settlement and expansion	No effect	Soils in the project vicinity have high shrink-swell potential	Same as Alternative B
Corrosive soils hazards	No effect	Portions of the project are underlain by corrosive soils	Same as Alternative B
Temporary increase in soil erosion	No effect	Erosion hazards increase where soils are disrupted by excavation for pipeline installation, especially in sloped areas	Same as Alternative B
Contamination	No effect	Site disturbance could expose soil or groundwater contamination	Same as Alternative B
Accidental spills of diesel fuel or other hazardous materials	No effect	Spills during onsite fueling of equipment or an upset condition could release fuel or oils into the environment	Same as Alternative B
Increased delivery, storage and use of hazardous materials	No effect	Water recycling facilities would increase chemical delivery, storage and use at the WWTF	No Effect

TABLE S-2 (Continued)
SUMMARY COMPARISON OF ALTERNATIVES' IMPACTS

Item	Alternative A: No Action	Alternative B (Preferred): Water Recycling and Import Water Projects	Alternative C: Import Water Project
Water Resources			
Effects on the rate of seawater intrusion	Pumping restricted throughout the basin to stop seawater intrusion, water available for irrigated agriculture reduced from 59,300 afy to 12,200 afy	Would eliminate seawater intrusion	Same as Alternative B
Construction effects	No effect	Dewatering of shallow groundwater resources and contamination of surface water. Increased soil erosion and transport of contaminants to downstream receiving waters. Compromise of the structural integrity or water quality of active wells.	Same as Alternative B
Flood Hazards	No effect	Construction in FEMA flood hazard zone	Same as Alternative B
Effects from use of recycled water	No effect	Could contribute to loading of specific constituents to groundwater supplies	No effect
Effects of injection/extraction wells	No effect	No effect	Potential effects on groundwater conditions, including alteration of groundwater migration patterns, reduced groundwater supply to users located within the injection/extraction area of influence, hydrofracturing, surface seepage and flooding.
Vegetation, Fish and Wildlife			
Disturbance of jurisdictional wetlands/waters of the U.S. and streambeds and banks	No effect	Alteration or fill of jurisdictional areas	Same as Alternative B
Threatened and Endangered Animal Species— Wetland, Aquatic, and Riparian Habitat			
South-central California coast Steelhead	No effect	Potential for injury or mortality, habitat removal and/or degradation	Same as Alternative B
Tidewater goby	No effect	Potential for habitat degradation	Same as Alternative B
California red-legged frog	No effect	Potential for injury or mortality, habitat removal and/or degradation	Same as Alternative B

TABLE S-2 (Continued)
SUMMARY COMPARISON OF ALTERNATIVES' IMPACTS

Item	Alternative A: No Action	Alternative B (Preferred): Water Recycling and Import Water Projects	Alternative C: Import Water Project
Vegetation, Fish and Wildlife (cont.)			
California tiger salamander	No effect	Potential for injury or mortality, habitat removal and/or degradation	Same as Alternative B
Western pond turtle	No effect	Potential for injury or mortality, habitat removal and/or degradation	Same as Alternative B
Least Bell's vireo	No effect	Potential for injury or mortality during nesting; loss of nesting habitat	Same as Alternative B
Yellow warbler	No effect	Potential for injury or mortality during nesting; loss of nesting habitat	Same as Alternative B
Yellow-breasted chat	No effect	Potential for injury or mortality during nesting; loss of nesting habitat	Same as Alternative B
Threatened and Endangered Invertebrate Species—Wetland Habitat			
Vernal pool fairy shrimp, longhorn fairy shrimp, and conservancy fairy shrimp	No effect	Potential for mortality, habitat degradation	Same as Alternative B
Raptors and nesting habitat	No effect	Potential for injury or mortality during nesting; loss of nesting habitat	Same as Alternative B
Threatened and Endangered Animal Species—Grassland Habitat			
San Joaquin kit fox	No effect	Potential for injury or mortality, breeding disturbance; habitat removal	Same as Alternative B
Western burrowing owl	No effect	Potential for injury or mortality, nesting disturbance; habitat removal	Same as Alternative B
Cultural Resources			
Known Resources	No effect	Potential alteration or destruction of 6 sites; eligibility for NRHP listing not determined.	Same as Alternative B
Unknown Resources	No effect	Potential alteration or destruction	Same as Alternative B
Indirect Impacts	No effect	Potential vandalism during construction	Same as Alternative B
Well Sites	No effect	Potential for siting wells in areas underlain by cultural resources	Same as Alternative B

TABLE S-2 (Continued)
SUMMARY COMPARISON OF ALTERNATIVES' IMPACTS

Item	Alternative A: No Action	Alternative B (Preferred): Water Recycling and Import Water Projects	Alternative C: Import Water Project
Indian Trust Assets	No effect	No effect	No effect
Air Quality			
Application of General Conformity Rule	N/A	N/A	N/A
Environmental Justice			
Jobs	Significant reduction of agricultural production and reduction in jobs in the agriculture sector. The majority of the jobs that would be eliminated are held by economically disadvantaged minorities	Implementation would preserve jobs for low income minorities	Same as Alternative B
Residential Water Bills	No effect	Negligible effect	Negligible effect
Construction Impacts	No effect	No effect	No effect
Socioeconomics			
Decrease in Agricultural Production and Revenue	Loss of an estimated 25,660 acres of agricultural production with an annual value of \$372 million	Agricultural production preserved. Increase in water costs up to 2.1 percent, potentially lowering net returns to production.	Agricultural production preserved. Increase in water costs up to 2.2 percent, potentially lowering net returns to production.
Effects on Property Values	Decline in annual lease rates (from up to \$2,200/acre to \$15/acre) and property values (from up to \$35,000/acre to \$1,000/acre)	Estimated potential decrease in lease rates per acre from \$2,200 to \$1,740 with similar decline in property values, relative to existing conditions	Estimated potential decrease in lease rates per acre from \$2,200 to \$1,710 with similar decline in property values, relative to existing conditions
Effects on Employment and the Regional Economy	Loss of an estimated 11,530 jobs	Compared with No Action, more than 9,045 farming jobs preserved. Net present value of annual agricultural production saved: nearly \$5.1 billion	Compared with No Action, an estimated 9,030 farming jobs preserved. Net present value of annual agricultural production saved: nearly \$5.1 billion