

## 4 Water Management Strategies

This section meets the following IRWMP Standard from the Integrated Regional Water Management Grant Program Guidelines.

**D. Water Management Strategies** – Document the range of water management strategies considered to meet the objectives.

In order to meet the many objectives identified for the Pajaro River Watershed IRWMP, several water management strategies were considered. Strategies can address multiple IRWMP objectives and each represents a different approach towards addressing needs in water supply, water quality, flood management and environmental protection and enhancement. The strategies considered for inclusion in the IRWMP include all of the strategies suggested in the IRWM Grant Program Guidelines. They are:

- Water Supply Reliability
- Groundwater Management
- Water Recycling
- Desalination
- Imported Water
- Surface Storage
- Water and Wastewater Treatment
- Water Transfers
- Conjunctive Use
- Water Conservation
- Water Quality Protection and Enhancement
- Stormwater Capture and Management
- NPS Pollution Control
- Flood Management
- Ecosystem Restoration
- Environmental and Habitat Protection and Improvement
- Recreation and Public Access
- Wetlands Enhancement and Creation
- Watershed Planning
- Land Use Planning

To begin the process of strategy development, the Collaborative reviewed planning efforts previously completed throughout the watershed and coordinated with stakeholders to identify additional planning efforts and projects being considered. The list of identified projects was then categorized by water management strategy. Most projects employ a combination of water management strategies; however, each project was categorized based on the water management strategy it most effectively addresses. Strategies and projects were then compared to the IRWMP objectives developed and outlined in Section 3.

Table 4-1 shows the comparison of strategies and projects versus objectives. This table was utilized as a screening matrix to identify strategies and projects that meet multiple objectives and provide integrated benefits.







## 4.1 Water Management Strategies and Project Descriptions

The water management strategies considered to meet the range of objectives in the IRWMP are described in more detail in the following sub-sections. The projects assigned to each of the water management strategies are also introduced. Numerous projects have been identified through review of previously completed planning efforts and coordination with stakeholders to identify additional projects that are being considered as part of current planning efforts. To be included in the IRWMP, a project must have a project sponsor that is willing to lead implementation of the project and must be defined with enough detail to be compared with the IRWMP objectives. It is important to note that planning projects are not included. As discussed in Section 13, several important planning projects are on-going in the watershed, and some existing plans will be updated in the future. The projects that are recommended in these plans will be considered in future updates of the IRWMP.

### 4.1.1 Water Supply Reliability

The water supply reliability strategy seeks to provide adequate water supplies consistently within the region over a wide range of conditions. Projects which aid in meeting M&I and agriculture demands under current and future conditions may be considered as employing the water supply reliability strategy. In the Pajaro River Watershed, the projects categorized under this strategy are focused on preserving existing water rights and the ability to exercise those rights. One significant issue affecting the future use of water rights is the requirement to maintain sufficient flows to support fisheries. As many of the surface waters in the region serve as steelhead migratory paths, ensuring that projects maintain adequate fish passage is critical to ensuring that these surface waters can be relied upon as water supply sources.

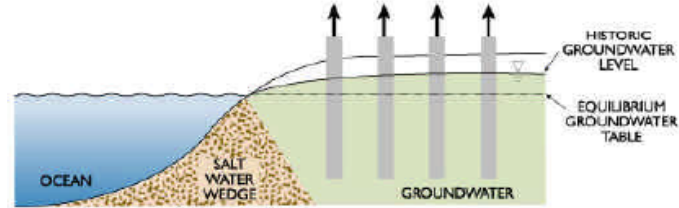
The projects categorized under the water supply reliability strategy are:

*South County Resources Management Program.* The goal of this project is to develop a fisheries management plan covering water supply operations and maintenance of SCVWD facilities located in the Pajaro River Watershed including Uvas and Chesbro Reservoirs. Scientific investigations, operational analysis, and stakeholder involvement will be used to develop a fisheries management plan that provides protection to central coast steelhead trout, an important anadromous fisheries resource located within the watershed. This project will evaluate water temperature, habitat availability and quality, barriers to passage and other factors to develop a management strategy for water supply operations that optimizes the availability of suitable habitat for steelhead trout. The project helps protect SCVWD's surface water rights in the Uvas and Llagas Watersheds and ensure the reliability of that source.

*Corralitos Creek Surface Fisheries Enhancement Project.* This project, which includes several phases, will make modifications at the City of Watsonville's intake on Corralitos Creek necessary to maintain flows adequate to support fish populations and to allow for the expansion of the associated treatment plant. The modifications to the surface water intake facilities are necessary to meet NOAA Fisheries' current design criteria. Without the modifications, the City of Watsonville would jeopardize both its current withdrawals from Corralitos Creek as well as any potential increases to its diversions. The three phases of this project include new intake screens and flow studies, fish ladder improvements and conversion to a membrane filtration plant.

### 4.1.2 Groundwater Management

Groundwater management is a significant strategy in the Pajaro River Watershed since groundwater is a major component of supply throughout the region. Groundwater management aims at addressing various challenges, from preserving the groundwater basins as a major water supply source to managing groundwater levels.



The projects categorized under the groundwater management strategy are:

*SBCWD Groundwater Recharge with CVP and Local Sources.* Groundwater recharge is currently ongoing in SBCWD through natural direct percolation, artificial direct percolation with CVP water and in-lieu recharge through the use of CVP water. This SBCWD Groundwater Recharge with CVP and Local Sources project would extend SBCWD's groundwater recharge operations to include additional recharge opportunities for artificial direct percolation with CVP and local sources and injection of CVP or local sources through aquifer storage and recovery (ASR) wells.

*Tile Drains for Localized Groundwater Management.* In some areas, groundwater management must be employed to address high groundwater tables that threaten infrastructure and beneficial use of land. In areas such as the San Juan Basin, where clay layers prevent groundwater percolation, SBCWD is considering the Tile Drains for Localized Groundwater Management project, which would include installation of tile drains (perforated pipes) above the clay layers to collect groundwater and drain it to the surface. This project must be coordinated to ensure that the problem is not merely being transferred to downstream areas with similar high groundwater issues.

*Tree Belt Evapotranspiration.* This is a project being considered by SBCWD to manage local high groundwater levels in agriculture areas. The project calls for planting of high water consumption vegetation in strategic areas to take up excess groundwater and lower groundwater levels.

*SCVWD Groundwater Recharge with CVP and Local Sources.* Groundwater recharge is currently ongoing in SCVWD through both natural recharge and artificial recharge with local and CVP water. In addition to several site specific projects, which are described below, the SCVWD Groundwater Recharge with CVP and Local Sources project is intended to continue pursuing opportunities to reduce water supply shortages in the Llagas Subbasin through additional recharge projects. This project aims to increase SCVWD's total recharge capacity in the Subbasin by 11,000 AFY.

*Main Avenue and Coyote-Madrone Pipeline Repair.* This project would repair or replace approximately 4,500 feet of the Main Avenue Pipeline, which connects Anderson Reservoir in northern Santa Clara County to the Main Avenue Recharge Ponds, and approximately 2,500 feet of the Coyote-Madrone Half-Road Pipeline connects the Santa Clara Conduit with the Madrone Recharge Pond. The Main Avenue Pipeline is currently out of service, and the Coyote-Madrone Half-Road Pipeline cannot be operated at full capacity due to a number of issues related to the pipeline construction. This project also includes upgrades to piping and valves connecting different segments of the pipelines and reaches of the Madrone Channel recharge facility. Currently, the SCVWD can only deliver water from the Santa Clara Conduit to the ponds. This project will enable the District to deliver Anderson Reservoir water to both sets of ponds, as well as increase the volume of recharge.

*Church Avenue Diversion.* Currently, the full recharge capacity of the Church Avenue Percolation Ponds is not being utilized. This project would allow SCVWD to realize the entire capacity of the ponds, which will help to preserve the existing water rights for Chesbro and Uvas Reservoirs.

*San Pedro Rock Columns.* Recharge capacity at SCVWD's San Pedro Recharge Pond is currently limited by clay soils and down-gradient septic systems. Through this project SCVWD will use rock columns as a conduit past the clay layers to increase recharge without affecting the nearby septic system operations.

*East Little Llagas Dams.* The East Little Llagas Dams project will construct spreader dams along East Llagas Creek to increase recharge capacity from the creek.

*PVWMA Groundwater Recharge with CVP and Other Imported Supplies.* PVWMA is aggressively pursuing in-lieu groundwater recharge opportunities. Because the area has limited local water supply options, PVWMA's groundwater recharge project is focused on CVP and other potential supplies imported to the Pajaro Valley from the upper Pajaro River Watershed. The use of ASR is also being considered as an option for the PVWMA Groundwater Recharge with CVP and Other Imported Supplies project. ASR was included and studied in the PVWMA's adopted Basin Management Plan and accompanying EIR.

*Coastal Distribution System.* The Coastal Distribution System (CDS) is a key element of groundwater management for PVWMA. The CDS will aid in groundwater management in the form of in-lieu operations, where alternative sources of water will be delivered to coastal groundwater pumpers *in lieu* of withdrawing from the basin. In-lieu recharge in coastal areas is most effective at addressing the threat of seawater intrusion, as it eliminates coastal pumping that is drawing seawater inland. The CDS project provides the necessary infrastructure to deliver alternate supply sources to coastal pumpers.

*Inland Distribution System.* The Inland Distribution System is PVWMA's inland version of the CDS. The Inland Distribution System will provide the necessary infrastructure to deliver alternative supply sources to inland pumpers in the Pajaro Valley *in lieu* of withdrawing from the basin. This project would provide a 'banked' supply of groundwater that could be delivered to coastal pumpers in critically dry years.

*Harkins Slough Optimization Project.* As a measure to increase the use of local supply sources and decrease coastal users dependence on the groundwater basin, PVWMA began treating and pumping water from Harkins Slough to a recharge basin for seasonal storage until the irrigation season. The PVWMA has permits to divert and recharge up to 2,000 AFY annually, but typically can only recharge 1,000 during wet years. Sediment settling to the pond bottom has reduced percolation at the recharge basin, and operational data suggests the clay layers beneath the pond are not as contiguous as believed during project design resulting in low yields from the shallow recovery wells surrounding the pond. The Harkins Slough Optimization Project aims to increase the low yield of the existing facility by optimizing the existing facilities and installing wells at lower aquifer depths.

*Artesian Well Water Recovery.* To improve the management of high groundwater tables near the confluences of Uvas Creek and San Benito River with the Pajaro River, the seasonal capture of existing artesian flows for agricultural supply is being considered by PVWMA. The captured water could be delivered to PVWMA via pipeline or river conveyance.

*Well Recovery along Pajaro River.* In the past, PVWMA has evaluated the feasibility of using wells along the Pajaro River to withdraw water from the river. The locations previously investigated were found to be technically infeasible; however due to stakeholder interest in this project and the opportunities

for river conveyance of water from the upper watershed, PVWMA may consider additional investigations in the future.

### 4.1.3 Water Recycling

Water recycling is an effective strategy for creating a local, reliable, drought-proof water supply from the treatment and reuse of wastewater. In addition to reducing dependence on imported water through the creation of a locally controlled supply, water recycling can also provide water quality benefits and resolve effluent disposal issues.



The projects categorized under the water recycling strategy are:

*Watsonville Recycled Water Treatment Facility.* PVWMA, in conjunction with the City of Watsonville, is implementing the Watsonville Recycled Water Treatment Facility (WRWTF) Project. The initial phase of the project is the construction of a recycled water facility adjacent to the existing Watsonville WWTP that will have the capacity to produce 4,000 AFY of recycled water. To meet stakeholder water quality targets, the initial phase also includes blending with 3,000 AFY of groundwater and surface water. A second phase envisioned for the WRWTF is the addition of nitrification/denitrification facilities and seasonal storage facilities so that recycled water may be produced year round. The third phase under consideration for the WRWTF is demineralization of recycled water.

*South County Recycled Water Program.* This project which is a joint effort between SCVWD, SCRWA, and the Cities of Gilroy and Morgan Hill, would aid in implementing the short- and long-term Capital Improvement Program (CIP) developed for the South County Recycled Water Program system expansion. The short-term CIP includes additional distribution facilities to improve the reliability of the current system and enable additional use in the existing service area. The long-term CIP includes additional facilities to expand the service area. Implementing the short and long-term CIP will more than double the use of recycled water in this area, to an estimated total of approximately 4,000 AFY.

*North San Benito County Regional Recycled Water Project.* This project, which is a joint effort among the City of Hollister, SBCWD and the Water Resources Association of San Benito County, would implement water recycling with a regional perspective within northern San Benito County. The proposed treatment facility would be located at the Hollister Domestic WWTP and the proposed market is agricultural users and landscape irrigators around the San Juan Valley. The near-term production is anticipated to be 2,300 AFY.

*Sunnyslope Recycled Water Project.* As part of its wastewater treatment facility upgrades, Sunnyslope County Water District is considering implementing a recycled water project. Water recycling will aid in disposal capacity issues for Sunnyslope County Water District while also providing an alternative source of water for the Ridgemark Golf Course, freeing up potable water for other uses in the region. The project is currently envisioned to provide 300 AFY of recycled water.

### 4.1.4 Desalination

Desalination is a specific water treatment strategy that has gained more attention within the watershed in recent years. It can help address the high TDS levels found in many of the groundwater supplies that make them unsuitable for potable and irrigation use. Additionally, demineralization of recycled water can be performed to enhance the quality of recycled water supplies. For the upper watershed desalination is becoming an increasingly important consideration in



regional salt management. In the lower watershed, proximity to the ocean provides an opportunity for creation of a new local supply through seawater desalination.

The projects categorized under the desalination strategy are:

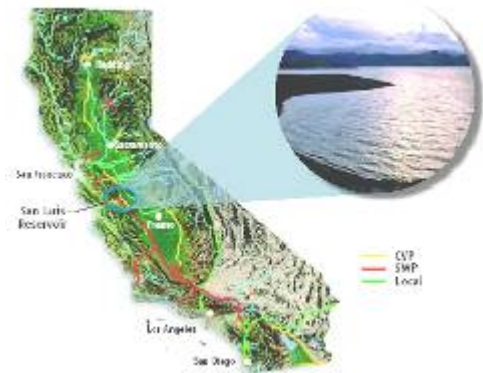
*SBCWD Groundwater Demineralization.* Desalination efforts to date include the partnership of SBCWD and SCVWD to complete the Pajaro River Watershed Groundwater Desalination Feasibility Study. This study is exploring groundwater desalination options within SBCWD, including potential locations for groundwater extraction and treatment, assessments of desalination technology and brine management options and identification of potential markets. The SBCWD Groundwater Demineralization Project resulting from this study is anticipated to create 3,000 AFY of new water supply.

*Sunnyslope Groundwater Demineralization.* Sunnyslope County Water District is considering the demineralization of groundwater as a source of local water supply. In addition to creating a high quality source of water, this project would assist with meeting salinity requirements set forth in the District's Waste Discharge Requirements.

*North Monterey County Desalination Project.* The North Monterey County Desalination Project, which is a seawater desalination project being proposed by Pajaro/Sunny Mesa Community Services District in coordination with Poseidon Resources Corporation. The desalination facility would be located at Moss Landing, which lies outside of the Pajaro River Watershed, but the proposed market extends through the Monterey Peninsula to areas of Pajaro/Sunny Mesa Community Services District and PVWMA. The project is envisioned to create 21,000-23,000 AFY of supply through the construction of a 20 mgd seawater desalination plant.

#### 4.1.5 Imported Water

The imported water strategy entails the utilization of water from outside the region. In the Pajaro River watershed, this strategy consists of accessing additional CVP or SWP water as well as ensuring the imported water currently in use is being used in the most efficient manner. Other specific actions include addressing water quality issues related to imported water and facilitating inter-regional transfers of imported water. The imported water strategy addresses both water supply and water quality objectives.



The projects categorized under the imported water strategy are:

*PVWMA CVP Contract Reservation.* USBR is reserving 19,900 AFY of CVP Irrigation contract supply for PVWMA. Negotiations with USBR for the reserved 19,900 AFY have been delayed as USBR has been prohibited from entering new contracts until it meets certain environmental requirements stipulated by the Central Valley Project Improvement Act (CVPIA) of 1992. The PVWMA CVP Contract Reservation project would pursue access to the reserved 19,900 AFY, which is a key component of PVWMA's adopted Basin Management Plan and accompanying EIR/EIS

*Mercy Springs Option Agreement.* PVWMA participated in an existing joint assignment contract of for 6,260 AFY of CVP Irrigation water from the Mercy Springs Water District. To maintain its rights in the 6,260 AFY joint assignment of CVP irrigation water from Mercy Springs Water District, PVWMA must take delivery of all or a portion of the assignment by the dates specified in the option agreement with SCVWD, PVWMA and Westlands Water District – all partners in the joint assignment. If PVWMA does

not develop facilities to take delivery of water or find other means to exercise its right to the water by 2017, SCVWD and Westlands Water District will be the sole contractors receiving water under the joint assignment. Currently, SCVWD and Westlands Water District share the supply with 75% to Westlands and 25% to SCVWD, and SCVWD has the option to take delivery of dry year supplies.

*Pajaro Valley Import Pipeline.* The PVWMA Import Pipeline Project, long under consideration, would provide PVWMA with a connection to the CVP system that would allow it to take delivery of water from the San Felipe Division of the CVP. The import pipeline would also serve as a connection to water supplies from within the upper watershed if developed by SBCWD and/or SCVWD.

*San Luis Reservoir Low Point Project.* Imported CVP water is stored at the San Luis Reservoir. Currently, state and federal water projects cannot fully utilize water stored in San Luis Reservoir without impacting the reliability of water deliveries to San Felipe Division contractors. The location of the San Felipe Division intake, Delta operations, system-wide demands and diminished water quality together reduce project water supplies south of the Delta. These constraints are collectively known as the San Luis low-point problem. This project, which is under consideration by SCVWD, SBCWD, San Luis Delta Mendota Water Authority and USBR, will help ensure that the maximum delivery and usage of imported water is possible.

*San Felipe Division Operation and Maintenance Improvements.* The aging infrastructure used to transport water throughout the San Felipe Division is in need of upgrades. The San Felipe Division Operation and Maintenance Improvement project is envisioned to increase the efficiency of the system. This project would include upgrades to Pacheco Pumping Plant and potential operational changes for San Justo Reservoir. SCVWD and SBCWD are preparing an Asset Management Plan to achieve and maintain reliability of the San Felipe Division.

*Spot Market Transfers and Option Agreements.* Spot market transfers from outside the hydrologic region would be performed on an as needed basis to meet demands in times of critical shortfalls. Any transfers of CVP water must be approved by USBR. One-year transfers of irrigation water typically can be accomplished under the USBR's programmatic NEPA documentation, with application CEQA exemptions, and can be accomplished fairly quickly. However, identifying willing sellers in the spot market is uncertain. Option agreements for CVP water may be made in advance and are longer term. Transfer are facilitated through the use of these pre-arranged and pre-approved (by USBR) agreements that allow agencies to rapidly transfer water once the decision has been made to exercise a purchase option. A regional partnership among PVWMA, SBCWD and SCVWD to collectively purchase spot market transfers and/or option agreements could reduce the risks of over- or under-purchasing by the individual agencies, and reduce costs.

*Purchase of Additional CVP, SWP or Other Water Contracts.* If long-term water demands cannot be met using projected water supply portfolios, the purchase of additional CVP, SWP or other water contracts may be pursued. Purchases of additional water contracts are subject to institutional, legal, operational, and other constraints.

#### **4.1.6 Surface Storage**

In the Pajaro River Watershed, the surface storage strategy primarily involves modifications to existing surface storage reservoirs; however, it could also eventually include construction of new storage facilities. Modifications at existing reservoirs could be of either a structural or operational nature and would be made to allow water from these facilities to be put to more optimal use from a watershed standpoint. This includes improving the ability to coordinate releases from the reservoirs to better



coincide with peak irrigation periods, groundwater recharge opportunities and required reservoir maintenance schedules. At the current time, construction of new facilities is not planned; however, future evaluations under this strategy may consider the development of new reservoir sites.

The projects categorized under the surface storage strategy are:

*Uvas Reservoir Reoperation.* Uvas Reservoir, located along Uvas Creek, has a 9,835 AF capacity. Although SCVWD has a surface water right of 14,000 AFY on Uvas Creek, this full amount is not captured in the reservoir during many years. Alternative operation regimes, termed reservoir reoperations, could allow SCVWD to better realize the full complement of water rights available. Reoperations, consistent with the South County Resources Management Plan described previously, would involve management of releases from the dam to maximize regional water supply or local groundwater recharge opportunities.

*Chesbro Reservoir Reoperation.* Chesbro Reservoir, located along Llagas Creek, has a 7,945 AF capacity. Opportunities for reoperations at Chesbro Reservoir are not as significant as at Uvas Reservoir; however, SCVWD is considering improvements to the management of this reservoir to enhance local conditions.

*Pacheco Reservoir Reoperation.* Pacheco Reservoir, located along the north fork of Pacheco Creek, has a 6,143 AF capacity. Pacheco Reservoir is operated by Pacheco Pass Water District for local groundwater recharge. Reoperations at Pacheco Reservoir, including improved timing of releases from the dam and potential expansion of the reservoir, offers benefits to SCVWD, SBCWD and PVWMA, as changes to the management of releases from Pacheco Reservoir may increase water available for regional use. SBCWD is also interested in reservoir reoperations to avoid increasing groundwater levels in areas where the groundwater table is already high. This project would require coordination with Pacheco Pass Water District, which manages releases from Pacheco Reservoir.

*San Justo Reservoir Rehabilitation.* San Justo Reservoir has 10,000 AF capacity, but is currently limited to 7,000 AF because of seepage. Its role is to provide operational storage for the SBCWD CVP system. Rehabilitation of the reservoir to eliminate seepage would allow SBCWD to realize the full capacity of the reservoir and allow for greater flexibility in local operations.

*Hernandez Reservoir Reoperation.* Hernandez Reservoir, located along the San Benito River, has an 18,300 AF capacity. Water is released from the reservoir by SBCWD for percolation along the San Benito River. Because of high groundwater levels downstream that limit recharge, the water captured in the reservoir cannot be fully utilized. Reoperations would allow more of this water to be utilized through regional water supply opportunities.

*Paicines Reservoir Rehabilitation.* Paicines Reservoir is an off-stream reservoir located between San Benito River and Tres Pinos Creek. SBCWD is considering rehabilitation of the reservoir to decrease water losses and ensure full utilization of the 2,870 AF capacity. The reservoir loses significant quantities of water due to seepage.

#### **4.1.7 Water and Wastewater Treatment**

Water and wastewater treatment is a strategy based on improving the quality of water through various treatment processes. In the Pajaro River Watershed, this strategy deals with two major issues – water quality and effluent management.

Water treatment can apply to imported, local surface and groundwater sources. To supply M&I users with CVP water, the water must first be treated to potable standards; these types of projects are included in the water and wastewater treatment strategy. In some areas, water treatment will address groundwater impairment either from natural sources or anthropogenic sources that have caused degradation or loss of

existing potable groundwater supplies. The water and wastewater treatment strategy is related to the desalination strategy since desalination relies on treatment processes to remove TDS.

Wastewater treatment addresses challenges of effluent disposal, particularly those that arise in the closed inland groundwater basins. It is closely linked to the recycled water strategy as treatment to produce recycled water is one option that allows for mutually beneficial disposal of effluent. For the Pajaro River Watershed, wastewater projects are grouped in the water and wastewater treatment strategy with treatment plant improvements and disposal.



*Morgan Hill Package Plant.* The Morgan Hill Package Treatment Plant is being proposed as an additional water supply for the City of Morgan Hill. The project would provide a package plant to treat CVP water for supplemental M&I supply. Currently, the City relies solely on groundwater for water supply.

*San Juan Bautista Surface Water Treatment Plant.* The City of San Juan Bautista Surface Water Treatment Plan identifies construction of a new water treatment plant which would allow the blending of treated CVP water with groundwater from the San Juan Basin to create additional water supply.

*Morgan Hill Wellhead Treatment.* The Morgan Hill Wellhead Treatment project would aid in management of the existing perchlorate contaminant plume in southern Santa Clara County. Removing perchlorate through wellhead treatment systems will help restore full use of contaminated groundwater supplies for the City of Morgan Hill.

*Aromas Water District Wellhead Treatment.* The Aromas Water District is planning to implement the Aromas Water District Wellhead Treatment project that will reduce naturally occurring concentrations of iron and manganese to meet the secondary maximum contaminant level (MCL). By providing a wellhead treatment facility to treat the 300 AFY of groundwater supplied by two existing wells, the Aromas Water District will ensure continued use of their local supplies.

*Hollister Groundwater Softening.* This SBCWD project, which would serve the Hollister urban area, would treat groundwater to reduce TDS and hardness levels. Softening is being considered as an alternative to demineralization. The Hollister Groundwater Softening project would pump groundwater from wells in the San Juan subbasin to a centralized treatment plant.

*Hollister Wastewater Treatment Plant Improvements.* To meet effluent disposal needs, the City of Hollister is proposing improvements to their existing Domestic WWTP in order to create a regional plant. The Hollister Regional WWTP would expand treatment capacity from 2.69 mgd to 5.0 mgd. The expansion would include an upgrade of the treatment process to incorporate membrane bioreactor technology.

*Sunnyslope Wastewater Treatment Plant Improvements.* Sunnyslope County Water District has entered into discussions with the City of Hollister to negotiate potential connection to the Hollister Regional WWTP, which will result from the Hollister Wastewater Treatment Plant Improvements. However, in a parallel process, the District has also been considering upgrades to its Ridgemark wastewater facilities. As an alternative to connecting to the Hollister Regional WWTP, the District may implement a new treatment process to meet its new, more stringent Waste Discharge Requirements.

*Tres Pinos Wastewater Improvement Project.* The current treatment system for the Tres Pinos County Water District consists of treatment, evaporation and percolation ponds, which may be inadequate for

meeting future needs and regulatory requirements. A long-term solution for wastewater management would include exploring options for upgrading the system to more advanced forms of treatment such as a Sequencing Batch Reactor.

*SCRWA Discharge Pipeline.* This project would provide for limited winter discharge if SCRWA's percolation ponds are at capacity. The SCRWA Discharge Pipeline provides expanded recycled use opportunities as well as an alternative wastewater disposal method for SCRWA. The potential to add agricultural users along the SCRWA Discharge Pipeline is being considered in the current design process.

#### **4.1.8 Water Transfers**

The water transfers strategy adds flexibility to the management of water supplies and ensures the most efficient use of supplies by addressing imbalances that can occur throughout the watershed in demand versus supply.

The projects categorized under the water transfers strategy are focused on water transfers within the region. They are:

*CVP Water Transfers within the San Felipe Division.* The prospect of PVWMA, SBCWD and SCVWD all being physically connected to the San Felipe Division facilities led to the recommendation for coordinated imported water operations and the development of a San Felipe Division water transfer and banking agreement.

*Non-CVP Water Transfers and Banking Agreements.* The pressing need for water in the lower watershed combined with the high groundwater levels in the upper watershed presents a unique opportunity for transfers and banking opportunities between the upper and lower watershed. Water transfers to the Pajaro Valley could include groundwater, recycled water or surface water. This water could be banked in PVWMA through in-lieu groundwater recharge.

*River Conveyance.* The river conveyance project was conceived as potential means of transferring water from the upper watershed to the lower watershed. Initial studies suggest significant technical difficulties with this project; however, it has been considered by PVWMA and is of interest to stakeholders. Supplies to be conveyed through river conveyance would be limited to non-CVP supplies. Though technically feasible, the conveyance of CVP water using river conveyance is not technically practical given the loss of head when the water is discharged from the CVP system to the river that would then have to be recovered in pumping water out of the river.

#### **4.1.9 Conjunctive Use**

Conjunctive use is the coordinated management and use of groundwater and surface water resources to increase water supply reliability and water supply system flexibility, and reduce dry year demand deficits, overdraft, and subsidence. Because of this, conjunctive use is closely linked to the groundwater management, surface storage, and imported water strategies. Groundwater and surface water sources can have different advantages and disadvantages, often relating to timing or water quality. Conjunctive use projects are designed to take advantage of the more favorable aspects of either source that exist and use that to help offset or minimize the disadvantage of the other, allowing the fullest use of both. The most common example is using imported or surface water supplies to buildup storage reserves of groundwater, which can then be relied upon during dry years, or to or avoid overdraft and subsidence. This can be done through recharge of surface and imported water via percolation or injection or through "in-lieu" usage.

The blending of poor quality groundwater with high quality surface water is an example of beneficial conjunctive use in areas of the watershed where high TDS discourages the use of groundwater alone.

The projects categorized under the conjunctive use strategy are:

*Groundwater and Surface Water Blending.* This project is being considered by SBCWD mainly for the San Juan Basin and would involve blending the high TDS groundwater with better quality imported or local surface water to make it suitable for agricultural use.

*Arroyo Dos Picachos.* SBCWD has an existing water right of 4.75 cfs between December 1 and May 1 from Arroyo Dos Picachos, totaling up to 1,422 AFY. Historically SBCWD exercised its right to this water through in-stream groundwater recharge; however changes in land use has decreased the channel length that can be used for percolation. Instead of continuing the in-stream percolation, SBCWD is considering diversions from Arroyo Dos Picachos for M&I use in the City of Hollister. This project would require modifications to an existing diversion structure on the stream, construction of pipelines to deliver water to a new water treatment plant and ASR facilities to store excess water.

*Arroyo Los Viboras.* There is potentially up to 1,377 AFY of unadjudicated, seasonal water rights available from Arroyo Los Viboras. SBCWD is considering pursuing these rights as additional supply for M&I use in the City of Hollister. This project would require similar infrastructure as described under the Arroyo Dos Picachos project. Additionally, this project would require coordination with Pacheco Pass Water District, which has an existing diversion structure on the stream.

*Pacheco Creek.* On Pacheco Creek, there are opportunities for SBCWD to utilize unused water rights as well as a possible transfer of some existing water rights. This project would require similar infrastructure as described under the Arroyo Dos Picachos project. Additionally, this project would require coordination with Pacheco Pass Water District, which manages releases from Pacheco Reservoir.

*Cienega Valley.* This project would involve rehabilitation and replacement of a damaged pipeline that historically had delivered groundwater from Cienega Valley to the City of Hollister. The Cienega Valley project would include construction of additional pipeline to connect the Cienega system to the CVP system at the Hollister Conduit. This would restore full delivery of the City's 489.41 AFY maximum diversion. Under the proposed project, the City would exchange its Cienega Valley water for SBCWD's CVP water. The City would take CVP water further upstream, and SBCWD would deliver blended Cienega Valley and CVP water further downstream.

*Tres Pinos Water Improvement Project.* Tres Pinos County Water District is planning a series of improvements and upgrades to its water supply system that include construction of a 500,000 gallon storage tank, drilling of new wells to augment current supplies and pipeline improvements for fire flows.

#### 4.1.10 Water Conservation

Water conservation is an essential strategy used by many agencies and municipalities to lower the ultimate water demands within the Pajaro River Watershed. It is an efficient strategy as water conserved represents a saving of all the accompanying costs to the region - financial, energy-related and otherwise - associated with delivery and treatment of that water. Water conservation helps to meet water supply objectives and it also can assist in meeting water quality objectives by eliminating excess runoff.



Conservation is implemented through a number of measures related to either agricultural or urban settings and include water use efficiency studies, water metering programs, tiered water rates, agricultural irrigation audits, grower education and demonstration projects, weather-based irrigation controller program, low flow and high efficiency appliance rebates and conservation ad campaigns. Many of the conservation activities are on-going and will continue into the future. Projects that implement this strategy usually consist of a set of water conservation activities that are offered as programs by the Partners, agencies and municipalities to their customers. Although traditionally these water conservation programs have been offered individually by entities, the Partners are attempting to integrate individual efforts where possible, to gain greater public awareness and approval, and cost efficiency.

The projects categorized under the conservation strategy are:

*Agricultural Water Conservation Measures.* This Agricultural Water Conservation Measures is a category of projects that focus on modifying growers' practices and promoting efficient crop irrigation management. It consists of education and outreach programs which are sponsored by a number of agencies including the Partners, RCDs and Farm Bureaus, a water use efficiency nursery program offered by SCVWD and irrigation equipment improvement and soil moisture monitoring programs through SBCWD.

*Urban Water Conservation Measures.* The Urban Water Conservation Measures project consist of public outreach programs, rebate programs for water conservation devices, residential water surveys, plumbing retrofits, system water audits, irrigation technical assistance, evapotranspiration-based irrigation controller pilot programs and water efficient technologies programs. This project promotes the continuation of these measures by PVWMA, SBCWD and SCVWD.

*Water Conservation Studies, Research, Pilot Programs and Future Projects.* Development and testing of innovative technology and practices is also an important component of water conservation. The Water Conservation Studies, Research, Pilot Programs and Future Projects project category encompasses a wide variety of activities and programs that are being undertaken by PVWMA and SCVWD to develop improved, more efficient and acceptable methods for water conservation.

#### **4.1.11 Water Quality Protection and Improvement**

The water quality protection and improvement strategy involves actions to prevent the degradation of water quality and promote prompt and appropriate cleanup when contamination has occurred. For surface water this is accomplished mainly by reducing the impacts of urban and agricultural runoff. For groundwater it involves protecting basins from pollutants such as nitrate and solvents and preventing the buildup of TDS.



The projects categorized under the water quality protection and improvement strategy are:

*Regional Mobile Lab.* The Regional Mobile Lab project is envisioned to be an extension of the five-county Integrated Program for Irrigation and Fertilization Management, called the Ag Mobile Lab. The Ag Mobile Lab was a grant funded project that provides irrigation and fertilization management assistance for farmers and nurseries in Santa Clara, San Benito, Santa Cruz, Monterey and San Mateo Counties. Funding for this project ended in March 2007. Through the Regional Mobile Lab, PVWMA, SBCWD and SCVWD would continue to provide technical services to farmers and nurseries on a one-on-one basis. This strategy also has a substantial educational and assistance component that focuses on teaching management practices and providing tools that can be used to protect water quality and improve

water use efficiency. The tools the Regional Mobile Lab provides to irrigators support compliance with Conditional Agricultural Waivers.

*Ranchette Series.* The Ranchette Series is a program run by the RCDs in conjunction with SBCWD, SCVWD and PVWMA. It is similar to the Regional Mobile Lab; it encompasses a variety of water quality workshops targeting landowners with small acreages. Topics vary depending upon available funding and may include wells and groundwater protection, septic system management, hazardous materials management, manure management, erosion control, native plant identification and uses, irrigation management, integrated pest management, and composting. The Ranchette Series project proposes to continue providing educational assistance to small landowners on water quality and environmental protection.

*Nitrate Management Program.* This project provides groundwater protection and management through education of the community on nitrate issues, including exposure risk, sources of nitrate loading, and management measures. SBCWD, SCVWD and PVWMA have each conducted individual nitrate management efforts that focus on promoting practices that reduce nitrate loading. The primary emphasis has been on agricultural loading, but other sources such as septic systems and non-agricultural fertilizer use have also been addressed. In addition, SCVWD is considering a residential treatment system rebate program to reduce exposure to nitrate. This project would combine the Partners' efforts.

*Salinity Education Program.* Salinity education programs are being implemented individually by a number of agencies. Through this project, PVWMA, SBCWD and SCVWD would develop a joint Salinity Education Program targeting both agricultural and municipal users. The program will help users to understand the importance of salt management and how to minimize their impacts on the salt balance. The main focus for the agricultural community will be on managing salt additions from fertilizers, and for M&I users it will focus on water softening.

*Water Softener Rebate Program.* SBCWD and SCVWD are coordinating on a Water Softener Rebate Program, which provides a financial incentive to encourage customers to replace old, inefficient water softeners with new, water- and energy-efficient water softeners that also reduce salt loading to wastewater systems. This project can be expanded to include PVWMA.

*Solvent and Toxins Liaison Program.* SCVWD has established the Solvent and Toxics Liaison Program which addresses activities that use chlorinated solvents that can contaminate the Santa Clara Valley groundwater basin. It provides peer review and monitoring of progress of the many cleanups currently underway, including the Olin Perchlorate cleanup in the Llagas Groundwater Subbasin. As part of this program, SCVWD participates in advisory committees, provides comments to regulatory agencies and engages in stakeholder forums.

*Groundwater Conveyance via the Pajaro River.* This project under consideration by SBCWD would be used as a groundwater quality management program for the SBCWD groundwater basins. The Pumped Groundwater Placed into the Pajaro River project would evaluate the feasibility of pumping groundwater containing high concentrations of salts and exporting that water out of the county using the Pajaro River instead of through a pipeline. That water could then be treated to remove the salts and used as a blending source and/or delivered directly to agricultural water users in the Pajaro Valley.

*Export Pipeline.* The Export Pipeline project would evaluate the feasibility of a pipeline that would carry groundwater and/or some potential combination of treatment concentrate, wastewater effluent, agricultural drainage runoff or pumped groundwater between Hollister or the San Juan Valley and the City of Watsonville. That water could then be treated to remove the salts and blended and/or delivered

directly to agricultural water users in the Pajaro Valley. An important aspect of this approach is the potential to utilize the City of Watsonville’s existing ocean outfall.

*Recharge Area Protection Program.* The Recharge Area Protection Program is a joint effort by the County of Santa Cruz and PVWMA that will protect groundwater quality by preserving areas of groundwater recharge through land acquisition, basin maintenance, sediment control, zoning and education and outreach programs.

#### **4.1.12 Stormwater Capture and Management**

Although the flood management and NPS pollution control strategies also address stormwater impacts, the stormwater capture and management strategy is more narrowly defined around the capture, detention, and/or treatment of high peak flows associated with wet weather events. Usually, stormwater capture and management is employed as a specific sub-strategy within the broader flood management and NPS pollution control strategies. Projects employing stormwater capture and management address flood management and water quality objectives and can also offer excellent opportunities to assist in achieving environmental protection and enhancement objectives.

The projects categorized under the stormwater capture and management strategy are:

*Constructed Wetlands Treatment.* Constructed Wetlands are being proposed by SBCWD along the San Benito River to remove sediments, solids and nutrients from stormwater prior to discharge to the river. These wetlands could also be designed to be multi-functional and accommodate subsurface drainage and municipal wastewater flows as well as stormwater.

*Tequisquita Slough Wetland Treatment Project.* The Resource Conservation District is implementing the Tequisquita Slough Wetland Treatment Project, which is a constructed wetlands designed to address sediment and nutrient TMDLs while also restoring native plants and habitat.

*Stormwater Treatment through Industrial WWTP.* While constructed wetlands and detention basins represent a more decentralized approach towards stormwater management, the City of Hollister has centralized treatment of stormwater (collected in an existing combined system) at the Hollister Industrial WWTP. There have been discussions regarding separation of the stormwater and industrial wastewater collection systems.

#### **4.1.13 Non-Point Source Pollution Control**

The non-point source pollution (NPS) control strategy, which is closely tied to the water quality protection and improvement strategy, aims to protect water quality by reducing the impact of pollutants that are not attributable to single point sources. Non-point source pollution is most challenging to address precisely because it occurs on a widespread scale throughout the watershed and because responsibility can be more difficult to assign. In the Pajaro River Watershed, NPS pollution control is a concern mainly because of agricultural runoff, but urban runoff, mining activities, habitat modification and channel erosion have also been identified as potential NPS sources. The NPS pollution control strategy works to reduce the impact from NPS sources and aids in meeting TMDLs established for the region.



The projects categorized under the non-point source pollution strategy are:

*Conditional Agricultural Waiver.* One of the most significant opportunities for non-point source pollution control in the Pajaro River Watershed is with agricultural sources. The RWQCB issues Conditional Agricultural Waivers to growers who meet specified conditions as an alternative to waste discharge permits for their irrigation activities. Key requirements of the waivers are attendance at a RWQCB-approved water quality education course, completion of a Farm Water Quality Control Plan, and provisions for monitoring. This Conditional Agricultural Waiver project would consist of efforts to assist growers in complying the RWQCB's Conditional Agricultural Waiver program, including developing and implementing their Farm Water Quality Control Plans, as means of reducing nutrient and sediment loading to water bodies. This effort would be coordinated with the RWQCB, the Central Coast Agricultural Water Quality Coalition, and other resources agencies and districts.

*Santa Cruz Partners in Restoration Permit Coordination Program.* This project sponsored by the Santa Cruz County RCD will address agricultural non-point source pollution by streamlining the permitting process for best management practices (BMPs) designed to prevent and reduce transport of sediment, nutrients and pesticides. The program supports TMDL implementation and agricultural waiver compliance.

*San Benito and South Santa Clara Permit Coordination.* This project is modeled after the Santa Cruz Partners in Restoration Permit Coordination Program. Sponsored jointly by the San Benito RCD and Santa Cruz County RCD, this project would extend the streamlined permitting process for BMPs to the greater Pajaro Watershed.

*Green Valley Watershed Streambank Stabilization.* The Santa Cruz County RCD has proposed the Green Valley Watershed Streambank Stabilization project as a demonstration project for streambank stabilization techniques. The project will improve a section of stream along Casserly Creek that has a deeply incised channel, excessive bank erosion and little riparian vegetation.

*Coward Creek Streambank Stabilization.* This is another streambank stabilization demonstration project proposed by the Santa Cruz County RCD. The project will be implemented along Coward creek in an area where the stream is being severely undercut and is causing erosion related loss of land to adjacent properties.

*Vegetative Buffer Strips.* This project sponsored by SCVWD uses available NPS program funds to work with Santa Clara County landowners to identify regions that could benefit from the installation of vegetative buffer strips. Vegetative buffer strips protect water quality by serving as buffers between receiving waters and nearby land uses. These buffer strips also aid in groundwater recharge by capturing overland flow and drawing the water downward.

#### **4.1.14 Flood Management**

The flood management strategy is intended to protect infrastructure and property from flooding. In the Pajaro River Watershed, effective flood management involves consideration of the entire region in developing solutions. Projects employing the flood management strategy support the IRWMP flood management objectives.

The projects categorized under the flood management strategy are:



*Soap Lake Floodplain Preservation Project.* This project sponsored by the Pajaro River Watershed Flood Prevention Authority provides non-structural flood protection through preservation of approximately 9,000 acres of agricultural lands in the Soap Lake Floodplain. The floodplain provides natural flood storage and attenuation for the Pajaro River Watershed and reduces the flow that needs to be carried through the downstream channel.

*Levee Reconstruction Project.* This project is a joint effort among Santa Cruz County, Monterey County, the U.S. Army Corps of Engineers (USACE) and Action Pajaro Valley. The project is intended to increase levee flow capacity from 22,000 cfs to 44,000 cfs, which will provide conveyance of the 100-year flood event, protecting local communities in the lower Pajaro River Watershed from flood damage. The project is an integration of several efforts. The first phase includes excavation of benches within the river channel and a stakeholder process to ensure local funding will be available for the actual reconstruction of the levees, which is the second phase of the project.

*ALERT Station Monitoring.* Through the ALERT Station Monitoring project, SCVWD, SBCWD, Monterey County Water Resources Agency and the City of Watsonville will install additional flood warning stations at key locations in the Pajaro River Watershed that monitor and transmit precipitation, water level data and other parameters to provide early warning of potential flooding events. This project will allow for performance evaluation of flood control projects.

*Upper Llagas Creek Flood Protection Project.* This SCVWD project will provide 100-year level of flood protection in the urban areas of Morgan Hill and 5- to 10-year level of flood protection in the agricultural areas of Gilroy and San Martin. In addition, the project includes channel stabilization measures to reduce erosion and sedimentation in Llagas Creek to improve stream habitat for fish and wildlife while also improving water quality.

*Lower Llagas Creek Flood Protection Project.* The Lower Llagas Creek Flood Protection Project is a restoration project to address reduced capacity in the levee system which extends along the lower Llagas Creek approximately from Buena Vista Avenue downstream to the confluence with the Pajaro River. SCVWD's proposed project would remove the existing levees widening the floodplain upstream and minimizing impacts downstream.

*Uvas Creek Flood Protection.* This project sponsored by SCVWD involves management of the levees along Uvas Creek.

*San Juan Basin Surface Drainage.* SBCWD has proposed surface water detention and drainage alternatives in the San Juan Basin area that can be integrated with an existing Caltrans reconstruction plan for Highway 156 between San Juan Bautista and Hollister. This plan will provide surface water detention and water quality benefits to a tributary of the Pajaro River, thereby assisting with stormwater runoff quality concerns and also reducing peak flows from the San Juan Basin into the Pajaro River.

#### **4.1.15 Ecosystem Restoration**

Projects employing the ecosystem restoration strategy aim to return ecosystems that have been altered by past actions to their original state.

The projects categorized under the ecosystem restoration strategy are:

*Restoration of the Upper Pajaro River Floodplain.* This project sponsored by The Nature Conservancy (TNC) involves the development of a restoration plan for the wildlife corridor between the Mountain Hamilton Range and the Santa Cruz Mountains.

*Tar Creek Bridge Replacement, Bank Stabilization.* This project provides for bridge removal, bank stabilization and installation of riparian vegetation along an acute bend of Tar Creek located within Soap Lake. Tar Creek is a designated steelhead stream. By removing the bridge's supporting wood and concrete and associated bank debris, SCVWD will enhance the viability of this reach for steelhead passage. Additionally, riparian vegetation will be installed for bank stabilization and stream shading.

*Pajaro River Lagoon Monitoring.* The Pajaro River Lagoon Monitoring project is a comprehensive monitoring plan that includes bathymetry, fish, water quality and snowy plover monitoring. This project, which is being led SCVWD, will provide a better understanding of the lagoon's ecosystem.

*Coroto Pit Restoration.* Through this project, Graniterock Company will deed six acres of previously pit-mined land to San Benito County. San Benito County is considering using this land to create passive recreational opportunities including hiking and bird-watching, to protect and restore naturally occurring wetlands and mud flats, to create and protect habitats for birds, amphibians and reptiles and to create passive recreational opportunities including hiking and bird-watching.

#### **4.1.16 Environmental and Habitat Protection and Improvement**

Environmental and habitat protection and improvement is a strategy that is employed to address the potential loss of habitat resulting from increasing development and population density. In the Pajaro River Watershed, the protection and restoration of habitat for steelhead is a major focus of this strategy. There are many opportunities to create multi-benefit projects by employing this strategy as an integral component of other strategies including water supply reliability, groundwater management, stormwater capture and management, NPS pollution control, flood management, and wetlands enhancement and creation.



The projects categorized under the environmental and habitat protection and improvement strategy are:

*Watsonville Slough Enhancement.* This project is a partnership between Santa Cruz County, the City of Watsonville and PVWMA, and would provide a scenic network of trails that would include wildlife viewing lookout and interpretive displays. Besides serving as a recreational area, the Watsonville Slough Enhancement project protects areas of Watsonville Slough and aims to promote the importance of natural settings and resource conservation.

*Tick Creek Riparian Enhancement.* This project sponsored by SCVWD provides for riparian vegetation along approximately 2,000 lineal feet of creek channel. Tick Creek runs amidst land currently in agricultural and pasture usage. Installation of appropriate vegetation will enhance the creek corridor by providing a buffer from adjacent land use, provide erosion protection of creek banks and increase population of native flora on site.

*Uvas Creek Fish Passage at Silva Crossing.* This SCVWD project will remove and retrofit the existing culvert system. This roadway creek crossing has been identified by fishery biologists, regulatory staff and others as a significant barrier to up-migrating fish in the Uvas-Carnadero Creek watershed system. Ten culvert pipes have been installed over the years in an effort to address increased flows in the creek but not with fish passage as an objective. The system also requires retrofitting because the existing culvert system remains inadequate during high flows.

*Bolsa Road Fish Ladder.* Through this project, SVWD will improve the fish passage conditions at the Union Pacific Railroad Bridge crossing on Uvas Creek at Bolsa Road in Gilroy. The original design of the ladder called for fish to be able to swim into the first baffle of the ladder at lower flows. Over the years the creek has downcut several feet so that now at lower flows fish must jump into the first baffle. This condition has reduced the effectiveness of the ladder and made fish passage through the ladder more difficult at the commonly occurring lower flows.

*Stream and Watershed Protection Program.* This program, sponsored by SCVWD, is an environmental land preservation program in Santa Clara County that helps protect the county's streams and associated wetlands. The program allows the District to conduct routine stream and canal maintenance while providing mitigation credits for wetland impacts from these maintenance activities. This program provides opportunities for willing sellers of stream-bearing lands to preserve the ecologic condition of their property. The program also promotes partnerships among SCVWD, park and open space agencies and land conservation organization to acquire land.

*Adopt-a-Creek.* The Adopt-a-Creek program is a volunteer program led by SCVWD that encourages Santa Clara County residents to take an active role in helping to preserve the health and beauty of the region's creeks. Implementation of the program is mainly volunteer-based with community members assisting in the maintenance of creeks by removing debris, litter and trash found along creeks. This project promotes awareness of the Adopt-a-Creek program in order to minimize the impact urbanization has on waterways and keeps creek from becoming overwhelmed by pollution.

*Watershed Stewardship Grant Program.* This grant program supports community-based, non-profit organizations in watershed stewardship efforts to enhance ecosystem health, water supply and water quality in Santa Clara County. In addition to encouraging cooperation among SVWD, community groups, private businesses and local government agencies, this program also promotes awareness, education and research related to ecosystem sustainability.

#### **4.1.17 Recreation and Public Access**

The recreation and public access strategy considers the opportunities for open spaces, trails, parks and other recreational opportunities that promote watershed stewardship. Recreation and public access projects may simply involve the development of recreational areas alongside lakes, rivers or wetlands whereby visitors can gain an appreciation for water resources simply through their interaction with the natural environment, or they can encompass a stronger education aspect through installation of interpretative signs or educational facilities. For the Pajaro River Watershed, projects grouped under the recreation and public access strategy are mainly of the former type. Projects of the latter type are categorized under the environmental and habitat protection and improvement strategy.



The projects categorized under the recreation and public access strategy are:

*Open Space Authority Acquisitions.* This project would continue land acquisitions by the Open Space Authority, which to date has preserved 9,000 acres of land in Santa Clara County. The Open Space Authority works to preserve open spaces and create greenbelts between communities. It encourages recreation and continued agricultural activities. Among the Open Space Authority acquisition goals is the preservation of wetlands and riparian corridors.

*Trails, Parks & Open Space Grant.* This project is designed to assist SCVWD in its goal of providing public access to 70 miles of trails or open spaces along creeks. The Trails, Parks & Open Space Grant is offered biennially. It encourages development of trails, parks and open spaces to increase public access to and enjoyment of public areas for increased recreational opportunities.

*Pajaro River Access at the Watsonville Treatment Plant.* Public parking and river access is being implemented in conjunction with the recycled project at the Watsonville Treatment Plant. This project will create river access for kayaks alongside the facility and provide trails from the plant to integrate with existing recreational trails.

*Pajaro River Parkway.* This project would expand current recreational opportunities along the Pajaro River. The City of Watsonville plans to incorporate public access and recreational opportunities with the Levee Reconstruction Project through the Pajaro River Parkway project.

*San Benito River Parkway.* This project would expand current recreational opportunities along the San Benito River. The City of Hollister and County of San Benito are considering integrating the San Benito River Parkway project with a mine restoration project along San Benito River.

#### **4.1.18 Wetlands Enhancement and Creation**

Wetlands can provide various functions within a watershed. While serving as habitat for numerous flora and fauna, wetlands aid in groundwater recharge, stream water quality protection and flood attenuation. The wetlands enhancement and creation strategy emphasizes the use of wetlands as wildlife habitat. Other types of projects employing the wetlands enhancement and creation may be found in the stormwater capture and management, NPS pollution control, flood management, ecosystem restoration, environmental and habitat protection and improvement and recreation and public access strategies.



The one project categorized under the wetlands enhancement and creation strategy is:

*College Lake Wetland and Stream Restoration.* The College Lake Watershed drains the northeastern region of the PVWMA service area through a network of streams, which include Green Valley, Casserly and Hughes Creeks. College Lake is a seasonal water body created when seasonal flows collect in a natural, fault-controlled depression. To reduce impacts of flooding on agricultural lands, the College Lake Reclamation District actively manages flows into and out of College Lake by impounding water during winter months and pumping water out during the spring. The seasonal management of College Lake provides ideal conditions for waterfowl in the winter and is a popular bird-watching site. Additionally, College Lake is used during the migration periods of adult steelhead and smolt. The College Lake Wetland and Stream Restoration project is being proposed to provide a preliminary planning tool to direct future long-term planning and development activities in the area that can achieve an array of environmental and social benefits to the area.

#### **4.1.19 Watershed Planning**

The watershed planning strategy includes those projects that are specifically designed to take a broader, regional perspective on water resource management or which are aimed at meeting all of the watershed's goals.

The projects categorized under the watershed planning strategy are:

*Groundwater and Biological Assessment of the Upper Pajaro River.* This project promotes integration of environmental restoration with the development of water supply, water quality and flood protection projects throughout the greater Pajaro River watershed. Through implementation of this project, TNC will provide the detailed scientific information to fill in existing data gaps concerning the hydrogeologic and biological functions of the upper Pajaro River.

*Historic Ecological Study of the Upper Pajaro.* SCVWD and The Nature Conservancy are coordinating on the Historic Ecological Study of the Upper Pajaro, which proposes to research the historic ecological and physical characteristics of the Upper Pajaro River Watershed. The project synthesizes data to provide a scientific basis for future stream restoration and management.

*Pajaro River Watershed Council.* The mission of the Pajaro River Watershed Council is to coordinate local interests, identify natural resource issues, develop solutions, and implement projects ensuring a sustainable and quality watershed. This project provides continued support for a public forum to discuss issues related to watershed management.

*Pajaro River Watershed Study.* The purpose of the Pajaro River Watershed Study would be to complement the ongoing development of the Pajaro River Flood Control Project by investigating management measures that are important to improving the overall public acceptability of the flood damage reduction project, but are outside of the scope of the project authorization. The Pajaro River Flood Control Project was authorized in 1966 as a single-purpose flood damage reduction project. As a single-purpose project, only flood damage reduction benefits can be used to justify Federal investment in the project; however, stakeholders have identified other outputs, such as geomorphic stability and steelhead habitat improvements, that are important for overall public acceptability of the project. The watershed study provides a means to investigate these other outputs. The watershed study would also provide information that will complement the ongoing Soap Lake Preservation Project and other proposed water resources projects in the Pajaro River Watershed.

#### **4.1.20 Land Use Planning**

Land use planning was considered as a strategy for meeting IRWMP objectives. However projects that exhibit the land use planning strategy can be captured under other strategies, which they more effectively address. For example, the Recharge Area Protection Program, which limits land uses in areas sensitive to groundwater contamination, was grouped under the water quality protection and improvement strategy, and the Soap Lake Floodplain Preservation Program, which preserves existing land uses to maintain flood attenuation properties, was categorized as a flood management project. Though the Partners were able to identify some purely land use planning strategies such as general plan updates, they decided not to include land use planning as a distinct water management strategy in the IRWMP. Rather land use plans, policies and ordinances set forth by the various cities, counties and districts will be used as guidance documents in the development of other strategies. Coordination of this IRWMP with local land use agencies is further described in Section 13.