

2.2 Recycled Water Program

DDSD was issued a General Water Reuse permit issued by the San Francisco Regional Water Quality Control Board (RWQCB). This permit allows DDSD to produce recycled water and distribute it for reuse. Although DDSD's Recycled Water Facility (RWF) has the capacity to produce up to 12.8 mgd of recycled water, existing demands are typically only 7 mgd on an annual average basis. The RWF approaches a recycled water production rate of 12 mgd less than 1% of the year, typically during peak summer days when the energy demands are highest. Therefore, there is surplus recycled water available for additional reuse opportunities. Expanded use of recycled water within DDSD's service area would provide the following benefits:

- **Reduced Dependence on Delta Supplies.** Delta supplies represent the bulk of water used within DDSD's service area. Expanded use of recycled water within this area would lessen the amount of Delta water diverted by the Contra Costa Water District, making water not used available for other purposes.
- **Improved Water Supply Reliability.** Since recycled water is not affected by hydrologic conditions, it provides additional dry-year reliability for irrigation customers and other users.
- **Preservation of Potable Water Supplies.** Using recycled water to serve non-potable demands such as irrigation will preserve high-quality drinking water supplies for potable needs.
- **Reduced Wastewater Discharges.** DDSD currently discharges its wastewater effluent into the New York Slough. With the advent of Total Maximum Daily Load (TMDL) requirements for mercury and other constituents of concern, wastewater dischargers are facing increasingly stringent regulations. Increasing the production of recycled water will help DDSD to comply with these future regulations by reducing the amount of effluent discharged.

Given all of the benefits for expanded recycled water use, DDSD formed partnerships with the cities of Pittsburg and Antioch to explore additional opportunities for using recycled water. In 2004, DDSD applied for and received a recycled water planning grant from the State Water Resources Control Board (SWRCB) to evaluate the feasibility of expanding recycled water use within its service area. This grant funding was used to develop the 2005 Recycled Water Facilities Plan for the Pittsburg/BayPoint area as well as the 2006 Recycled Water Facilities Plan for the City of Antioch. Since DDSD had recently negotiated an agreement with the local water agency, Contra Costa Water District, to allow for the development of an additional 1,654 AF of recycled water for urban landscape and golf course irrigation projects within the District's service area, these plans focused on opportunities for using recycled water as an irrigation supply.

A brief description of the recommended project from each facilities plan is provided below. A more detailed description of the DDSD/Antioch Urban Water Reuse Project, the subject of this application, is provided in Section 3. Upon completion of these recommended projects, DDSD will have increased its annual average recycled water deliveries to approximately 7.7 mgd. Therefore, there is approximately 5-mgd of excess treatment capacity below the approved-EIR amount of 12.8-mgd.

DDSD/Pittsburg Urban Water Reuse Project

The DDSD/Pittsburg Urban Water Reuse project is currently in construction and is scheduled to be completed in August 2008. Once operational, the DDSD/Pittsburg Urban Water Reuse project will deliver 615 acre-feet per year (AFY) [or 0.55 mgd] of surplus recycled water supply from DDSD's RWF to three municipal parks and the Delta View Golf Course.

DDSD/Antioch Urban Water Reuse Project

A Facilities Plan for the DDSD/Antioch Urban Water Reuse Project was completed in 2006, and a CEQA document was finalized for the Project in January 2007 (see **Attachment 3** of this submittal). The Project is currently in the design phase. The project implementation schedule is contingent upon approval of grant funding and a low-interest SRF loan, however, the current plan is to complete the design by January 2009, and to complete construction by December 2009. The DDSD/Antioch Urban Water Reuse Project involves construction of approximately 19,829 LF of pipelines, a 1.1-MG underground storage tank and a pump station to deliver about 487 AFY (of surplus recycled water supply from DDSD’s RWF to the Lone Tree Golf Course and other municipal parks along the alignment. A more detailed project description is provided in the following section.

3 DDSD/Antioch Urban Water Reuse Project

As shown in **Figure 5**, The DDSD/Antioch Urban Water Reuse project would extend the recycled water distribution infrastructure to establish recycled water service for landscape irrigation use at the Lone Tree Golf Course and at other municipal parks along the pipeline alignment.

3.1 Recycled Water Users and Demands

The Project will deliver recycled water to the Lone Tree Golf Course and other municipal parks along the alignment, including Fairview Park, Antioch City Park, Mountaire Park, and Chichibu Park. It is estimated that these users, which combined have about 120 acres of irrigable land) will require 487 AFY (0.43 mgd) of recycled water on an annual average basis, with the bulk of the demands occurring from April to September. **Table 1** provides a summary of the recycled demands by user for the Project.

Table 1 – Recycled Water Project Demands

User	Demand (AFY)
Lone Tree Golf Course	438
Fairview Park	15
Antioch City Park	18
Mountaire Park	22
Chichibu Park	55
Total	487

Lone Tree Golf Course

The Lone Tree Golf Course is owned and maintained by the City and is located south of Highway 4, approximately 4 miles from the DDSD RWF in southern Antioch. The golf course currently uses raw water supplies from the adjacent Antioch Municipal Reservoir for irrigation. As shown in **Table 1**, with an estimated irrigation demand of 438 AFY, the Lone Tree Golf Course represents the bulk of the Project’s recycled water demand at 90% of the total.

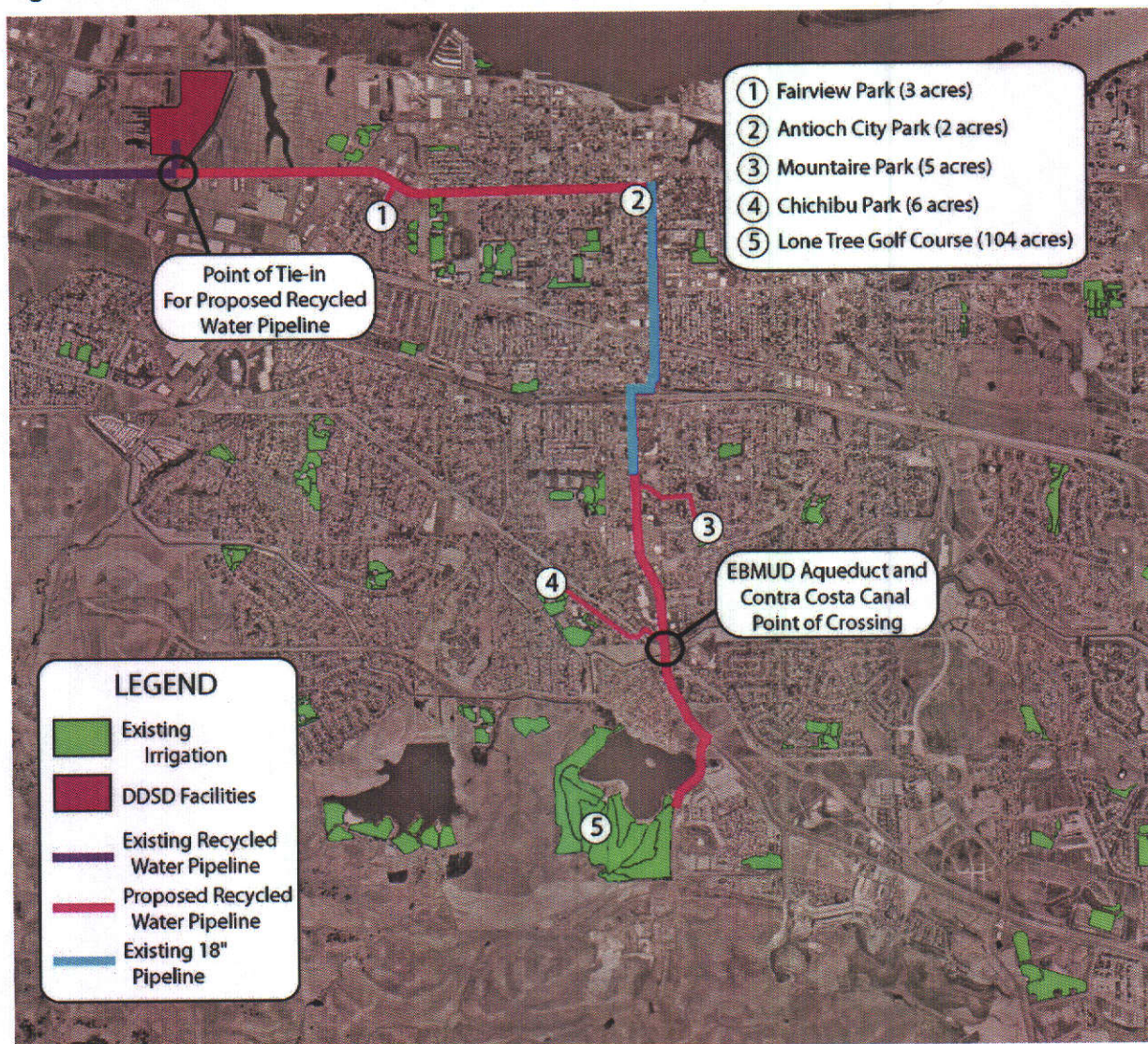
City Parks

The City has several city-owned parks throughout the area, many of which offer significant irrigation demands and potential for recycled water use. These parks all currently irrigate green areas with potable water supplies. Following completion of Project construction, Fairview Park, Antioch City Park, Mountaire Park, and Chichibu Park will be irrigated using recycled water instead.

Providing recycled water for irrigation will reduce the City of Antioch’s (City’s) draw on the Delta, the current raw water source for the City. In addition to the environmental benefits associated with reducing

intake of Delta waters, the City will also be able to increase its supply reliability for irrigation customers. Unlike current potable supplies, recycled water is unaffected by drought conditions.

Figure 5: DDSD/Antioch Urban Water Reuse Project



3.2 Proposed Facilities

Major facilities associated with the Project include approximately 19,829 LF of new recycled water pipeline, a 1.1-MG underground storage tank and a pump station. The project will tie into an existing 20-in recycled water pipeline at DDSD's RWF and will make use of an abandoned pipeline in order to minimize the length of new piping installed. Additional information about these facilities is provided below.

Recycled Water Pipeline

A new recycled water pipeline is proposed for construction to convey recycled water from the existing recycled water pipeline near the DDSD RWF to the Lone Tree Golf Course and other municipal parks along the alignment, including Fairview Park, Antioch City Park, Mountaire Park, and Chichibu Park. **Figure 5** shows the proposed pipeline alignment. As shown in this figure, the pipeline begins at the tie-in to the existing 20-in recycled water pipeline at the RWF and travels east along West 10th Street for 11,500 feet, at which point it ties in with an existing (abandoned) 18-inch pipeline along A Street to Lone Tree Way. Use of this existing pipeline allows the Project to minimize ground disturbance along A Street and to avoid having to construct a new crossing at Highway 4. A new 12-in recycled water pipeline will tie into the southern end of the existing pipeline, traveling south for 5,640 feet along Lone Tree Way and then southwest for 2,680 feet along Golf Course Road to serve Lone Tree Golf Course.

Lateral pipelines would be installed off the main recycled water pipeline to deliver water to specific user sites. These short lateral pipelines would be approximately 4 inches in diameter and would be constructed within public streets. Final locations for those laterals would be determined during Project design in consultation with specific users to identify the best point to tie into the user site irrigation system.

The majority of the pipeline would be installed in an open cut trench except for two key crossings including the Contra Costa Canal and East Bay Municipal Utilities District's (EBMUD) Mokelumne Aqueducts, where the pipeline would be installed by trenchless construction; or would connect with existing pipe, making the crossing without surface disruption.

Storage and Pumping Facilities

In addition to the recycled water pipeline, the Project will include construction of an underground storage tank and a pump station at the Lone Tree Golf Course.

Project Storage Facilities

The Project would deliver recycled water to a 1.1-MG underground storage tank located at the Lone Tree Golf Course. The tank size is sufficient to provide one day's worth of operational storage during an average day during the peak summer months. The underground storage tank would be approximately 35 feet in height and 80 feet in diameter.

The CEQA document completed for this Project evaluated two potential locations for siting the underground storage tank, including the sump area adjacent to the fairway on the 18th hole, and the ruff area adjacent to Golf Course Road in the southeast section of the course (**Figure 6**). The exact location for the storage tank for the tank will be determined during the design phase.

Project Pumping Facilities

The Project will include construction of a pump station consisting of a concrete masonry unit (CMU) building with a steel roof containing sky lights would be constructed adjacent to the tank.

Figure 6: Proposed Underground Storage Tank Locations



3.3 Project Construction Methods and Equipment/Staging Areas

Construction would consist of approximately 19,820 feet of new pipeline and will take an estimated 11 months. Construction of the storage tank and pump station will happen concurrently with pipeline construction. Construction is planned to start in January 2009 and continue through December 2009. The recycled water pipeline and laterals will be sized between 10 and 14 inches, and will be constructed within city and county owned roadways. Pipeline installation for all sections would use standard open-cut trenching techniques except the crossing of the Contra Costa Canal and EBMUD Mokelumne Aqueducts where the pipeline will be installed by trenchless construction.

Standard installation of the pipeline would proceed at the rate of approximately 100 feet per day with an overall work zone length of 300 to 400 feet. For work within the roadways, trench width would be approximately eight feet, with active work areas of about ten feet on one side of the trench and 10 to 16 feet on the other side for access by trucks and loaders, resulting in a construction corridor width of approximately 25 to 30 feet wide. For the purpose of this analysis, a construction easement of 30 feet is assumed, and will be used as the Area of Potential Effect (APE). Excavated trench materials would be hauled to an approved location for disposal.

Damage to the road and non-paved areas would be repaired. Disturbed areas would be revegetated with native grasses indigenous to the disturbed area. Revegetation would occur after construction and prior to winter rains to stabilize disturbed areas against erosion.

Installation of the pipeline would require, but is not limited to, the following equipment: crane, excavator, backhoe, front-end loaders, dump trucks, diesel generator, water tank, flat-bed truck, compactors, double transfer trucks for soil hauling, concrete trucks, paving equipment and baker tanks (as needed). Equipment and vehicle staging would be accommodated either at each construction site (pipeline, storage tank and pump station), therefore increasing the total area of disturbance, or at a centralized staging area (such as the DDSD Plant). Staging will be avoided at sensitive areas such as riparian or other habitat.

3.4 Right-of-Way Issues/Permits Required

The proposed facilities would be sited within the City and county lands (primarily streets and a golf course). Implementation of this project will not change any existing land use.

It is anticipated that permits will potentially be required from the following agencies:

- City of Antioch: Encroachment and Excavation Permit, Street Work Permit
- California Regional Water Quality Control Board (RWQCB): National Pollutant Discharge Elimination System (NPDES) permit for construction activities and preparation of Storm Water Pollution Prevention Plan (SWPPP)
- San Francisco Bay Area Air Quality Management District (BAAQMD): General Permit to Construct
- Contra Costa Water District: Encroachment Permit for Contra Costa Canal Crossing
- EBMUD: Encroachment Permit for EBMUD Mokelumne Aqueducts Crossing Permit
- Department of Health Services (DHS): Open project number for new usage proposed (assumed project number 702 under Water System #0790004)

The Project has been sited to avoid direct impact on wetlands and sensitive habitats, including those that could support special status species. In addition, mitigation has been incorporated into the Project to avoid or minimize the potential indirect effects on habitat or sensitive species, such as erosion or noise. Therefore, no impact or significant impact is expected to these resources and no permits from the US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), or California Department of Fish and Game (CDFG) are expected to be required for wetlands or endangered species. These agencies received the Draft IS/MND for review. DDSD will continue to coordinate with these agencies to confirm that no permits are required.

4 Recycled Water Program CEQA History and Findings

In accordance with the California Environmental Quality Act (CEQA), an environmental document has been prepared to evaluate and mitigate the impacts of the project. The Initial Study/Mitigated Negative Declaration (IS/MND) for the DDSD/Antioch Urban Water Reuse project has been included in this submittal as **Attachment 3**.

4.1 Environmental Documentation for Irrigation Reuse Projects

Additional CEQA documents were prepared for the DDSD/ Pittsburg Urban Water Reuse Project and the DDSD/Antioch Urban Water Reuse Project. Since both projects utilize existing capacity within DDSD's RWF, the project improvements are limited to the distribution system only, including new recycled water pipelines, pumping facilities and storage. Therefore, the IS/MNDs prepared for these projects focus on the impacts associated with construction of the expanded distribution facilities.

The IS/MND for the DDSD/Antioch Urban Water Reuse project is included as **Attachment 3** of the application submittal. Finalized in January 2007, the IS/MND found that:

- Impacts to Biological Resources will be less than significant with mitigation measures such as surveys for nesting birds, California tiger salamander, and California red-legged frog.
- Recycled water used as part of the project would offset potable water demands, thus reducing the use of water from Delta sources, resulting in a benefit to the Delta.
- Mitigation measures will be put in place during construction to minimize water quality effects due to erosion or runoff, as well as air quality effects due to dust from construction.

The impact of reduced wastewater discharges to New York Slough were not specifically evaluated in the IS/MND, however an Addendum to the IS/MND is included in this submittal as Attachment 5, confirming that this project will cause no significant impact to the biological resources or hydrology and water quality of New York Slough.