Santa Clara Valley Water District SM

UWMP 2005

Urban Water Management Plan 2005

Executive Summary

Water is a vital element of our everyday lives. We depend on it not only for our personal use, but also for our business, farm, and recreational needs, and for sustaining ecosystems that create the natural beauty of our creeks and rivers. The Santa Clara Valley Water District (District) acts as the steward for all of Santa Clara County's water resources by ensuring that creek ecosystems are healthy, safeguarding valley residents from devastating floods and ensuring that there is enough clean, safe water for homes and businesses. The District also works to preserve water quality by protecting groundwater subbasins and reservoir watersheds.

The mission of the District is a healthy, safe and enhanced quality of living in Santa Clara County through watershed stewardship and the comprehensive management of water resources in a practical, cost effective and environmentally sensitive manner.

As the primary wholesale water supplier in Santa Clara County, the District is dedicated to ensuring a reliable supply of healthy, clean drinking water now and into the future. To do this, the District must continue to protect its existing water supply sources and infrastructure and implement a number of currently planned water system improvements. Additionally, future demands cannot be met without maximizing water conservation efforts, expanding recycled water use and investing in new water supplies. The challenge is securing funding to implement all of these elements.

As part of the District's financial planning process, water rates and other funding sources have been projected into the future. However, this plan acknowledges that current revenue projections are not adequate to fund many of the investments needed in an era of uncontrollable rising costs, increased regulatory requirements and ageing infrastructure. To meet this funding challenge, the District must partner with communities, cities, water retail agencies and developers to maximize water conservation, expand recycled water use and fund development of new supplies.

Land use agencies, property developers and water retail agencies all play a vital role in reducing the water demands of new developments. As competition for water supplies increases, residents and businesses throughout the county will also need to embrace a stronger ethic of water conservation.

Water is a vital element of our everyday lives.

The District has a diverse mix of water supplies and a strong commitment to water use efficiency. The District's water supply system is a complex interdependent system comprised of storage, conveyance, treatment, and distribution facilities that include water treatment plants, local reservoirs, the groundwater subbasins, imported water supply facilities, and raw and treated water conveyance facilities. The District supplies water to local water retail agencies which in turn provide it to their customers in Santa Clara County. Water supply comes from a variety of sources, maintaining maximum reliability and flexibility.

The intent of the District's 2005 Urban Water Management Plan (UWMP 2005) is to meet the requirements of the California Urban Water Management Planning Act and to present important information on water supply, water usage, recycled water and water use efficiency programs in Santa Clara County. It also serves as a valuable resource for planners and policy makers, and supports a secure and sustainable water supply future for Santa Clara County over the next 25 years. The UWMP 2005 updates all previous such plans.

Water Use and Future Demand Projections

In 2000, the population in the county was 1,682,585. The Association of Bay Area Governments (ABAG 2005) projects that this population will increase to 2,267,100 by the year 2030, almost a 35 percent increase. Although ABAG 2005 projects fewer jobs in 2005 than in 2000 and slower job increases to year 2015, significant job growth was projected for the years 2015 to 2030. This increasing population and an improving economy will increase demand for water. Water use over the next five years is expected to increase by 0.3 percent per year on average and increase by 1 percent a year on average after year 2020. Overall, countywide water demand is projected to increase by about 70,000 acre-feet (af) or 18 percent over the next 25 years, even with increases in new water conservation efforts. The District and most major water retail agencies partner in regional implementation of a variety of water use efficiency programs to permanently reduce water use in the county. Demand with conservation programs in place in 2030 is projected at approximately 450,000 af. The conservation efforts planned between now and 2030 will offset about half the additional water supplies needed to meet increased demand. Using 1992 as a baseline, the county will be permanently conserving an additional 100,000 af per year by the year 2030.

Conjunctive Water Management

The District's water supply comes from a variety of sources. The District stores water in the groundwater basin for later use by actively replenishing the basin when water is plentiful. This "conjunctive" water management program optimizes the use of groundwater and surface water, and prevents groundwater overdraft, land surface subsidence, and saltwater from infiltrating groundwater aquifers. Water from reservoirs and pipelines (surface water) is purified for distribution (reducing direct demands on groundwater) and is also stored in local groundwater subbasins through managed

recharge so that groundwater can be withdrawn when needed. Conjunctive use is a critical part of meeting water needs in all years. Storing surplus water in the groundwater subbasins enables part of the county's supply to be carried over from wet years to dry years.

Long-Term Water Supply Planning and Water Supply Reliability

The District's long-term water supply planning combines integrated water resource planning with watershed stewardship. This provides a robust long-term and sustainable water supply planning approach that is designed to meet the diverse water resource needs of communities across Santa Clara County. Watershed stewardship plans that incorporate water supply goals and objectives as key planning elements have been developed for four of the five watersheds in Santa Clara County.

This plan concludes that the District cannot meet demands through 2030 without significant investments to preserve and protect the District's current mix of water supplies. In addition to protecting these sources, the District also must make investments in new water supplies and maximize opportunities for water conservation.

The District's Integrated Water Resources Planning (IWRP) process is used to make water supply investment decisions under a variety of different risk scenarios. The framework is designed to identify and actively manage risk and uncertainty so that the risk of the future water supply falling short of the actual water demand is reduced.

Water Supply System and Components

The District also works to ensure supply reliability by managing the groundwater subbasins and maximizing its influence over other components of water supply. Each of the water supply components described in this document is discussed separately for purposes of assessment. However, it must be emphasized that no component can function effectively in isolation; they are inextricably linked. The overall reliability of the water supply system is greatly enhanced when all of the components are combined to complete the water supply picture. Water supply diversity also helps reduce the county's exposure to the risk of problems with any one supply component. Locally developed surface water, water conservation, groundwater recharge, recycling and local surface storage decrease overall vulnerability to risk.

Demands from each of the major water retail agencies can be met by treated surface water, groundwater or recycled water. Treated water sources include imported water and local surface water. Groundwater is replenished by natural recharge and managed recharge of imported water and local surface water. Imported water is used as source water for the District's three water treatment plants and is also delivered by the District's raw water conveyance system to streams and ponds for groundwater recharge. In addition, the San Francisco Public Utilities Commission (SFPUC) meets about 16 to

19 percent of the total water demand in the county with Hetch-Hetchy water conveyed through its own facilities. Recycled water has become an important additional source of supply and its role in offsetting demand for potable water will be more significant in the future.

A number of District activities and programs have improved the reliability of District supplies and reduced the risk of shortages during drought periods. Storing water locally or outside the county (banking) and establishing agreements to buy or sell water to other agencies (transfers) help increase District water supplies in years of shortage, as do District programs aimed at maintaining and maximizing local groundwater storage. Recycled water projects provide a water supply source that is largely independent of weather patterns. Advanced treated recycled water is under consideration for groundwater recharge and increasing stream flows thereby enhancing the District's conjunctive water management. The District maintains a drought management plan to guide the District's actions in years of water supply shortage, including those more severe than have been observed in the past. Water use efficiency programs, such as water conservation and recycling, must be maximized—they are key strategies to minimize overall demand.

Significant Investment Required to Continue Providing Clean, Safe Water

The District has been a leader in employing conjunctive water management practices since the 1930s. The construction and development of the water supply storage, conveyance, delivery, and treatment infrastructure were the result of thoughtful planning and significant capital investment over the past 75 years. To ensure a reliable water supply into the future, the District will need to continue to invest in maintaining its existing water supply, infrastructure, and programs. The District must invest in the following key programs to protect our existing water supplies and infrastructure and advance our planning efforts:

- Maintaining and expanding water conservation efforts
- Investing in additional groundwater recharge capacity
- Protecting groundwater subbasins through effective groundwater management programs
- Expanding water recycling to meet projections in accordance with District Board policies
- Sustaining local water supplies by maintaining local water rights
- Implementing the recommendations from the District's 2005 Water Infrastructure Reliability Project Report
- Investing in infrastructure projects identified in the Infrastructure Master Planning Process
- Meeting water quality standards through aggressive source water protection, ongoing improvements to treatment facilities and additional infrastructure

- Protecting imported water supplies by resolving contract and policy issues, supporting Bay-Delta system improvements, addressing system vulnerabilities (e.g., the San Luis Reservoir low-point problem), and supporting SFPUC efforts to implement a Capital Improvement Program (CIP)

Specific funding requirements for many of these elements have not yet been identified and their costs are not included in the District's long-term water rate forecast or its CIP. In addition to significant investment needed to protect and safeguard existing supplies, the District recognizes that new investment is also necessary to meet additional future demand. During normal rainfall years, the District does not rely on groundwater reserves to meet demand. However, beyond 2020, the county would need to start dipping into groundwater reserves, even during years of normal precipitation, unless new supplies are secured. By 2030, analysis shows that approximately 31,000 af per year of additional supply is needed during a normal year. During dry years and multiple dry years, significant pumping from groundwater reserves is necessary to meet demand. Since these reserves are replenished during wet and to some extent during normal years, approximately 14,000 af per year of additional supply is needed to meet demand during multiple dry years in 2030. The investments needed to secure the normal year additional supplies also help to increase supplies available in dry years.

The District has a planning process to evaluate future water supply options to address additional water supply needs under a variety of weather scenarios. These options include various combinations of new supplies such as additional water recycling, new surface storage, additional water banking, and dry-year transfer options. The process considers various risk scenarios such as climate change, unexpected increases in demand, and reduced imported water.

Not all of the specific sources and strategies for funding the needed investments are currently identified. Implementation of key water supply investments identified as part of UWMP 2005 is essential to meet the water needs of the residents and businesses in Santa Clara County into the future.

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