

## **Santa Cruz City Water Department**

### ***Background***

The Santa Cruz City Water Department's service area is 12 square miles. Besides the City of Santa Cruz, it also serves the City of Capitola, the University of California at Santa Cruz and the unincorporated county areas of Carbonera Estates, Live Oak, the North Coast, Rolling Woods and Santa Cruz Gardens. Its geographical boundaries are from the city's western boundary to 41<sup>st</sup> Avenue in Capitola, and from the Monterey Bay to the foothills of the Santa Cruz Mountains. Most of its water supply is for residential use (88 percent), with the rest going to agricultural and business uses.

The agency started in the late 1800s as a private company. In 1910, it became a city department. A critical event in the district's history was the 1976-77 drought, which left the department with a shortage of 38 percent of water supply. This was the worst drought in Santa Cruz's recorded history and required water restrictions. That drought year is now used as a benchmark for future drought planning. A second key event was the extended drought of 1987-1993, which serves as a benchmark to plan for extended droughts.

The department's water supply comes from these sources:

- San Lorenzo River surface diversion (48 percent)
- Loch Lomond Reservoir (16 percent)
- Live Oak Beltz wells (7 percent)
- North Coast streams (Reggiardo Creek, Laguna Creek and Majors Creek) (20 percent)

### ***Scope***

This report investigates how the City of Santa Cruz is planning for its future water needs.

### ***Sources***

#### **Documents:**

“City of Santa Cruz Rate Schedule for Santa Cruz Municipal Utilities, effective January 1, 2005.”

Gary Fiske and Associates, Water Resources Planning and Management.

“City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003.”

Santa Cruz County Draft Housing Element, December 15, 2004.

Toby Goddard, City of Santa Cruz Water Department Water Conservation Office,  
“Adequacy of Municipal Water Supplies to Support Future Development in the City of Santa Cruz Water Service Area,” March 2004.

**Interviews:**

Santa Cruz City water officials.

***Findings***

1. Santa Cruz City Water Department has 24,300 connections, serving 90,000 customers. It is the largest water agency in Santa Cruz County.
2. The department takes 93 percent of its water supply from surface water. The remaining seven percent comes from wells (groundwater).
3. The water department depends on rainfall for 84 percent of its water supply.
4. The water department's current capacity is 4.3 billion gallons per year under normal weather conditions. Current total water demand is 4 billion gallons per year. This gives the system a cushion of 300 million gallons per year.
5. Average daily demand is 12 million gallons (latest figures from 2000). Broken down seasonally, average summer demand is 15 million gallons per day; average winter demand is eight million gallons per day.
6. Usage is divided as follows:
  - Agriculture: 3 percent
  - Business: 8 percent
  - Single family residential: 77 percent
  - Multi-family residential: 11 percent
7. Average daily residential water use per person is 138 gallons for the State of California. Average daily residential water use per person is 76 gallons for City of Santa Cruz water customers.
8. To encourage conservation, water rates are divided into five tiers, with rates increasing as more water is used. The average rate per billing unit (100 cubic feet, or 748 gallons) is \$2.76. Outside Santa Cruz City limits, the average rate per billing unit is \$3.52. This gives the department an eight-percent profit.
9. The average monthly residential bill for Santa Cruz City customers is \$30.12.
10. The drought of 1976-77 left the city 38 percent short of expected water for its customers. A combination of rationing and voluntary conservation was required.
11. Water officials base their water demand projections on expected population growth of one-half percent per year, according to the city's current General Plan.
12. The following table summarizes projected water demand for the next 25 years. Water conservation has reduced the actual water demand in 2005 to 4 billion gallons.

2000	2005	2010	2015	2020	2025	2030
4,409	4,627	4,817	4,961	5,157	5,238	5,321

**Table 1.**  
**Water Demand Forecast.**  
**Demand forecast under average weather conditions<sup>1</sup>**  
**(Millions of gallons)**

13. Santa Cruz City Water Department has three options to balance water supply and demand:

- **Water Conservation**

The Santa Cruz City Council directed the Santa Cruz Water Department to implement a range of conservation measures. These included both negative and positive incentives. For example, the department uses a five-tier rate structure to encourage lower water use and also offers rebates for the installation of low-flow toilets.

Water savings are expected to increase to about 280 million gallons through the planning period (2005 through 2030), which is about five percent of demand. Annual conservation costs, including staffing, are between \$600,000 and \$1,000,000.

- **Water Curtailment**

The period of water curtailment, or rationing and conservation, typically runs May-October during drought years. Curtailment during a worst-year, peak season is expected to be 45 percent. If no action is taken, however, the city will eventually have difficulty meeting average year demands. By 2015, there will be a 90 percent likelihood of some level of curtailment during normal years.

- **Supply**

The department has been searching for new water supplies for the past 20 years. Possible alternatives have included building a dam, developing groundwater sources, limiting new growth and building a reclamation plant. Environmental, economical, technical and political factors have made this difficult.

14. Even with its extensive water conservation programs, the city must develop new supplies as soon as possible. Additional supplies will be needed in the future. Today's

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<sup>1</sup> "City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003," Gary Fiske and Associates, Water Resources Planning and Management.

annual demand of 4 billion gallons is expected to increase to 5.3 billion gallons by 2030.<sup>2</sup>

15. The University of California at Santa Cruz currently uses five percent of the water department's supply.
16. UCSC recently announced plans to add another 6,000 students to its present enrollment of 15,000, for a total that is less than its projection when the university was founded.
17. City water officials say that the system currently has enough capacity to supply the additional water the university will need. However, doing so would absorb most of the water available for other growth.
18. A recent study examined the costs, effectiveness and effects of a wastewater reclamation plant and a desalination plant.<sup>3</sup>
19. The study found that groundwater recharge and wastewater reclamation would be cheaper in the short term and would affect the marine environment less.
20. The study found that a desalination project would cost less long term, would be easier to implement, have a lower impact on the groundwater basin and could have a relatively unlimited capacity.
21. The California Department of Parks and Recreation opposes the use of reclaimed wastewater at Wilder Ranch State Park on the North Coast. The department said that using reclaimed wastewater would involve "uncharted legal and complex policy issues having serious long-term implications of statewide consequence."<sup>4</sup> Further, the department said that the use of reclaimed wastewater at Wilder Ranch "could result in potential adverse impacts to sensitive natural resources, place possible constraints on recreational use and adversely impact organic agricultural leasing operations at Wilder Ranch State Park."<sup>5</sup> The Parks Department's objections are considered a fatal flaw for the project.<sup>6</sup>
22. Presently, the department is trying to get approval to build a desalination plant. A desalination plant converts seawater to fresh water. Depending on the size of the project and the available power, it could provide an effectively unlimited supply of water to the district. The Soquel Creek Water District may join with the department in this project.

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<sup>2</sup> "City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003," Gary Fiske and Associates, Water Resources Planning and Management.

<sup>3</sup> "City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003," Gary Fiske and Associates, Water Resources Planning and Management.

<sup>4</sup> "City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003," Gary Fiske and Associates, Water Resources Planning and Management.

<sup>5</sup> "City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003," Gary Fiske and Associates, Water Resources Planning and Management.

<sup>6</sup> "City of Santa Cruz Integrated Water Plan, Draft Final Report, June 2003," Gary Fiske and Associates, Water Resources Planning and Management.

23. The desalination project has been proposed by the water department and approved by the Santa Cruz City Water Commission and the Santa Cruz City Council. An environmental impact review has been completed and goes before the City Council in mid-June of this year. A 45-day public comment period will be followed by a decision of the city council. If approved, a pilot program at Long Marine Lab will be approved for one year. If satisfactory, the project will proceed to design, project environmental impact review and, ultimately, application for required permits from local, regional, state and federal agencies.
24. The size of the desalination plant will depend on whether the council approves a project based on normal water use or drought conditions.
25. The city council has indicated it does not favor a drought-based project, because this would provide extra water. They see this as potentially growth inducing.
26. Building the smaller project would mean that customers would face at least a 15 percent water cutback during drought years.
27. The cost of the desalination project will be between \$15 and \$40 million, depending on whether the project is small or large scale.
28. Water customers would pay an extra \$4 to \$8 per month to fund a smaller desalination project that would still require a 15 percent water curtailment level during drought years. The cost of a system that would not require water curtailment would be \$6 to \$12 per month.
29. Recent and projected water rate increases are as follows:
  - 25 percent (May 2004)
  - 20 percent (January 2005)
  - 50 percent (2005-2009)
30. The projected increase would fund capital improvements, as well as allow the department to seek bond approval to fund the desalination plant.

## ***Conclusions***

1. Santa Cruz City Water Department customers do an outstanding job of water conservation.
2. Since customers are already conserving water extensively, water cutbacks during drought years will be more of a hardship to customers here than in water districts that conserve less.
3. The Santa Cruz City Water Department appears to be doing a conscientious and thoughtful job of planning for future water needs.
4. Developing new water supplies is critical to the city's well-being.
5. New water supplies will require both higher rates and the political will of the city council and the voters of the City of Santa Cruz.

**Recommendations**

1. The Santa Cruz City Water Department should be commended for its work in planning for future water needs.
2. Water officials and the Santa Cruz City Council should begin to build public support for new water supplies and the higher rates needed to fund them.
3. The City of Santa Cruz should move forward as quickly as possible to bring new water supplies on line.
4. When planning for future water supplies, the City of Santa Cruz should consider the impact of future growth at the University of California at Santa Cruz.
5. City officials should consider approving a drought-year based water-planning strategy so that citizens do not face unneeded water restrictions during drought years. Citizens should be rewarded for achieving a high level of conservation, not forced to undergo more severe water cutbacks during drought years.

**Responses Required**

<b>Agency</b>	<b>Findings</b>	<b>Recommendations</b>	<b>Respond Within</b>
Santa Cruz City Council	13, 14, 23, 24, 25	1-5	60 Days (August 30, 2005)
Santa Cruz City Water Department	1-30	1-5	90 Days (September 30, 2005)