

## **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.

**Response: City of Santa Cruz Water Department AGREES.**

2. The department takes 93 percent of its water supply from surface water. The remaining seven percent comes from wells (groundwater).

**Response: City of Santa Cruz Water Department AGREES.**

*However, annual production varies, but on average the amount that the city gets from its wells is closer to 5%.*

3. The water department depends on rainfall for 84 percent of its water supply.

**Response: City of Santa Cruz Water Department AGREES.**

*In truth, the city relies on rainfall for all of its supply, but the “flowing sources” are certainly more quickly impacted by lack of rainfall.*

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.

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

6. Usage is divided as follows:

- Agriculture: 3 percent
- Business: 8 percent
- Single family residential: 77 percent
- Multi-family residential: 11 percent

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

*The “eight-percent profit” is probably more appropriately referred to as the city’s “return on investment.”*

9. The average monthly residential bill for Santa Cruz City customers is \$30.12.

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

*The demand projections the city used reference the county, city, and City of Capitola plans and roughly work out to be about one-half of one percent per year.*

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)**

**Response: City of Santa Cruz Water Department AGREES.**

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

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.

**Response: City of Santa Cruz AGREES.**

*The city agrees, with the possible exception of the term “negative” used to describe the tiered rate structure. This rate structure is intended to encourage conservation by ensuring that customers are mindful of water use. The upper tiers have the effect of providing the funding for water conservation programs so that higher use by certain customers can be offset through conservation programs throughout. It is not intended to be “negative.”*

**Response: City of Santa Cruz Water Department AGREES.**

*The City of Santa Cruz Water Department agrees, with the exception of the term “negative” used to describe the tiered rate structure.*

- **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.

**Response: City of Santa Cruz AGREES.**

*The Integrated Water Plan mentioned elsewhere in this report proposes to provide 85% of average demand under all hydrologic conditions.*

**Response: City of Santa Cruz Water Department AGREES.**

- **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.

**Response: City of Santa Cruz AGREES.**

*City of Santa Cruz agrees, with the clarification that “political factors” means the will of the greater community expressed as testimony in public hearings regarding various water supply planning efforts over the past several years.*

**Response: City of Santa Cruz Water Department AGREES.**

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

**Response: City of Santa Cruz AGREES.**

*City of Santa Cruz agrees with this finding, with the clarification that the increase in demand to 5.3 billion gallons by the year 2030 is very speculative. While total demand may well reach that level, whether or not it occurs in 2030 is very much in question. This is the reason the aforementioned Integrated Water Plan proposes a supply source (desalination) that is expandable when and if growth that is forecast occurs.*

**Response: City of Santa Cruz Water Department AGREES.**

15. The University of California at Santa Cruz currently uses five percent of the water department’s supply.

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

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.

**Response: City of Santa Cruz Water Department AGREES.**

*The City of Santa Cruz Water Department is referring to the 300-million-gallon “cushion” this report previously referred to. Development of new supply as called for in the city’s Integrated Water Plan changes that.*

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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.

18. A recent study examined the costs, effectiveness and effects of a wastewater reclamation plant and a desalination plant.<sup>3</sup>

**Response: City of Santa Cruz Water Department AGREES.**

19. The study found that groundwater recharge and wastewater reclamation would be cheaper in the short term and would affect the marine environment less.

**Response: City of Santa Cruz Water Department AGREES.**

*The City of Santa Cruz Water Department agrees with this finding, assuming either or both of these options are otherwise feasible.*

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.

**Response: City of Santa Cruz Water Department AGREES.**

*City of Santa Cruz Water Department agrees with this finding, with the exception of the characterization that it would provide unlimited supply. In fact, the Integrated Water Plan describes a desalination facility that is very limited: 2 ½ million gallons per day with a maximum capacity in the future of only 4 ½ million gallons per day.*

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>

**Response: City of Santa Cruz Water Department AGREES.**

*The California Department of Parks and Recreation also notified the city that it owned the groundwater that underlies the cultivated farmland and that it was not interested in conveying the ownership of the groundwater to the city.*

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

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

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<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.

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.

**Response: City of Santa Cruz Water Department AGREES.**

*It is absolutely not an “unlimited supply,” as the department responded earlier.*

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.

**Response: City of Santa Cruz AGREES.**

*City of Santa Cruz agrees with this finding, with the exception of the reference to the City Water Commission and the City Council approval of the desalination option. More accurately stated, the Water Commission and the City Council accepted an Integrated Water Plan and directed staff to begin a process of environmental review of that plan. That plan is composed of desalination as the supply option, as well as a long-term conservation plan and a plan for 15% use curtailment in a drought as severe as the historic one you mentioned in your report.*

**Response: City of Santa Cruz Water Department AGREES.**

*No one has “approved” the desalination option yet. The City Water Commission and the City Council only accepted the final Integrated Water Plan and directed an environmental review of it.*

24. The size of the desalination plant will depend on whether the council approves a project based on normal water use or drought conditions.

**Response: City of Santa Cruz AGREES.**

*It is not clear to the City of Santa Cruz what this finding is saying. The proposal in the Integrated Water Plan is that the desalination facility would be sized initially at 2.5 million gallons per day. At that size, along with conservation, use curtailment could be held to no more than 15%. The Integrated Water Plan further explains that the desalination facility could be expanded in 1-million-gallon-per-day increments to a maximum production capacity of 4.5 million gallons per day. At 4.5 million gallons per day, it would be capable of assuring no more than 15% curtailment in the historic drought with year 2030 demands. Assuming that this description of how the plant would be sized is what was meant, the city agrees with this finding.*

**Response: City of Santa Cruz Water Department AGREES.**

*If what this finding is saying is that the proposed size of the desalination plant is 1.5 million gallons per day (mgd) with the potential expansion in 1 mgd increments to 4.5 mgd, then the department agrees.*

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.

**Response: City of Santa Cruz AGREES.**

*As with the previous finding, it is not exactly clear to the City of Santa Cruz what this finding is saying. One of the important environmental considerations that water planners must consider is whether or not proposed supply augmentation projects outpace the demand that is called for in the current General Plan. If the Integrated Water Plan were to propose new supply beyond the current General Plan, it would raise many complicated California Environmental Quality Act (CEQA) issues. For this reason, the City Council has long advocated a water supply project that is expandable in order to be responsive to growth, not out ahead of it. Again, assuming that this explanation is what the finding meant, the city agrees.*

**Response: City of Santa Cruz Water Department DISAGREES.**

*The City Council has repeatedly indicated its preference for a supply project that can be responsive to growth, not ahead of it. The current plan is intended solely to reduce the curtailment impacts in drought from 45% shortages to no greater than 15% shortages. To the extent that the plan does not call for 100% of average supply needs in drought conditions, it does favor a plan that calls for drought reductions in customer use.*

26. Building the smaller project would mean that customers would face at least a 15 percent water cutback during drought years.

**Response: City of Santa Cruz Water Department AGREES.**

27. The cost of the desalination project will be between \$15 and \$40 million, depending on whether the project is small or large scale.

**Response: City of Santa Cruz Water Department DISAGREES.**

*There is no option to build a plant that would cost only \$15 million. The 2½-mgd plant is estimated to likely cost from \$30 million to \$40 million.*

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.

**Response: City of Santa Cruz Water Department AGREES.**

*It is important to remember the dollar figures are very speculative. The basic notion, however, is that a plant that provides for full supply in drought years is more expensive than one that allows for some use curtailment.*



29. Recent and projected water rate increases are as follows:

- 25 percent (May 2004)
- 20 percent (January 2005)
- 50 percent (2005-2009)

**Response: City of Santa Cruz Water Department AGREES.**

30. The projected increase would fund capital improvements, as well as allow the department to seek bond approval to fund the desalination plant.

**Response: City of Santa Cruz Water Department AGREES.**

## ***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.

**Response: City of Santa Cruz AGREES.**

*City of Santa Cruz's Integrated Water Plan is in the process of being implemented. The final EIR on the plan will be presented to the City Council in October 2005. The Integrated Water Plan is a comprehensive planning document that is a result of a very public process conducted by a joint committee comprised of staff, water commissioners, and City Council members. The city appreciates the Grand Jury's appreciation of the plan.*

**Response: City of Santa Cruz Water Department AGREES.**

*The City of Santa Cruz' Integrated Water Plan is in the process of being implemented. The final EIR on the plan will be presented to the City Council in October 2005. The Integrated Water Plan is a comprehensive planning document that is a result of a very public process conducted by a joint committee comprised of staff,*

*water commissioners, and City Council members. The city appreciates the Grand Jury's appreciation of the plan.*

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.

**Response: City of Santa Cruz AGREES.**

*The recommendation has been implemented. The City of Santa Cruz will continue to move along this process with the intent of linking increasing water rates to the effort to make the water supply more reliable. The city has recently closed an extended public comment period on its program EIR for the Integrated Water Plan. With responses to those comments, the City Council will consider adoption of the final EIR in a public meeting in late October 2005.*

**Response: City of Santa Cruz Water Department AGREES.**

*The recommendation has been implemented. The City of Santa Cruz will continue to move along this process with the intent of linking increasing water rates to the effort to make the water supply more reliable. The city has recently closed an extended public comment period on its program EIR for the Integrated Water Plan. With responses to those comments, the City Council will consider adoption of the final EIR in a public meeting in late October 2005.*

3. The City of Santa Cruz should move forward as quickly as possible to bring new water supplies on line.

**Response: City of Santa Cruz AGREES.**

*The recommendation is in the process of being implemented. The prospect of a 45% drought shortfall is a serious problem that the city council is addressing with the Integrated Water Plan.*

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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.

**Response: City of Santa Cruz AGREES.**

*The recommendation has been implemented using the water demands forecast in the current LRDP in the Integrated Water Plan. To the extent that the university is engaged in planning for increased water use, it should likewise consider the reality of limited city resources and the impacts of its growth on those limited resources when the university is doing its planning.*

**Response: City of Santa Cruz Water Department AGREES.**

*The recommendation has been implemented using the water demands forecast in the current LRDP in the Integrated Water Plan. To the extent that the university is engaged in planning for increased water use, it should likewise consider the reality of limited city resources and the impacts of its growth on those limited resources when the university is doing its planning.*

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.

**Response: City of Santa Cruz AGREES.**

*The City of Santa Cruz’s Integrated Water Plan implements this recommendation. It shields city water customers from unreasonable levels of use curtailment at the same time as it minimizes fiscal and environmental impact of an oversized supply option.*

**Response: City of Santa Cruz Water Department AGREES.**

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**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)

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