

History of Water Planning



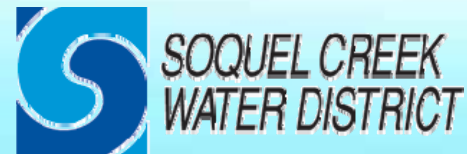
**City of Santa Cruz &
Soquel Creek Water District**

July 28, 2010



Presentation Outline

- **Historical Perspective on Water Planning for**
 - City of Santa Cruz
 - Soquel Creek Water District
- **Water supply shortage** and why a supplemental supply is critical
- **Integrated Water Planning** - Past, Present and Future
- **Question and Answers with Panel**



Fast Facts – City's Current Water System



Local Water Supply

95% surface water, 5% groundwater

Service Area

City of Santa Cruz, portions of the unincorporated areas of SC County and portions of the City of Capitola

Average Water Production

3.6 billion gallons per year (11,050 afy)

Approx. 95,000-100,000 customers

Water Supply Challenges

1. Shortage during drought conditions

45% water shortage if drought similar to 1976-77 occurs

2. Safe stream flow passage

New regulatory requirements to protect endangered fish species

3. Water rights

Pending applications could affect reservoir operations and reduce water withdrawals

4. Water quality

Groundwater basin is overdrafted

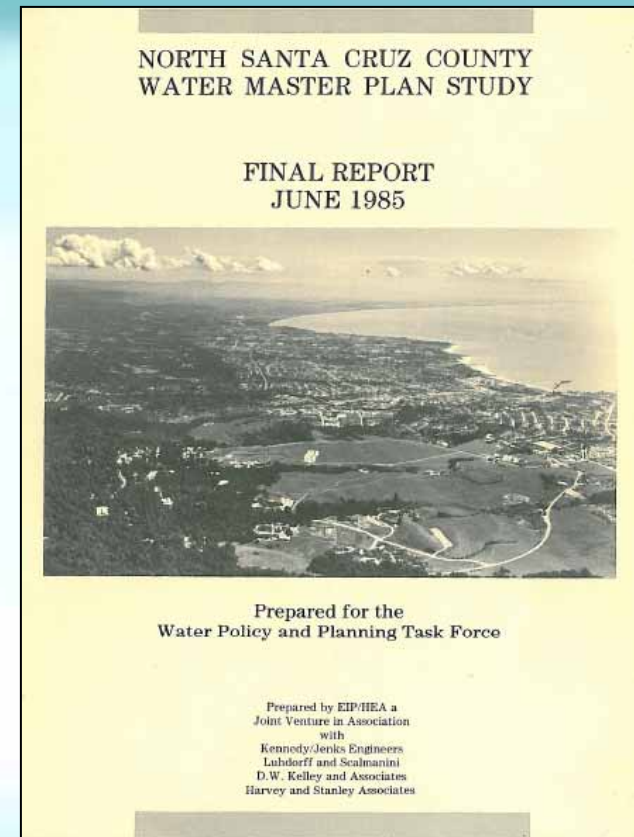


Water Supply Planning: 1980's

North Santa Cruz County Water Master Plan

Recommended alternatives

- Conservation and leak control programs
- Interties
- Zayante Creek Dam
- Scotts Valley/SLV groundwater wells
- Baldwin Creek off stream reservoir
- Pump Station at Majors Creek diversion
- City of SC groundwater wells
- Glenwood Dam



Focused on regional opportunities to augment supply and proposed some City-only alternatives.

Water Supply Planning: 1980's

City of Santa Cruz Water Master Plan- 1989

Evaluation of Supply Alternatives

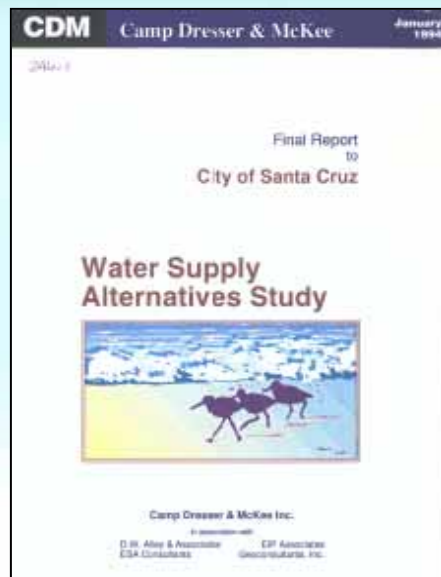
- Upgrade existing supply system
- Increase Felton Diversion capacity
- North coast pump stations
- Additional groundwater wells
- Wastewater reclamation
- Enlarge Loch Lomond
- Interties
- Various reservoir projects



Report included water demand projections and an evaluation of other water supply alternatives to meet the future demands.

Water Supply Planning: 1990's-early 2000's

Report by Camp Dresser McKee



Evaluation of Supply Alternatives

- Enlarge Loch Lomond
- Waterman Gap Reservoir
- Kings Creek Reservoir
- Yellow Bank Creek Off Stream Storage
- Brackish Groundwater from North Coast

The project with the highest rating was a “No Reservoir” project with new groundwater wells near Thurber Lane and a Brackish Groundwater Wells project along the north coast.



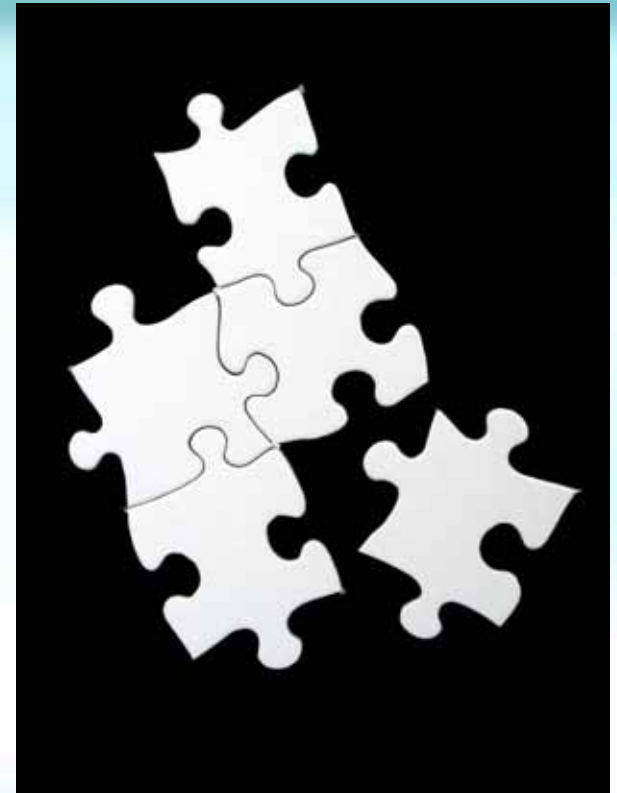
Integrated Water Planning – 1997 to present

Programmatic Approach

Decrease demand and increase supply

Additional Studies and Reports

- Water Demand Investigation (1998)
- Water Conservation Plan (2000)
- Water Curtailment Study (2001)
- Alternative Water Supply Study(2000)
- Evaluation of Regional Water Supply Alternatives (2002)



Integrated Water Planning – 1997 to present

Reports

2003- Integrated Water Plan

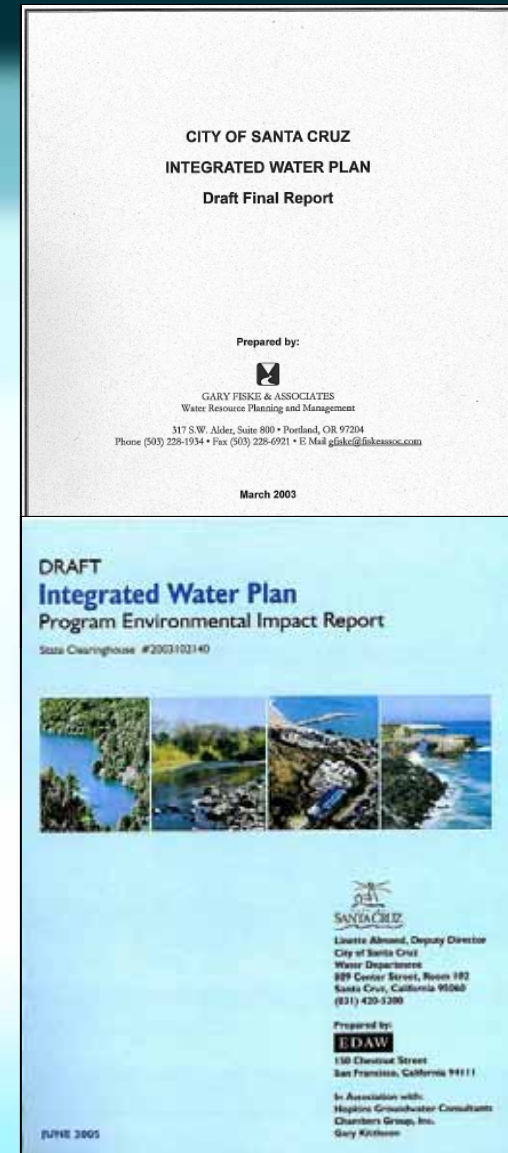
2005 – Program Environmental Impact Report

Public Participation and Input

Over 75 public meetings were held

Fundamental objectives:

(1) Reduce near term drought year shortages and (2) provide a reliable supply that meets long term needs while ensuring protection of public health and safety.



Integrated Water Plan- Program Approach



1. Conservation

Continue water conservation programs to reduce demand and maximize the use of existing water resources

2. Curtailment

Plan on an additional 15% temporary rationing during droughts

3. Develop Supplemental Supply

Cooperative desalination facility to protect against drought and preserve groundwater resources

On November 8, 2005, City Council unanimously adopted the IWP as the City's long-term water resource strategy.

Fast Facts – District's Current Water System



**SOQUEL CREEK
WATER DISTRICT**

Local Water Supply

100% groundwater

Service Area

Unincorporated areas of the County including Soquel, Aptos, Rio Del Mar, La Selva Beach and portions of the City of Capitola

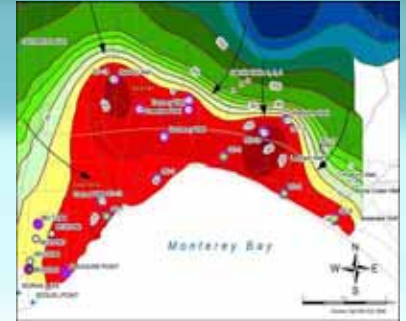
Average Water Production (2005-2009)

4,815 acre-feet per year (1.56 billion gallons per year)

Approx. 50,000 customers

Water Supply Challenges

1. **Groundwater Overdraft**
2. **Seawater Intrusion**
3. **Climate Change**
4. **Water Quality**



Water Supply Planning: Early Milestones

1955-1967

1961 Soquel Creek County Water District formed to manage dam on Soquel Creek

1967 USGS Report (Hickey) concluded 7,700 afy could be extracted from the aquifer systems & no evidence of seawater intrusion

1955
Soquel Flood

1963 With no dam project, District became groundwater purveyor

1976 10-Year Water Plan by JM Montgomery recommends two supply projects: Glenwood Reservoir & Diversion on Soquel Creek to add 6,800 afy

Water Supply Planning: Early Milestones

1976-1980's

1979 USGS Report (Muir) finds seawater intrusion and revises estimated sustainable yield 4,000 afy; Moratorium

1982 NSCCWP is formed for interagency projects and recommends that the District pursue a dam on the upper section of Soquel Creek

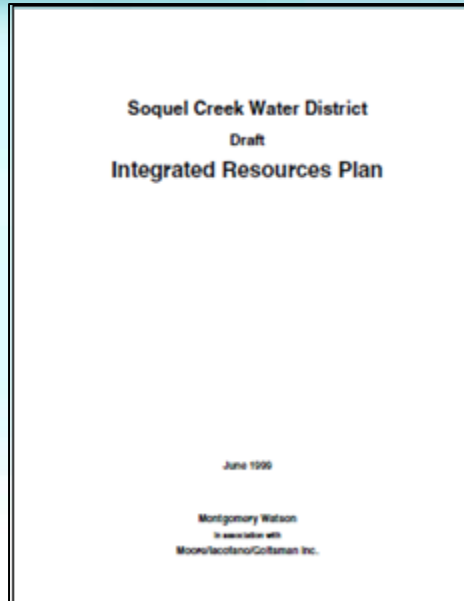
1983 Glenwood site acquired for possible future reservoir

1976-1977
Severe
Drought

1981 L&S Report finds inaccuracies in Muir report, dispels existence of seawater intrusion. Monitoring Well Network is developed.

1994- Groundwater Status Report warns of basin decline and seawater intrusion

Integrated Resources Planning – 1997 Draft IRP

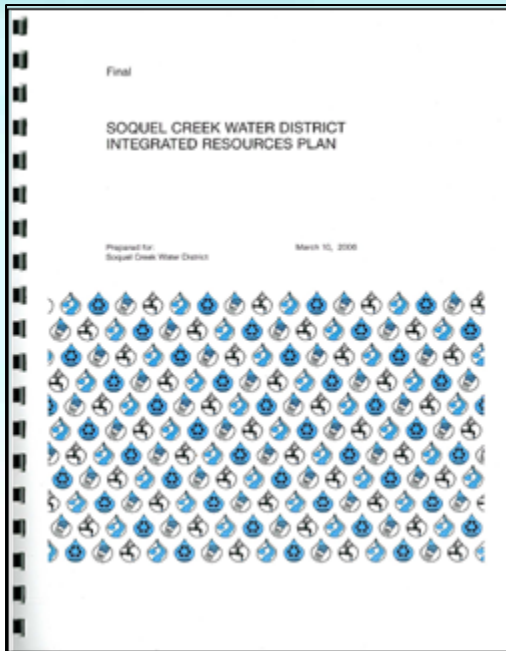


- 1997 Public Advisory Committee (PAC) formed
 - 20+ community members
 - Regularly met over 18-month period

Draft IRP Conclusions:

- District aquifers are overdrafted
- Water conservation should be maximized
- Supplemental supply is needed to protect groundwater levels and meet projected demand

Integrated Resources Planning – 2006 IRP



- **Updated information** on demand projections and conservation savings
- The **results of further evaluating** the various supplemental supply options

IRP is a Multi-Faceted Approach



Components identified in the 2006 IRP

1. Demand Management

Water conservation and site-specific recycled water for irrigation

2. Groundwater Management

Limit groundwater pumping, continue coastal monitoring, redistribute pumping inland, and support recharge projects/policies

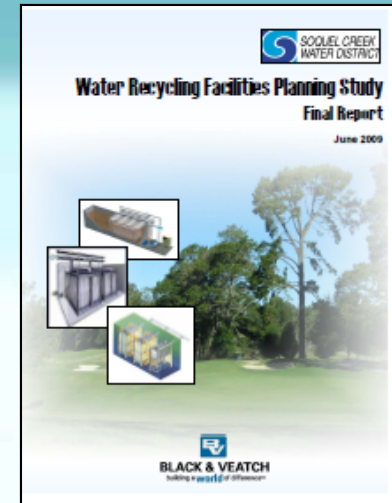
3. Develop Supplemental Supply

Evaluate regional desalination project with City of SC or reconsider modified Soquel Creek Diversion project or local-only desalination

Progress Report on IRP: 2006-2010

Demand Management

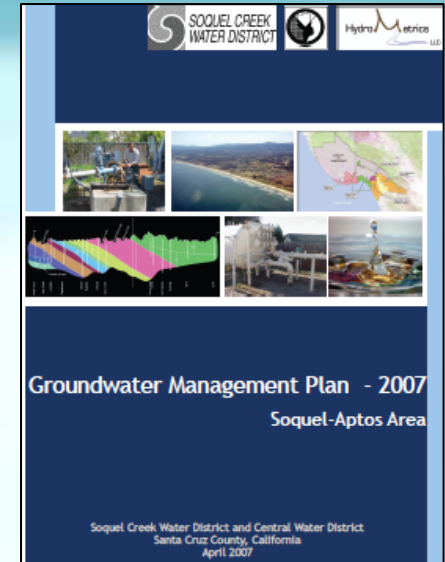
1. **Satellite Reclamation Projects (SRPs) – Study completed 2009**
2. **Expanding conservation program**
3. **Per capita water use among the lowest in State**



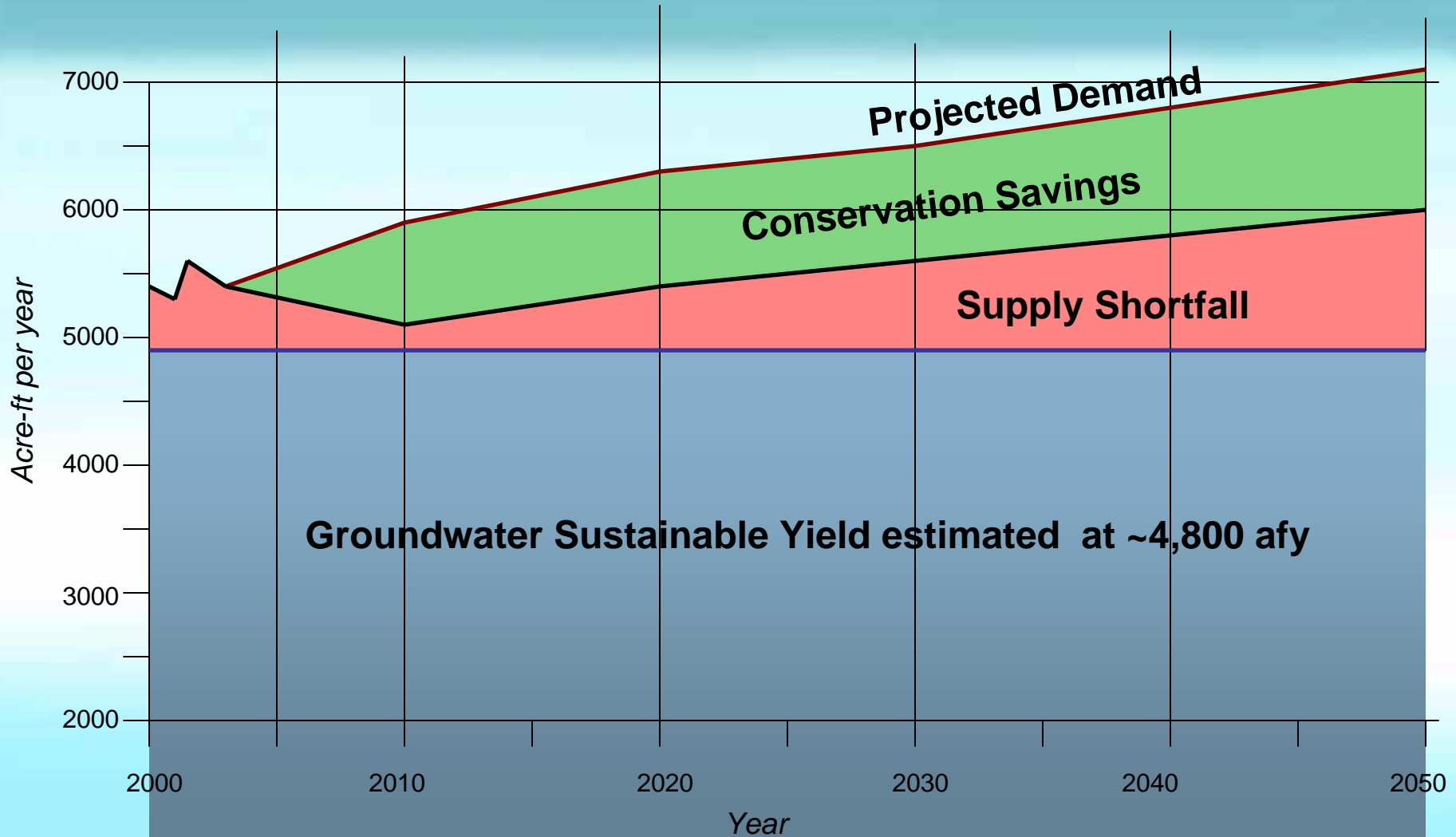
Progress Report on IRP: 2006-2010

Groundwater Management

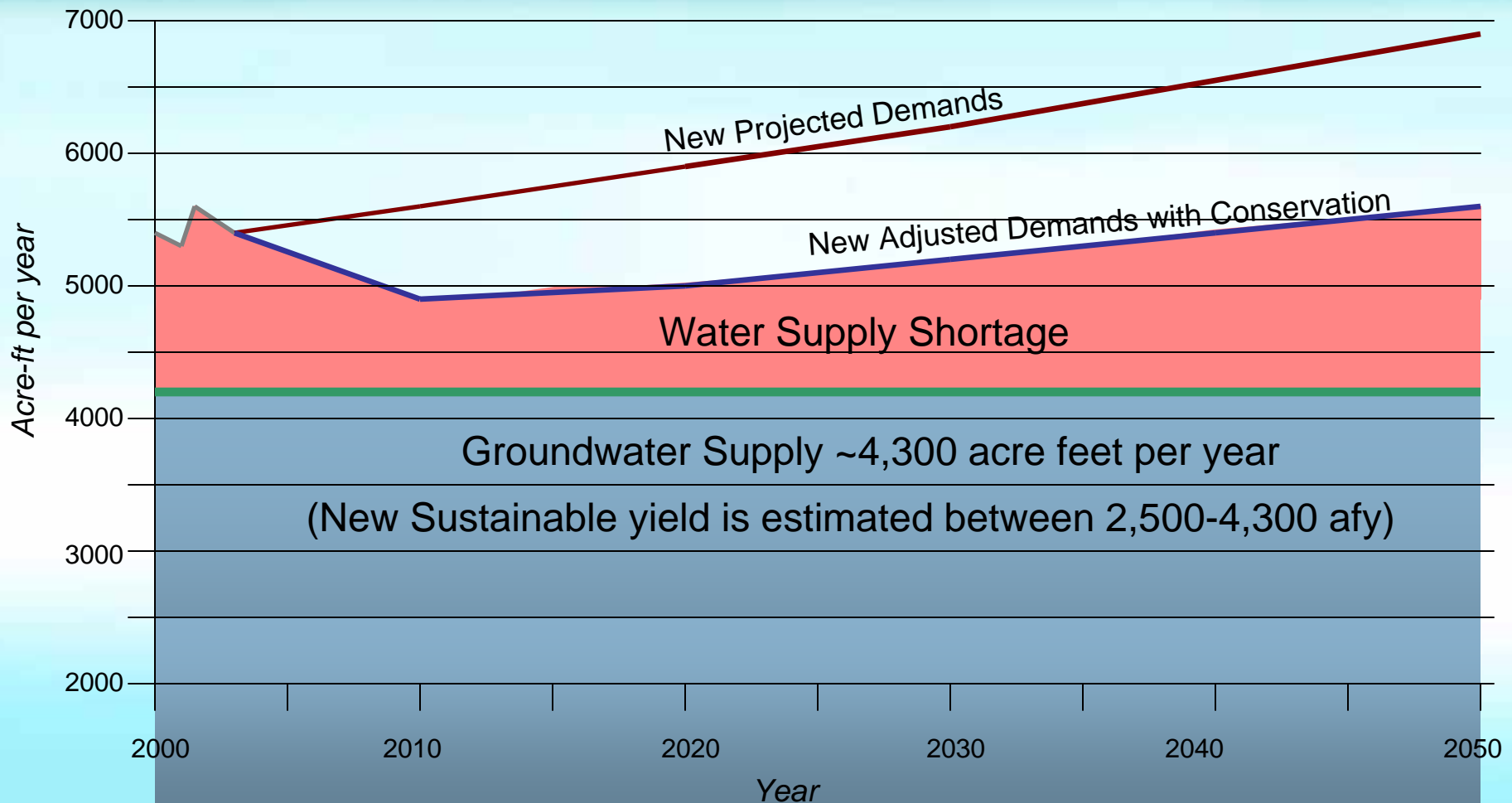
- Updated Groundwater Management Plan in 2007
- **Well Master Plan** has been developed to redistribute pumping away from the coast
- New studies suggest that the **sustainable yield of the basin** is less than 4,800 afy and may be closer to 2,500-4,300 afy.



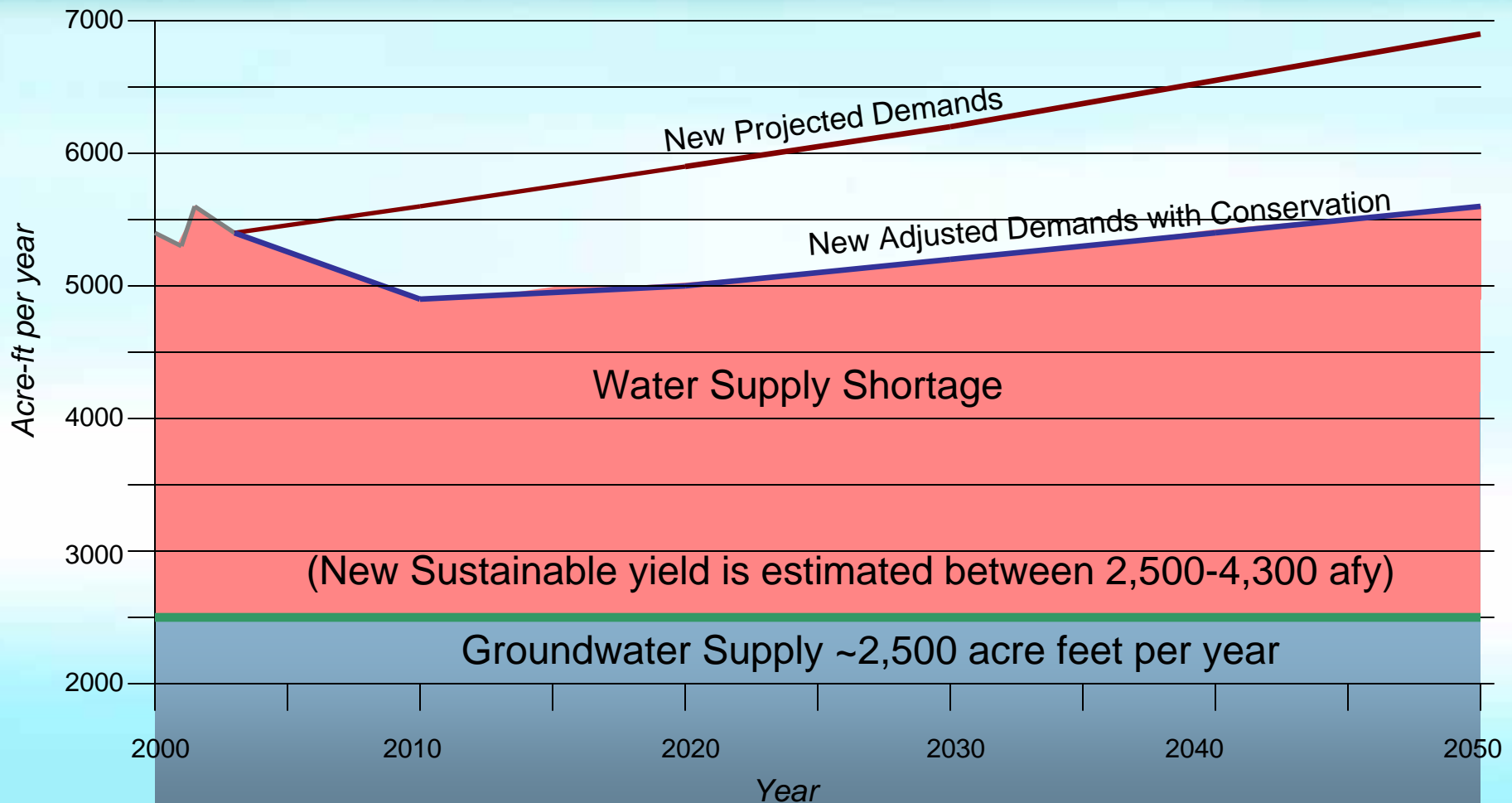
2006 Integrated Resources Plan Groundwater Mgmt. - Water Balance



2010 - Estimated Water Balance if GW supply is ~4,300 acre feet per year



2010 - Estimated Water Balance if GW supply is ~2,500 acre feet per year



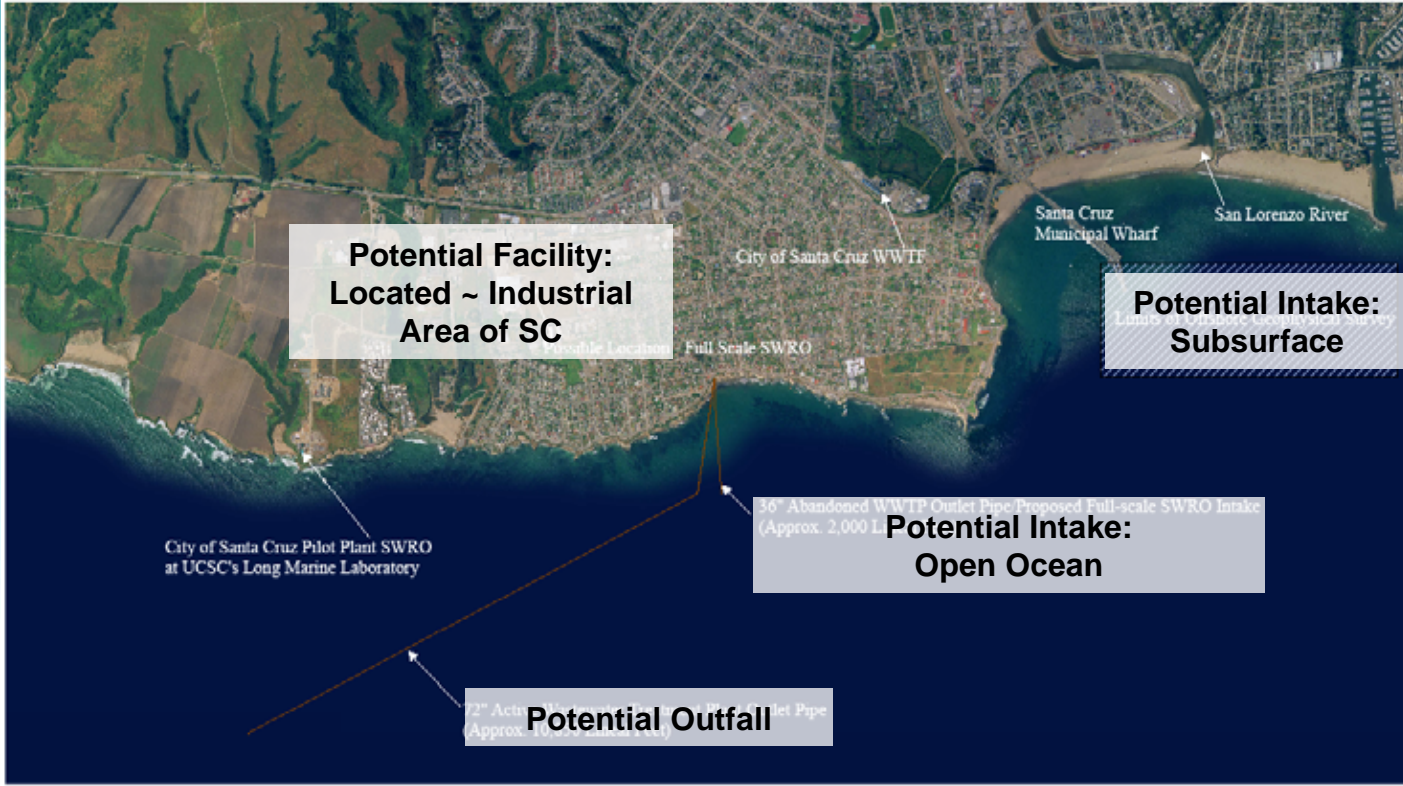
scwd² Joint Task Force



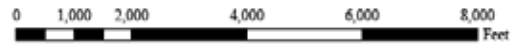
- **Oversees evaluation of the desalination project**
 - technical and environmental studies,
 - the environmental review
 - permitting and design
- **Forum for public input**
- **Formulate an agreement and governance structure**



Conceptual 2.5 MGD Desalination Facility



City of Santa Cruz Seawater Desalination Program
Coastal and Nearshore Features



*** Shared Use**

*** Shared Costs**

Sharing Desalinated Water



- Operate only during droughts, approx. one in six years
- Would use up to 2.5 million gallons per day (May-October)



- Operate to augment groundwater supplies, approx. five in six years
- Would use ~1.5 million gallons per day



scwd² –Past and Present Activities

Concern

Study to Address

Water Quality

Pilot testing of technology

Intake

Evaluating screens and beach wells

Energy

Evaluating carbon neutral facility

Brine Discharge

Blend with wastewater plant



Project Schedule and Timeline

2008 - 2010 Pilot Plant Testing



2010 - 2012 Additional Studies &
Environmental Impact Report



2010 - 2012 Design and Permitting



2012 - 2015 Construction

How to stay informed about the project

- E-mail Updates – sign up to receive monthly email notices and project updates

Visit our website:

www.scwd2desal.org

Questions?

