Salt or Sewer?
Supplemental Water Supplies
for Santa Cruz County

Northern California Chapter of WateReuse
August 22, 2014
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Dependence on Local Hydrology
The Need for Supplemental Supplies
Water Department Mission Statement:

“To assure public health & safety by providing a clean, adequate and reliable supply of water.”
Integrated Water Planning
A Public Process with a Citizens Advisory Committee

Early 2000’s
Regional Desalination Project

- Up to 2.5 mgd
- Operate in drought years

- Average ~1.5 mgd
- Operate to restore groundwater levels
Comparing Alternatives

Relative Annualized Unit Cost

Potential New Water Supply

Regional Desal
Water Supply is a Political Issue

HARK! Tis UCSC and the expansion industry disguised as a little horsey!

I'll get the boiling oil ready!

Desal Plant

Monterey Bay Marine Sanctuary

Drought insurance: Save fish!

Desalinate that!

A Trojan Sea Horse
It’s all fun and games .... until the EIR comes along.
Political Pressure Fueled by the Desal EIR...

By 2013

The New City Council took the Heat
Back to the Drawing Board...

- Recycled Water
- Collect Fog
- Build Dams
- Conserve More
- Catch Rainwater
- Consume Graywater
- Conjunctive Use
- "Offset" New Demands
- Limit Growth

Thinking Outside the Box
Public Perceptions Can and Will Change
Potential Recycled Water Alternatives

- RW for Irrigation
- Seawater Intrusion Barrier
- Groundwater Replenishment
- Reservoir Augmentation
- Direct Potable Reuse
Recycled Water for Irrigation
Comparing Alternatives

Relative Annualized Unit Cost

Potential New Water Supply

Regional Desal

RW Irrigation

GWRRP

Res Aug IPR

DPR

Barrier

Seawter

RW Irrigation

$0

$1,000

$2,000

$3,000

$4,000

$5,000

$6,000

$7,000

$8,000

$9,000

$10,000

$11,000
Seawater Intrusion Barrier

Legend
- **Proposed Pipelines**
  - Green: Irrigation Customer
  - Purple: Recycled Water Conveyance
  - Yellow: Recycled Water Distribution
  - Orange: Secondary
- **Seawater Injection Well**
- **Water Levels**
  - Pink: -10' to 0'
  - Yellow: 0' to 10'

*Source: Kennedy/Jenks Consultants*
Comparing Alternatives

<table>
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<th>Potential New Water Supply</th>
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Planned Groundwater Replenishment

Water Treatment

Urban Water Use

Groundwater

WW Treatment

RO + UV

Advanced Water Purification Steps

Graphic Credit: David Smith

Kennedy/Jenks Consultants
Comparing Alternatives

- Regional Desal
- RW Irrigation
- Seawater Intrusion Barrier
- GWRP

Potential New Water Supply

Relative Annualized Unit Cost
Reservoir Augmentation
The New Frontier

DRINKING WATER THROUGH RECYCLING

THE BENEFITS AND COSTS OF SUPPLYING DIRECT TO THE DISTRIBUTION SYSTEM

A REPORT OF A STUDY BY THE AUSTRALIAN ACADEMY OF TECHNOLOGICAL SCIENCES AND ENGINEERING (ATSE)
Direct Potable Reuse

Water Treatment

Nature

Home

WW Treatment

Advanced Water Purification Steps
Reverse Osmosis
RO + UV

UV Disinfection

Graphic Credit: David Smith
Pipe-to-Pipe Direct Potable Reuse

Water Treatment

Nature

Graphic Credit: David Smith
Kennedy/Jenks Consultants
Comparing Alternatives

Relative Annualized Unit Cost

Regional Desal
RW Irrigation
Seawater Intrusion Barrier
GWRPP
Res Aug IPR
DPR

Potential New Water Supply
But new water supplies cost more than traditional supplies and spark fears of growth.
Salt or Sewer?

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