

City of Avalon Water Update / Options



Task Background

- City Council asked BB&K to propose options to water shortage situation
- BB&K represents over 100 water agencies, including Santa Barbara (Desalination)
- State Funding Options
- Meetings with Edison, SCICo

Policy Considerations

- Eliminate Water Restrictions
- Propose long-term reliable water solutions
- Propose short-term solution for current situation
- Propose solution that has regulatory support
- Minimize cost to rate payers while maximizing water production
- Positioning for grant success in competitive process
- Solution for City of Avalon

Water System Background

- Southern California Edison owns the water system for the delivery of potable water to the residents of Avalon (PUC regulated)
- Edison system serves a population of 4,200 people through 1,880 active connections (almost 200 more in other areas of the Island)

Water System Background & Key Facts

- Edison system includes ten wells, 2 reservoirs, 13 storage tanks, a desalination facility, over 25 miles of pipeline, and related infrastructure.
- Edison potable groundwater wells and main reservoirs are located outside the City boundary.
- Desalination facility is owned by Edison
 - Unit #2 was recently added with City's financial help.

Edison Potable Water System



City of Avalon

Key Water Facts

- City does not own any of the potable water infrastructure (wells, desalination plant etc.).
- City does not have control over the water rights exercised by Edison but does have the ability to provide **INDEPENDENT REVIEW** of water allocations through Growth Management.
- City owns and operates a saltwater wastewater system used for toilet, urinal flushing, and street wash-downs .
 - The saltwater system conserves fresh water though it poses maintenance challenges that must be mitigated.

Potable Water Usage

2013: 337,000 average per day
2013: 477,000 highest daily month

2014: 271,000 average per day
2014: 400,000 highest daily month

Toilets; Fire: Salt Water Use
390,000 per day

City of Avalon

- City is being impacted by a severe / prolonged drought.
- Stage 3 Mandatory Water Conservation and Rationing is in effect.
 - Pursuant to Edison PUC Schedule 14.1 tariff.
 - Stages are triggered by water levels at Middle Ranch Reservoir.
- City is committed to doing anything it can to improve fresh water supply situation.

City Efforts to Date

- Citizens & Business Conservation
- \$500,000 for Second Desalination Unit and working with the County of Los Angeles for an additional \$500,000 to reduce impact on City ratepayers.
- Offer for City cooperation, available land for facilities.

City Options

1. Desalination Plant

- Work with Edison to increase the amount of water produced by the desalination facility.
 - City recently committed \$500,000 to help pay for the addition of Unit #2.
- All efforts require working with Edison because they own the plant

Desalination Specific Projects

1. Rehabilitate and maintain current wells
2. Add seawater wells to maximize capacity
3. Add additional storage and related infrastructure for increased capacity
4. Construct any other needed improvements to take full advantage of increased capacity
5. Add infrastructure to move desalinated water to Hamilton Cove if financially feasible and grant eligible (or if owners of HC agree to formation of an assessment district to finance line extension)

Desalination

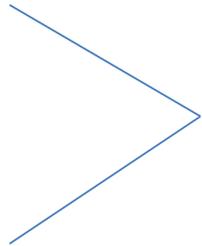
City Actions

- OBTAIN SCE support to move forward or seek PUC help to encourage cooperation
- Help secure state and federal grant funds for desal projects
 - City staff have been in contact with the State about Proposition 1 funds
 - Joint project with Edison
 - Possible Disadvantaged Community designation (may increase likelihood of success)
- Determine City role in desalination projects
 - Secure grants, ownership of improvements if State requires City to do so.

Carollo Report

Desalination Unit 1:	201,600
Desalination Units 1 & 2 in Brine mode:	321,120
Desalination Units 1 & 2 seawater mode:	432,000

432,000
potential



400,000
Highest daily month
average in 2014

Desalination Challenges

- Expensive operational costs but only when ground water and rain are insufficient to meet Avalon's needs.
- State grant funds may not be used for costs of ongoing operations and maintenance.
- Costly to build out related infrastructure (state grant funds could be used for this purpose).

Storage Component

- Make investments to build additional water storage facilities for potable water that minimizes risk of environmental contamination, eliminates evaporation, and creates a secure source of fresh water no matter whether it rains or there is adequate groundwater.
- Requires collaboration with Edison because they are the City's potable water provider.
- Options could include:
 - Assisting Edison with the cost of new storage (help with state grants or appropriation).
 - Constructing new storage and agreement with Edison.
- Options to store Edison water require partnership.
- Tanks near waste water treatment plant.
- Storage facilities farther away are more costly and inefficient.

Storage cont.

- Must reach consensus with Edison over best storage project(s) or gain cooperation by other means.
- New storage needed to accommodate increased capacity of expanded desal plant.

Other Projects

New Groundwater Wells

- Provide support for the development of new potable groundwater wells
 - Edison is currently exploring Avalon Canyon as a possible new well site in conjunction with the Island Co. This is a good resource option but not the total answer to fresh water supply.
- Development of groundwater wells by City
 - Depending on the use, could be service duplication issues. City has right to drill wells on its own property.
 - Limited City property for wells.

Recycled Water

- Explore opportunities to develop and produce recycled water.
 - Convert waste water treatment facility into reclamation facility that produces tertiary water.
 - Use recycled water in waste water system.
 - Other uses of recycled water:
 - Limited outdoor irrigation
 - Indirect potable reuse

Recycled water cont.

- The City would own the water it reclaims.
- Any use of recycled water in Edison potable water system requires agreement with Edison.

410,000 average treated

390,000 average salt water for toilets & fire

Not sufficient reliability with current treated water amounts.

Recycled water cont.

- More water into system will help as will continued rehabilitation of waste water infrastructure.
- Significant costs
 - Would require infrastructure to store / deliver water.
 - City could apply for state grant funds to defray costs.

Recycled Water

- Regardless of creating new water, using recycled water for waste water system would have significant benefit.
- However, converting the system would be very costly and greatly exceed the amount of State dollars reasonably available through grants at this time.

Stormwater Capture / Rainwater Harvesting

- City could further investigate opportunities for stormwater capture / recharge.
 - Would want to study cost and feasibility.
 - Not clear how much water could effectively be captured.
- Explore possible rain barrel program or the promotion of underground cisterns.
 - Planning standards could encourage best practices

Dredging Middle Reservoir

- Discussed as a way to increase capacity of Middle Reservoir
- Value depends on amount of storage space that could be created and frequency extra space would be utilized.
- Cost and permitting make this option less desirable and not recommended as a priority project.

Covering Middle Ranch Reservoir

- Cost & permitting
- Legal challenges

Regulatory Solution

- Tariff tied to Middle Ranch Reservoir levels.
- **Desalination plant production is sufficient to allow 100% use of desalination plant during most of year if needed to sustain a fresh water supply.**
- Regulatory restrictions are outdated and need to be changed.
- Demand PUC rewrite tariff to remove/reduce restrictions when desal is available and base any restrictions on production capacity, not reservoir level.

SUMMARY AND Questions?

1. Maximize desalination capacity of existing units
2. Expand storage for water produced by desalination
3. Repeal and replace drought stages with conservation stages based upon production capacity, not Middle Ranch Reservoir levels