

# City of Santa Cruz

Water Supply Advisory Committee

Recommended

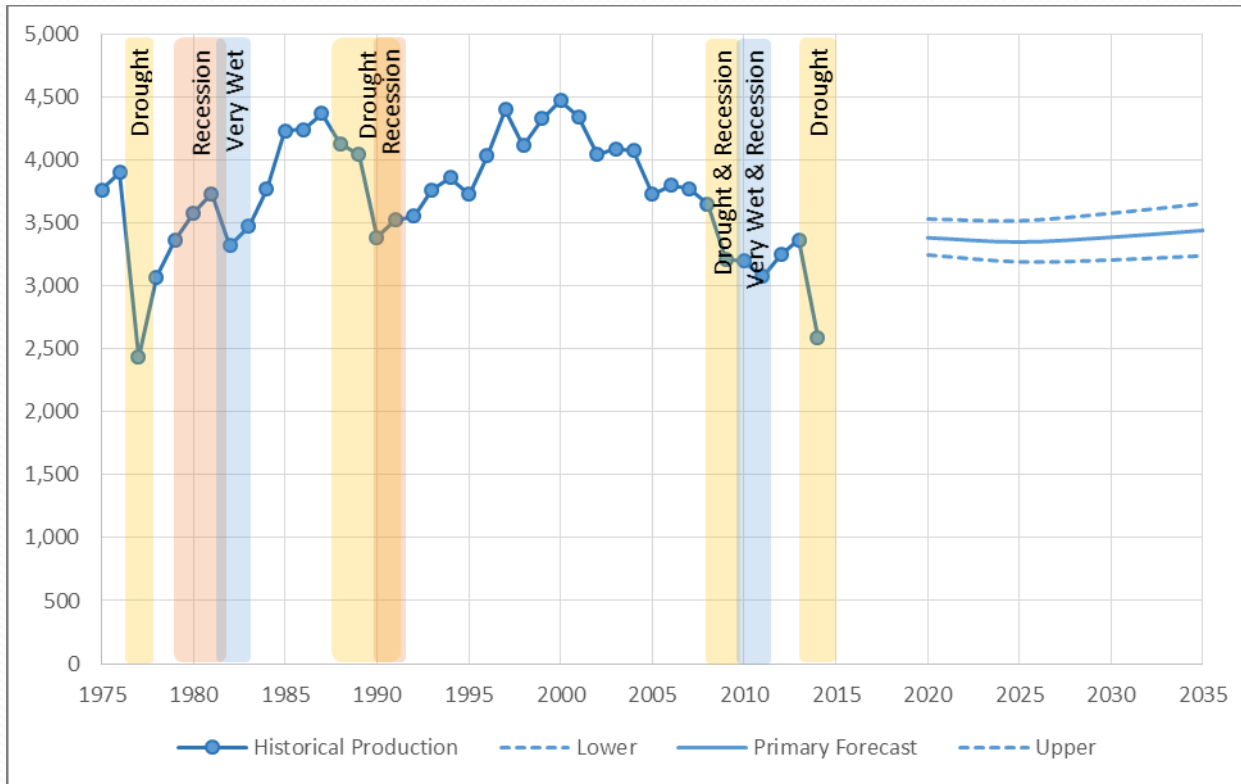
Water Supply Augmentation Strategies

# Background/Context

- October 2013 City Council directed staff to develop a Community Engagement Program to address Santa Cruz' water supply issues
- November 2013 City Council accepts framework recommended by staff to establish a “Drought Solutions Citizen Advisory Committee”
- February 2014 Council approves membership of the “Water Supply Advisory Committee”
- April 2014 - October 2015 WSAC meets



# Demand Forecast Findings



- Flat expected demand thru 2035
  - 3,400 MGY
  - Population up 23%

- Falling per capita demand
  - 2010: 96 gpcd
  - 2035: 84 gpcd

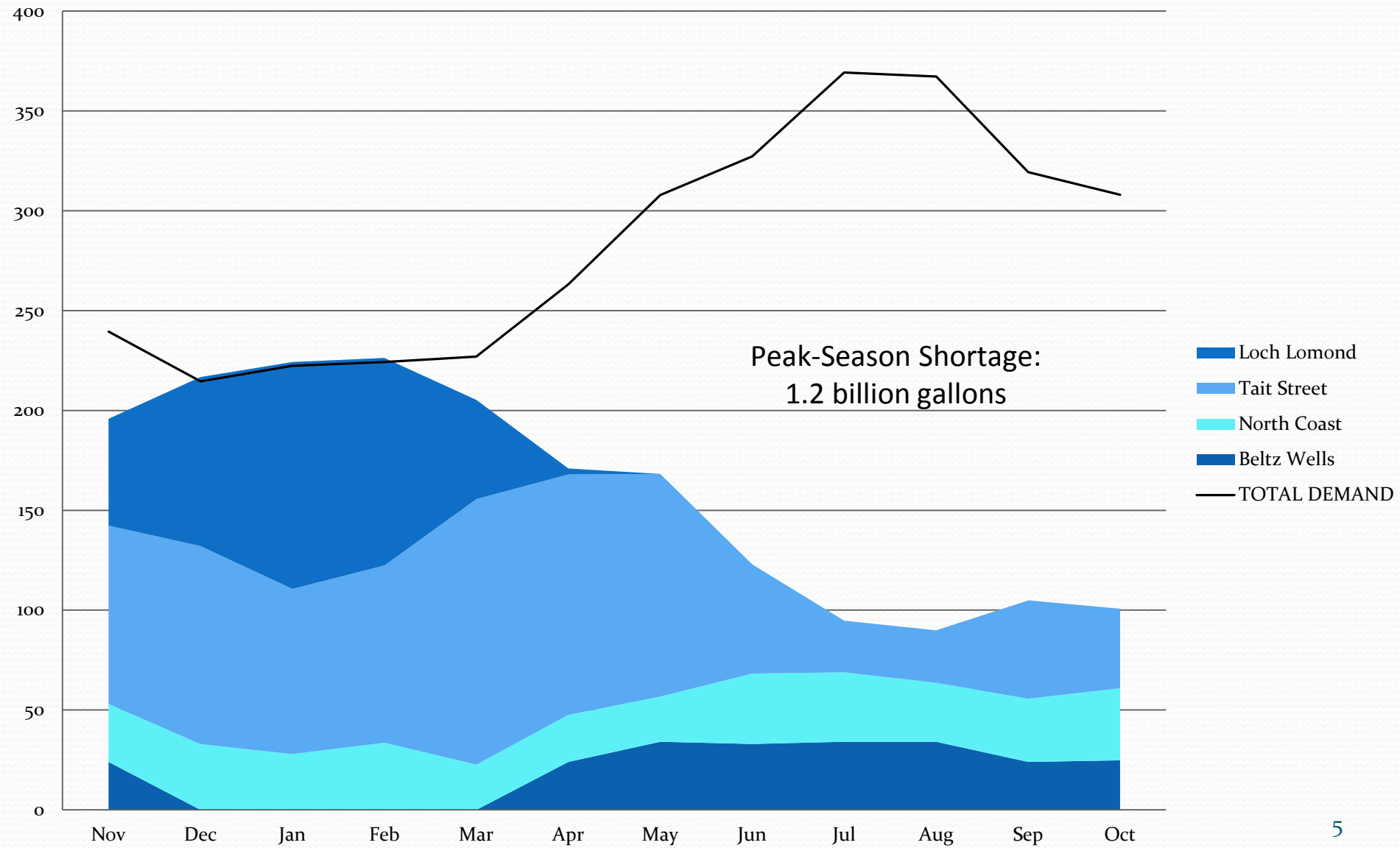
# Key Challenges Facing our Water Supply

- Limited storage
- Fish flows
- Climate change
- Potential for seawater intrusion



# Projected Worst Year Gap

## DFG-5 Flows, Final Demands, Climate Change (millions of gallons per month)



# WSAC's Problem Statement

July 2015

- Limited Storage
- Fish Flow Requirements & Potential climate change impacts
- Resulting peak-season gap: 1.2 billion gallons worst case
- Water conservation alone is not enough

# WSAC Recommendations

Continued and increased conservation programs.

Groundwater strategies using available winter flows:

- In-lieu water exchange with Soquel Creek and/or Scotts Valley Water Districts.
- Aquifer storage and recovery (ASR).

Supplemental supply augmentation strategies:

- Advanced treated recycled water.
- Desalination.

# Rationale for the Groundwater Storage and Retrieval Strategy Preference

- More fully utilizes winter water flows in the San Lorenzo River
- Can contribute water to storage in many years. Even in dry years winter water may be available to store in local aquifers.
- May start returning water before the entire groundwater system is built out.
- May help reduce the threat of seawater intrusion.
- Groundwater strategies are regional strategies. Regional strategies may help the regional economy and thus the local economy.
- In-lieu recharge strategies can start immediately with existing infrastructure & can grow over time.
- Together the ASR wells create a flexible, resilient & scalable system that can be included in SC's overall water supply portfolio.
- Water stored underground is much less affected by evaporation.
- Aquifer restoration may improve base flows from groundwater to local streams & may offset some fish flow requirements.
- May eliminate future water use curtailments during extended droughts.
- Groundwater strategies are believed to be politically feasible.



# Recommendations Approved by City Council 11/24/15.

## Next Steps:

		2016				2017				2018				2019				2020		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>IN LIEU</b>																				
	Near Term: Develop Agreements, Complete CEQA	[Orange bar from Q1 2016 to Q2 2016]																		
	Evaluate larger project(s)	[Orange bar from Q1 2016 to Q4 2016]																		
	Complete Agreements, water rights, CEQA, ...	[Orange bar from Q1 2016 to Q4 2019]																		
	Infrastructure Improvements	[Orange bar from Q1 2016 to Q4 2019]																		
<b>Aquifer Storage and Recovery (ASR)</b>																				
	Complete & use supply models (Confluence, Purisima & Santa Margarita)	<i>funded &amp; developed under separate contracts</i>																		
Phase 1	Develop & Engage Technical Advisory Panel	[Blue bar from Q1 2016 to Q4 2019]																		
	Identify/select existing wells for potential pilot testing	[Blue bar from Q1 2016 to Q4 2016]																		
	Perform site specific injection capacity & geochemical analyses	[Blue bar from Q2 2016 to Q4 2016]																		
	Develop Pilot Program & identify potential sites for new ASR well(s)	[Blue bar from Q3 2016 to Q4 2016]																		
Phase 2	Retrofit existing wells, 3x	<i>agreement(s) with SV &amp; SqC</i>																		
	Perform injection well hydraulic testing	[Blue bar from Q2 2017 to Q4 2017]																		
	ISR cycle testing	[Blue bar from Q3 2017 to Q4 2019]																		
	Develop ASR program	[Blue bar from Q1 2020 to Q3 2020]																		
	Funding Opportunities	[Triangle icons at Q1 2016, Q1 2017, Q3 2018]																		
	Outreach	<i>report out to Water Commission (4x/year); enrichment (2x/year), ...</i>																		
<b>Recycled Water Feasibility Study</b>																				
	Background Info	[Green bar from Q1 2016 to Q2 2016]																		
	Market Analysis	[Green bar from Q1 2016 to Q3 2016]																		
	Treatment Evaluation	[Green bar from Q2 2016 to Q4 2016]																		
	Alternatives Analysis	[Green bar from Q3 2016 to Q4 2016]																		
	Recommended Facilities Proj Plan	[Green bar from Q1 2017 to Q4 2017]																		
	Construction Financing & Revenue	[Green bar from Q1 2017 to Q4 2017]																		
	RW Facilities Plan Final Report	[Green bar from Q1 2017 to Q4 2017]																		
	Funding Opportunities	[Triangle icons at Q1 2016, Q3 2017]																		
	Outreach	<i>report out to Water Commission (4x/year); enrichment (2x/year), ...</i>																		
<b>Water Supply- Implementation</b>																				
	Procure Property	[Empty cell]																		
	Design	[Empty cell]																		
	CEQA & Permits	[Empty cell]																		
	Construct	[Empty cell]																		
<b>Highlights of Groundwater Sustainability Process</b>		[Box with 'x' marks at Q1 2016, Q2 2016, Q3 2016, Q4 2017]																		
<b>Water Commission</b>		[Row of 19 grey circles]																		
○	Water Commission	CEQA: California Environmental Quality Act									SV: Scotts Valley Water District									
△	Funding Opportunities	ISR: Injection, Storage, Recover RW: Recycled Water SqC: Soquel Creek Water District																		