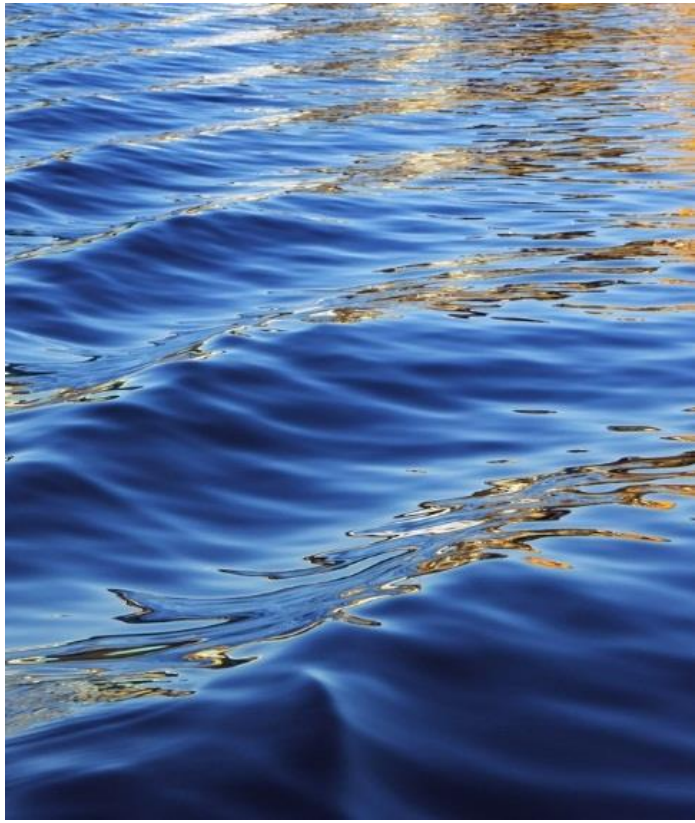
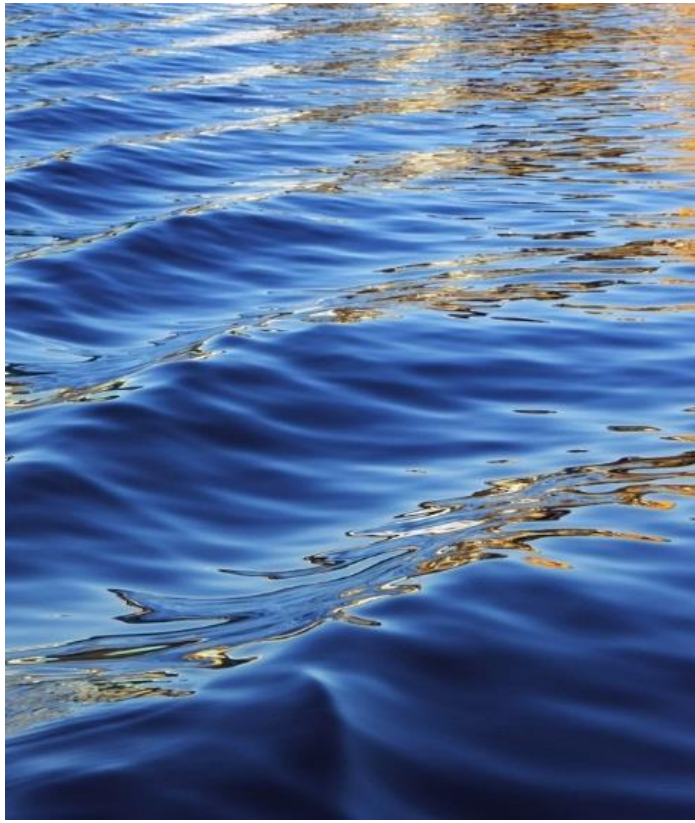
Sandy's Future Sustainable Water Supply

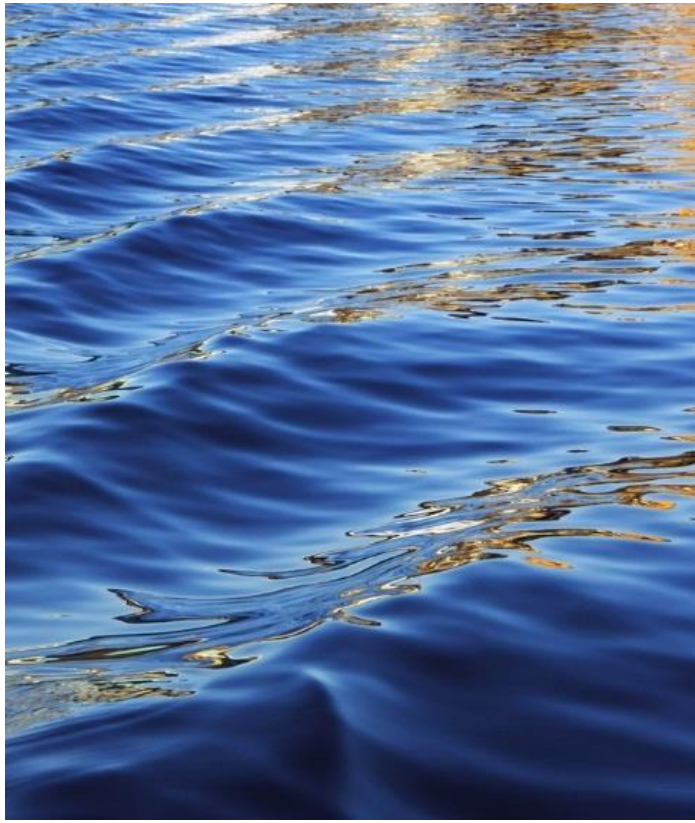


Sandy's Sustainable Water Resources:

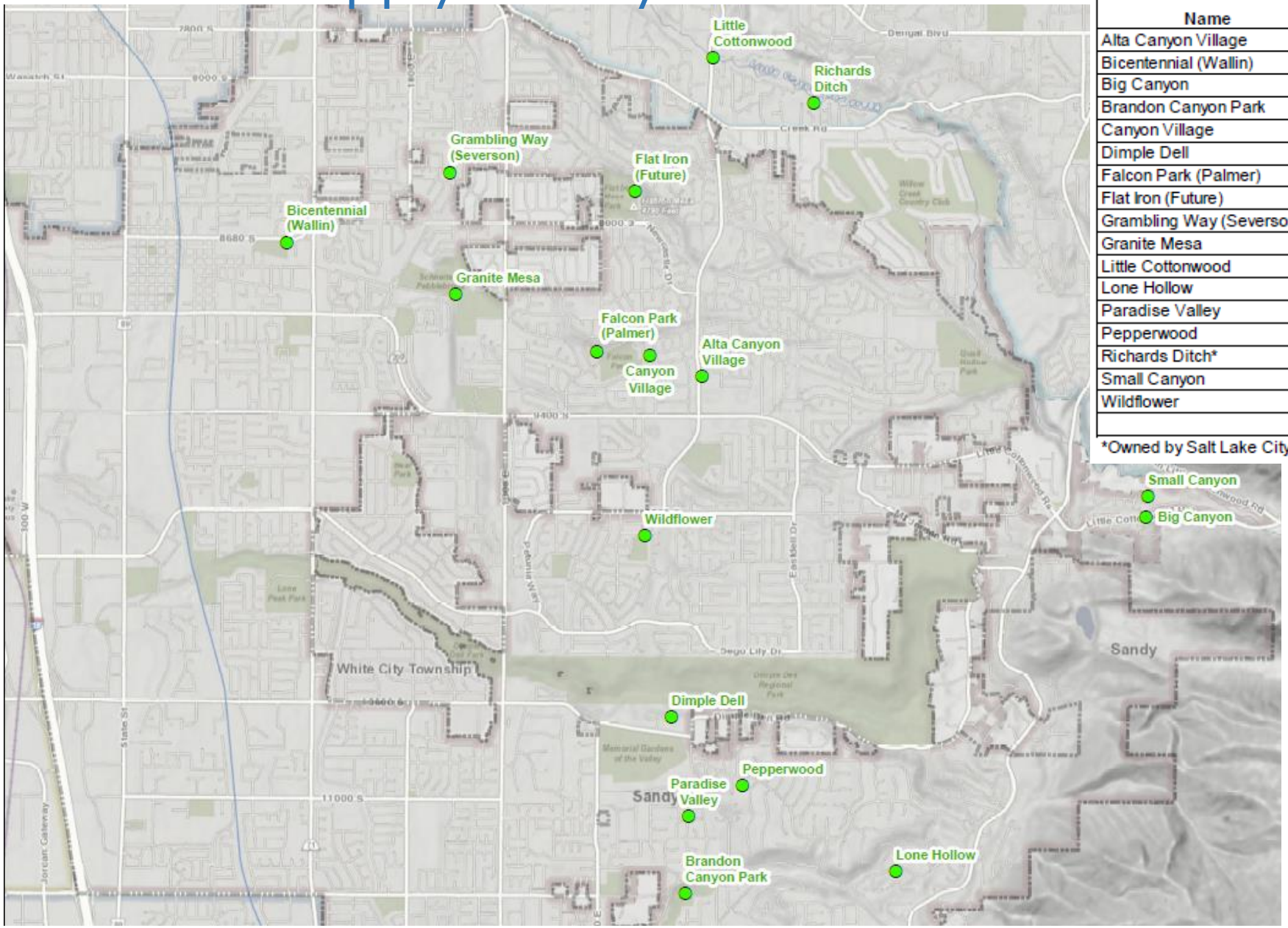
1. Additional Supply
2. Aquifer Storage
3. Enhanced Water Conservation



Water Supply and Demand



Water Supply: Sandy Well Sources



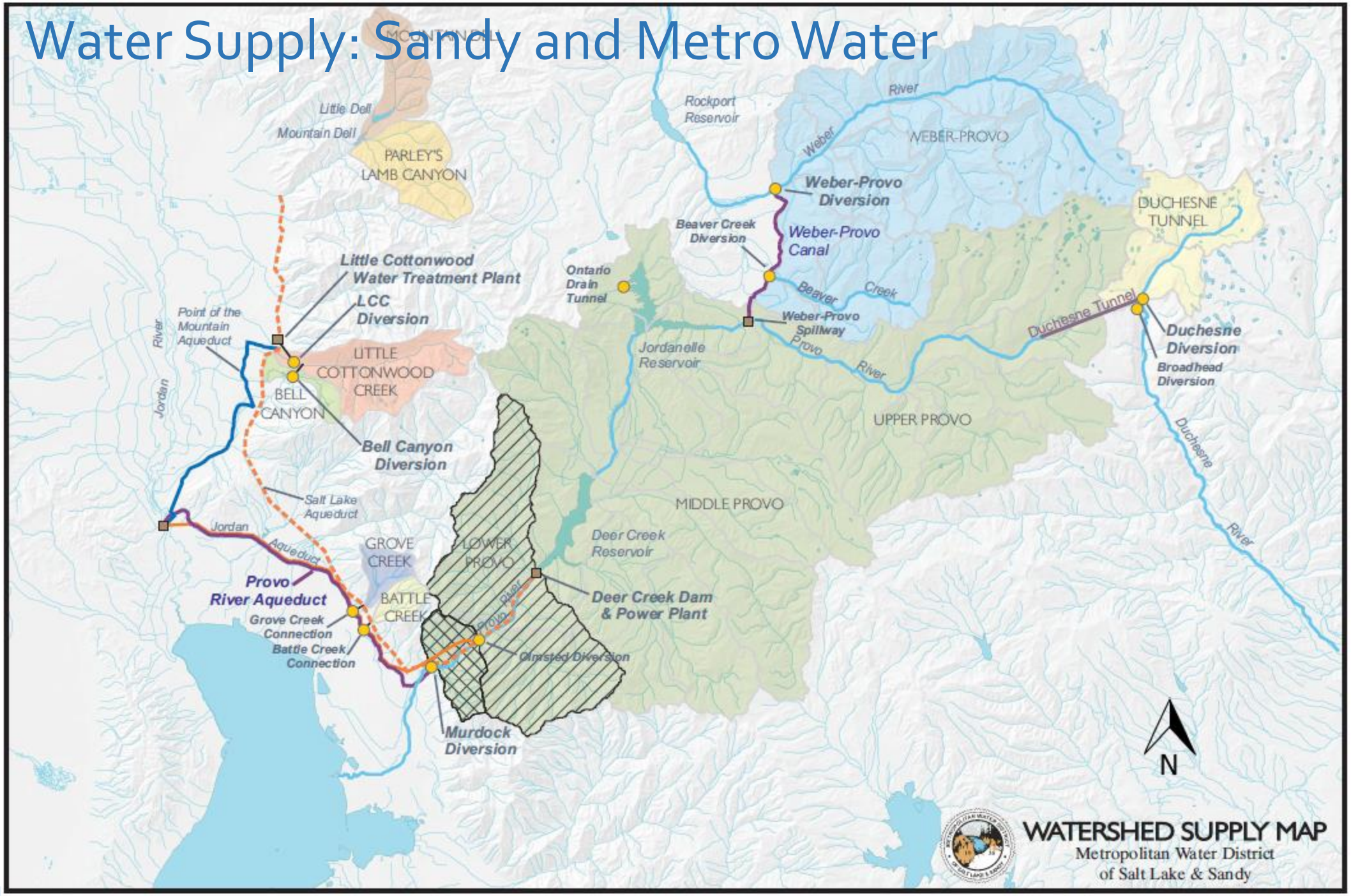
WELLS				
Name	Address	Zone	Status	Capacity (gpm)
Alta Canyon Village	2010 E. Village Pt. Way	3	Operating	1,600
Bicentennial (Wallin)	590 E. 8680 S.	5	Operating	1,900
Big Canyon	3775 E. Little Cottonwood Rd.	1	Operating	900
Brandon Canyon Park	1900 E. 11400 South	3	Operating	880
Canyon Village	1822 E. So. Bridgeway	3	Operating	1,670
Dimple Dell	10600 S. 2000 E.	3	Operating	3,800
Falcon Park (Palmer)	9140 S. Sterling Dr.	3	Operating	1,875
Flat Iron (Future)	8425 S. 1755 E.	4	Future	1,500
Grambling Way (Severson)	8396 S. Grambling Way	4N	Operating	2,100
Granite Mesa	8800 S. 1200 E.	4N	Operating	1,200
Little Cottonwood	7900 S. 2000 E.	3N	Operating	1,500
Lone Hollow	#2 Lone Hollow	2	Operating	1,500
Paradise Valley	1975 East Justin Park Dr.	3	Operating	2,100
Pepperwood	10800 S.2200 E.	2	Operating	2,250
Richards Ditch*	8000 S. Royal Lane	3N	Operating	1,500
Small Canyon	9750 S. 3775 E.	1	Operating	450
Wildflower	9895 S. Wildflower Rd.	3	Operating	1,350
			Total	28,075

*Owned by Salt Lake City but Sandy has right to use

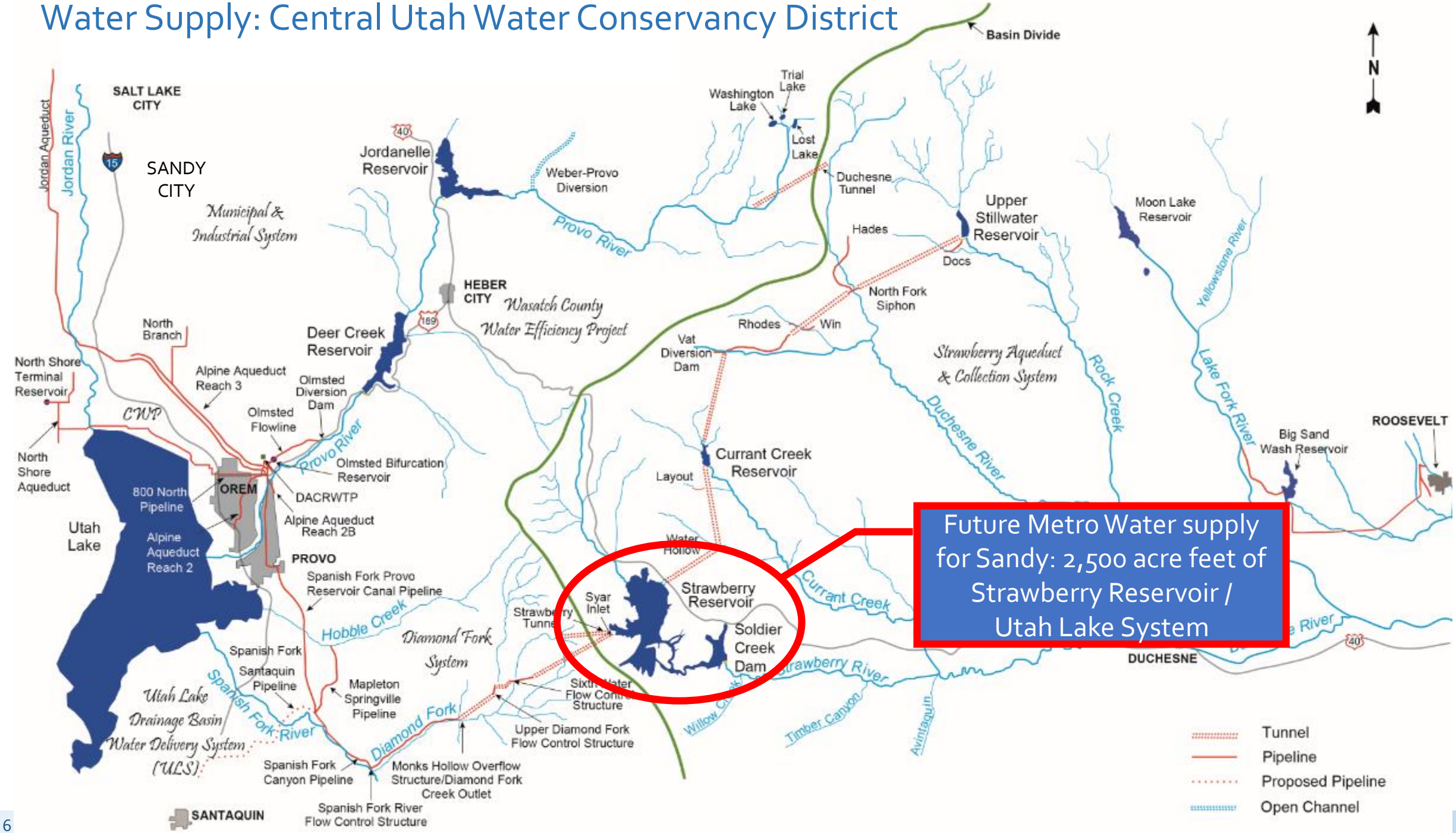
<u>Ground Water Rights:</u>

- Approximately 50 Rights
- 23 Certificated Rights:
  26,000 Acre Feet
- 27 in Application Status
  22,000 Acre Feet
- Safe Dry Year Yield:
  13,700 Acre Fee

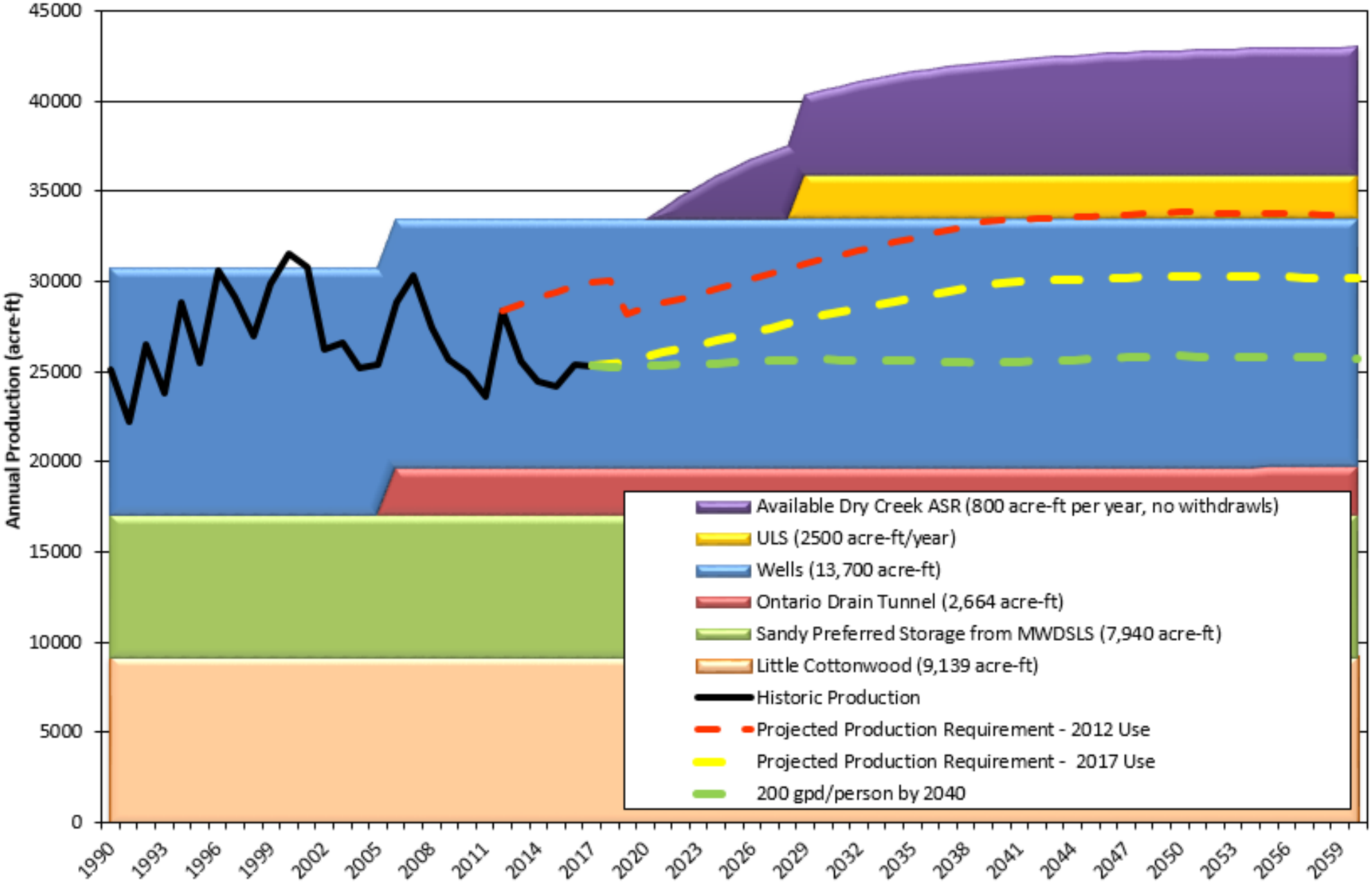
Water Supply: Sandy and Metro Water



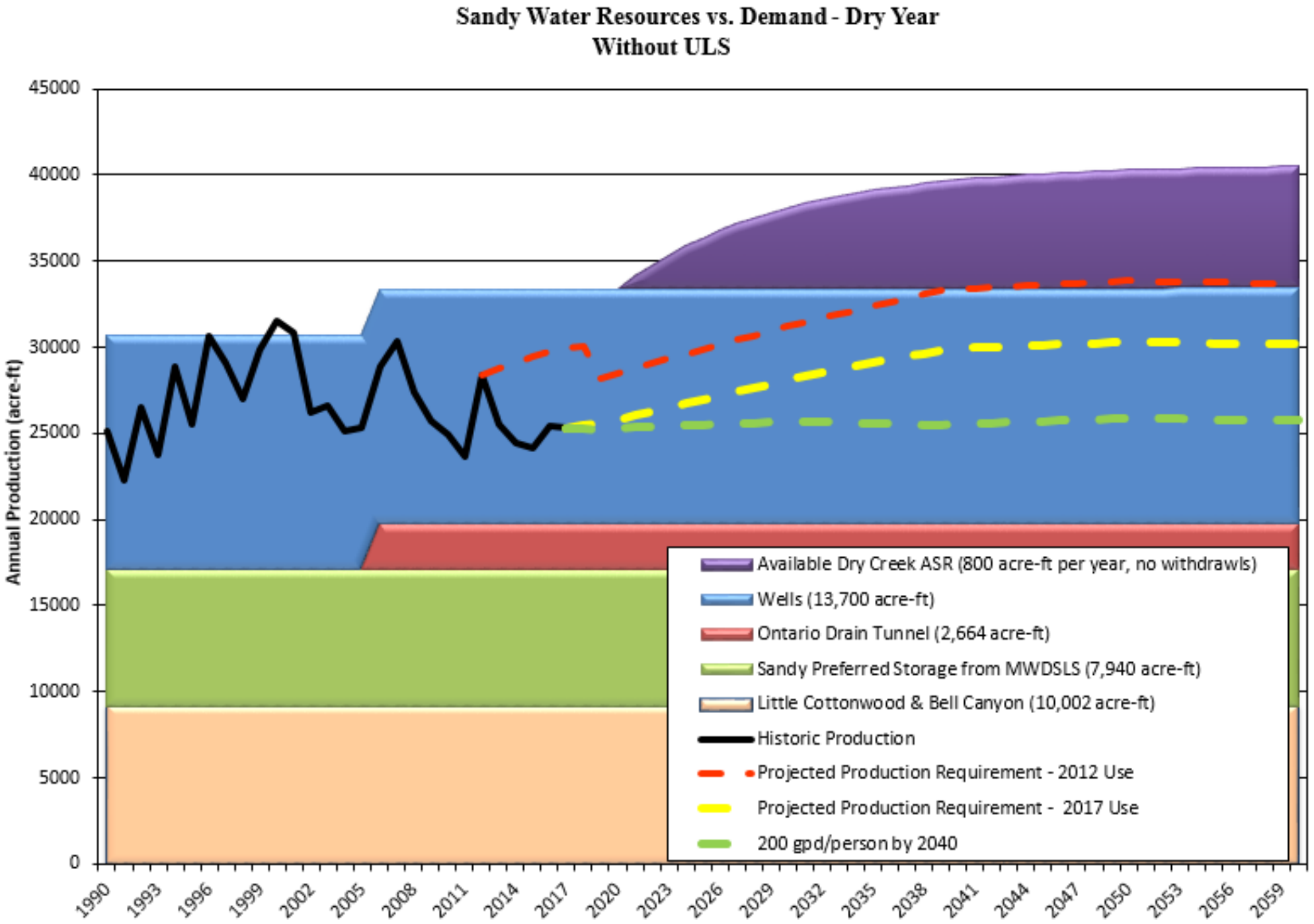
Water Supply: Central Utah Water Conservancy District



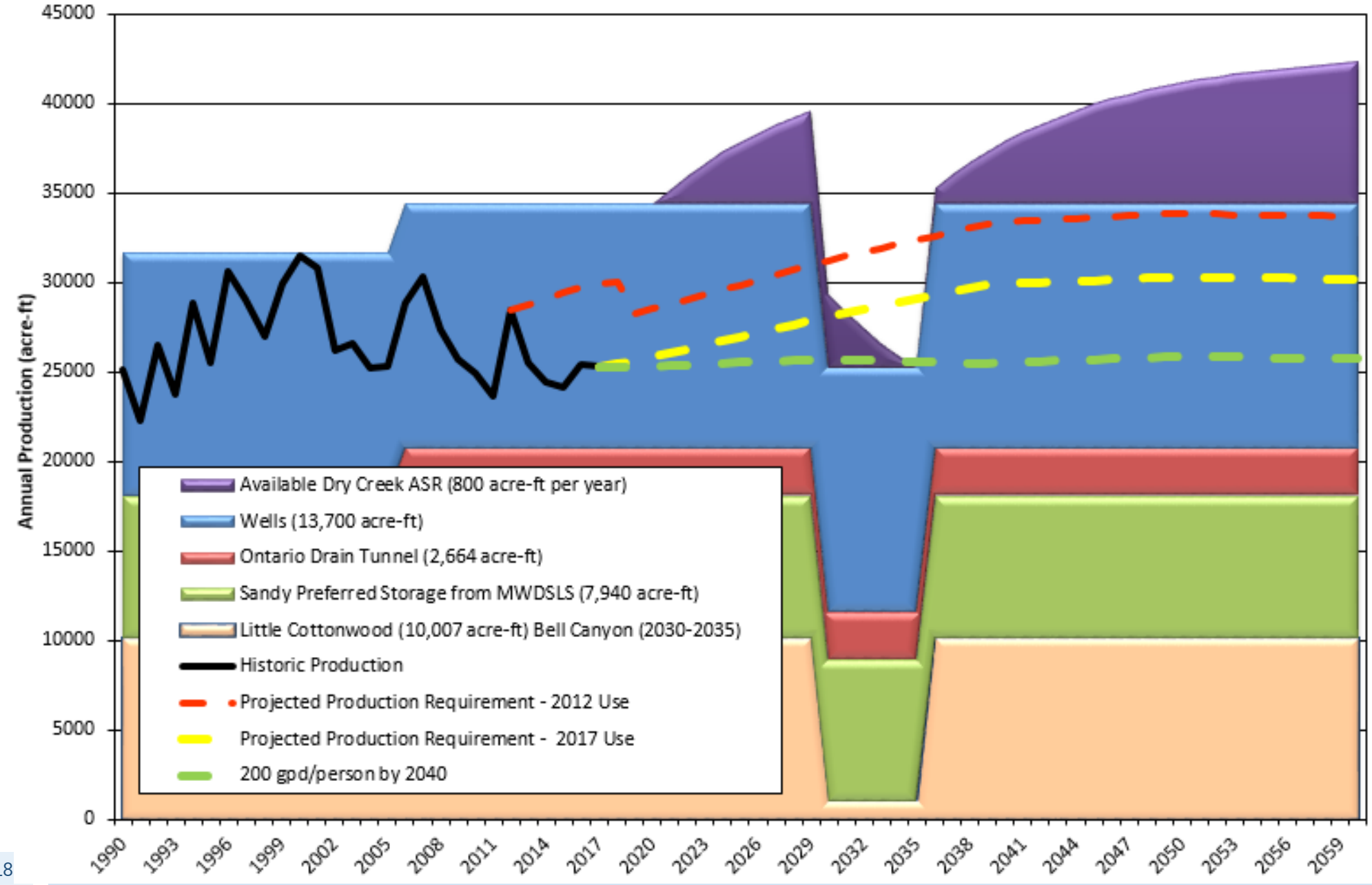
Sandy Water Resources vs. Demand - Dry Year
With ULS



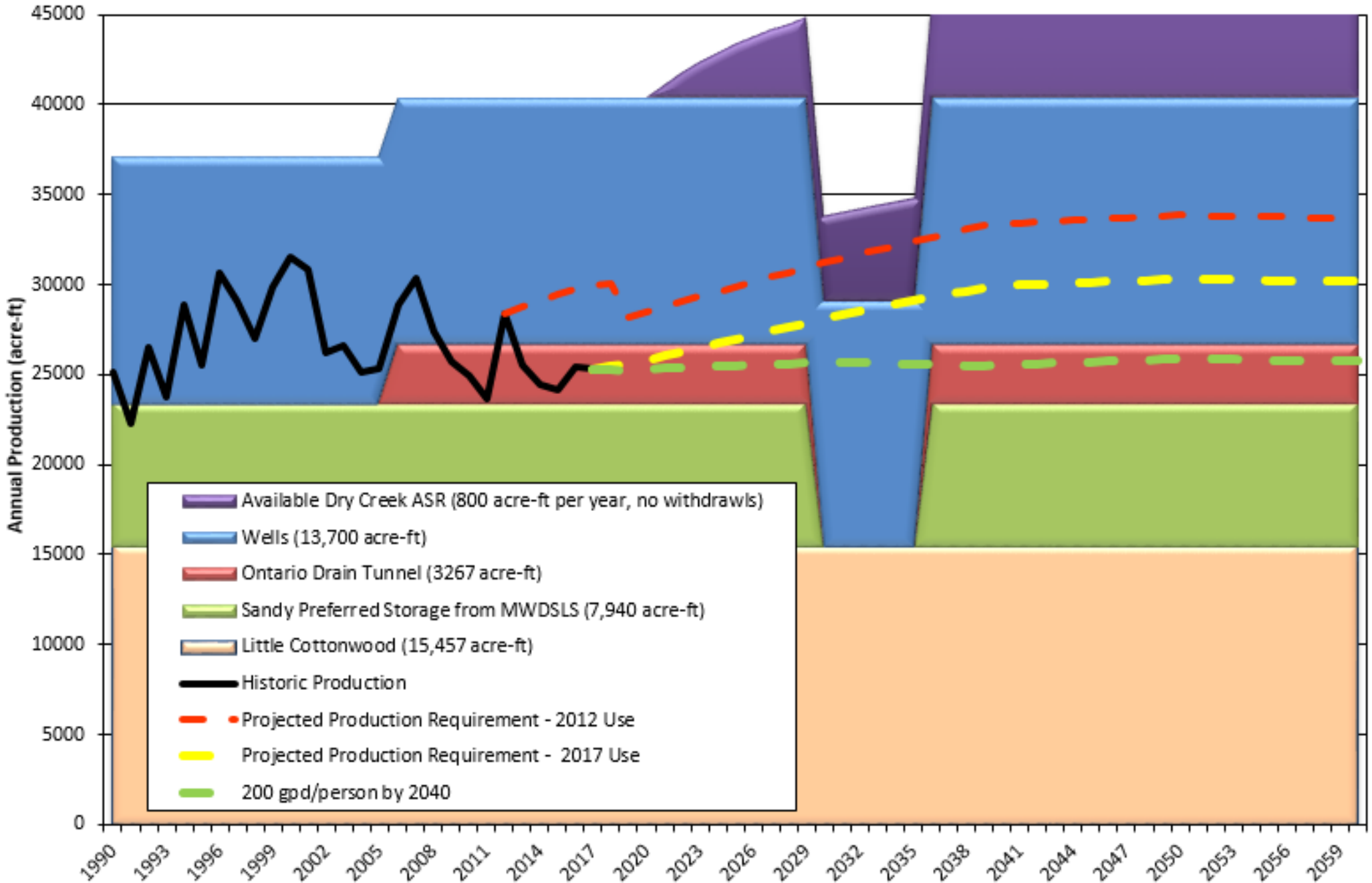
*Production estimated based on historic water production.


Sandy Water Resources vs. Demand - Dry Year
Without ULS
Annual Production (acre-ft)
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
2029
2032
2035
2038
2041
2044
2047
2050
2053
2056
2059
Available Dry Creek ASR (800 acre-ft per year, no withdrawls)
Wells (13,700 acre-ft)
Ontario Drain Tunnel (2,664 acre-ft)
Sandy Preferred Storage from MWDSLS (7,940 acre-ft)
Little Cottonwood & Bell Canyon (10,002 acre-ft)
Historic Production
Projected Production Requirement - 2012 Use
Projected Production Requirement - 2017 Use
200 gpd/person by 2040

Sandy Water Resources (Dry Year) vs. Demand - Without Little Cottonwood Creek 2030-2035

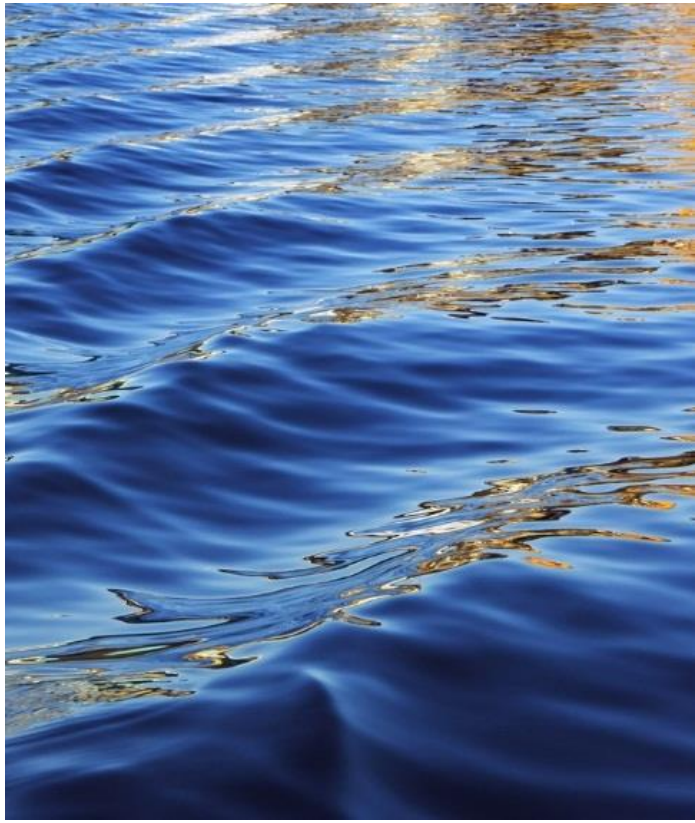


Sandy Water Resources vs. Demand - Without Deer Creek and Ontario 2030-2035



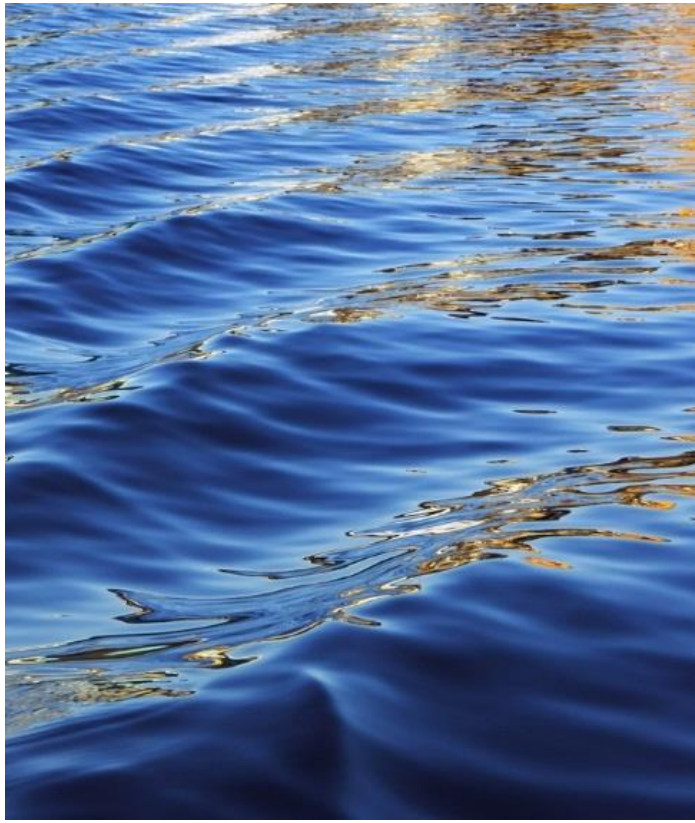
Enhanced Water Conservation: The Next Wave

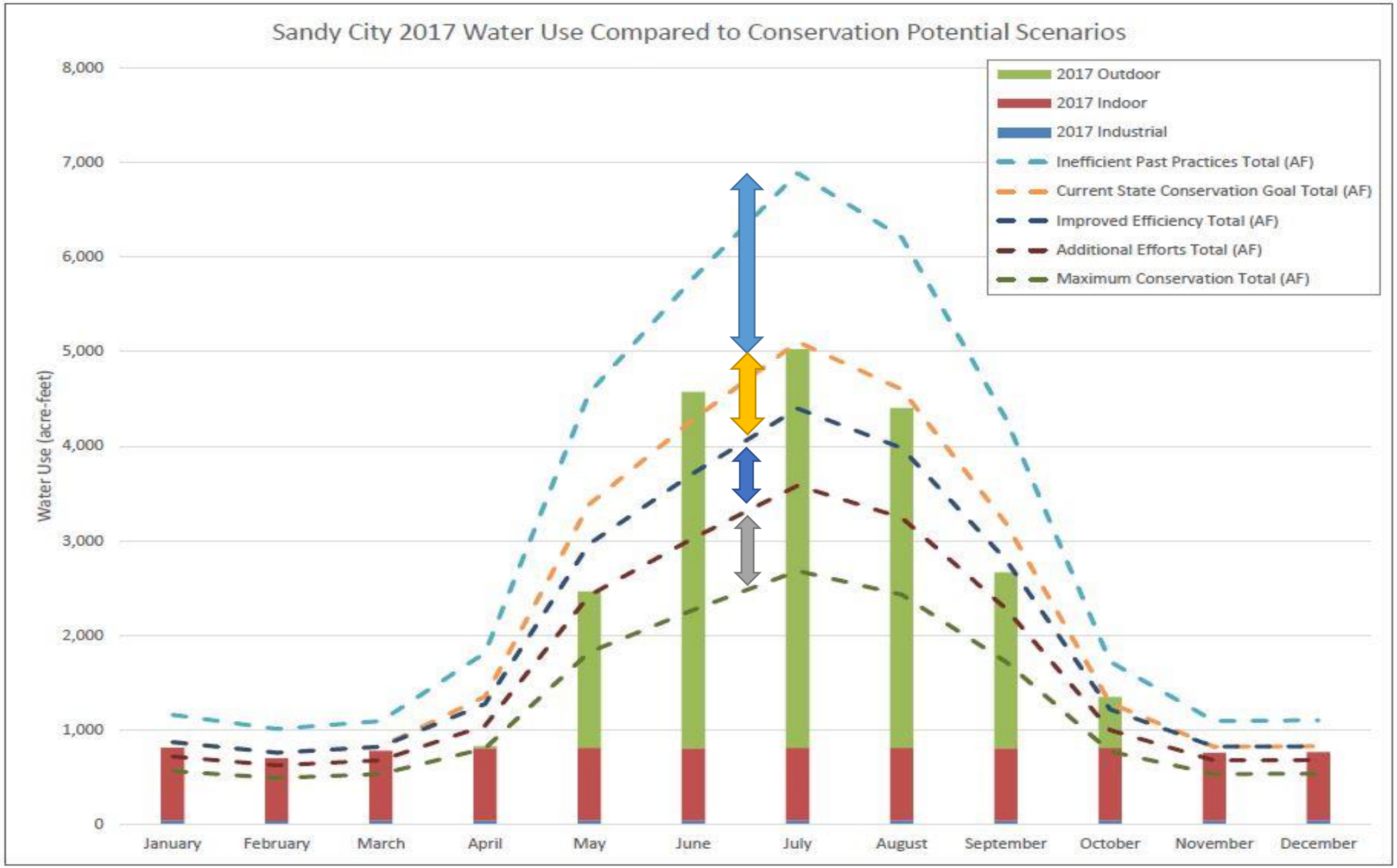
Sandy's ONE Water Way



"These solutions may help overcome the immediate crisis, but in the process could exacerbate the problem by strengthening dependence on increasing water supplies. Eventually, the city will have to reckon with its long-term water scarcity problem, which climate change is likely to make worse."

- Akshat Rathi (excerpted from The Quartz in a comment about Cape Town)




Sandy City 2017 Water Use Compared to Conservation Potential Scenarios
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Water Use (acre-feet)
January
February
March
April
May
June
July
August
September
October
November
December
2017 Outdoor
2017 Indoor
2017 Industrial
Inefficient Past Practices Total (AF)
Current State Conservation Goal Total (AF)
Improved Efficiency Total (AF)
Additional Efforts Total (AF)
Maximum Conservation Total (AF)

Indoor Water Conservation: Room for Improvement

INDOOR WATER USE PROJECTIONS FOR DIFFERENT DEVELOPMENT PATTERNS

70 GCPD

Inefficient Past Practices

- Water use averages prior to 2000.
- Limited use of high efficiency fixtures and appliances.

60 GCPD

Improved Efficiency

- 40% conversion to high efficiency fixtures and appliances.

50 GCPD

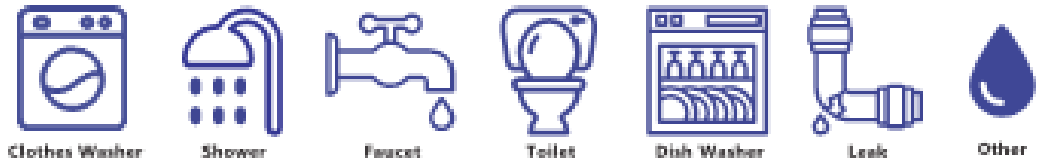
Additional Efforts

- 80% conversion to high efficiency fixtures and appliances.

40 GCPD

Maximum Conservation

- 100% conversion to high efficiency fixtures and appliances.
- Elimination of leaks.
- Improved awareness and focus on water conservation.



Source: Water Research Foundation

OUTDOOR WATER USE PROJECTIONS FOR DIFFERENT DEVELOPMENT PATTERNS

Inefficient Past Practices

- Historic irrigation efficiency = 50%
- (Double the amount needed)

0% Reduction

Improved Efficiency

- Traditional Landscaping –
- 80% turf 20% planting beds and hardscaped areas.
- Increased irrigation efficiency to 70%

29% Reduction

Additional Efforts

- 50% turf 50% planting beds and hardscaped areas.
- Increased irrigation efficiency to 80%.

50% Reduction

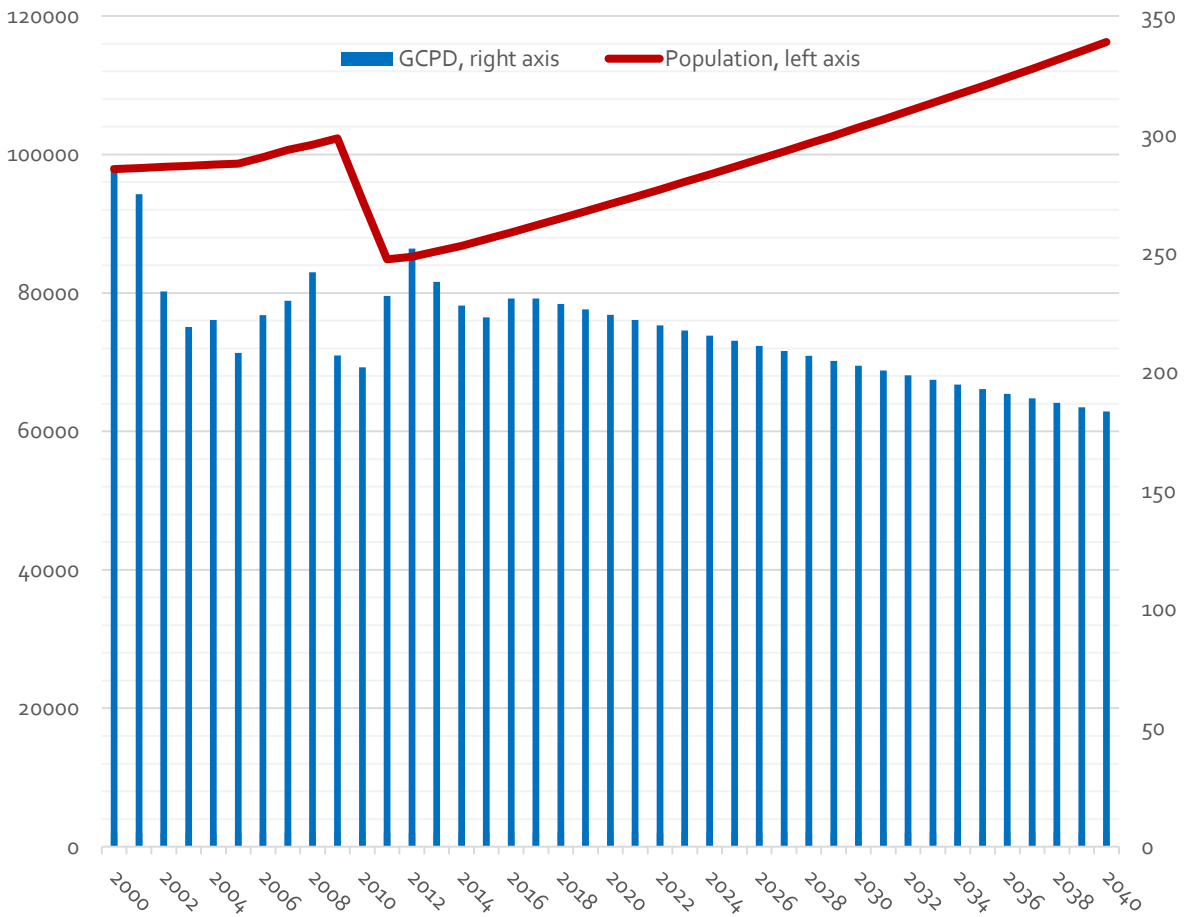
Maximum Conservation

- 20% turf 80% planting beds and hardscaped areas.
- Increased irrigation efficiency to >80 %.

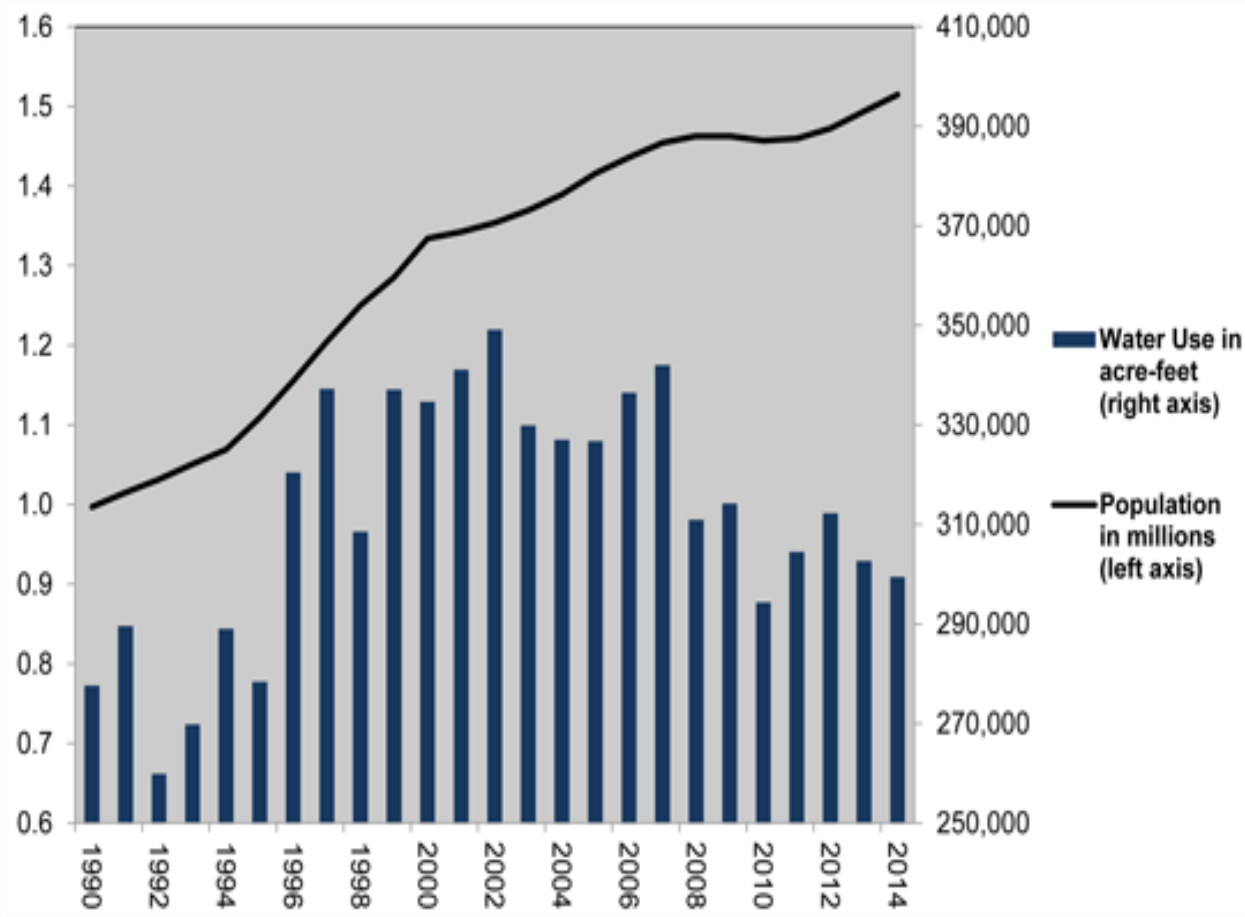
63% Reduction

Can a growing city reduce water use and needs?

Sandy, UT. – Predicted Population Growth and Water Usage Goals



Phoenix, AZ. – Historic Population Growth and Water Usage

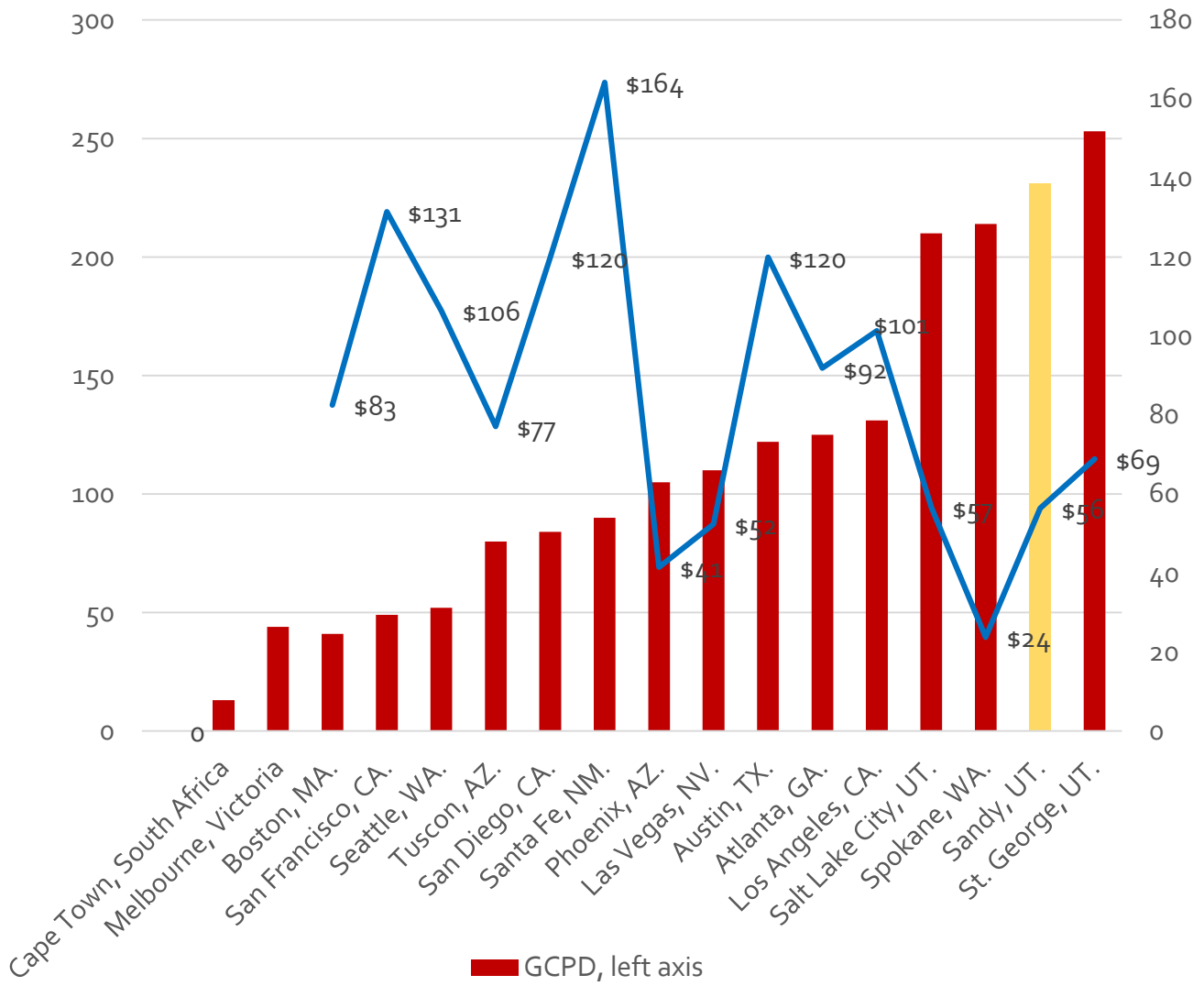


Elements of a Successful Conservation Program

	RESIDENTIAL	COMMERCIAL	PARKS & OPEN SPACES	SCHOOLS
INCENTIVES & REBATES FOR:				
Smart Controllers	✔	✔	✔	✔
Water Wise Landscaping	✔	✔	✔	✔
High-Efficiency Appliances	✔			
Landscape Leadership Grant		✔		✔
AWARDS PROGRAMS:				
Beautification Awards	✔	✔	✔	✔
Recognition on Web Site	✔	✔	✔	✔
Certificate of Achievement	✔	✔	✔	✔
EDUCATION:				
Water Watch	✔	✔	✔	✔
Audits	✔	✔	✔	✔
Tours & Classes	✔	✔	✔	✔
Garden Fairs	✔			✔
Landscape Ordinance Changes	✔	✔	✔	✔
ADVANCED TECHNOLOGY:				
Smart Meters	✔	✔	✔	✔
Web-Based Customer Portal (Water Watch)	✔	✔	✔	✔

Comparison of Cities

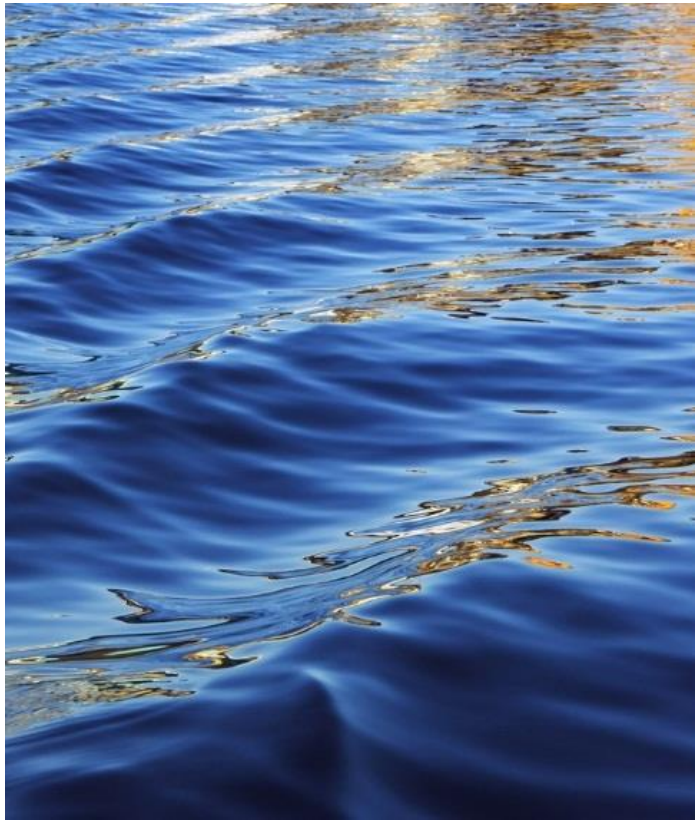
City	GCPD	Average Monthly Water Bill	Population
Cape Town, South Africa	13		3,740,000
Melbourne, Victoria	44		4,820,000
Boston, MA.	41	$82.54	673,184
San Francisco, CA.	49	$131.46	870,887
Seattle, WA.	52	$106.39	704,352
Tuscon, AZ.	80	$77.13	530,706
San Diego, CA.	84	$119.85	1,407,000
Santa Fe, NM.	90	$164.22	83,875
Phoenix, AZ.	105	$41.45	1,615,000
Las Vegas, NV.	110	$52.38	632,912
Austin, TX.	122	$119.94	947,890
Atlanta, GA.	125	$91.92	472,522
Los Angeles, CA.	131	$101.31	3,976,000
Salt Lake City, UT.	210	$56.61	319,820
Spokane, WA.	214	$23.74	220,000
Sandy, UT.	231	$56.43	92,702
St. George, UT.	253	$68.88	165,000



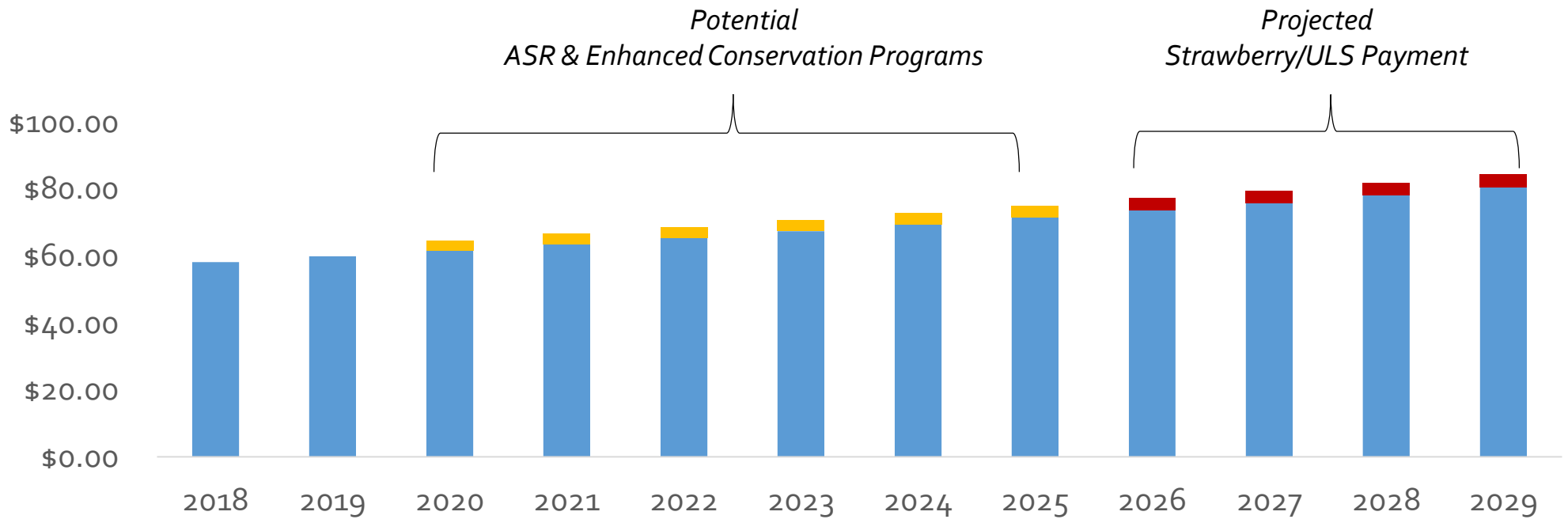
Sustainable Water Resource Fee

1. Additional Supply
2. Aquifer Storage
3. Enhanced Water Conservation

Success of last two allows options for the first



Projected Future Average Water Bill

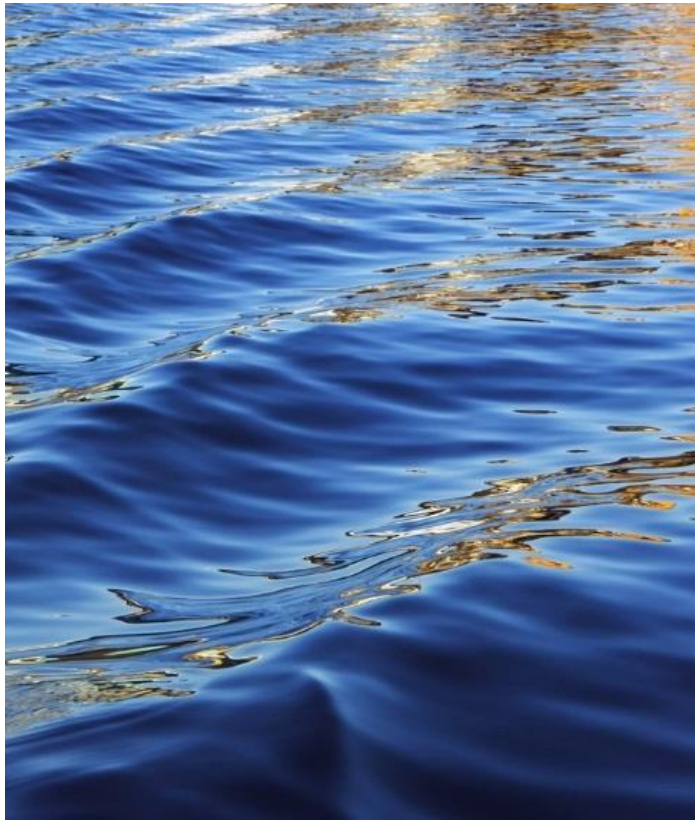


Average Monthly Bill with 3% Metro Water Increase	$58.15	$59.89	$61.69	$63.54	$65.45	$67.41	$69.43	$71.52	$73.66	$75.87	$78.15	$80.49
Water Resource Sustainability Fee (5%)	x	x	$64.69	$66.63	$68.63	$70.68	$72.80	$74.99	$77.24	$79.56	$81.94	$84.40
Price Difference	x	x	$2.99	$3.08	$3.18	$3.27	$3.37	$3.47	$3.58	$3.68	$3.79	$3.91

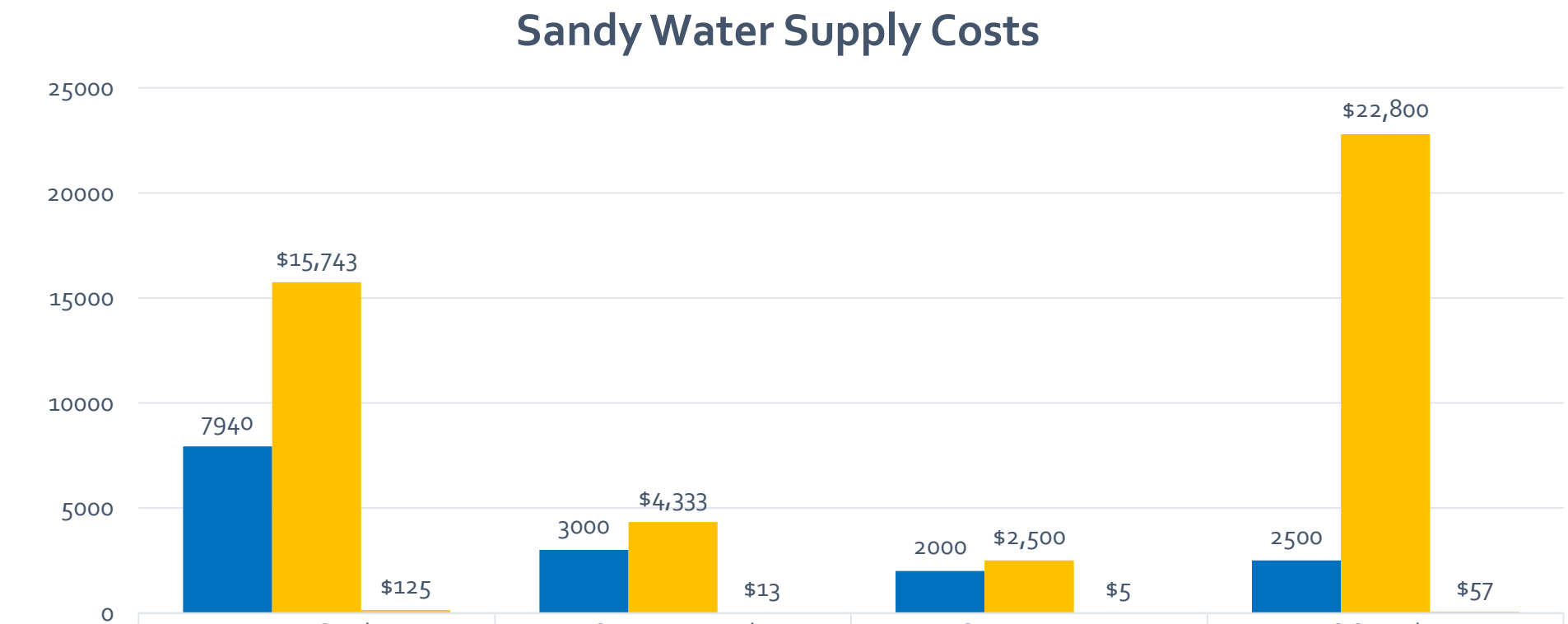
Next Steps

Winter 2018-19	Public / stakeholder workshops
Spring 2019	Sandy City and Metro Water budget process review: Defer Strawberry water delivery and payment to 2025/30 Submit updated Water Conservation Plan to State
2019-25	Aquifer Storage, Enhanced Conservation program design, funding, implementation, and review results
2025	Begin payment/delivery ULS water supply unless City seeks and obtains release of contract water with Metro

Questions?



Cost/Benefit of a Sustainable Water Supply



	Deer Creek	Ontario Tunnel	Conservation	ULS Strawberry
af	7940	3000	2000	2500
$/af	$15,743	$4,333	$2,500	$22,800
$Millions	$125	$13	$5	$57