

Executive Water Finance Board

August 21, 2018

Building Permit Time Series Data

(8/1/2018 Est. Occupancy Population 31,815)

(Projected Population 32,768)

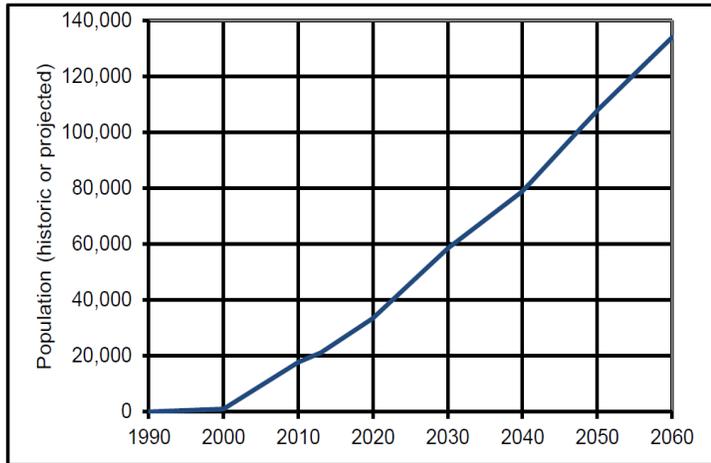
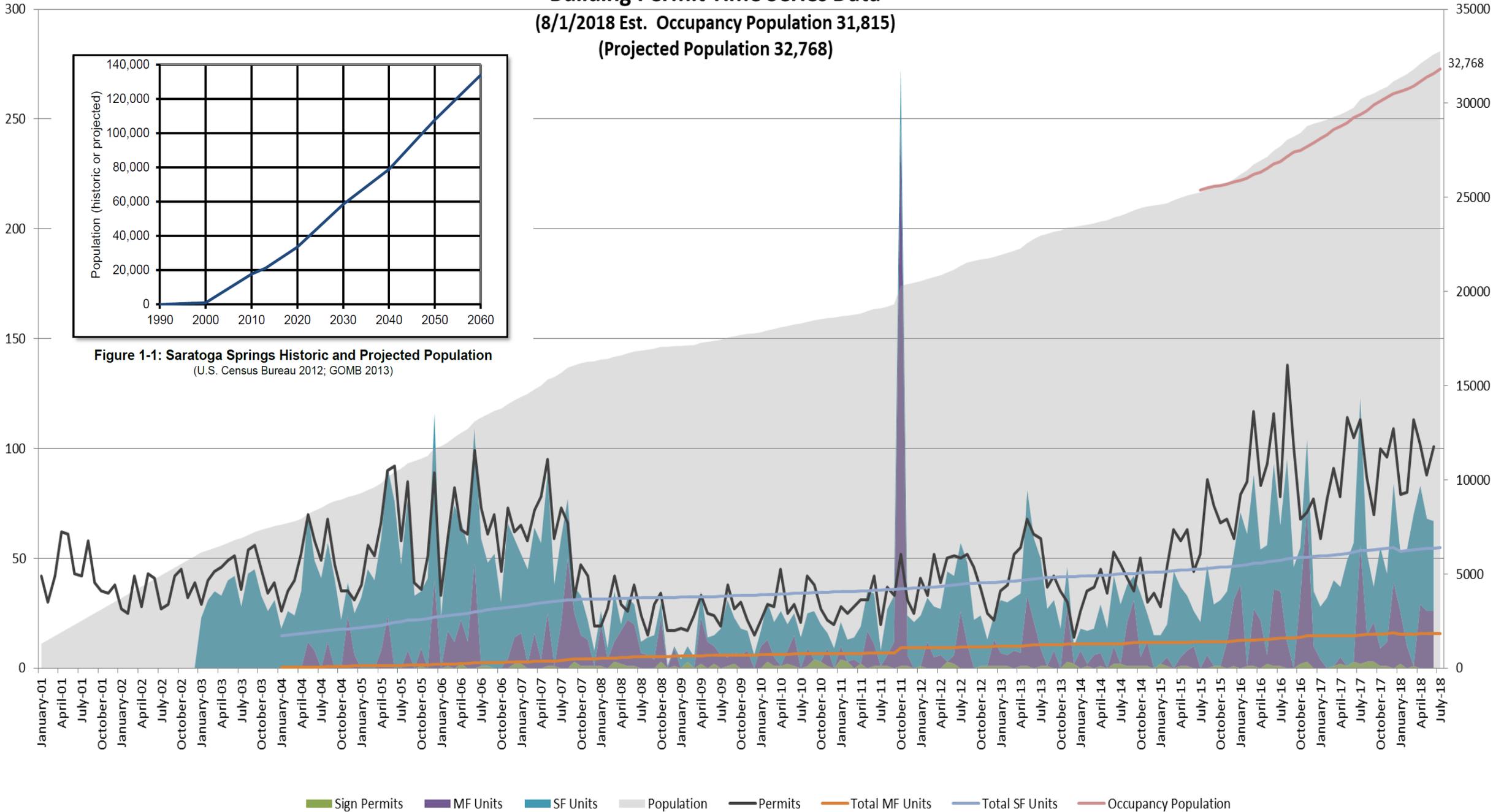


Figure 1-1: Saratoga Springs Historic and Projected Population
(U.S. Census Bureau 2012; GOMB 2013)



■ Sign Permits
 ■ MF Units
 ■ SF Units
 ■ Population
 — Permits
 — Total MF Units
 — Total SF Units
 — Occupancy Population



Secondary Water (2010)

- Issue: We had a “new” system built to applicable standards that was underperforming
- Overconsumption was leading to water shortages in summer months
- Infrastructure undersized based on consumption
 - (25-30% built out of some infrastructure using 100% of capacity)
- Shortage of water rights long term if trends not reversed
 - (Dedicated rights vs. need for new rights based on overconsumption)
- Recessionary impacts in funding
- Drinking water supplementing secondary system

We were in an unsustainable operations and funding model.

The only viable solution was metering secondary water and reversing usage trends.



Proposed Solutions

- Aggressively Implement a Citywide Secondary Water Metering Program
- Implement a tiered consumption rate – Rates calculated based on water rights dedicated in development process.
- Tiered water rates to be used to fund additional water rights and infrastructure to match consumption above City Standards.
- Fees and Rates based on actual cost recovery
- Conservation was a result but secondary to other issues
- Fixed Meter Read System- Allow the user to know real time consumption (Implementation Phase)



- 2004 Updated Development Standards (Meter Box)
- \$3.4 Million Project
- \$250 - \$1,000 Retrofit per connection
- All Parks, HOA Common Areas, Homes, Businesses

Saratoga Springs Residential Irrigation Calculator

My lot size	0.25	acres
My old base rate	\$26.18	per month
My new base rate	\$16.25	per month
My monthly water allotment	27.20	thousand gallons
Water Usage	25	thousand gallons
Tier 1 (up to 75% of allotment)	\$7.14	\$0.35 per 1,000 gallons
Tier 2 (75% to 100% of allotment)	\$4.60	\$1.00 per 1,000 gallons
Tier 3 (100% to 150% of allotment)	\$0.00	\$1.25 per 1,000 gallons
Tier 4 (150% to 200% of allotment)	\$0.00	\$2.00 per 1,000 gallons
Tier 5 (200% to 250% of allotment)	\$0.00	\$3.00 per 1,000 gallons
Tier 6 (above 250% of allotment)	\$0.00	\$3.80 per 1,000 gallons
Monthly Secondary Water Bill	\$27.99	
Monthly savings during winter months	\$9.93	

Input your information into these cells



[To find your lot size on the County recods follow this link. Enter your address and then click on your lot to find your lot size to 3 decimal points.](#)

Irrigation Application Rates

City	Irrigated Area ¹ (ac)	Outdoor Use ² (ac-ft)	Application Rate (ac-ft/ac)
Saratoga Springs	995	2,547	2.6
Clinton	1,012	3,086	3.0
North Salt Lake	680	2,668	3.9
Midvale	680	2,408	3.5
Herriman	990	3,338	3.4
Roy	1,306	4,594	3.5
Washington Terrace	302	1,048	3.5
Kearns	1,210	3,922	3.2
West Jordan	3,206	10,283	3.2
Spanish Fork	1,290	5,004	3.9
Springville	1,269	5,058	4.0
Orem	2,759	11,729	4.3
Ivins	198	957	4.8
Hurricane	896	4,327	4.8

State of Utah Water Use Data Collection Program Report
January 2018

STATE OF UTAH DIVISION OF WATER RESOURCES
BOWEN COLLINS & ASSOCIATES/HANSEN, ALLEN & LUCE

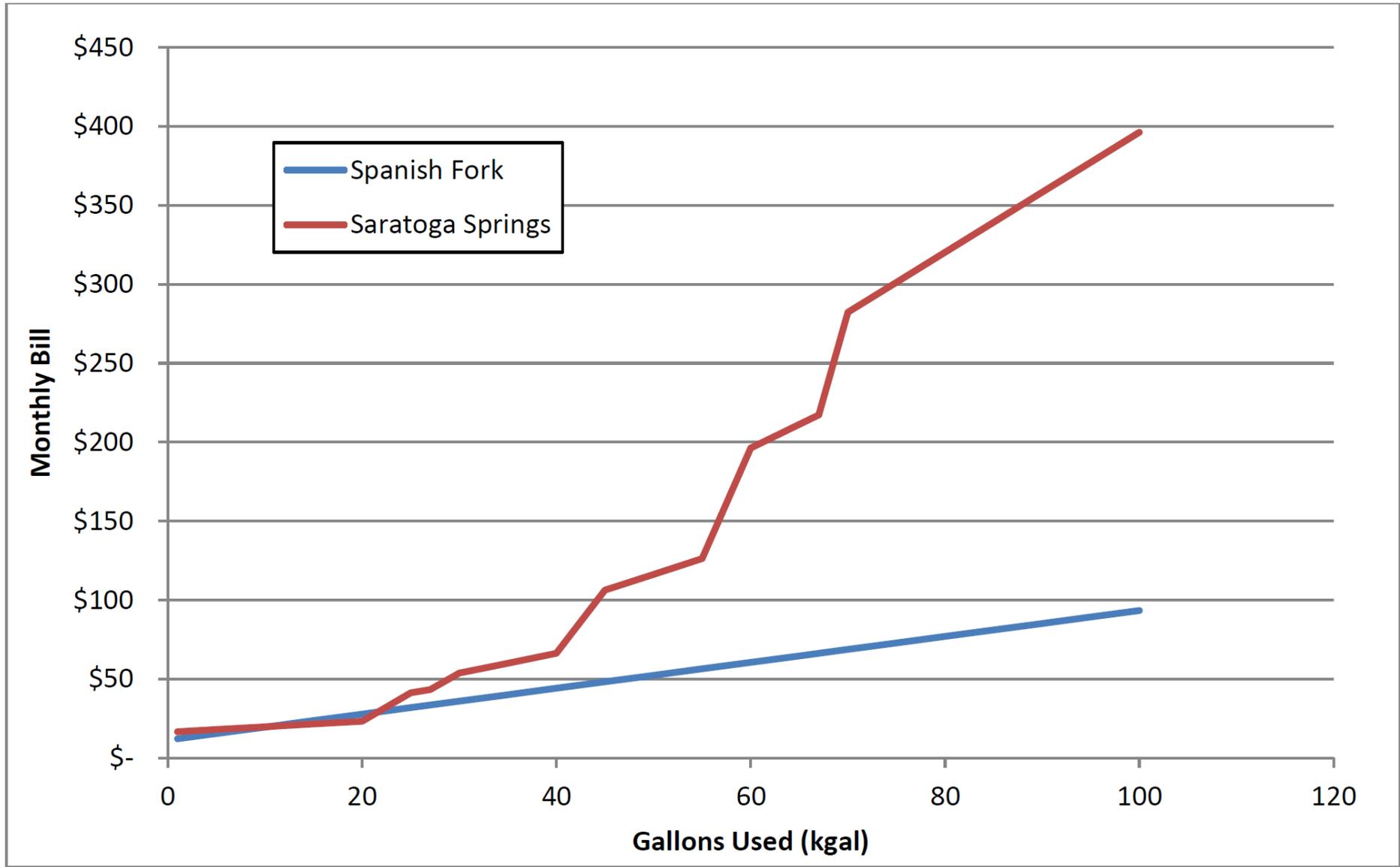


Figure 4. Monthly Bill vs Gallons Used for Typical Quarter Acre Lot

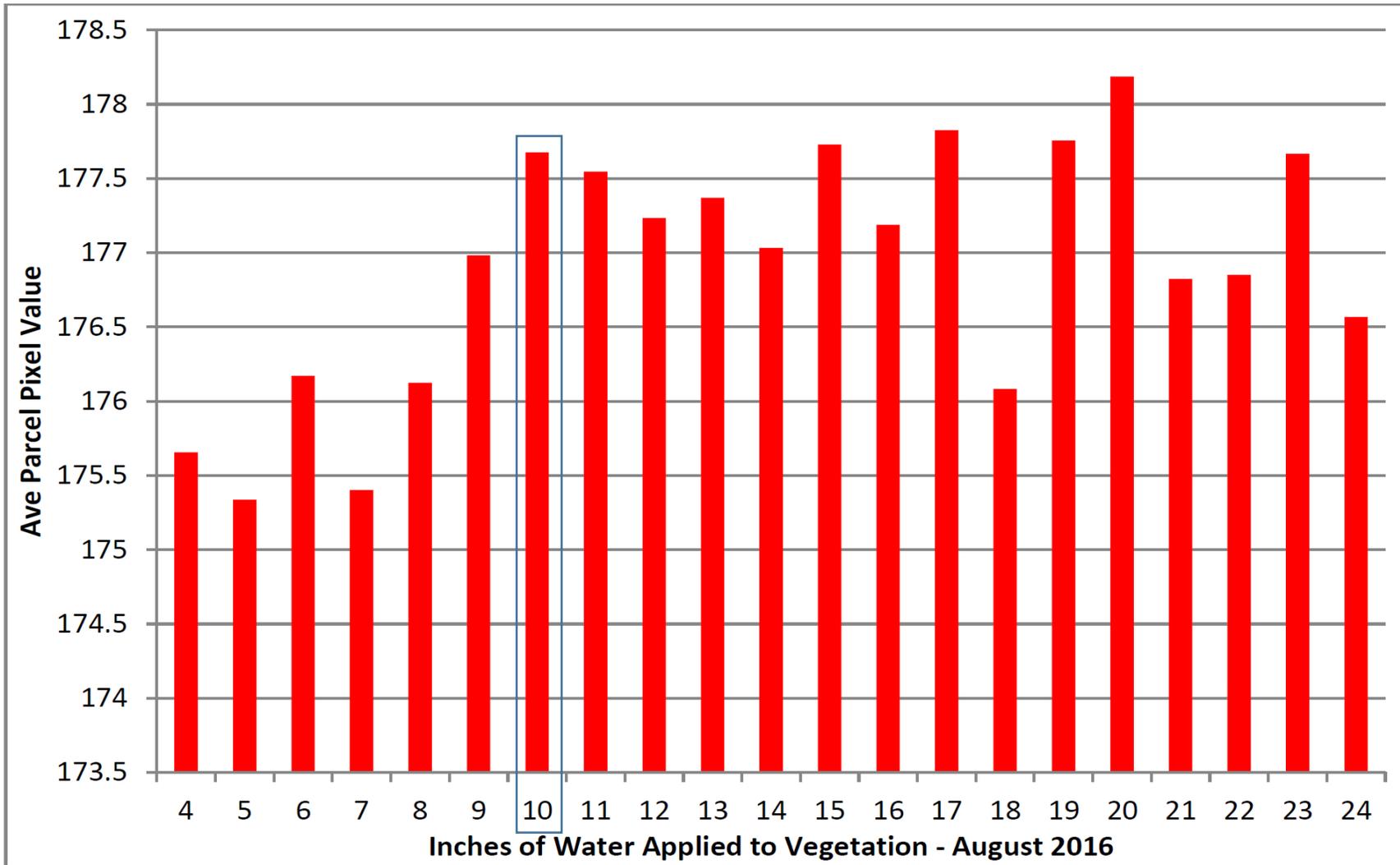
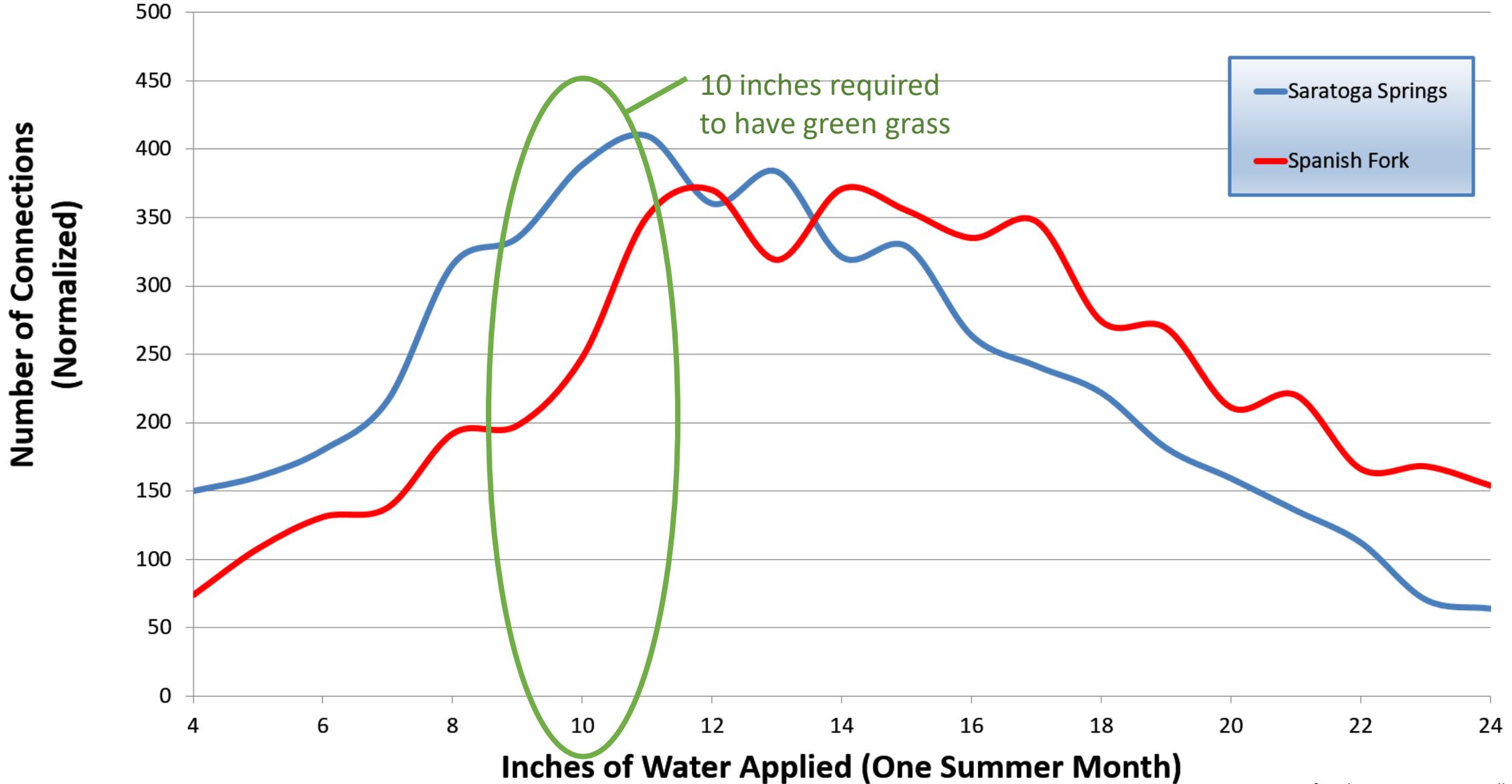


Figure 6. Average NDVI Pixel Value of Parcels with Similar Water Application (Saratoga Springs)

CONNECTIONS PER APPLICATION RATE COMPARISON





2010 (before meters) VS. 2015 (after meters)

SECONDARY SYSTEM LEVEL OF SERVICE COMPARISON

	Spanish Fork		State Duty	Division of Drinking Water	Saratoga Springs Typical Metered	Recommended Level of Service
	Metered	Design				
Average Yearly Demand (Source Capacity) ac-ft/yr-irr ac	2.58	4.00	4.00	1.87	2.54 4.23	3.16
Peak Day Demand (Source Production Rate) gpm/irr ac	5.80	6.00		3.96	5.11 11.13	7.50
Peak Instantaneous Demand (Transmission/Distribution) gpm/irr ac	9.86	10.00		7.92	10.3 22.25	15.00
Storage gal/irr ac	2,600	9,487		2,848	8,011	9,216

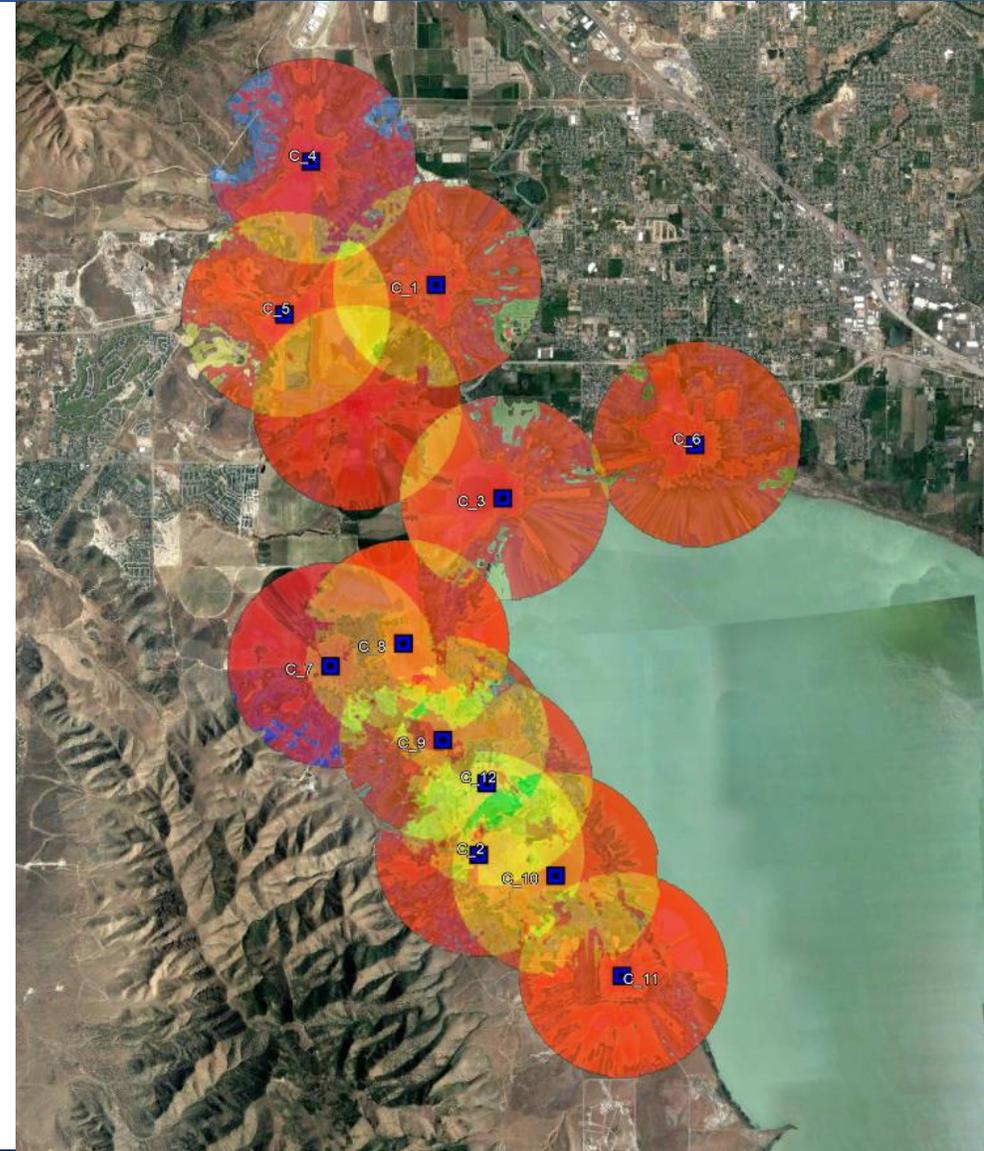
2010 data from data collected during the Saratoga Springs 2013 impact fee updates and the 2015 data is from 2015 billing and production meter data.



Fixed Network Meter Read System

Drinking & Secondary Water

- Hourly Tracking
- User Driven Consumption - real time water use for residents
- Leak Detection –
 - Early warning outreach to user
- System Modeling
 - Peak use
 - Rate structure





Impact Fees

TOTAL PROPOSED IMPACT FEE PER TYPICAL SINGLE FAMILY CONNECTION WITH WELL WATER RIGHTS

Component	Per WSFU	Per Typical Residential Connection
Indoor Water	\$56	\$2,246
Fire Flow	\$7	\$285
Total (source capacity from well water rights)	\$63	\$2,531

Note: 40 wsfu = 1 Typical residential connection

TOTAL PROPOSED IMPACT FEE PER TYPICAL SINGLE FAMILY CONNECTION WITH CUWCD WATER

Component	Per WSFU	Per Typical Residential Connection
Indoor Water	\$48	\$1,905
Fire Flow	\$7	\$285
Total (source capacity from CUWCD)	\$55	\$2,190

Note: 40 wsfu = 1 Typical residential connection



Impact Fees

PROPOSED IMPACT FEE PER IRRIGATED ACRE AND TYPICAL SINGLE FAMILY CONNECTION

COMPONENT	Per Irrigated Acre	Per Typical Residential Connection
Source	\$10,902	\$2,616
Storage	\$9,960	\$2,390
Planning	\$150	\$36
Water Rights	\$10,018	\$2,404
Total	\$31,030	\$7,446

EXHIBIT A
Take-Down Schedule - Purchased Water Take-Down Schedule (By Volume) for Purchased Water Under this Agreement

COLUMN	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Fiscal Year (ie FY2008-09 = July 1, 2008 - June 30, 2009)	Annual Volume (Block) of Purchased Water For Which One- Time Development Fee is Due (AF)	One Time Development Charge for Blocks of Purchased Water (per AF)	Annual Volume of Purchased Water Subject to Capital Recovery Component of Annual Fee (AF)	<i>Actual</i> and Estimated Capital Recovery Component of Annual Fee for Volume of Water in Column C (per AF)	Annual Volume of Purchased Water which becomes Deliverable Water (AF)	Cumulative Annual Volume of Deliverable Water (AF)	<i>Actual</i> and Estimated OM&R Component of Annual Fee for Deliverable Water in Column (F) (per AF)	<i>Actual</i> and Estimated Future Annual Fee (As set annually by the District) (Fee includes the OM&R and Capital Recovery Components in Columns D & G)
2008-09	0	<i>\$6,200</i>	0		0	0		<i>\$300</i>
2009-10	0	<i>\$6,200</i>	0		0	0		<i>\$314</i>
2010-11	0	<i>\$6,200</i>	0		0	0		<i>\$328</i>
2011-12	0	<i>\$6,200</i>	0		0	0		<i>\$343</i>
2012-13	0	<i>\$6,200</i>	0		0	0		<i>\$358</i>
2013-14	0	<i>\$6,200</i>	0		0	0		<i>\$374</i>
2014-15	0	<i>\$6,200</i>	0	<i>\$222</i>	0	0	<i>\$169</i>	<i>\$391</i>
2015-16	0	<i>\$6,200</i>	0	<i>\$203</i>	0	0	<i>\$205</i>	<i>\$408</i>
2016-17	0	<i>\$6,200</i>	0	<i>\$252</i>	0	0	<i>\$175</i>	<i>\$427</i>
2017-18	50	<i>\$6,200</i>	50	<i>\$280</i>	50	50	<i>\$166</i>	<i>\$446</i>
2018-19	50	<i>\$6,200</i>	100	<i>\$310</i>	50	100	<i>\$156</i>	<i>\$466</i>
2019-20	9900	<i>\$6,200</i>	10,000	<i>\$346</i>	380	480	<i>\$141</i>	<i>\$487</i>
2020-21	0		10,000	<i>\$364</i>	380	860	<i>\$145</i>	<i>\$509</i>
2021-22	0		10,000	<i>\$383</i>	380	1,240	<i>\$149</i>	<i>\$532</i>
2022-23	0		10,000	<i>\$400</i>	380	1,620	<i>\$156</i>	<i>\$556</i>
2023-24	0		10,000	<i>\$421</i>	380	2,000	<i>\$160</i>	<i>\$581</i>
2024-25	0		10,000	<i>\$442</i>	380	2,380	<i>\$165</i>	<i>\$607</i>
2025-26	0		10,000	<i>\$464</i>	380	2,760	<i>\$170</i>	<i>\$634</i>
2026-27	0		10,000	<i>\$484</i>	380	3,140	<i>\$179</i>	<i>\$663</i>
2027-28	0		10,000	<i>\$508</i>	380	3,520	<i>\$185</i>	<i>\$693</i>
2028-29	0		10,000	<i>\$530</i>	380	3,900	<i>\$194</i>	<i>\$724</i>
2029-30	0		10,000	<i>\$556</i>	380	4,280	<i>\$200</i>	<i>\$756</i>
2030-31	0		10,000	<i>\$583</i>	380	4,660	<i>\$207</i>	<i>\$790</i>
2031-32	0		10,000	<i>\$609</i>	380	5,040	<i>\$217</i>	<i>\$826</i>
2032-33	0		10,000	<i>\$639</i>	380	5,420	<i>\$224</i>	<i>\$863</i>
2033-34	0		10,000	<i>\$668</i>	380	5,800	<i>\$234</i>	<i>\$902</i>
2034-35	0		10,000	<i>\$702</i>	380	6,180	<i>\$241</i>	<i>\$943</i>
2035-36	0		10,000	<i>\$733</i>	380	6,560	<i>\$252</i>	<i>\$985</i>
2036-37	0		10,000	<i>\$7</i>	380	6,940	<i>\$259</i>	<i>\$266</i>
2037-38	0		10,000	<i>\$8</i>	380	7,320	<i>\$271</i>	<i>\$279</i>
2038-39	0		10,000	<i>\$11</i>	380	7,700	<i>\$280</i>	<i>\$291</i>
2039-40	0		10,000	<i>\$12</i>	380	8,080	<i>\$293</i>	<i>\$305</i>
2040-41	0		10,000	<i>\$16</i>	380	8,460	<i>\$302</i>	<i>\$318</i>
2041-42	0		10,000	<i>\$16</i>	380	8,840	<i>\$316</i>	<i>\$332</i>
2042-43	0		10,000	<i>\$20</i>	380	9,220	<i>\$327</i>	<i>\$347</i>
2043-44	0		10,000	<i>\$21</i>	380	9,600	<i>\$342</i>	<i>\$363</i>
2044-45	0		10,000	<i>\$25</i>	400	10,000	<i>\$355</i>	<i>\$380</i>

- Actual previous or present fee amounts are in italics and Blue as set by District Board of Trustees

Continues at 10,000 AF

- Fee amounts are estimated amounts and set annually by District Board of Trustees



Central Utah Water Capital Recovery

Fiscal Year (ie FY2008-09 = July 1, 2008 - June 30, 2009)	CWP One Time Development Charge Removed from Reserved Status (AF)	Actual and Estimated Capital Recovery Portion of Annual Fee (per AF)	Actual and Estimated OM&R Portion of Annual Fee (per AF)	Actual and Estimated Future Annual Fee (As set annually by the District) (Fee Includes the OM&R and Capital Recovery Components (per AF)	Capital Prepayment No Discount (per AF)	Capital Prepayment with 2.5% Discount (per AF)	Cost per Discounted Typical Single Family = .45 AF = WFSU .40
2008-09	\$5,850				\$15,949	\$12,827	\$5,772
2009-10	\$6,200				\$16,299	\$13,168	\$5,926
2010-11	\$7,000				\$17,099	\$13,949	\$6,277
2011-12	\$7,800				\$17,899	\$14,729	\$6,628
2012-13	\$8,400				\$18,499	\$15,314	\$6,891
2013-14	\$8,500				\$18,599	\$15,412	\$6,935
2014-15	\$9,100	\$222	\$169	\$391	\$19,199	\$15,997	\$7,199
2015-16	\$9,370	\$203	\$205	\$408	\$19,247	\$16,222	\$7,300
2016-17	\$9,600	\$252	\$175	\$427	\$19,274	\$16,426	\$7,391
2017-18	\$9,840	\$280	\$166	\$446	\$19,262	\$16,590	\$7,466
2018-19	\$10,090	\$310	\$156	\$466	\$19,232	\$16,736	\$7,531
2019-20	\$10,340	\$346	\$141	\$487	\$19,172	\$16,850	\$7,582
2020-21	\$10,600	\$364	\$145	\$509	\$19,086	\$16,935	\$7,621
2021-22	\$10,870	\$383	\$149	\$532	\$18,992	\$17,008	\$7,654
2022-23	\$11,140	\$400	\$156	\$556	\$18,879	\$17,058	\$7,676
2023-24	\$11,420	\$421	\$160	\$581	\$18,759	\$17,095	\$7,693
2024-25	\$11,720	\$442	\$165	\$607	\$18,638	\$17,126	\$7,707



Affordability to Existing Users or New Development?

Impact Fees, User Rates & Housing

- Fees:
 - Impact Fees: Development Costs
 - Water Rights, System, and Storage
 - Central Utah Water- All capital should be born by the development activity
- User Rates:
 - To operate, maintain, and improve the system
 - Infrastructure costs to change Level of Service (LOS) or cure a deficiency





Questions?

