



DESIGN PROJECT WORK ORDER AMENDMENT

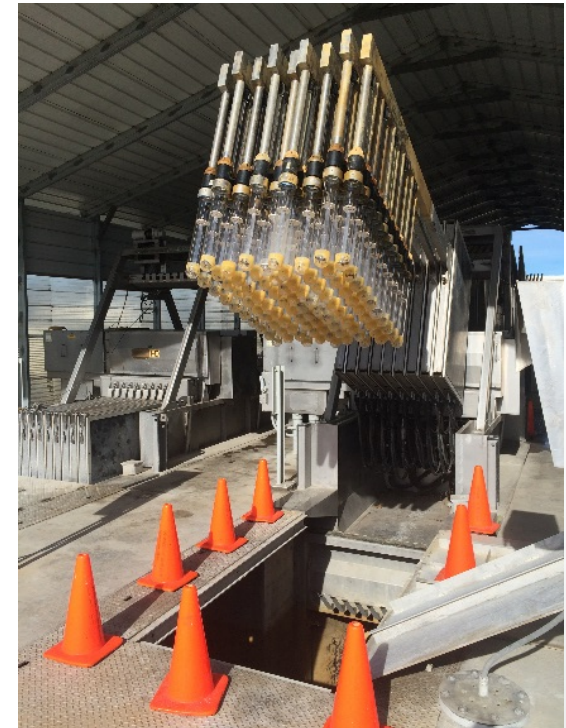
UV DISINFECTION AND DIVERSION PROJECT

Board of Public Utilities Contract Review Subcommittee
July 29, 2019

Mark Kasraie, PE
Supervising Engineer,
Transportation and Public Works

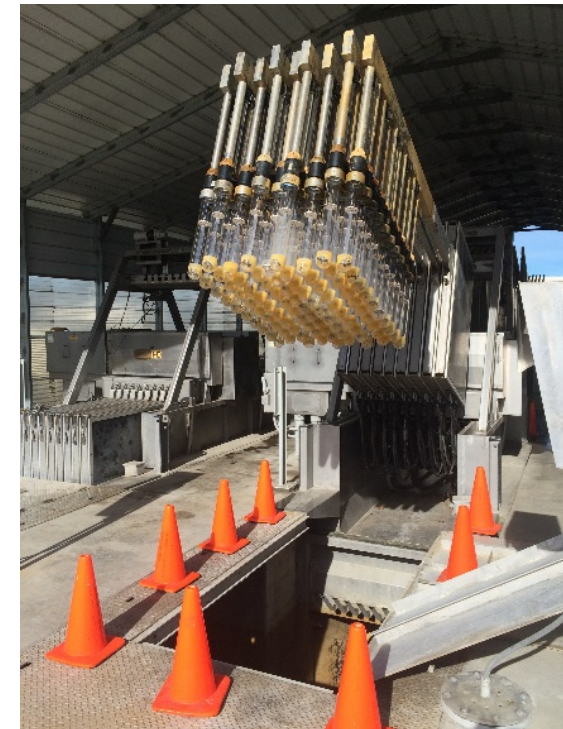
AGENDA

1. Project background
2. Design layout
3. Contract PWO amendment scope and fee
4. Recommendation

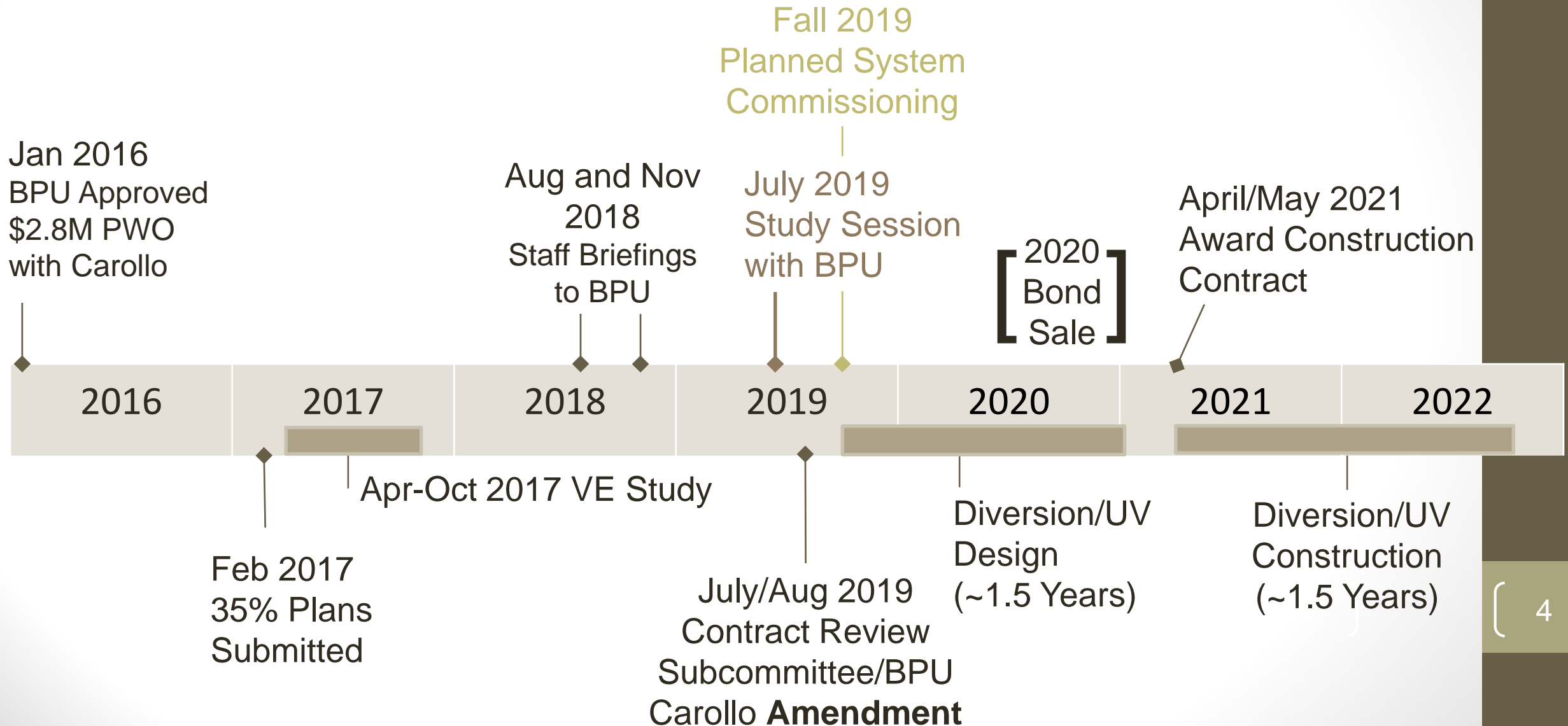


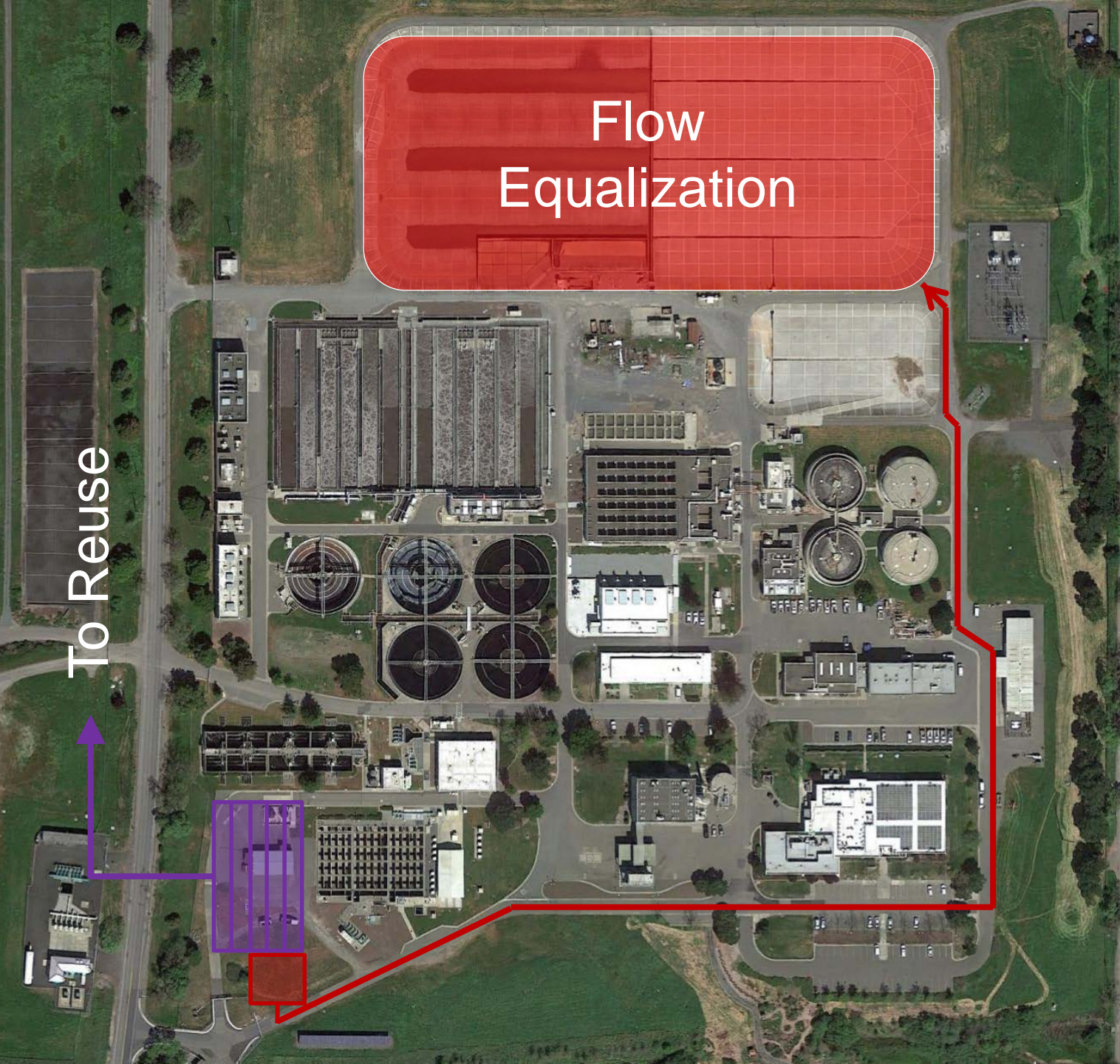
BACKGROUND

- Pre-1998 – Gaseous Chlorine Disinfection
- 1998 – Commissioned UV System
 - 67 MGD Capacity
- 2012 – DDW De-rated UV System
 - 48.5 MGD De-rated Capacity
- 2013 – Alternatives Analysis
- 2016 – Design PWO Awarded
- 2017 – Value Engineering Study
- **PRESENT – PWO Amendment**



PROJECT TIMELINE





DESIGN LAYOUT

**Ultraviolet
Disinfection
System**

**On-Site Diversion
System with 42"
Pipeline**

PWO AMENDMENT - SCOPE

1. Increased project management and pre-design tasks by \$300,000
2. Increased UV/diversion design tasks by \$800,000
3. Deleted Task 12 – Geysers Pipeline Prechlorination at a savings of \$26,000
4. Added Tasks 14 and 15 – VE Review and Assessment at a cost of \$200,000

PWO AMENDMENT - RATIONALE

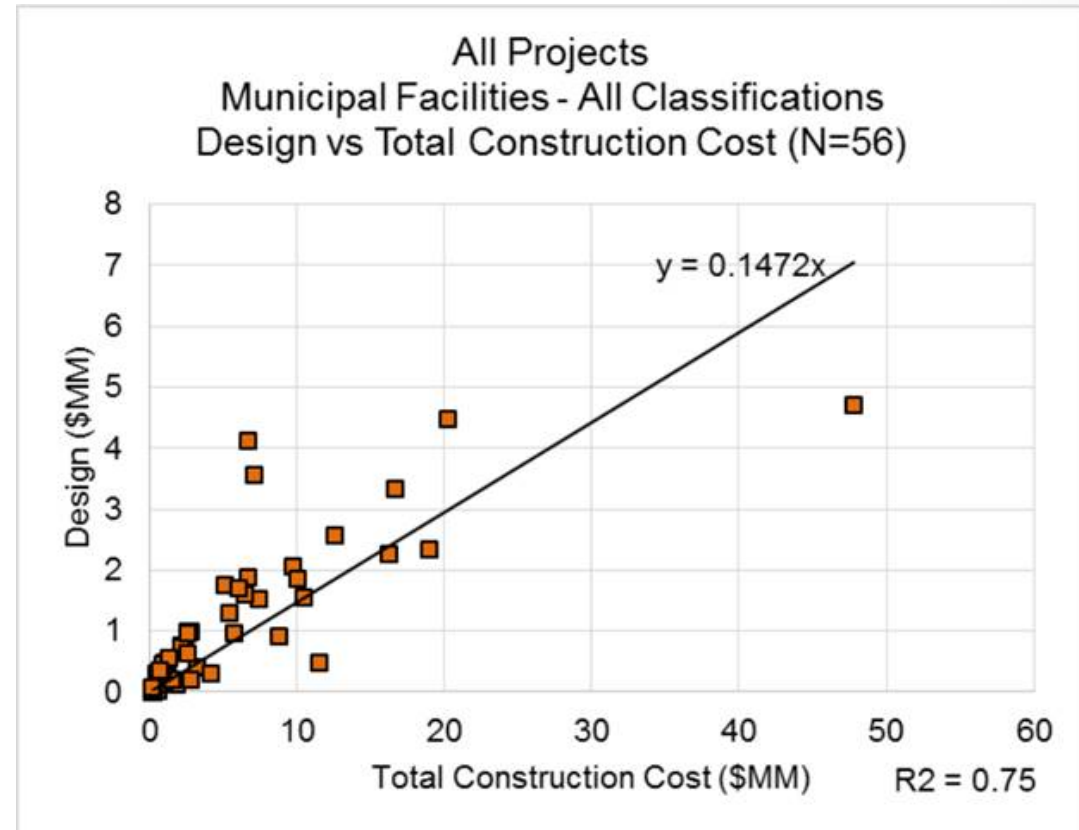
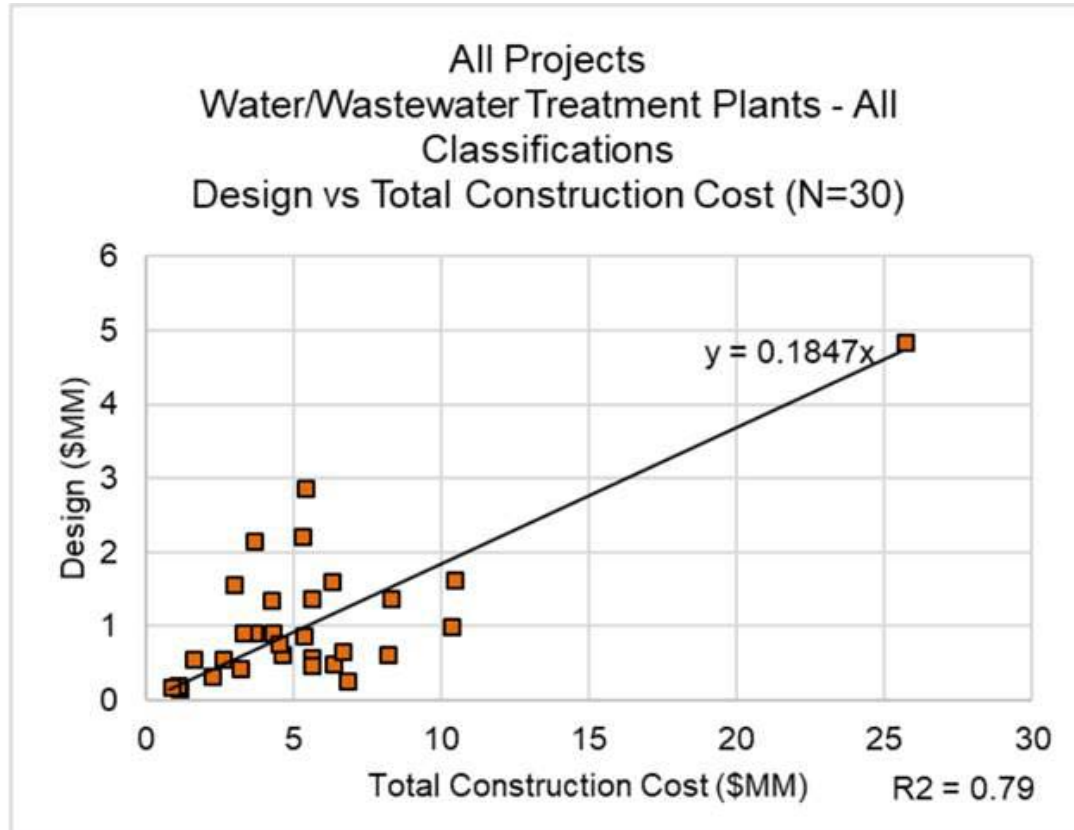
1. Extended project schedule by over 3 years
2. Performed out-of-scope VE Study and supplemental assessments
3. Expanded design scope to address issues found at the early design stage
4. Increased labor rates by 10% to bring 2015 rates to current rates

PWO AMENDMENT – FEE

PWO Tasks	Original (\$)	Amendment (\$)	Total (\$)
Tasks 1-3: PM/Predesign	520,611	299,468	820,079
Task 4: UV Equipment Selection	118,136	54,177	172,313
Tasks 5-6: UV/Diversion Design	1,556,946	798,950	2,355,896
Tasks 7-8: Pre-bid/Bidding Services	198,524	19,585	218,109
Tasks 9-11: Regulatory and Start-up	333,425	31,941	365,366
Task 12: Geysers Pipeline Prechlor.	25,957	(25,957)	--
Task 13: Contingency	50,000	--	50,000
*Task 14-15: VE Assessment	--	206,491	206,491
<u>Total Design Contract:</u>	2.8M	1.4M	<u>4.2M</u>

*Added Scope

DESIGN FEE ANALYSIS



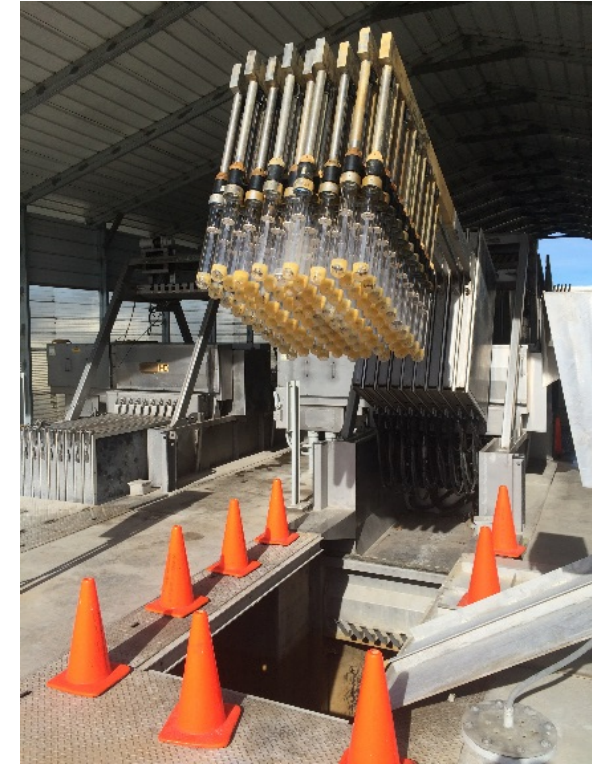
Source: California Multi-Agency CIP Benchmark Study (2017/2018)

DESIGN FEE ANALYSIS

	Actual	City Goal	CIP Benchmark Study
Total Design Fee	\$4.2M	--	--
Design as a Percent of Construction Cost	8.4%	~10%	14% - 18%
Total Number of Drawing Sheets	300 Sheets	--	--
Total Design Cost per Drawing Sheet	\$14,000 Per Sheet	\$10,000 - \$15,000 Per Sheet	--

ESTIMATED PROJECT COSTS

UV Disinfection	\$35M
Non-compliant Diversion	\$12M
Total Construction Cost	\$47M
Project Delivery Costs ⁽¹⁾	\$16.5M
Total Estimated Project Cost	\$63.5M



(1) Project Delivery Cost represents 35% of Total Construction Cost, and
Includes: Design, ESDC, CM/Inspection, Fees, Contingency
Excludes: Revised UV equipment cost

NEXT STEPS

- August 15, 2019 – Design Contract Amendment
- October 2019 – Progress workshop
- December 2019 – Workshop with UV Vendor, Calgon
- April 2020 – 75% Design workshop
- October 2020 – 90% Design workshop
- May 2021 – Award Construction Contract

RECOMMENDATION

- Contract Review Subcommittee support the \$1,384,655 PWO Amendment for the Laguna Treatment Plant Disinfection Improvements Project for a total contract amount not to exceed \$4,188,254.
- Questions?