

# **Parsons' Advances in Water Reclamation/Advanced Purification Treatment and Delivery Methods**

WaterReuse LA Chapter - BiMonthly Meeting

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# About Parsons

Over 74 years of water/wastewater engineering and construction services

Integrated Engineering/  
Construction Firm

Over 120 offices worldwide

Over 16,000 people worldwide

Multiple local offices

- Pasadena (HQ)
- Los Angeles
- Manhattan Beach
- Irvine
- San Diego
- Ontario
- Fresno
- Bakersfield



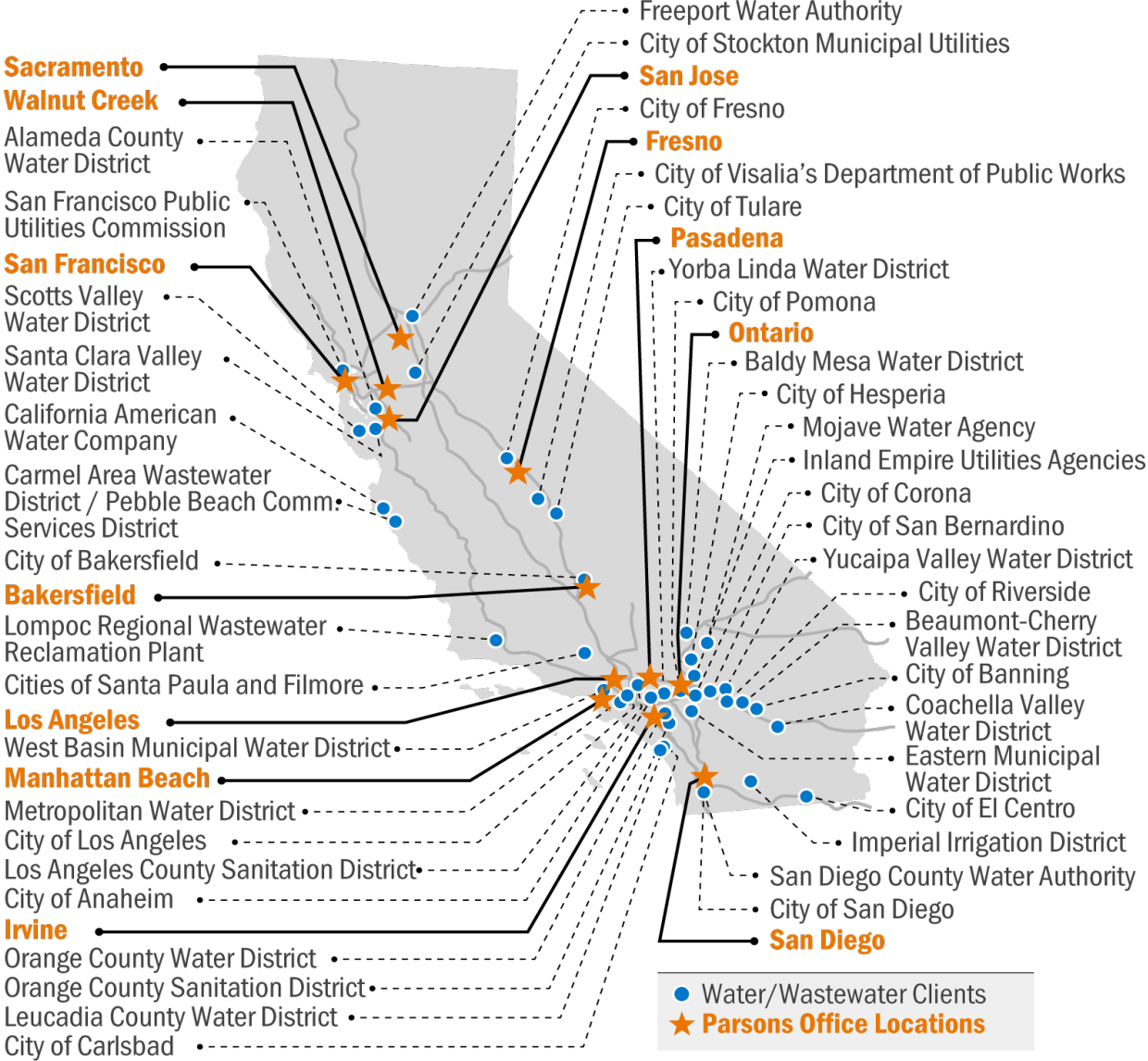
Leader in Water, Wastewater, Recycled Water, Biosolids Management, Energy Recovery and Infrastructure

Inhouse capabilities for:

- Condition Assessments
- Planning
- Preliminary and Detailed Design
- Procurement and Purchasing
- Construction (Self-Perform)
- Construction Inspections, Training
- Construction Management
- Project and Program Management
- Commissioning and Validation
- Alternative Delivery – Design-Build and CM@Risk



# Parsons brings unparalleled California wastewater/water design and construction experience



In past 20 years:



50+

Wastewater/water plants in California



20+

MBR/UV plants nation-wide

# Pioneer and Leader in MBR/UV/Brackish Water design for Water Reuse

	Project and Location	Status	Size
1	City of Fresno Airport Recycled Water Treatment Facility (IPR Project)	Ongoing	8 mgd IPR
2	Inland Empire Utilities Agency RP-1 & RP-5 Upgrade & Expansion, CA	Ongoing	RP-1: 28 to 40 mgd, RP-5: 15 to 30 mgd
3	Elsinore Valley Municipal Water District Regional Plant Upgrade, CA	Ongoing	12 mgd
4	Snapfinger Creek Advanced WWTP, DeKalb County, GA	Ongoing	54 mgd expanded capacity
5	City of Banning WWTP, CA	Ongoing	Design of 1.5 mgd WRF
6	Pole Bridge Creek Advanced WWTP, DeKalb County, GA	Ongoing	39 mgd expanded capacity
7	San Antonio Water System, Brackish Groundwater Desalination Plant, TX	Completed 2017	CMAR 10 mgd
8	City of Visalia Water Reclamation Facility, CA	Completed 2017	22 mgd
9	City of Fresno Tertiary Treatment & Disinfection Facility, CA	Completed 2016	5 mgd
10	Central Oahu WWTP, Honolulu, HI	Completed 2015	Design of 2.5 mgd WRF
11	West Basin MWD, Edward C. Little WRF Phase V Expansion, CA	Completed 2013	Design and Build 30 mgd
12	Johns Creek Environmental Campus, Fulton County, GA	Completed 2010	PM/CM services of 15 mgd WRF

## MBR/UV/Brackish water projects (continued)

	Project and Location	Status	Size
13	Amgen WRF, Juncos, Puerto Rico, PR	Completed 2006	0.5 mgd
14	Food and Beverage Company, Ireland	Completed 2005	Design of 0.2 mgd WRF
15	Pharmaceutical Project, Ireland	Completed 2005	Design, construction, startup, and operation of 0.3 mgd WRF
16	Perry Homes, Atlanta, GA	Completed 2005	Design of 1.0 mgd WRF
17	Upper Sweetwater WRF, Paulding County, GA	Completed 2005	Design of 1.0 mgd facility with provisions to expand to 4.0 mgd
18	Cauley Creek WRF, Fulton County, GA	Completed 2001 and 2004	DB of initial 2.5 mgd WRF in 2001 and expansion to 5.0 mgd in 2004
19	Pumpkinvine Creek WRF, Paulding County, GA	Completed 2004	Design and engineering services during construction for 0.5 mgd expansion to 1.0 mgd
20	Manor WRF, Fulton County, GA	Completed 2004	Design of 0.5 WRF
21	Hamptons WRF, Cumming, GA	Completed 2003	DB of 0.9 mgd (ADF) WRF and reuse facilities

## **Recent California Water Reclamation/ Advanced Purification Design Projects**

**City of Corona, Water Reclamation Part 1 Treatment and Distribution System (5 mgd)**

**City of Bakersfield, Wastewater Plant 3 Upgrades and Expansion (32 mgd)**

**City of Fresno, Tertiary Treatment and Disinfection Facility (5 mgd)**

**City of Visalia, Water Reclamation Facility Upgrades and Expansion (22 mgd)**

**City of Fresno, Airport Recycled Water Treatment Facility (IPR Project) (8 mgd)**

**Inland Empire Utilities Agency, RP-5 Upgrades and Expansion (30 mgd)**

**Elsinore Municipal Water District, Regional Plant Upgrade and Expansion (12 mgd)**

**West Basin Municipal Water District, Edward C. Little WRF Phase V Expansion –  
Progressive Design Build (30 mgd)**



# RP-1 and RP-5 Upgrade and Expansion Project, Inland Empire Utilities Agency (IEUA), Chino, CA

## RP-1:

- Preliminary design for 40-mgd RP-1 MBR system

## RP-5:

- Preliminary and detailed design for 30-mgd RP-5 MBR+UV systems
- RP-5 expansion includes 40-mgd biosolids management system
- Design of food waste co-digestion at RP-5
- Evaluation of advanced water treatment for future total dissolved solids (TDS) reduction and IPR
- Business case evaluations (BCEs) of various technologies to select the most viable and cost-effective technologies and equipment
- Assistance in securing low-interest SRF loan and various grants



IEUA RP-5: 30 mgd Expansion

# Water Reclamation Facility Upgrades and Expansion, Visalia, CA

- 22 mgd upgrade and expansion of WCP using MBR and UV technologies, recycled water distribution, and a 1-MW solar system
- Design and engineering services during construction
- Developed creative and cost-effective design resulting in WCP construction cost of \$122 million – low cost for project with similar scope
- Visalia received \$15 million in grants and \$500,000 energy efficient design incentive
- **High quality design documents resulted in tight bids with the top three bidders within 2% of each other, and ~1.5% change orders**
- Our approach achieved Visalia's goals and saved over \$60 million in project cost (due to \$155 million SRF loan at 2%)





# City of Fresno Airport Recycled Water Treatment Facility (IPR Project)

- IPR and recycled water production
- Greenfield project
- Construction value \$125M
- 8 MGD IPR facility
- Preliminary and final design
- Construction support services
- O&M, start-up, and commissioning
- Regulatory compliance and permitting assistance



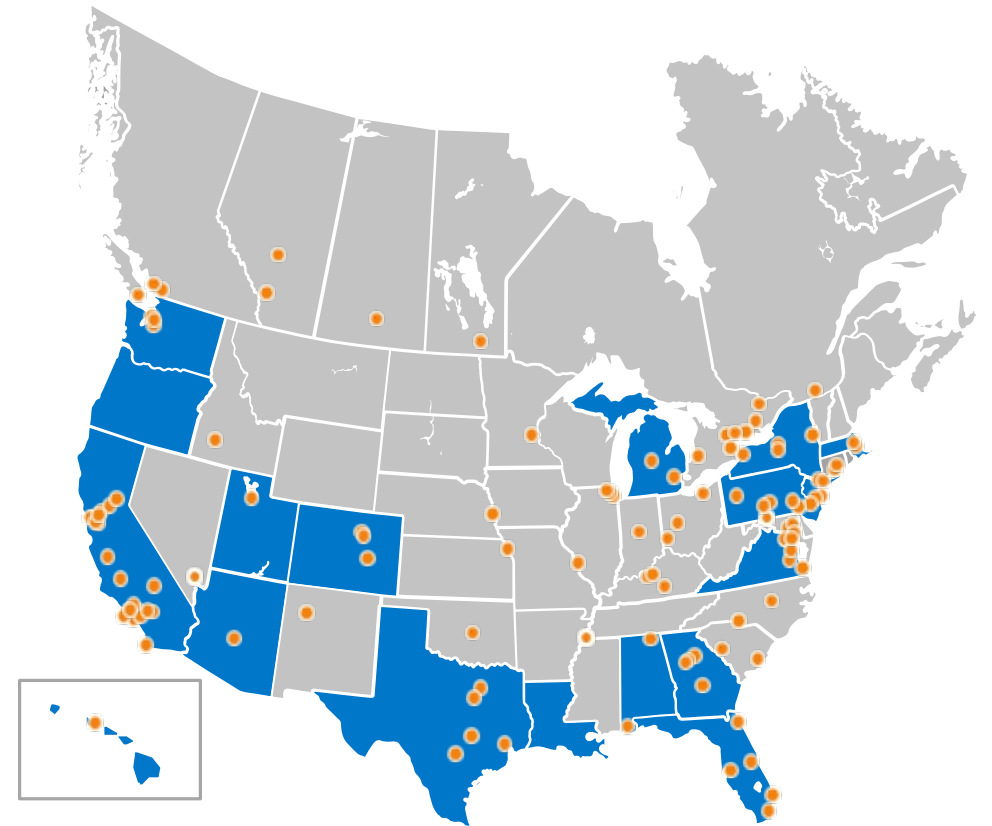
## Recent Alternative Project Delivery Experience



**50+**  
Projects



**\$20B+**  
Value





# West Basin Municipal Water District, Edward C. Little WRF Phase V Expansion – Design Build

- Ultra-high quality Title 22 recycled water for groundwater replenishment, seawater intrusion barrier, and various industrial uses.
- Completed 2013
- Construction value \$63M
- 30 MGD
- Ozone, Microfiltration, RO, UV/AOP
- Design and Build self-performed
- O&M, start-up, and commissioning
- Regulatory compliance and permitting assistance



*“The Parsons advanced water treatment (AWT) engineers designed the right solution for our highly complex Edward C. Little Water Recycling Facility Phase V Expansion. The Phase V AWT microfiltration, reverse osmosis, and ultraviolet advanced oxidation processes allow us to meet our stringent permit requirements and regularly produce flows in excess of expansion design capacity.”*

*Shivaji Deshmukh, Assistant General Manager, West Basin Municipal Water District*

# Silicon Valley Clean Water Front of Plant Project – Progressive Design Build

- 90 ft deep 100 mgd pump station with flow splitter structure
- Headworks, odor control facilities and centralized chemical storage
- Constructed in very challenging seismic, high groundwater and young bay mud conditions



- Pre-construction services consisting of Basis of Design Report (BODR)
- Final Design and construction
- Business Case Evaluation (BCE) for pump station configuration options



# Thank You!

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Questions?