

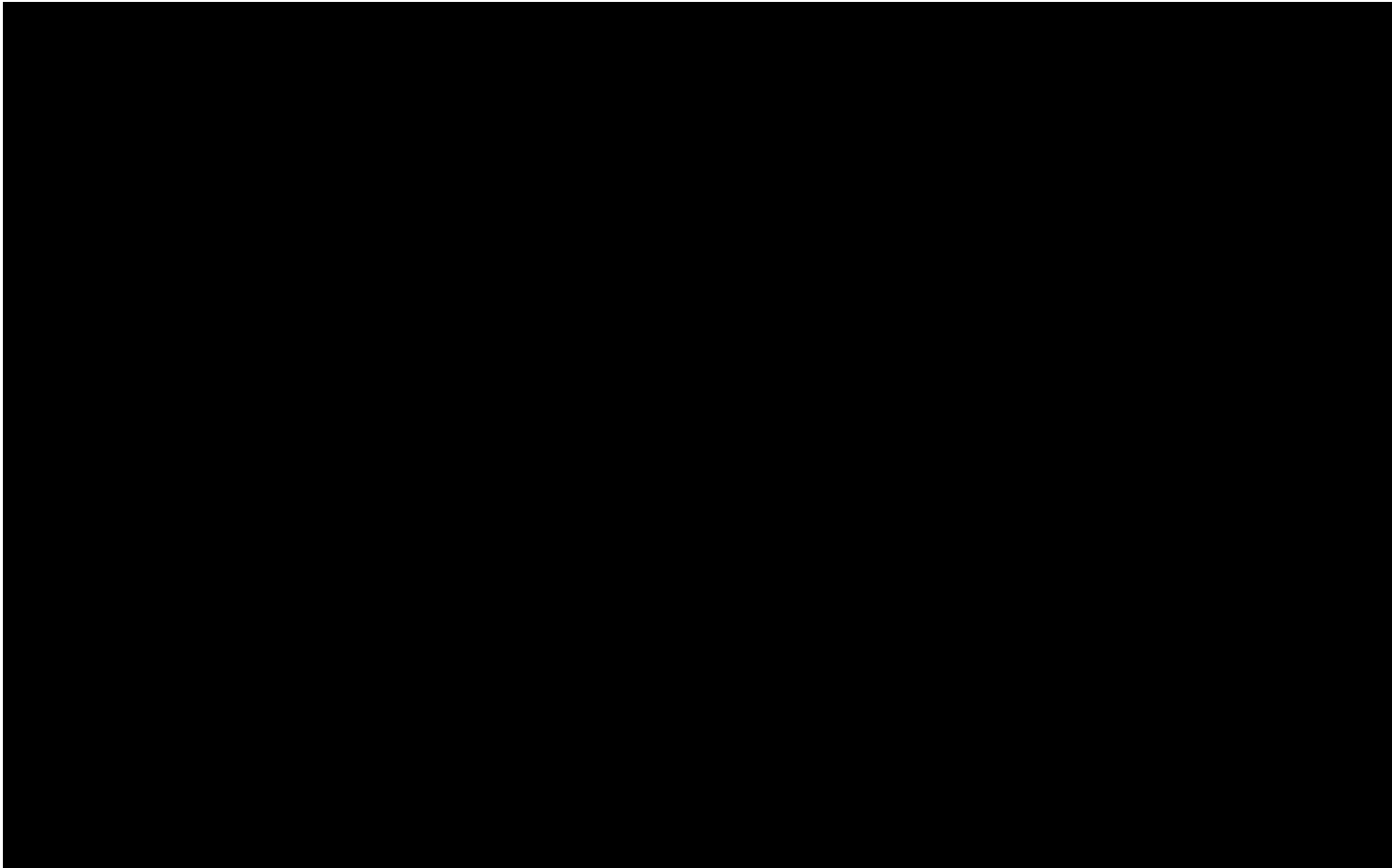
**Great communities
don't happen by
chance.**





- Bend, Oregon
- Wastewater Epidemiology – Covid19
- Industrial Pretreatment Program
- Working with Breweries
- Concerns for infrastructure
- PVC special use in a unique town/climate
- Questions

DISCOVER BEND - THE MOUNTAIN TOWN THAT HAS IT ALL!





ONE

U Y



Delivering the highest quality water from pure sources to our residents, businesses and visitors

WATER



Collecting local used water, safely treating it for reuse and/or returning it back into our aquifer

WASTEWATER



Protecting both surface and ground water quality, and preventing localized flooding

STORMWATER



OPERATIONAL HIGHLIGHTS



Over 2.1 Billion
Gallons of used water was conveyed and treated

218 Million
Gallons of recycled water produced for irrigation

1,200 Dry Tons
of biosolids produced as soil amendment for local agriculture

97 Miles
Collection pipelines cleaned

70 Miles
Collection pipelines inspected



8,486
Catch basins inspected and cleaned

62 Miles
Stormwater pipelines inspected and/or cleaned

178 Swales
Maintained monthly during spring/summer season

Over 6,200
Call Center customer service requests completed



Over 4.5 Billion
Gallons of award winning water delivered to customers

Over 7,200
Fire hydrants inspected and maintained

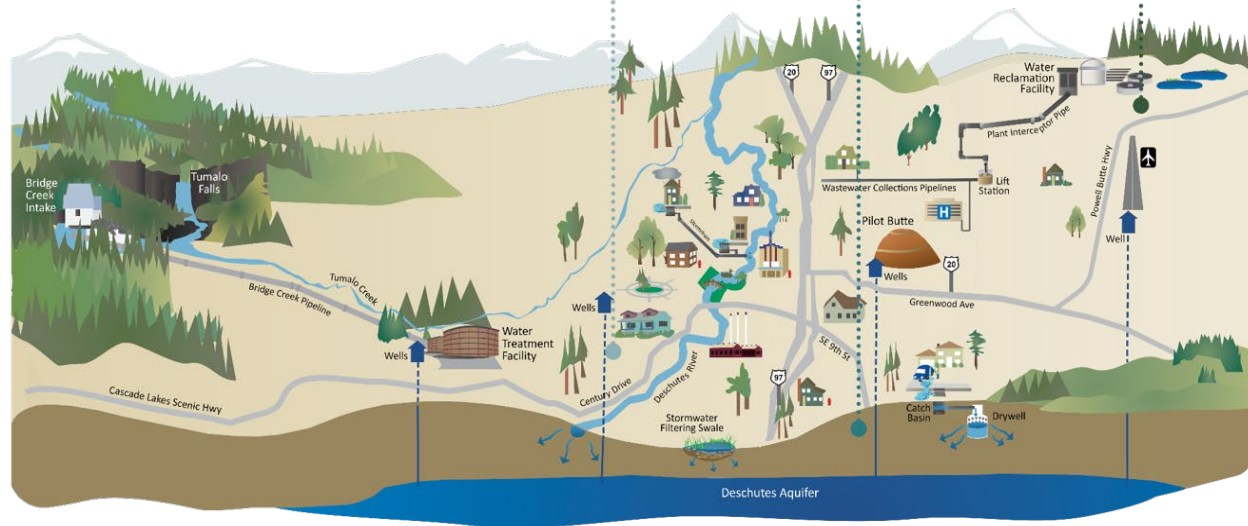
Over 50,300
Laboratory test results processed from samples

Maintaining a healthy water system requires a holistic approach to water that moves beyond the foundation of pipes and pumps. While keeping our infrastructure in good condition and supporting operations to keep costs down is critical, we must also protect our water quality, our watershed, and future water rights for our community.

The following list includes some of the vital support programs that protect our water supply and water system:

- Bendoregon.gov/Lab
- WaterWiseTips.org
- Bendoregon.gov/WaterPlanning
- Bendoregon.gov/CrossConnection
- Bendoregon.gov/IPP

Use the hyperlinks above to visit our website and learn more about these important programs.



SOURCE WATER

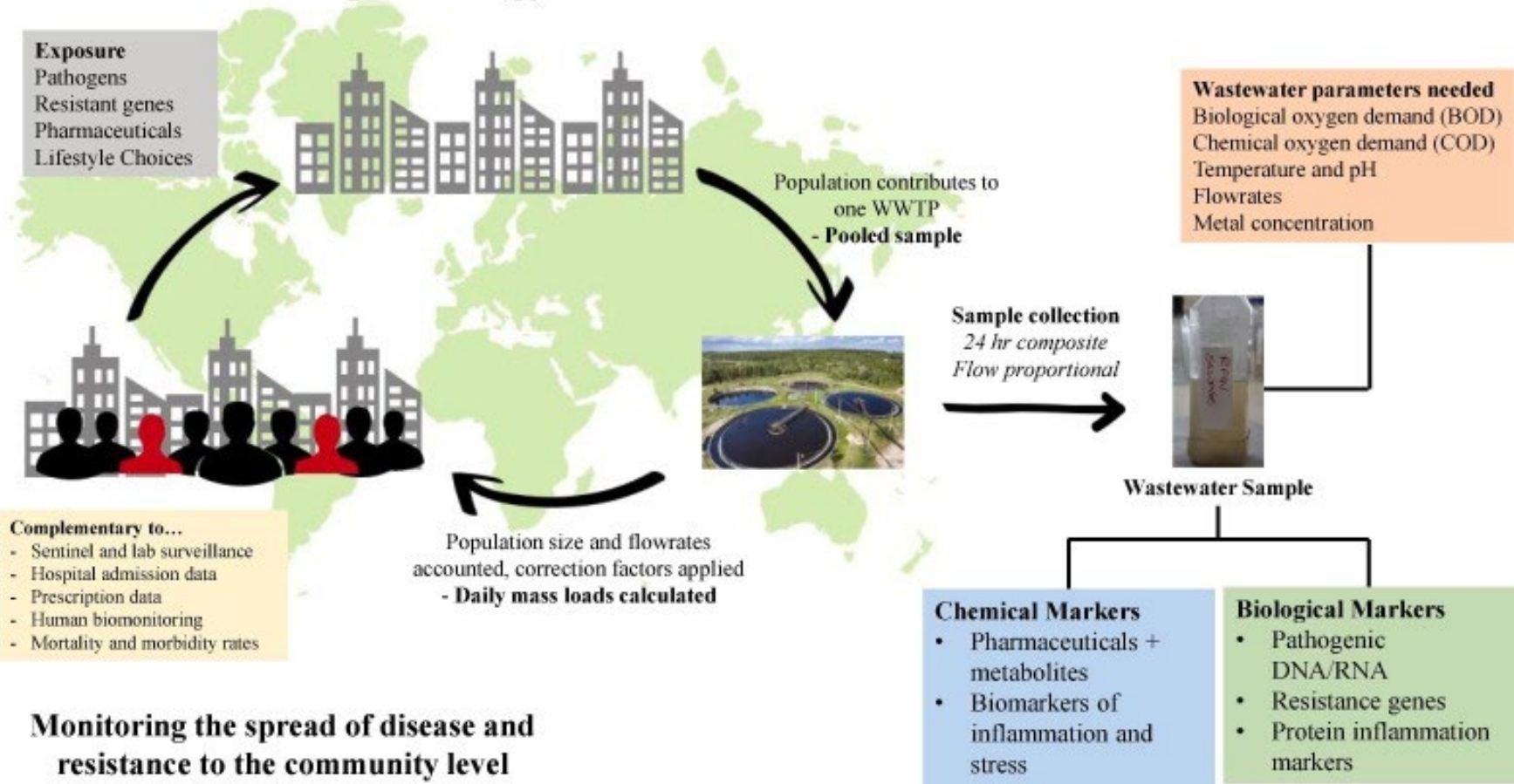


WATER RECLAMATION FACILITY





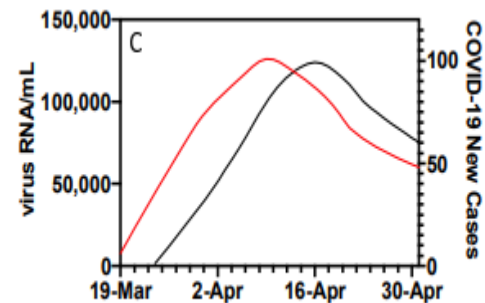
Wastewater-Based Epidemiology





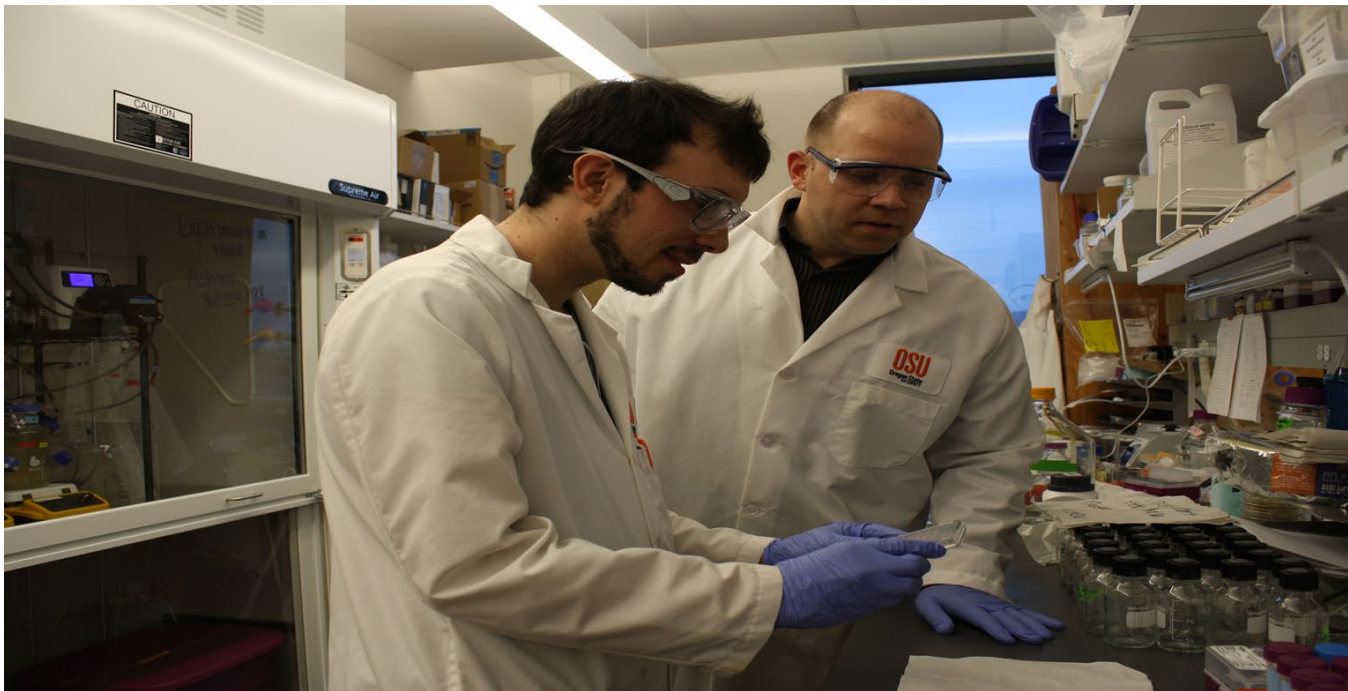
- Communities are looking at SARS-CoV-2 Viral titers to understand trends over time, and using that data to further inform reopening plans for including colleges and school systems.

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/wastewater-surveillance.html>





- Biobot Analytics Sewage Testing Program
- Full support form City Management and Council
- Oregon State University Split Samples/New Methodology
- Deschutes County Health Department
- Trace Study - Combining door to door testing w/ Wastewater analysis
- Ongoing sampling and analysis with Oregon State University







- The City and industries working together to protect resources and infrastructure

- History of Industrial Waste –Cuyahoga River

- History of Brewery Waste – one of the oldest industrial wastes

- Brew waste management in Bend

- Issues for collections system and treatment

- Mutually beneficial Collaboration with industry

DOMESTIC SEWAGE – CHICAGO SANITARY DISTRICT 1889





- Clean Water Act 1972
- 40 CFR 403 National Pretreatment Standards 1977
- 40 CFR 403.6 Categorical standards indirect dischargers
- Local Limits





- Primary Purpose is to restore and protect the quality of the nation's surface waters
- As originally approved, the ultimate goal was to eliminate the discharge of pollutants into navigable waters
- Interim goal of insuring waters were fishable and swimmable
- Direct Dischargers regulated under an NPDES permit
- Indirect Discharges – POTW holds NPDES permit

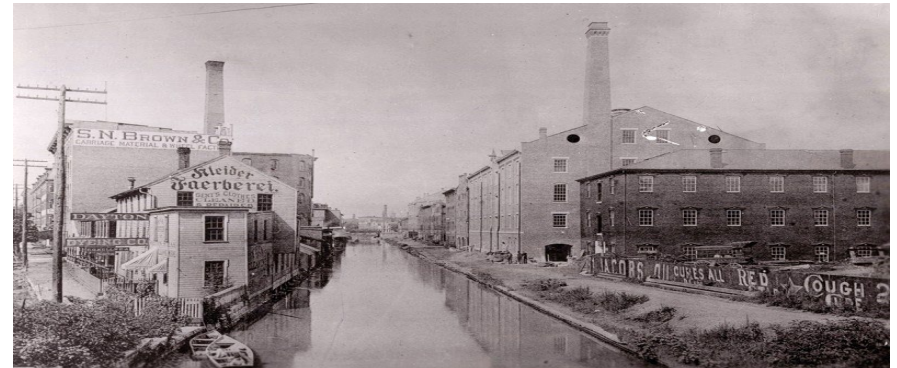


BREWERY WASTE, ONE OF THE OLDEST INDUSTRIAL WASTES!





- **“Cleaner than water.”** The process of boiling water and other ingredients produced a beverage cleaner than water during a period when cholera and other diseases were common.
- **1900:** 23 Breweries , over 4 million gallons of beer were brewed locally each year. Many small family run
- **1920-1933:** Prohibition
- **1939:** 9 breweries employing 1,265 people





- Pre-treatment may be necessary to smaller plant
- Larger plants may be designed to handle the waste, may impose surcharges for infrastructure R & R and additional cost of treatment





THE LEGENDARY BEND ALE TRAIL PASSPORT



Ready? Go!



With this Atlas, navigate from brewery to brewery.

Get a stamp at each place on your Passport (one Passport per person). No purchase is required but having fun and staying safe are a must, so make a plan, Champ!



Got 10 stamps?

You've got one more stop: Swing by the Bend Visitor Center, 750 NW Lava Road, Suite 160, and get your prize!



Got ALL 18 stamps?



You get an extra prize and our hearty congratulations. And, if it's November, known around here as Bend Ale Trail Month, we'll even give you a freakin' trophy. Claim your prize and trophy at the Bend Visitor Center, 750 NW Lava Road, Suite 160!



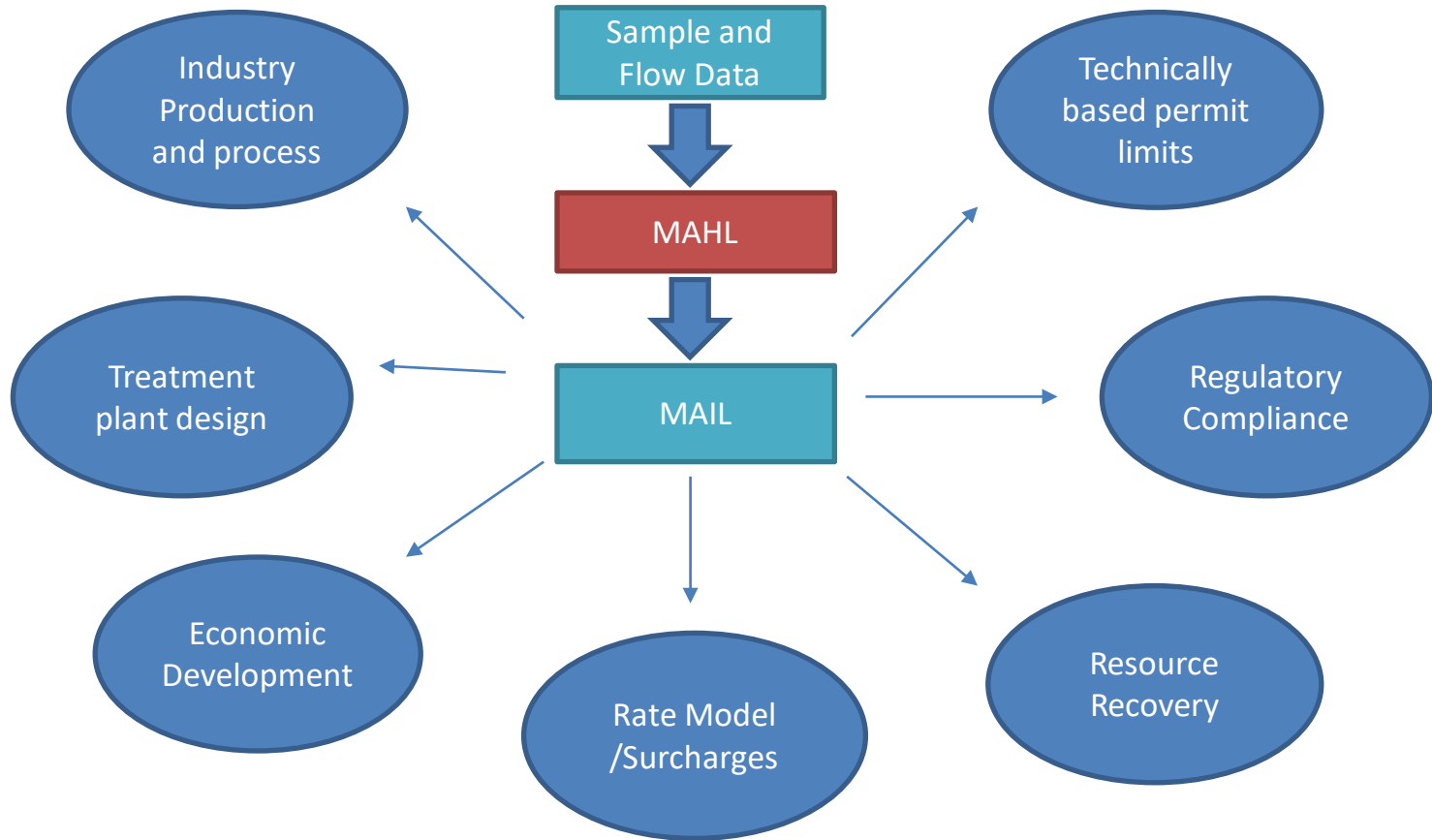
**CONGRATULATIONS
You Did It!**



Redeem your Passport at Bend Visitor Center Downtown Bend, 750 NW Lava Road, Suite 160 541.382.8048

DESCHUTES BREWERY: SIGNIFICANT INDUSTRIAL USER <25,000GPD DISCHARGE





COLLECTIONS SYSTEM MAINTENANCE, REPAIR AND REPLACE



- Hydraulic capacity problems
- Plugging
- Odors
- pH (high and low)
- Temperature
- Corrosion





Special Challenge for collections and treatment

Dry climate

Over 480 pump stations

New construction - Green Building practices

No combined stormwater, little or no inflow and infiltration

Water conservation programs – commercial & industrial users

Higher than average influent at WRF (are industries diluting?)

Higher concentration of Ammonia, nutrients and salts

QUESTIONS?



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