



CITY OF BEND

# **From integration to execution of Water Conservation measures**

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May 5, 2023

# A plan for City of Bend Water Conservation

## Integration

- Water Master Plan effort-
  - a) Water conservation Decision Support System (DSS) cost effectiveness analysis
  - b) Savings incorporation into model
  - c) WMCP supply alternatives analysis (includes conservation)

## Execution

- Stakeholder engagement
- Implementation plan
  - a) Pilot prog. schedule of rollout
  - b) Targeting through customer water use analysis- completed
  - c) Communications plan/materials built

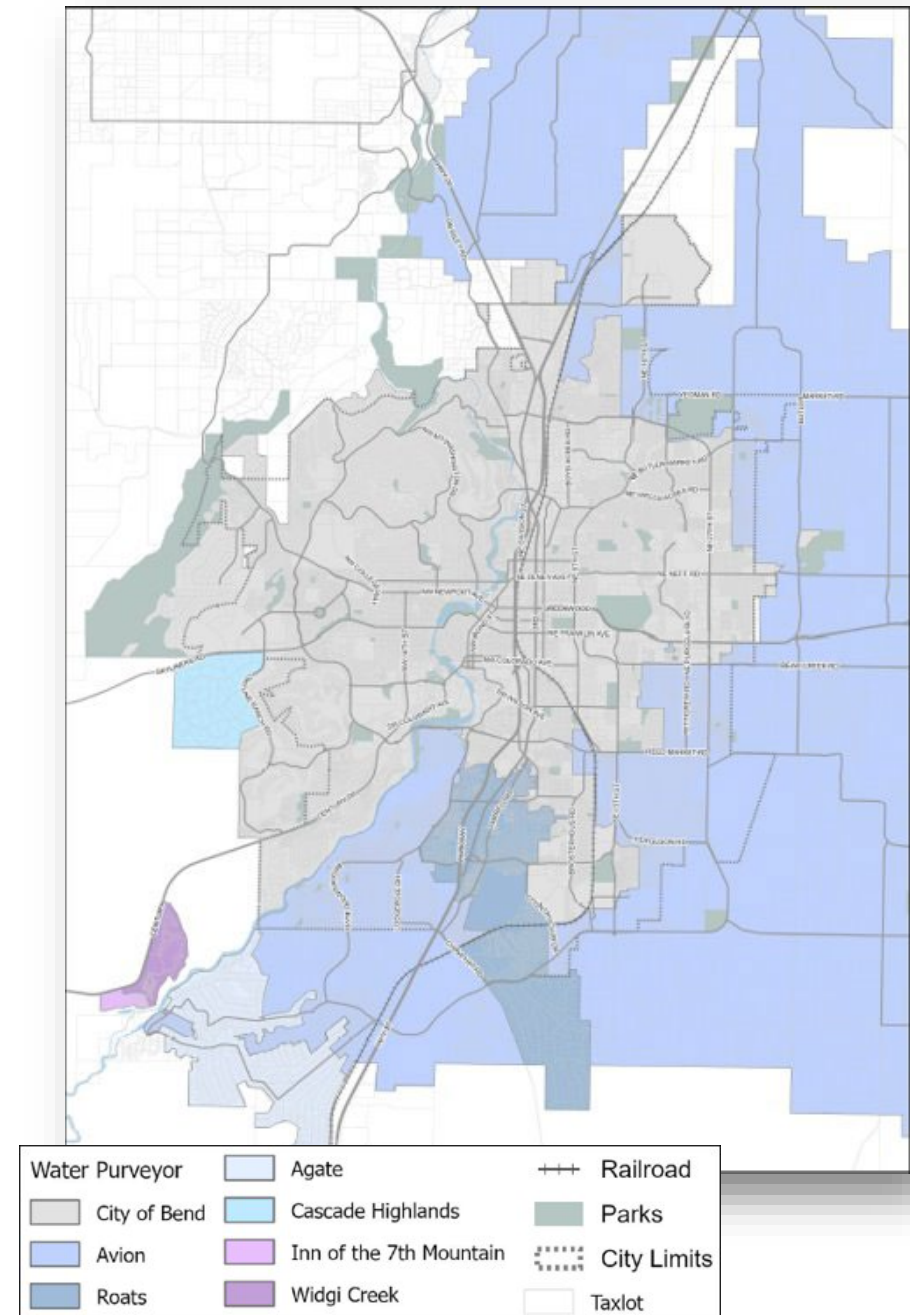
## Challenges

- Customer engagement etc...

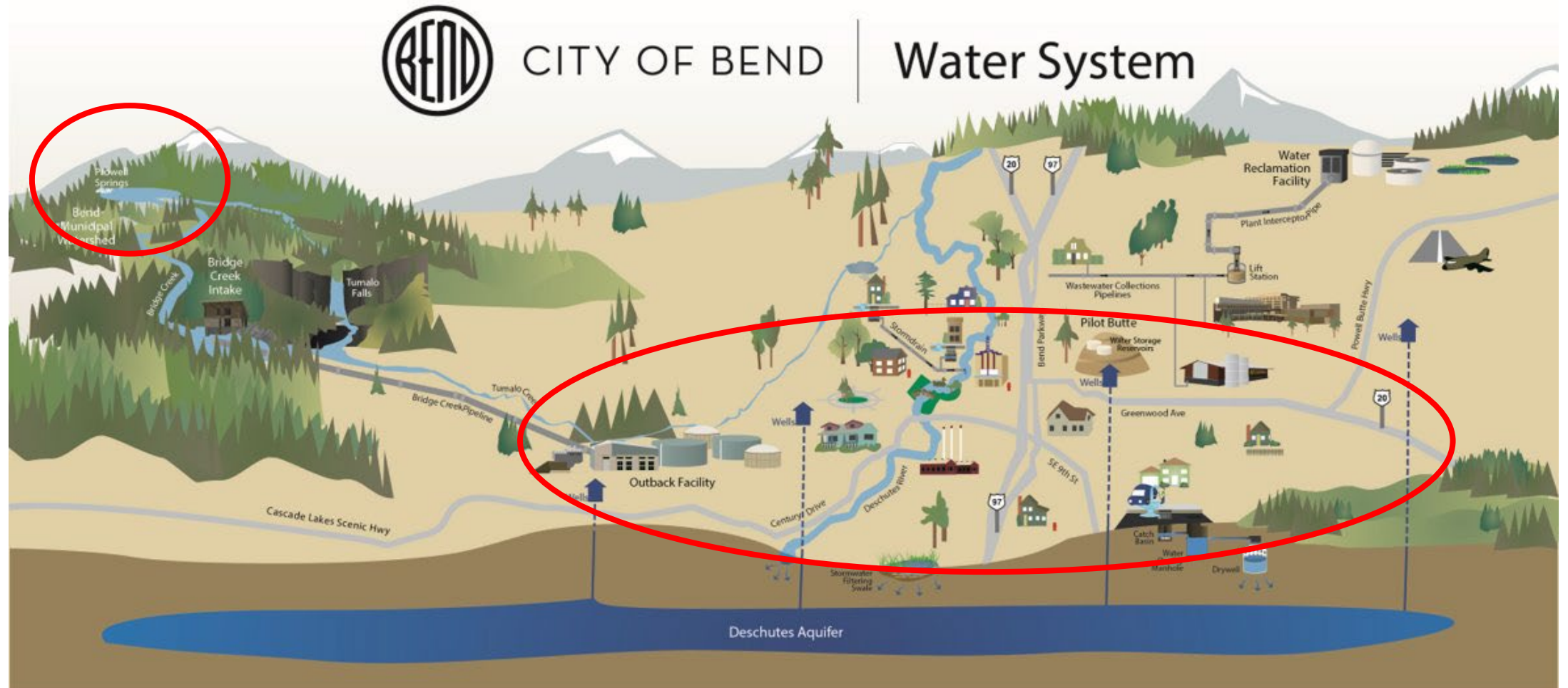


# City of Bend Overview

- Dual source system- Surface and groundwater
- Rates- volumetric \$2.08/HCF
- Water Service Connections- 30,718
- Active Water Customers- 27,602
- Active Sewer customers- 35,437
- Water Service Population- 77,704
- Water Produced- 4,518 MG
- Peak Day Demand- 26 MGD
- Fully AMI since 2015



# Bend water sources



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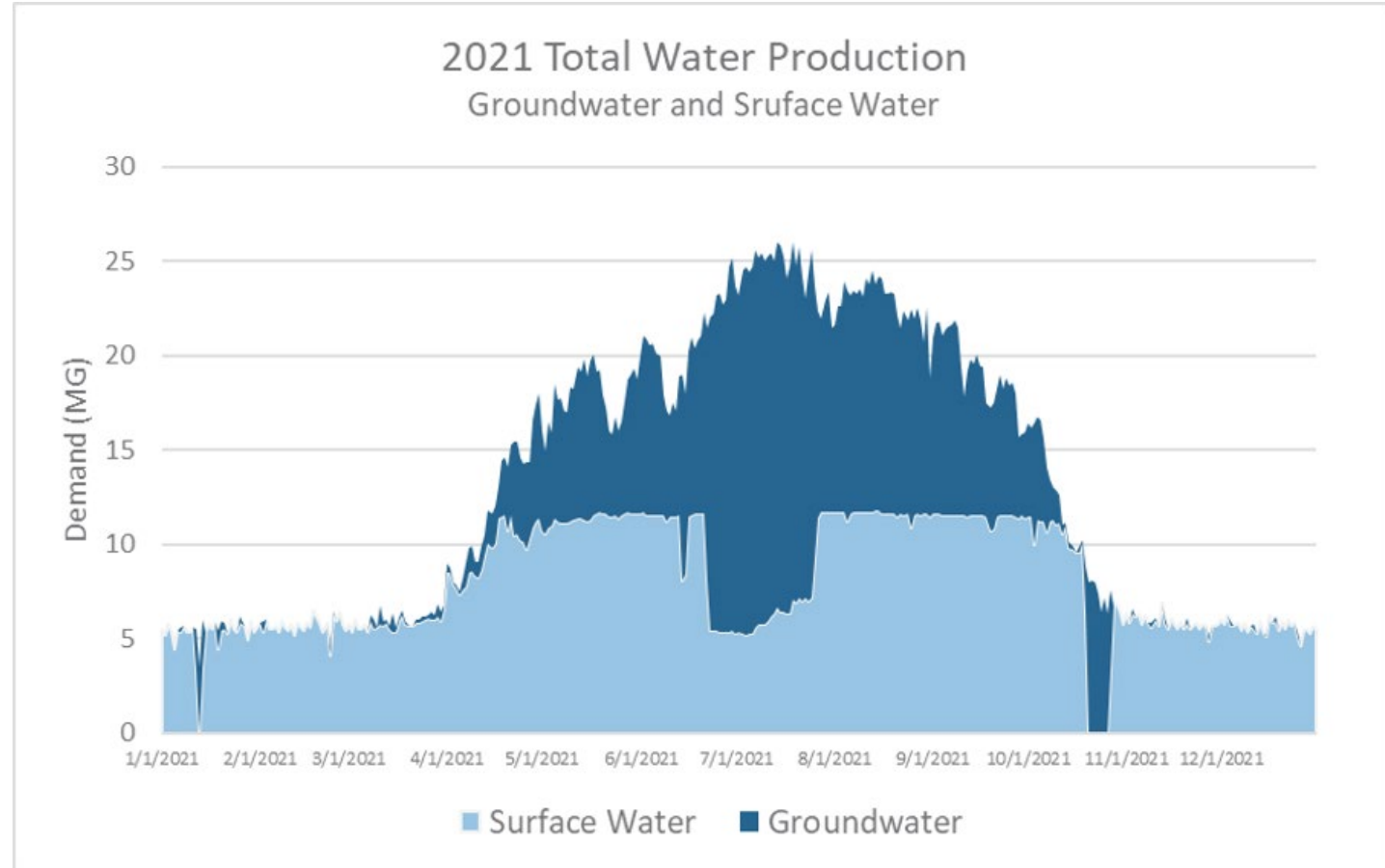
# Core Programs

## Technical and Financial Assistance

- SIP- Sprinkler Inspection
- LLP- Large Landscape
- WWPP- Water Waste Prevention

## Education and Outreach

- Indoor Conservation Kit
- Home Water Use Reports
- Workshops (green industry and homeowner)
- Community events





# IWSMP

- Future demand forecasts projected 10 year and 20 year horizons. Areas of growth identified and impact used as a variable to prioritize system improvements.
- Projections showed demands growing 38% in 20 years from 2018 numbers used in the model.

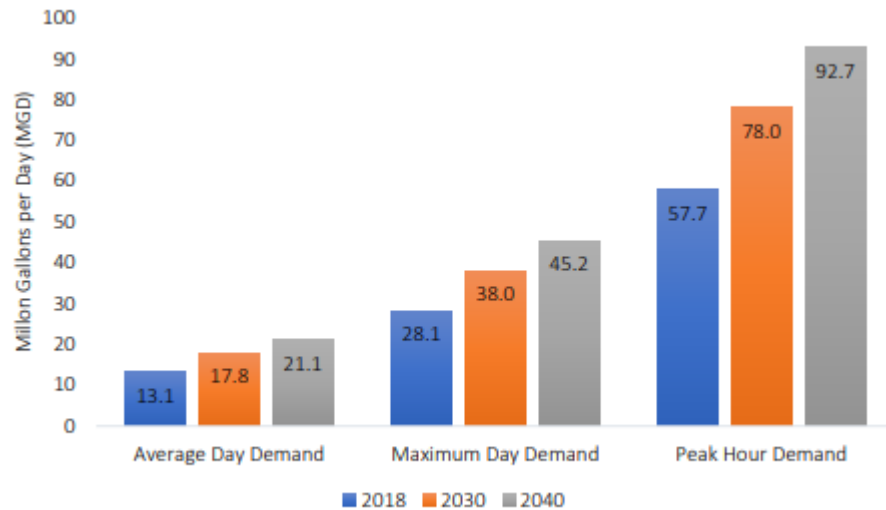
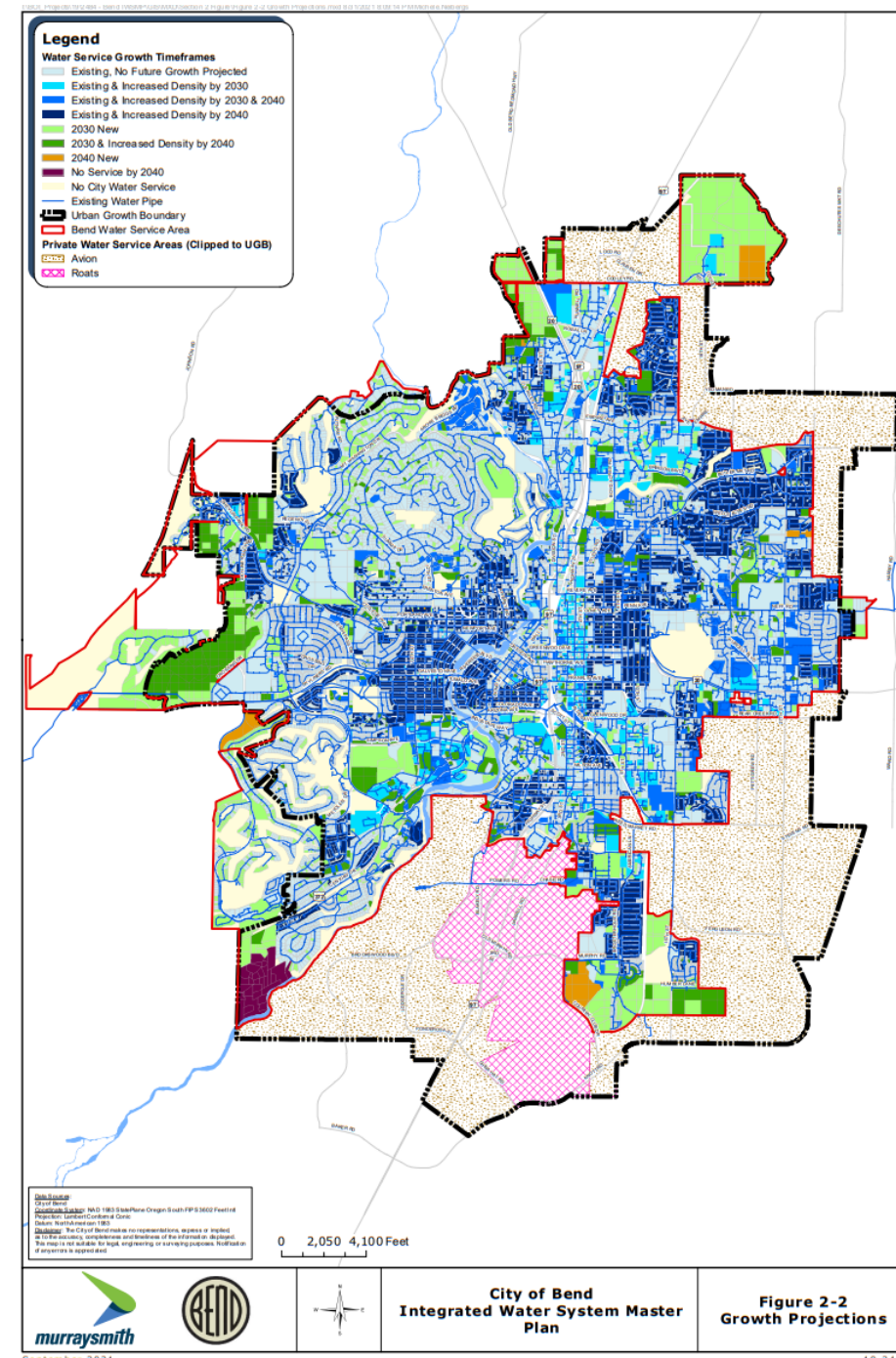


Figure 2-3 | Demand Projections

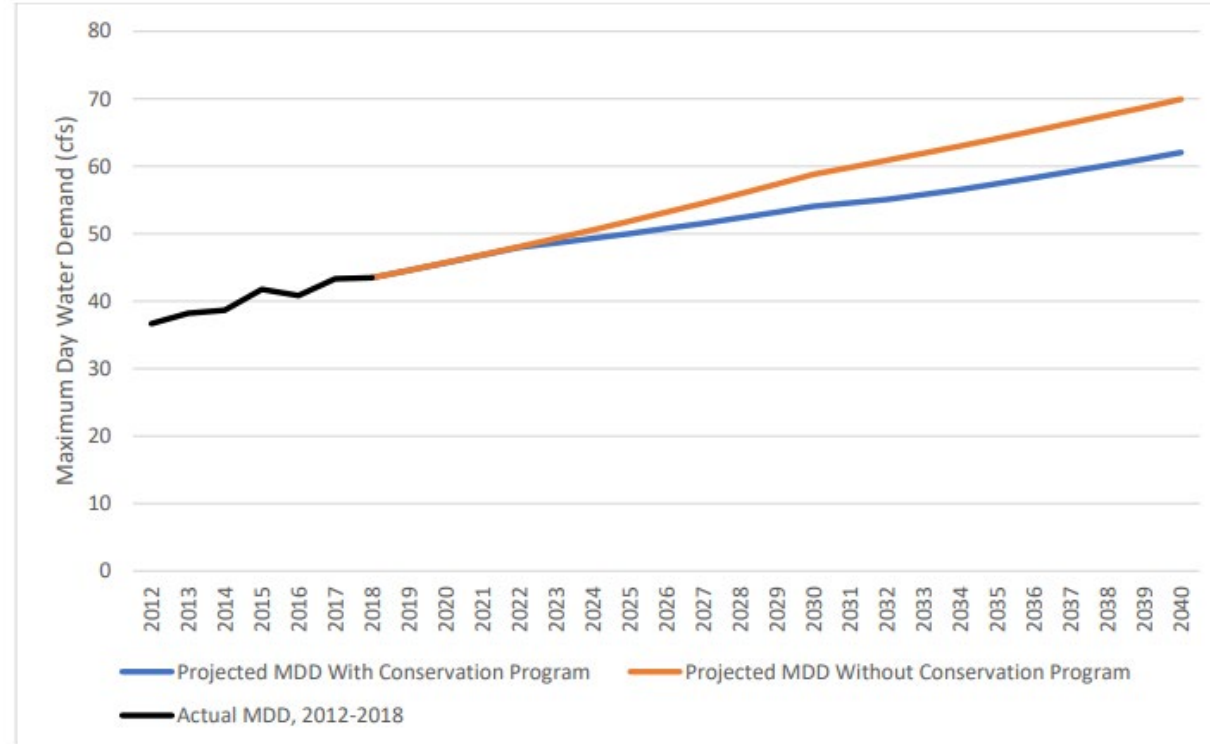


# Conservation Analysis WMCP

- Simultaneously, cost effectiveness analysis of water conservation measures completed using DSS (Decision Support System) Model
- Fulfill WMCP req. for considering sources of supply- conservation as alt. supply

Exhibit 7. Comparison of Water Conservation Measures

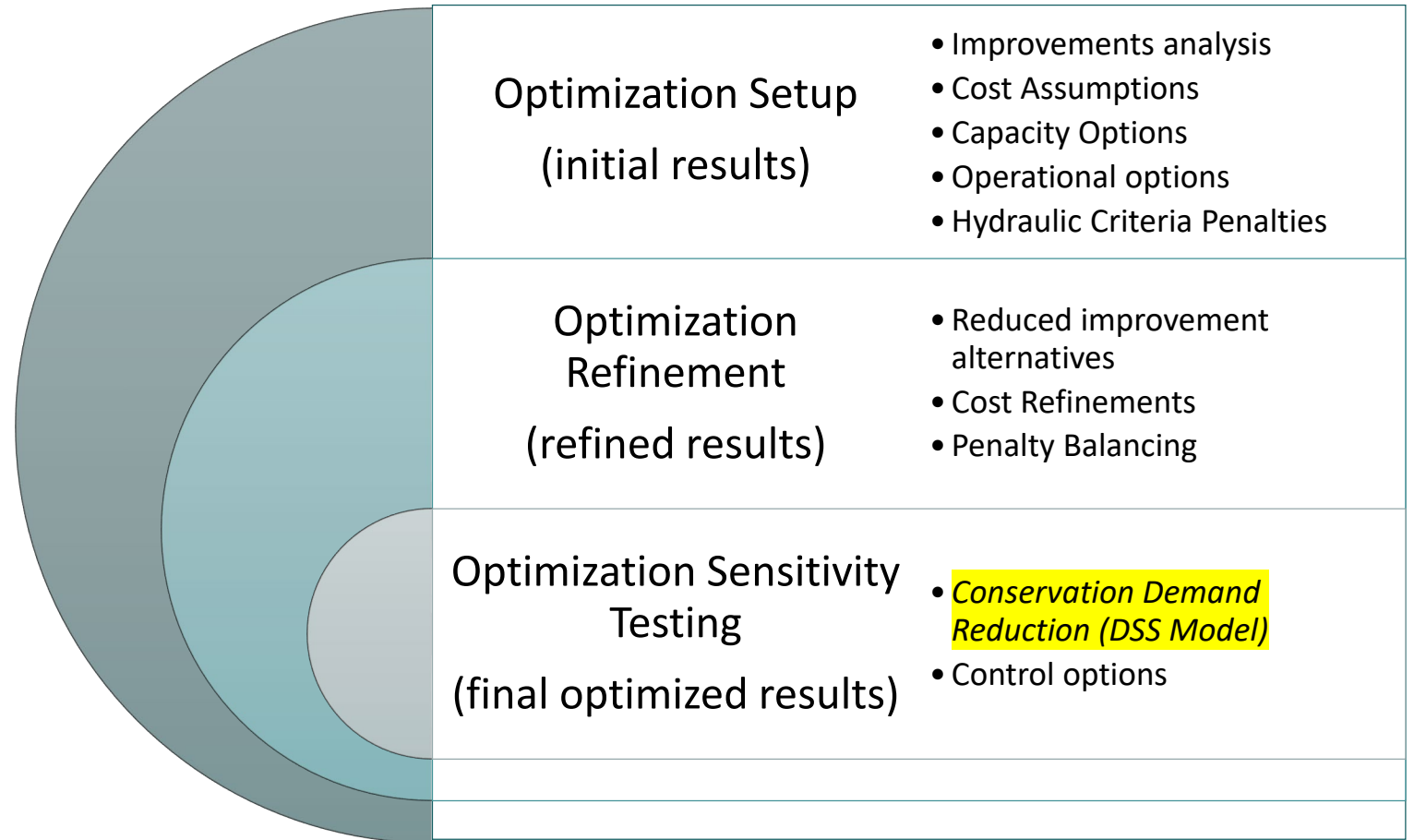
	Measure	Present Value of Water Utility Costs	5 Years of Water Utility Costs 2023-2028	Water Savings in 2040 (MG per Year)	Utility Cost of Water Savings per Unit Volume (\$/MG)
1	Clothes Washer Rebate - Residential	\$141,419	\$15,760	0.003838	\$9,796
2	Clothes Washer Rebate - Commercial	\$48,276	\$5,380	0.004926	\$2,824
3	Retrofit on Resale or Account Change	\$214,059	\$115,200	0.113560	\$355
4	High-efficiency Toilet Rebate	\$552,985	\$297,600	0.065457	\$1,581
5	High-efficiency Urinal Rebate	\$37,710	\$12,390	0.003551	\$2,179
6	Free Faucet Aerators and Showerheads	\$212,330	\$51,982	0.030052	\$1,789
7	Indoor Plumbing Fixture Ordinance	\$3,113,304	\$1,633,138	0.130752	\$4,522
8	Turf Removal Rebate	\$1,915,590	\$524,000	0.048621	\$9,380
9	Landscape and Irrigation Ordinance	\$4,983,654	\$1,539,508	0.747737	\$1,908
10	Outdoor Water Surveys	\$573,351	\$150,000	0.026313	\$3,140
11	Weather-based Irrigation Controller Rebates	\$685,325	\$212,000	0.660652	\$299
12	Pressure Regulation Rebate	\$119,665	\$64,400	0.021709	\$525
13	Drip Irrigation Kits	\$91,049	\$49,000	0.007480	\$1,169
14	Rotating Sprinkler Nozzle Rebate	\$259,983	\$131,812	0.053226	\$508
15	Soil Amendment Rebate	\$282,439	\$152,000	0.110109	\$520
16	Pressure-regulating Sprinkler Bodies Rebate	\$265,347	\$110,852	0.055414	\$507



# IWSMP Optimization

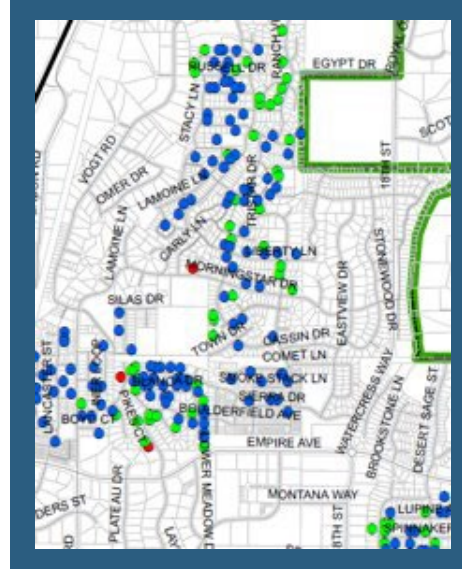
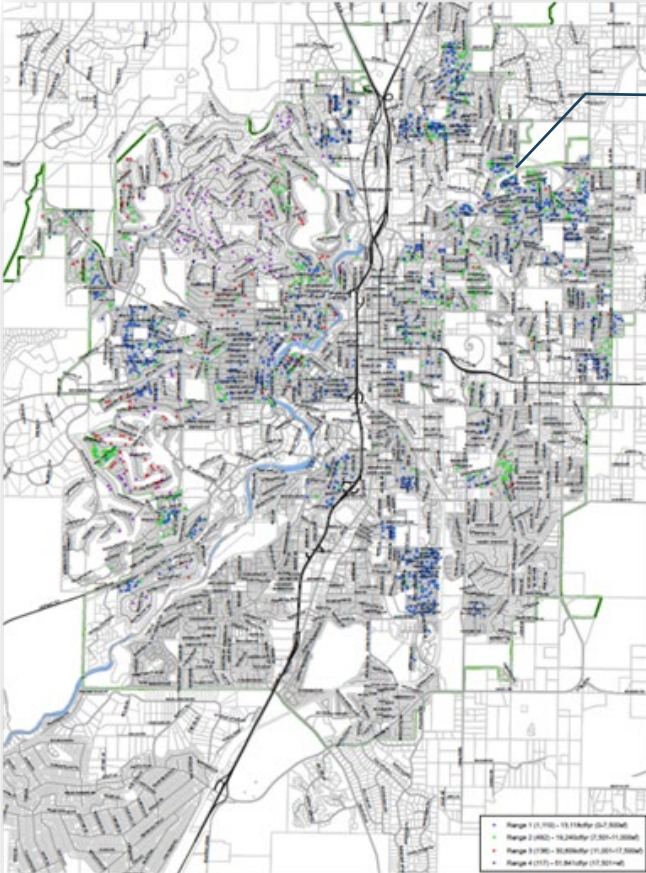
The optimization primarily focused on 2040 MDD conditions and optimized solutions were refined to identify the system CIP

- Conservation integration identified possible savings of 7,939 MG between 2020-2040 w/ increased conservation
- Savings of \$21 M in infrastructure (three new wells and one reservoir). W/ \$10 M investment in conservation.





# Targeted Conservation



## Sprinkler Inspections –SFR

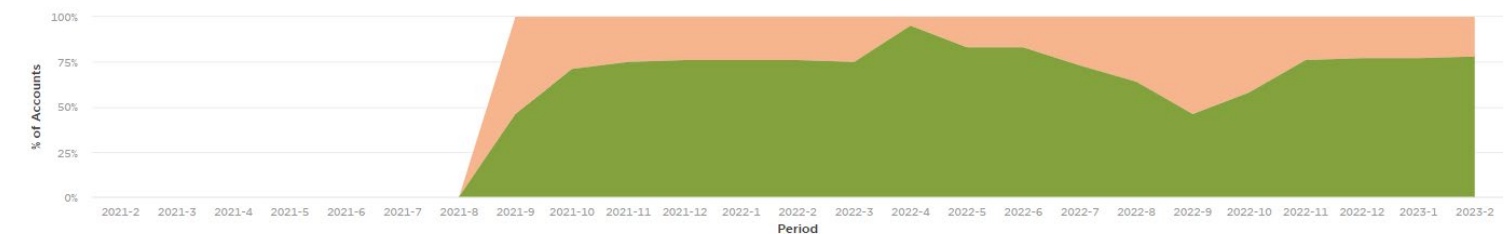
- Water budgets created for all SFR customers
- Customers separated into landscape size thresholds
- Top 2-5% of customers over budget in each threshold *recruited* into the program
- Requested appointments available later in the season
- Avg savings for participants- 40,000gal/year
- Avg cost of program per HCF saved- \$1.32

### History

METER CLASS

SFR

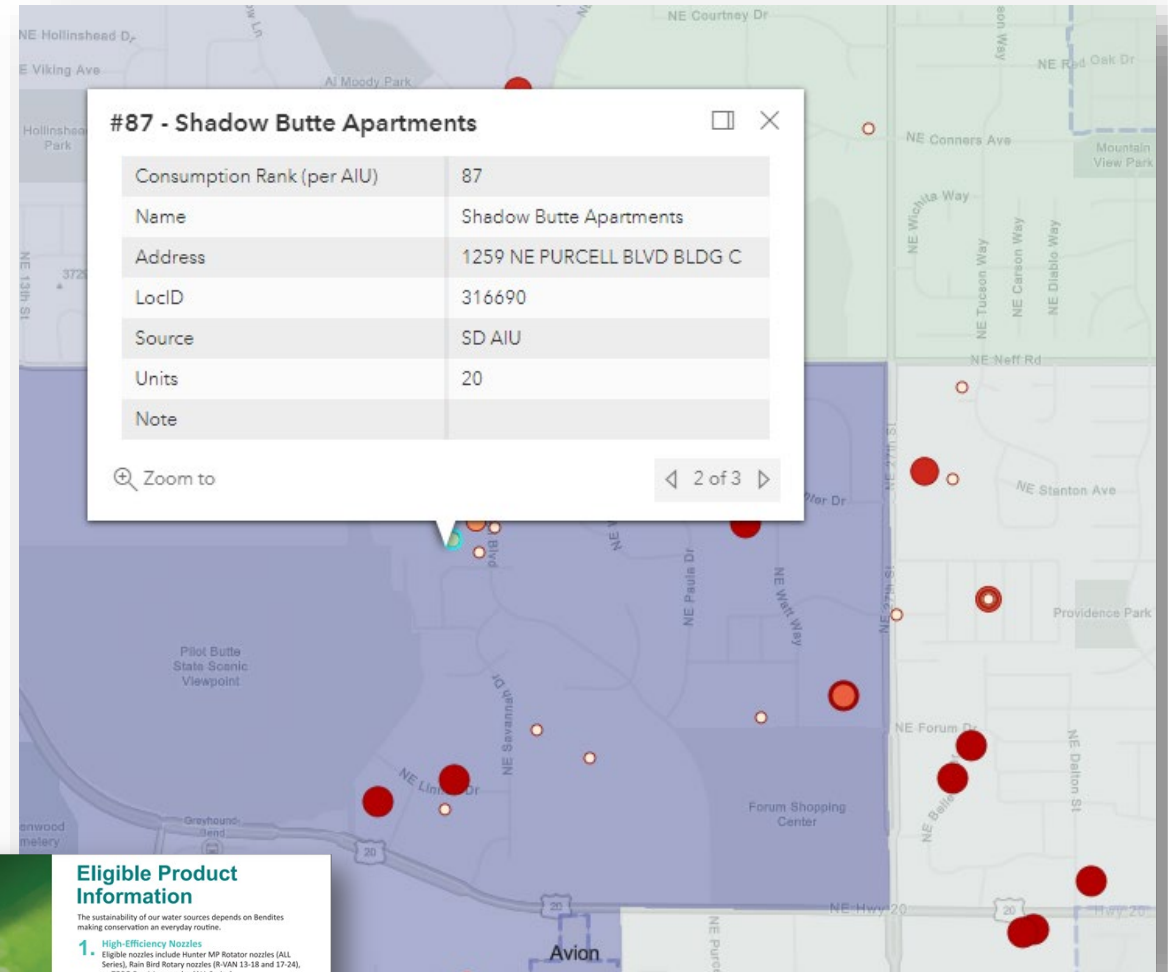
Compliant Non-Compliant



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# Targeted Rebates

- MFR- Multi Family Residential Rebate program 2<sup>nd</sup> phase of pilot program rollout.
- Analyze MFR water use to prioritize rebates to customers based on normalized water use, and various census data (Median income, poverty, disability and Owner occupied)
- Create a top 100 list of two MFR customer groups 5+ Units and <4 units.



City of Bend Water Use in Million Gallons/Year

**Water Conservation Outdoor Rebates**

The City of Bend is offering rebates to water customers for switching to water efficient irrigation devices.

**Water efficient devices are just one piece of the puzzle.**

Landscape irrigation has the highest impact on the City of Bend water system during the summer. Through a water system master planning effort, the City of Bend has identified the need for a reduction of peak demands by 2040 to offset expensive new investments in the water system. The devices available for a rebate are proven to save water and money. Eligible products can be used alone or in combination. Conservation of our community's water supplies creates resilience to drought and delays the need for costly infrastructure investments, keeping water rates affordable.

Please review program eligibility rules and requirements before filling out a rebate application.

(541) 317-3000 ext 2  
 conservation@bendoregon.gov  
 WaterWiseTips.org

**How to Apply**

Water account holders apply for a rebate through Watersmart: [bendoregon.gov/watersmart](http://bendoregon.gov/watersmart)

**Single Family Residential (SFR) Customers**

- Purchase and install eligible devices
- Submit application for the rebate within 60 days of purchase and schedule a post-inspection

**Multi-Family Residential (MFR) Customers**

- Submit an application and schedule a pre-inspection
- Purchase and install devices within 90 days and schedule a post-inspection

Qualifying rebates are applied to the account holder's utility bill.

**Eligible Product Information**

The sustainability of our water sources depends on Bendites making conservation an everyday routine.

- High-Efficiency Nozzles**  
Eligible nozzles include Hunter MP Rotator nozzles (ALL Series), Rain Bird Rotary nozzles (R-VAN 13-18 and 17-24), or Toro Precision nozzles (ALL Series).
- Pressure Regulating Spray Sprinkler Bodies**  
Eligible PRS heads include Rain Bird PRS heads (PRS and PRS 45), or Hunter PRS heads (PRS 30 or PRS 40).
- Smart Irrigation Controller**  
Eligible controller must be WaterSense approved, installed with accompanying devices, and operating in Smart mode.
- Drip Conservation Kits**  
A parts list may be acquired from your local irrigation supply store comprised of eligible drip conservation kit equipment.
- Pressure Regulating Spray Rotors**  
Eligible rotors include the Rain Bird 5000 with PRS and Hunter PGP ULTRA & I-20 PRS.
- Irrigation Sub-Meter**  
Eligible submeters range from 1/2" - 2". Submeters will only be rebated for sites with a single meter for outdoor and interior water use.

Product	Rebate Amount*	SFR Quantity	MFR Quantity**
High-Efficiency Nozzles	\$4 per nozzle	20 max	20 min
Pressure Regulating Controller	\$4 per body	20 max	20 min
Smart Irrigation Controller	Customer Specific: \$10001 max	\$35 per station	
Drip Conservation Kit	\$90	1 max	1 per 300 sq ft
Pressure Regulating Spray Rotors	\$10 per body	N/A	20 min
Irrigation Sub-Meter	\$100	N/A	1 max

\*The total rebate will not exceed the purchase amount per device and does not cover costs associated with labor.  
\*\*The maximum combination of rebates per multi-family site cannot exceed a total of \$4,000.

# Targeted Communications

## Water Waste Code enforcement



### Bend Chp.14.2 Use of Water

- Even/Odd watering days
- No Irrg. 9-5
- No water in the street

### Through the portal

- Identify accounts out of compliance
- Create a list of Accounts
- Message accounts

Irrigators (Last Week) 6 results

Likely irrigators are those with a consistent pattern of high water use, which is most likely timed irrigation. A green check  indicates irrigation on the right day and a red  indicates irrigation on the wrong












































SEARCH ACCOUNT

IRRIGATION IN LAST 7 DAYS

COMPLIANCE

IRRIGATED WITHIN 48 HOURS OF RAIN

METER CLASS

ACCOUNT	CONTACT	IRRIGATION DAYS BY WEEKDAY	IRRIGATION DAYS IN LAST 7 DAYS	IRRIGATED WITHIN 48 HOURS OF RAIN
 Christopher Smith 61591 Odell Lake Dr 524965-400420	christophera2000@msn.c (541) 241-0846 Mobile	Su M Tu W Th F Sa       	7	Yes
 Brandi English 2895 Ne Rainier Dr 1099615-502980	amberlafave@gmail.com (541) 425-1478 Mobile	Su M Tu W Th F Sa       	7	Yes
 Patrick Kniffin 61539 Aaron Way 1154835-636900	pkniffin@yahoo.com (831) 239-9215 Mobile	Su M Tu W Th F Sa     	5	No
 Alexander Borgia 20538 Se Stanford Pl 1085275-695910	aborgia87@gmail.com (858) 354-0208 Mobile	Su M Tu W Th F Sa      	5	No
 Irvin Lopez 20629 Se Byron Ave 1155796-850041	irvinlopezornelas@icloud. (503) 957-0443 Mobile	Su M Tu W Th F Sa      	5	No
 Joanne Fornaca 2728 Nw Fairway Heights Dr 1117565-804500	joannefornaca@hotmail.c (503) 708-4274 Mobile	Su M Tu W Th F Sa      	5	No



# Any body listening?

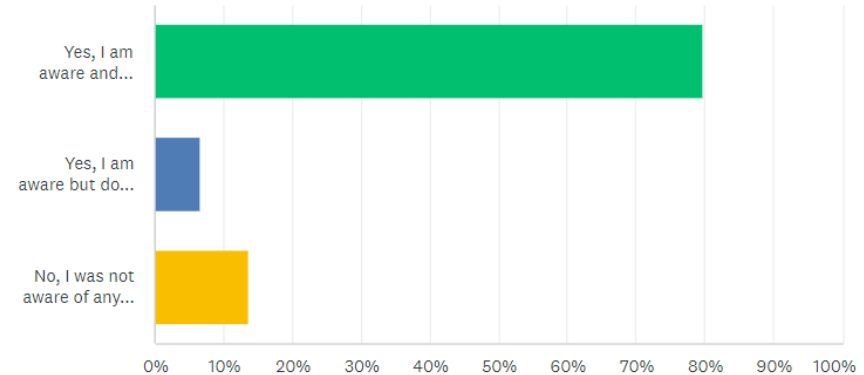
- Community survey to gauge awareness
- Familiarity w/ regulatory
- Unfamiliar with incentive messaging
- Mix of familiarity w/ general program awareness



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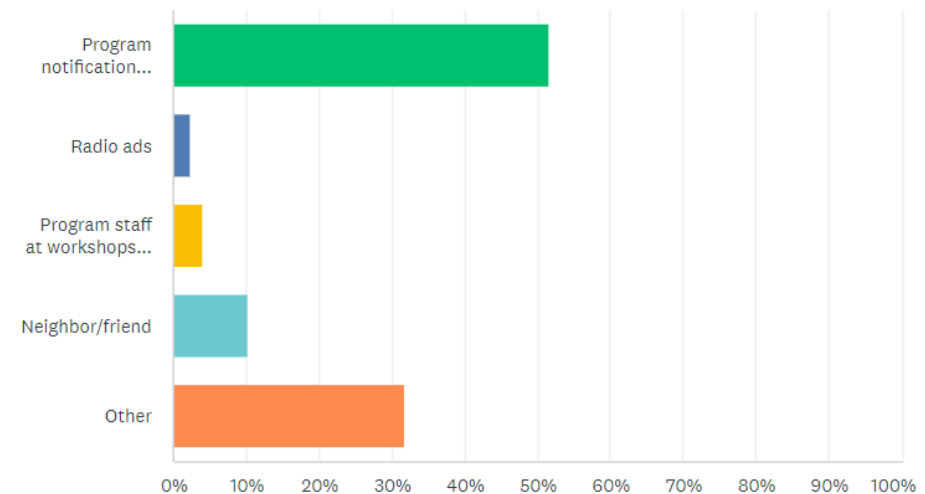
Did you know that the City of Bend has, and enforces, water use code that outlines the efficient use of water including: even/odd watering days based on your home address, no watering between 9am and 5pm, prohibiting runoff and overspray of irrigation into the sidewalks, streets and roadways?

Answered: 198 Skipped: 0



If you answered 'Yes' to question 4, how did you hear about Water Use Code?

Answered: 176 Skipped: 22





# WaterSmart Engagement

## Your Home Water Report for Aug 1 – Aug 31, 2021

This is an informational report and not a bill.

SERVICE ADDRESS: 144 NW ADAMS PL  
ACCOUNT NUMBER: 885635-60



### Your Water Use



Compare Your Past Use  
for this billing period



Learn more about your water use

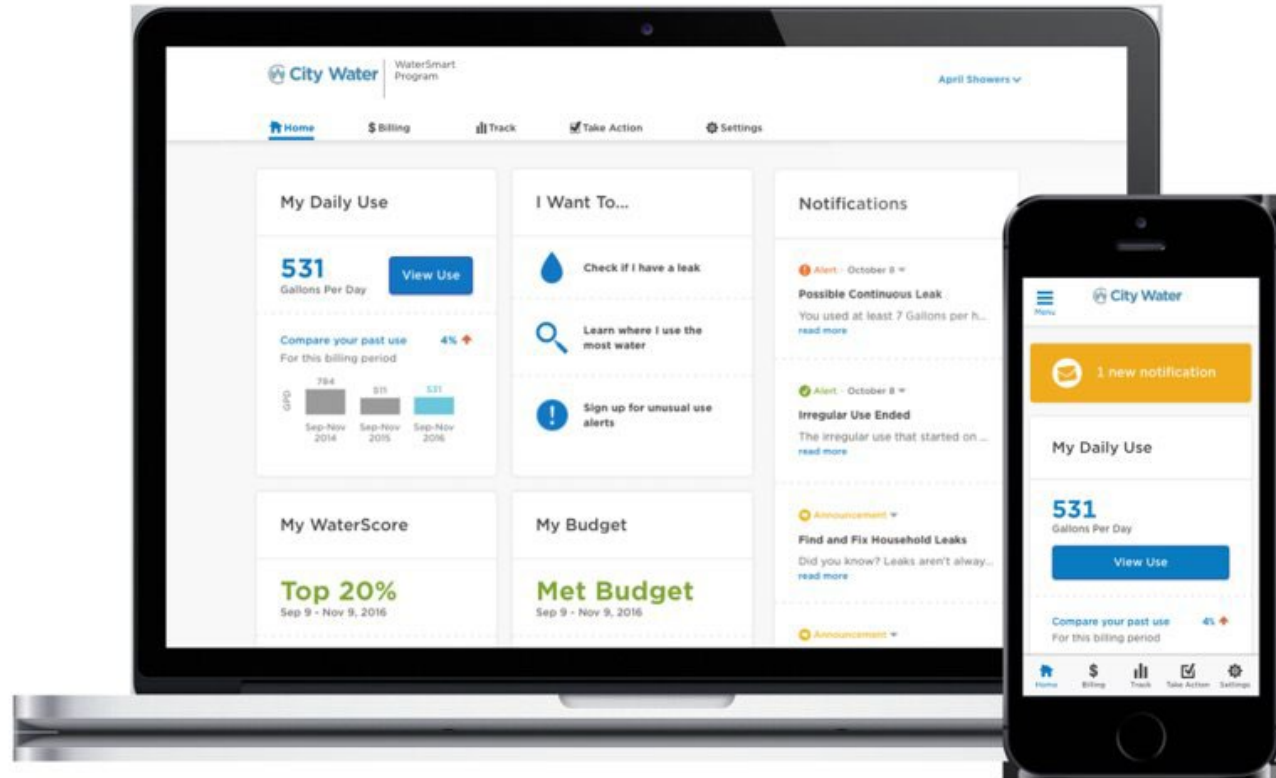
### Fall is here!

Fall is the time to turn off and blow out your irrigation system in preparation for winter.

Falling temperatures bring the possibility of freezes which can damage irrigation pipes or cause public safety hazards if runoff freezes on sidewalks or roadways. Reduce or turn off your irrigation today.

### Your use compared to last year

You are using 23% less water than you did in the previous twelve-month period.

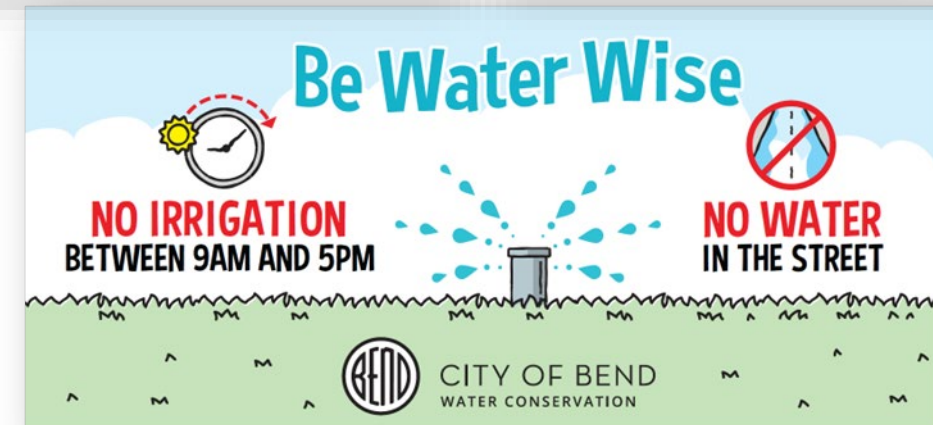
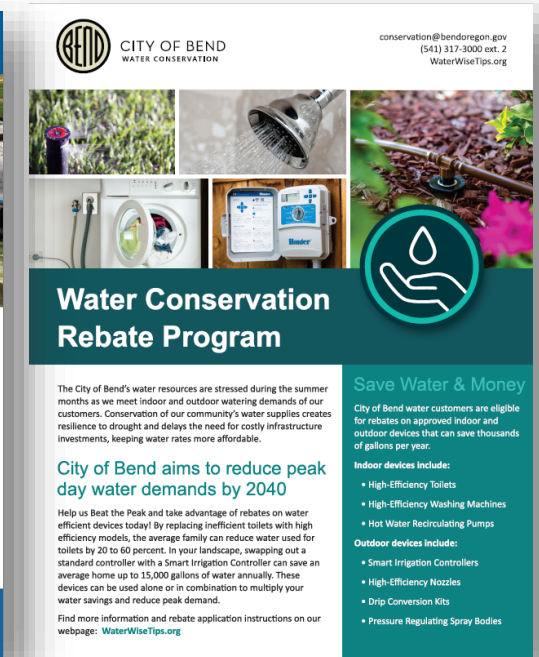


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# Bolstering participation

- Communication templates
- Multi-media campaign
- Engage external partners
- Open houses



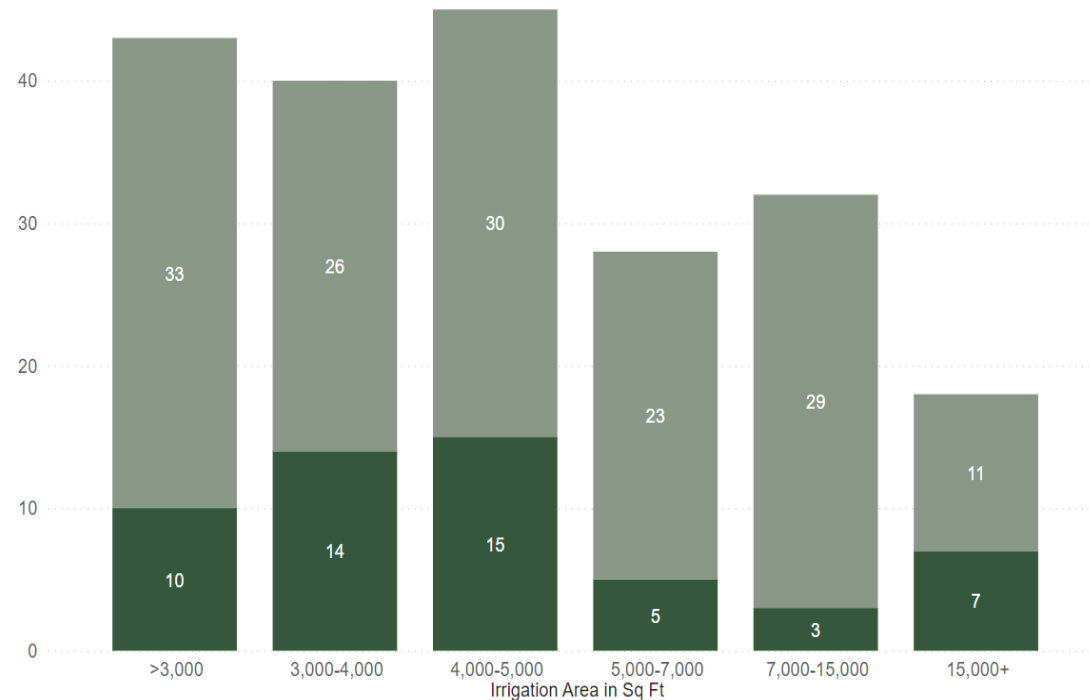
# How are we doing?

- Yearly analysis conducted
- Cost per HCF saved \$1.48
- Long term analysis in the works

## Sprinkler Inspection Program

Number of Participants by Lot Irrigation Area

● Recruited to Participate ● Requested to Participate



Filter by Year

2018 2021  
2019 2022

206

Number of Participants

73%

of Participants Conserved

5.84M

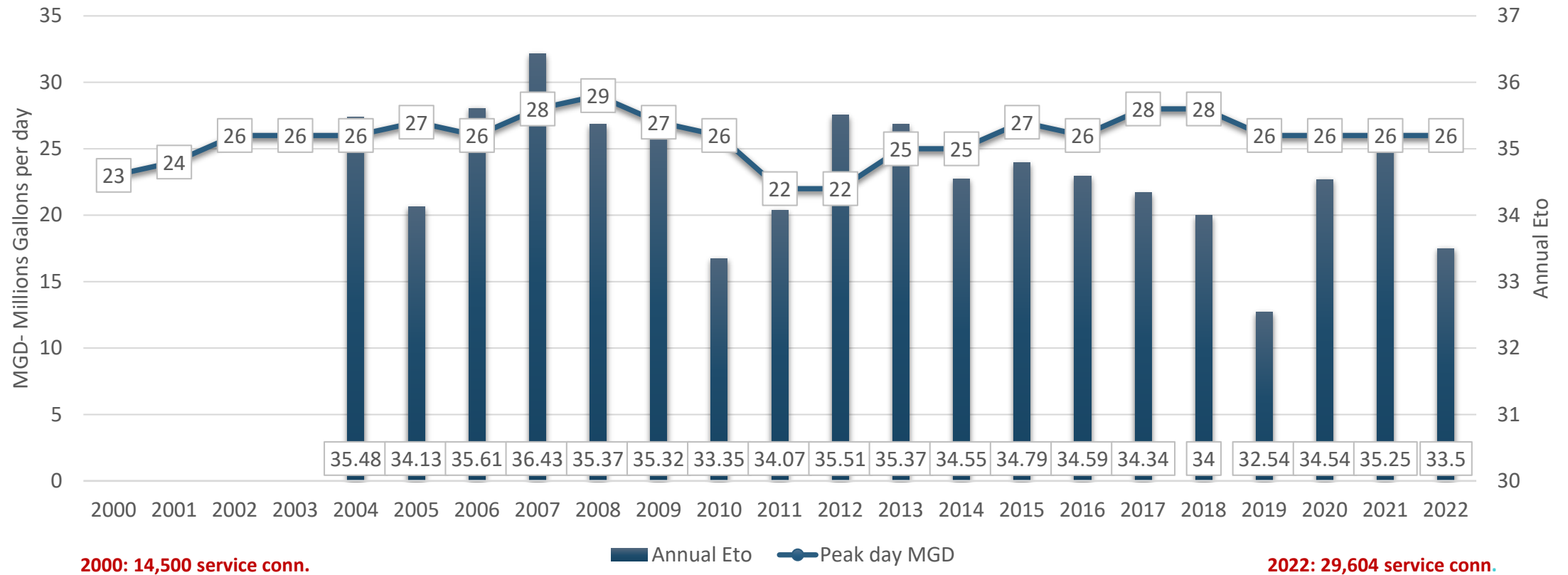
Gallons Saved



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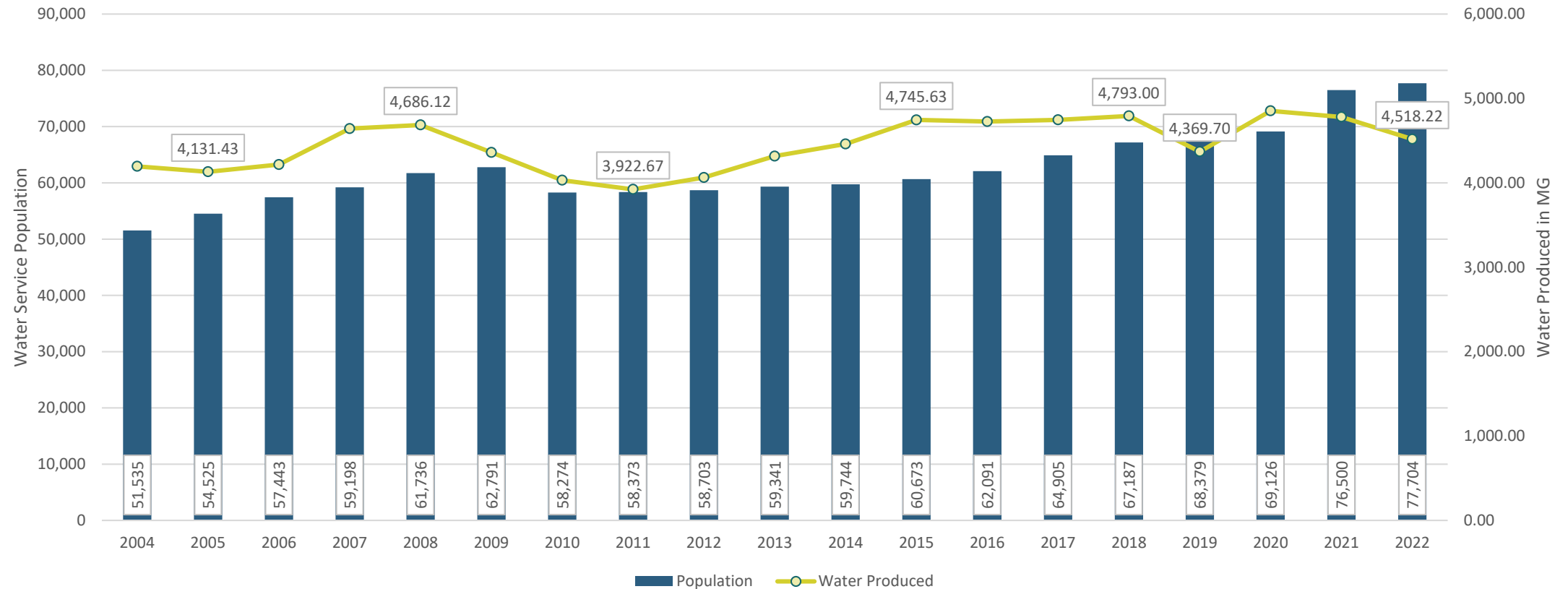
# How are we doing?

## City of Bend Water Production Summary Data 2000-2022 Maximum Day Demand- Single Peak Day w/ service connections



# How are we doing?

City of Bend  
Water Production vs. Service Area population 2004-2022



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# Thank you

Questions?



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