

# Water Services / Water Resources & Conservation Update

Water Services Division Staff

February 2025





# Water Services Overview (LEE)

- Six Sections

- Field Operations
- Plant operations
- Stormwater
- Engineering
- Regulatory Compliance
- Resource Management

- Overarching Responsibilities

- Drinking Water
- Wastewater
- Stormwater



FLAGSTAFF  
**WATER  
SERVICES**



# Plant Operations- Lee Williams

## • Water

- Two plants, four well fields, reservoirs & booster stations
- Ensures quality and quantity of water needed
- Future-RGR

## • SCADA

- IIOT
- Mapping
- Communications

## • Water Reclamation

- Two plants (6+4MGD)
  - Treat sewage to State & Federal standards
  - Produce A+ reclaimed water
  - Handle solids





# Field Operations-Patrick O'Connor



## • Water Distribution

- Delivers water from sources to customers
  - 450 miles of water mains
  - Purple pipe system
  - On-call 24/7/365



## • Wastewater Collections

- Collects used water from customers & conveys to treatment plants
  - Sewer pipes, manholes
  - 281 miles sewer mains
  - On-call 24/7/365





# Stormwater- Ed Schenk



## • **Safely Conveys Run-off**

- Drainages and Storm Sewer
  - Construct, improve and maintain infrastructure
  - Code enforcement
  - Overlap with County and USFS
  - Plan reveiw





# Engineering- Mac McNamara



- **Design & Construct**
  - Works closely with staff and engineering firms
    - Design facility upgrades
    - Design plant rehab
    - Oversee construction
    - Plan review for new development





# Regulatory Compliance- Jolene Montoya



- **Ensures compliance with State & Federal Laws**
  - Certified labs in treatment plants
    - Water quality testing
      - Plants
      - Distribution system
  - Writing and filing reports
  - Working with plant staff & State





# Resource Management- Erin Young



## • Resource Management

- Water resource monitoring
- Long-term water demand and water resource forecasting
- Water rights management
- Represent the City on regional water related groups and organizations
- Manage partner contracts
- Groundwater well locations

## • Water Conservation

- Code enforcement
- Work with community and city locations on conservation and efficiency efforts
- Represent the City on regional water related groups and organizations
- Manage partner contracts

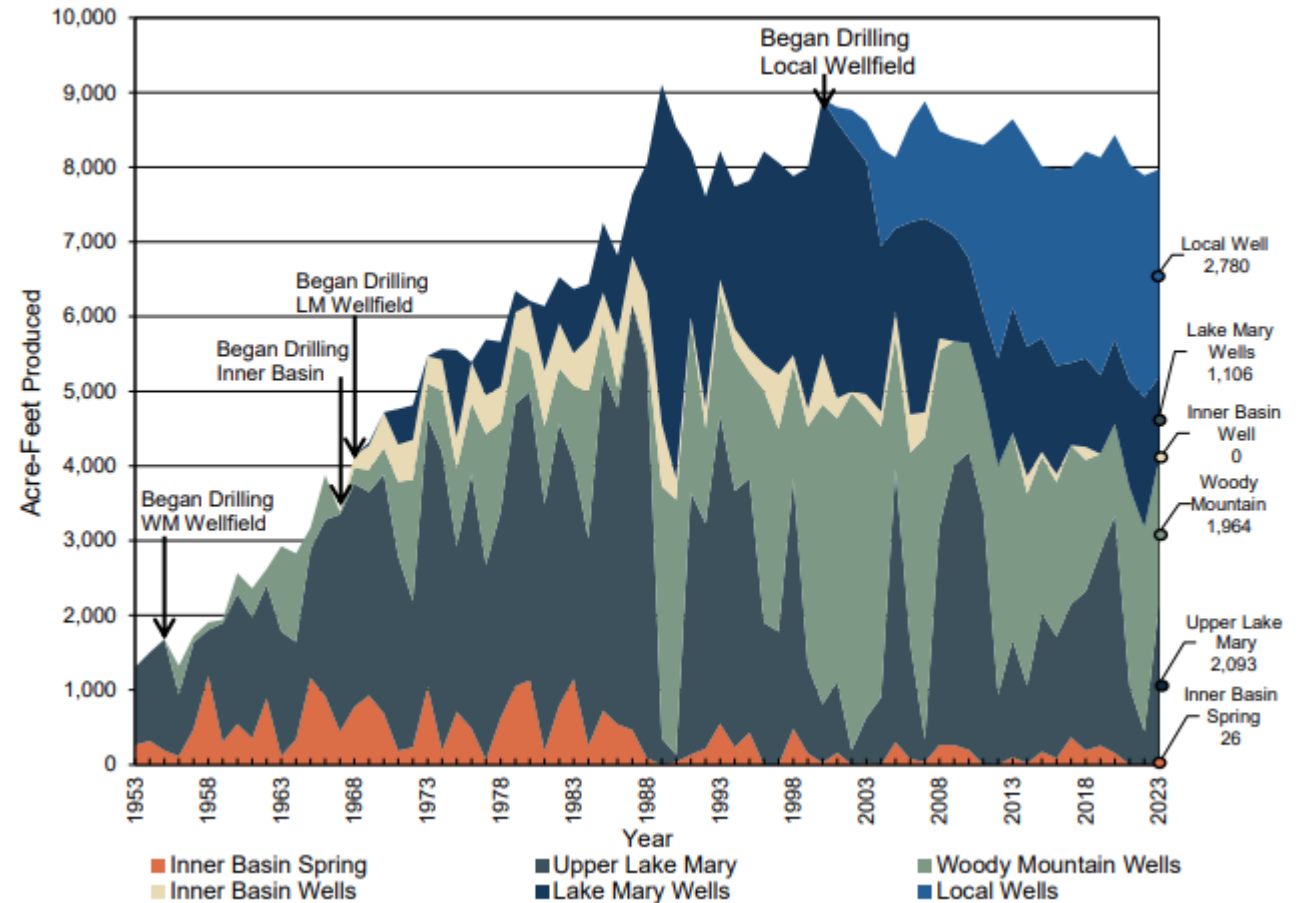


# Water Resource History

## Flagstaff Water Supply Over time

- Currently import up to 2/3 of our water resources from outside city limits
- 75% of our water resources are located in a forested landscape

Figure 1: Water Production by Source 1953-Present



# Water Resource Development

## Challenging hydrogeology for deep groundwater yield

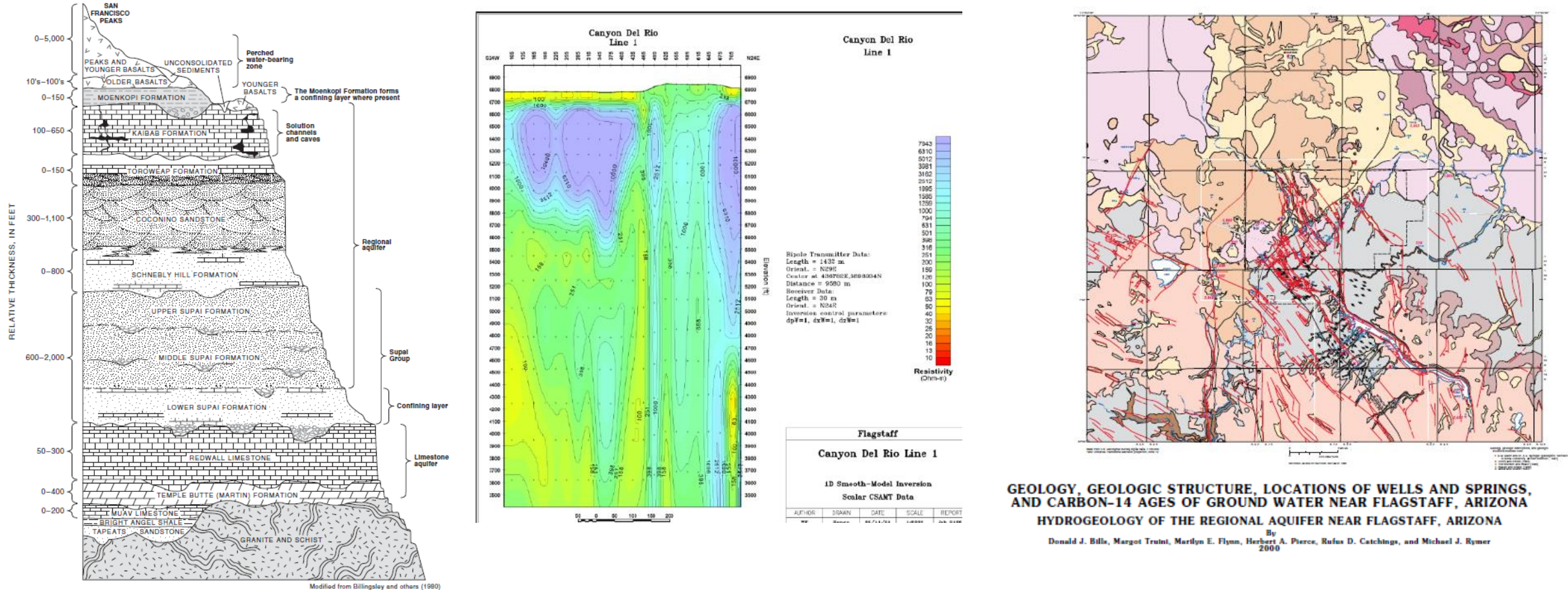


Figure 11. Generalized stratigraphic section of rock units, Flagstaff, Arizona.



# Water Resource Management

## Planning for 100 years – Designation of Adequate Water Supply

- Tie Water Needs to Voter-Adopted Regional plan
- Use projections
- Groundwater monitoring
- Conservation as a resource

In 2009, Council directed staff for the City to become Designated

In 2013, City obtained its most recent Designation of Adequate Water Supply

Table 1: City of Flagstaff 2013 Designation of Adequate Water Supply

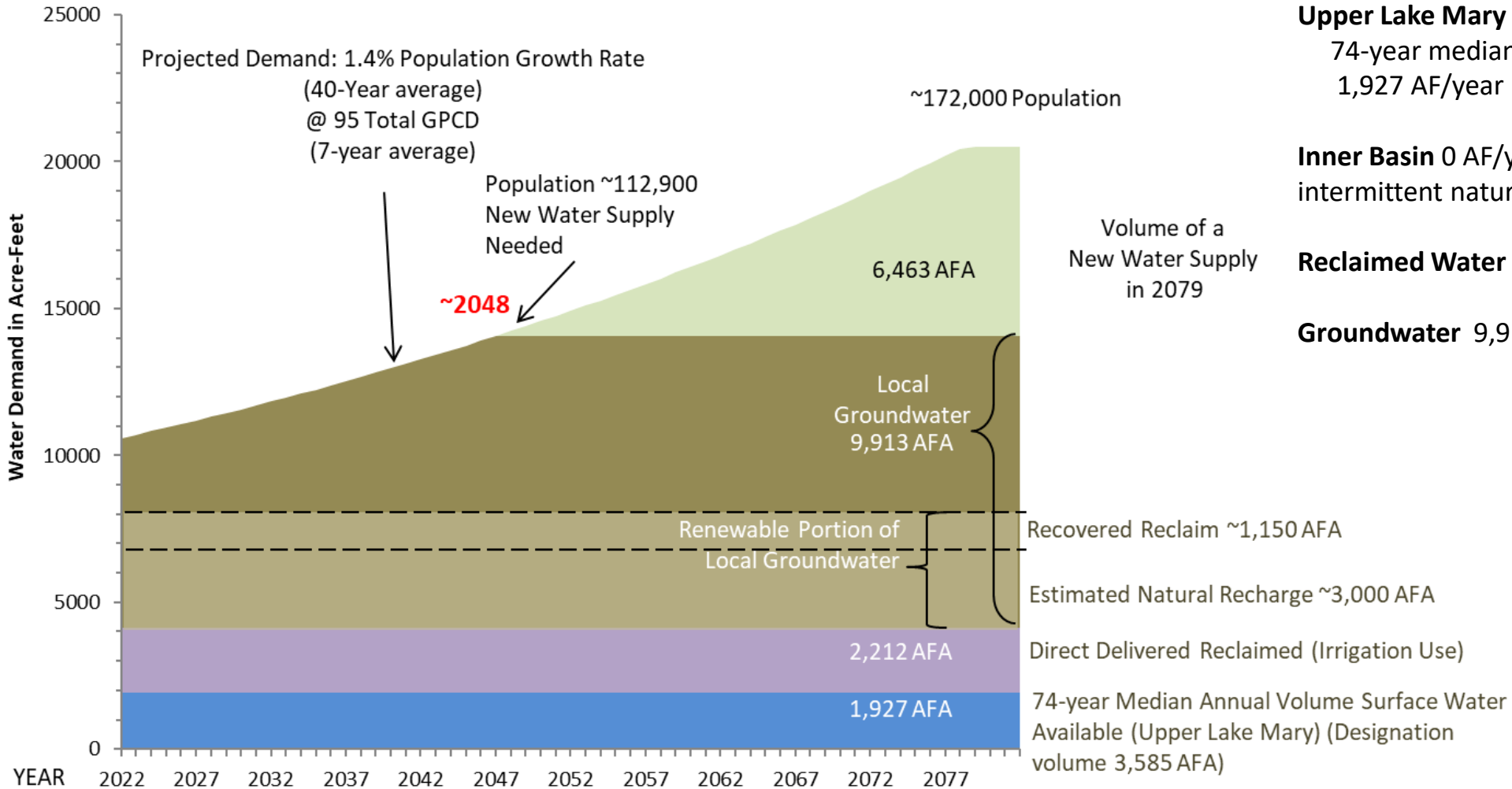
<u>Water Demands:</u>		<u>Water Supplies</u>	
2011 Current	10,460.84 AF/year	Groundwater	9,913 AF/year
2011 Committed	858.70 AF/year	Upper Lake Mary	3,585 AF/year <sup>1</sup>
2033 Projected	<u>3,520.00 AF/year</u>	Reclaimed Water:	<u>2,212 AF/year</u>
<b>TOTAL</b>	<b>14,839.54 AF/year</b>	<b>TOTAL</b>	<b>15,710 AF/year <sup>2</sup></b>
		Red Gap Ranch	<u>16,500 AF/year</u>
		<b>TOTAL:</b>	<b>32,210 AF/year</b>

Growth projections assumed at 1.2% per year



# City of Flagstaff - Water Resource Resiliency & Redundancy Scenario Basecase

Supplies are in acre-feet annually [AFA]



## Assumptions

### Upper Lake Mary

74-year median annual volume  
1,927 AF/year

Inner Basin 0 AF/year due to  
intermittent nature of supply

Reclaimed Water 2,212 AF/year

Groundwater 9,913 AF/year

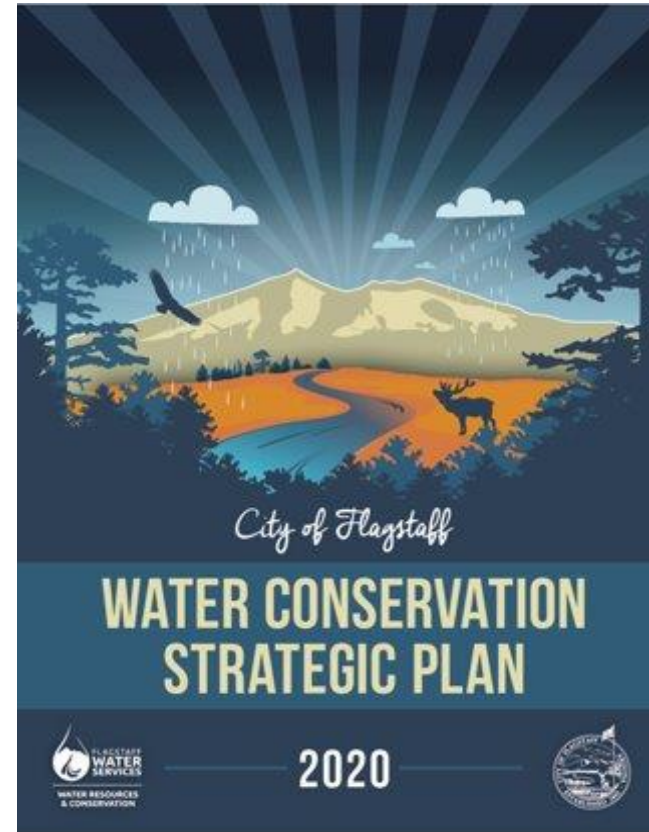
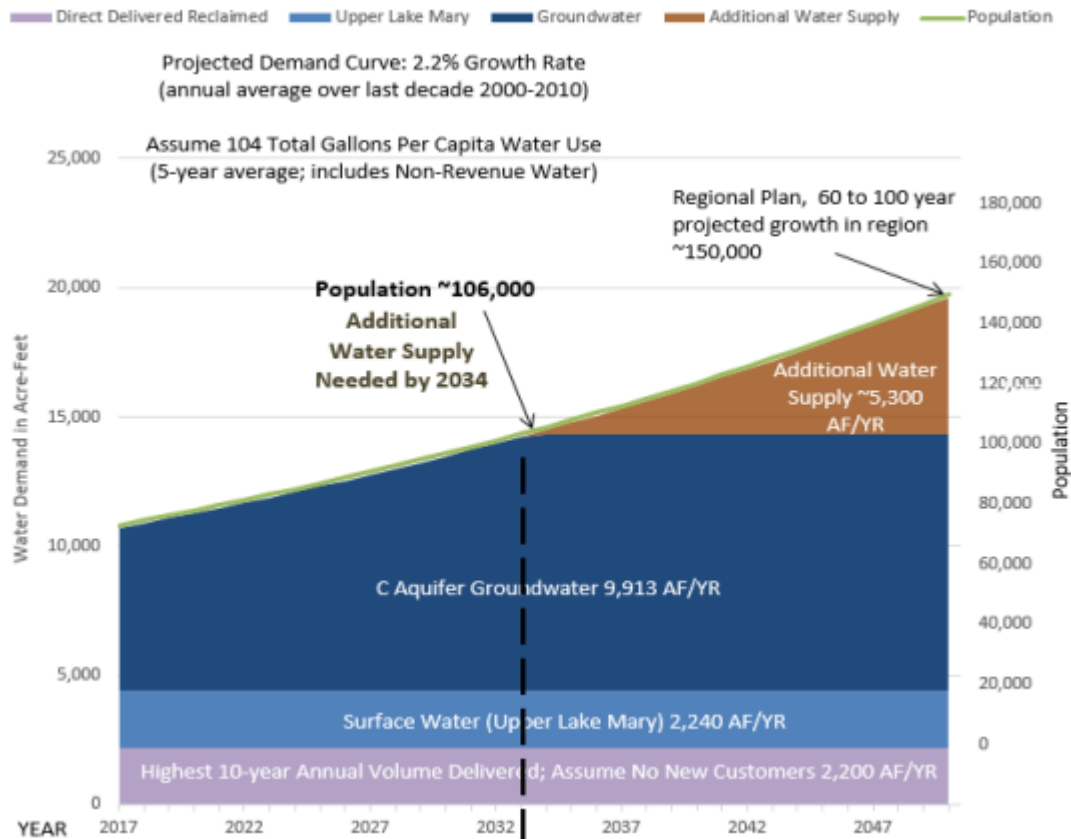




# Water Conservation Strategic Plan



## Decrease an additional 20 gallons per capita per day over 20 years - target a total 80 gpcd



COF Water Conservation Team with Chief of EPA WaterSense Program, Veronica Blette

EPA WaterSense Partner of the Year, 2024

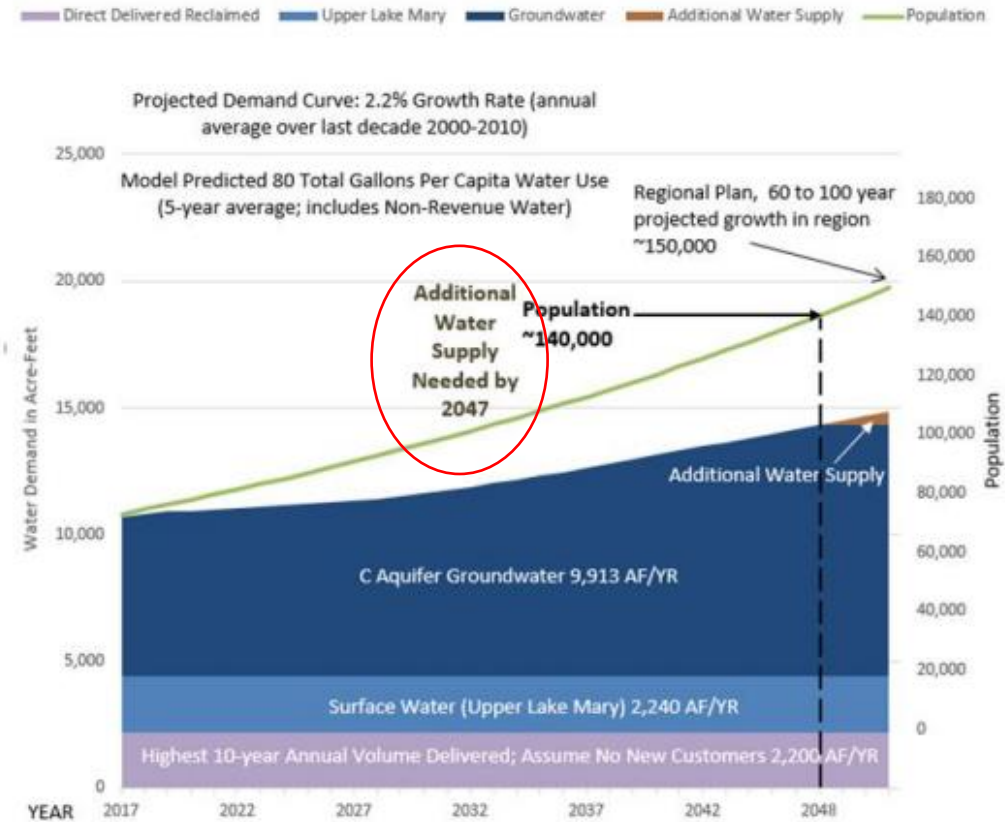
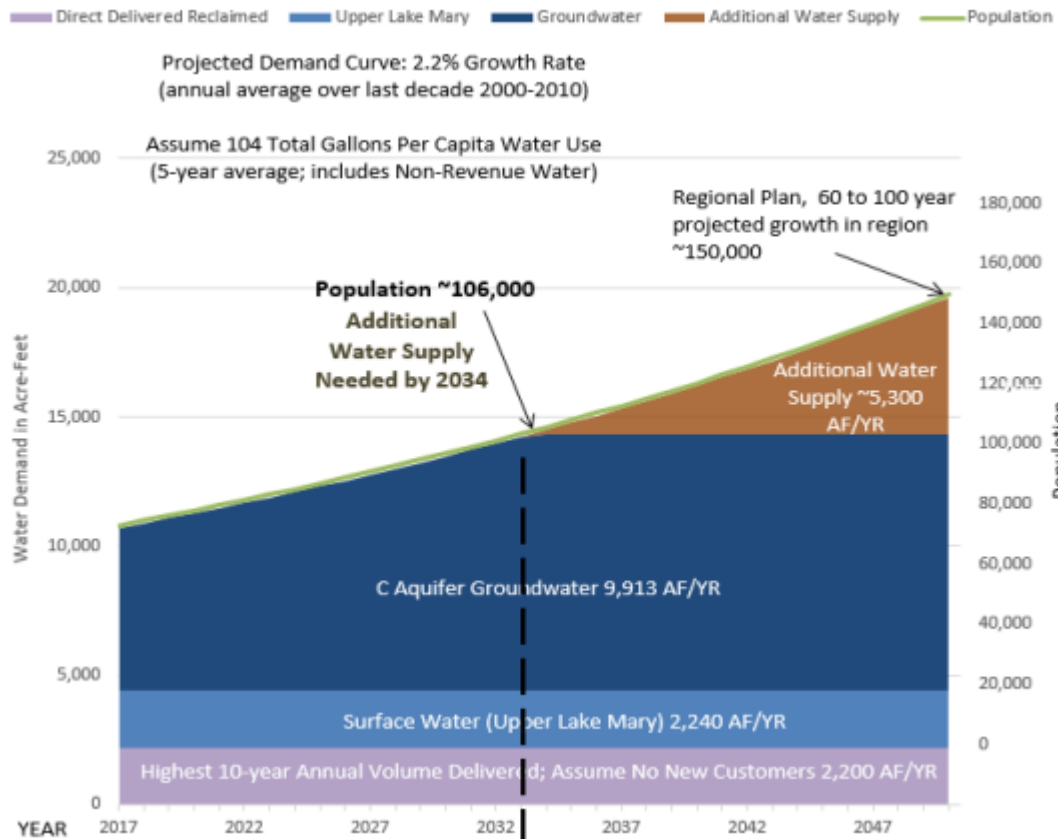
Basecase - No Additional Conservation



# Water Conservation Strategic Plan



## Decrease an additional 20 gallons per capita per day over 20 years - target a total 80 gpcd



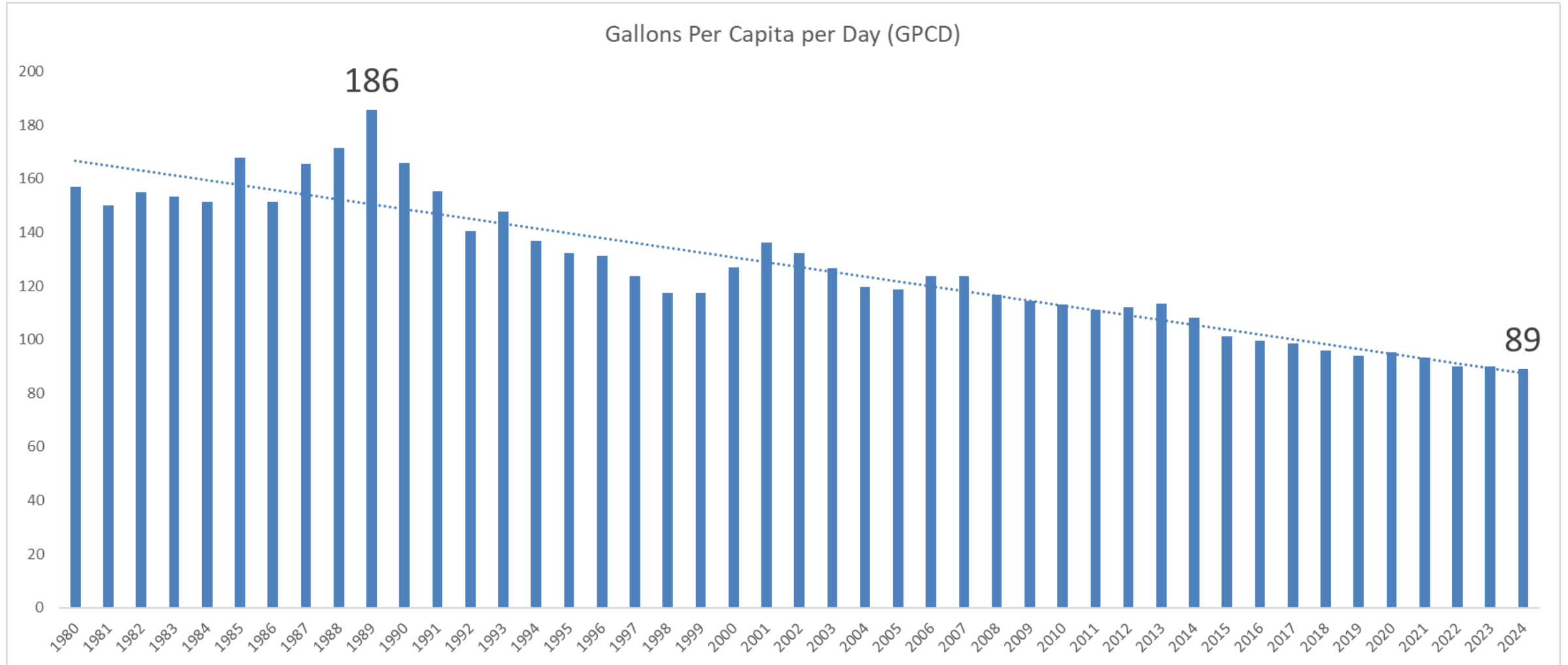
Basecase - No Additional Conservation

W/ Optimized Conservation Program

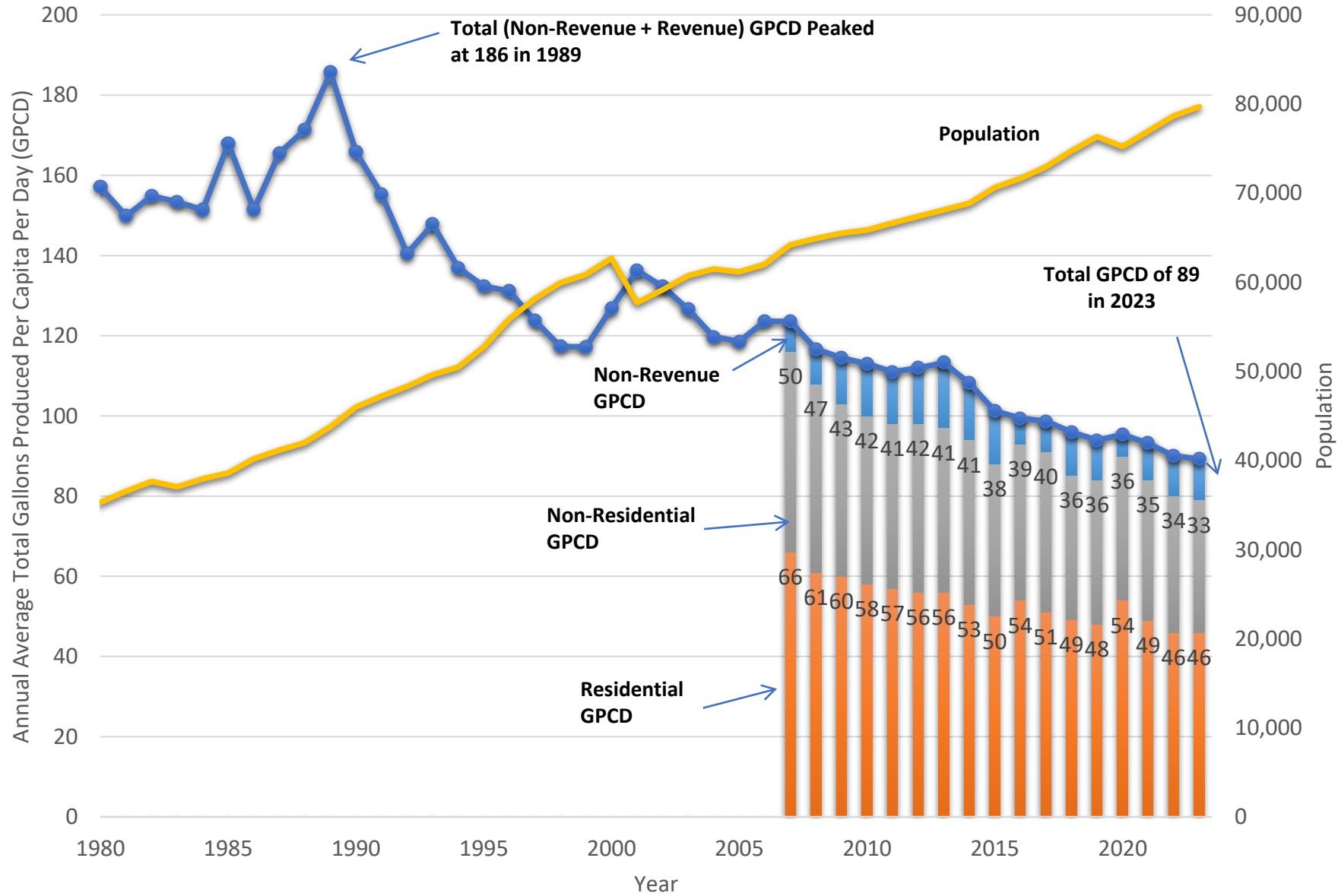


# Water Conservation

## Water Use Trends over time



# Water use trends 1980 - 2023





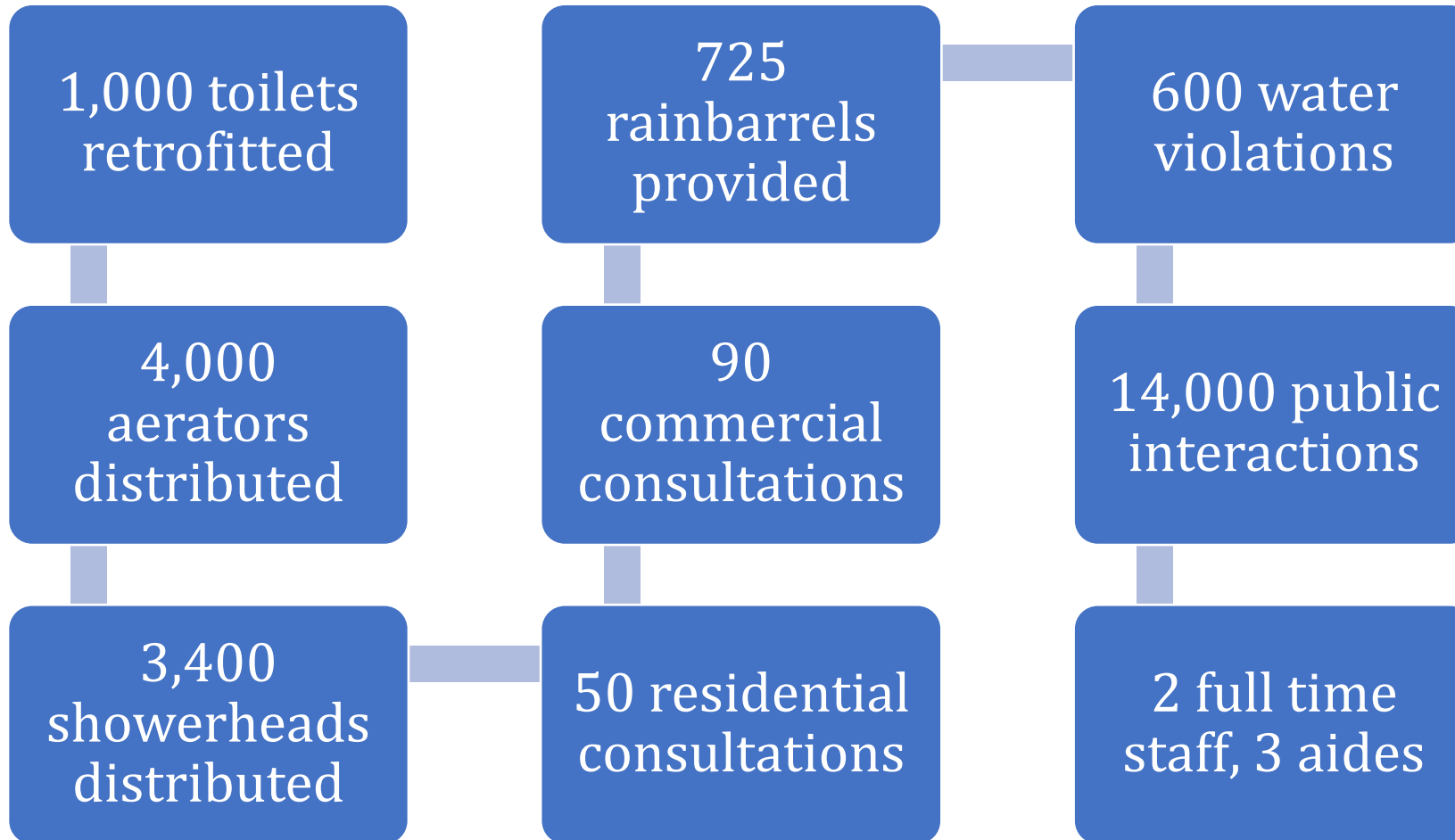
# Water Conservation Program

- 1988 Conservation Ordinance
- ~2003 Staff established
  - Ordinance revision to start doing conservation measures as the baseline condition
- 2020 Strategic Plan
  - Extensive public outreach process from 2018-2020
  - Cost benefit analysis of various actions
  - Council approval in December of 2020



# Water Conservation

## 2021-2024 stats





# Water Conservation

## Continued implementation of strategic plan

- Code changes
  - Upcoming revisions to the plant list / landscape guidelines
  - Consideration of WaterSense requirements for fixtures
  - Changes to how reclaimed water can be used
- Grant-funded income qualified leak repair and fixture retrofit program
- Grant-funded nonrevenue water audit program
- Observation of customer response to rate changes

# Questions?

Thank you!

