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Communities Division**
*with the APA Water and
Planning Network*



***At the Planning Corner
of Land-Use and Water:
Texas Edition***



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Sustain

October 15, 2018
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Today's Event

At the Planning Corner of Land Use and Water: Texas Edition

SPEAKERS:

Jennifer Walker

Senior Program Manager – Water Programs, National Wildlife Federation

James Foutz

Marketing and Conservation Manager, Georgetown Utility Systems

Teresa Lutes, P.E.

Managing Engineer, Austin Water

INTRODUCTION FROM:

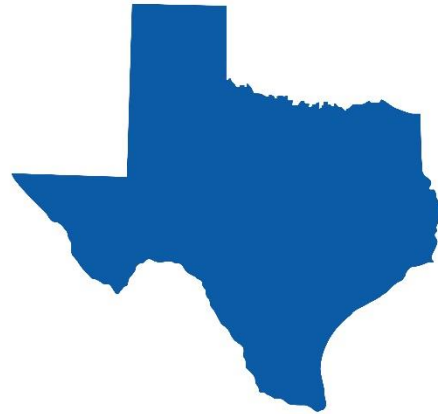
Kevin Kluge

Director of Conservation and Innovative Water Technologies,
Texas Water Development Board



Understanding One Water

At the Planning Corner of Land-Use and Water: Texas Edition
October 15, 2018



Jennifer Walker

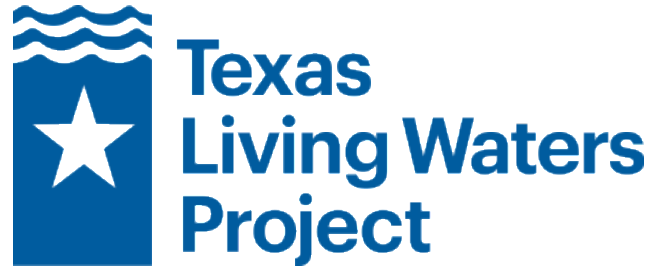
Senior Program Manager – Water Programs

National Wildlife Federation – South Central Region

The Texas Living Waters Project

We are a collaboration of conservation groups working to ensure fresh water will always reach its natural destinations.

For our wildlife, our economy and our kids.



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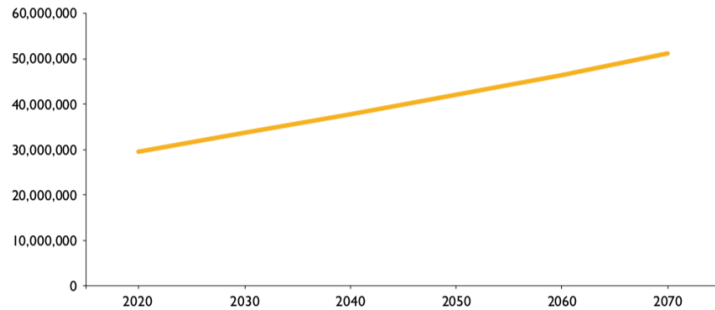


Why One Water?

We have Texas-sized Challenges

1. Texas is growing

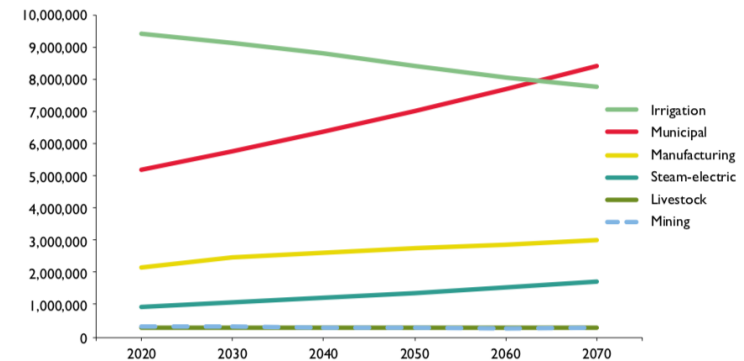
Figure 5.1 - Projected population in Texas



Source: TWDB, 2017 State Water Plan

2. Total water demand is increasing

Figure 5.5 - Projected annual water demand by water use category (acre-feet)



3. Climate variability



Drought

Flood



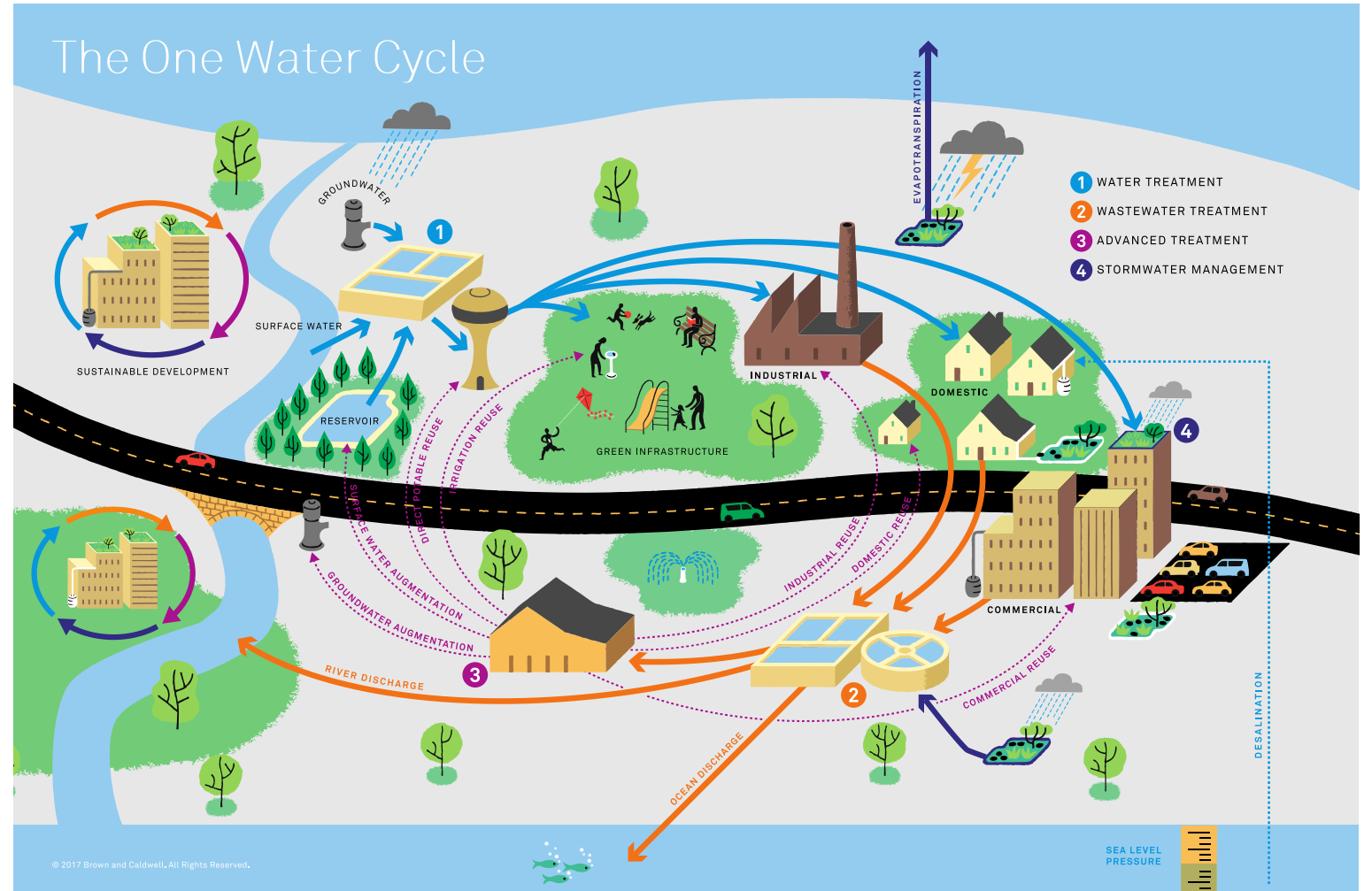
4. Infrastructure investment



What is One Water?

One Water is an integrated planning and implementation approach to managing finite water resources for both long-term resiliency and reliability, meeting both community and ecosystem needs.

WRF, 2017



Source: Blueprint for One Water, Water Research Foundation

One Water means doing things differently

Collaboration

Infrastructure

Stormwater

Built Environment

Water Demand

Technology & Innovation



One Water in Action: Austin's Central Library



Opened October 2017

Captures & stores AC
Condensate and
Rainwater

Used for non-potable
uses such as landscape
irrigation and toilet
flushing

Meets 95% of the
buildings water needs

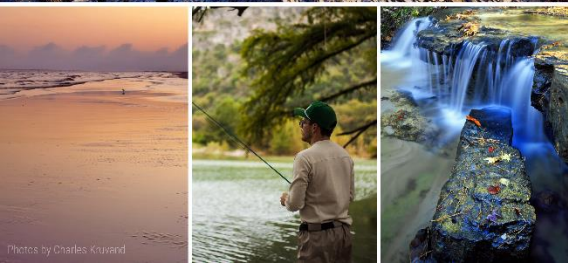


Thanks!



Transforming the way we manage water
so there will always be enough for
our wildlife, our economy and our kids.
texaslivingwaters.org

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Visit us at www.texaslivingwaters.org and sign up for our newsletter

Join the [APA Water and Planning Network](#) group on LinkedIn

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Managing Water Through Future Land Use

Overview

Background

Our water planning strategy

Water efficient land use

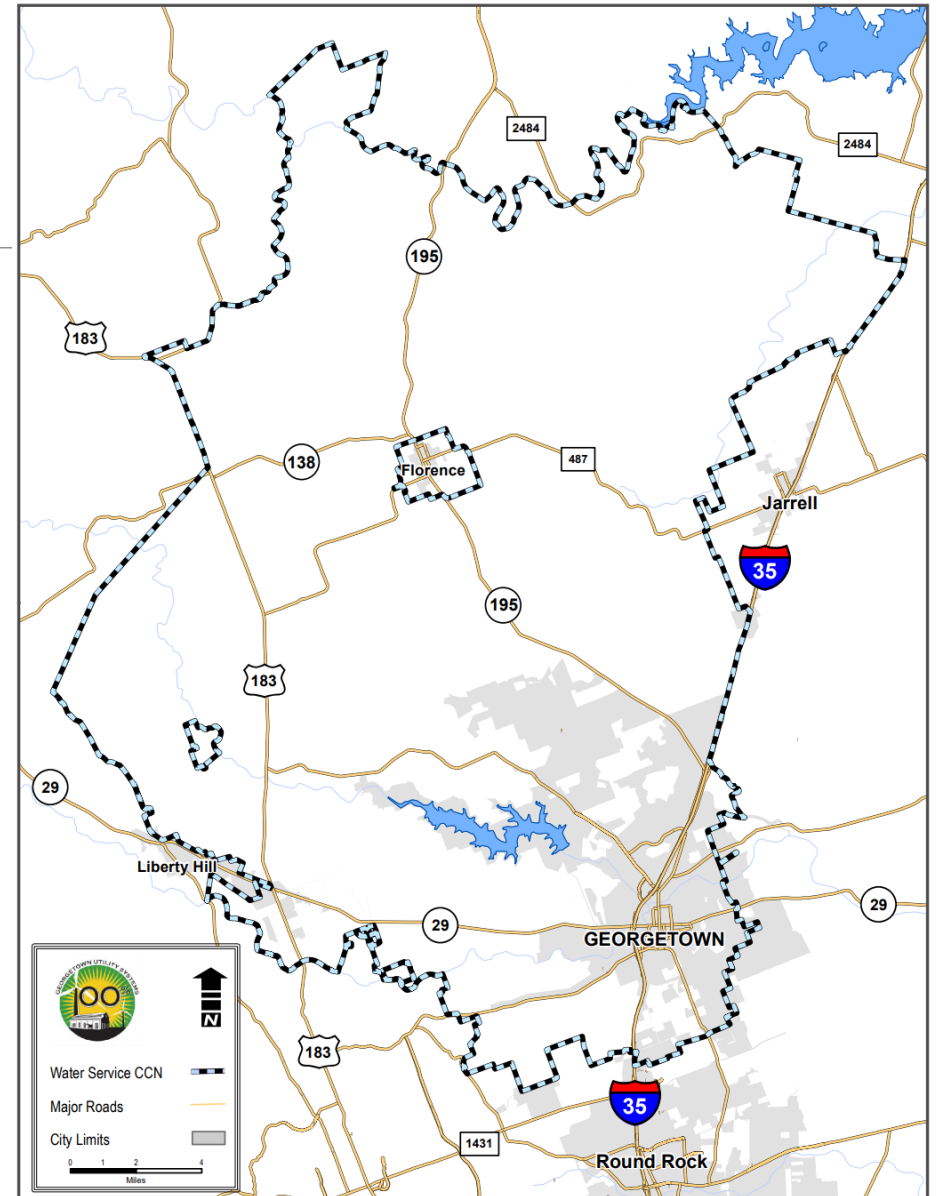
What's next for Georgetown

A little background

Georgetown is the northernmost suburb in the Austin MSA

City and ETJ currently has a population of over 80,000 people with future buildout being a little over 240,000 people

Our water utility also serves a large area outside of our city boundaries which is expected to be an additional 110,000 people

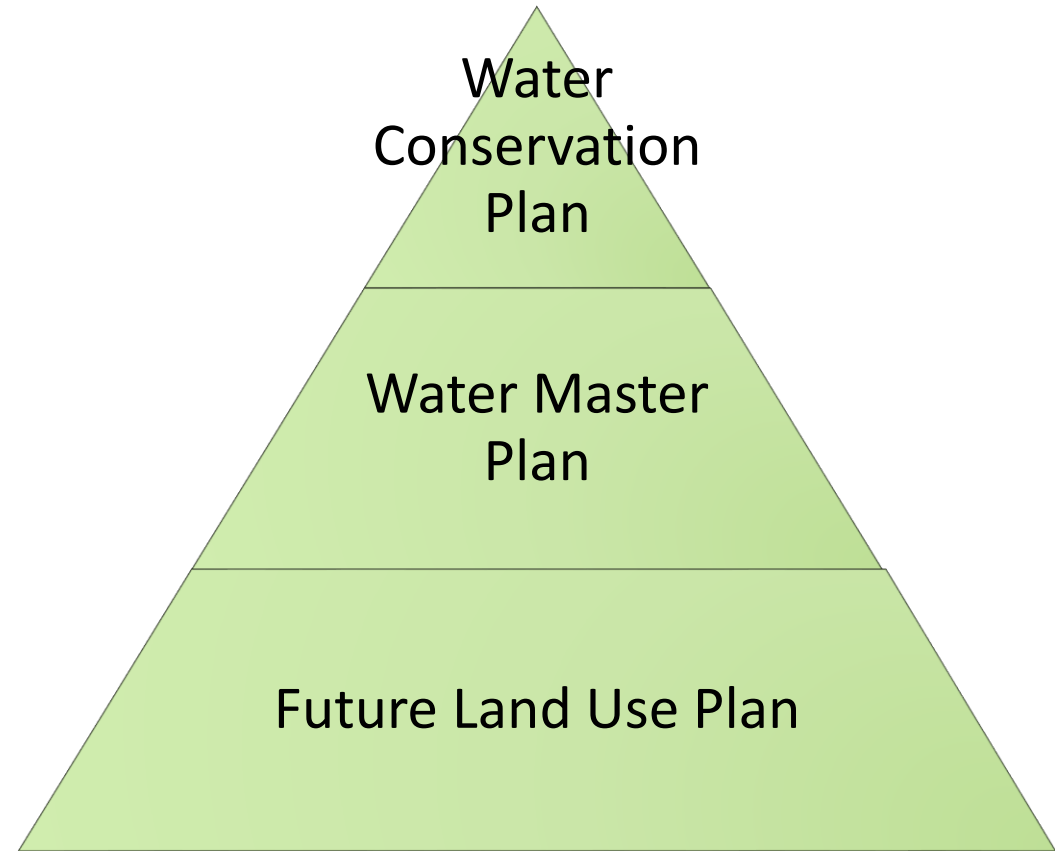


How our water planning efforts take shape

Future Land Use Plan makes up the base of the water planning efforts.

Water Master Plan takes the Land Use Plan and derives water requirements.

Water Conservation Plan then identifies the tactics to address the water requirements in the Water Master Plan.



A question of “Do we have enough?”

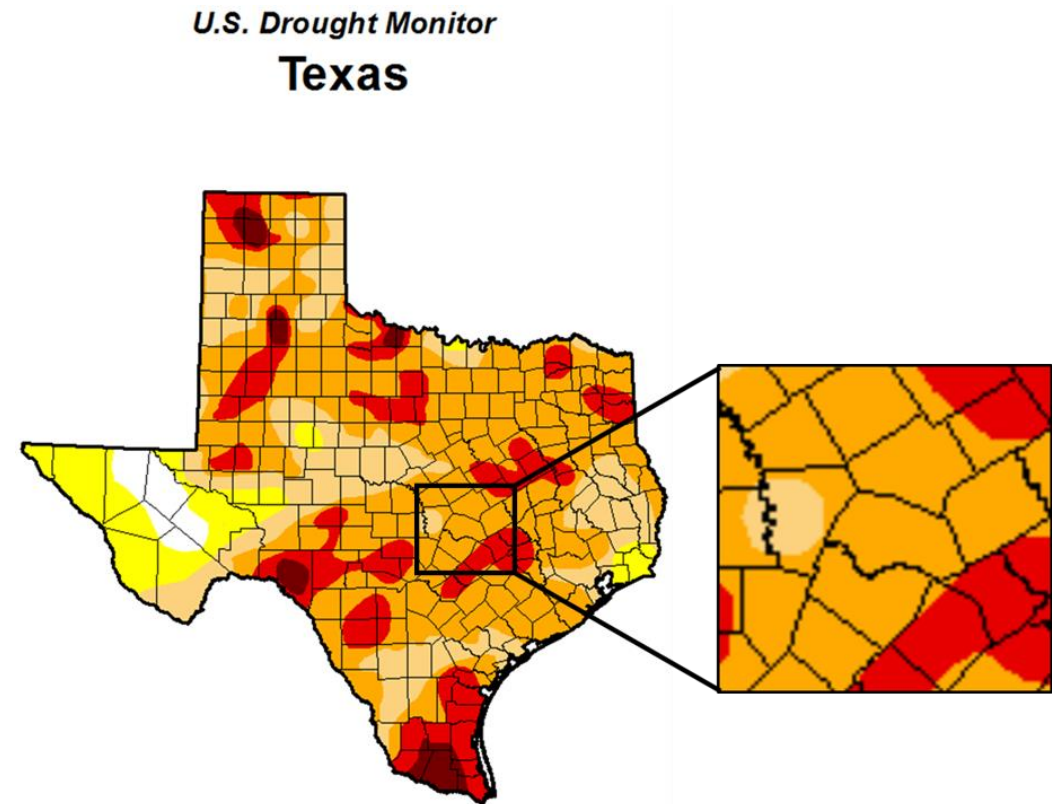
In 2013 we were still experiencing drought conditions.

2014 Water Master Plan showed a couple of things

- Plenty of water for today, but our growth would be constrained
- We needed our Gallons Per Capita Per Day (GPCD) use to be 160 gallons

Going into 2014, our GPCD was 218, which would limit our population growth to roughly 203,000

The 160 GPCD equated to roughly 1.2 billion gallons of water per year we would need existing residents to reduce consumption by



What were the options?

We would need to increase our supply

- Costly and limited

Constrain the ETJ Development Master Plan

Decrease Demand

- Passive Conservation Elements
 - Traditional education and incentive programs
- Active Conservation Elements
 - Water Use Restrictions
 - Landscape Requirements on New Construction
 - Rate Structures



Why focus on new construction?

Came down to a math problem

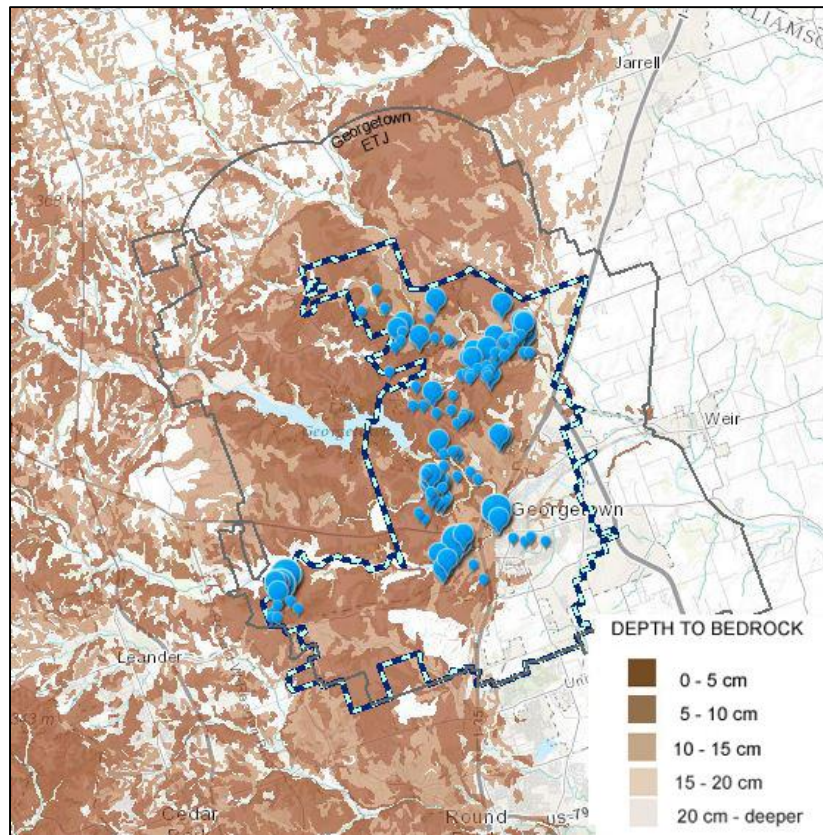
- We needed to come up with a strategy to reduce our water use for existing residents, and for residents who won't be here for another decade or more
- 60,000 (existing) + 180,000 (future) = 240,000 final buildout
- Incentives and education requires us to save the same gallons over and over again, which takes a lot of time and money

Ordinance requirements would allow us to reduce the water requirements that a landscape would need

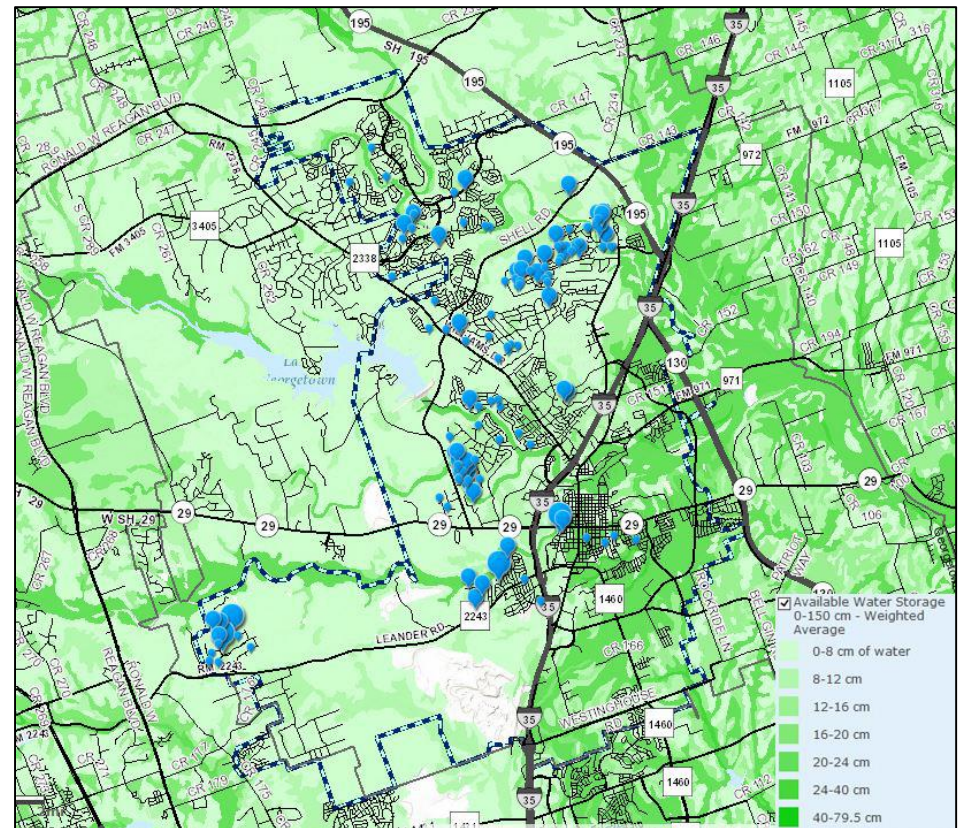
- Plant and Turf Grass Limitations
- Soil Depth Requirements
- Irrigated Space Limits

Soil Depth Issue

Depth to Bedrock



Average Moisture



Soil Depth Issue

It was common to see developments build landscapes with very little topsoil, and this causes a couple of issues both for the homeowner, and the city:

- The soil reaches its moisture capacity quickly, which leads to runoff
- The soil also can't hold enough water to keep from drying out daily in the summer months

Six inches of soil depth, provides the moisture capacity to help solve both of those problems.

It comes at a cost for the builders...

	¼ Acre	½ Acre	1 Acre
3" on Full Lot	\$3,136	\$6,272	\$12,544
3" On Limited Irrigation Area	\$ 1,080	\$ 1,440	\$ 2,160

Irrigated Space Limits

This component potentially yields the greatest long term benefit

Our average lot size in 2014 was 11,736 sqft...In 2018 it was 11,071.

Lot Size	Avg Building Footprint	Max Irrigated Area Before Change	Max Irrigated After Change	Difference in Water Requirement per Week
11,071 sqft (just over ¼ acre)	2,700 sqft	8,371 sqft	6,750 sqft	1,010 gallons
¼ Acre	2,700 sqft	8,190 sqft	6,750 sqft	897 gallons
½ Acre	3,500 sqft	18,820 sqft	8,750 sqft	5,937 gallons
1 Acre	4,000 sqft	40,060 sqft	10,000 sqft	18,415 gallons

Landscape Requirements

A minimum of six inches of soil depth before landscaping.

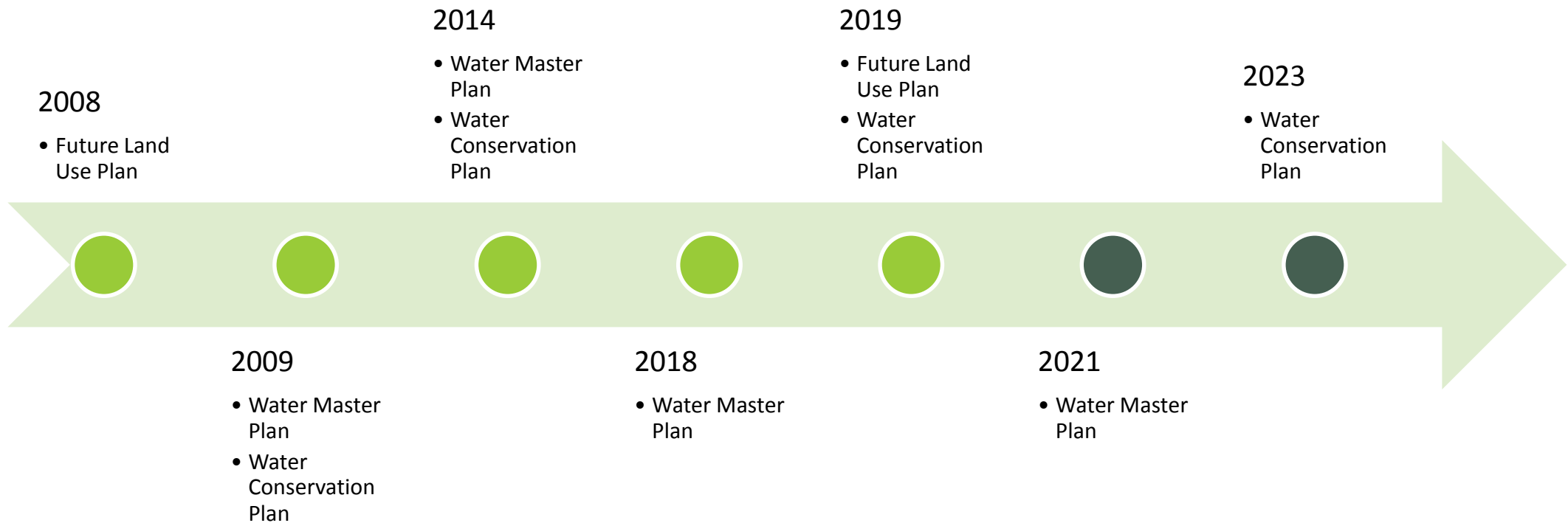
- This does not apply to areas unaffected by construction, or remaining in their natural state

New plant materials need to be selected from the Georgetown Preferred Plant List

New lawn or turf grass can only be 2.5 times the building footprint or 10,000 square feet, whichever is smaller

- Saint Augustine turf is restricted to areas with 10 inches of soil depth, or less than six hours of full sun

What's Next



Questions?

James Foutz

Marketing and Conservation Manager

Georgetown Utility Systems

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WATER FORWARD

INTEGRATED WATER RESOURCE PLAN

Water and Planning Network

October 15, 2018



Water Forward

Integrated Water Resource Plan (IWRP)

- Austin Water is leading interdepartmental effort in developing a 100 year water plan that reflects our community's values
- Council-appointed Task Force meets monthly
- Community outreach throughout the plan development process
- Plan to be completed in 2018 with updates on a five year cycle
- Goal: Ensure a diversified, sustainable, and resilient water future, with strong emphasis on water conservation

Drivers for Austin's IWRP

2007 - 2016
Extreme
Drought

Population
Growth
&
Development

Climate
Change
Impacts on
Supply
Reliability

Alignment
with
Community
Values

Austin's Water Supply

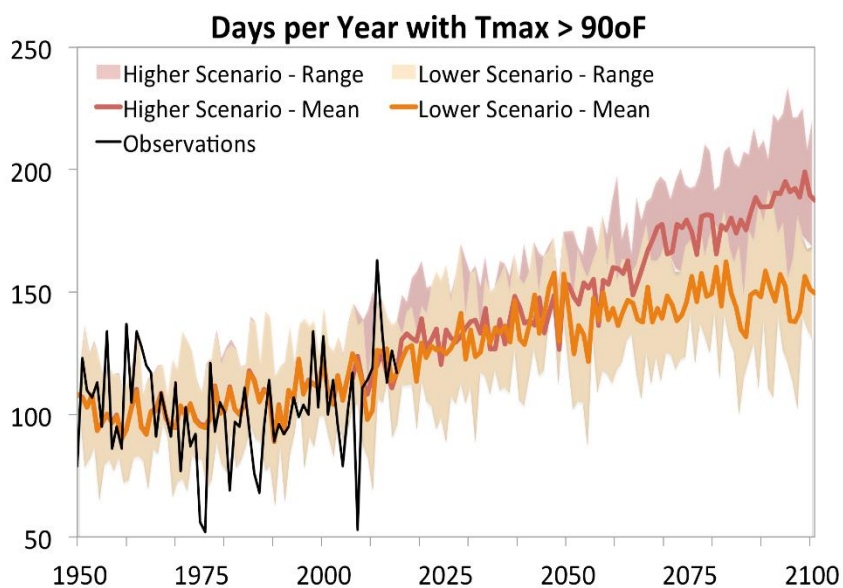
- Colorado River and Highland Lakes
- Combination of state-granted water rights & long-term firm contract with Lower Colorado River Authority (325,000 acre-feet per year)
- Austin's municipal river diversions for 2017 were ~149k AF



A Changing Climate in Austin

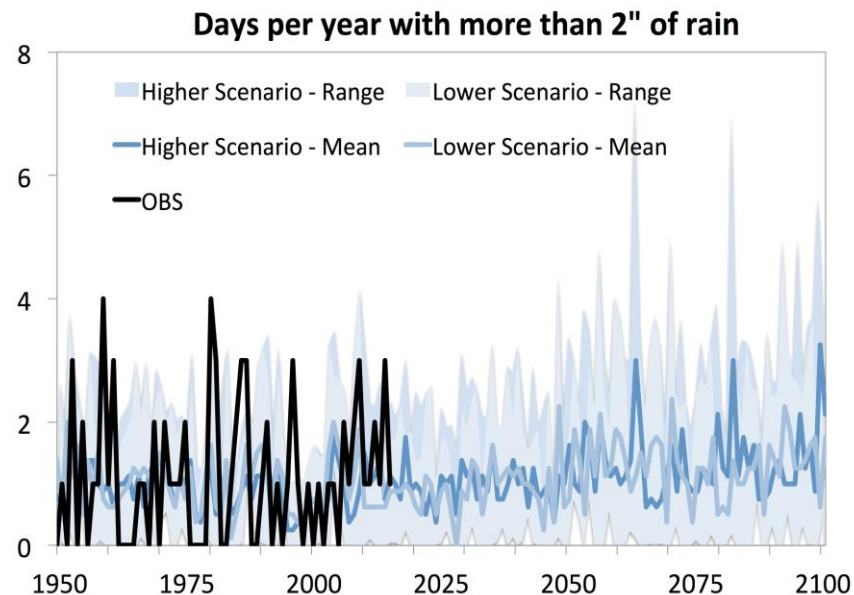
Higher temperatures

- Projected temperature increases
- Higher evaporation and increased drought intensity

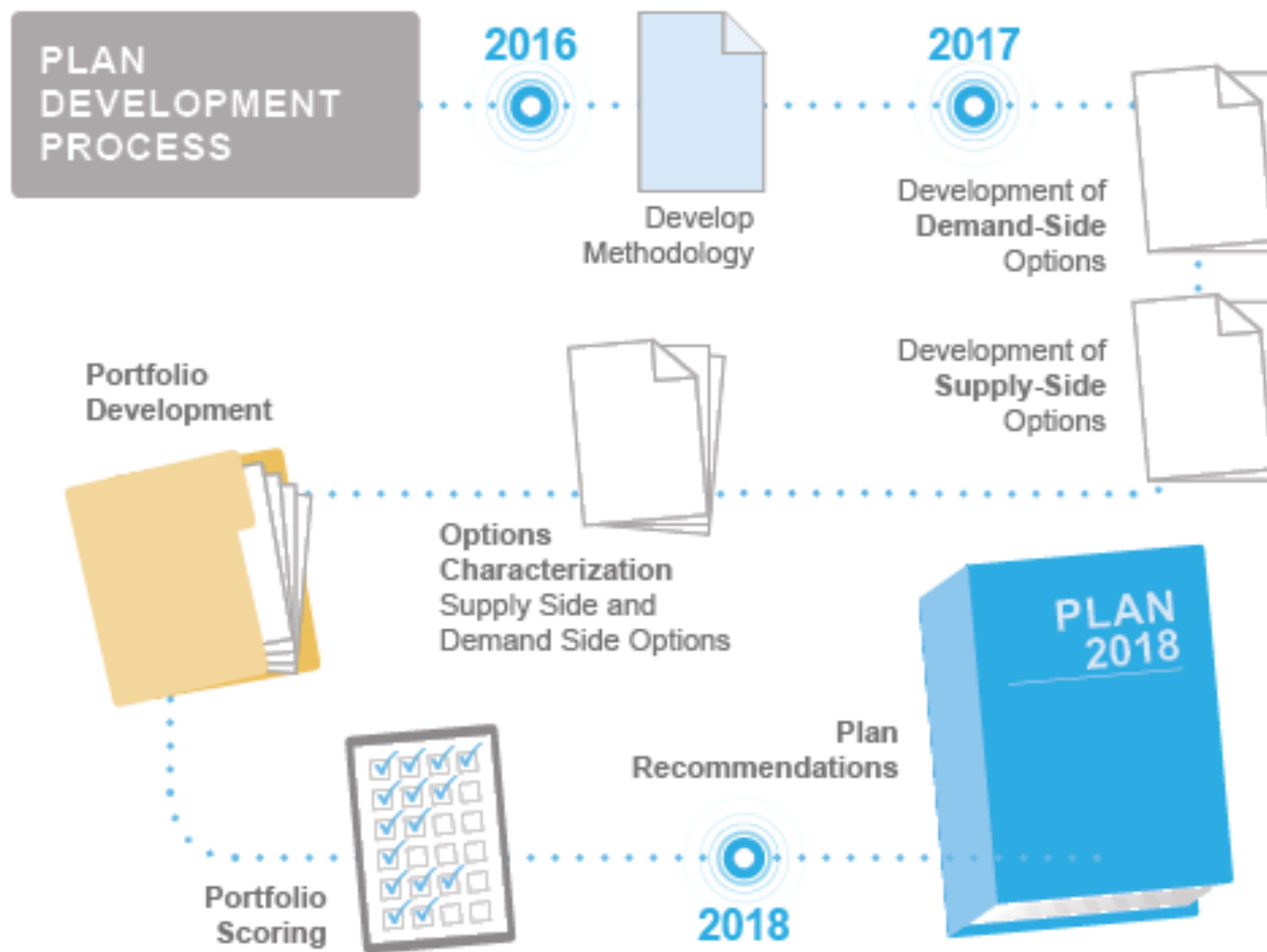


Increases in heavy precipitation

- Projected increases in magnitude and number of heavy rain events



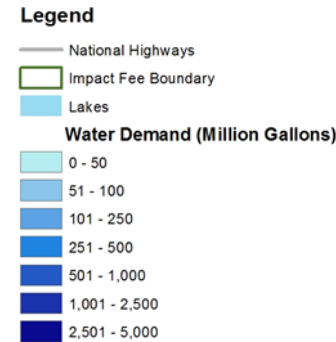
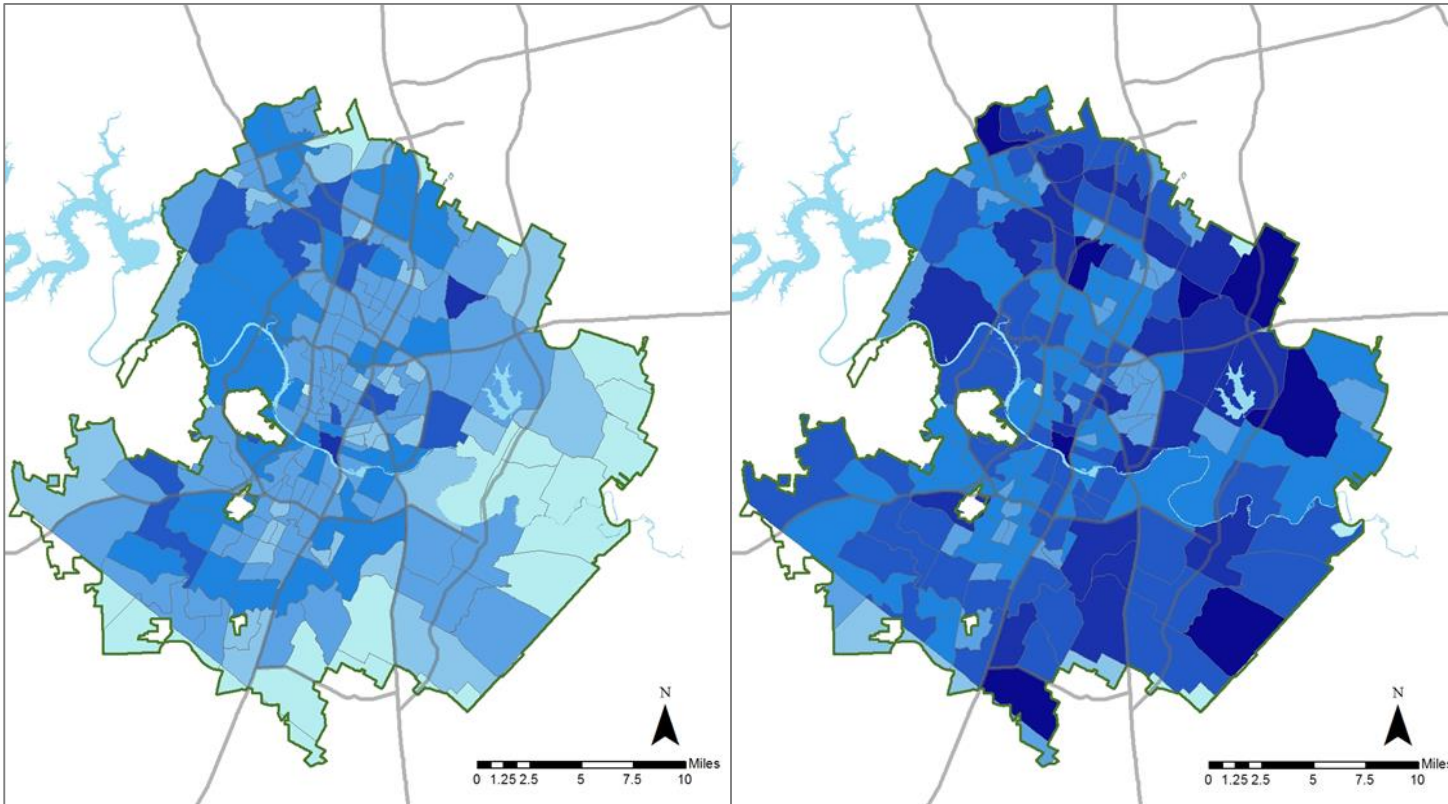
IWRP Development Process



Disaggregated Demand Modeling

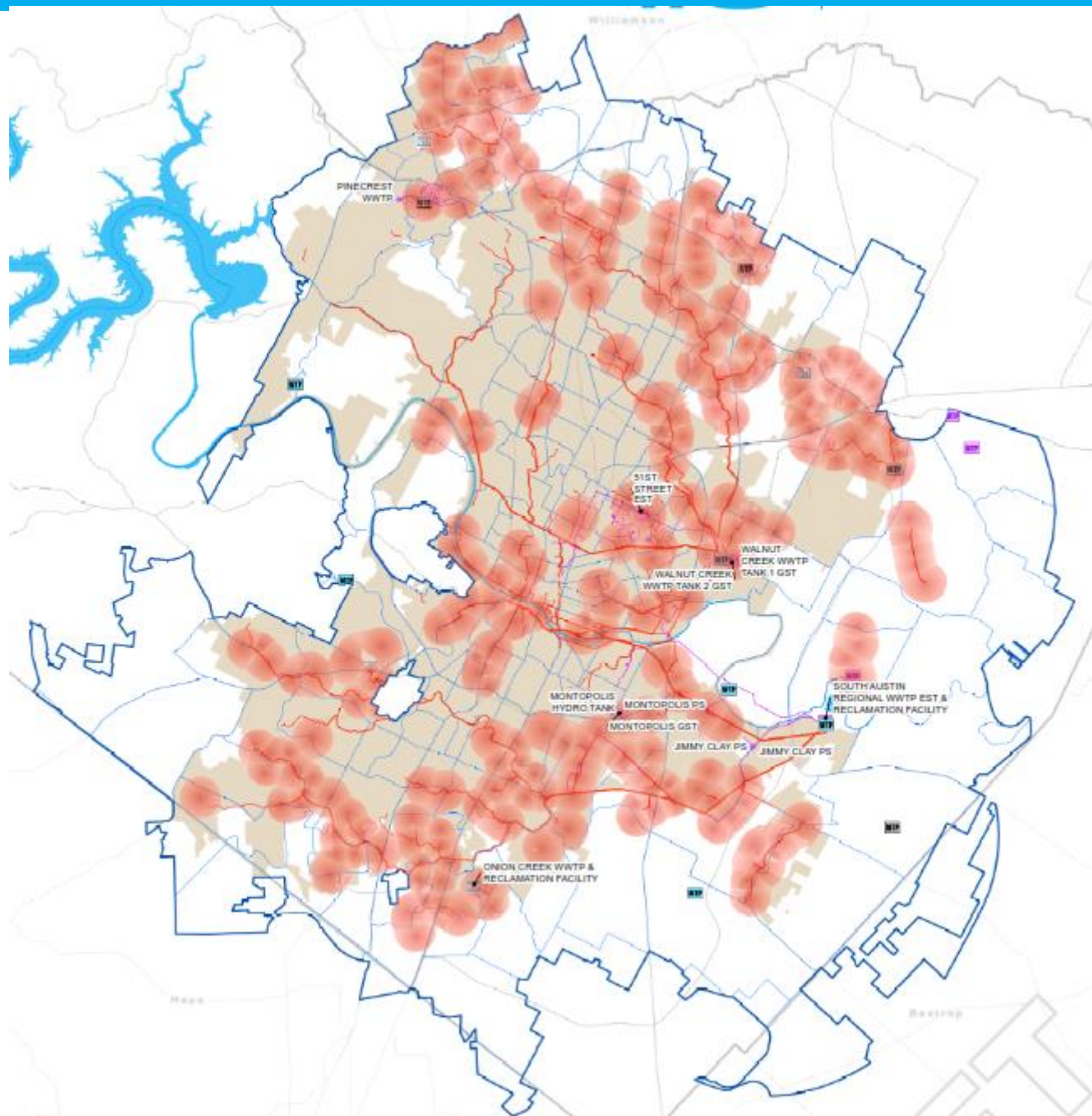
Baseline Water Demand - 2020

Baseline Water Demand - 2115



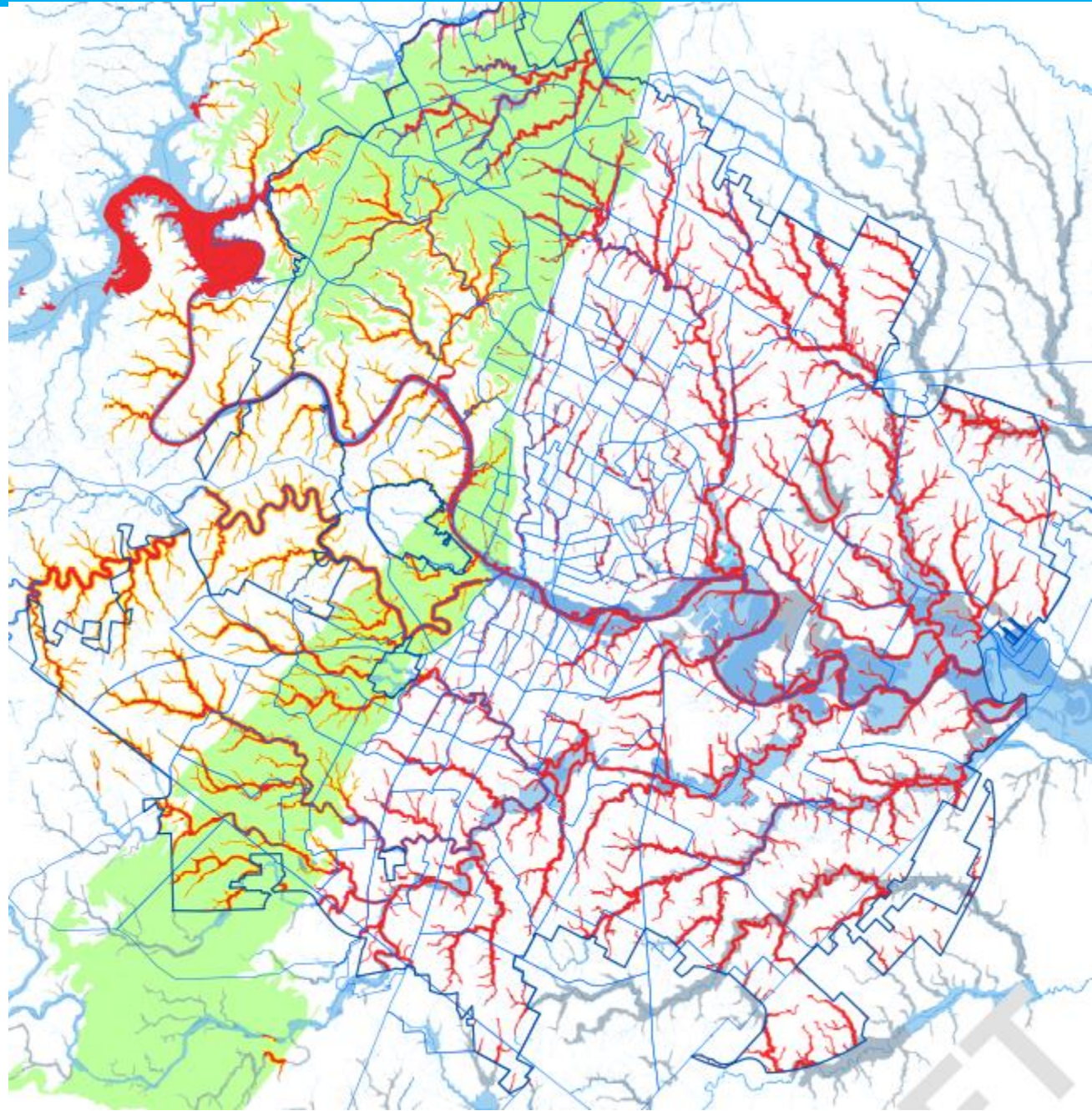
Decentralized Options Vary By Geography

Example: All potential
opportunities



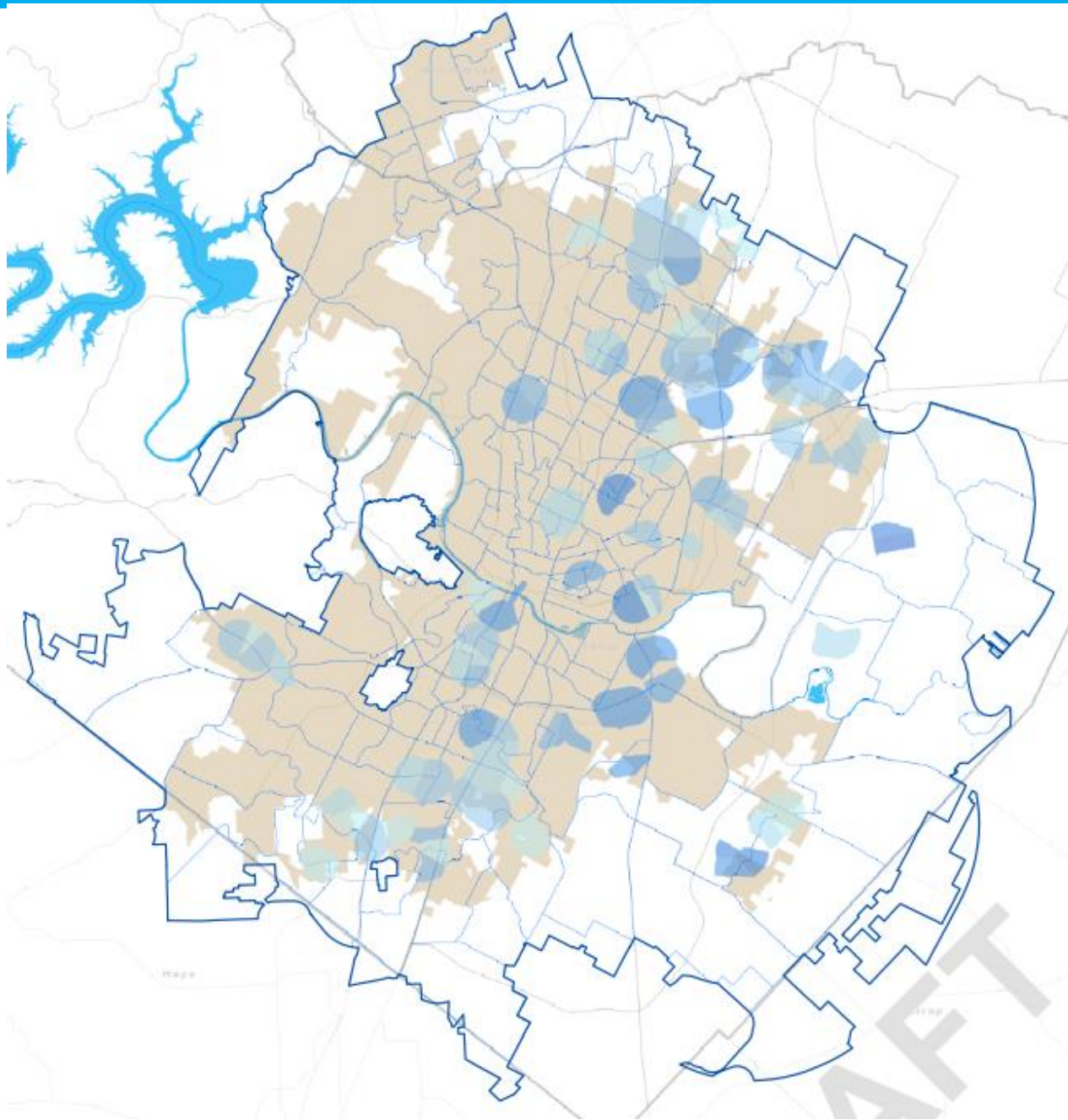
Decentralized Options Vary By Geography

Example: Environmental
constraints



Decentralized Options Vary By Geography

**Example: Potential
opportunities after
taking environmental
constraints into account**



Draft Plan Recommendations

Strategies from Hybrid 1

Demand Management

Implement Advanced Metering Infrastructure (AMI)

Enhance distribution system water loss control

Provide customer water use benchmarking information and implement water budgets

Transform to regionally appropriate landscapes

Expand irrigation efficiency incentives

Water Supply

Store water for drought via Aquifer Storage and Recovery and a new Off Channel Reservoir

Bring on additional supplies via Brackish Groundwater Desalination

Expand the Centralized Reclaimed Water System

Use Indirect Potable Reuse as a deep drought strategy

Capture local inflows to Lady Bird Lake

Use on-site and neighborhood scale alternative water sources for non-potable end uses
Rainwater, Stormwater, Wastewater, Graywater, and AC Condensate

Decentralized

Upcoming and Next Steps

- Continue outreach
- Seek City Council adoption of plan
- Post plan adoption, AW will begin implementation, monitoring, and potential adaptation of strategies
- Near term activities will include:
 - Development of codes and ordinances
 - Dual Plumbing
 - Alternative Water Use
 - Development of incentive programs
 - Landscape Transformation
 - Irrigation Efficiency
 - Aquifer Storage and Recovery Pilot
 - Indirect Potable Reuse planning



Next Steps



New City of Austin Planning and Development Center to include onsite blackwater reuse pilot facility

Thank You

austintexas.gov/waterforward

WATER FORWARD



Austin is one of the fastest growing cities in the country. With a rapidly growing city and a changing climate, Austin Water is working with other city departments, a Council-appointed citizen Task Force, and the community to develop a water plan for the next century.

The goal of the Water Forward plan is to ensure a diversified, sustainable, and resilient water future, with strong emphasis on water conservation. This plan will consider a range of strategies such as water conservation, water reuse, aquifer storage and recovery (ASR), and others.

TOP CONTENT

- [Water Restrictions](#)
- [Water Conservation](#)
- [Reclaimed Water Program](#)
- [Residential Customer Service](#)
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CONTACT INFO

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