Water Forward 2024 Population and Employment Projections

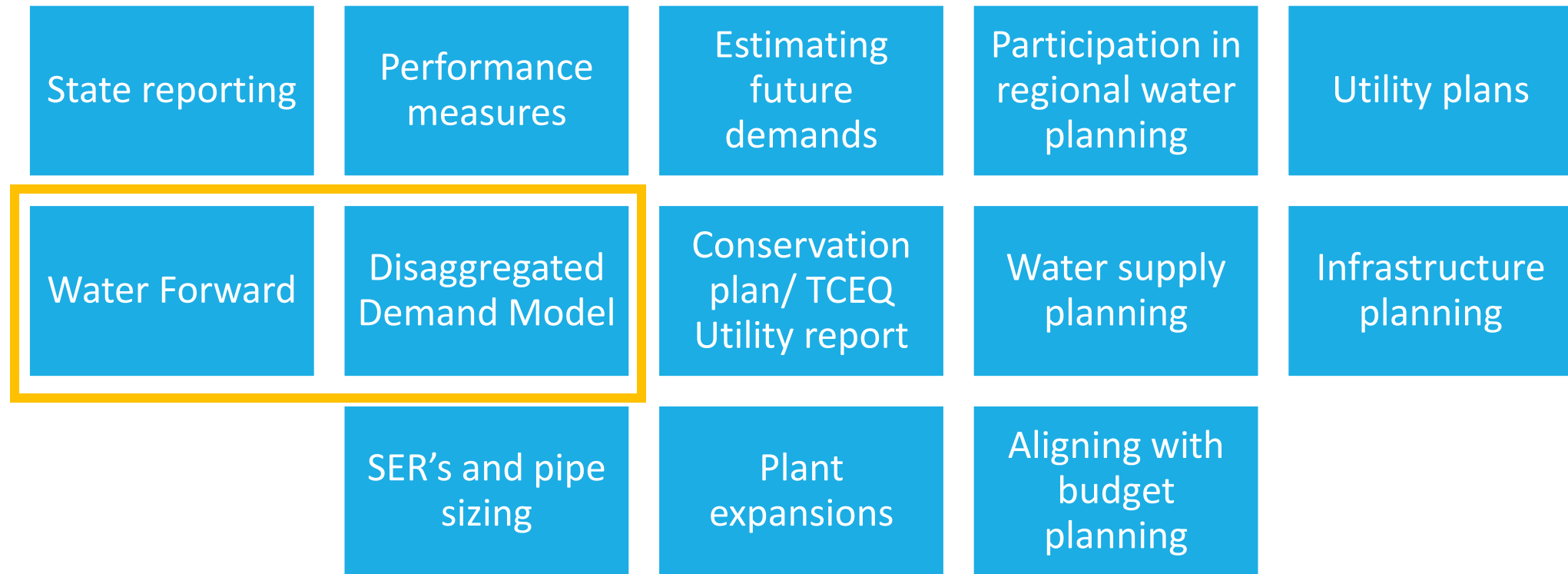Austin **WATER**

CITY OF AUSTIN

Agenda

- How Population and Employment Projections are Used in Water Forward 2024
- Process to Develop 2020 Population and Employment Estimates
- Process to Develop 100-year Projections
- Next Steps

How Population and Employment Projections are Used in Water Forward 2024

AW Population & Employment Estimates are used in:

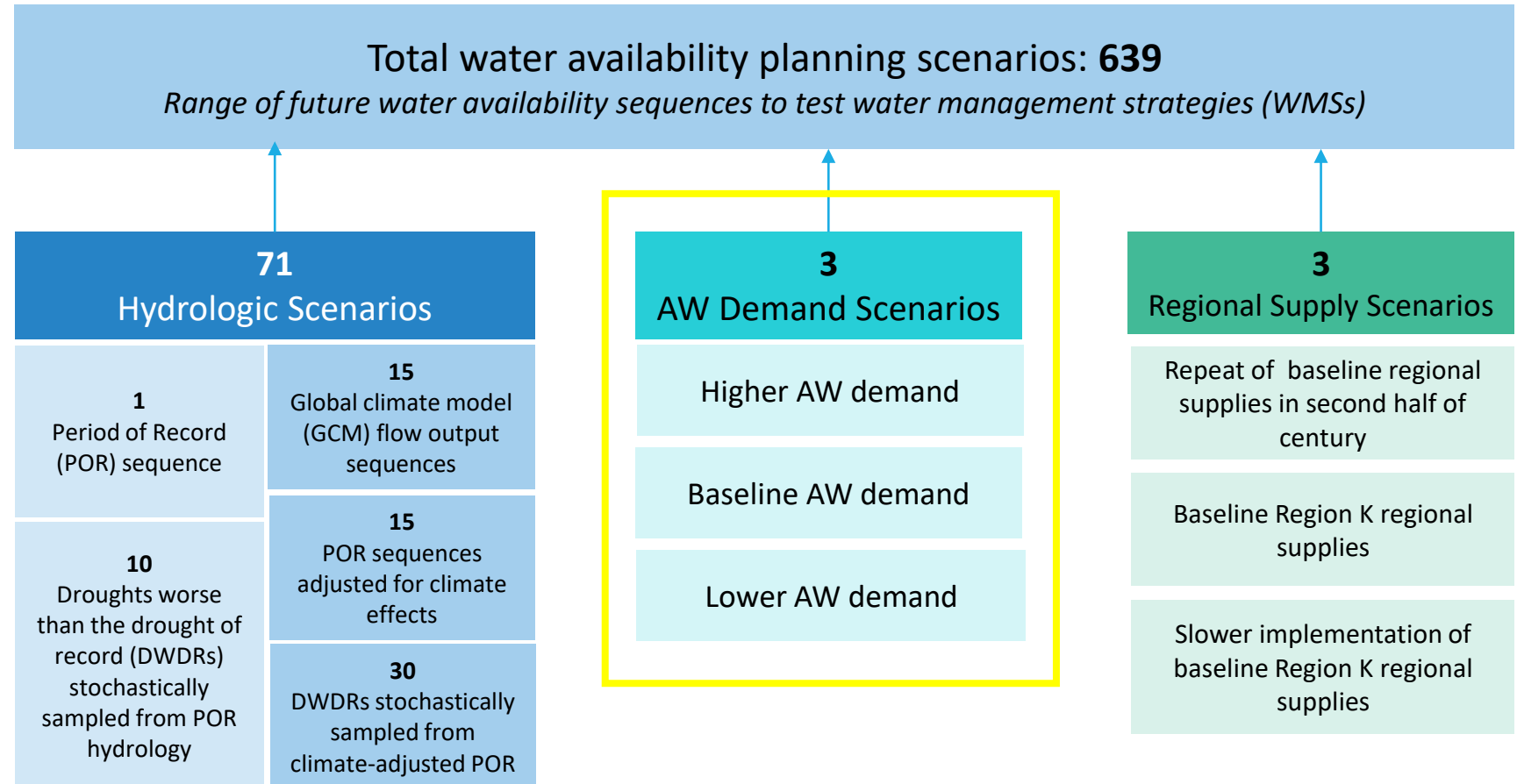|				
State reporting	Performance measures	Estimating future demands	Participation in regional water planning	Utility plans
Water Forward	Disaggregated Demand Model	Conservation plan/ TCEQ Utility report	Water supply planning	Infrastructure planning
	SER's and pipe sizing	Plant expansions	Aligning with budget planning	

Pop/Emp Projections in WF24

- 100-year strategic planning
  - Greater accuracy may be possible to attain for the first 10-20 years
  - Greater uncertainty in terms of geographic resolution and distribution for later years
- Projections in this Water Forward update will include use of ranges
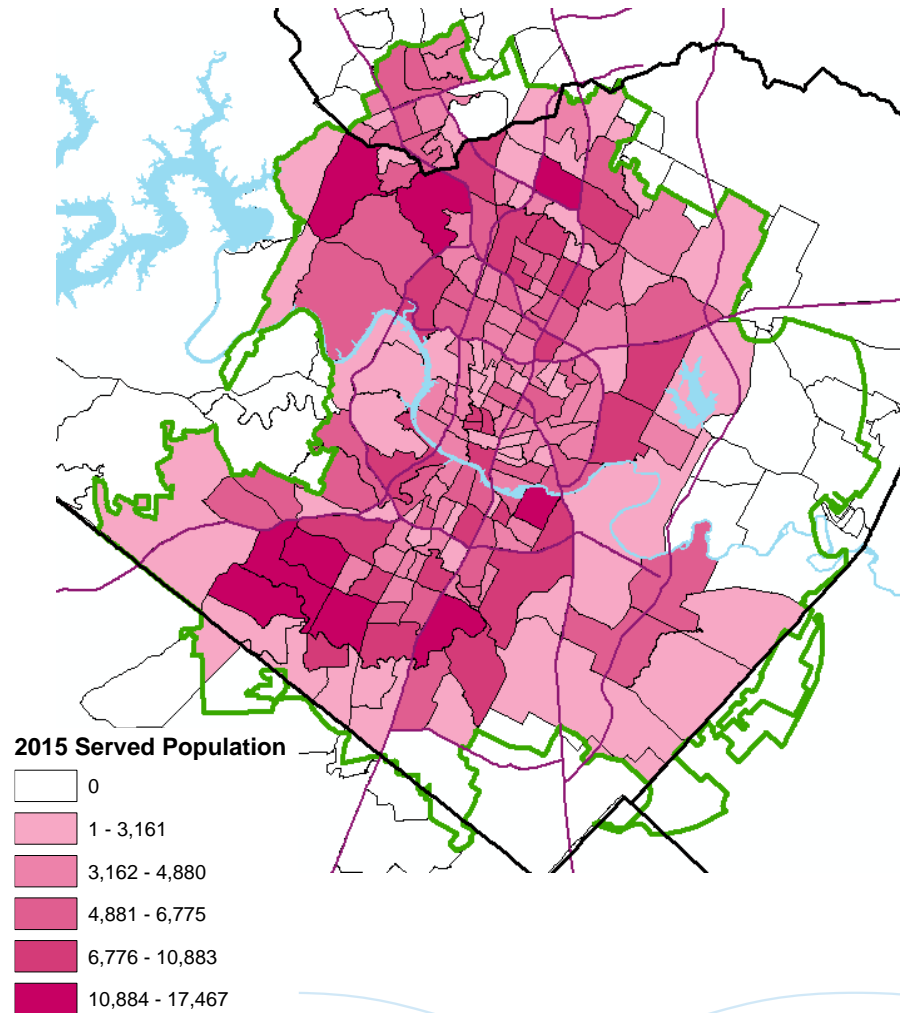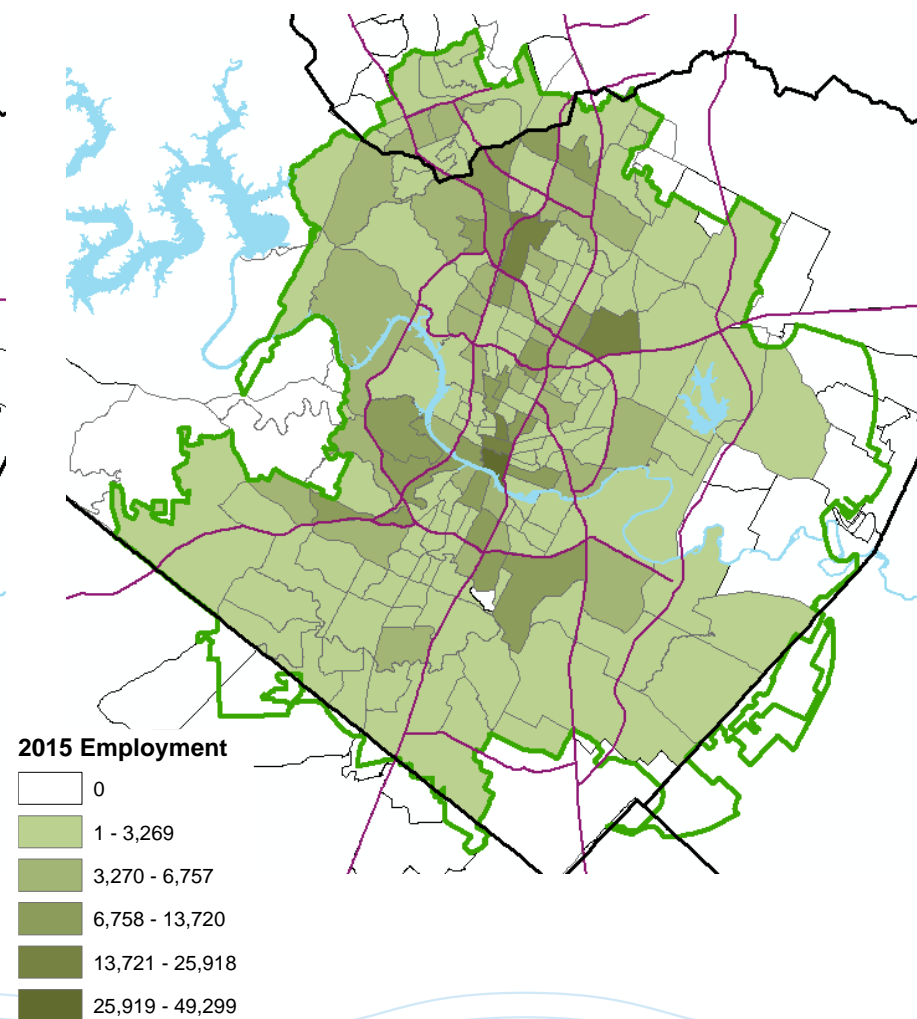
Overview of planning scenarios

- Water availability planning scenarios allow us to plan for a range of possible future conditions.

- The scenarios do not represent the probability of any particular outcome.

- Historical population and employment show a huge range of growth rates; use the data to establish an envelope of plausible demands.

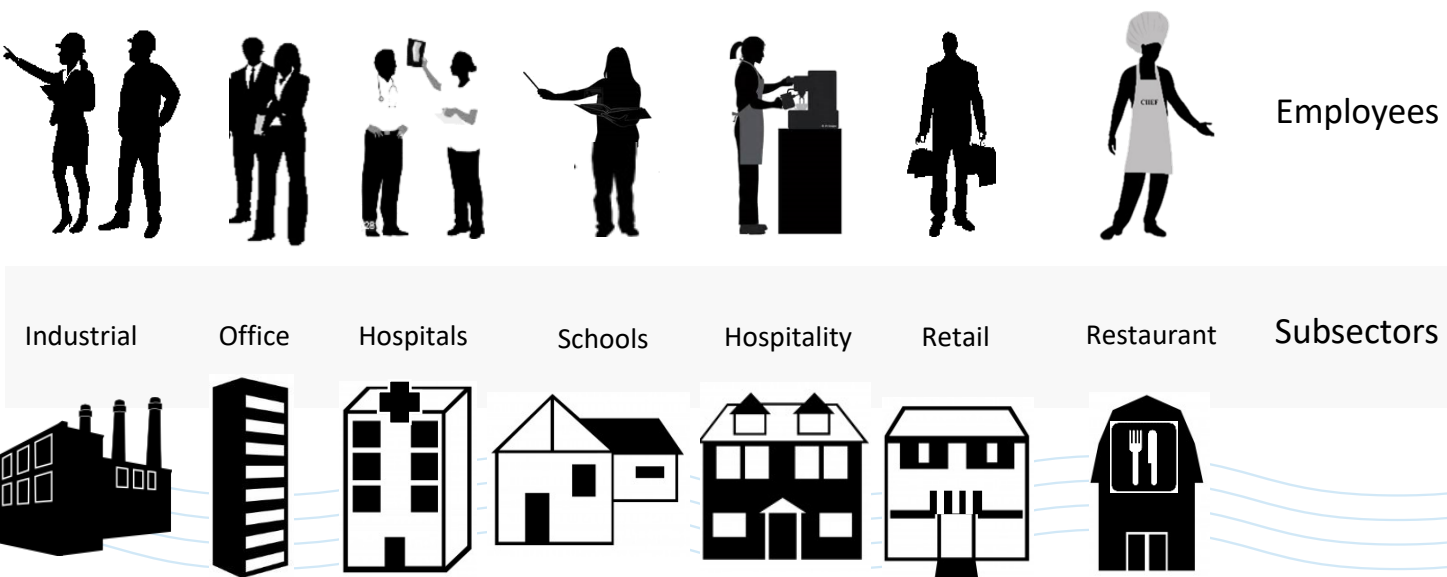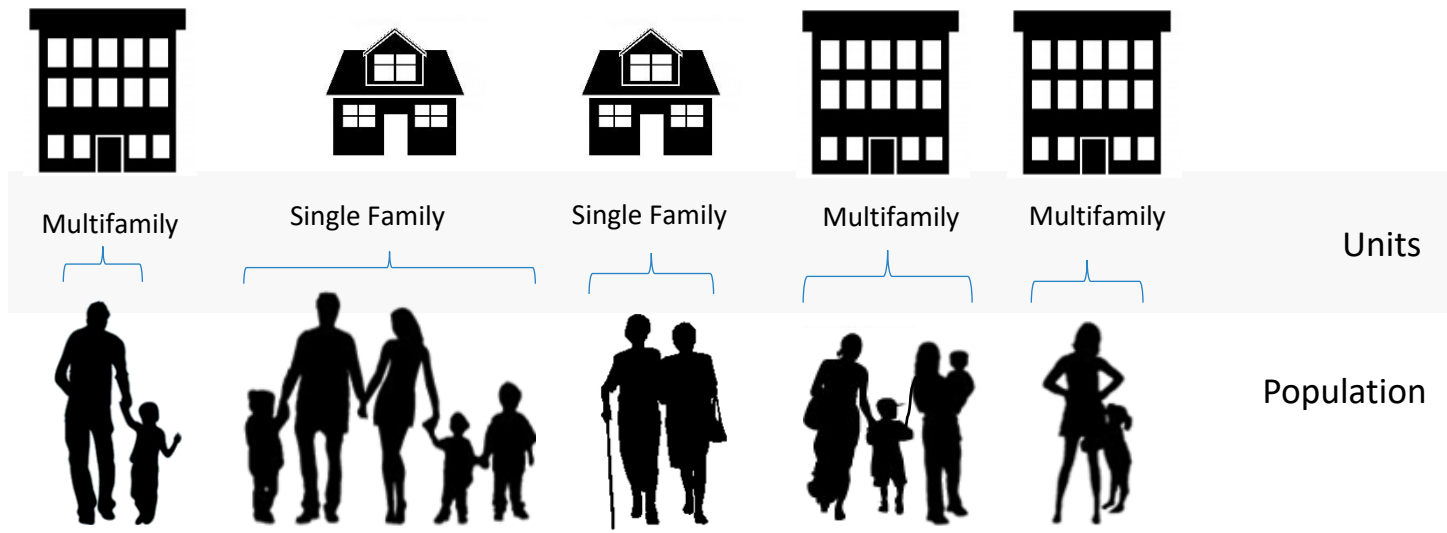- 5-year updates allow us to adapt to changing conditions.

Total water availability planning scenarios: **639**
Range of future water availability sequences to test water management strategies (WMSs)

71
Hydrologic Scenarios

1
Period of Record (POR) sequence

15
Global climate model (GCM) flow output sequences

10
Droughts worse than the drought of record (DWDRs) stochastically sampled from POR hydrology

15
POR sequences adjusted for climate effects

30
DWDRs stochastically sampled from climate-adjusted POR

3
AW Demand Scenarios

Higher AW demand

Baseline AW demand

Lower AW demand

3
Regional Supply Scenarios

Repeat of baseline regional supplies in second half of century

Baseline Region K regional supplies

Slower implementation of baseline Region K regional supplies

Pop/Emp Projections Used to Calculate Water Use Factors Among Demand Sectors

2015 Served Population

- 0
- 1 - 3,161
- 3,162 - 4,880
- 4,881 - 6,775
- 6,776 - 10,883
- 10,884 - 17,467

2015 Employment

- 0
- 1 - 3,269
- 3,270 - 6,757
- 6,758 - 13,720
- 13,721 - 25,918
- 25,919 - 49,299

Served Population Distribution

Employment Distribution

Multifamily · Single Family · Single Family · Multifamily · Multifamily — Units

Population

Employees

Industrial · Office · Hospitals · Schools · Hospitality · Retail · Restaurant — Subsectors

Translation to Units & Employment Sectors

Water Use Factor Development

Commercial
Multi-Family Residential
Single Family Residential
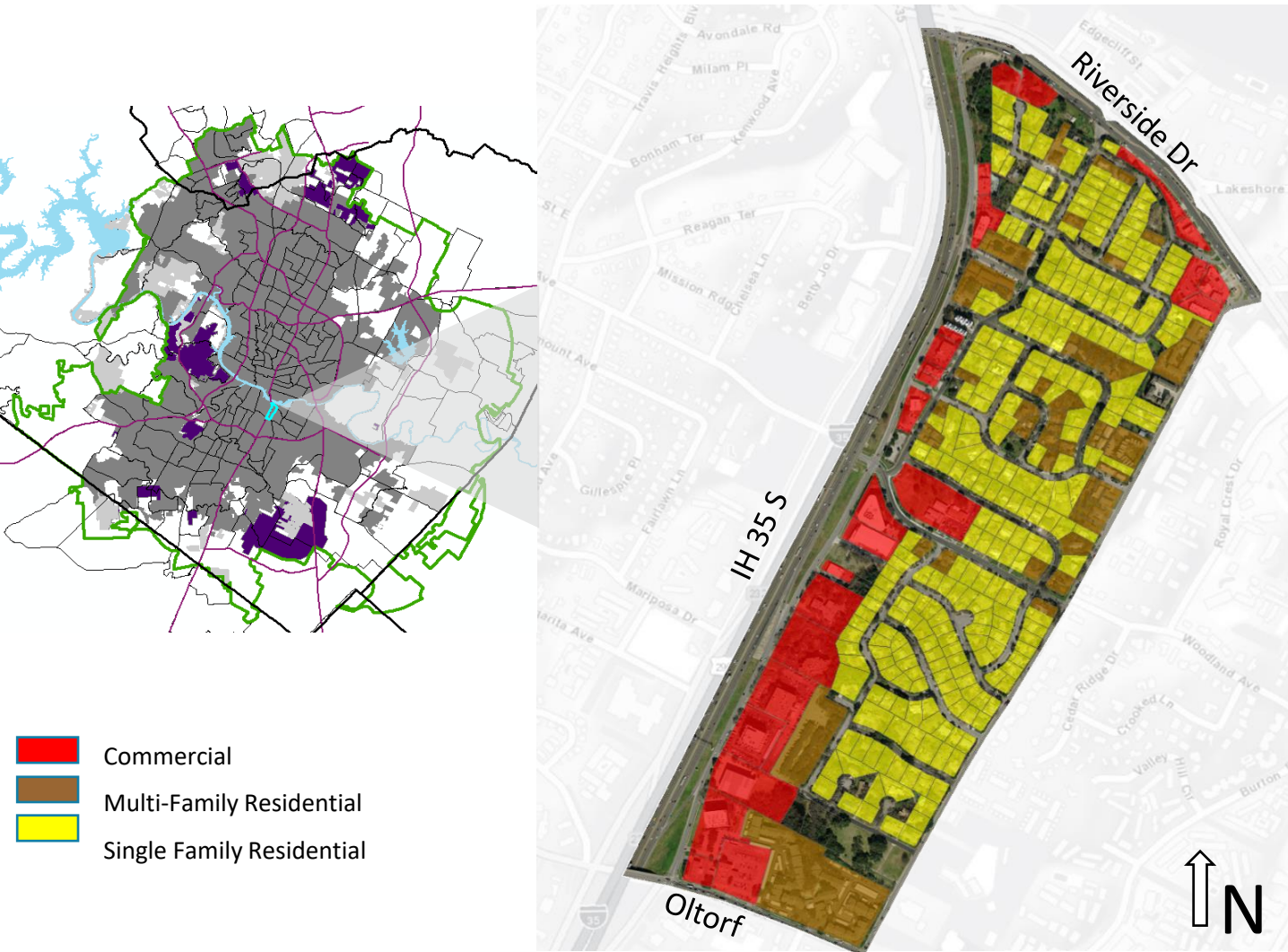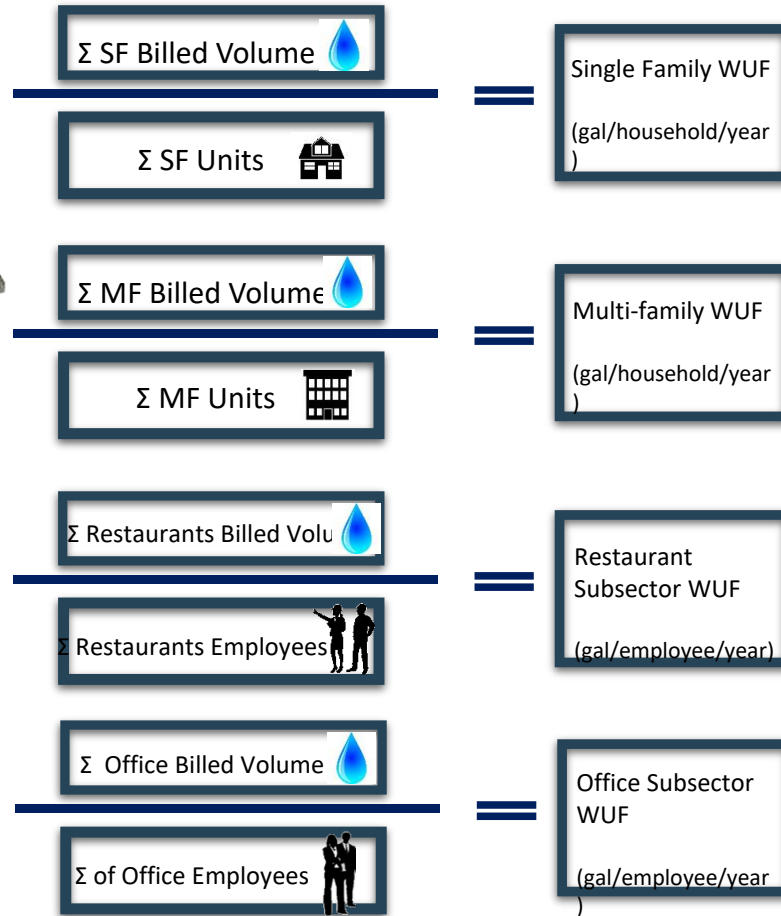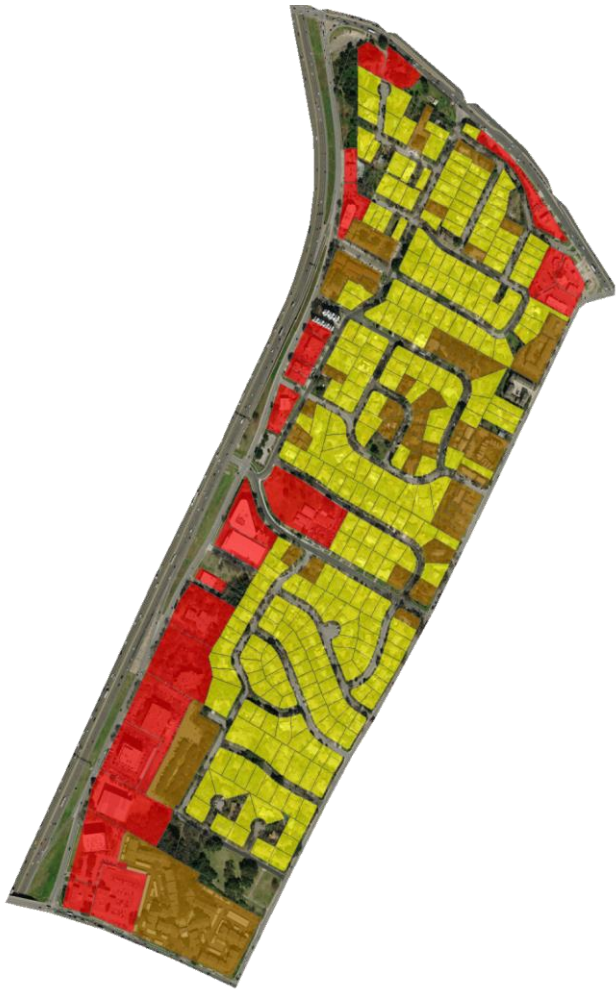
Base Year Demand Projections
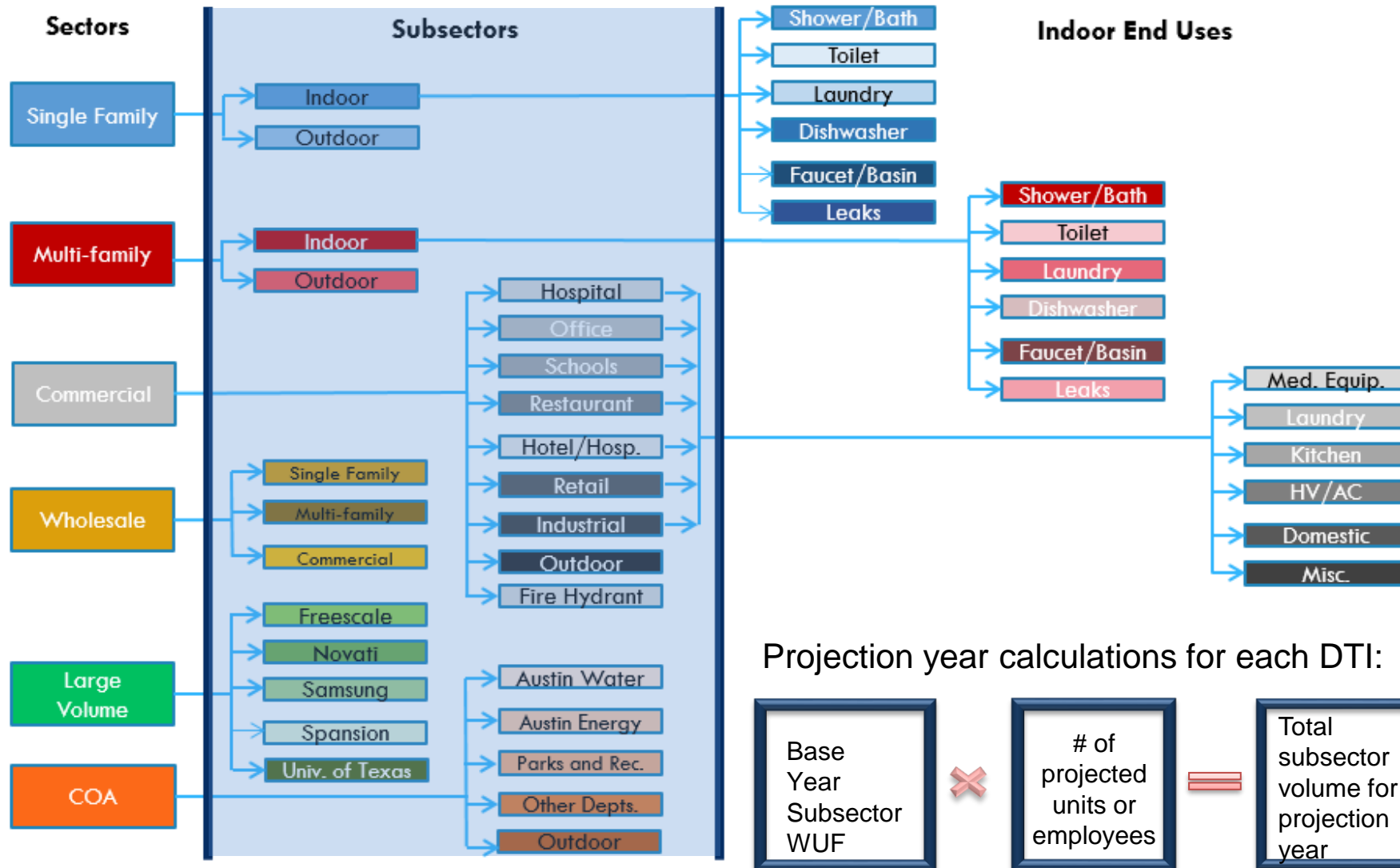
AW 2020 Population Estimates
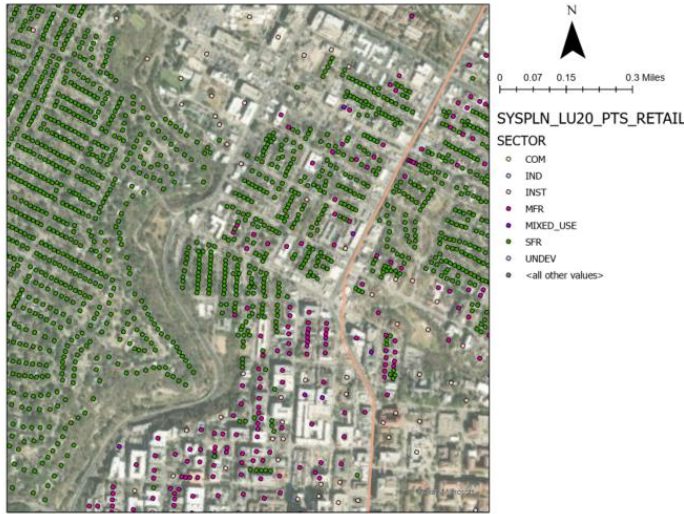
- Parcel driven approach (Population = Units * PPH)
  - **Unit counts** informed by Austin Water and Energy billing, county property appraisers, HPD, and COA Addresses databases
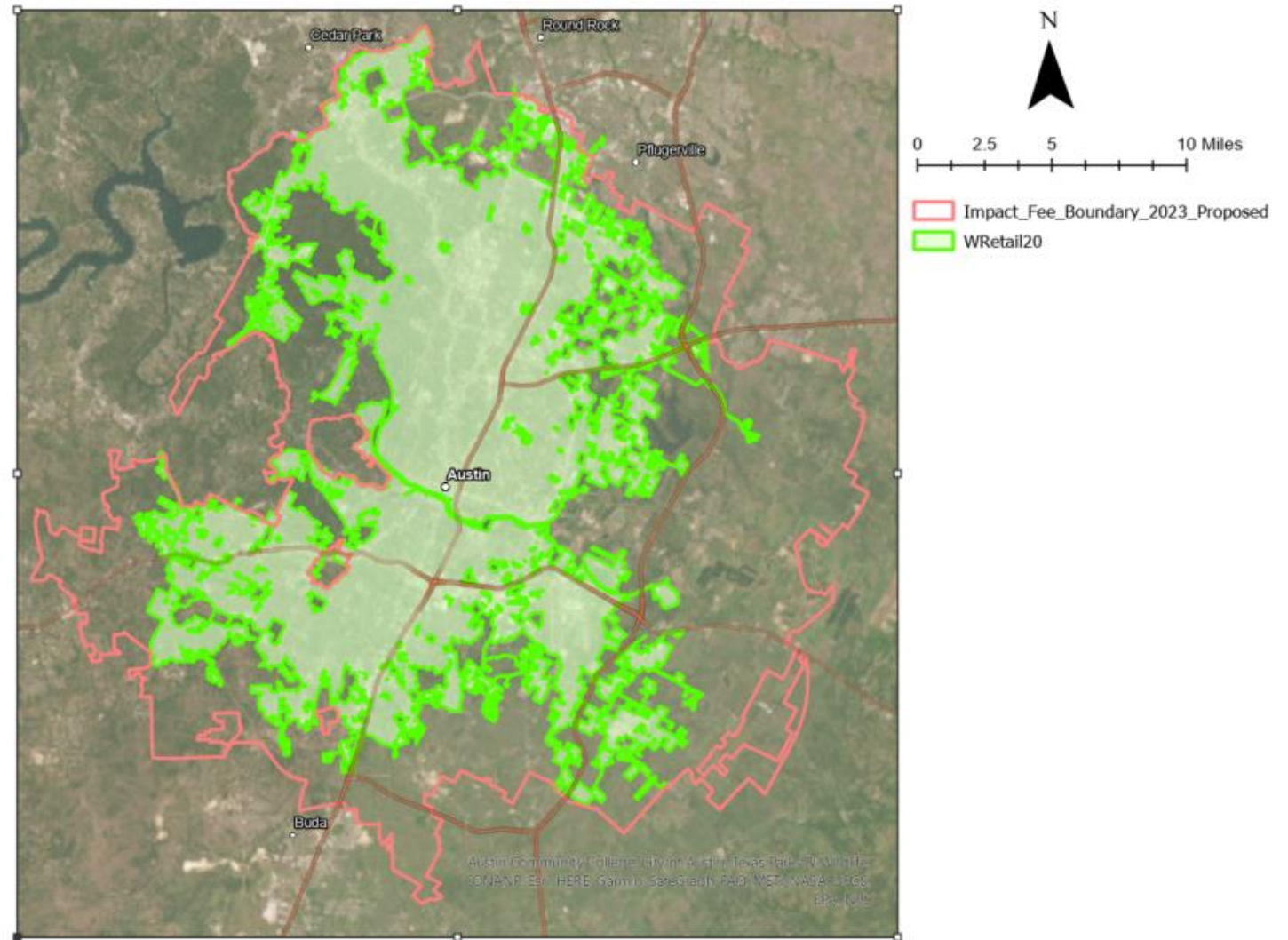 - **People per home (PPH)** from the 2020 Census Block data

- Water use threshold for retail customers to help determine occupancy
  - Single-family residential: 30 gallons/home/day
  - Multi-family residential: Median gallons/home/day specific to the month, sector, and DTI used to determine the number of occupied units
  - Since this approach seeks to determine occupancy, **people per occupied home (PPOH)** from the Census was used
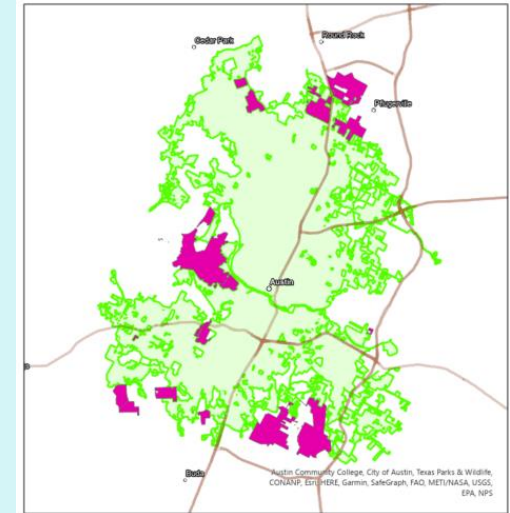
- Wholesale service area
  - **Unit counts** informed by County Tax Districts, HPD, and COA Addresses databases where available
  - **People per home (PPH)** from the 2020 Census Block data
  - Population did not include water use or estimates of occupancy outside of what is identified by the Census, and as such used **people per home (PPH)**

2020 Population Served Estimates

2020 Wholesale	49,704
2020 Retail	1,034,708
Total	**1,084,412**

Wholesale Customers

For wholesale customers with multiple water sources, population that AW serves is based on the portion of water supplied by AW (GPCD approach)

	Total Population[1]	Sole-Source?[2]	% Water Supplied from Austin Water[3]	2020 Population Served[3]
SouthWest Water Company - Windermere Utilities Inc.	16,518	no	0.1%	23
Creedmoor - Maha WSC	6,592	no	25.1%	1,861
City of Sunset Valley	702	no	96.1%	754
Village of San Leanna	512	no	38.4%	191
Wells Branch MUD	14,269	yes	n/a	14,269
North Austin MUD	9,757	yes	n/a	9,757
Northtown MUD	9,666	yes	n/a	9,666
Travis County WCID #10	7,635	yes	n/a	7,635
SouthWest Water Company - Mid-Tex Utilities Inc.	1,720	yes	n/a	1,720
City of Rollingwood	1,510	yes	n/a	1,510
Aqua America - Aqua Texas - Rivercrest Water System Inc.	1,027	yes	n/a	1,027
Marsha WSC	468	yes	n/a	468
Aqua America - Aqua Texas - Nighthawk	384	yes	n/a	384
High Valley WSC	211	yes	n/a	211
Shady Hollow MUD	164	yes	n/a	164
Aqua America - Aqua Texas - Morningside	69	yes	n/a	69
TOTAL	**71,204**			**49,709**

[1] Billing data and Census block estimates, 3/15/2022 Systems Planning staff
[2] Historical Water Use Survey Data, Texas Water Development Board, 2020 Total Water and Water from AW
[3] Composite Population estimate; Systems Planning estimate and proportion of wholesale customer's population served when AW is not the sole source of water

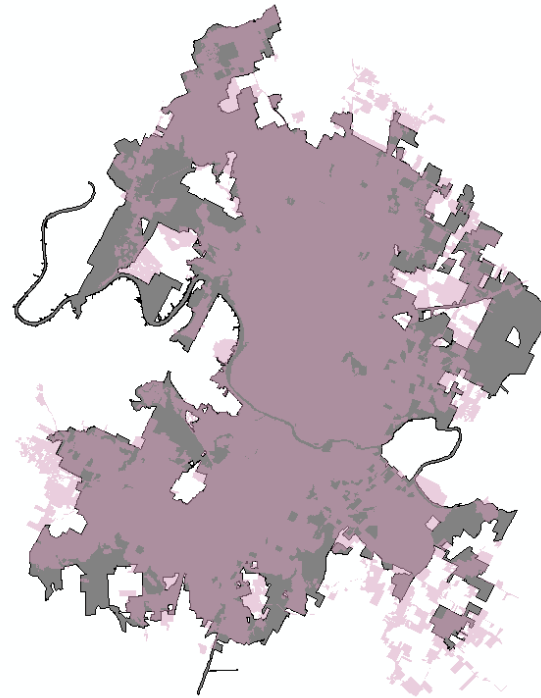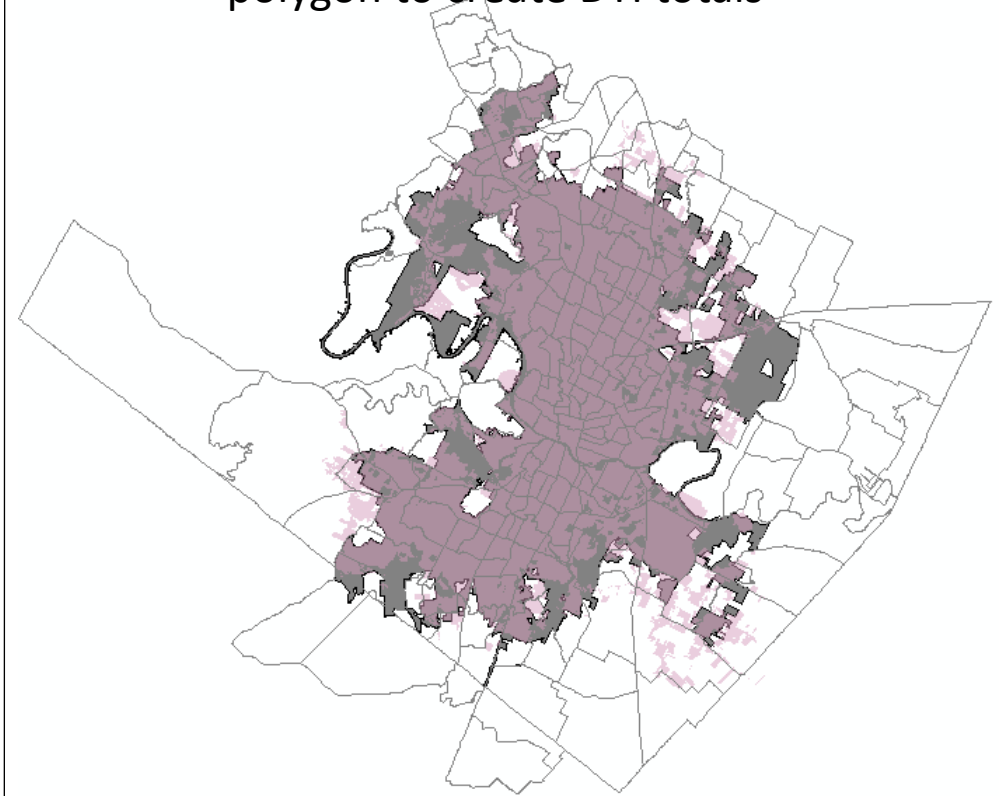# Process to Develop 100-year Projections

Population estimates

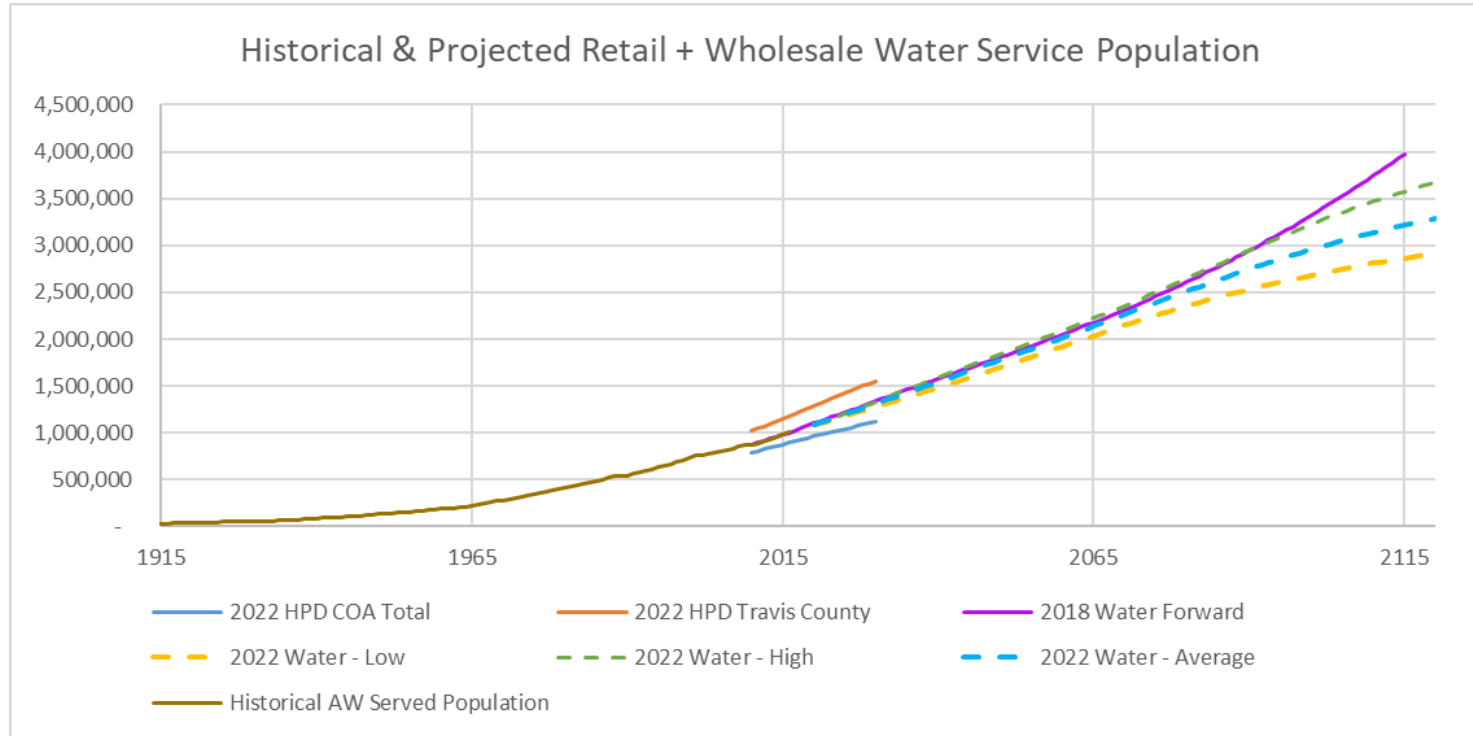Demographer projects totals for city and MSA
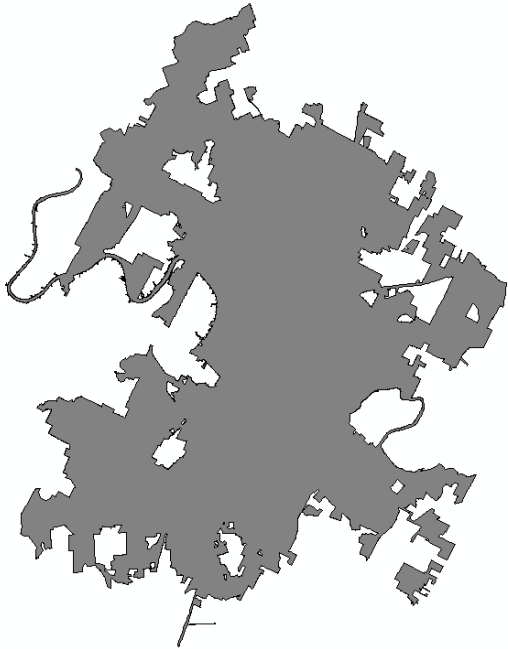
Systems Planning projects totals for served W & WW

DTI process assumes rate of growth for each polygon to create DTI totals

Preliminary Population Projections

Historical & Projected Retail + Wholesale Water Service Population

Legend:
- 2022 HPD COA Total
- 2022 HPD Travis County
- 2018 Water Forward
- 2022 Water - Low
- 2022 Water - High
- 2022 Water - Average
- Historical AW Served Population

	Served Population		
year	Low	Average	High
2020		1,084,400	
2040	1,484,500	1,544,700	1,590,400
2080	2,354,800	2,511,000	2,649,200
2120	2,913,600	3,290,600	3,676,600

Historical & Projected Growth Rates

Historical & Projected Annual Growth Rates
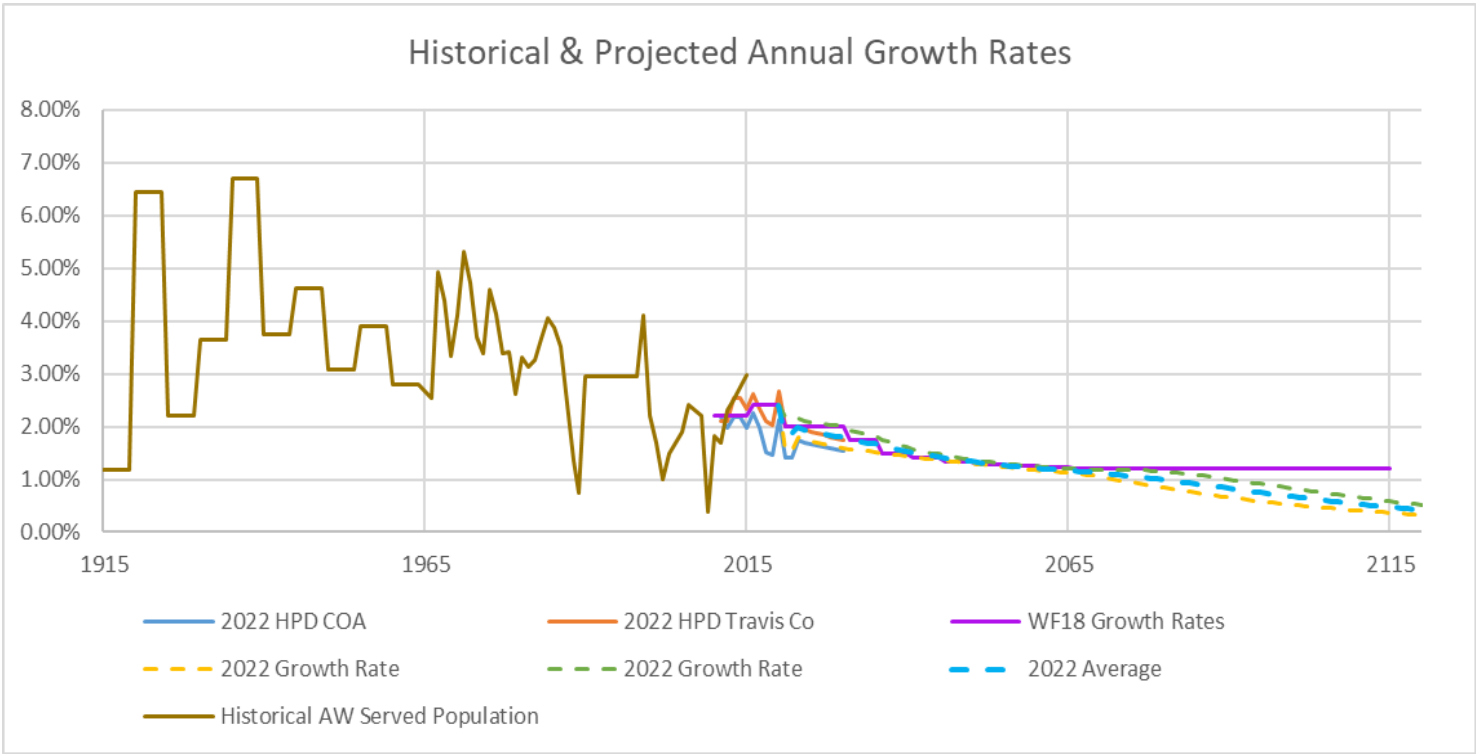
Served Population Annual Growth Rate			
year	Low	Average	High
2020-2040	1.58%	1.75%	1.92%
2040-2080	1.15%	1.21%	1.28%
2080-2120	0.53%	0.67%	0.81%

Delphi, Trends, and Imagine Austin (DTI) Process

Population baseline of 2020 census-informed geographically-distributed and the 100-year Control Total projections for population

Reviewed draft DTI-polygon level projections based on growth rates form Water Forward 2018

Incorporated increases in population and employment represented in service extension requests for water & wastewater, Imagine Austin, & Project Connect

Adjusted distribution of population and employment with Delphi Team feedback
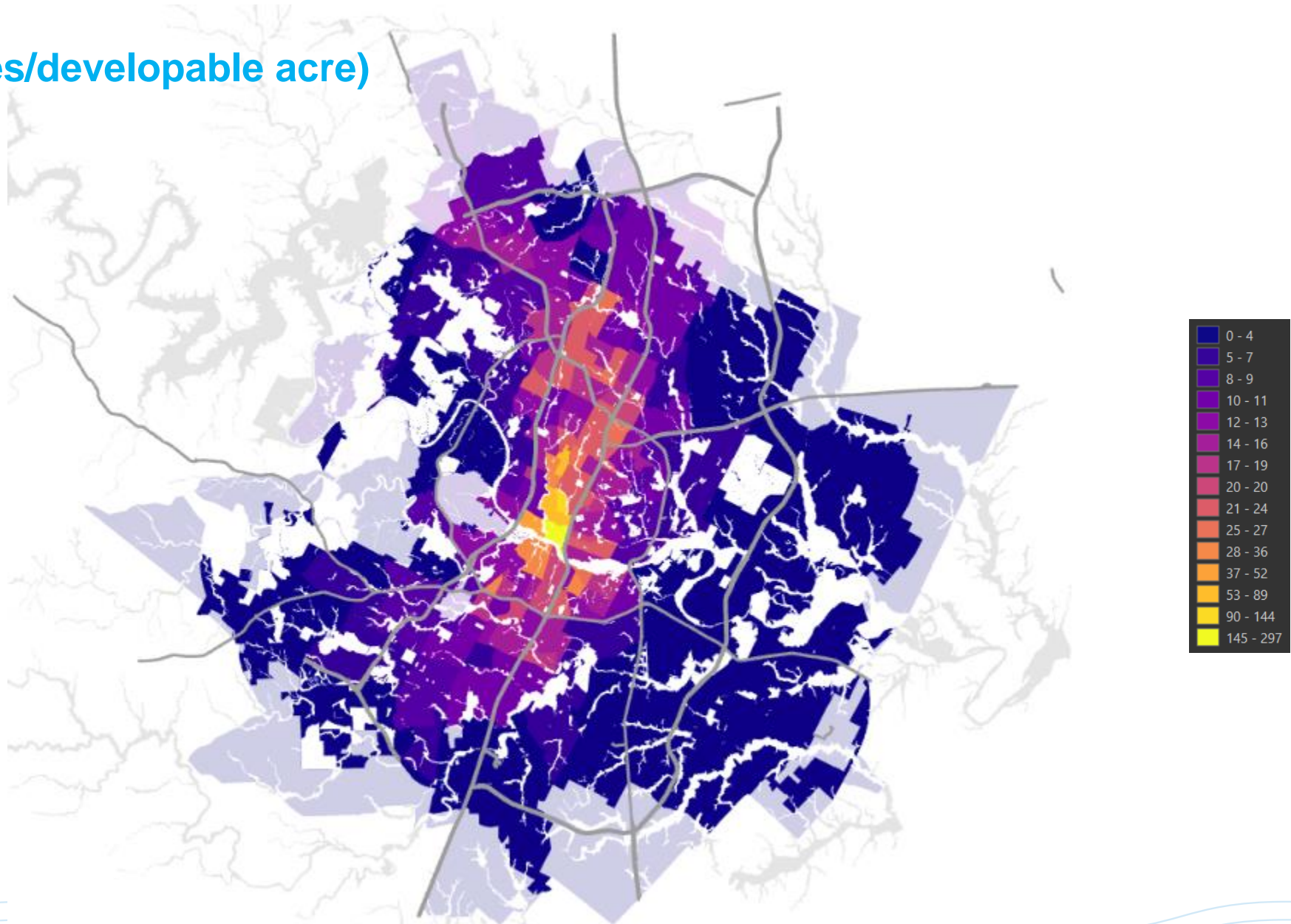
Employment Projections

Water Forward 2018 Employment Projections

Checked against ESRI Business Analyst product

Refined with SER data and Delphi Team feedback

**Combined Density
(people + employees/developable acre)**
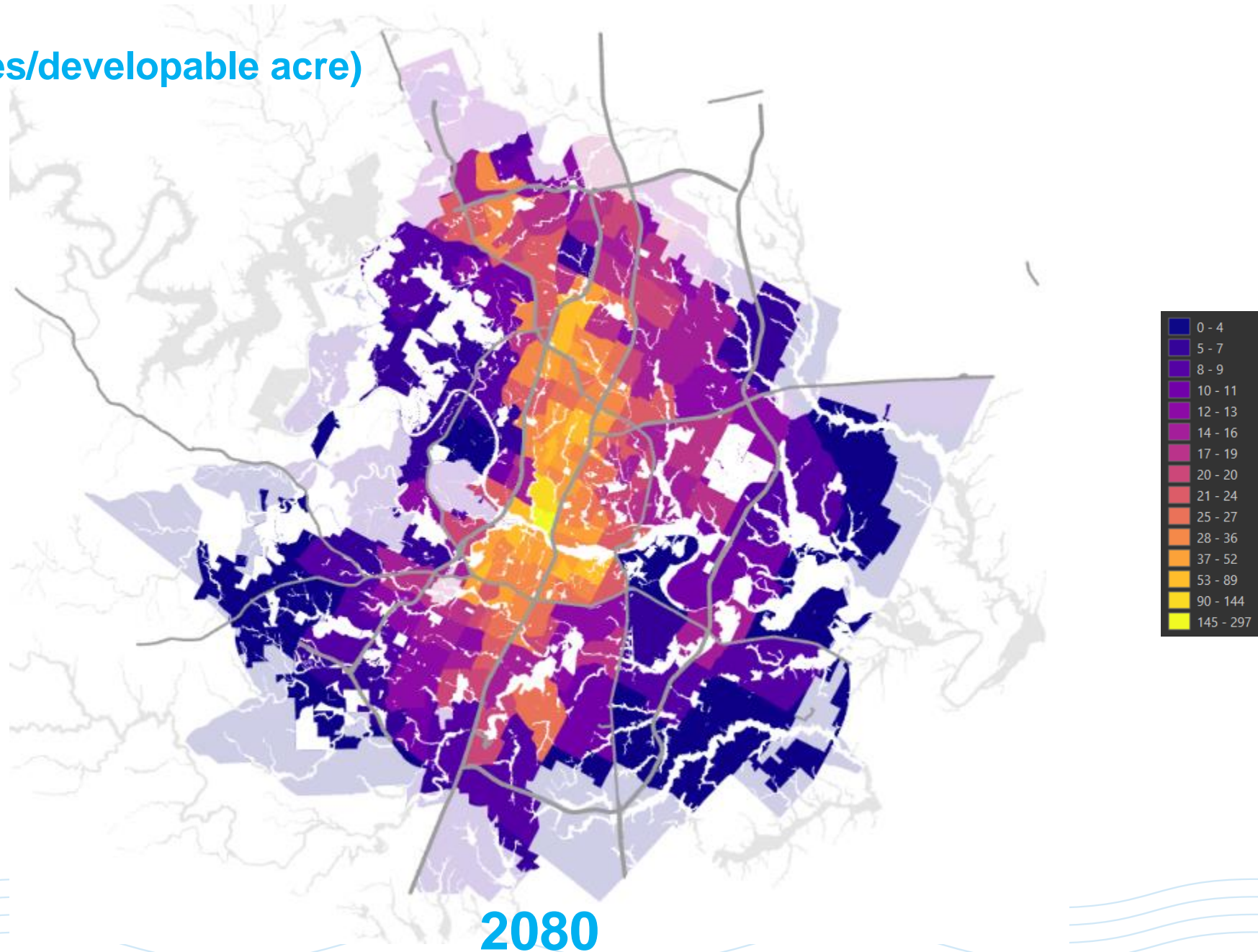
	0 - 4
	5 - 7
	8 - 9
	10 - 11
	12 - 13
	14 - 16
	17 - 19
	20 - 20
	21 - 24
	25 - 27
	28 - 36
	37 - 52
	53 - 89
	90 - 144
	145 - 297

2020

Combined Density
(people + employees/developable acre)

	0 - 4
	5 - 7
	8 - 9
	10 - 11
	12 - 13
	14 - 16
	17 - 19
	20 - 20
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	145 - 297

2040

Combined Density
(people + employees/developable acre)

2080

Legend:
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- 14 - 16
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Combined Density
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2120

Legend:
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Combined Density
(people + employees/developable acre)

Legend	
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2020   2040   2080   2120
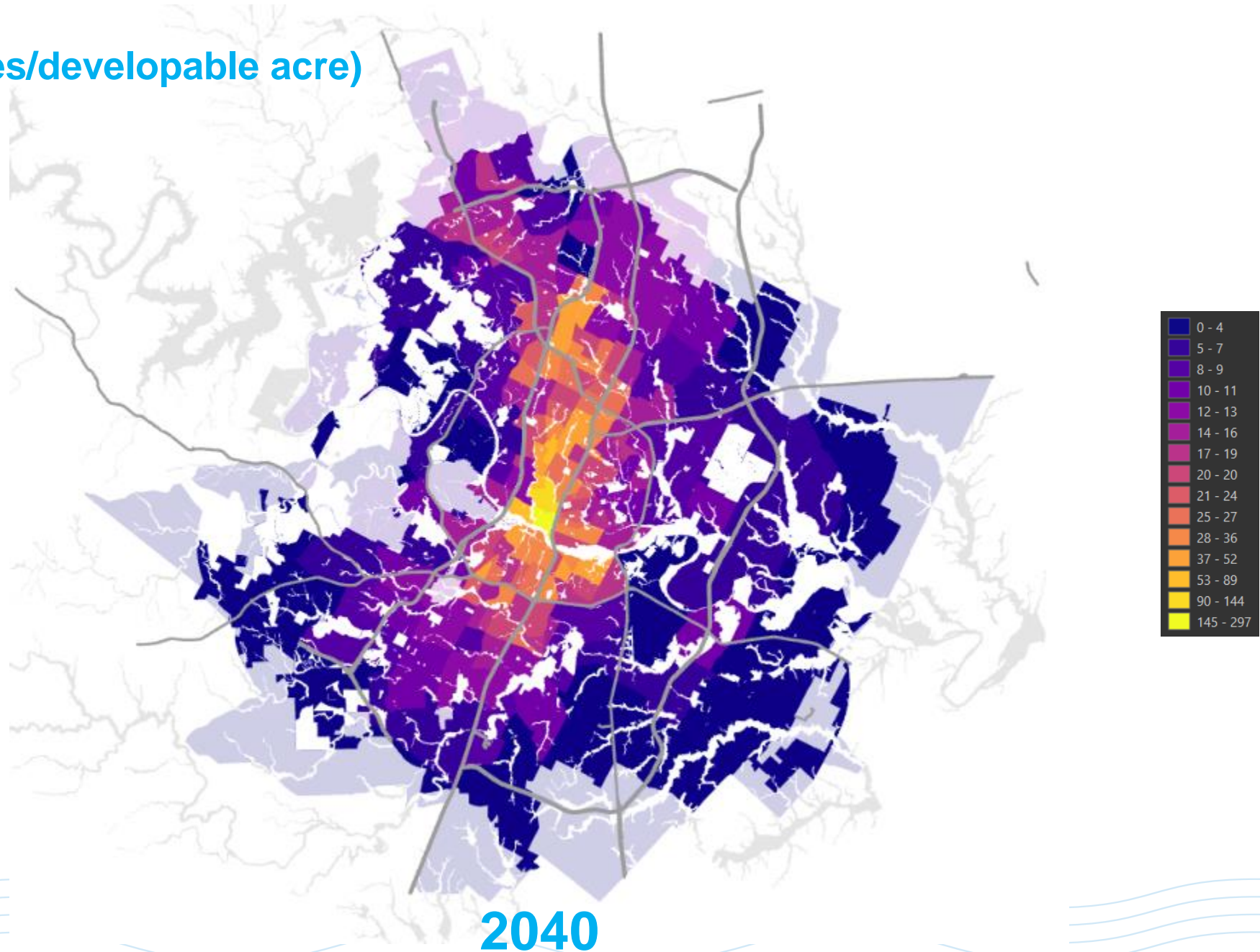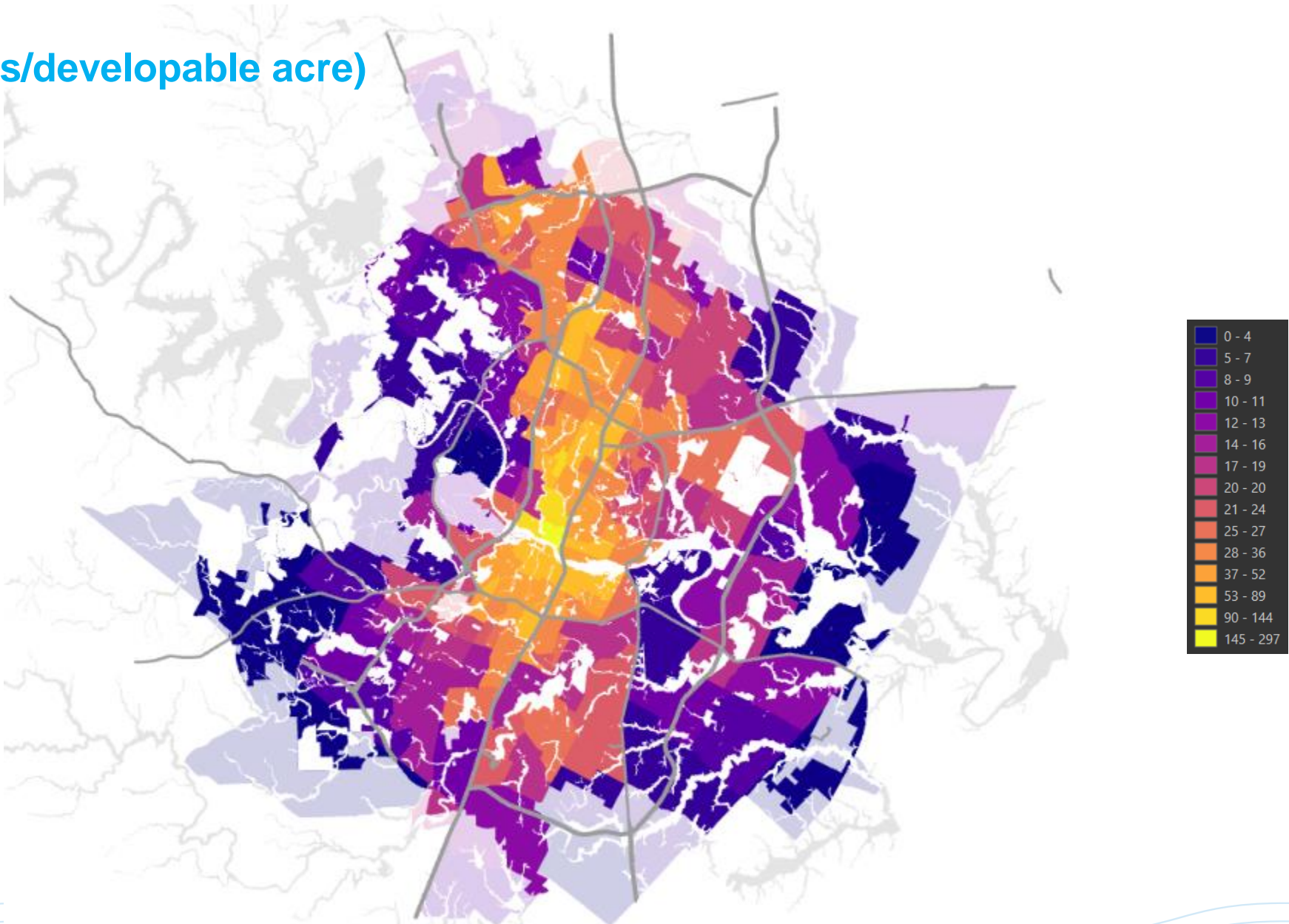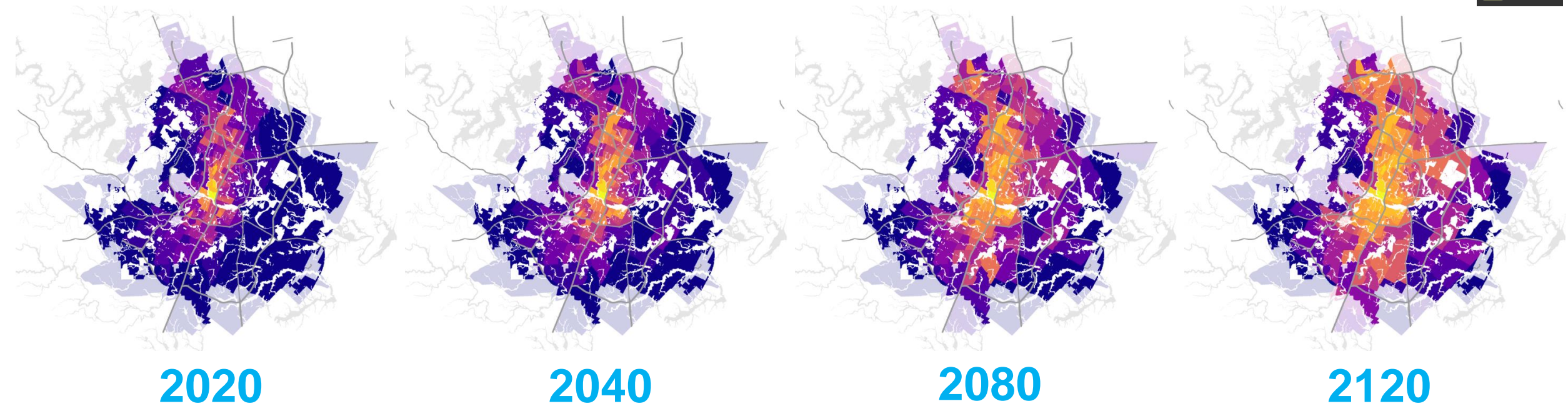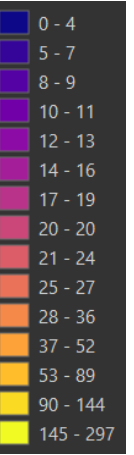
Next Steps

Next Steps

- Will seek feedback from wholesale customers on projections

- Will be working to incorporate data into the disaggregated demand model

Questions