

Population and Demand Projections Water Forward '24



POPULATION AND DEMAND PROJECTIONS



Demand Development Process



Process Improvements from WF'18





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WATER FORWARD: PLANNING FOR UNCERTAINTY

- Develop a range of future conditions
- Find common near-term strategies that work for a broad range of futures
- Develop adaptive plan with key decision points
- Re-evaluate at key decision points



WATER FORWARD UPDATES: ADAPTIVE MANAGEMENT

100-year look into the future

• This approach provides a **long view**; time to adapt and understand what steps may be necessary to meet AW's needs in 100 years.

5-year updates

 Regular updates of the plan will allow us to incorporate new or better data and review processes for potential improvements.



DISAGGREGATED DEMAND MODEL



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Population Served: Baseline and Projection

Work with Used AW, COA, AE+ data to Demographer build a parcelon city-wide based baseline 2020 population & employment population and 100-year dataset for projections 2020

City

100-year population & employmen t projections made at the DTI-polygon level

Water Use Baseline

• Updated historical water use for all sectors & subsectors (2013-2019 period of record) •Estimate demands down to the end use •Ongoing QA/QCQC

•Building on WF'18 process

Demand Projection •Estimate units and water use factors for each subsector in each DTI polygon

• Build in expected changes in water use/unit to 100year demand forecast

Ongoing QA/QCQC

410



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

Population Served: Baseline and Projection

Work with Used AW, COA, AE+ data to Demographer build a parcelon city-wide based baseline 2020 population & employment population and 100-year dataset for projections 2020

City

100-year population & employmen t projections made at the DTI-polygon level

Population Served: Baseline and Projection

Work with Demographer on city-wide based baseline 2020 population dataset for and 100-year projections 2020

City

Used AW, COA, AE+ data to build a parcelpopulation & employment

100-year population & employmen t projections made at the DTI-polygon level





Population Served: Baseline and Projection

Used AW, COA, AE+ data to Demographer build a parcelon city-wide based baseline 2020 population & population employment and 100-year dataset for projections 2020

Work with

City

100-year population & employment projections made at the **DTI-polygon** level







DDM PROCESS IMPROVEMENTS



PROCESS IMPROVEMENTS: MIGRATION TO PYTHON & POWER BI

- Improved and more automated functionality
- PowerBI dashboards will make data readily visible and available
 - Easier QA/QC
 - More accessible data, customizable formats and units



PROCESS IMPROVEMENTS: MONTHLY TIME SCALE CONVERSION

- Better data, more data points, and better trending for analyses and better analysis options moving forward
- Higher temporal resolution will help to inform WMS related to outdoor watering



PROCESS IMPROVEMENTS: UPDATED WUFS & TRENDING

- Separation of indoor and outdoor WUF for residential and commercial; using available data (irrigation meters) alongside the minimum month method to improve estimates of indoor/outdoor split
- Evaluating bottom-up passive conservation estimates from previous plan against trending historical weathernormalized demands to capture passive conservation.

NEXT STEPS

- QA/QC of DTI-based projections
- Development of demand projections based on high and low population projections
- Weather-varied demand development
- Ongoing improvement of data display and visualizations in PowerBI



Questions?

