



Integrated Water & Wastewater Master Plan Update

City of Mesa

Water Resources Department

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mesa.az

WATER RESOURCES

City of Mesa **GENERAL PLAN**

2050



The Integrated Water Master Plan supports the vision and values identified in the General Plan by linking its goals to support the actions identified in the General Plan

Integrated Water & Wastewater Master Plan

The Integrated Water Master Plan helps lay the foundation and path forward to support:

- Recruiting & Retaining a highly skilled workforce
- Public facilities that are efficient, reliable and cost-effective
- Fiscally responsible approach to infrastructure and facility development
- Provide Sustainable Water and Wastewater services to residents
- Water conservation and 100% Beneficial reuse of reclaimed water sources



Recruiting & Retaining a Skilled Workforce

- Trainee program to recruit and develop Treatment Plant Operators
- Offering Incentives for obtaining higher level ADEQ certification
- Hiring Incentives for hard to fill positions



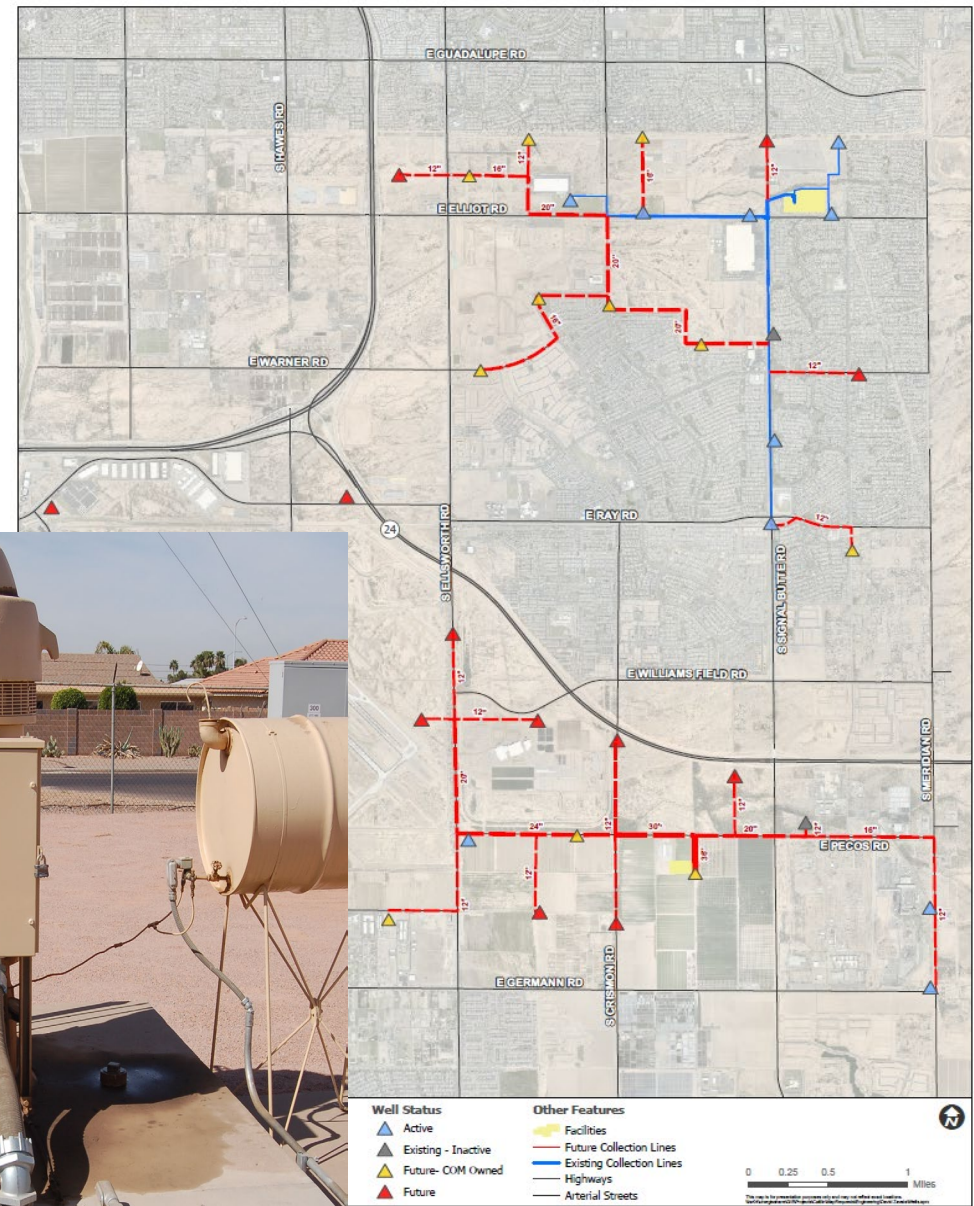
Efficient Utilization of Public Facilities

- Integrated Master Plan looks at existing facilities to identify opportunities for improvement to create greater operating efficiency
- Updated wastewater projections confirm less future expansion needed at the Greenfield Water Reclamation Plant
- Integrated Master Plan estimates future GWRP plant expansion 80% smaller than prior Master Plan



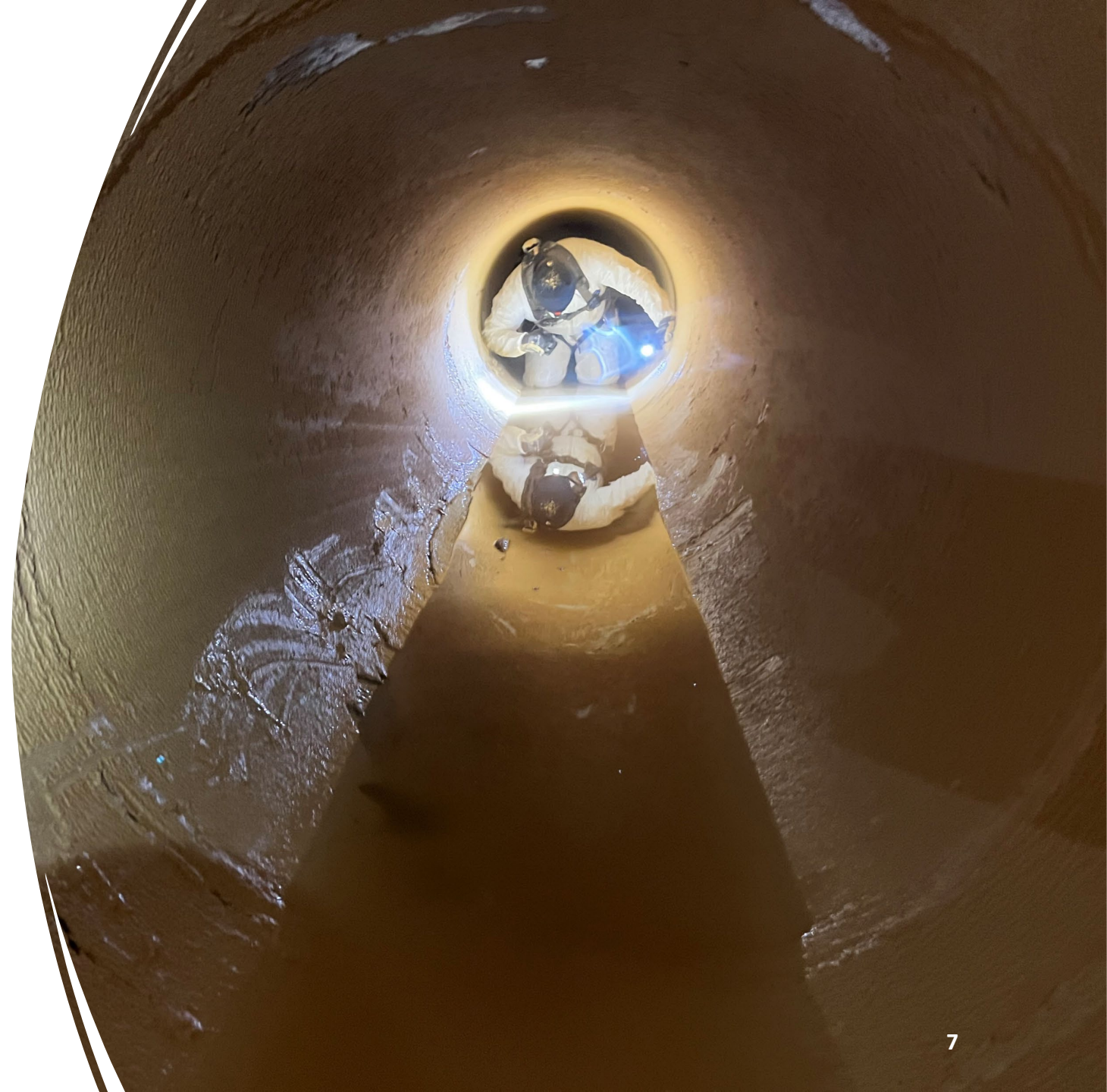
SE Mesa Well Sites and Collection Lines

- Integrated Master Plan identified future sites required for groundwater wells ahead of future development
- Only 8% of City demand met by well pumping
- In severe drought, permitted wells can be used to pump Long Term Storage Credits
- Wells provide redundancy
 - By assisting Signal Butte Water Treatment Plant during summer peak demand
 - During canal dry-ups
 - During plant maintenance outages



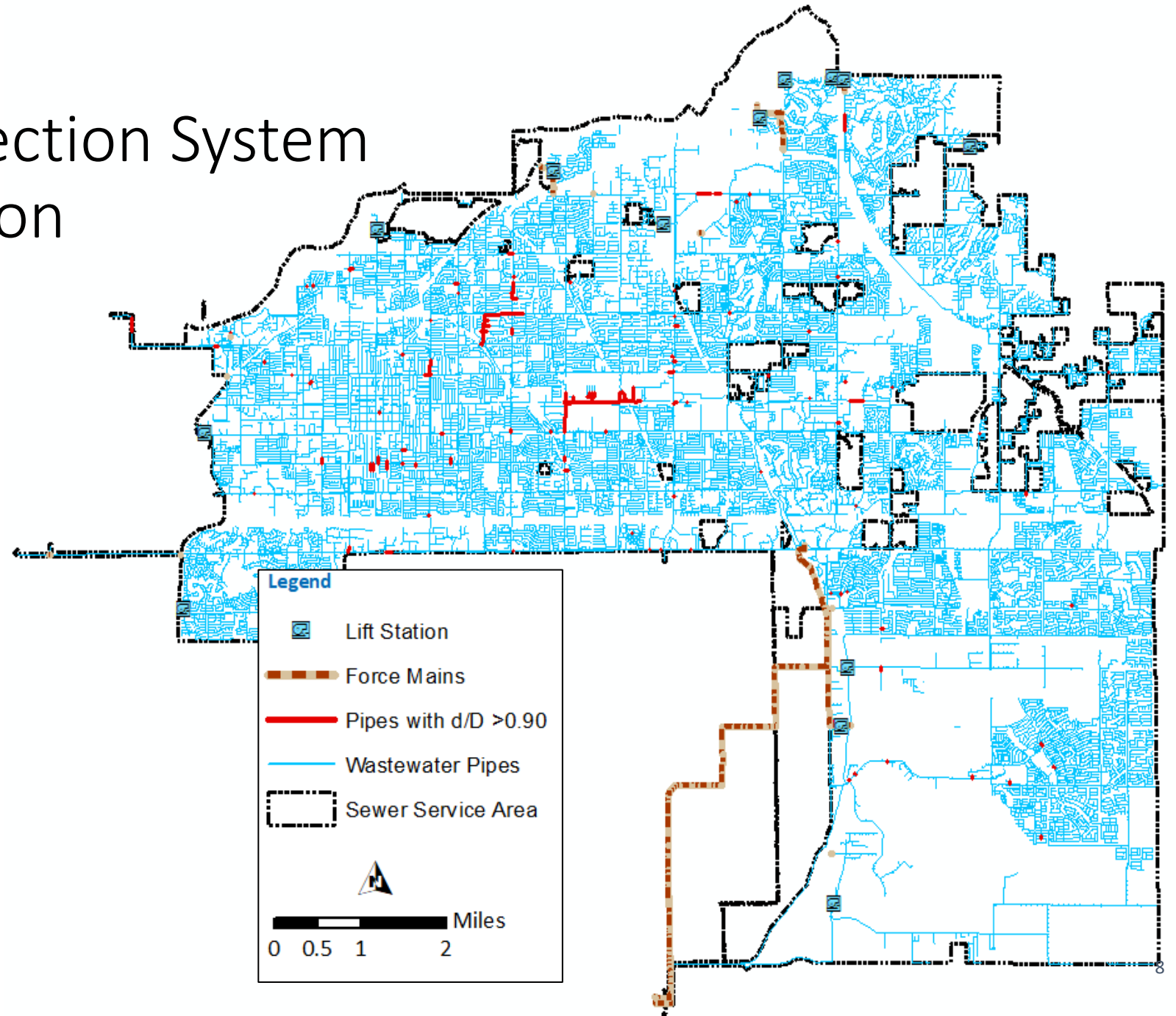
Efficient & Reliable Infrastructure

- Master plan identifies needs for expanding existing facilities and development of new infrastructure
- Robust pipe inspection program ensures defects are found and repaired
- Hydraulic Models updated and calibrated with ever-improving software tools
- Identifies areas where there is not sufficient pipe capacity



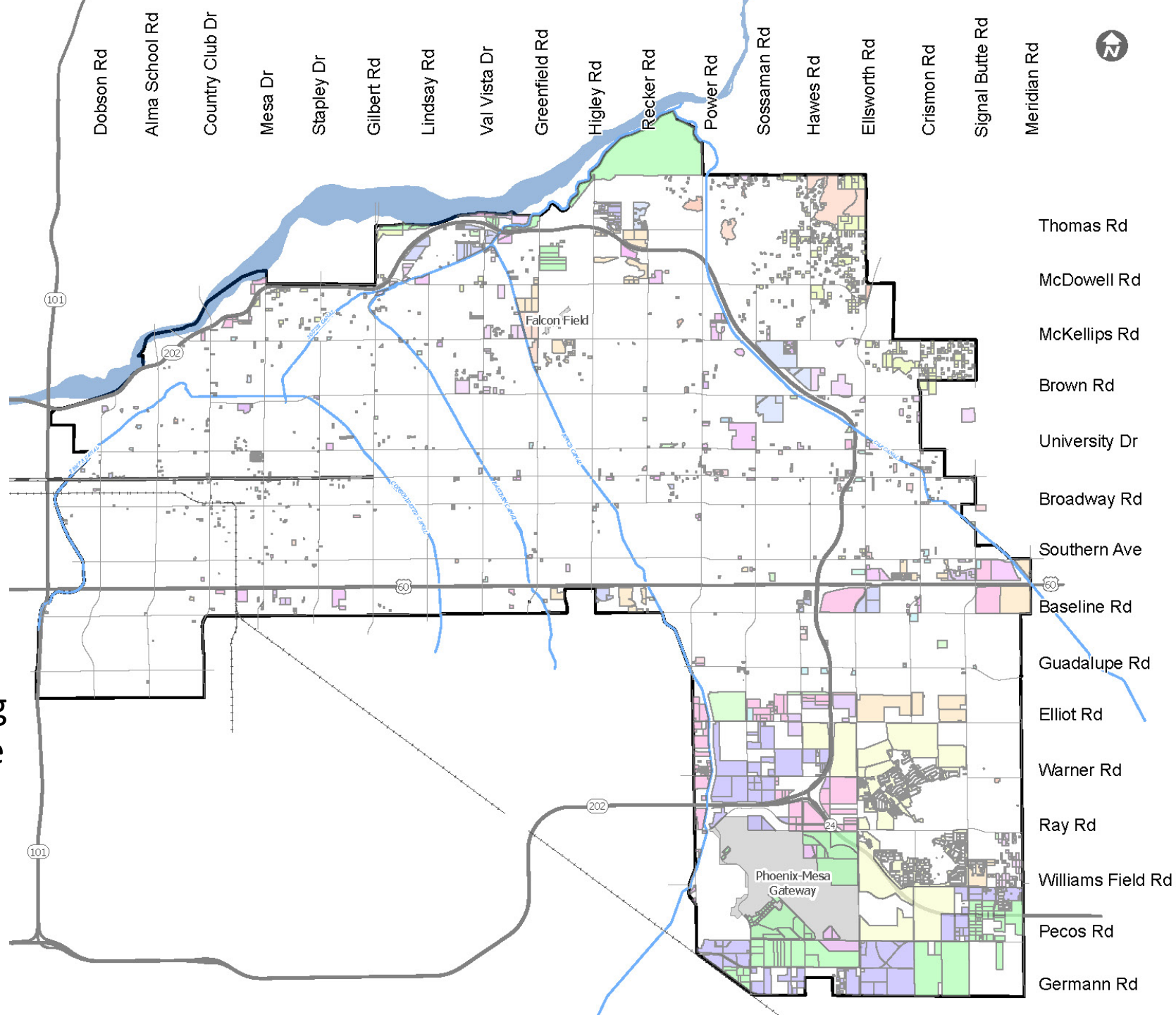
Wastewater Collection System Capacity Evaluation

- Integrated Master Plan uses calibrated models to evaluate capacity constraints in the system
- Pipe constraints become candidates for future capital projects
- Mesa's sewer system if extended end-to-end, would stretch 1750 miles



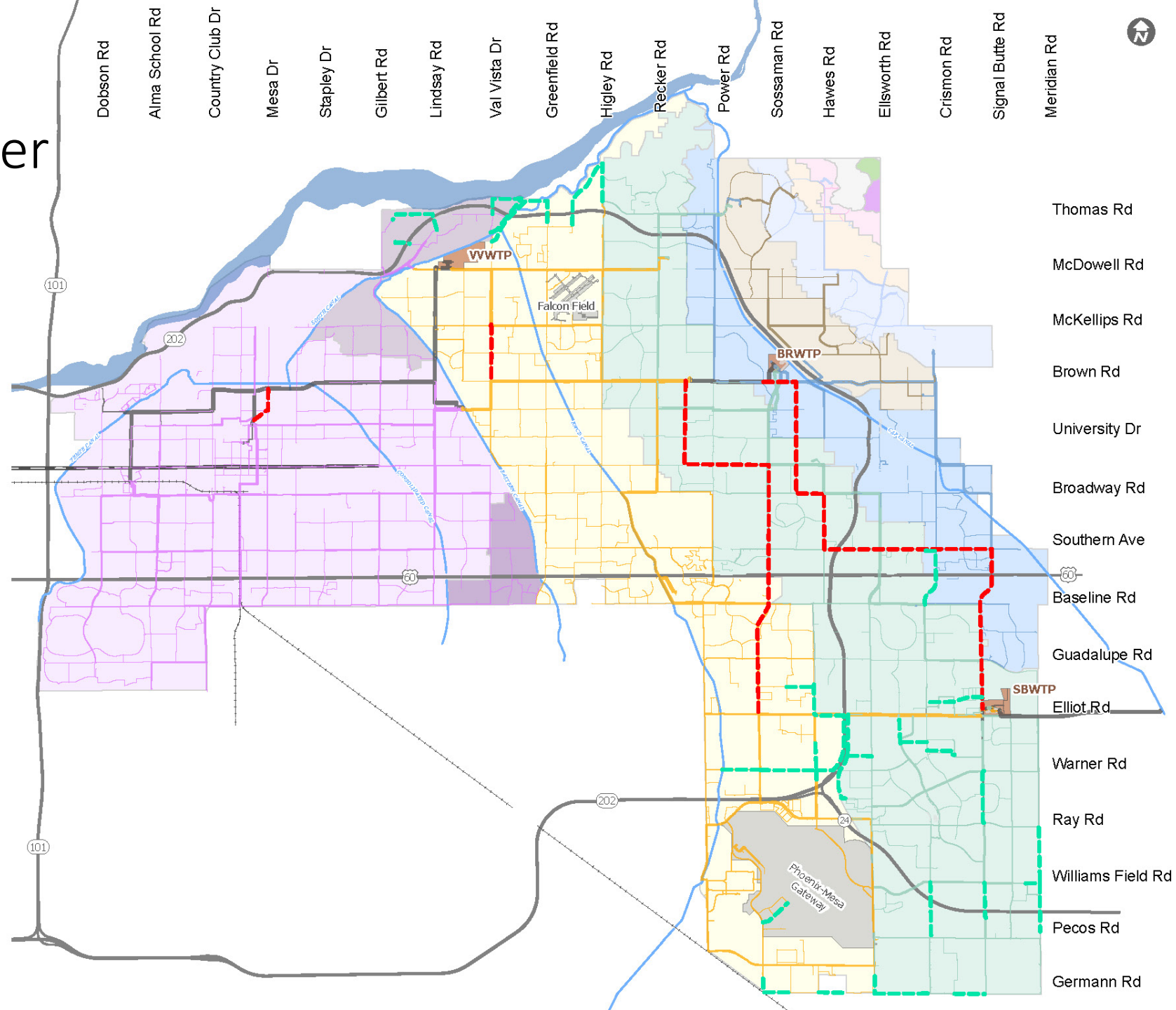
Fiscally Responsible Development

- Integrated Master Plan calculates future demands based on the vacant parcel method.
- Pipelines, Pump Stations, Reservoirs and Treatment Plants are then sized to meet these Future Demands
- Optimized Infrastructure sizing helps us make rates affordable for our customers



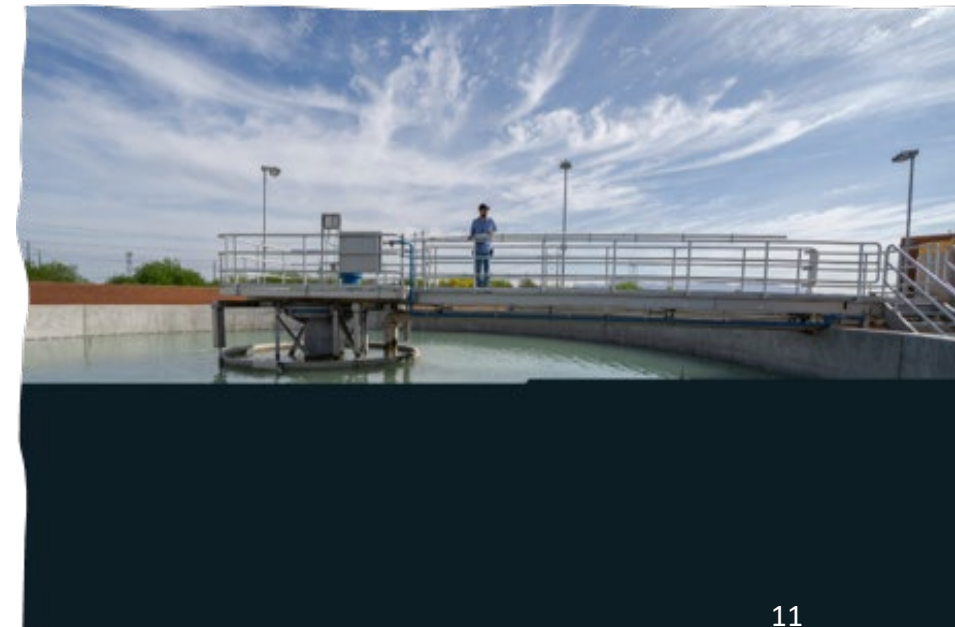
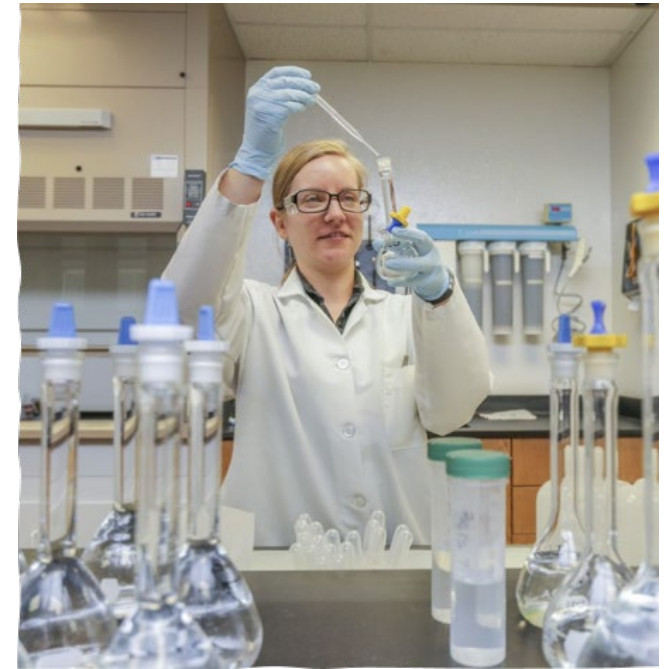
Proposed Buildout Water System Improvements

- Integrated Master Plan evaluated the entire water system for carrying capacity
- Hydraulic modeling identifies upsizing of existing mains
- New transmission mains are sized to appropriately meet build-out demands



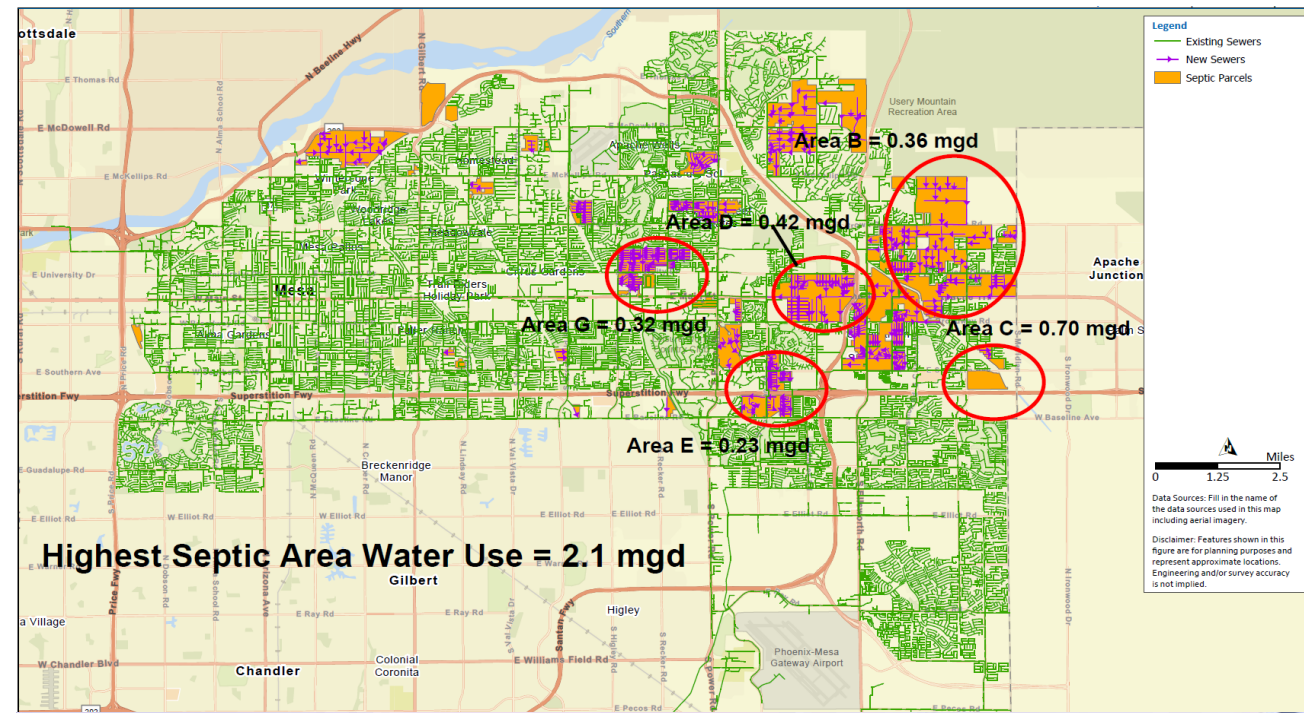
Provide Sustainable Water & Wastewater Service

- Integrated Master Plan examines current and future demands versus long term water supplies
- Demand Projections, balanced with long term supplies were used to update Mesa's 100-year Assured Water Supply Designation
- Continue to ensure high quality services for our water and wastewater customers



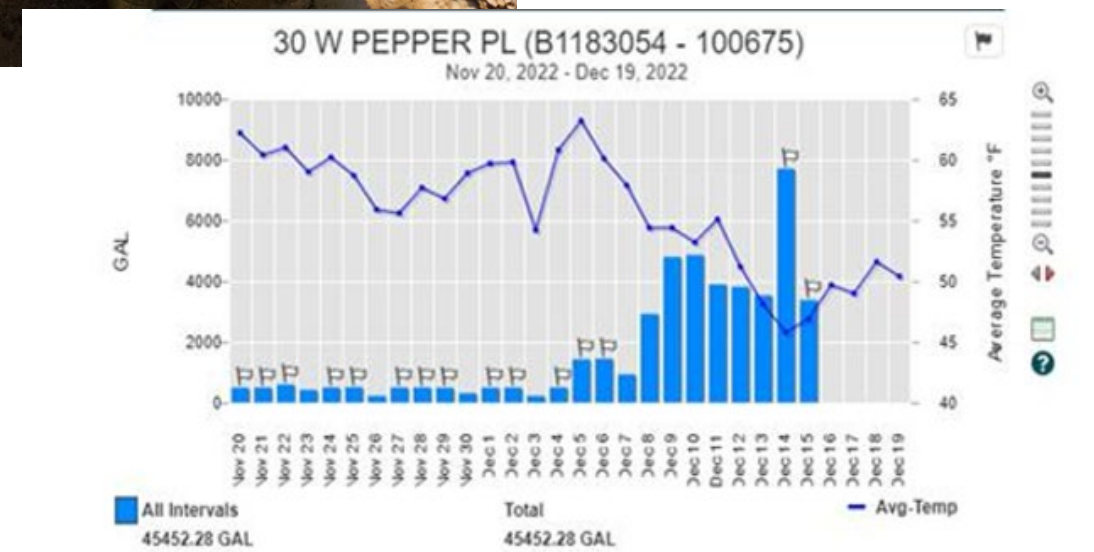
Ensuring Future Water Supplies

- Integrated Water Master Plan identified potential sources of future water supplies to augment Mesa's Water Portfolio
 - Raising Bartlett Dam
 - Advanced Purification at 91st Ave Wastewater Treatment Plant in partnership with Phoenix
 - Conversion of septic areas to sewer for additional water recovery

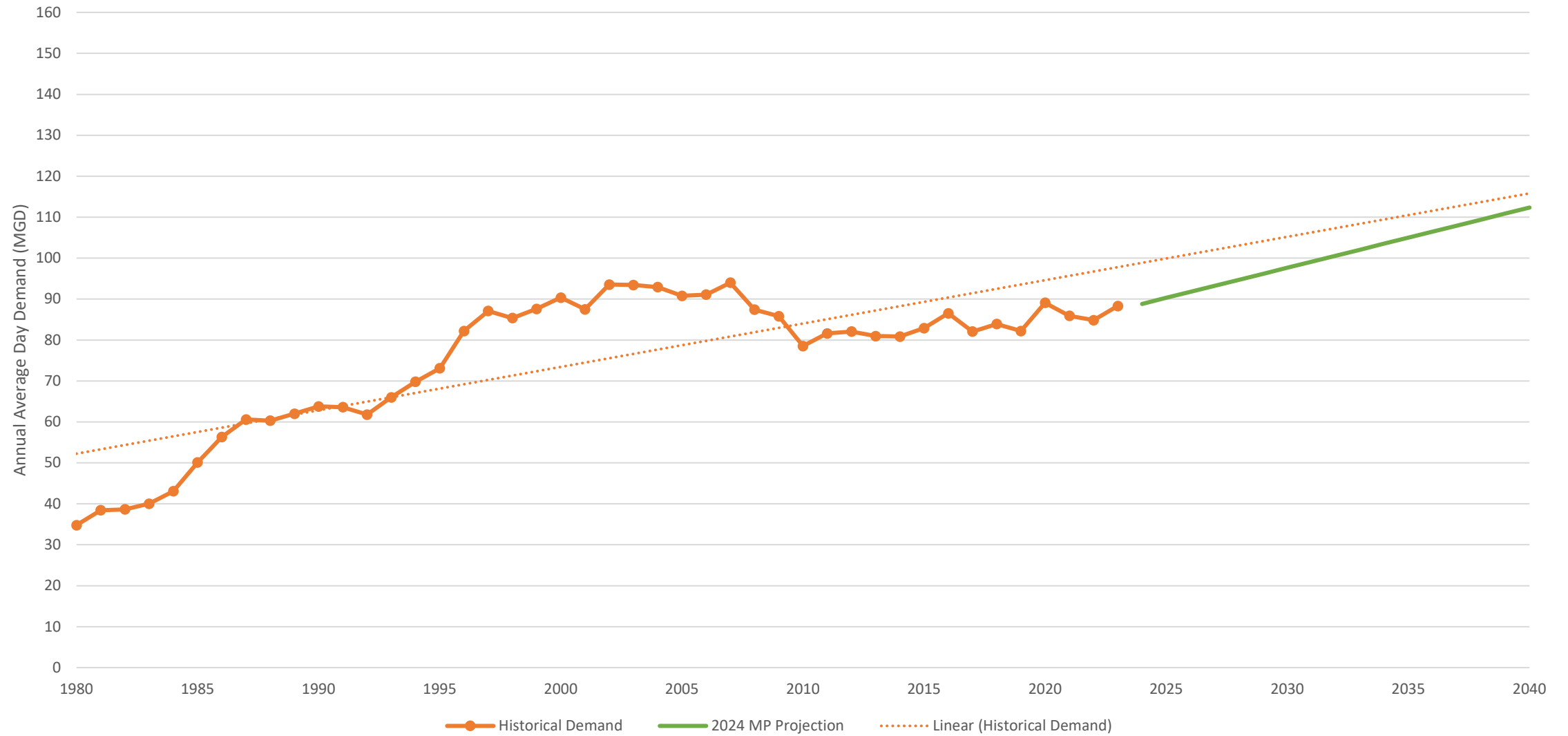


Water Usage & Conservation

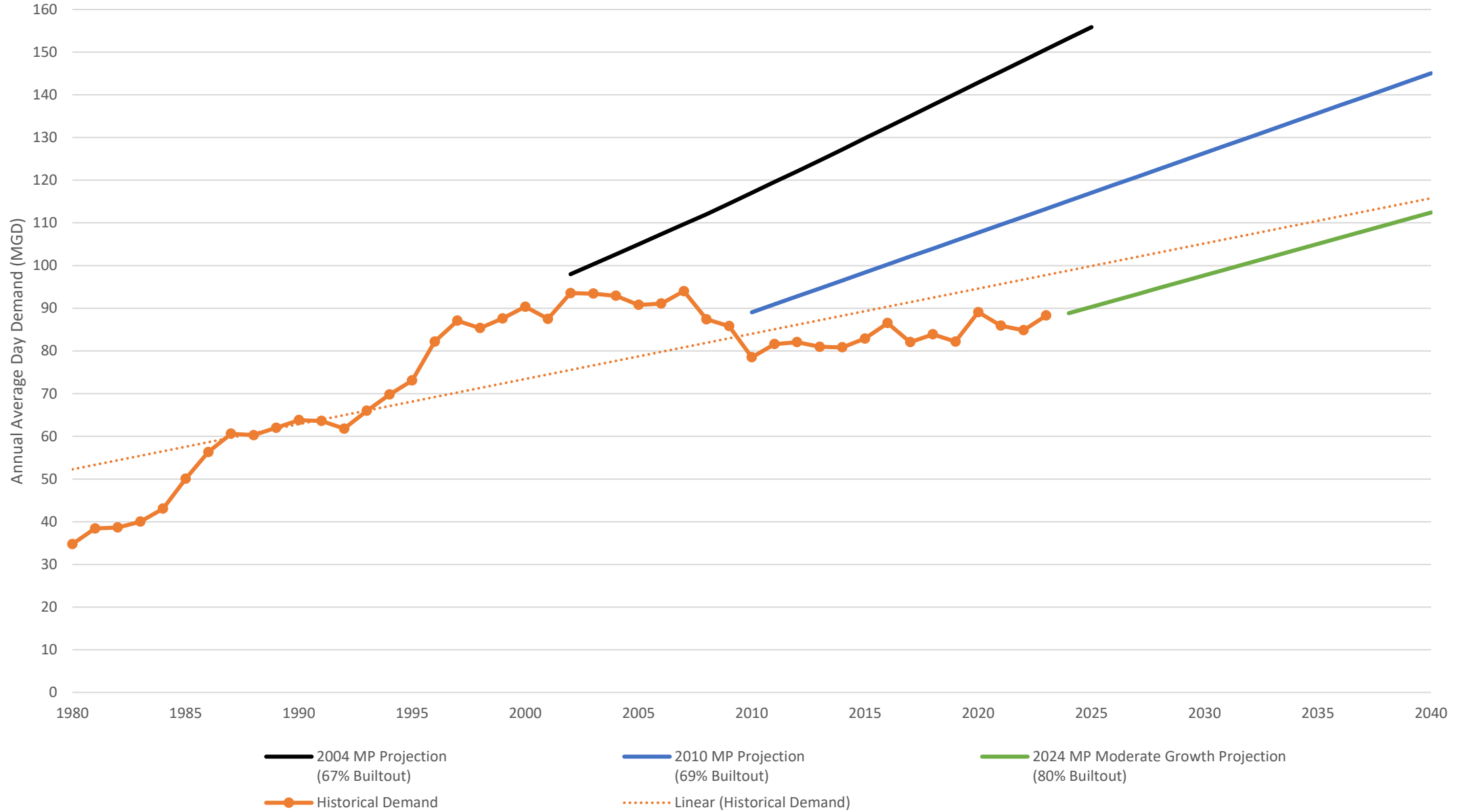
- AMI will be used to alert City staff and customers to water leaks
- Residential usage per account has declined 35% since 1997
 - Driven by changes in plumbing code
 - Conservation messaging
 - More efficient plumbing fixtures
- Integrated Master Plan updated the build-out demands based on the lower usage per customer.
 - Demands can be met with smaller facilities and more sustainable water supplies
- Following graphs show the trend in declining consumption



Average Day Demand Historical vs. Master Planned Water Demand



Average Day Demand Historical vs. Master Planned Water Demand

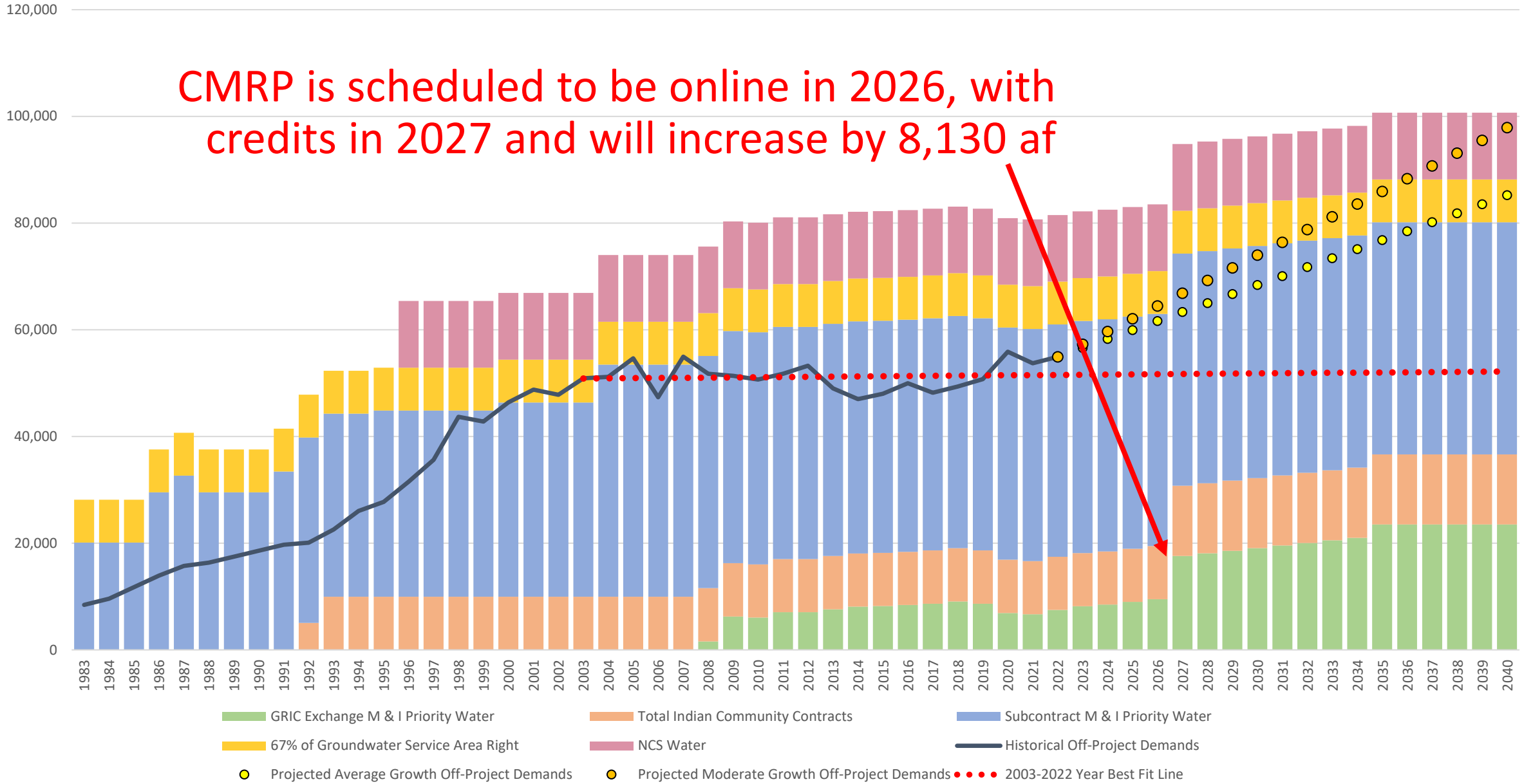


100% Beneficial Reuse of Reclaimed Water

- SEWRP & GWRP direct Mesa's reuse water to the Gila River Indian Community in exchange for secure and affordable CAP supplies
- NWWRP currently recharges reuse water at GRUSP (when available). CMRP under construction to soon exchange this resource with GRIC
- Through its partnership with Phoenix at the 91st Ave. Wastewater Treatment Plant, Mesa contributes reuse water to:
 - Palo Verde Nuclear Power Plant
 - Tres Rios Wetlands
 - Buckeye Irrigation District



Off-Project Water Supply vs Demand



Association of Metropolitan Water Agencies – Sustainable Water Utility Management Award

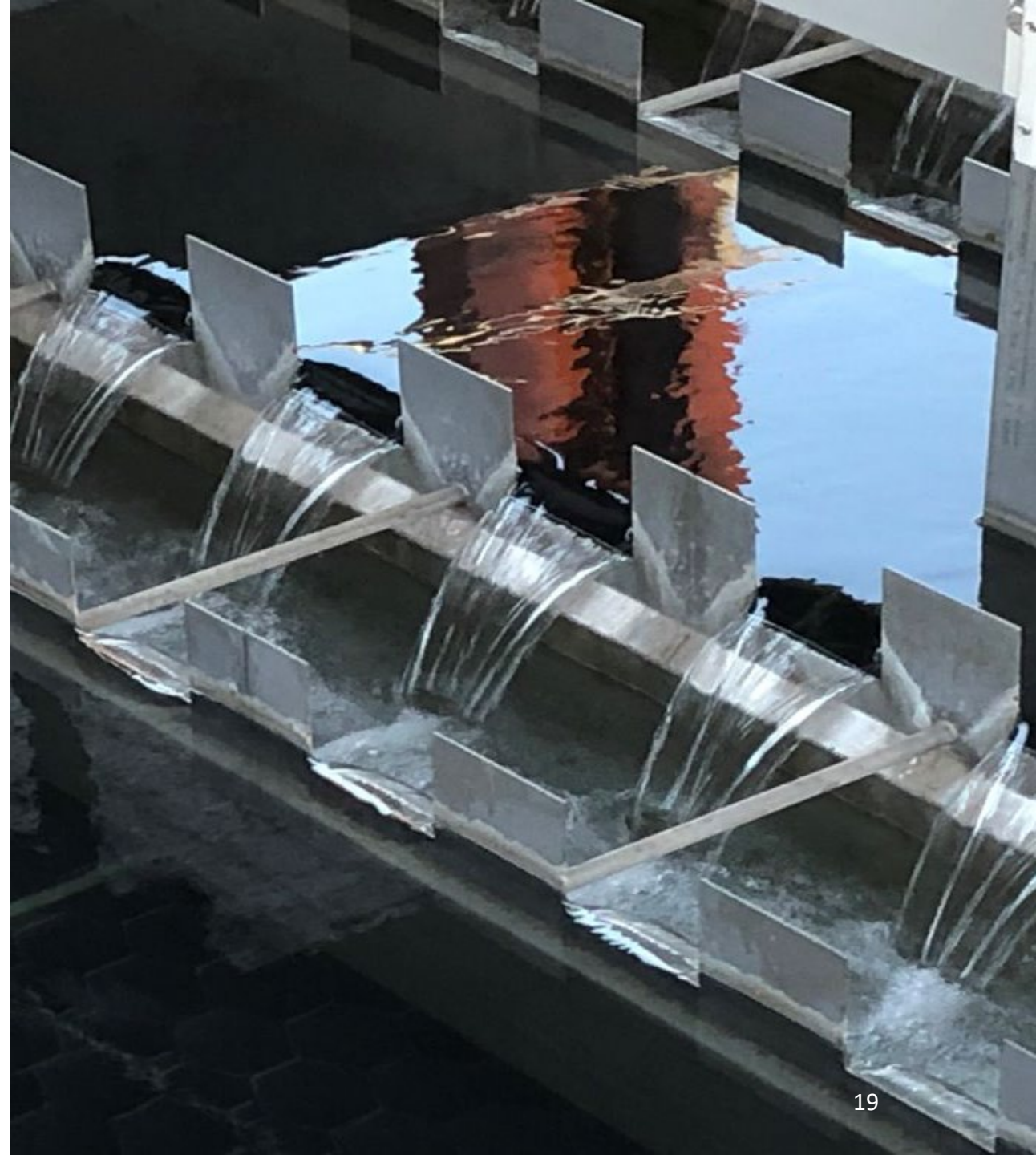
- Mesa recognized as one of only six water utilities across the country
- Recipients recognized for achieving a balance of innovative and successful efforts in economic, social and environmental endeavors such as:
 - Responsible management of resources
 - Protection of public health
 - Meeting responsibilities to the community
 - Providing cost-effective services to ratepayers



2023 Sustainable Water Utility Management Award

Conclusion

- Integrated Master Plan ties water, wastewater, reclaimed water and water rights into one comprehensive plan
- Helps guide the direction of water and wastewater system management for both the near and long term
- Integrated Master Plan connects with the goals of the overall General Plan





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