

Carson City Water and Wastewater Capacity Analysis Update



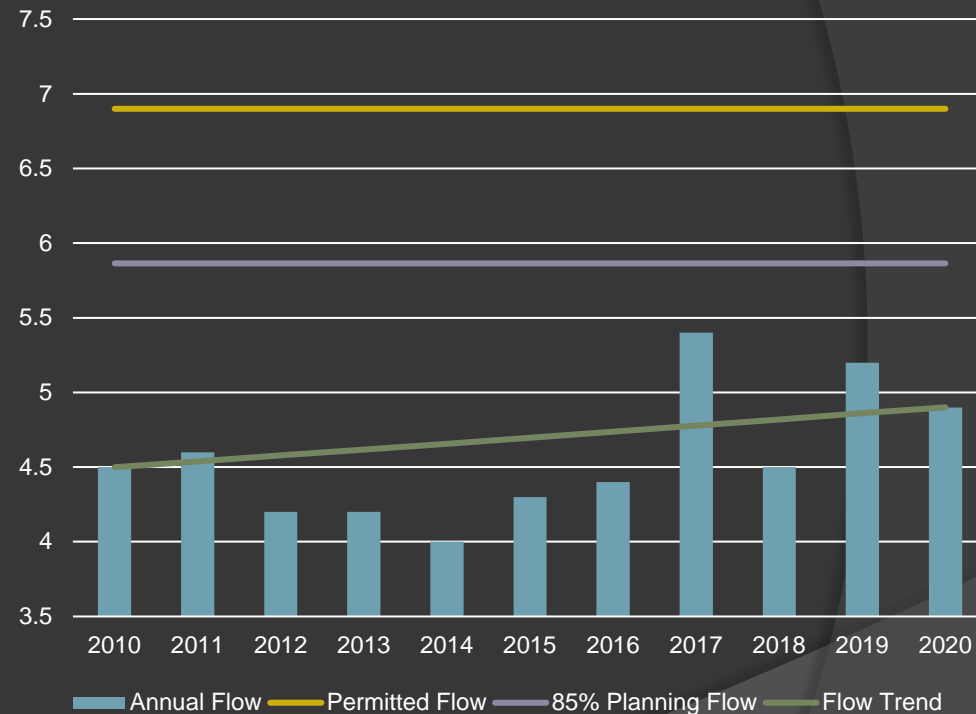
Planning Commission
May 26, 2021



Wastewater Treatment Capacity

- Currently treating approximately 5 mgd
 - Influenced by growth, moisture, water rates.
- Water Resource Recovery Facility permitted for 6.9 mgd
- Flows trending upwards at approximately 0.9%
- Facility planning for next upgrade required at 85% of permitted flow rate
- Reclaimed Master Plan update in final review

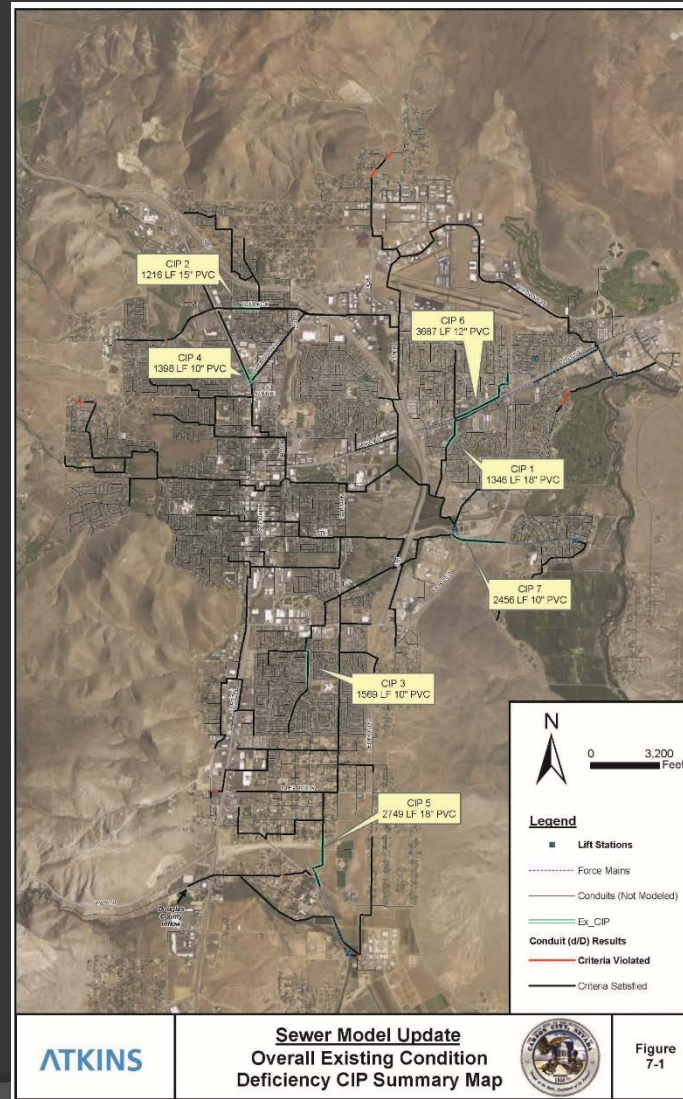
Carson City WRRF Flow
(million gallons per day)





Conveyance System Capacity

- Collection system Master Plan updated in 2017
 - Model review underway
- Buildout based model
Planned significant developments included
- CIP's identified for existing and future condition deficiencies





Asset Management and Projects

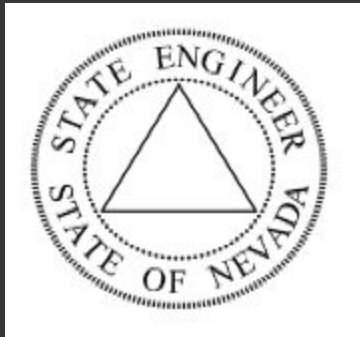
- Collection system video inspection
 - Provides condition-based ranking to assist in CIP prioritization
- Facility Condition Assessment recently completed
- Energy Audit at WRRF
- WRRF Electrical upgrades
- Lift Station upgrades



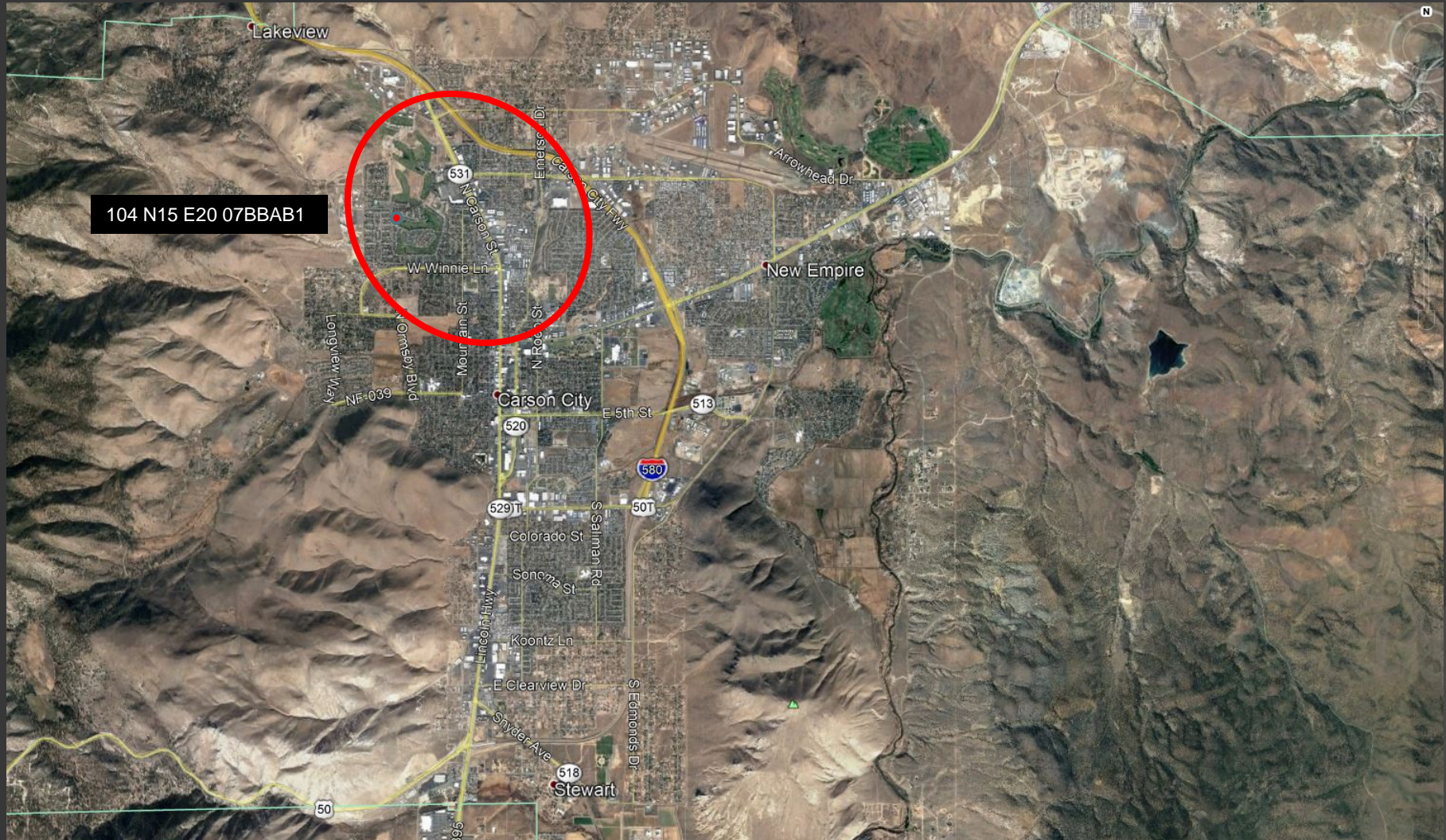


Overall Health of the Ground Water Basins (Diagnosis is good)

- Perennial Yield: The maximum amount of groundwater that can be salvaged each year over the long term (think 100's of years) without depleting the groundwater reservoir.
- Basins are over allocated but not over pumped
 - Eagle Valley Yield of 9,000 AFA vs. Pumped 4-5,000 AFA
 - Dayton Valley Yield of 8 to 20,000 AFA vs. Pumped 8-10,000 AFA
 - Carson Valley Yield of 49,000 AFA vs. Pumped 30 -35,000 AFA
- Regulated by the State Engineer's (SE) Office. Data tracked by USGS.



Northwest Eagle Valley

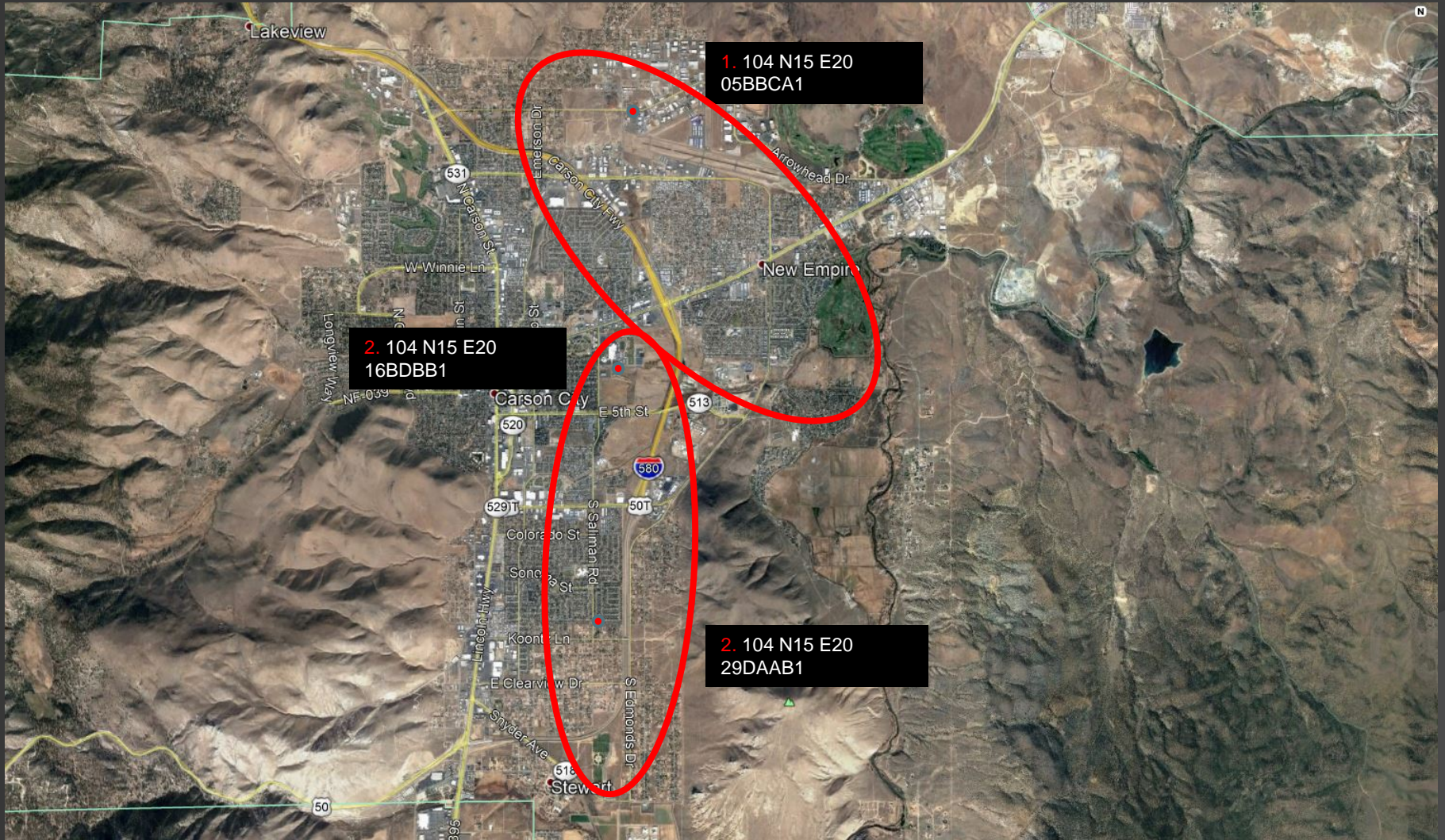




Hydrograph For Site 104 N15 E20 07BBAB1

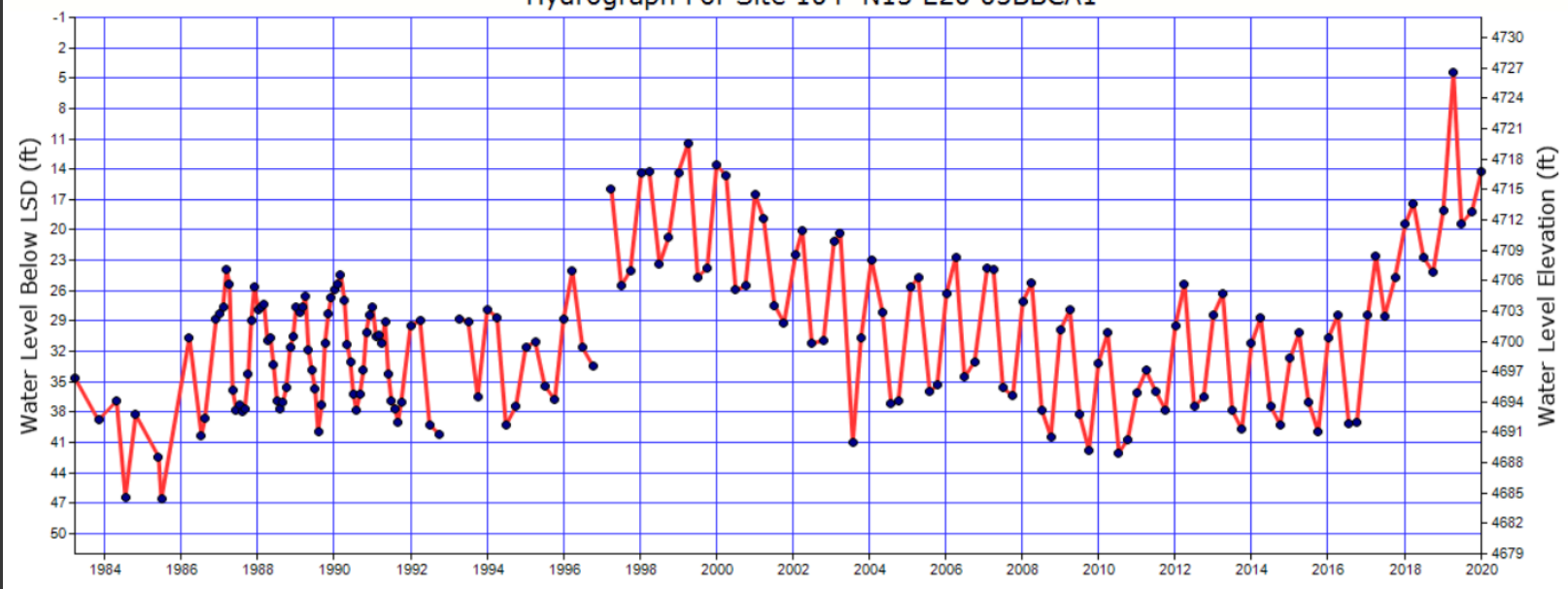


Central Eagle Valley

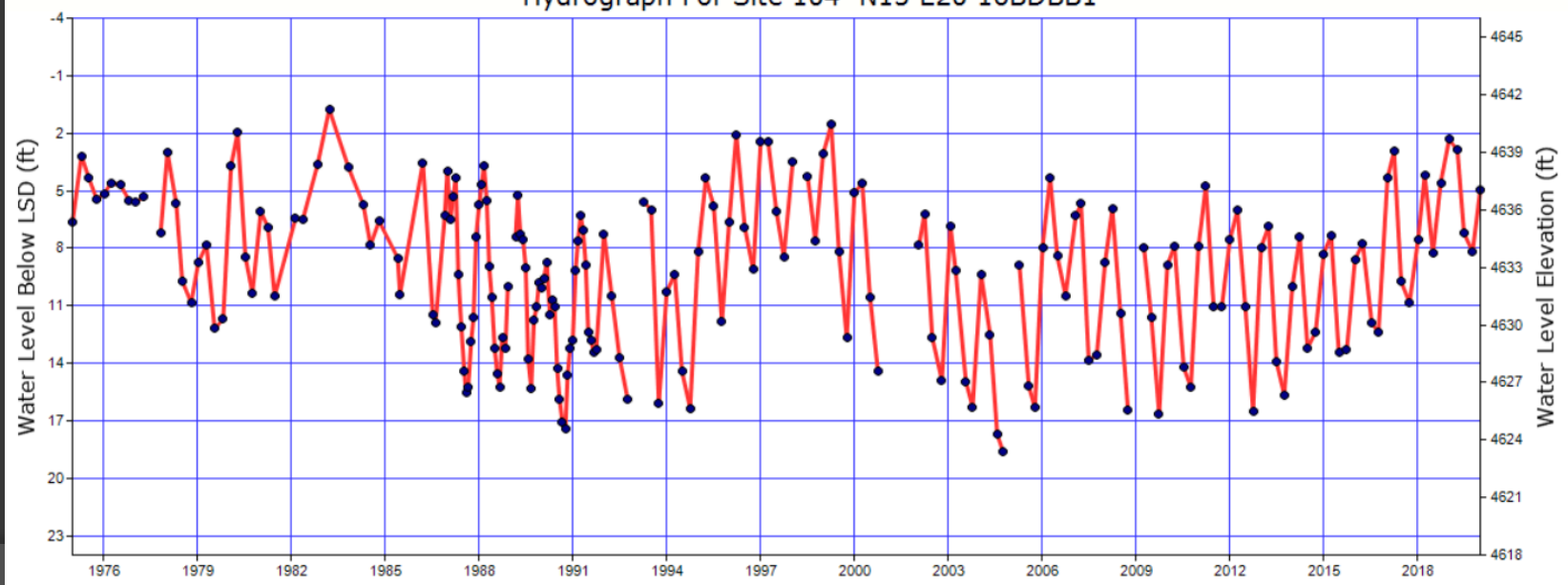




Hydrograph For Site 104 N15 E20 05BBCA1

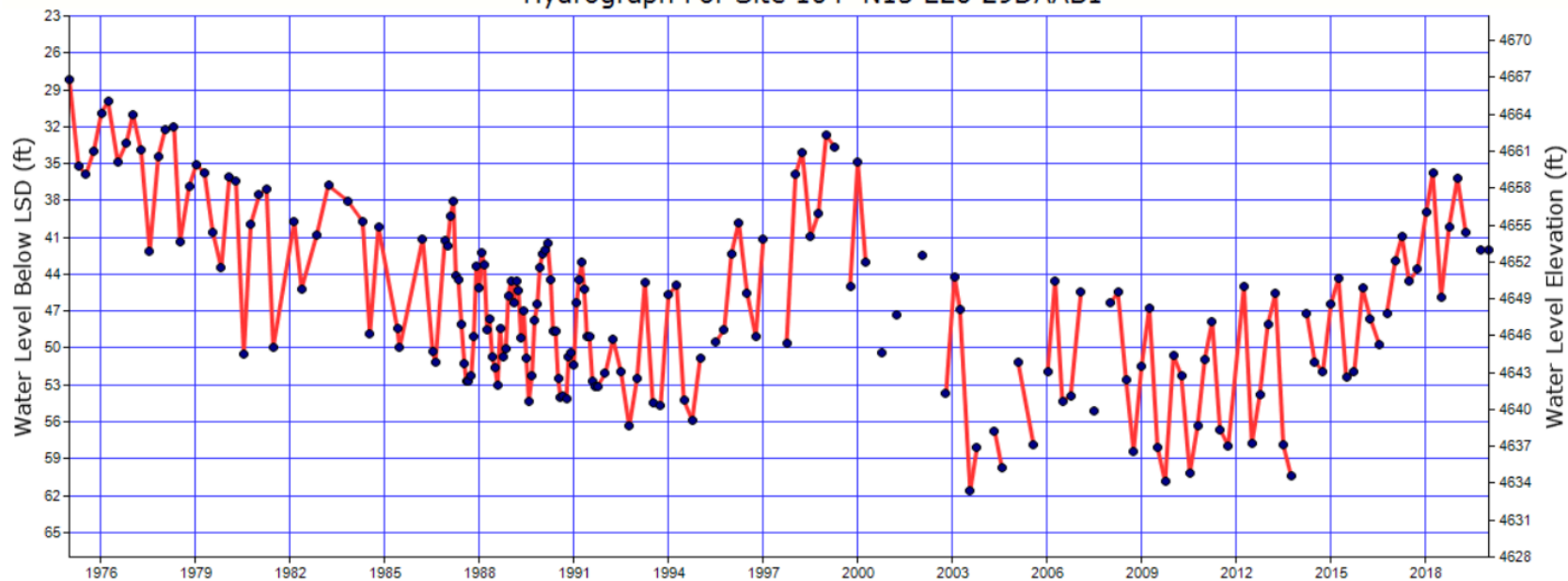


Hydrograph For Site 104 N15 E20 16BDBB1





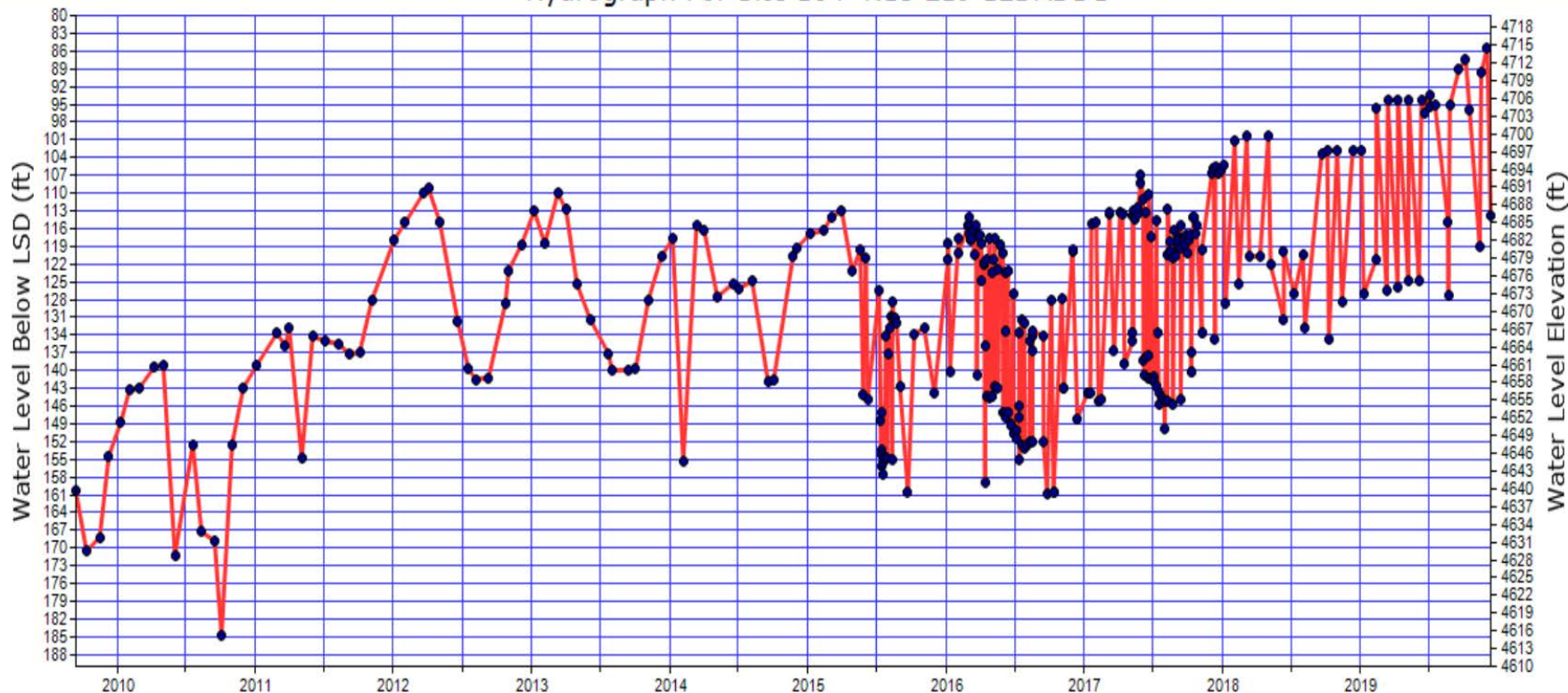
Hydrograph For Site 104 N15 E20 29DAAB1





Well 3 GW Levels

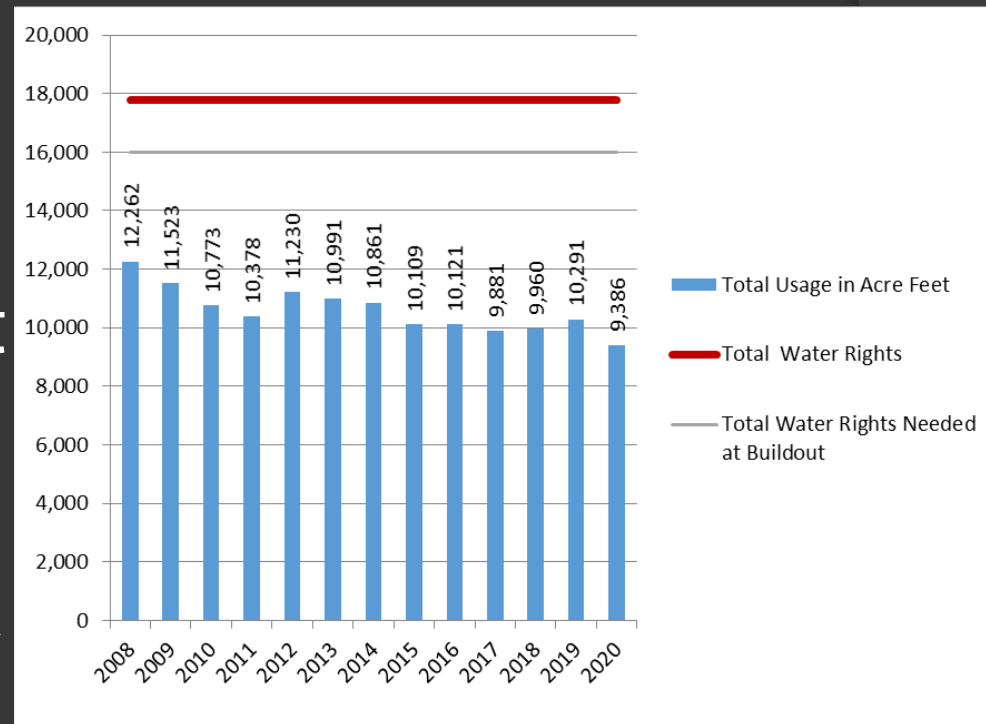
Hydrograph For Site 104 N15 E19 12DADD1





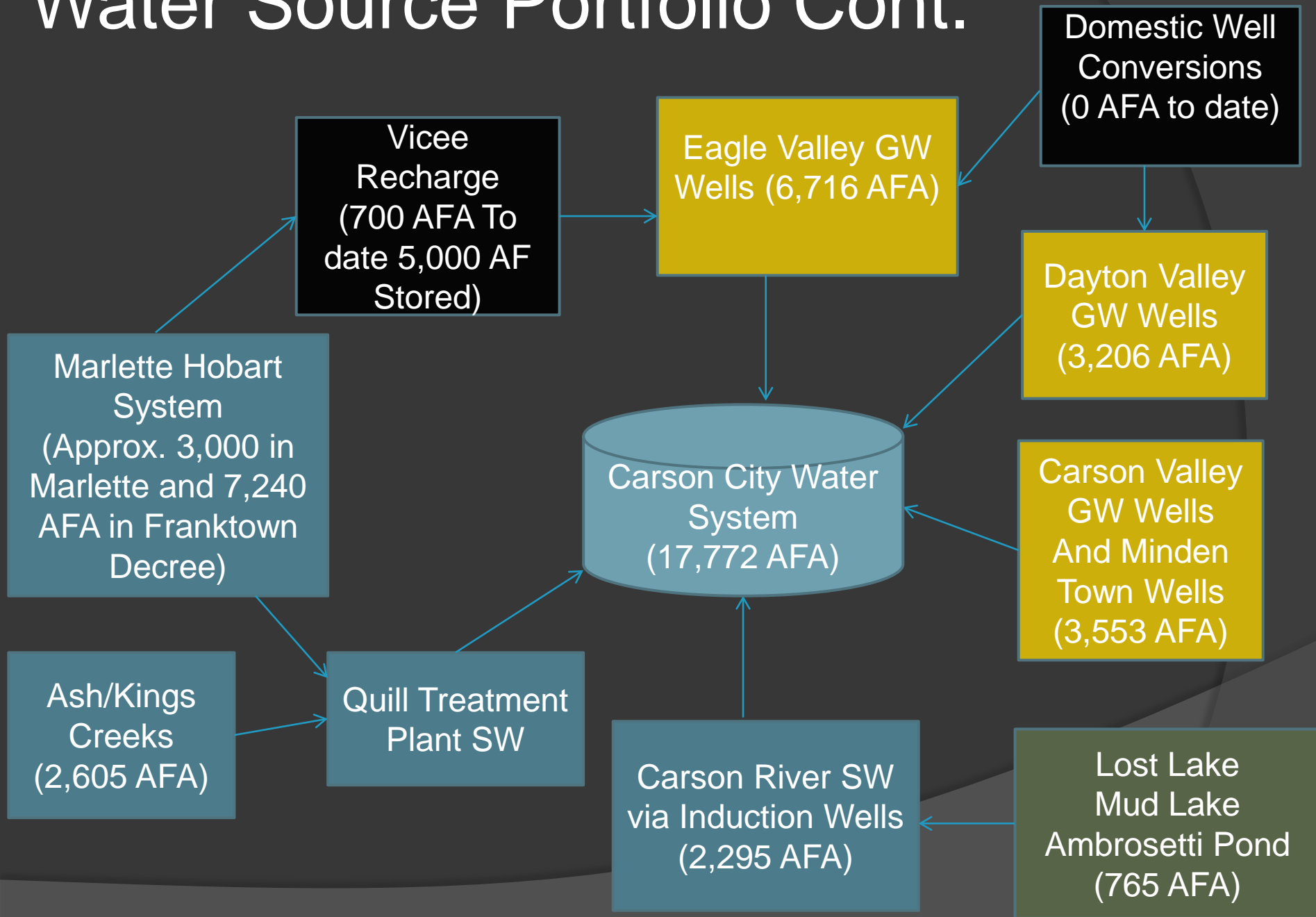
Usage/ Max Day Demand Summary

- Buildout Timeframe-
Population of 80,000
between 2055 and
2085
- Increase annual water
usage by 5,000 ac-feet
at buildout (< current
available water rights)
- Increase production by
8 MGD to meet
buildout demand w/
20% buffer



Annual Water Usage Projection

Water Source Portfolio Cont.



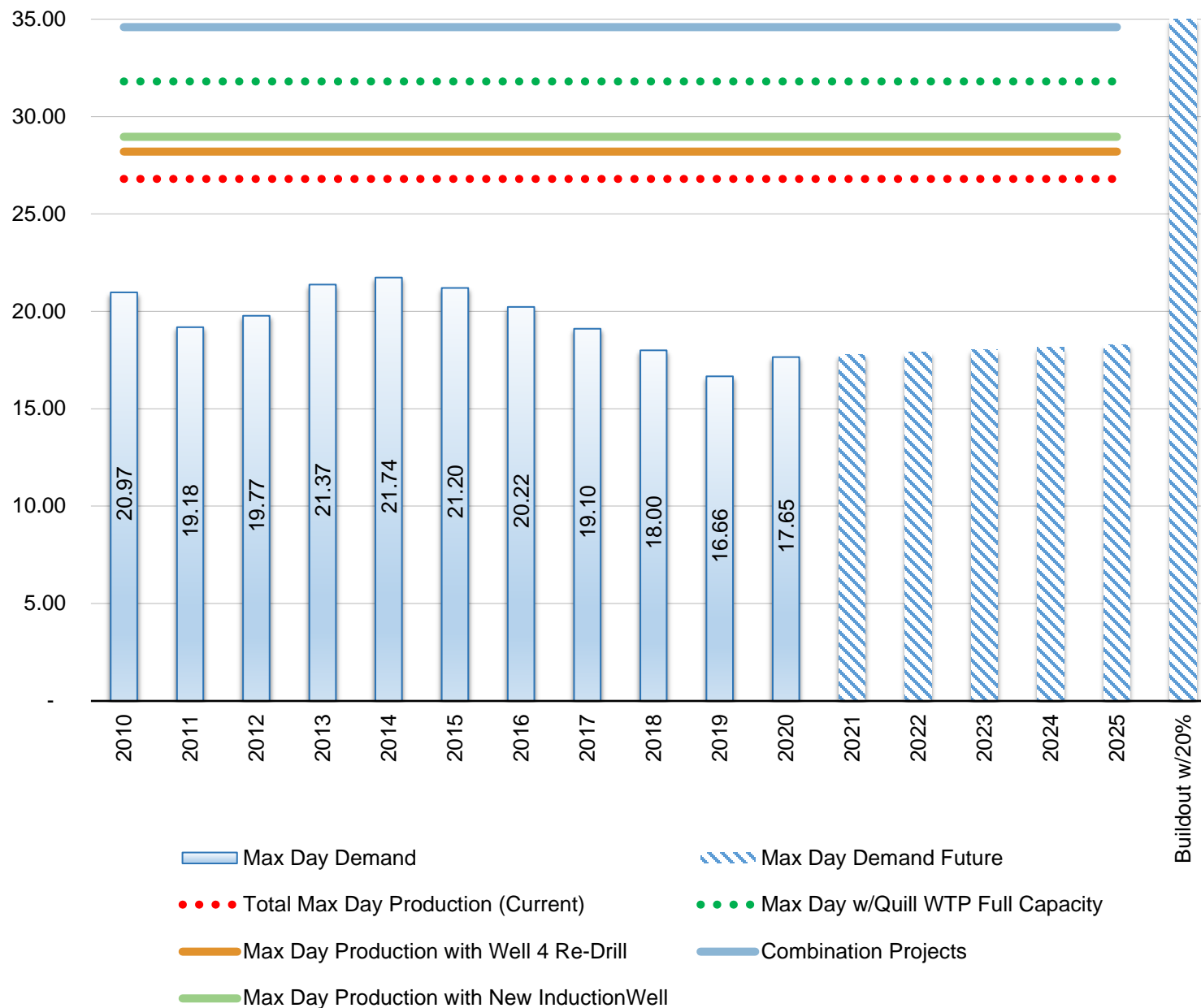
Future/Current Projects related to System Efficiencies, Redundancy and Future Demand

- East/West Transmission Main and Booster Pump Station – Final Phase 2B (Carson City)
 - Completed 2021 Required for System Resilience (moving imported water to the entire system)
- Well 3 Re-Drill (Double the Capacity)
 - Completed 2021 (added 1.87 MGD to existing total capacity)
- Quill WTP Improvements
 - Design is underway by Lumos and Jacobs Engineering.
 - Conjunctive Use, Demand, and Water Quality Driven
- Well 4 Re-Drill
 - 2024
- New Induction Well
 - TBD



New Well 3B

Carson City Max Day Demand (Million Gallons per Day) vs. Total Production (MGD)



Conclusion



- Complex and dynamic water system
- Diverse water portfolio
- Secured water rights for the future in healthy basins
- Strategic, smart and resilient plan to increase production, improve system inefficiencies and redundancy