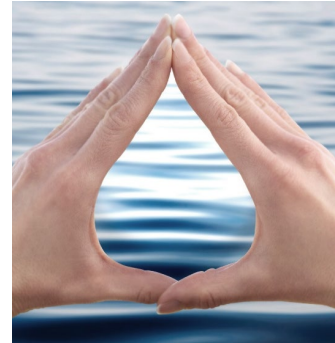


January 13, 2020

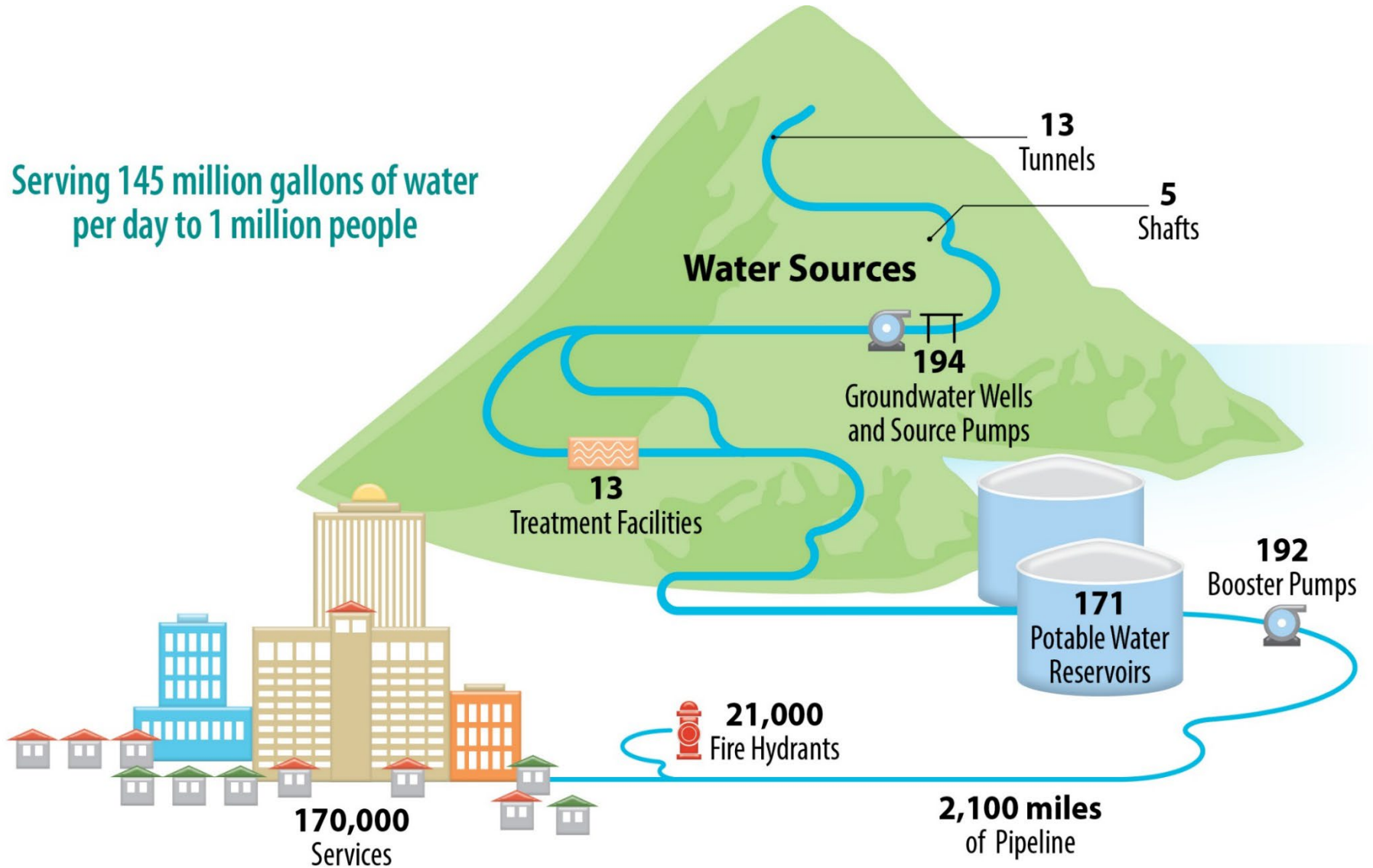
Impacts of Climate Change on Honolulu Water Supplies and Planning Strategies for Mitigation

Barry Usagawa, P.E. Water Resources Program Administrator, Honolulu Board of Water Supply

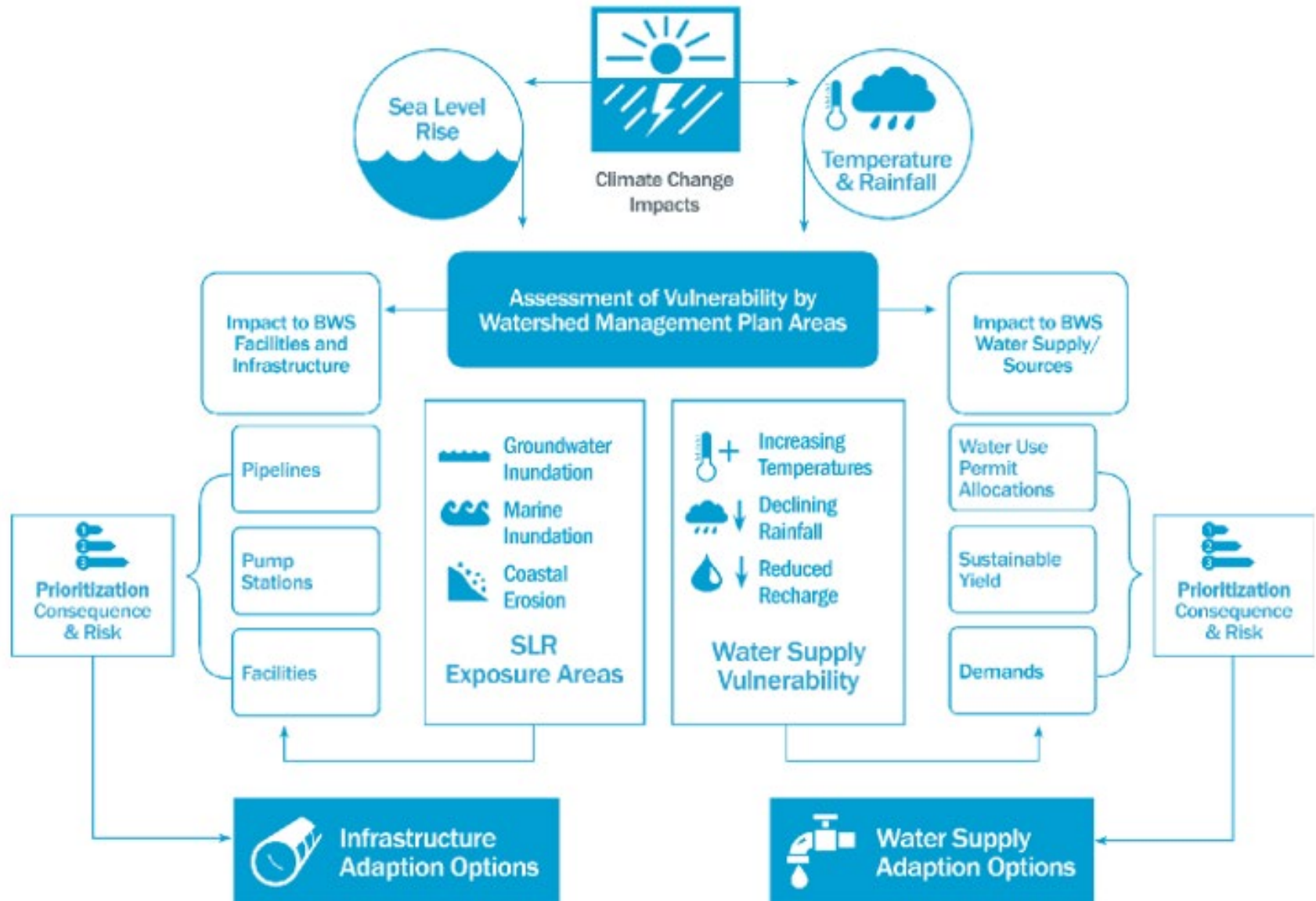


The BWS Water System is Large and Complex

Serving 145 million gallons of water per day to 1 million people



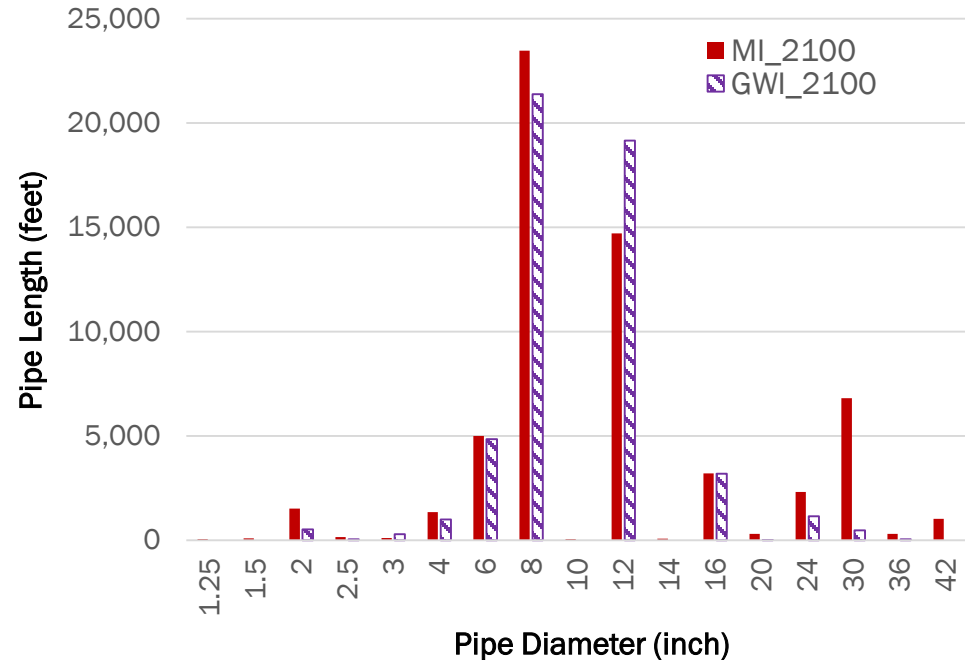
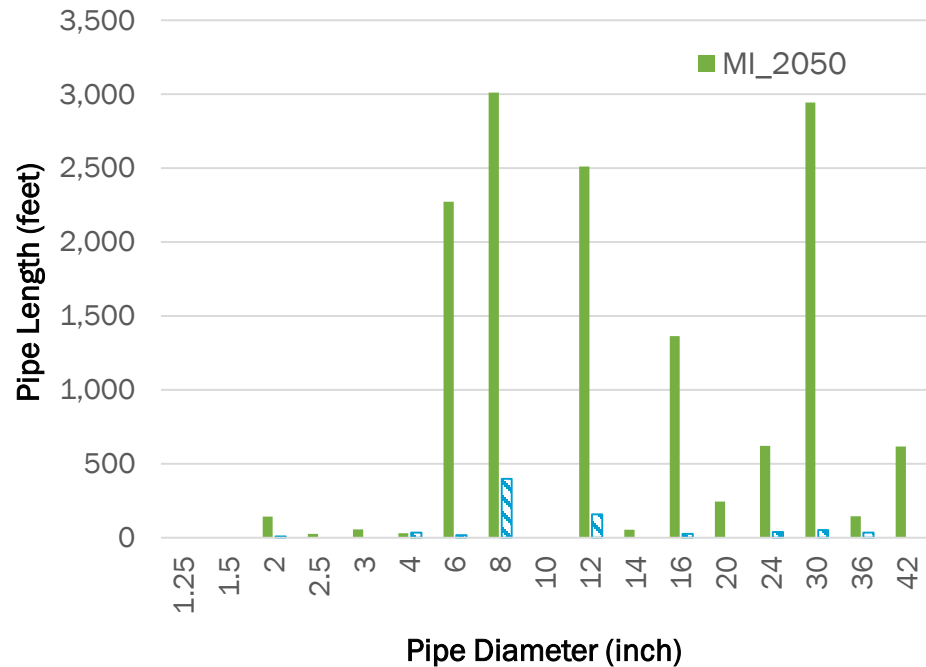
Vulnerability Assessment Approach



Corrosion impact to metallic pipelines will increase over the planning horizon

Pipe Lengths Impacted Island-wide by Hazard (feet)

Time Period	Year	SLR (feet)	Pipe Length for All Diameters (1.25-inch to 42-inch (feet)		Percent of Total BWS Infrastructure Impacted	
			MI	GWI	MI	GWI
Mid-Century	2050	1	14,038	772	0.1%	0.01%
End-of-Century	2100	3.2	60,409	52,026	0.6%	0.5%





Nimitz & Alakawa, July 3, 2018, 8:00 am, Lowest high tide of the day. Highest tide 1' higher

Sea Level Rise Action Strategy

																	Nuisance Flooding (24 x per year) at 0.52 m (Intermediate)		Mid-Century Benchmark of adapting to high tide flooding associated with 3.2 feet of SLR by end of century								End of Century Benchmark of up to 6 feet of global sea level rise																
Adaptation Measures																	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2036	2037	2038	2039	2040	2045	2050	2055	2060	2065	2070	2075	2080	2085	2090	2095	2100

Research and Monitoring

- Initiate implementation of the long-range infrastructure facilities plans and CIP.
- Utilize the SLRXA research to identify key infrastructure impacts.
- Continue environmental baseline data collection.
- Refinement of research on SLRXA that will be impacted
- Continue updates of islandwide SLRXA forecasting/modeling as new data becomes available
- Expand and continuously monitor tidal and groundwater well network to validate SLRXA modeling

Financing

- Mayor's SLR Directive establishing SLR targets, City agency policies & responsibilities for implementation
- Authorize CIP appropriations for SLR adaptation measures.
- Develop alternative funding strategies to supplement CIP appropriations.
- Establish a SLRXA assessment/fee to implement SLR adaptation measures.
- Authorization and appropriation of Federal matching funding.
- Develop tax incentive programs for private development to implement SLR improvements.
- Establish SLR improvement districts to fund site-specific SLR adaptation measures.
- Add SLR building codes and design criteria for new developments, (vertical standards 4712)
- Add SLR requirements to City Agencies long-range infrastructure facilities plans and CIP
- Adopt county framework for interagency coordination.
- Consolidate and streamline SLRXA environmental & permit review process.
- Incorporate SLR CIP design and construction improvements in annual budgets.

