

Conceptual Sewer Capacity Metrics – North Sewer Service Area

September 13, 2021





Metric Objectives

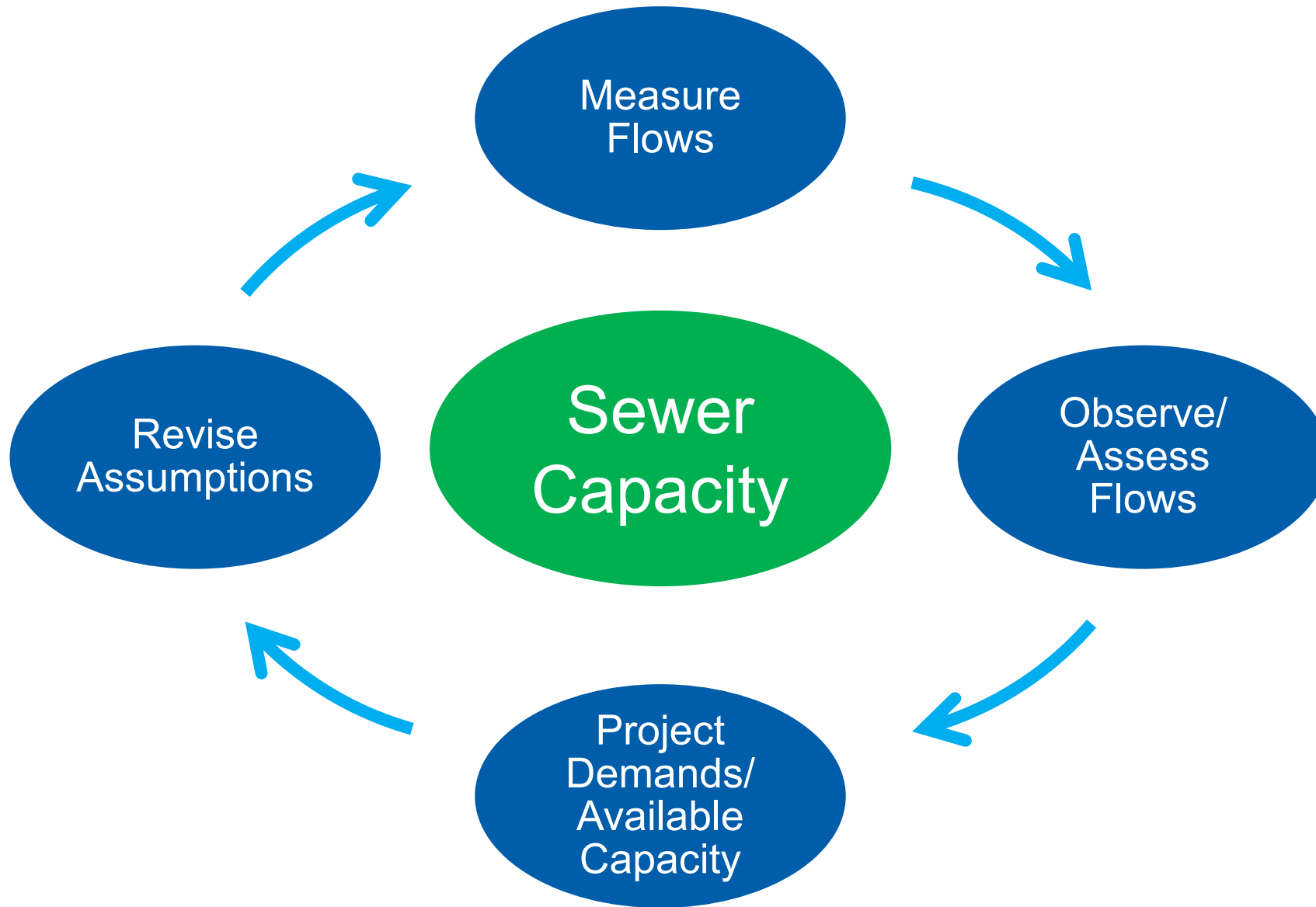
1. Monitor flows in and out vs. design capacity
2. Track future connections/projected added demands vs. design capacity and future programmed capacity
3. Assess effectiveness/ impacts of I&I abatement
4. Use data to manage Certificates of Availability/
Developer Extension Agreement (DEA) commitments vs. capacity



Requisites/Data for Metric

- › Flow monitoring at points of system constraints using SCADA and flow monitors
 - Lift Stations – inflow and outflow (North Lake, Central Lake)
 - Critical main location
- › System design capacity – existing and planned
 - Lift station pumping capacity
- › Flow assumption for projected new connections/ERUs
- › System for tracking ERUs connecting/discharging to system and number of ERUs in the pipeline

Sewer Metrics

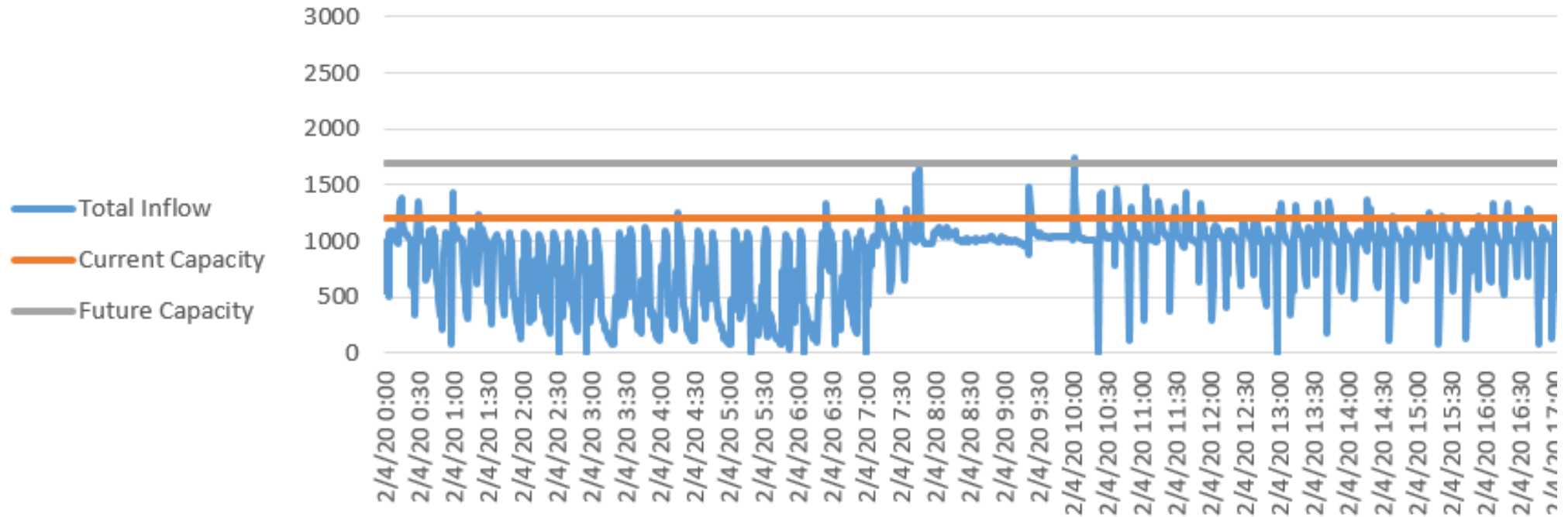




1. Actual Flows vs. Design Capacity Metric

- › North Lake and Central Lake Lift Stations
- › November – April Peak Season
- › Gallons Per Minute (GPM) Basis
- › View graphically against design capacity
- › Frequency of Staff Review: daily
- › Frequency of Board Review: monthly or when notable event occurs

Conceptual Lift Station Flow Graphic



*Rain flow data will be included



2. Future Connections/Projected Demands vs. Design Capacity and Future Capacity Improvements Metric

- › Based upon actual flow vs. design
 - Project on an ERU basis how many additional ERUs the system can serve
 - Assume a peak demand of 0.36 GPM per ERU
 - Recorded Flow subtracted from Design Capacity divided by ERU GPM assumption = Available ERU Capacity
- › Metric can also be used to project how many ERUs programmed improvements can serve
- › Metric assumptions can be reset after credible data allows or system improvements are constructed or expected to be completed
- › Frequency of Review: Monthly



3. Effectiveness/Impacts of I&I Metric

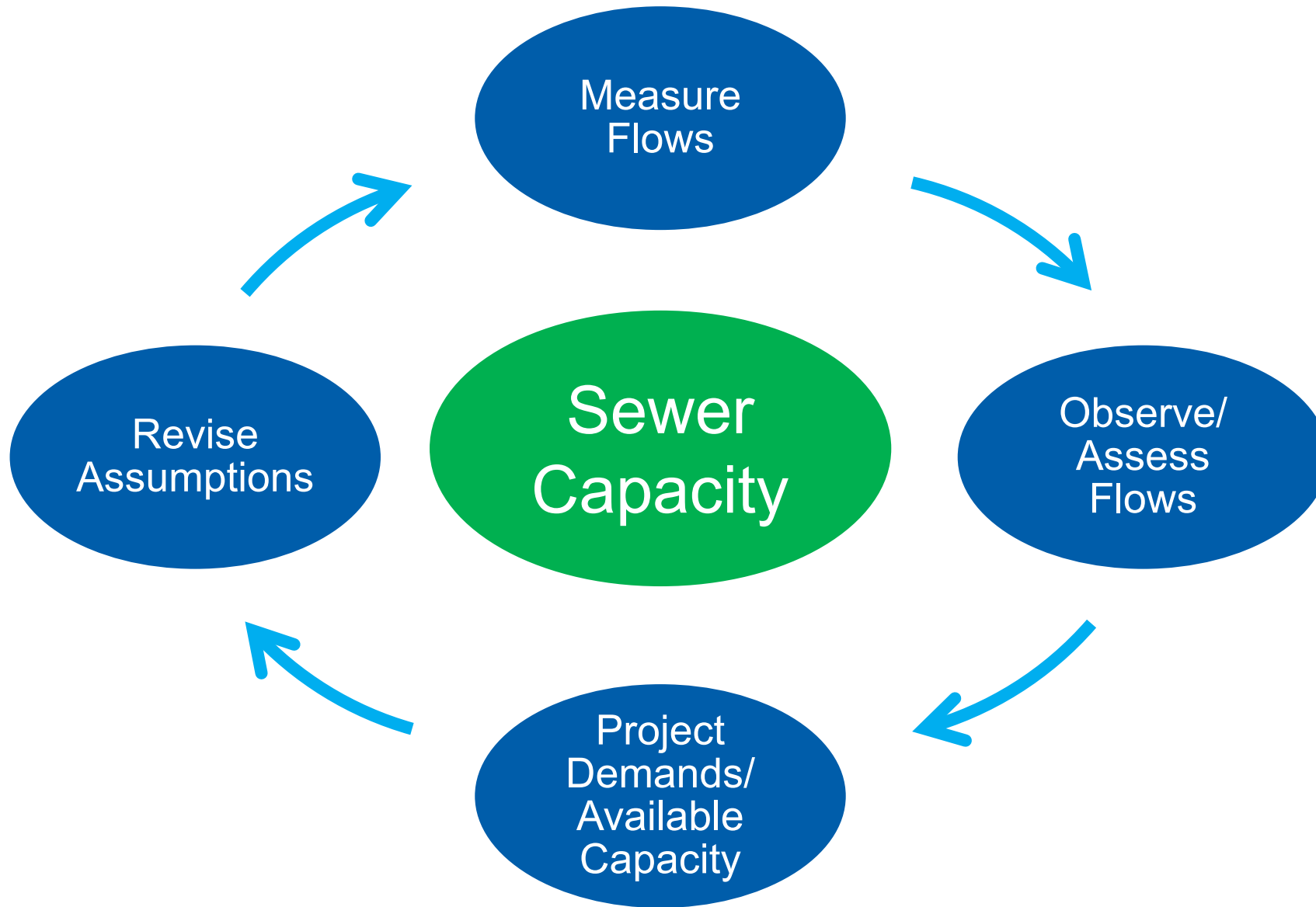
- › Element of flow vs. Design Capacity metric
- › Is simply flow monitoring to assess changes during peak months
- › If noticeable changes are observed in actual flows vs. design capacity the wet weather ERU assumption can be revisited
- › Frequency of Review: After peak events and monthly



4. Certificates/DEA Commitments vs. Capacity Metric

- › Tracks number of ERUs by lift station/basin we have committed to serve
- › Project flows based upon wet weather ERU assumptions compared to design capacity
- › To be used to place time conditions on certificates and DEAs if we find capacity limitations
- › To be used for all planned improvements until Sammamish Plateau Diversion is constructed
- › Frequency of Review: Monthly

Sewer Metrics





Final Thoughts

- › This is art and science
- › Systems are dynamic and impacted by District initiatives
- › Storm events are unpredictable and unique
 - We don't control the weather
- › Be cautious with over-projecting/committing capacity
- › Processing and reporting data is evolving
- › Be cautious to not chase data