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
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

1. Measure Flows
2. Observe/Absess Flows
3. Project Demands/Available Capacity
4. Revise Assumptions
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