

Valley Water's Purified Water Project

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Environmental Services



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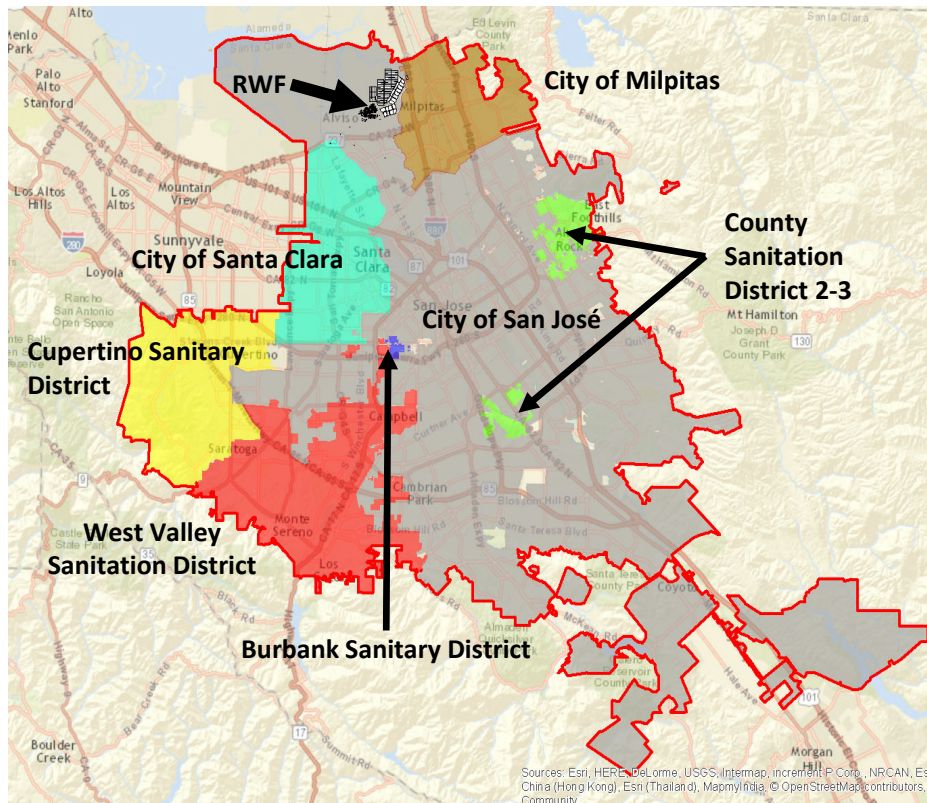
Background

Council Direction (9/1/20) – establish a negotiation team to develop or expand programs for water reuse, including both recycled water and purified water.

Prioritized Solutions that include the following:

- To not incur additional liabilities or other adverse financial impacts on the Regional Wastewater Facility and sanitary sewer collection system;
- To not increase the discharge of nutrients and other pollutants to the Bay
- Minimize or reduce greenhouse gas emissions;
- Support a vibrant and adaptive ecosystem in the Lower South San Francisco Bay;
- Minimize the drinking water rate impact on our residents;
- Ensure long-term viable water supplies for San Jose.

San Jose – Santa Clara Regional Wastewater Facility



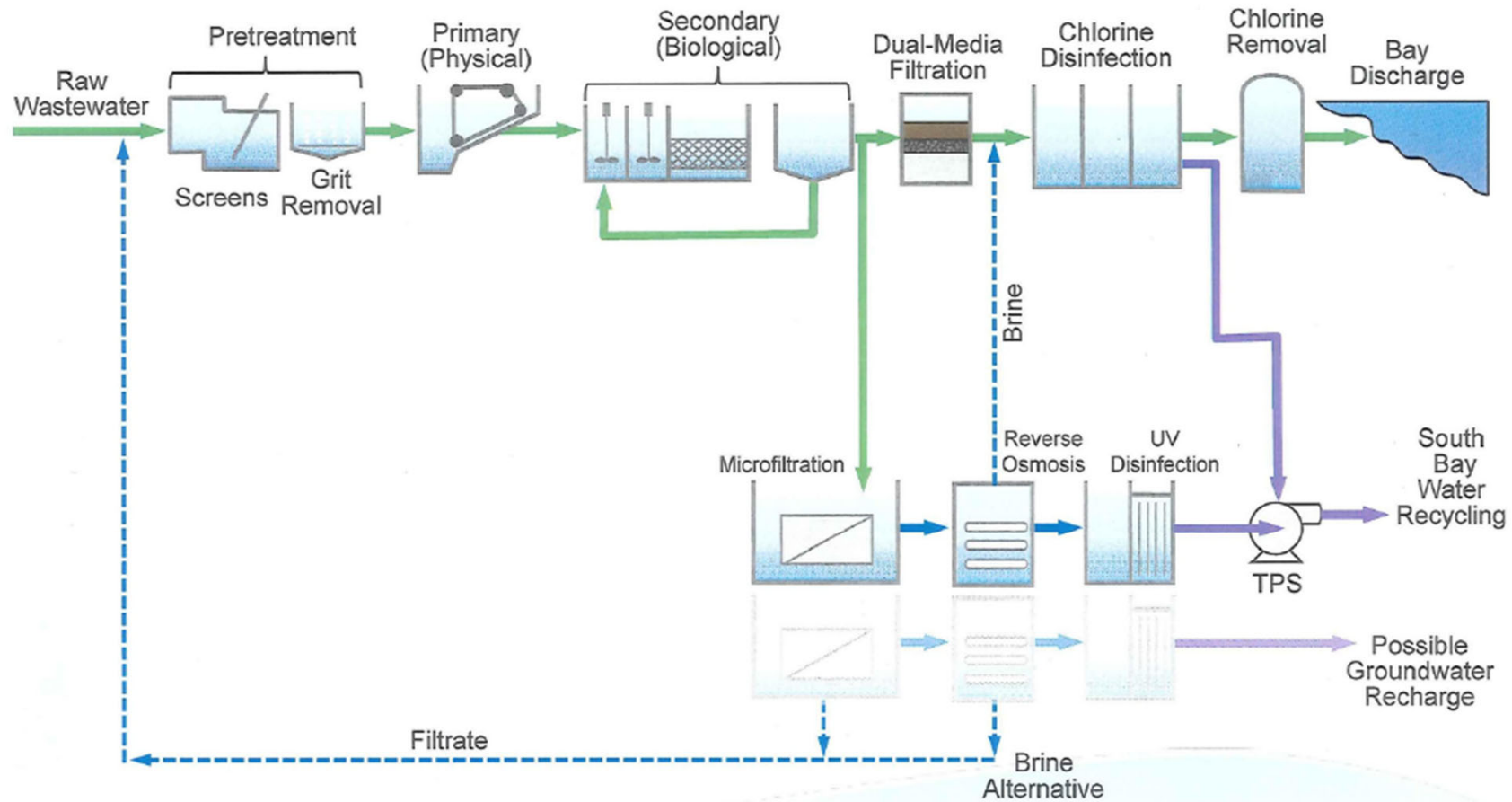
- Largest advanced wastewater facility on the West Coast
 - 167 MGD capacity
 - 2,600 acre site
- Serves
 - 1.4 million people
 - 17,000 businesses
 - 8 cities & County areas
- Continually operating 24/7 since 1956

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San Jose – Santa Clara Regional Wastewater Facility



Brine from RO process

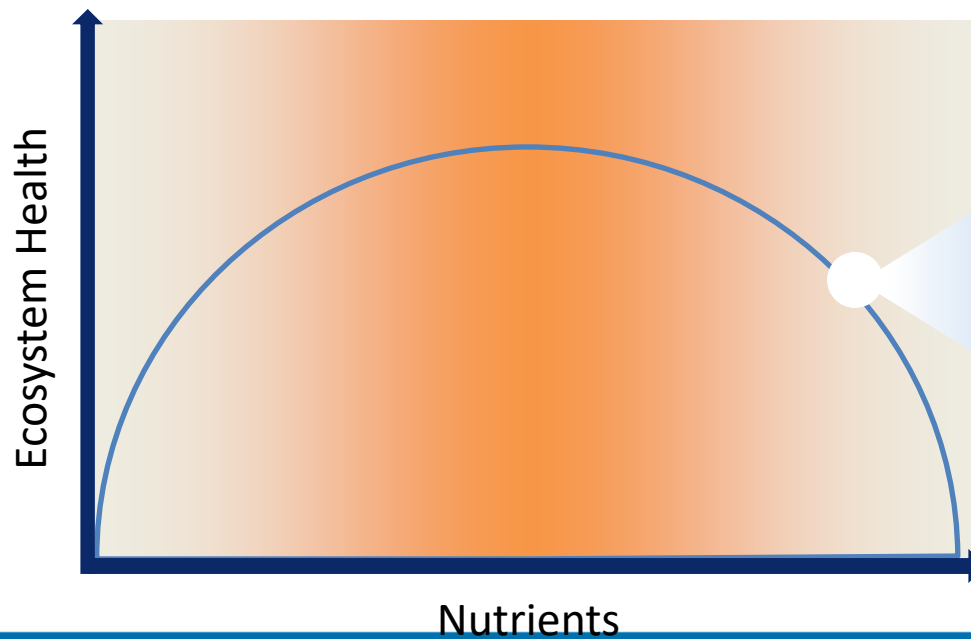


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Brine from RO process: Nutrient

- Nutrients are naturally present and essential for a properly functioning biological community
- Too much or too little can impact ecosystem health
- Historically, the Bay has been resilient, but recent concerns have prompted scientific / engineering investigations

Nutrients: (Ammonia, Nitrate, Nitrite)



Under some conditions, too much can lead to:

- Large algae blooms
- Low dissolved oxygen levels
- Harmful algae and toxins

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Wastewater Treatment Plants Represent the Largest Source of Nutrient Loads to the Bay

- 37 plants currently discharge 450 Million gallons per day on average
- Nitrogen 50,000 kg/day
 - 65% WWTP, 20% Delta Ag and 15% Stormwater



7M+
SERVICE
POPULATION



37

WASTEWATER
TREATMENT PLANTS



~450

MILLION GALLONS PER DAY
TREATED
EFFLUENT

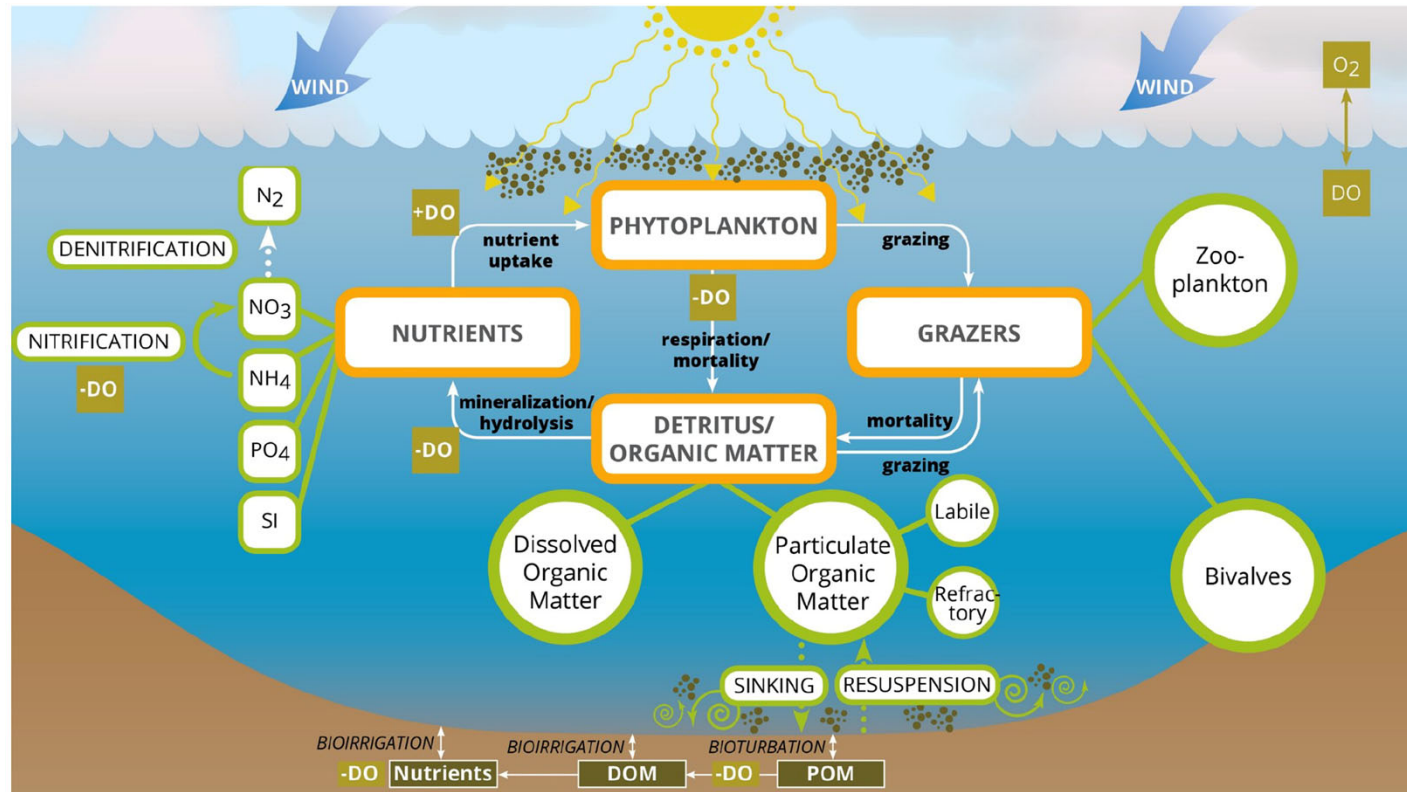


2/3's

OF NUTRIENT
LOADS TO THE BAY



Biochemical Transformations of Nutrients



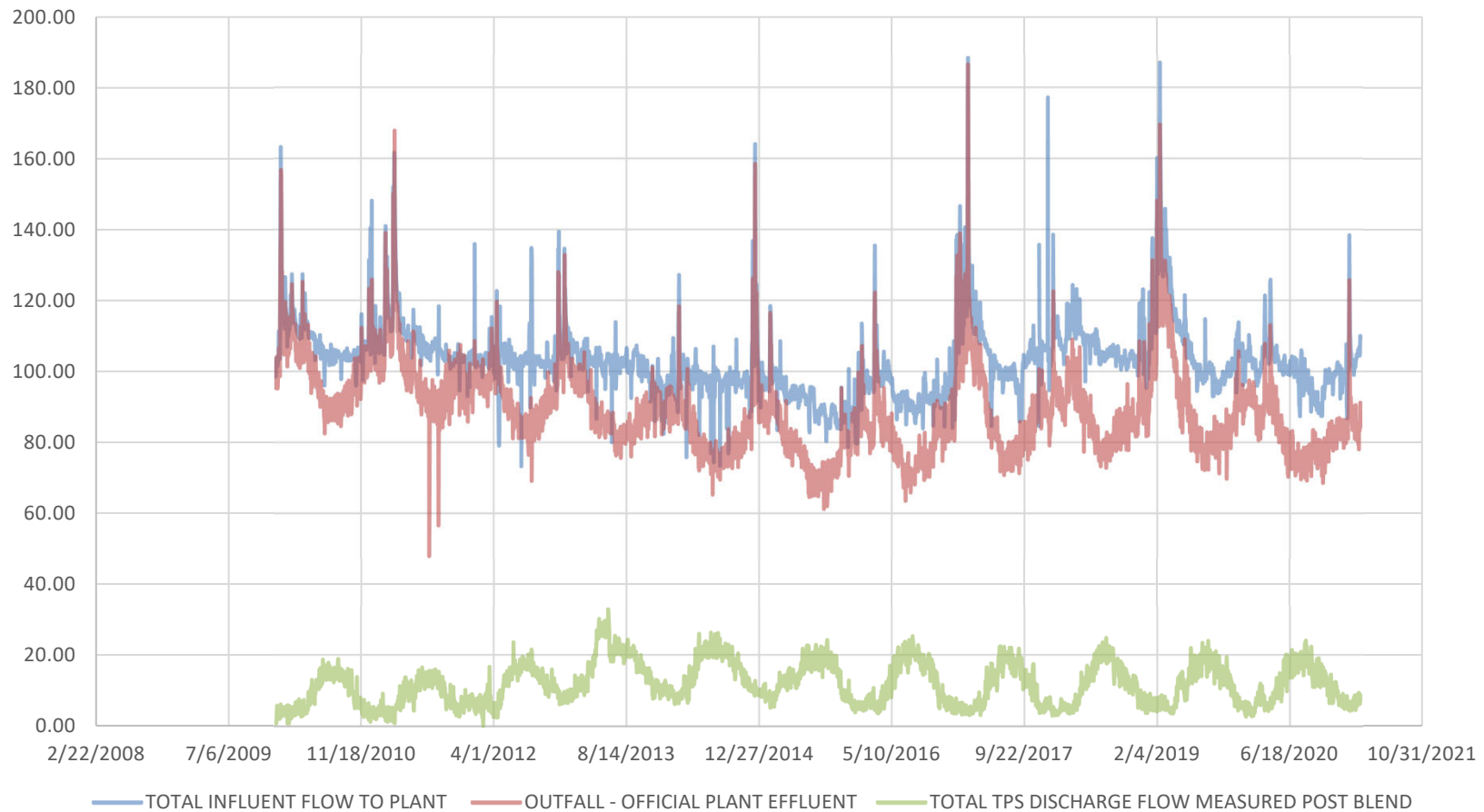
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Other Items of Concern

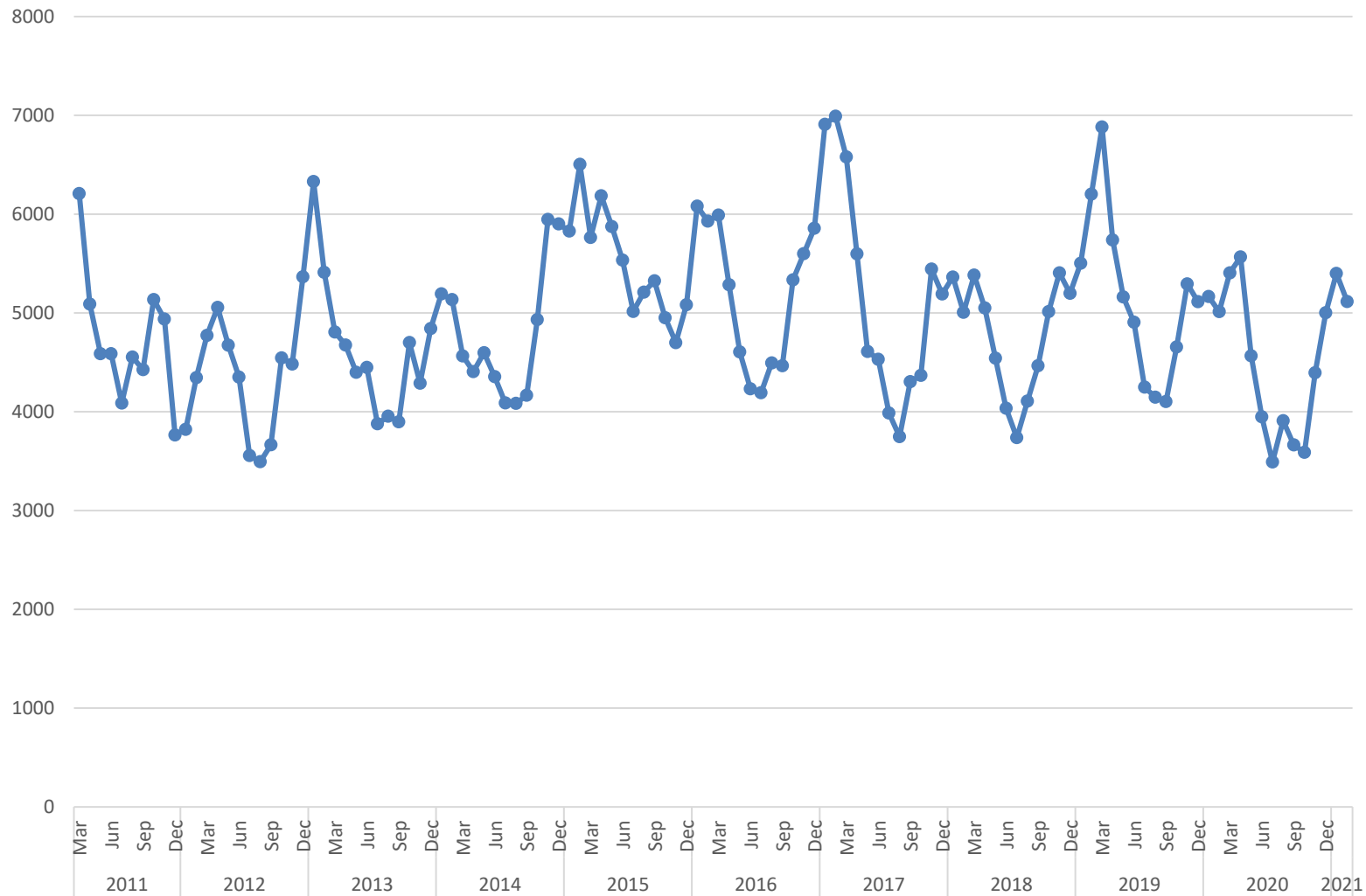
- Microplastics
- Emerging Contaminants
- PFAS and PFOA
- NDMA

RWF Influent, Effluent and Recycle Water



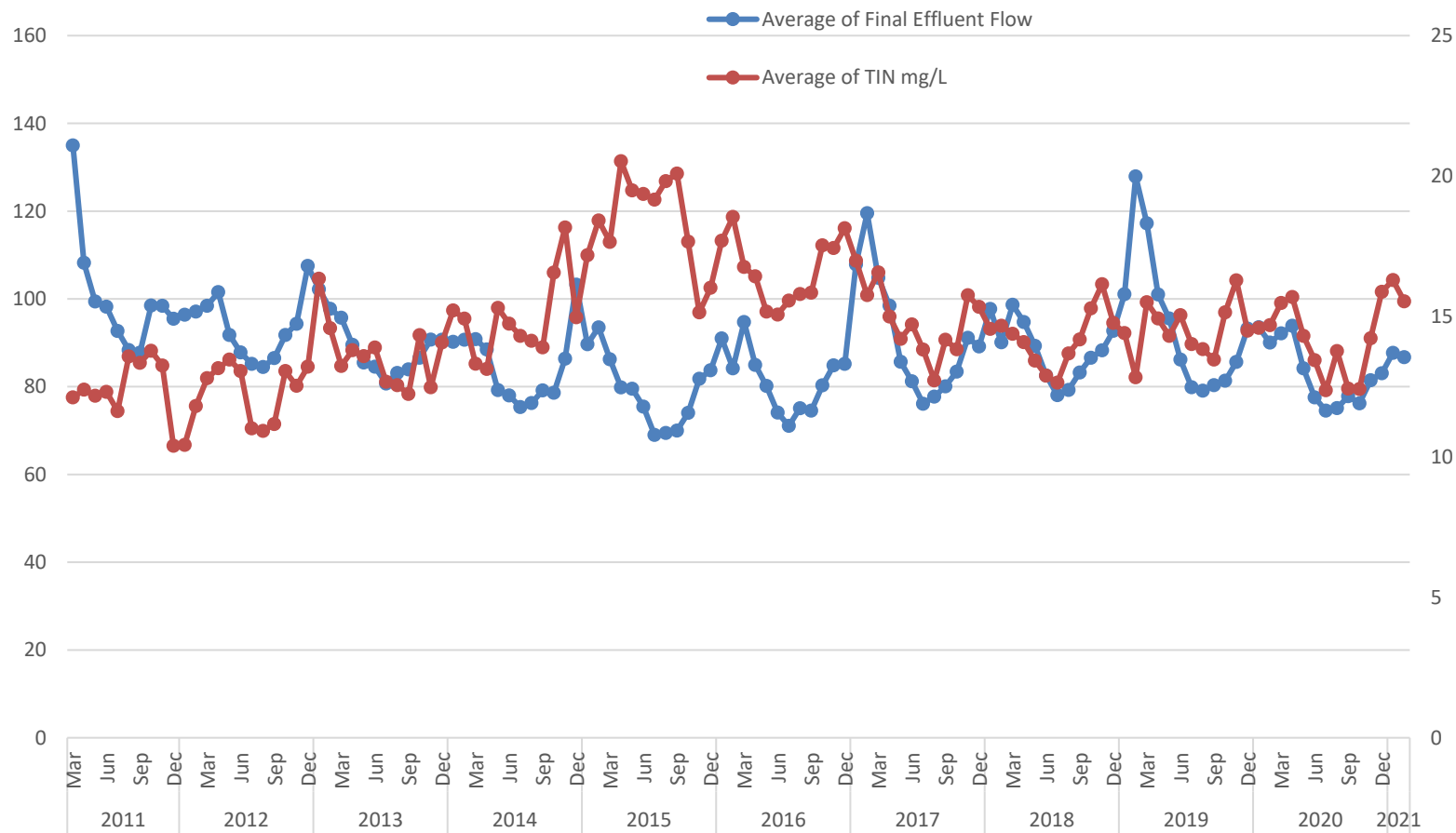
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Total Inorganic Nitrogen Loading monthly avg kg/Day



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Effluent Flow and TIN mg/L



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CIP Projects under construction at RWF



New Piperack for Digester Gas



New Headworks



New Thermophilic Digesters



Yard Piping Rehab

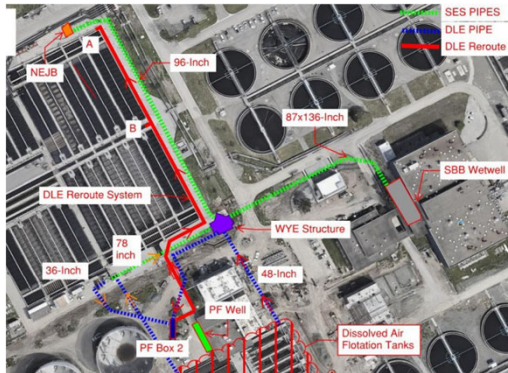


BNR2 Clarifier Rehab



New Cogen (completed)

CIP Projects under construction at RWF



96-inch SS Pipe Rehab



BNR2 RAS Gallery Valve & Flowmeter Repl.



BNR2 Flow Meter Replacement



BNR2 Blower Motor Replacement



New 96 Raw Sewage



Underground
Utility Locating



Operation and Risk Assessment

- Fully evaluate potential impacts to RWF effluent water quality; and potential long-term operational constraints;
- Ensure no long-term impacts to recycled water supply and quality;
- Appropriate legal analysis to ensure no risk to bond status from private activity
- Staff Resources: Subject Matter Experts

Next Steps

- Negotiate a Palo Alto / Mountain View Style Agreement
- Negotiate a long-term ground lease agreement for new purified water project
- Negotiate revisions to the 2010 Integration Agreement
- Negotiate or revise the Operations Agreement
- Negotiate a terms for Reverse Osmosis Concentrate that prioritize Council directed solutions

Interagency Collaboration:

- City of Santa Clara Council consideration and approval
- Consideration by the Treatment Plant Advisory Committee (TPAC)