THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering and Operations Committee

7/11/2017 Board Meeting

8-5

Subject

Adopt CEQA determination and authorize the removal of Modules 4, 5, and 6 from service at the Robert A. Skinner Water Treatment Plant

Executive Summary

This action reduces the Robert A. Skinner Water Treatment Plant (Skinner plant) flow capacity from 630 to 350 million gallons per day (mgd) by authorizing the removal of Modules 4, 5, and 6 (Plant 2) and associated infrastructure from service. In coordination with impacted member agencies, a staff analysis demonstrated treatment capacity exists above expected peak demands at the Skinner plant for potentially up to 25 years. Removal of Plant 2 will reduce costs while ensuring the region preserves adequate and reliable treatment capacity to meet expected demands.

Details

Background

The Skinner plant, located north of Temecula in Riverside County (**Attachment 1**), began delivering treated water in 1976. Increasing demand for treated water in the Skinner plant service area led to four plant expansions and the present capacity of 630 mgd. **Attachment 2** shows a schematic of the Skinner plant treatment facility. Although some systems such as ozone disinfection, chemical storage, and the finished water reservoir are used in common, the Skinner plant actually consists of three individually permitted plants. Plant 1 (Modules 1, 2, and 3) and Plant 3 (Module 7) consist of conventional treatment (coagulation, flocculation, sedimentation, and filtration) whereas Plant 2 (Modules 4, 5, and 6) consists of direct filtration (all processes except sedimentation).

Throughout the 1990s and early 2000s, peak demand on the Skinner plant increased from approximately 400 mgd to over 520 mgd (the design capacity at the time). Significant development in the Inland Empire and San Diego region led to a rapid increase in demand on the Skinner plant. Consultation with Metropolitan's member agencies relying on the plant projected continued regional growth into the future. After staff first coordinated the daily plant operations and the planning for facility expansions with the Skinner area member agencies, the Board authorized preliminary design for the fourth Skinner plant expansion in 2002. Skinner plant treatment capacity was increased from 520 mgd to 630 mgd with the completion of Plant 3 in July 2007. This capacity increase was beneficial for meeting peak demands for the remainder of 2007.

More recently, the Skinner plant has experienced significantly reduced demands (**Attachment 3**). Factors contributing to this reduction include increased conservation, the severe economic downturn of the late 2000's, new local supplies, and new supplemental treatment capacity installed by member agencies. As a result, sufficient capacity exists at the Skinner plant to consider removing portions of the plant from service.

As a related issue, the Board directed staff to review the treatment surcharge portion of Metropolitan's water rates in April 2016. In April 2017, the Board adopted a resolution approving a Treatment Charge Workgroup's proposed policy principles. One of the policy principles states, in part, "In an effort to contain overall treatment costs on an on-going basis, MWD shall programmatically identify opportunities to partially or fully

decommission unneeded treatment infrastructure and minimize future O&M and capital expenditures." This current examination of the Skinner plant capacity is consistent with this policy principle.

Skinner Plant Flow Forecast

Metropolitan staff conducted a study, based on the 2015 Integrated Resources Plan (IRP), to forecast peak flow demands through the year 2050. This study found that the daily peak flow on the Skinner plant should not exceed 350 mgd for up to the next 30 years. The forecast included the following important assumptions:

- The Skinner area agencies meet the 20 percent conservation goal by 2020 as required by SB X7-7 (2009);
- Water demands for San Diego County Water Authority and Western Municipal Water District grow at the rate identified in Metropolitan's 2015 IRP;
- Water demands for Eastern Municipal Water District (Eastern) grow at a rate 11 percent lower than identified in Metropolitan's 2015 IRP (this adjusted demand growth aligns with Eastern's long-term average);
- The member agencies continue to meet the same proportion of their treated demand from the Skinner plant;
- All local production and treatment facilities are available; and
- Daily peaking patterns remain the same as recent years.

Staff also met with member agency representatives to separately gather their estimates of their peak-day demands on the Skinner plant. The member agency data were then aggregated to show a second estimate of future Skinner plant demands. This analysis found that the daily peak flow should not exceed 350 mgd for approximately the next 25 years.

Attachment 4 summarizes the results of both studies and shows actual and forecast maximum daily Skinner plant flows. This figure shows the two separate flow estimates are in reasonable agreement given the range of uncertainty in long-term demand forecasting. Thus, the peak flow demand in the Skinner plant service area could be met without any of the treatment processes supporting the 280 mgd Plant 2 for up to the next 25 years. Because of the extended length of time that Plant 2 could remain out of service, and consistent with the Board policy principle to minimize future operations and maintenance (O&M) and capital expenditures, staff is recommending removing Plant 2 from service.

Specific equipment, which would be removed from service includes:

- All mechanical and electrical equipment, instrumentation, and filtration media within Plant 2;
- A portion of the ozone system, including two ozone generators, two ozone contactors, and all of the equipment and instrumentation which support these systems;
- A portion of the chemical feed systems, including the entire caustic soda tank farm at the ozone contactors; and one storage tank from each of the other chemical systems which store coagulants, pH adjustment chemicals, and ammonia; and
- A portion of the washwater reclamation plant including mechanical and electrical equipment and basins.

The equipment removed from service will be held as spares, repurposed, or salvaged.

O&M Impacts Associated with Removing Plant 2 from Service

The O&M cost savings associated with removing Plant 2 from service are estimated at $1.1 million per year. The main factors lowering the O&M costs include: (1) reduced electrical load from mixers and support equipment; (2) reduced materials and supplies; and (3) reduced labor to maintain and operate the facility. Labor cost savings will be achieved through managed hiring.

Avoided Capital Investment Costs

In addition to annual O&M savings, removing Plant 2 from service eliminates the need to repair and refurbish the facility. Often, these repairs require capital investments. Staff projects that approximately $19 million in capital expenditures can be avoided by removing Plant 2 entirely from service. These avoided projects include replacing instrumentation, upgrading the control system equipment, refurbishing or replacing valves and piping, and replacing filter media.

Other Considerations

Staff carefully considered other potential effects of removing Plant 2 from service. First, by decommissioning Plant 2, the Skinner plant service area loses 280 mgd of available treatment capacity in the unlikely event of long-term disruptions to other regional potable water treatment. Second, the Skinner plant may need additional time to respond to large flow change requests. Third, Metropolitan will need to revise its operating permit with the State Water Resources Control Board, and there is a one-time cost of about $300,000 to remove facilities safely from service. If the decommissioned facilities need to return to service in the future, there will be costs and significant lead time involved with rehabilitating and re-permitting the facility. Even with these considerations, and based on the Skinner plant flow forecast, sufficient treatment resources remain available under foreseeable circumstances. Thus, staff recommends decommissioning Plant 2.

Financial Analysis

Removing Plant 2 from service reduces O&M costs by approximately $1.1 million per year and avoids capital expenditures of approximately $19 million over the next 25 years. These cost savings will be partially off-set by the one-time cost to decommission Plant 2 of approximately $300,000, as discussed above. In addition, the Controller will write down the book value of Plant 2 in fiscal year 2016/17, which was approximately $92 million as of June 30, 2016. Generally accepted accounting principles require that assets that are not in service be written off, hence the net book value of these assets will be reduced to zero.

Policy

By Minute Item 50790, the Board, at its April 11, 2017 meeting, adopted Resolution 9221 approving Treatment Charge Workgroup's proposed policy principles, as amended.

Metropolitan Water District Administrative Code Section 4504: Rates of Flow.

California Environmental Quality Act (CEQA)

CEQA determination(s) for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. Accordingly, this proposed action qualifies as a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 1, Section 15301 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed action is categorically exempt and

Authorize the removal of Plant 2 (Modules 4, 5, and 6) and associated equipment from service at the Skinner plant.

Fiscal Impact: A one-time O&M cost of about $300,000 to remove facilities from service, offset by reduced O&M costs of approximately $1.1 million per year and future avoided capital costs of approximately $19 million to refurbish and replace portions of Plant 2 at the Skinner plant.
Business Analysis: This option will provide operational savings and forgo capital investments on idle capacity identified at the Skinner plant.

Option #2

Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: Under this option, staff would continue to operate and maintain Skinner Plant 2, together with associated operational equipment.

Staff Recommendation

Option #1

6/21/2017

James F. Green *Date*
Manager, Water System Operations

6/28/2017

Jeffrey Kightlinger *Date*
General Manager

Attachment 1 – Location Map

Attachment 2 – Skinner Treatment Plant Process

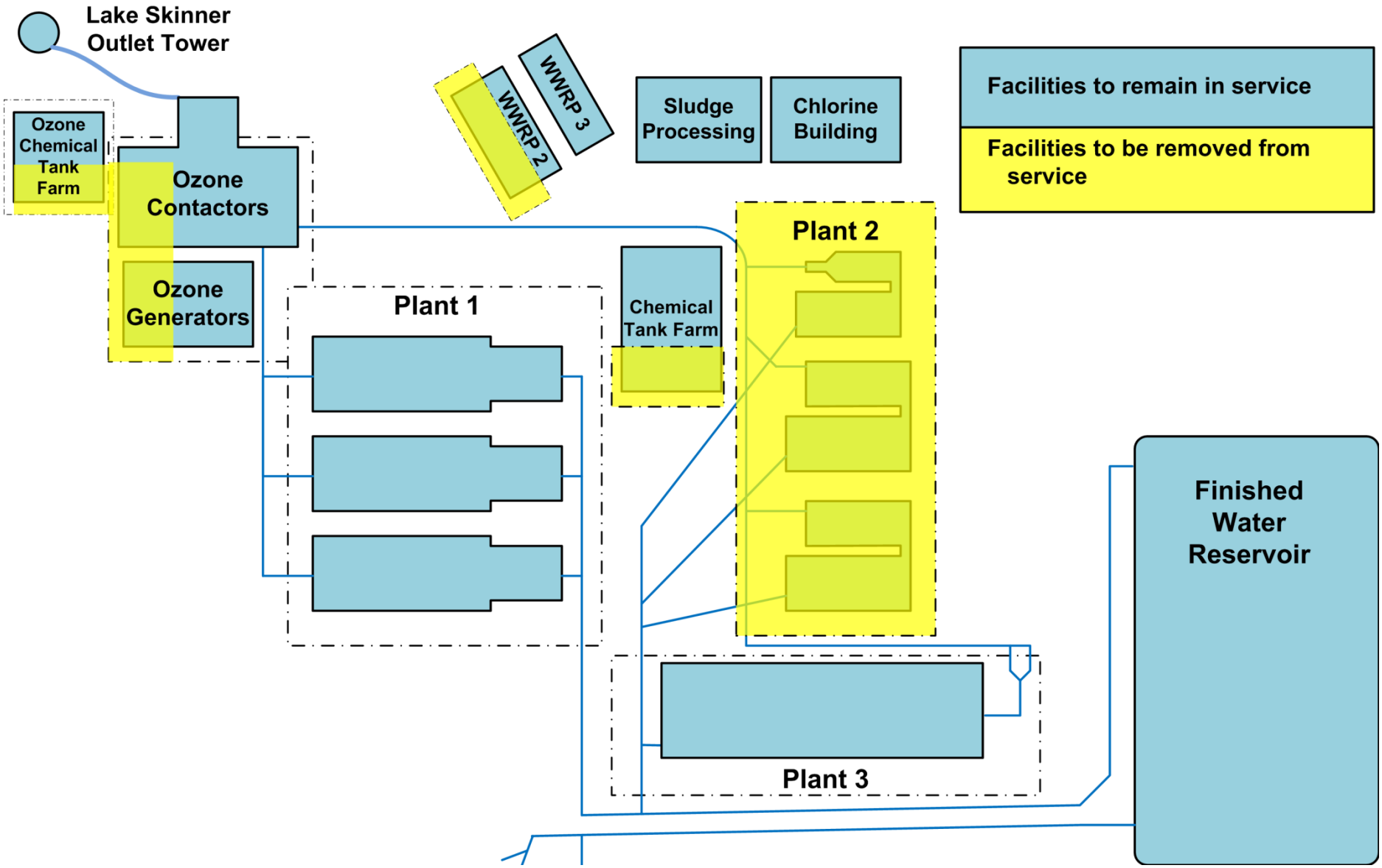
Attachment 3 –Historical Skinner Plant Flows

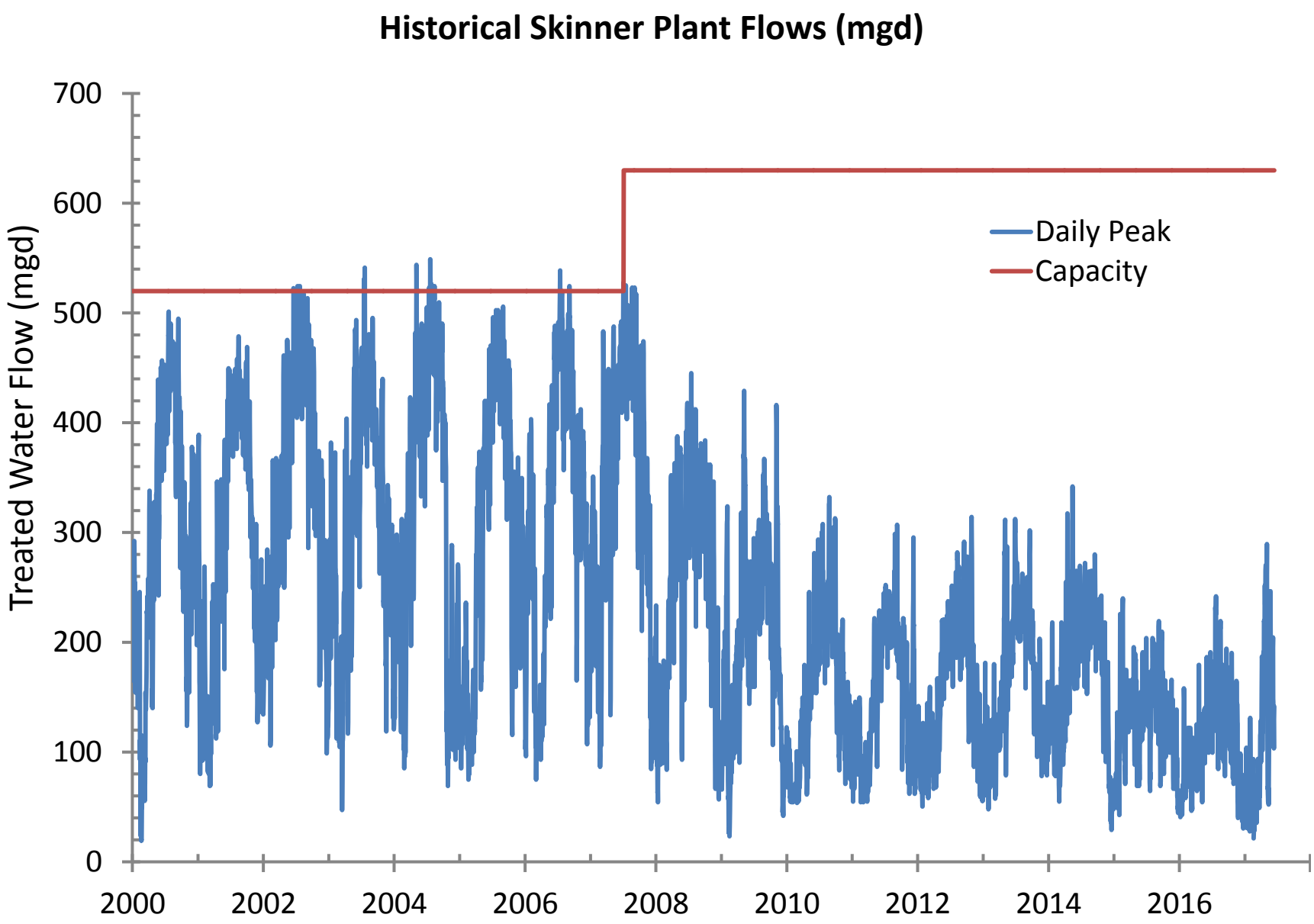
Attachment 4 – Skinner Plant Flow Forecast

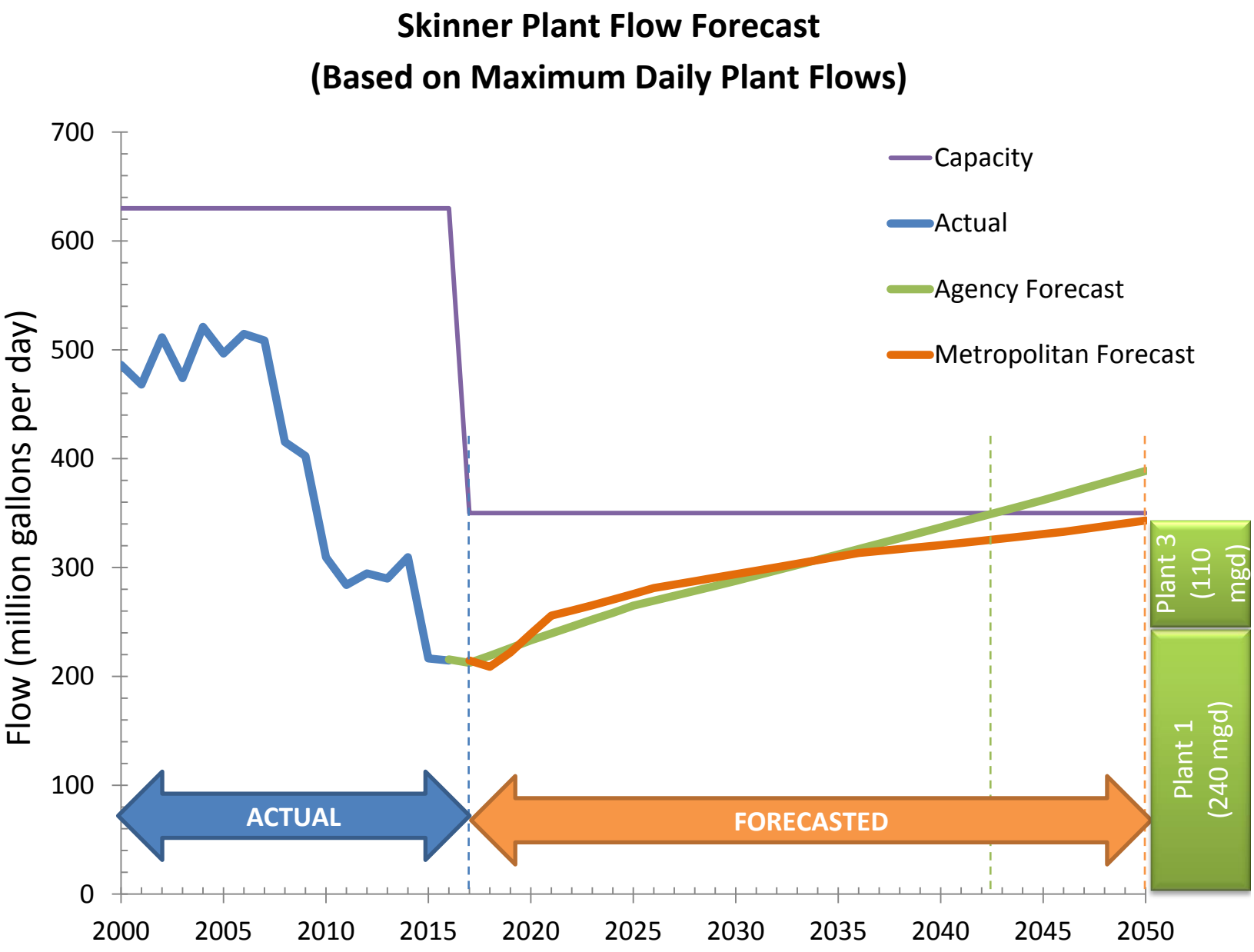
Ref# wso12651457

Location Map

Skinner Treatment Plant Process




Historical Skinner Plant Flows (mgd)
Treated Water Flow (mgd)
700
600
500
400
300
200
100
0
2000
2002
2004
2006
2008
2010
2012
2014
2016
Daily Peak
Capacity


Skinner Plant Flow Forecast
(Based on Maximum Daily Plant Flows)
Flow (million gallons per day)
700
600
500
400
300
200
100
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
Capacity
Actual
Agency Forecast
Metropolitan Forecast
ACTUAL
FORECASTED
Plant 3 (110 mgd)
Plant 1 (240 mgd)