Water Board Staff Preface to Task 5 Report

Introduction

Per capita residential indoor water use in California has declined over time and will continue to decline due to codes, standards, and behavioral change. Water efficiency saves water and energy and money, protects water quality, reduces the need for infrastructure investments, and mitigates rates increases. These benefits will be increasingly important as our climate changes. For these reasons and more, it is critical that we make conservation a California way of life. In 2018, the Legislature recognized the many benefits of further increasing water use efficiency with the passage of Assembly Bill 1668 and Senate Bill 606.

In this preface to the accompanying draft Task 5 report, State Water Board staff provide context for the results of a wastewater analysis, summarize the scope of the analysis done, and present results using data that were not available when the report was written. The draft Task 5 report was developed for the State Water Board under contract number 19-058-240 to help inform the State Water Board's understanding of how proposed water efficiency standards could impact local wastewater management, developed and natural parklands, and urban tree health.

Key findings

While residential indoor water use will continue to decline absent AB 1668 and SB 606 implementation, some of the decline in residential indoor water use between now and 2030 will be due to requirements that urban retail water suppliers meet annual urban water use *objectives*. These objectives will be calculated by summing the volumetric budgets associated with water efficiency standards, including a standard for residential indoor water use.

Greater indoor water use efficiency in the residential sector may pose some challenges to local wastewater management. State Water Board staff have analyzed how these efficiency standards may affect the wastewater sector under several scenarios, including a scenario in which the residential indoor standard is 42 gallons per capita per day (GPCD) and the residential outdoor standard is an evapotranspiration factor (ETF) of 62%, applied to 100% of "irrigable irrigated" area and 20% of "irrigable not irrigated" area.

For wastewater treatment facilities

- Urban retail water suppliers meeting objectives may cause 61% of wastewater treatment facilities to experience lower or more concentrated flows than what is otherwise expected in 2030. Half of these facilities may experience reductions of 15% or less.
- Lower or more concentrated flows may benefit facilities by decreasing pumping costs and reducing facility energy use. They may adversely impact facilities by increasing labor, chemical, energy, and consultation costs; by requiring process modifications, operational changes, or upgrades; or by resulting in losses of revenue related to recycled water.
- Increased operations and maintenance (O&M) costs, statewide, are estimated to be $69 million per year, or 3% of estimated annual total statewide O&M costs.
- Increased capital improvement costs, statewide, are estimated to be $320 million per year, or 7% of estimated annual total statewide capital costs.

For collection systems

- Urban retail water suppliers meeting objectives may cause 62% of collection systems to experience lower or more concentrated flows than what is otherwise expected in 2030. Half of these facilities may experience reductions of 15% or less.
- Lower or more concentrated flows may: decrease pumping needs; increase labor, chemical, energy, equipment, and consultation costs; reduce the lifespan of pipes and related equipment; or require collection pipes to be replaced or upgraded.
- Increased O&M costs, statewide, are estimated to be $5 million per year, or 0.5% of annual statewide O&M costs.
- Increased capital improvement costs, statewide, are estimated to be $40 million per year, or 2% of estimated annual statewide capital spending.

The State Water Board recognizes these effects and that the wastewater sector is under a range of pressures. However, water conservation and wastewater sector innovation can co-exist. Moreover, the Board will continue to support the sector's leadership in climate resilience, including recycled water development, co-digestion projects, and response to sea level rise.

Context

As part of the process of implementing Assembly Bill 1668 and Senate Bill 606 (2018), the Department of Water Resources has led a series of workshops and comment periods to refine recommendations the Department will make to the State Water Board regarding the State Water Board's adoption standards for the efficient use of water. The State Water Board will set those standards by late 2023.

Given the importance and complexity of potential impacts on the wastewater sector resulting from changes in per-capita indoor water use in the areas served by urban retail water suppliers, the Legislature directed the State Water Board to identify and consider the possible effects of proposed efficiency standards on wastewater management and to allow for public comment on those potential effects (California Water Code §10609.2(c)).

Board Members and staff are committed to engagement with interested parties and careful consideration before action. To establish a common understanding of issues as a foundation for continuing engagement, staff provide this preface and the accompanying report

Prior state engagement with the wastewater sector included DWR working groups and workshops and conversations and information exchanges held in 2021 between State Water Board contractors and staff of wastewater collection, treatment, and reuse facilities. Subsequent state engagement with the wastewater sector will include an analysis of the economic impacts of the standards, at least one State Water Board staff workshop as part of the regular rulemaking process, discussion at a State Water Board meeting, and additional opportunities for public comment.

Considering the effects on local wastewater management

This section provides a summary of how implementing the 2018 conservation legislation may affect "local wastewater management," or, more specifically, sewer collection systems and wastewater treatment facilities, including reuse facilities. This section includes tables summarizing how the efficiency standards may affect local wastewater management, under three different scenarios; a brief description of regional and statewide urban water use and wastewater influent trends; and preliminary estimates of how much the implementation of AB 1668 and SB 606 may cost the wastewater sector.

This section also presents updates to most of the wastewater-related tables in the accompanying report. The results presented in the Final Task 5d report delivered to the State Water Board under contract number 19-058-240 relied on older data. In consultation with the contracted team that wrote that report, State Water Board staff used more up-to-date and accurate water delivery data, developed in coordination with the Department of Water Resources, to rerun the models developed for the §10609.2(c) analysis. The methods used in these updates are the same as those described in the report.

Limitations and caveats of modeling

- This preface and the accompanying report use the best data available to State Water Board staff to characterize trends in the wastewater sector and the kinds of potential impacts that changes in per-capita indoor water use in the areas served by Urban Retail Water Suppliers (URWS) may have on the wastewater sector. Where possible, these potential impacts were quantified.
- Because not all facilities had reliable enough data to be included in the analysis, the summary below reflects information for 299 (72% of 410) collection systems and 311 (92% of 335) wastewater treatment facilities that serve the communities receiving water from URWS.
- Due to data limitations, the analysis does not contain detailed, facility level analyses.
- The forthcoming efficiency standards will not affect the indoor water use of Commercial, Industrial, and Institutional (CII) customers. For collection systems, wastewater plants, and reuse facilities receiving a high proportion of wastewater from CII customers, the analysis suggests a greater potential for lower or more concentrated flows than what is likely.
- This analysis assumed that, for each scenario and each URWS, 15% of all the water saved would be saved by reducing residential indoor water use.
- The analysis required forecasting water demand and population changes. The analysis assumed population growth in line with official Department of Finance estimates.
- Operational impacts to both wastewater collection systems and treatment facilities were modeled using available literature and standard industry tools, but could not be fully verified with field data within the time frame of the project. Site-specific factors such as design flow and current influent (volume and rate) were considered to the greatest extent possible, but detailed modeling of operational changes for the hundreds of systems and facilities was not possible.
- Limited data existed to characterize extreme flow periods, such as minimum month values. Daily or monthly values of influent flow volume data were only available for a portion of the wastewater treatment facilities of interest.

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Systems that may be affected by AB 1668 & SB 606 implementation

This section summarizes the proposed efficiency standards' effects on local wastewater management, under the following three scenarios:

Parameter	Scenario 1	Scenario 2	Scenario 3
Indoor residential	Until 2025: 55 GPCD 2025 to 2030: 52.5 GPCD After 2030: 50 GPCD	Until 2025: 55 GPCD 2025 to 2030, 47 GPCD After 2030, 42 GPCD	Until 2025: 50 GPCD 2025 to 2030, 42.5 GPCD After 2030, 35 GPCD
Outdoor Residential	100% of Irrigable Irrigated (II) area @ 70% of ETo (II @ 70%).	Until 2030: II @ 70% After 2030: II @ 62%	Through 2025: II @ 70% Through 2030: II @ 62% After 2030: II @ 55%
	20% of Irrigable Not Irrigated (INI) area included		

Number of potentially affected systems and the degree of impact: Results

<u>Scenario 1: 50 GPCD and an ETF of 70%, applied to 100% II area + 20% of INI area</u>

- Wastewater Treatment Plants (WWTFs): Due to AB 1668- SB 606 implementation, 46% may experience lower or more concentrated flows than what was otherwise projected by 2030.
  - 26% of all WWTFs may experience lower total influent volume; half of which may experience reductions of 13% or less.
  - 20% of all WWTFs may experience more concentrated flows, but not necessarily lower total influent volume4

Scenario 1 (50 GPCD for r-indoor; 70% ETF for r-outdoor, applied to 100 of II area + 20% of INI area)		
Percentage of systems that may experience lower/more concentrated flows		
46%		
Percentage of systems that may experience lower flows	*median % reduction*	*Percentage of systems that may experience more concentrated flows*
26%	13%	**20%**

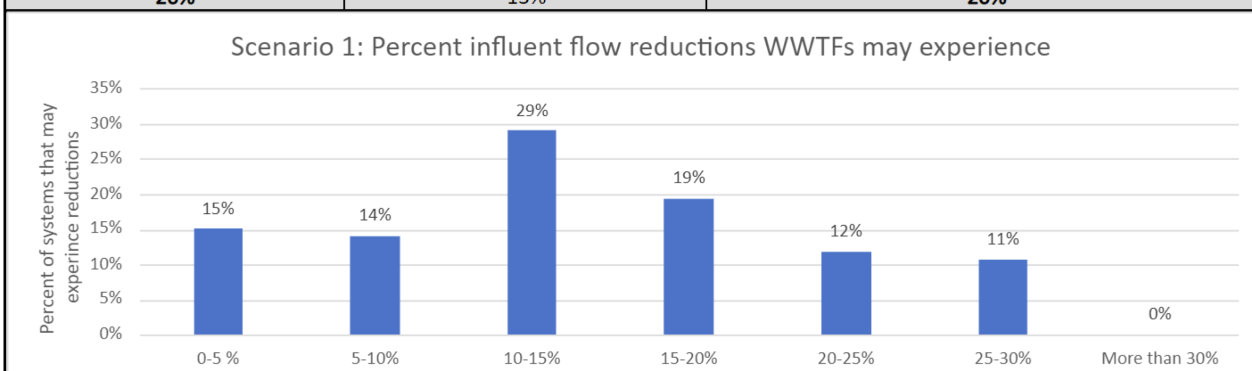

Figure 1: Summary of impacts to WWTFs under scenario 1. The bar chart shows the percentage of systems that may experience reductions in total influent volume by varying increments (0-5%, 5-10%, etc.)

- Collection systems: Due to AB 1668- SB 606 implementation, 44% may experience lower or more concentrated flows than what was otherwise projected by 2030.
    - 29% of may experience lower total influent volume; half of which may experience reductions of 15% or less.
    - 15% may experience more concentrated flows.

Scenario 1 (50 GPCD for r-indoor; 70% ETF for r-outdoor, applied to 100 of II area + 20% of INI area)		
Percentage of systems that may experience lower/more concentrated flows		
44%		
Percentage of systems that may experience lower flows	*median % reduction*	*Percentage of systems that may experience more concentrated flows*
29%	15%	15%

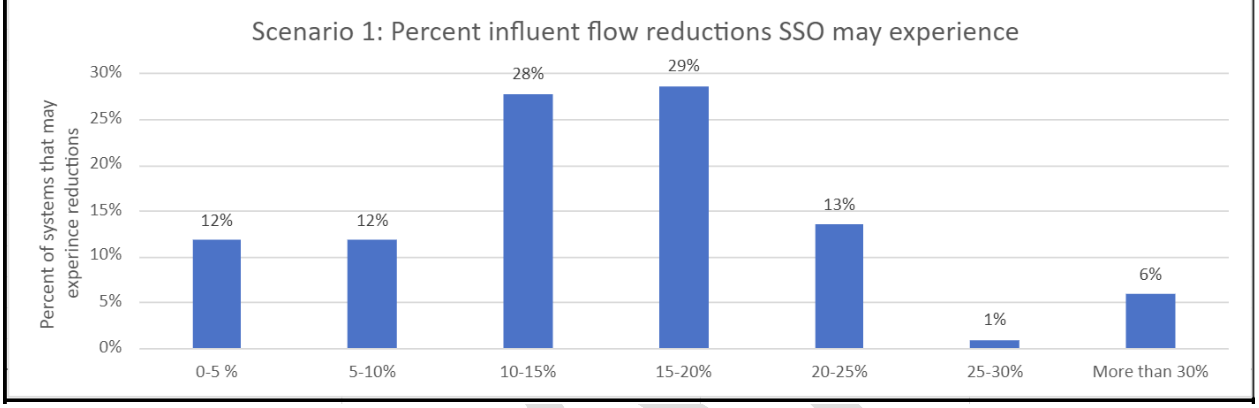

Figure 2: Summary of impacts to SSO under scenario 1. The bar chart shows the percentage of systems that may experience reductions in total influent volume by varying increments (0-5%, 5-10%, etc.)

<u>Scenario 2: 42 GPCD and an ETF of 62%, applied to 100% of II area + 20% of INI area</u>

- Wastewater Treatment Plants (WWTFs): Due to AB 1668- SB 606 implementation, 61% may experience lower or more concentrated flows than what was otherwise projected by 2030.
    - 38% may experience lower total influent volume; half of which may experience reductions of 15% or less.
    - 23% may experience more concentrated flows.

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Scenario 2 (42 GPCD for r-indoor; 62% ETF for r-outdoorapplied to 100 of II area + 20% of INI area)		
Percentage of systems that may experience lower/more concentrated flows		
61%		
Percentage of systems that may experience lower flows	*median % reduction*	*Percentage of systems that may experience more concentrated flows*
38%	15%	23%

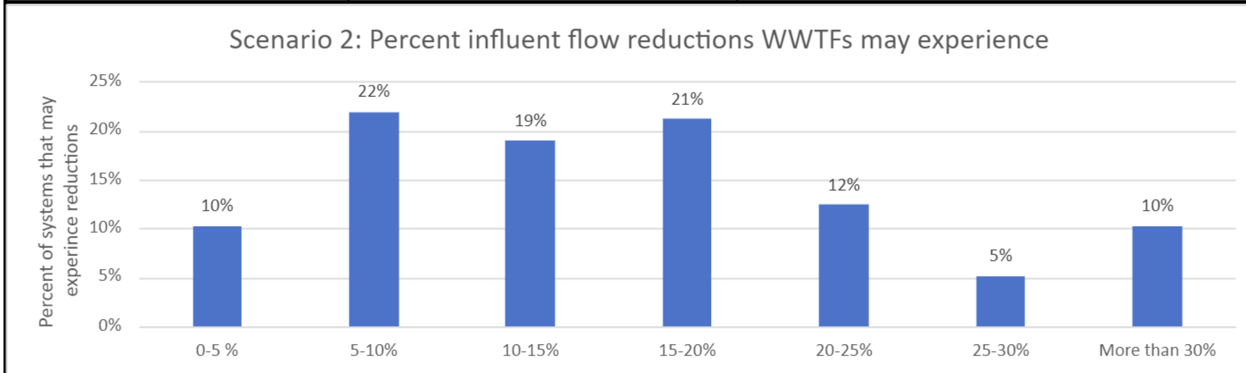

Figure 3: Summary of impacts to WWTFs under scenario 2. The bar chart shows the percentage of systems that may experience reductions in total influent volume by varying increments (0-5%, 5-10%, etc.)

- Collection systems: Due to AB 1668- SB 606 implementation, 62% may experience lower or more concentrated flows than what was otherwise projected by 2030.
  - 45% may experience lower total influent volume; half of which may experience reductions of 15% or less.
  - 17% may experience more concentrated flows.

Scenario 2 (42 GPCD for r-indoor; 62% ETF for r-outdoorapplied to 100 of II area + 20% of INI area)		
Percentage of systems that may experience lower/more concentrated flows		
62%		
Percentage of systems that may experience lower flows	*median % reduction*	*Percentage of systems that may experience more concentrated flows*
45%	15%	17%

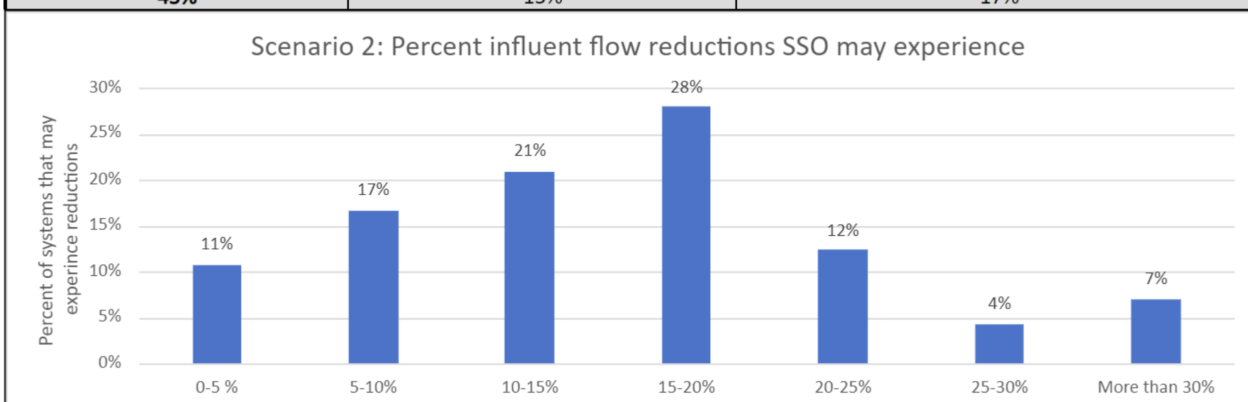

Figure 4: Summary of impacts to SSO under scenario 2. The bar chart shows the percentage of systems that may experience reductions in total influent volume by varying increments (0-5%, 5-10%, etc.)

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Scenario 3: 35 GPCD and an ETF of 55%, applied to 100% of II area + 20% of INI area

- WWTFs: Due to AB 1668- SB 606 implementation, 71% may experience lower or more concentrated flows than what was otherwise projected by 2030.
    - 48% may experience lower total influent volume; half of which may experience reductions of 13% or less.
    - 23% may experience more concentrated flows.

Scenario 3 (35 GPCD for r-indoor; 55% ETF for r-outdoorapplied to 100 of II area + 20% of INI area)		
Percentage of systems that may experience lower/more concentrated flows		
71%		
Percentage of systems that may experience lower flows	*median % reduction*	*Percentage of systems that may experience more concentrated flows*
48%	13%	23%

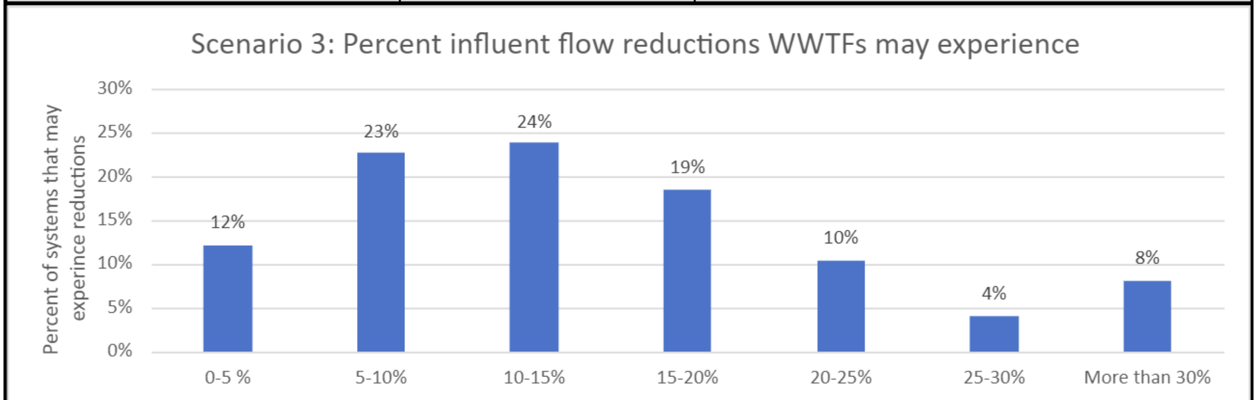

Figure 5: Summary of impacts to WWTFs under scenario 3. The bar chart shows the percentage of systems that may experience reductions in total influent volume by varying increments (0-5%, 5-10%, etc.)

- Collection systems: Due to AB 1668- SB 606 implementation, 73% may experience lower or more concentrated flows than what was otherwise projected by 2030.
    - 56% may experience lower total influent volume; half of which may experience reductions of 13% or less.
    - 18% of all WWTFs may experience more concentrated flows.

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Scenario 3 (35 GPCD for r-indoor; 55% ETF for r-outdoorapplied to 100 of II area + 20% of INI area)		
Percentage of systems that may experience lower/more concentrated flows		
73%		
Percentage of systems that may experience lower flows	*median % reduction*	*Percentage of systems that may experience more concentrated flows*
56%	13%	18%

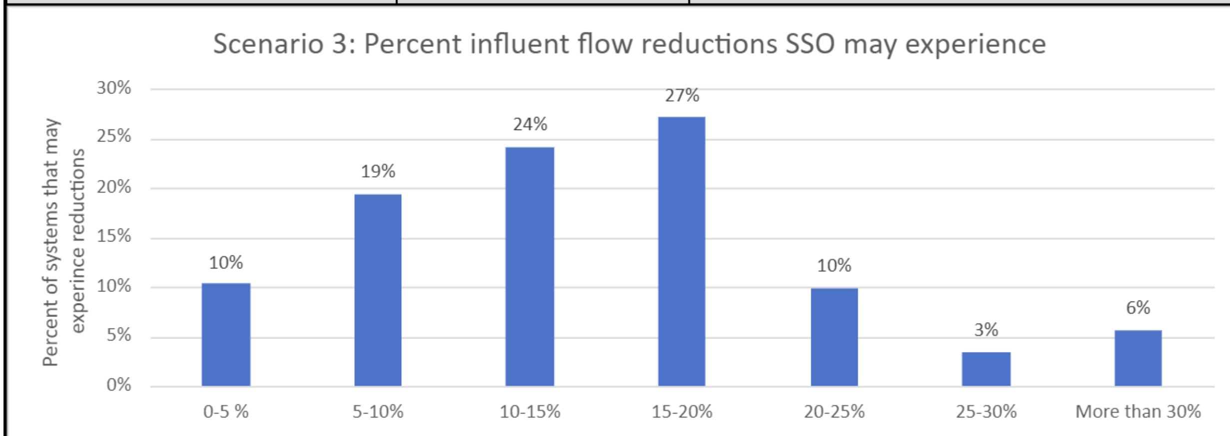

Figure 6: Summary of impacts to SSO under scenario 3. The bar chart shows the percentage of systems that may experience reductions in total influent volume by varying increments (0-5%, 5-10%, etc.)

Number of potentially affected systems and the degree of impact: Additional Context

Wastewater treatment facilities and collections systems face multiple challenges resulting from the combined effects of an aging infrastructure, changing influent characteristics, topography, changing regulatory requirements, and climate change. Changes in influent flow and higher concentrations from water use efficiency and conservation can exacerbate operational challenges.

In most regions in the state, average dry-weather influent volumes have decreased since 2013, the onset of the last drought (Figure 7). This corresponds with observed urban water trends. For example, based on the State Water Board's monthly conservation and production data, urban water use has decreased 16% since 2013. While total influent volume has, for most regions, decreased since 2013, for some regions, the linear trend suggests an overall pattern of increasing influent, perhaps reflecting water use rebound after the last drought (red lines). Population growth can also be a significant factor when comparing influent volumes over an extended period of time. Regions with increasing influent (except the Colorado River region) have been growing faster than other regions in the state (black line), suggesting that while total influent flow may not be decreasing, it may be growing more concentrated. In other words, many collection systems and wastewater treatment facilities in California are already experiencing either lower or more concentrated flows. Both can pose challenges to the wastewater sector.

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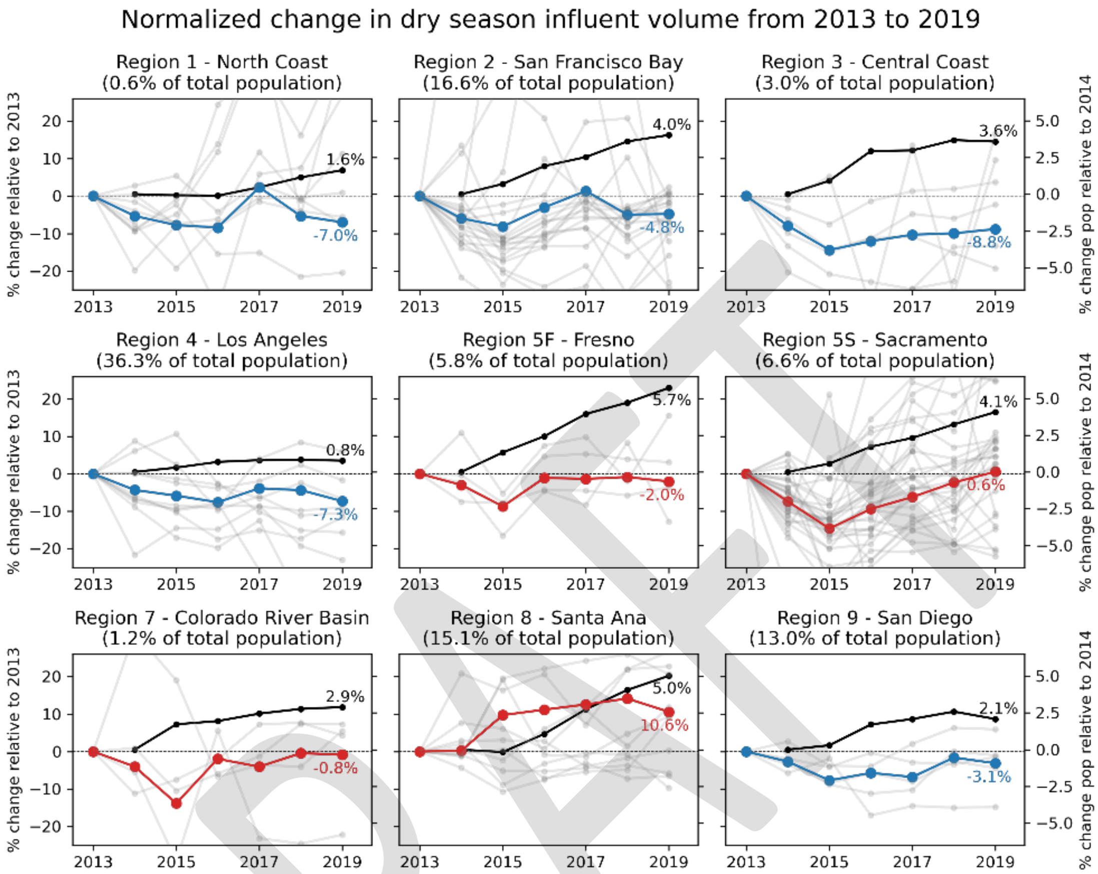

Figure 7: Percent change in dry season (June-August) influent volume (blue and red lines, with individual facilities in grey) relative to 2013, and percent change in population growth (black lines) relative to 2014. Blue lines indicate that the slope of the linear fit is negative, suggesting decreasing influent over time; red lines indicate that the slope of the linear fit is positive, suggesting increasing influent over time.

In evaluating the effects of AB 1668 and SB 606 implementation on local wastewater management, State Water Board staff compared projected total influent volume under each scenario to historic flows. Under Scenario 2[1], data showed that 77% of wastewater agencies have experienced at least one year in which average annual and dry-weather influent volumes were equivalent to those expected as a result of AB 1668 and SB 606 implementation; 44% have experienced equivalent flow volumes for three years or longer. Figures 8 and 9 compare the historic annual influent and dry-weather flows of two WWTFs to those flows anticipated under the projected 2030 baseline[2] (dashed purple line) and Scenario 2 (dashed black line). Comparing projected flows under the 2030 baseline to Scenario 2 suggests both facilities may experience lower total influent volume because of AB 1668 and SB 606. Based on historic influent flows – which, in these examples, are generally lower than those under Scenario 2 and the projected 2030

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[1] 2030 residential standards assumed to be 42 GPCD for indoor and 62% for outdoor, applied to II + 20% of INI.
[2] The projected 2030 baseline incorporates pre-pandemic Department of Finance population projections. Until the pandemic, population in most regions of California was increasing; in a few places in California, the population has continued to grow post-pandemic (DOF 2022).

baseline – the challenges these facilities will face are more likely be the result of more concentrated flows occurring regardless of the new conservation framework.

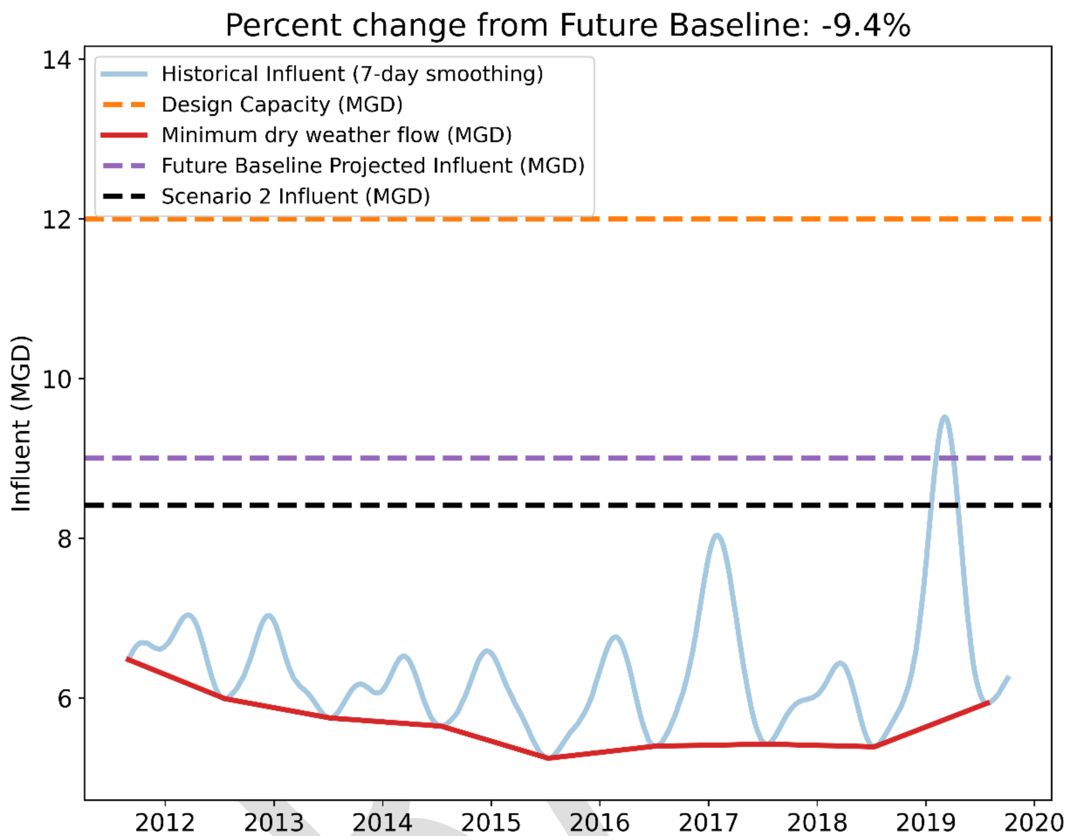

Figure 8: Historical influent (blue line) and dry weather (June-August) influent (red line), with design capacity denoted by the dashed orange line in million gallons daily (MGD). The 2030 baseline, in MGD (purple dashed line) incorporates projected population growth. Scenario 2 projected influent for 2030 (black dashed line) is shown in terms of MGD and the percent difference relative to the 2030 baseline is noted in the figure title.

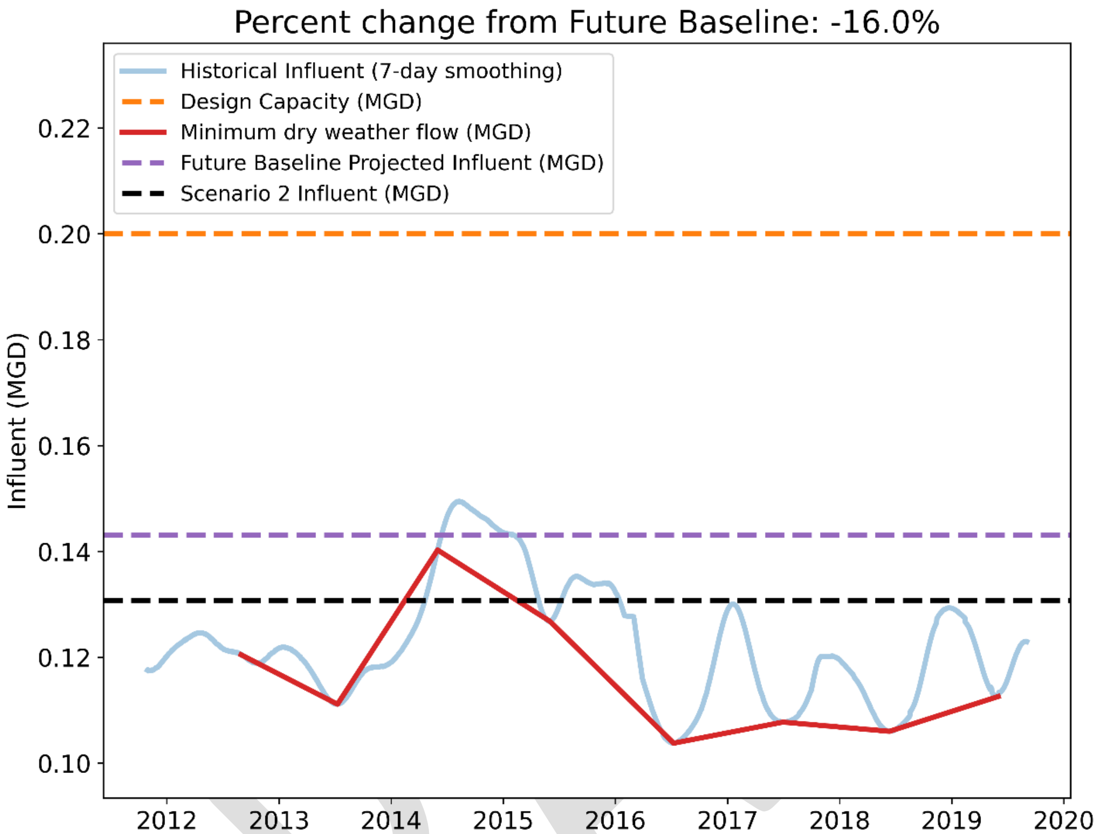

Figure 9: Historical influent (blue line) and dry weather (June-August) influent (red line), with design capacity denoted by the dashed orange line in million gallons daily (MGD). The 2030 baseline, in MGD (purple dashed line) incorporates projected population growth. Scenario 2 projected influent for 2030 (black dashed line) is shown in terms of MGD and the percent difference relative to the 2030 baseline is noted in the figure title.

Absent the implementation of AB 1668 and SB 606, wastewater collection systems and treatment facilities may continue to experience lower or more concentrated flows due to codes, standards, and behavioral change. Californians are expected to continue to use water more efficiently indoors. Based on 2017, 2018, and 2019 water use data, the Department of Water Resources estimated that average residential indoor water use was 51 Gallons Per Capita per Day (GPCD); the statewide median was 48 GPCD. The Department projected that use would continue to fall due to "passive" conservation[3], estimating that half of California would be using 44 GPCD or less by 2030 (DWR 2021).

[3] Passive conservation does not take into consideration the effects of existing water conservation programs or of the actions people take in response to drought emergencies, some of which lead to permanent indoor water savings.

According to Flume, a company that relies on high-resolution sensors deployed in 11,000[4] single family homes across California to track near-time water use trends, residential indoor water use averaged 44 GPCD in 2021. Based on the latest data from Flume, average residential indoor water use in California has dropped to 39 GPCD, likely reflecting both permanent (e.g., the installation of more efficient toilets) and temporary (e.g., shorter showers) actions Californians are taking in response to the current drought emergency (Figure 10). Flume data convey what's happening where the devices are located and could be a bellwether of larger statewide trends. As Californians continue to adapt to climate change by using water more efficiently indoors and out, the wastewater sector will face increasing challenges. Collection and treatment systems must be managed and equipped to withstand declining or more concentrated influent flows, and sometimes both.

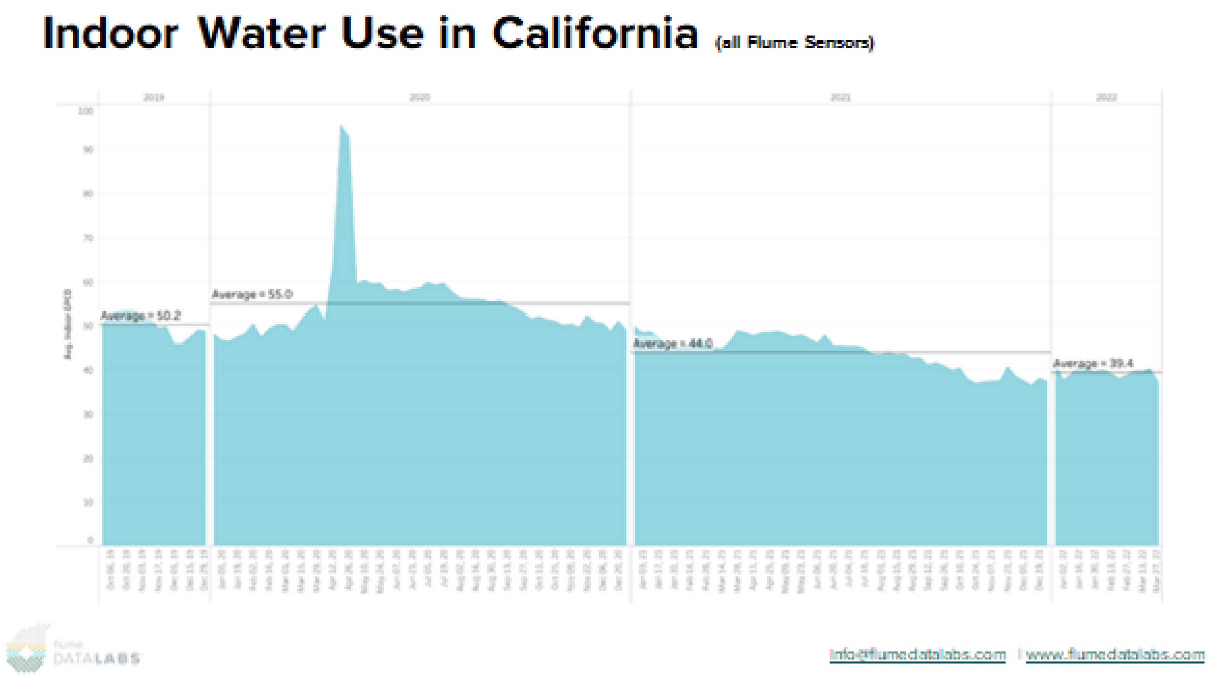

Figure 10: Snapshot of the California Flume dashboard, showing average residential indoor water use in 2019, 2020, 2021, and the first quarter of 2022. The Flume data provide useful information on the real-time trends in water use and the potential for demand reductions at the residential level (J. Fazio, personal communication, 2022).

How Much Implementing AB 1668 & SB 606 May Cost the Wastewater Sector

The following describes the potential costs that might be incurred by the wastewater sector under Scenario 2, which assumed that, in 2030, the residential indoor standard would be 42 GPCD and the residential outdoor standard would be an ETF of 62%, applied to 100% of II and 20% of INI area.

[4] The California Residential End Use Study relied on data from 700 homes, located within the service areas of 10 urban retail water suppliers (DeOreo et al, 2011).

These estimates are preliminary. They should be considered “class 5” estimates.[5] Any updated values will be reflected in the Standardized Regulatory Impact Assessment (SRIA) the State Water Board makes available when the formal rulemaking process begins later this year.

Wastewater Treatment

Under Scenario 2, statewide nominal O&M nominal for wastewater treatment facilities are estimated to be $61 million per year. For context, estimated annual total statewide O&M costs for wastewater treatment are $2.5 billion.

Under Scenario 2, nominal capital improvement costs are estimated to be $267 million per year. This is based on annual values of reported per capita spending that are likely annualized over a 20-year (or more) time horizon. For context, estimated annual total statewide capital costs for wastewater treatment are $4.5 billion.

Wastewater Collection Systems

Under Scenario 2, preliminary statewide nominal O&M costs for wastewater collection systems are estimated to be $5 million per year. This is based on modeling of chemical controls needed to manage additional odor, corrosion, and other issues. For context, total annual statewide O&M spending for collection systems was reported to be $1.1 billion.

Under Scenario 2, preliminary nominal capital improvement cost for wastewater collection systems (i.e., pipe replacement) are estimated to be $40 million per year. assuming projects are annualized over 20-year time horizon. This is based on annual values of reported per capita spending that are likely annualized over a 20-year (or more) time horizon. For context, total annual statewide capital spending for collection systems was reported to be $1.7 billion.

Number of potentially affected systems and the degree of impact: Updated tables

The results presented in the Final Task 5d report delivered to the State Water Board under contract number 19-058-240 Task 5d Report relied on older data. In consultation with the contract team, State Water Board staff used more up-to-date and accurate water delivery data, developed in coordination with the Department of Water Resources, to rerun the models developed for the §10609.2(c) analysis. The updated tables below reflect the updated data and model outputs.

Within Chapter 6: Wastewater Management, Tables 6-22, 6-23, 6-24, 6-28, 6-32, 6-32, and 6-34 have been updated. Table 6-27 will be updated soon.

Table 6-22: Results for the number of wastewater treatment facilities and collection systems at risk of effects of reduced flows from AB 1668-ASB 606 by scenario

Scenario	Sector	WWTFs	Collection Systems

[5] The estimates of costs are subject to significant uncertainty. The Association for the Advancement of Cost Engineering (AACE) International provides guidance for characterizing uncertainty in engineering cost estimates. Within the AACE International rubric, the estimates would be considered “Class 5” estimates; they typically lack site-specific information and can include cost indices, factors, and similar techniques. Class 5 estimates have associated uncertainty that ranges from 50% lower to 100% higher.

Scenario 1	Count	166	182
	Avg. WEO Impact Factor*	0.998	1.009
	Avg. % Reduction in Flow from Future Baseline	-13%	-14%
Scenario 2	Count	220	258
	Avg. WEO Impact Factor*	0.998	0.895
	Avg. % Reduction in Flow from Future Baseline	-13%	-13%
Scenario 3	Count	256	305
	Avg. WEO Impact Factor*	0.848	0.858
	Avg. % Reduction in Flow from Future Baseline	-14%	-14%

Table 6-23: Number of affected wastewater treatment facilities in a region by design capacity for Scenario 2 (indoor standard =42 gpd, outdoor standard = 0.62). 11 out of the total 220 facilities did not have regional and/or design capacity information and were not included in this Table.

Region	0-5 MGD	5-20 MGD	20-50 MGD	50-100 MGD	>100 MGD	Total	% in Region
Region not confirmed	27	15	5	3	3	53	25%
North Coast	6	0	1	0	0	7	3%
Bay Area	3	6	4	1	0	14	7%
Central Coast	8	2	0	0	0	10	5%
Los Angeles	9	9	3	2	2	25	12%
Southern Central Valley (Fresno)	10	7	0	1	0	18	9%
Northern Central Valley (Redding)	3	1	0	0	0	4	2%
Middle Central Valley (Sacramento)	22	7	1	1	0	31	15%
Sierra Mountains (Lahontan/South Lake Tahoe)	0	0	0	0	0	0	0%
Sierra Mountains (Lahontan/Visalia)	4	3	0	0	0	7	3%
Colorado River	6	4	0	0	0	10	5%
Santa Ana	4	4	6	0	1	15	7%
San Diego	7	5	3	0	0	15	7%
Total	109	63	23	8	6	209	100%

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Table 6-24: Number of affected wastewater collection systems in a region by population served. 12 out of 258 systems did not have regional and/or population information and were not included in this Table.

Region	<10,000 people	10,000 to 50,000	50,000 to 100,000	100,000 to 500,000	>500,000	Total	% in Region
Region not confirmed	5	35	29	16	0	85	35%
North Coast	5	1	0	1	0	7	3%
Bay Area	2	6	3	8	0	19	8%
Central Coast	3	6	1	0	1	11	4%
Los Angeles	2	13	3	7	0	25	10%
Southern Central Valley (Fresno)	4	10	6	2	1	23	9%
Northern Central Valley (Redding)	1	0	2	0	0	3	1%
Middle Central Valley (Sacramento)	6	12	4	2	2	26	11%
Sierra Mountains (Lahontan/South Lake Tahoe)	0	0	0	0	0	0	0%
Sierra Mountains (Lahontan/Visalia)	0	4	2	2	1	9	4%
Colorado River	0	6	1	0	0	7	3%
Santa Ana	1	4	3	7	2	17	7%
San Diego	3	7	2	2	0	14	6%
Total	32	104	56	47	7	246	100%

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Table 6-28: Average modeled outputs by cluster[6] for objectives values based on parameters for Scenario 2 (indoor standard = 42 gpd, outdoor standard = 0.62)

	Cluster			
Model Output (% Increase: Average)	*1*	*2*	*3*	***All***
Pipe Replacement Costs	24.1%	28.0%	28.4%	28.0%
H_2S Emissions	14.5%	26.6%	27.5%	26.4%
Corrosion Rate	24.2%	24.9%	26.9%	25.5%
Sedimentation	2.5%	3.4%	3.3%	3.3%
Chemical Addition	7.7%	24.1%	18.9%	21.9
Pumping Costs	-11.3%	-13.2%	-13.4%	-13.2%

[6] Collection systems were clustered based on common attributes (e.g., estimated flow, average summer temperature, percent of 6-8" pipes within the system). Please see Task 5 report for more information.

Table 6-32: Changes in energy use for future flows with population growth, baseline water use efficiency improvements, and reductions from AB 1668-SB 606. Energy use in the modeling was used as a surrogate for all operational requirements

Facilities	**Number**	**Average Change**	**Median Change**	**Population Weighted Average Change**
All	133	3.1%	0.8%	2.5%
WWTFs with energy use increases	63	11.1%	8.7%	6.5%
WWTFs with energy use decreases	70	-7.5%	-4.9%	-5.4%

Table 6-33: Summary of affected wastewater treatment facilities from AB 1668-SB 606 by status as a recycled water producer (recycled water producer status was determined for 248 out of 336 facilities)

		Percent of Affected Systems, by Scenario		
Recycled Water Producer?	Total Number of Systems in State	Scenario 1	Scenario 2	Scenario 3
Yes	138	49%	68%	75%
No	110	51%	63%	77%

Table 6-34: Changes in annual influent flow volume to wastewater reuse facilities based on impacts from AB 1668-SB 606

Scenario	**Scenario 1**	**Scenario 2**	**Scenario 3**
2030 Indoor standard	50	42	35
2030 Outdoor standard (applied to 100% II + 20% of INI)	0.7	0.6	0.55
Baseline Change in Future Statewide Influent Volume to All Wastewater Facilities (ac-ft)	122,000		
Change in Future Statewide Influent Volume to All Wastewater Facilities with Objectives (ac-ft)	51,000	-120,000	-156,000
Baseline Change in Future Statewide Influent Volume to Reuse Facilities (ac-ft)	21,000		
Potential Change in Future Statewide Influent Volume to Reuse Facilities with Objectives (ac-ft)	29,000	-21,000	-30,000
Percent of Reuse Facilities Affected (out of 138 facilities)	49%	68%	75%
Net Change in Statewide Influent Flow to Reuse Facilities from Regulations (ac-ft)	n/a	-42,000	-51,000

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References

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