City of SACRAMENTO

Utilities Rate Advisory Commission

Combined Sanitary Sewer System (CSS)

Long Term Control Plan (LTCP)

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City of SACRAMENTO

Presentation Outline

1. CSS Overview
2. CSS Long Term Control Plan (LTCP)
3. CSS Infrastructure Needs

CSS Overview

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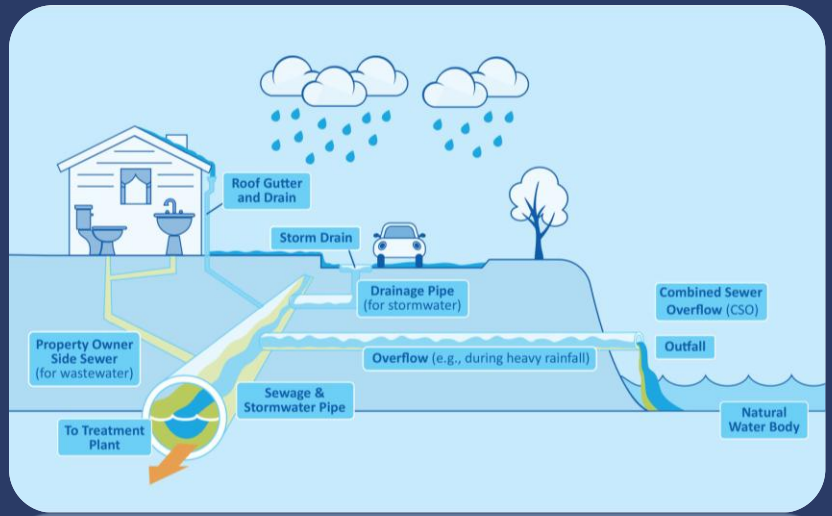
- Location
- CSO Control Policy/CSS NPDES Permit
- CSS Treatment
- CSS Treatment Progress
- CSS Permit Terminology



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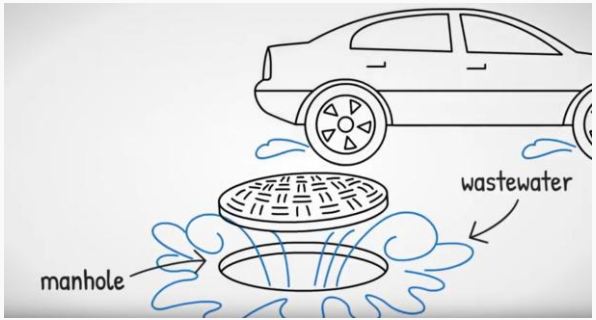
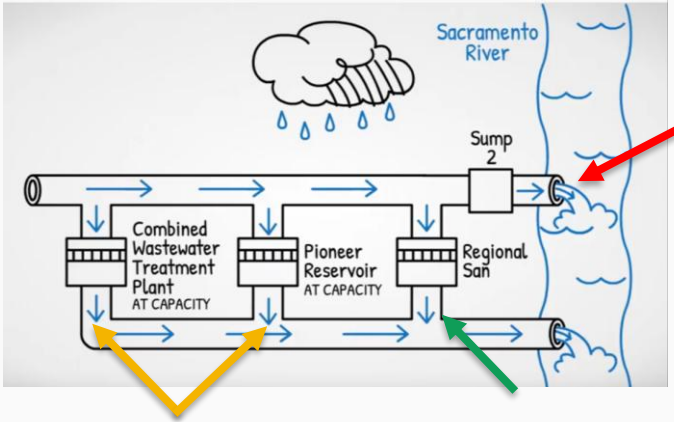
CSS Overview – NPDES Terminology

Outflow



Overflows (CSOs)



Untreated Combined Sewer Overflow (CSO)

Primary Treated Combined

Tertiary Treatment at POTW

CSS Overview – Treatment

Stage 1 (Tertiary Treatment)

- All summer/dry weather combined wastewater flows
- Small to moderate storms (≤60 Mgd)

Stage 2 (Primary Treatment)

- Treated at CWTP and Pioneer
- Storm events of greater than 1” depth
- High intensity storms from 61 Mgd to 380 Mgd.

Stage 3 (Untreated)

- Prolonged or rare frequency storms that exceed CWTP and Pioneer’s treatment capacity.
- One occurrence in the last 10 years on October 24, 2021

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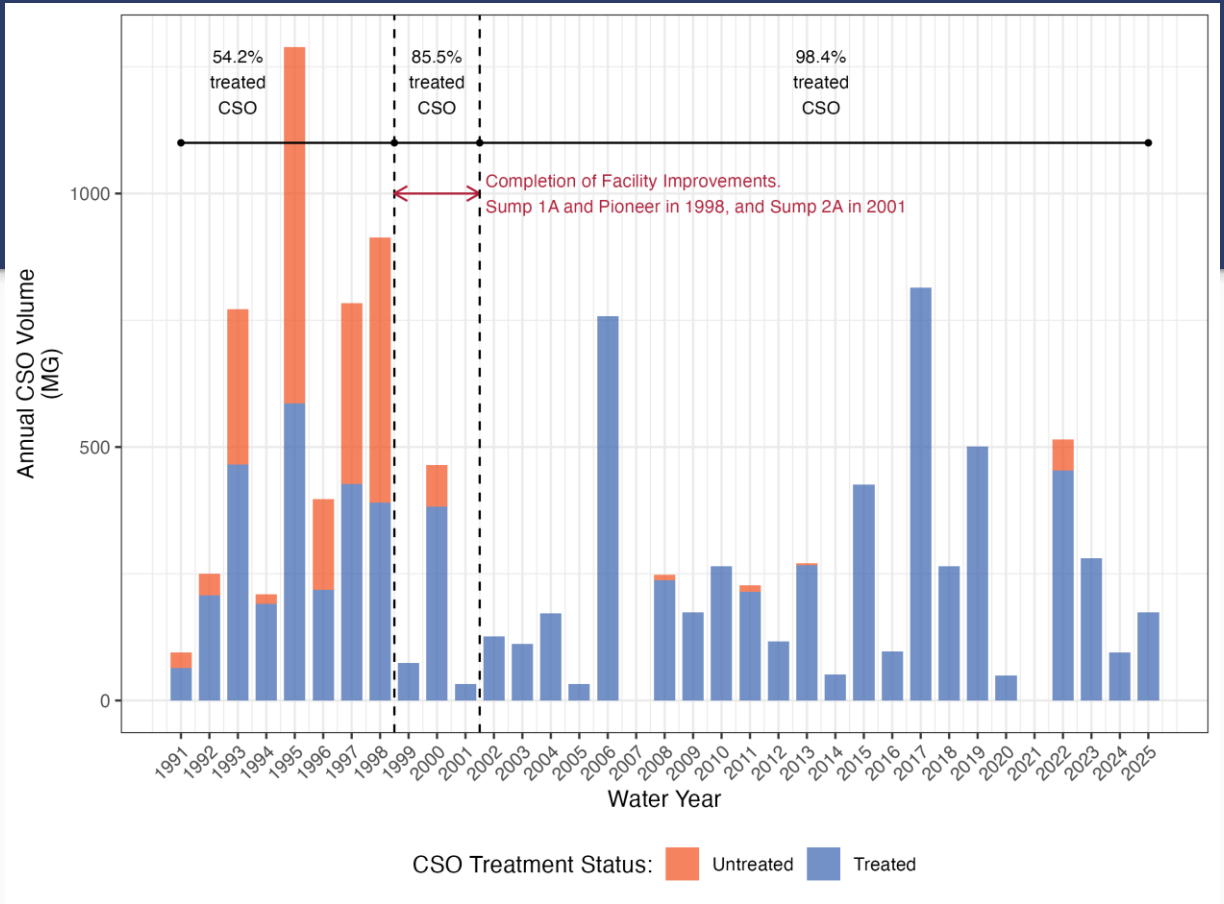
CSS Overview - Treatment Progress



Treatment of Discharges Since 1991

CSS Regulatory Overview

Overall Performance

- Achieves permit obligations of a minimum 85% treatment of flows
- Performance between 2002 and 2025 is 98% treatment of annual average flow
- Key benefit of combined system

CSS Facilities R&R efforts are critical to staying in compliance, maintaining continuity of operations, protect public health, and support long-term resiliency

NPDES Permit requires the implementation of a Long Term Control Plan for continued progress on the CSS

Long Term Control Plan Requirements

LTCP Requirements:

- Ensure CSOs do not exceed applicable water quality objectives.
- Manage the flow capacity of the CSS to minimize CSOs and outflows.

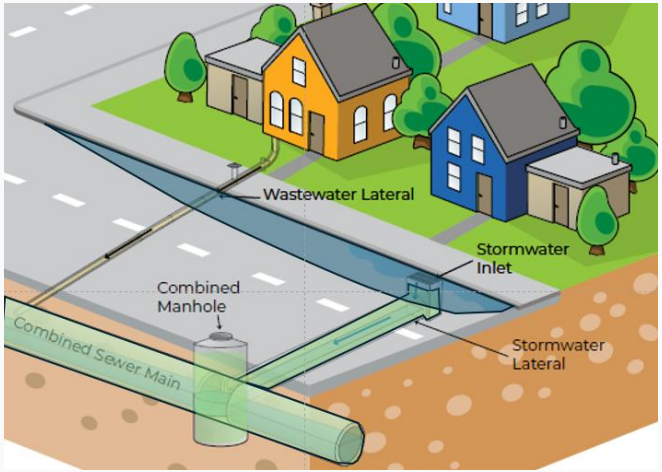
Current LTCP Goals Focus on Outflows/Flooding:

Minimizing street flooding during a 10-year design storm and to prevent structure flooding during the 100-year design storm.

Modeled Flood Volume is a Proxy

The CSS model has been the primary tool to demonstrate progress in reducing outflow volume

- **Historically modeled flood volume has stood as a proxy for outflow volume.**
- When the CSS reaches capacity, the model cannot distinguish between stormwater that cannot enter the system and CSS flows outflowing.
- **Combined Sewer System Improvement Plan (CSSIP) identified 29 potential storage projects and 2 programs to reduce flooding/outflows.**
  - LTCP and CSSIP were used interchangeably
  - CSSIP did not address R&R for critical facilities and pipes



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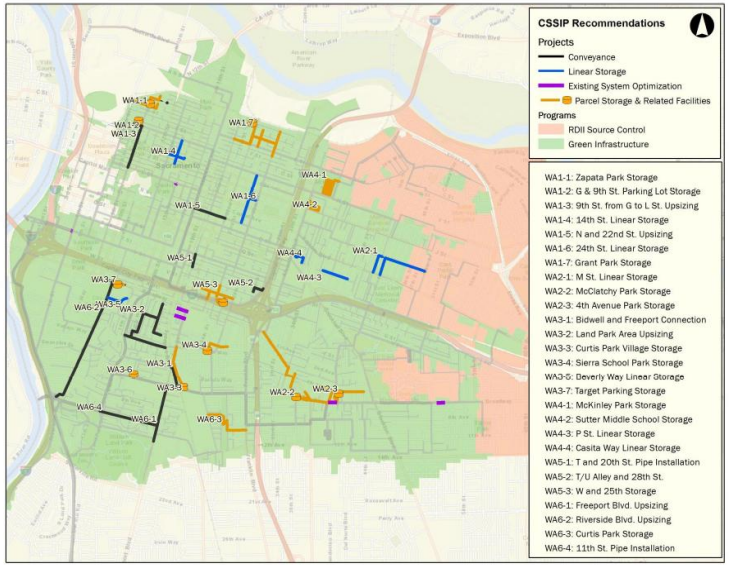
CSSIP/LTCP Costs – Existing System Capacity

Total Remaining Estimated Cost ~$543M (2025 Dollars)

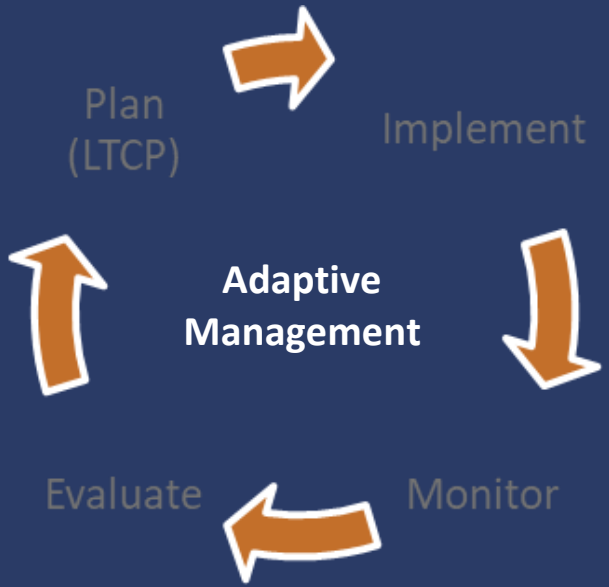
- Storage/Conveyance cost ~ $362M
  - Phase 1 projects = $41.6M
- 2 Program Costs ~ $181M

❖ **Deferred Maintenance includes LTCP Storage/ Conveyance costs**

Figure 1-1: CSSIP Recommendations



Adaptive Management Strategy



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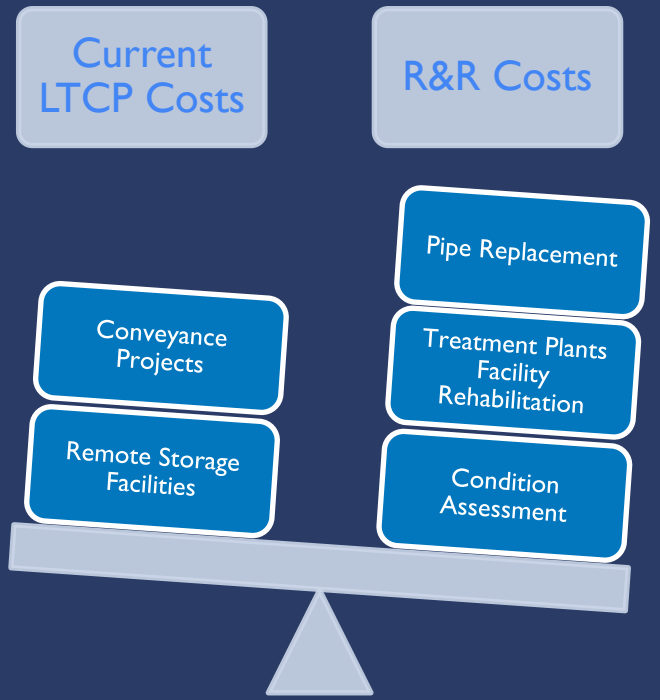
❖NPDES Required Precipitation Updates

- ➢ Flood Volume Reduction Progress
- ➢ 10-Yr design storm is a moving target

Balancing CSS Priorities with LTCP Update

- Protection of Public Health
- Water Quality
- Asset Reliability



Long Term Control Plan Proposal

Instead of solely focusing on eliminating modeled flooding, the City proposed to prioritize projects that will results in long-term system resiliency that ensure in the future the City can continue to

1. Maximize CSS flows conveyed to the EchoWater Facility,
2. Minimize untreated CSOs, and
3. Minimize the frequency and volumes of outflows with the greatest risk to public health.

- With uncertainty regarding climate change, the City needs to prioritize and sequence, where appropriate, those infrastructure projects that provide the greatest or fastest environmental and public health benefits

CSS Infrastructure Needs

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- CSS NPDES Permit Compliance Program
- CSS Pump and Treatment Facilities R&R Program
- CSS Pipe R&R Program

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CSS NPDES Permit Compliance Program

Capacity Improvements (storage and conveyance) to reduce flooding and capacity surcharges ($362M)

- LTCP/CSSIP projects and programs **do not** eliminate total volume of model-predicted flooding from a 10-year design storm

- Remaining model flood volume for the updated 10-Year Design Storm would cost roughly **$2 billion**

  - **Not a feasible strategy.**

  - **Will conduct real-time monitoring for observed outflows**

CSS Pump and Treatment Facilities R&R Program

CSS Facilities R&R efforts are critical

- ➢ Upcoming Significant Improvement Needed

- Pioneer Reservoir Treatment Facility Roof R&R
  - Option 1 - Repair
    - Extends Service Life 25 – 35 years
  - Option 2 - Replacement
    - Extends Service Life 40 –55 years

CSS Pipe R&R Program

Oldest Infrastructure with approximately 154 miles of pipe older than 100 years old

Higher risk of failure with emergency projects

- **$14M spent on emergency projects since 2021 where $9.2M were in CSS**

Conclusions

CSS Challenges

- Aging CSS infrastructure requires investment to reduce emergency repair needs
- Changing regulations and climate change consideration create uncertainty on resiliency
- Ensuring continuity in operations of treatment, storage, and pumping facilities is critical
- Prioritization and sequencing of projects will be dependent on new NPDES permit

Thank you!

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