Tapping into Available Capacity in Existing Infrastructure to Create Water Supply and Water Quality Solutions

White Paper

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September 27, 2019

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Supporting Agencies

Agenda

1. Primary Drivers
2. Project Goal
3. Phase 1 White Paper
   - Scope, Findings, Conclusions
4. Phase 2 White Paper
   - Current Efforts and Next Steps

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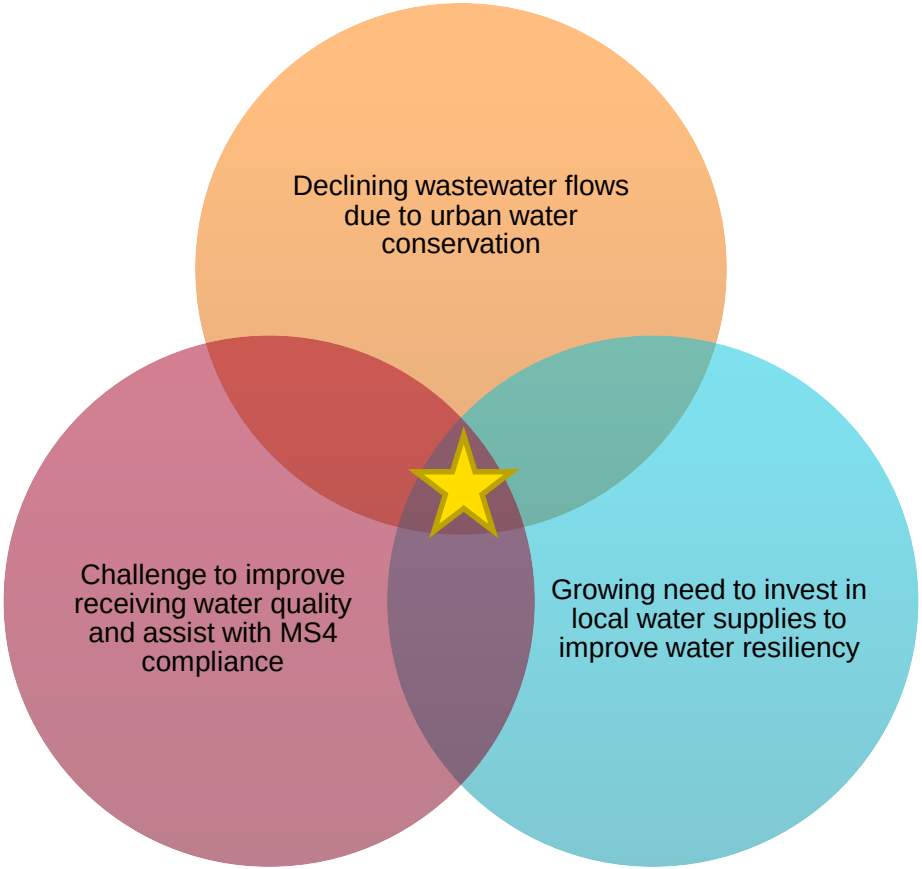
Primary Drivers for Study



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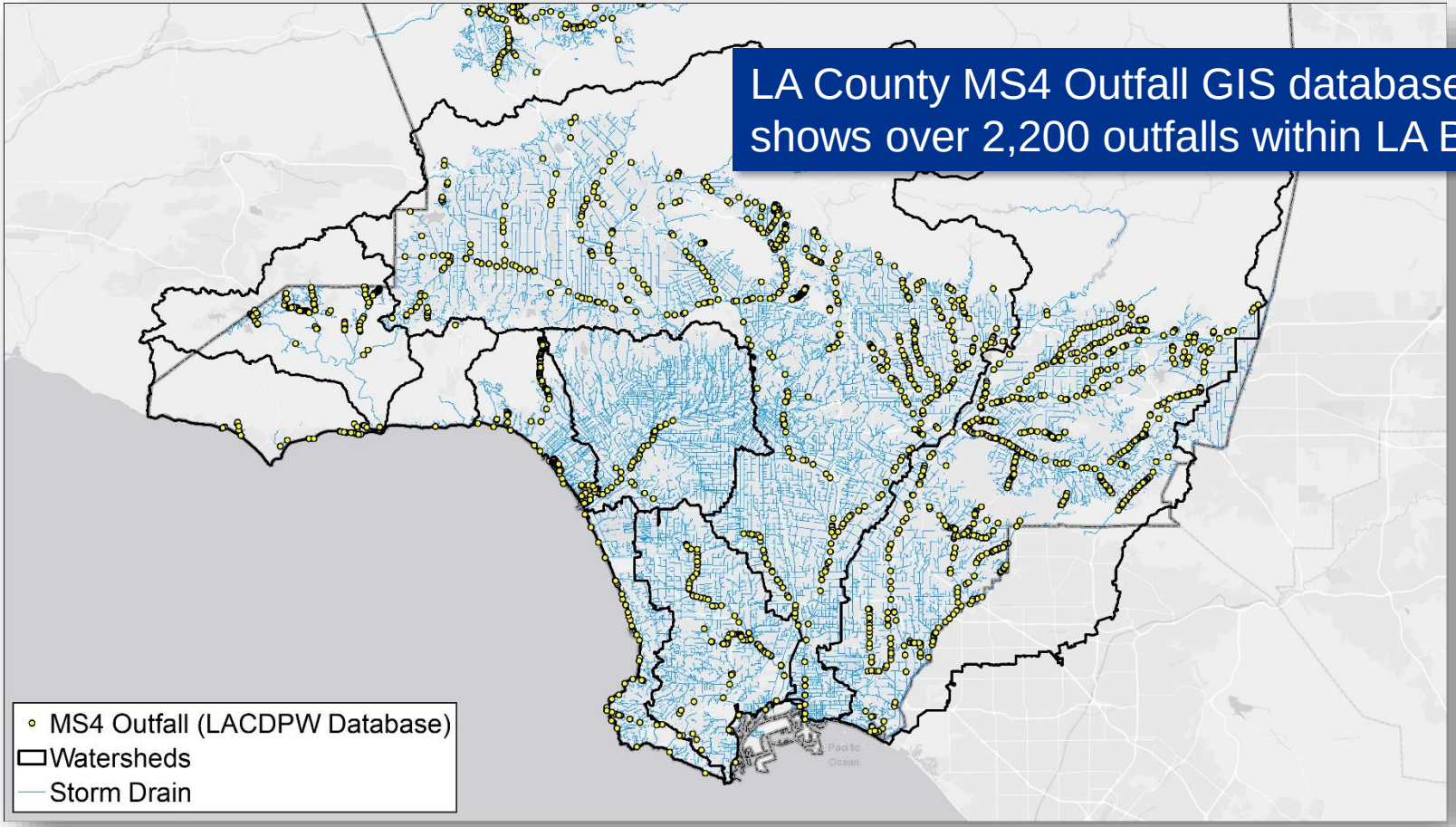
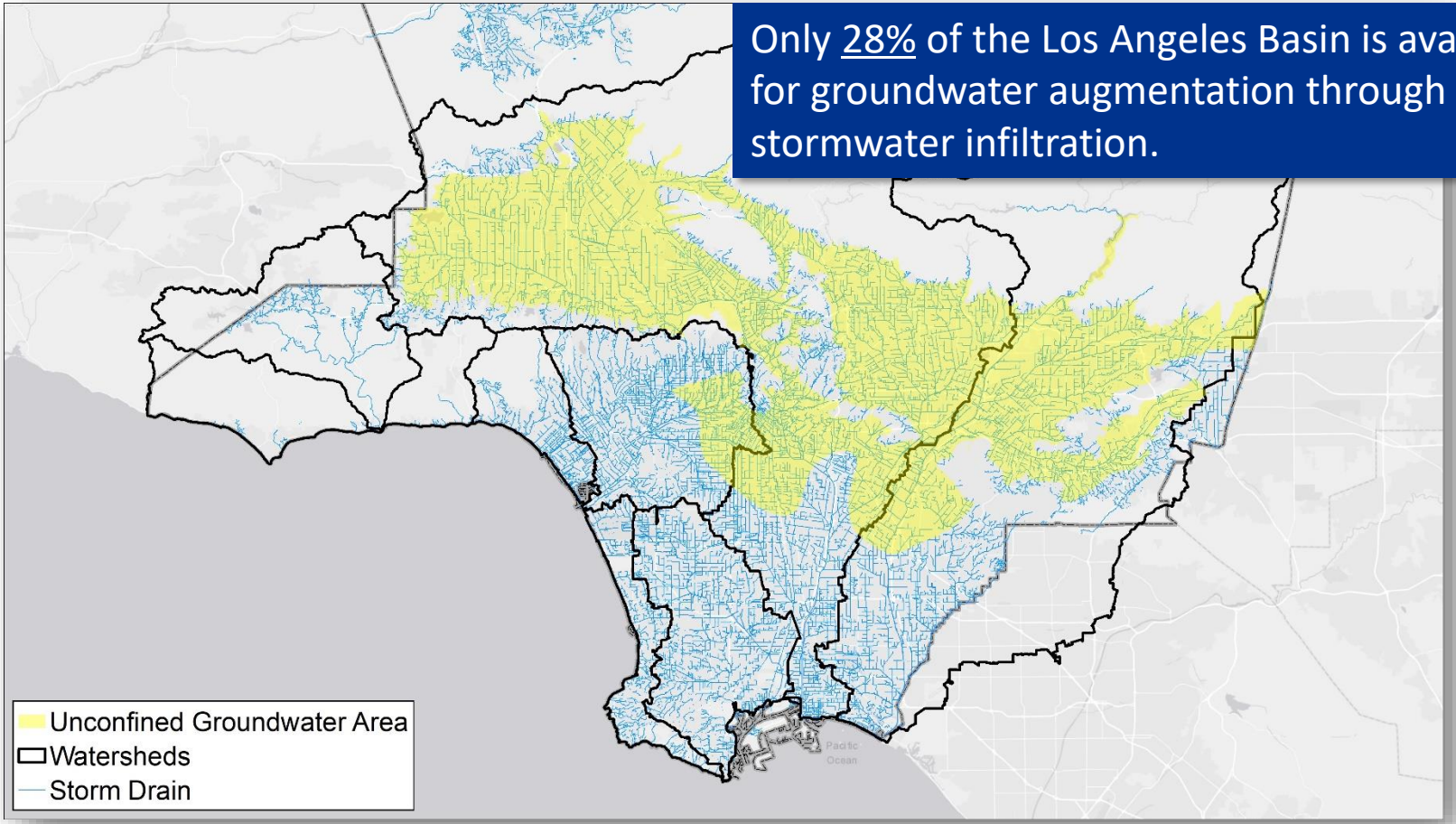
Los Angeles Basin Storm Drain System



Los Angeles Basin Storm Drain System



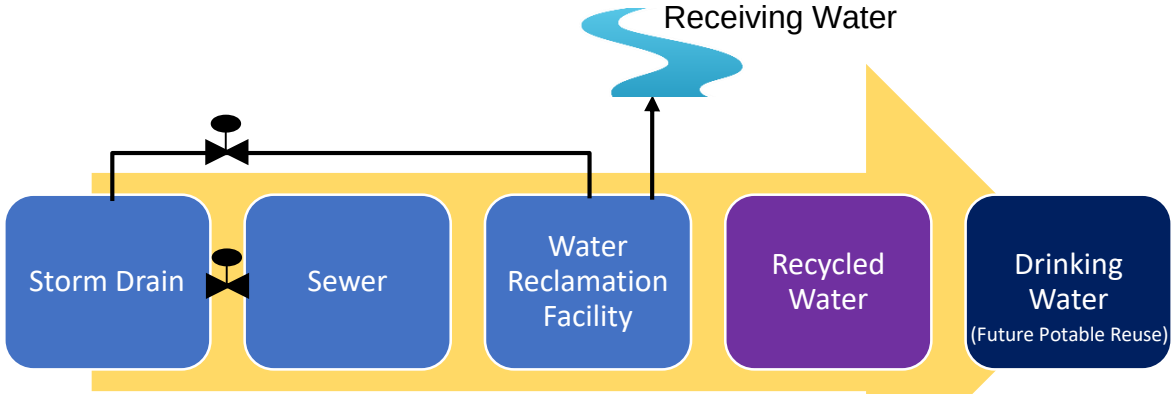
Eliminating Dry Weather Flow

Dry Weather Flow

- Source Control
- Capture and Reuse or Infiltrate
- Treat and Discharge
- Divert to Sewer

Project Goal

- Explore leveraging available capacity in the water reclamation plants (WRPs) for treating urban runoff to:
  - Improve receiving water quality
  - Generate new local source of recycled water



Tapping Available Capacities at the Water Reclamation Plants to Generate New Resilient Water Supplies

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Vernacular

- **Dry Weather Diversion (DWD):** a diversion of non-stormwater flows from the storm drain system to the sanitary sewer system. Also referred to as low flow diversion (LFD)
- **Wet Weather Diversion (WWD):** a diversion of both non-stormwater and stormwater flows from the storm drain system into the sanitary sewer system. Note: diverted volume is location specific

Phase 1 White Paper: Scope of Work

- Study Area: Los Angeles County
- Task 1: Data Collection and Review
  - Current studies specific to stormwater capture for water supply
  - Map WWTPs, sewer lines, storm drains, and existing LFDs
  - Inventory 21 municipal WWTPs and historic influent flows
  - Current federal, state, and local policies that prohibit or allow storm drain diversions to the sanitary sewer
- Task 2: Develop White Paper
  - Findings and considerations for utilizing existing wastewater and stormwater infrastructure for capture, reuse, and water quality improvements

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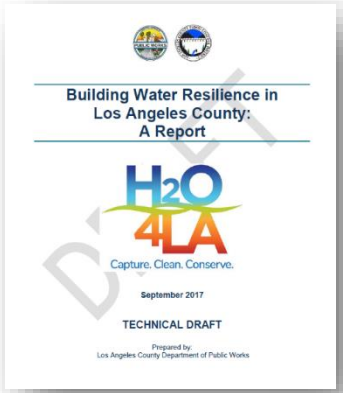
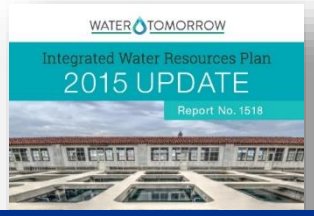
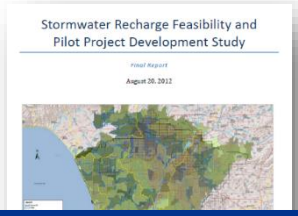
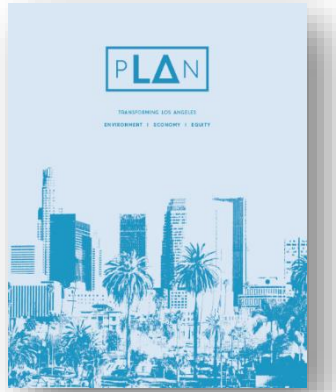
Current Studies

- Review alignment with existing local/regional planning documents:



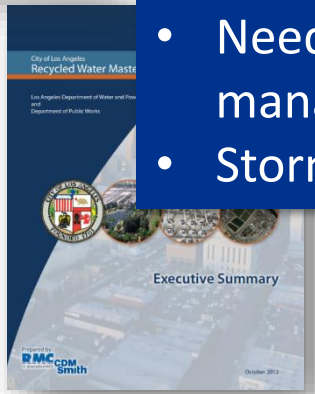


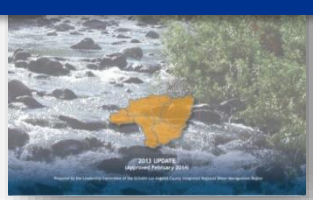


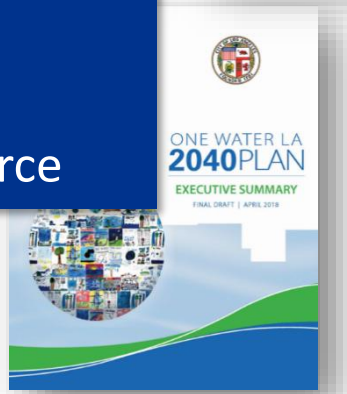


Common Messages:

- Need for multi-benefit, cost effective strategies to protect water quality
- Need for regional collaboration to better manage existing supplies
- Stormwater is an underutilized local resource

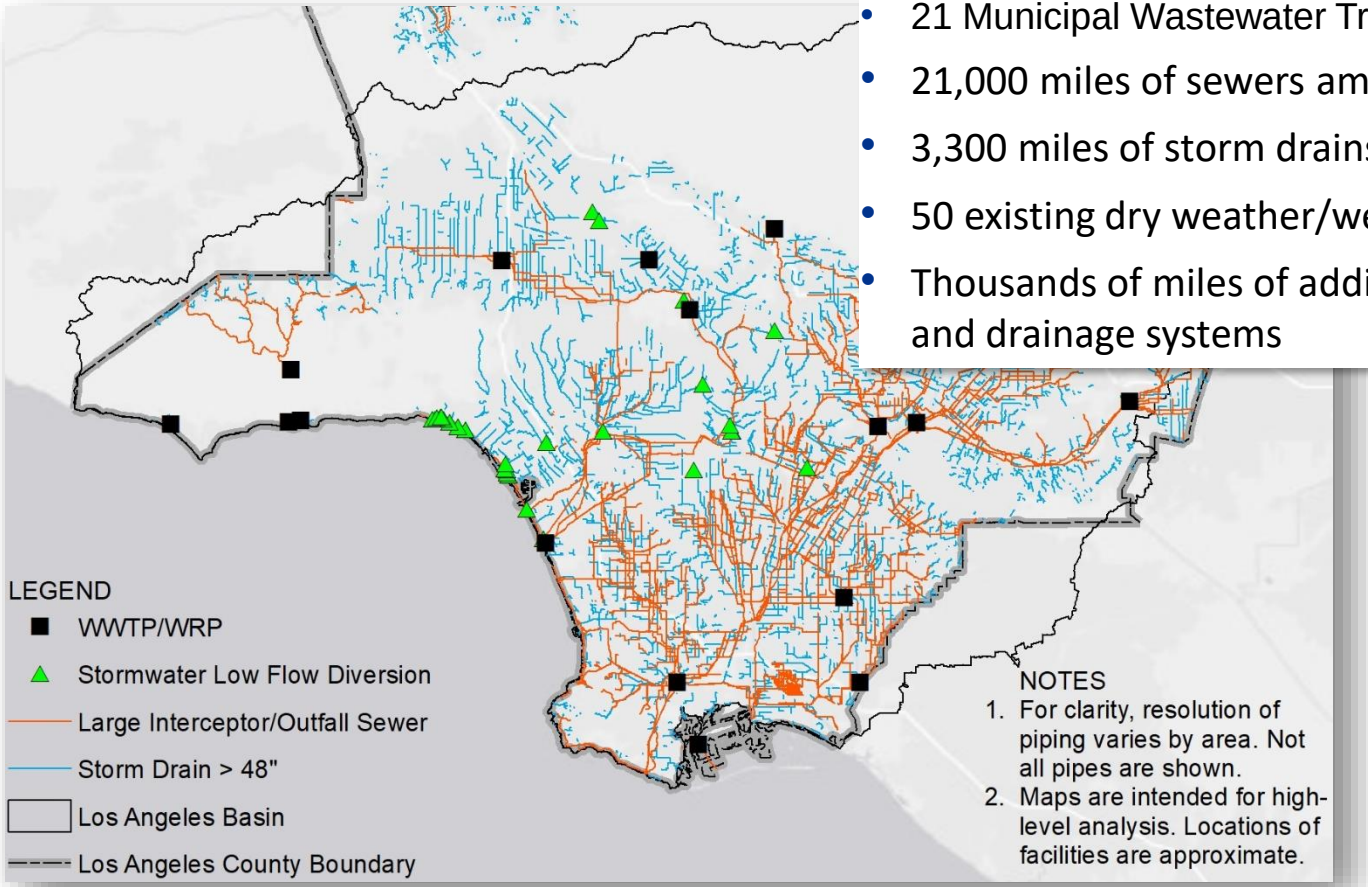






Infrastructure Inventory

- 21 Municipal Wastewater Treatment Plants
- 21,000 miles of sewers amongst owners listed above
- 3,300 miles of storm drains owned by LACFCD
- 50 existing dry weather/wet weather flow diversions
- Thousands of miles of additional city-owned sewer and drainage systems



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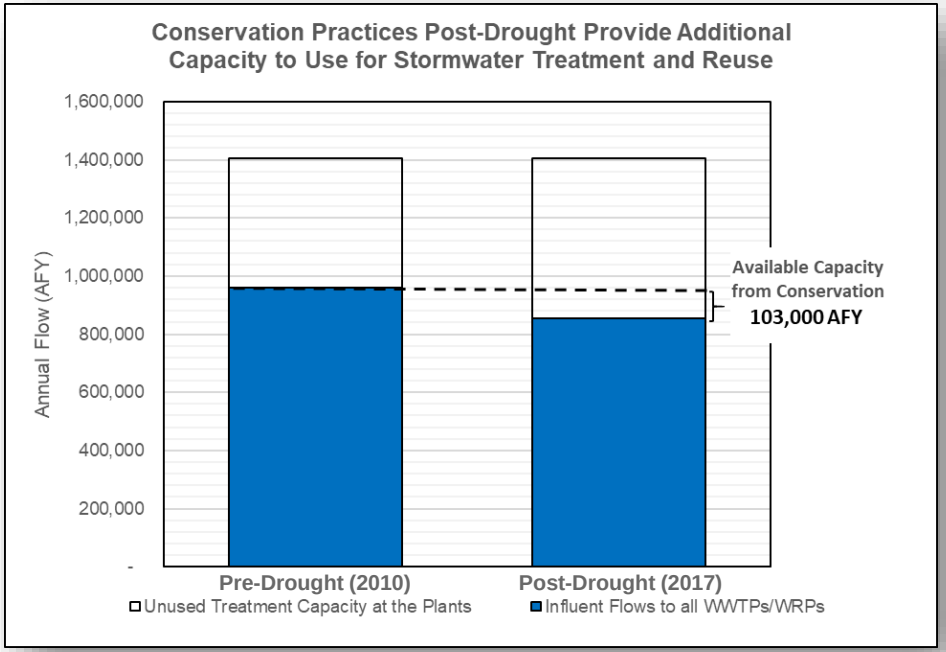
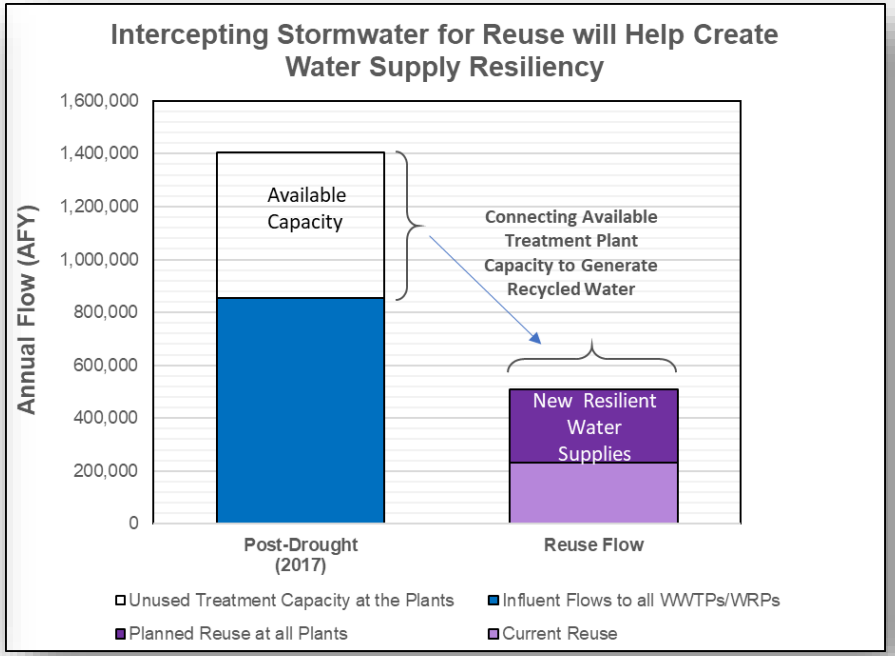
Inventory of Annual Influent WWTP Flows

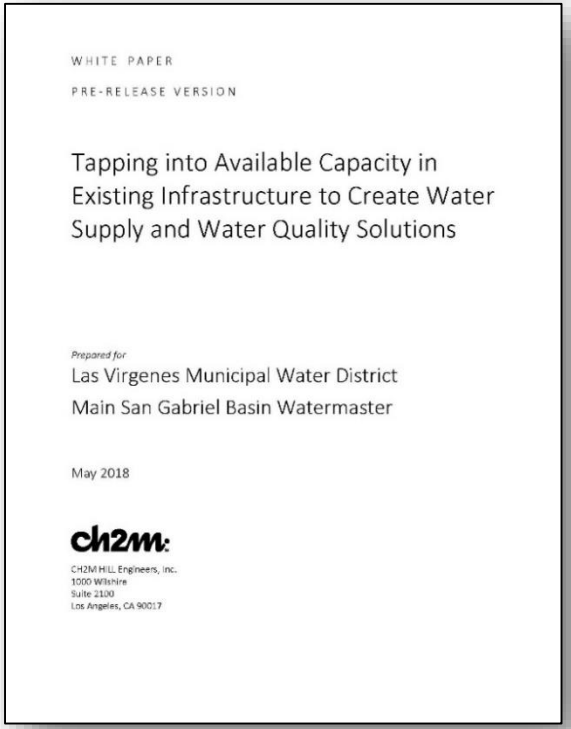
- Conservation → 103,000 AFY Reduction of Influent WWTP Flows (2010 vs 2017)
- 1.4M AFY capacity amongst 21 WWTPs, only 61% of capacity utilized in 2017
- Future recycled water demand expected to more than double





Phase 1 Completion

- "Phase 1" Study Completed May 2018
  - Available on LVMWD website
- Conclusions
  - Opportunity to maximize use of existing infrastructure (inherently providing a more cost effective solution)
  - Diversions should be analyzed on a case-by-case basis to ensure permissive integration
  - Controlled diversions from the SD to SS can help to address MS4 requirements while helping to meet future demands
- Illustrated the need for additional study to:
  - Address potential challenges and complexities
  - Engage a much broader group of stakeholders


WHITE PAPER

PRE-RELEASE VERSION

Tapping into Available Capacity in Existing Infrastructure to Create Water Supply and Water Quality Solutions

Prepared for

Las Virgenes Municipal Water District

Main San Gabriel Basin Watermaster

May 2018

ch2m:

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Phase 2 White Paper

- Phase 2 – Initiated March 2019
  - Purpose: build upon work in Phase 1
- Partnership of 13 agencies
- Metropolitan Water District
  Future Supply Actions Funding Program
  - FSA application submitted August 31, 2018
  - Awarded $339,500 by MWD Board January 8, 2019


Phase 2 White Paper: Tapping into Available Capacity in Existing Infrastructure to Create Water Supply and Water Quality Solutions

Proposal for Future Supply Actions Funding Program

August 31, 2018

AGREEMENT

This Agreement is made and entered into by and between the following public agencies (hereinafter referred to individually as "Party" and collectively as "Parties") to cooperatively prepare and fund a study evaluating opportunities to tap into available capacity in existing infrastructure to create water supply and water quality solutions:

- Central Basin Municipal Water District (hereinafter referred to as "Central Basin");
- City of Los Angeles, LA Sanitation and Environment (hereinafter referred to as "LASAN");
- City of Los Angeles, Department of Water and Power (hereinafter referred to as "LADWP");
- City of Pasadena (hereinafter referred to as "Pasadena");
- City of Torrance (hereinafter referred to as "Torrance");
- County Sanitation District No. 2 of Los Angeles County (hereinafter referred to as "LACSD");
- Las Virgenes Municipal Water District (hereinafter referred to as "LVMWD");
- Los Angeles County Flood Control District (hereinafter referred to as "LACFCD");
- Main San Gabriel Basin Watermaster (hereinafter referred to as "Main San Gabriel Basin");
- Three Valleys Municipal Water District (hereinafter referred to "Three Valleys");
- Upper San Gabriel Valley Municipal Water District (hereinafter referred to as "Upper District"); and
- Water Replenishment District of Southern California (hereinafter referred to as "WRD").

RECITALS

WHEREAS, the Parties consist of public agencies with responsibility for various aspects of water resources management in the County of Los Angeles, including flood control; water conservation; surface water quality; stormwater management; groundwater management; and wastewater collection, treatment and recycling;

WHEREAS, in May 2018, LVWMD, Main San Gabriel Basin and WRD completed a Phase 1 White Paper on Tapping into Available Capacity in Existing Infrastructure to Create Water Supply and Water Quality Solutions that highlighted the potential merits of controlled and strategic integration of the region's existing stormwater and wastewater systems to achieve multiple benefits, namely enhancing the quality of receiving waters in Los Angeles County and increasing water supplies available for recycling;

Phase 2 White Paper: Scope of Work

- Data Collection and Review
- Identification of DWDs for Case Studies
- Case Studies and Operator Interviews
- Conceptual Plan to Divert Remaining Dry Weather Flows
- Storage Considerations
- Outreach to Regulators
- Framework for Implementation of DWDs and WWDs
- Conclusions, Recommendations, and Report (Feb/Mar 2020)

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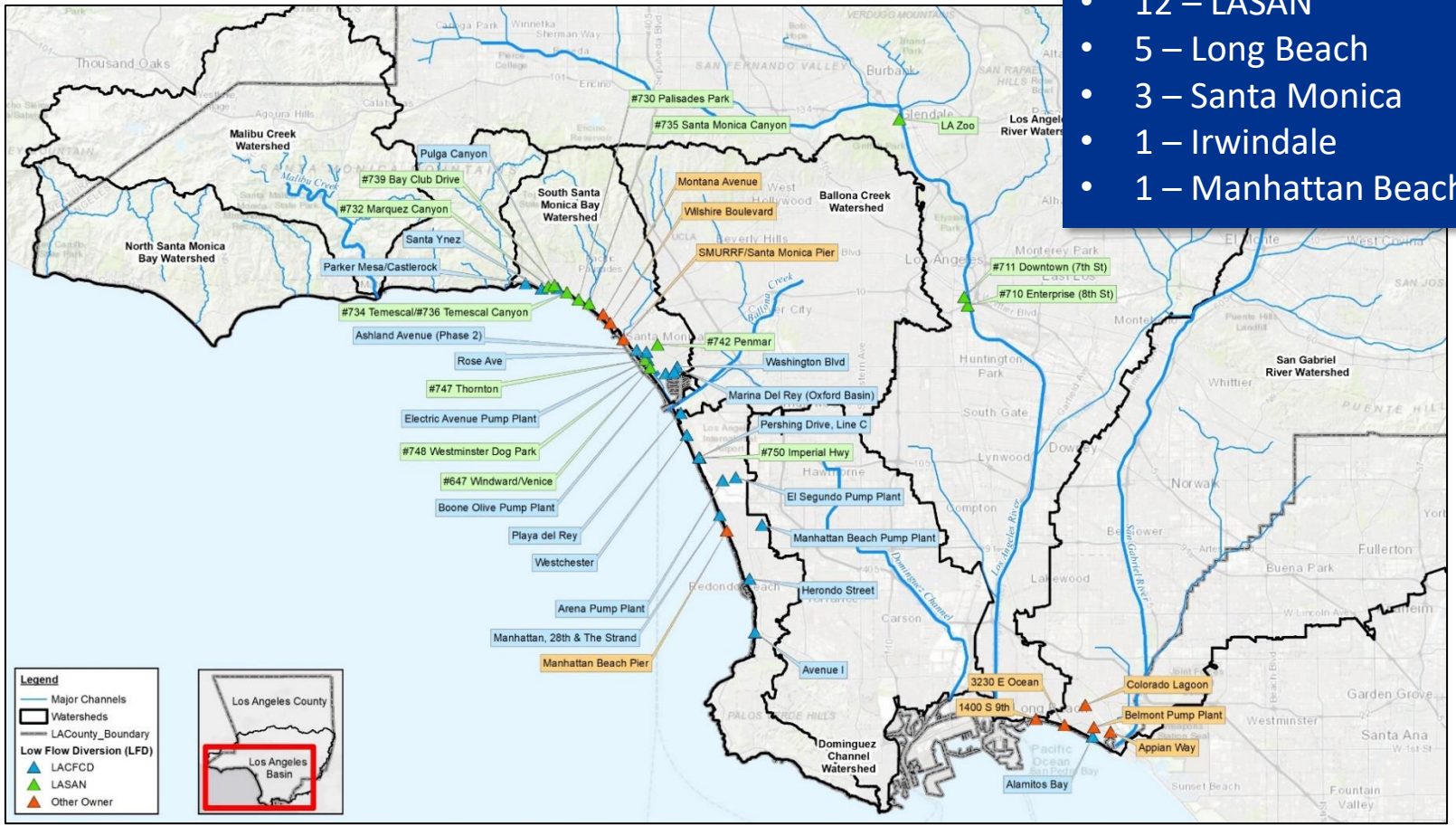
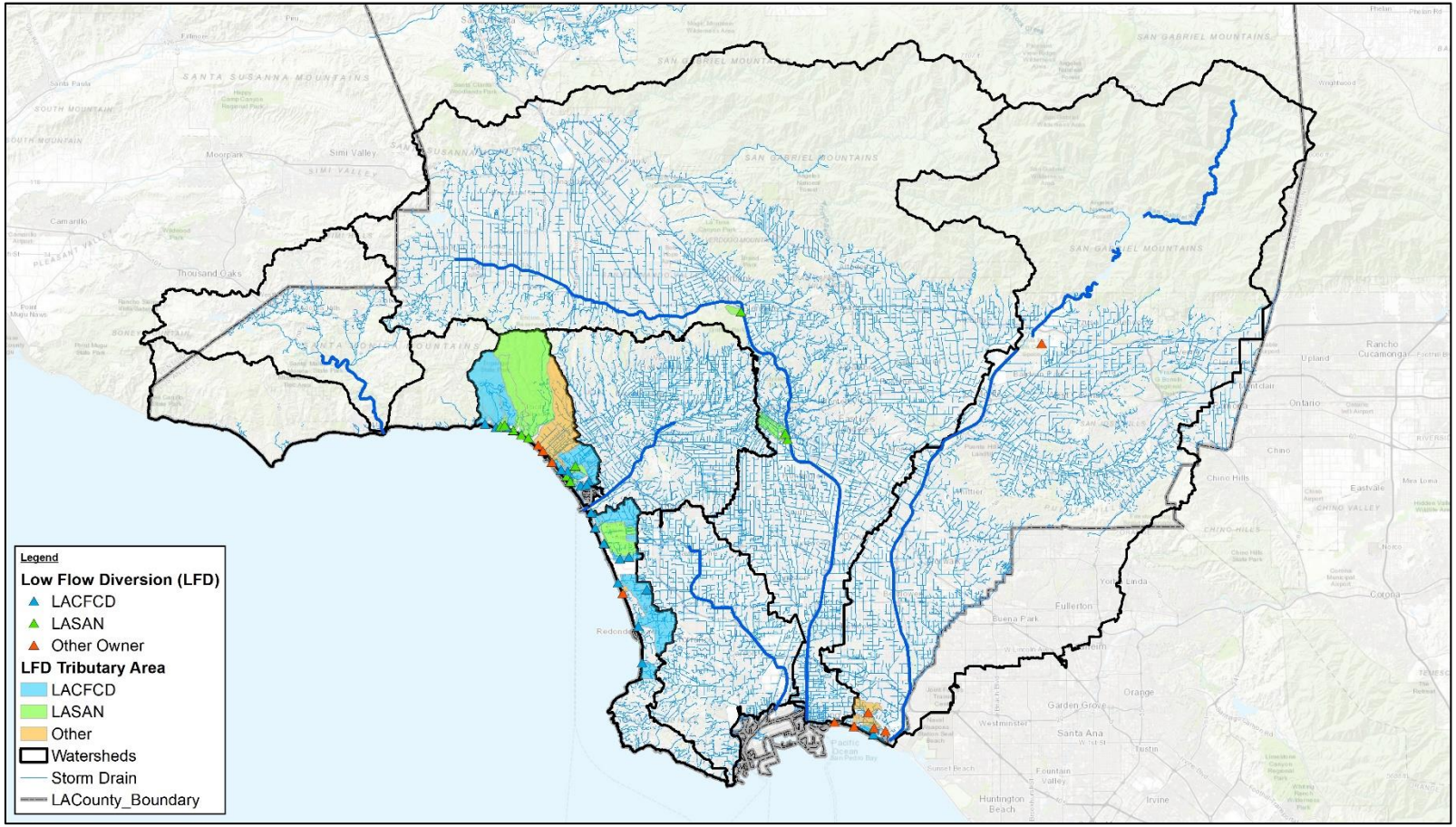
DWD/WWD Inventory

41 Existing Diversions:

- 19 – LACFCD
- 12 – LASAN
- 5 – Long Beach
- 3 – Santa Monica
- 1 – Irwindale
- 1 – Manhattan Beach



Tributary Mapping



Flow Analysis Findings

- Existing DWDs are effective in preventing dry weather discharges
- Average DWD flows are much less than design capacity (designed to capture peak flows)
- Opportunity to optimize and capture wet weather flow
- Average influent flows to Hyperion and JWPCP indicate potentially available capacity

Next Steps

- Phase 2 White Paper
  - Quantification of Dry Weather Flows
  - Assess WWDs
  - Roadmap for Agencies to Follow
  - Recommendations
- Future Considerations
  - Implementation of Recommendations
  - Collaboration and Planning

Thank You!

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