



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

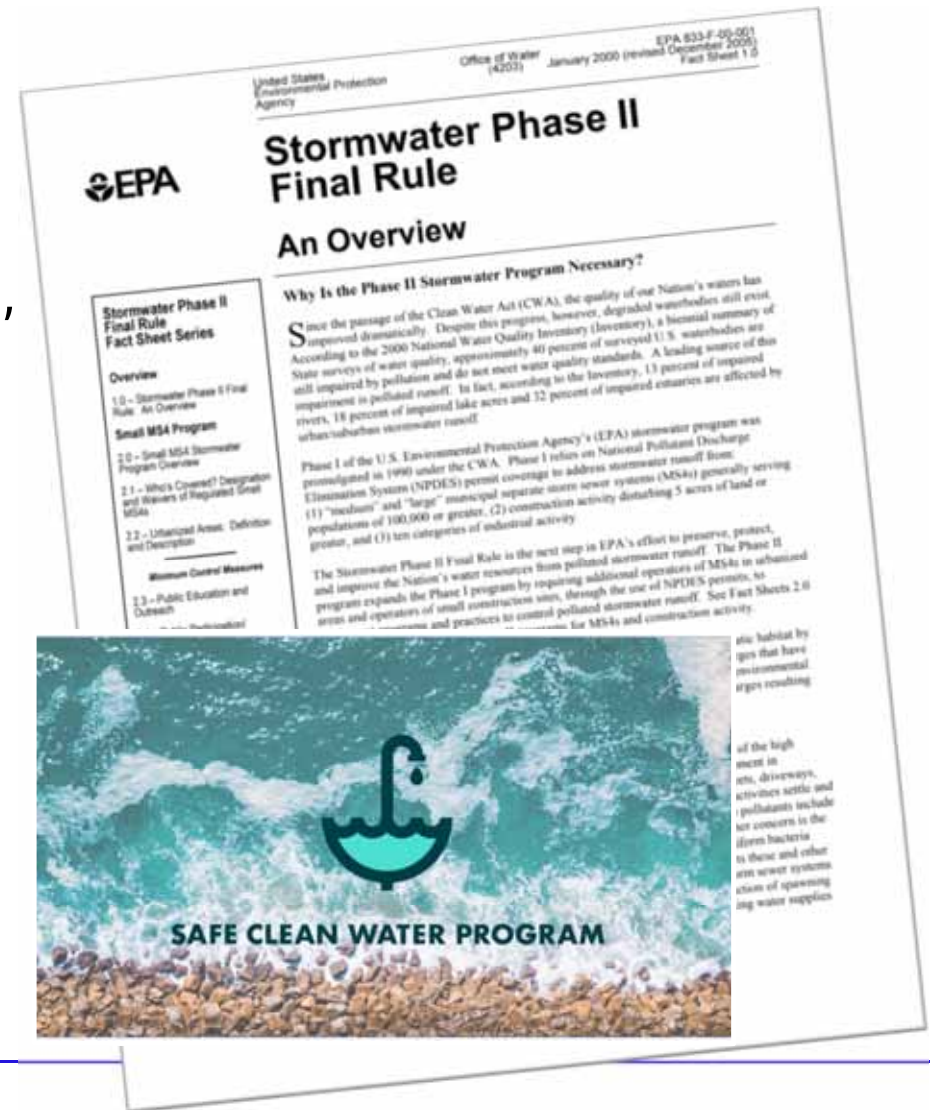
LARWOCB Presentation  
July 9, 2020

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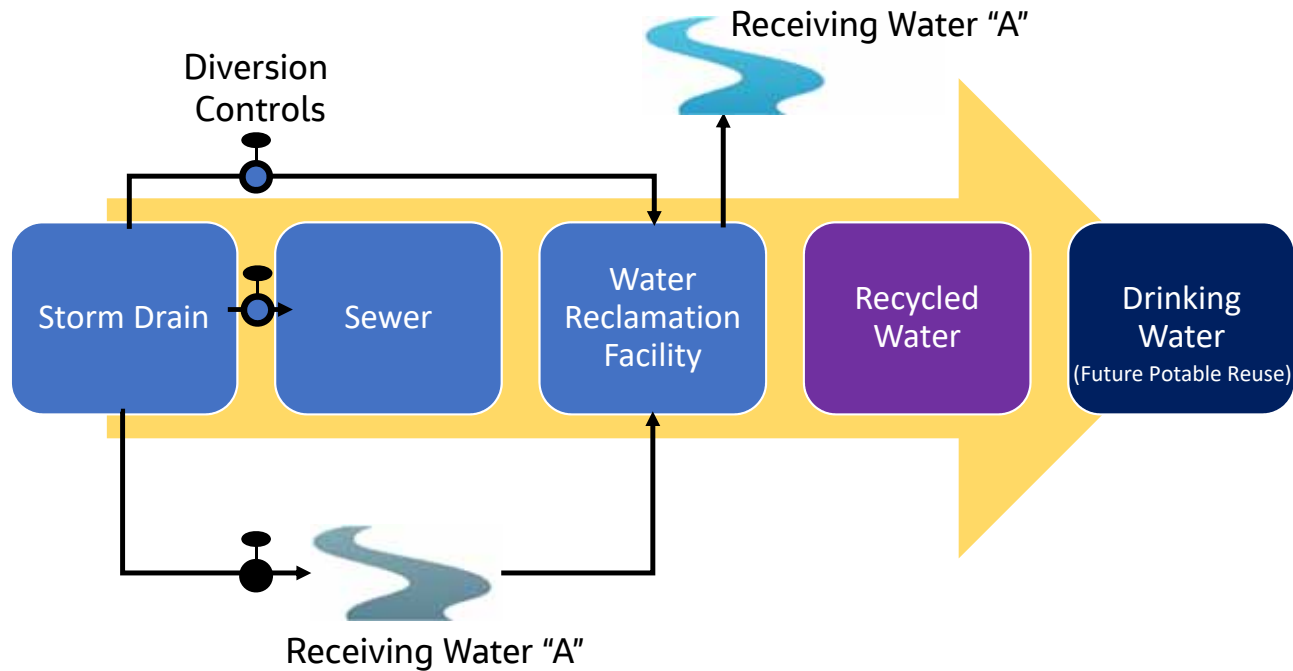
## Two important changes have occurred since issuance of the 2012 MS4 Order:

- 2015 County Sanitation District Act (SB 485, Hernandez): Authorizes a sanitation district to furnish facilities for the diversion, management, and treatment of stormwater and dry weather runoff.
- Measure W provides funding to pay for the cost of diversion and treatment of dry weather and first flush flows regulated by MS4.

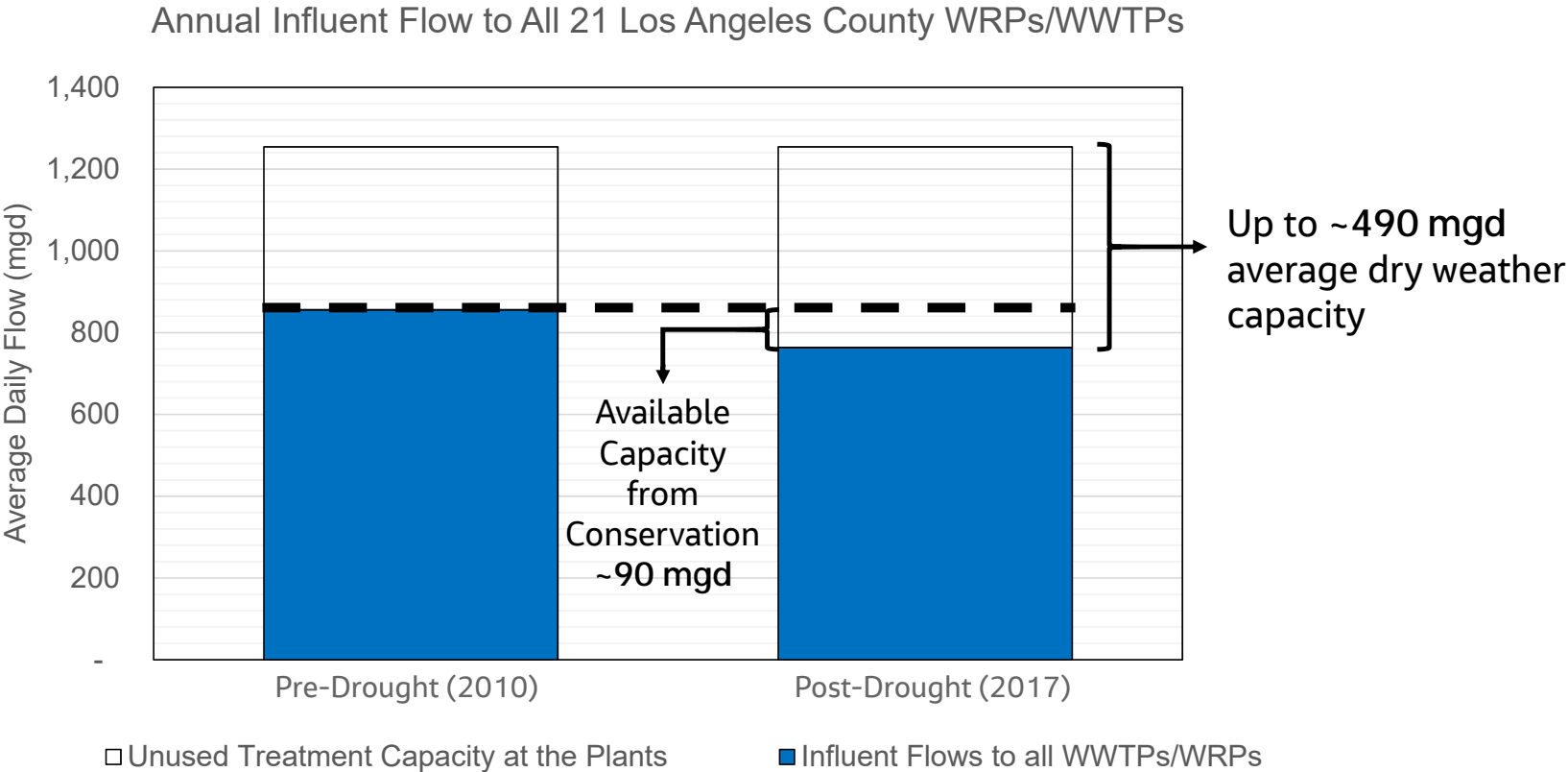


## Overall Project Goal

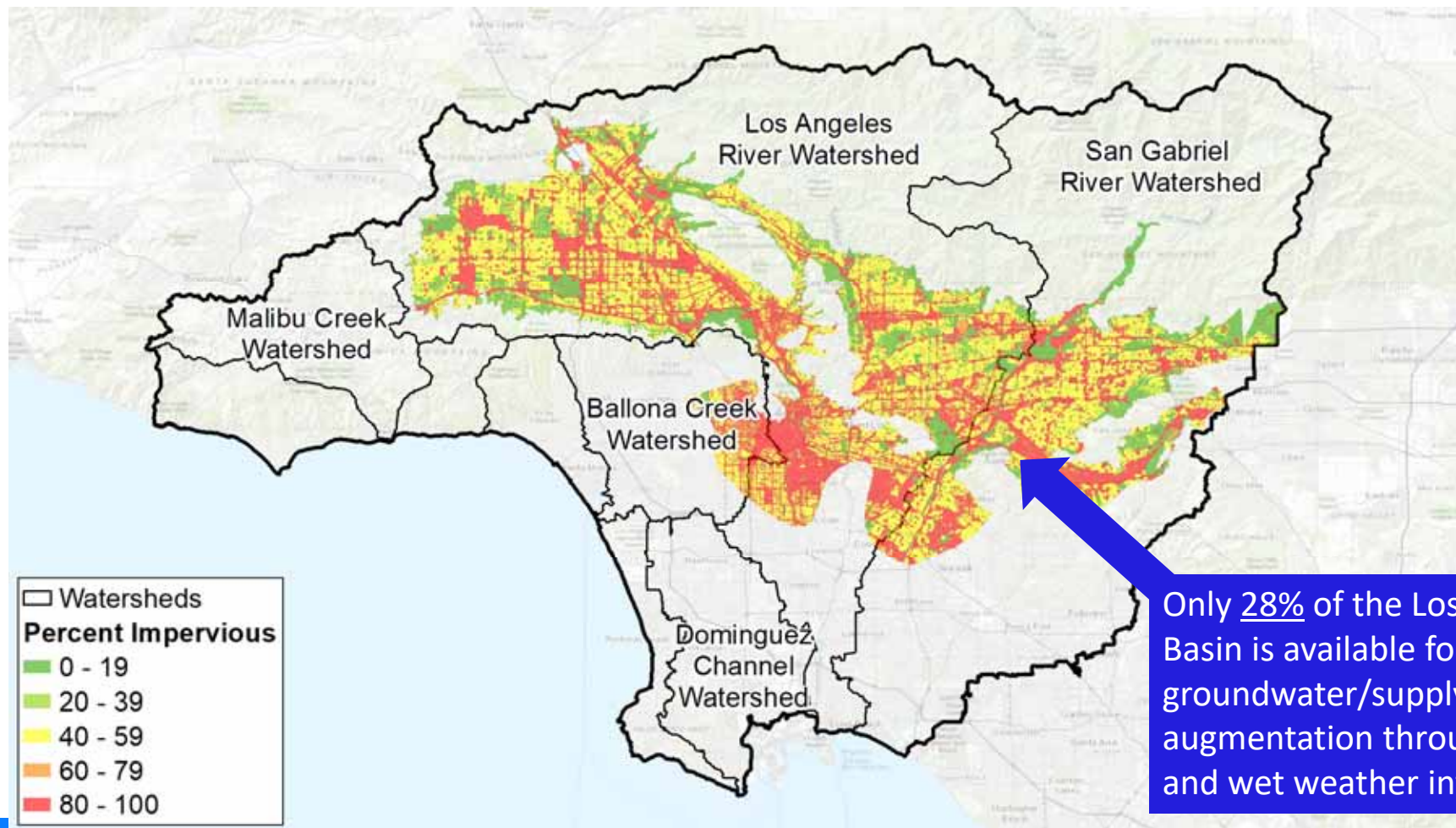
- Understand feasibility of tapping available capacities at the water reclamation plants to generate new resilient water supplies



# Phase 1 White Paper Key Findings



## Phase 1 White Paper Key Findings



Only 28% of the Los Angeles Basin is available for groundwater/supply augmentation through dry and wet weather infiltration.

## Phase 1 White Paper Findings

- “Phase 1” Study Completed May 2018
  - Collect and review existing information
  - Available on LVMWD website
- Conclusions
  - Opportunity to maximize use of existing infrastructure (inherently cost effective)
  - Diversions should be analyzed on a case-by-case basis
  - Controlled diversions can help to address MS4 requirements
- Illustrated the need for additional study to:
  - Address potential challenges and complexities
  - Engage a 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 Partnership

- Metropolitan Water District  
Future Supply Actions Funding Program
- Objectives
  - Understand efficacy of existing DWDs
  - Investigate feasibility of expansion to wet weather
  - Understand limitations of DWDs and WWDs
  - Develop framework for MS4 permittees



# Existing Dry Weather Diversion (DWD) Inventory

- 41 Existing Diversions:
- 19 – LACFCD
  - 12 – LASAN
  - 5 – Long Beach
  - 3 – Santa Monica
  - 1 – Irwindale
  - 1 – Manhattan Beach



Existing DWDs divert ~70% of South Santa Monica Bay Watershed



## Four Case Study DWDs (existing)

### City of Los Angeles

1. Temescal Canyon DWD
2. Santa Monica Canyon DWD

### Los Angeles County Flood Control District

3. Pershing Drive DWD
4. Manhattan Beach Pump Plant DWD



# Dry Weather Diversion (DWD) Case Study Analysis Approach

Operations and Performance in Dry Weather



Potential to Capture Some Wet Weather



Rainfall Analysis



Runoff Analysis



Conveyance Capacity\*



Water Reclamation Plant Capacity\*

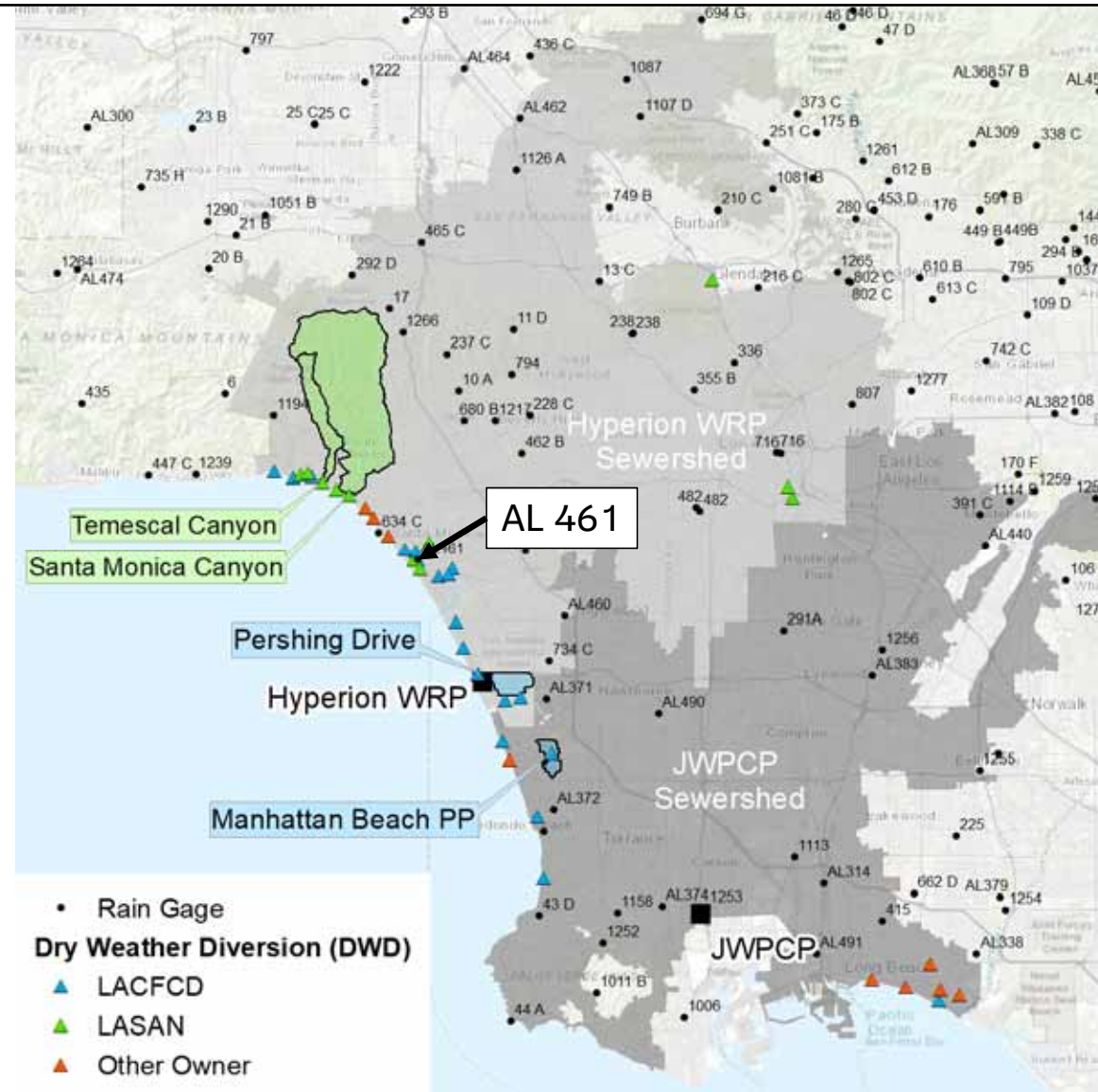


Entire First Flush?

\*Capacity information provided by the wastewater agency.

# Rainfall Data

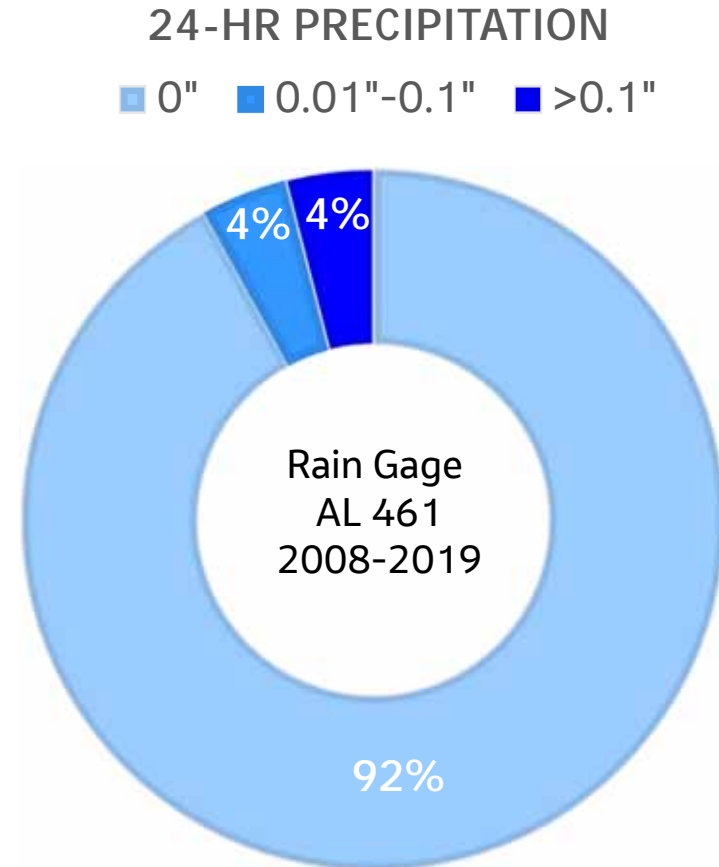
- 133 Real Time Rain Gages



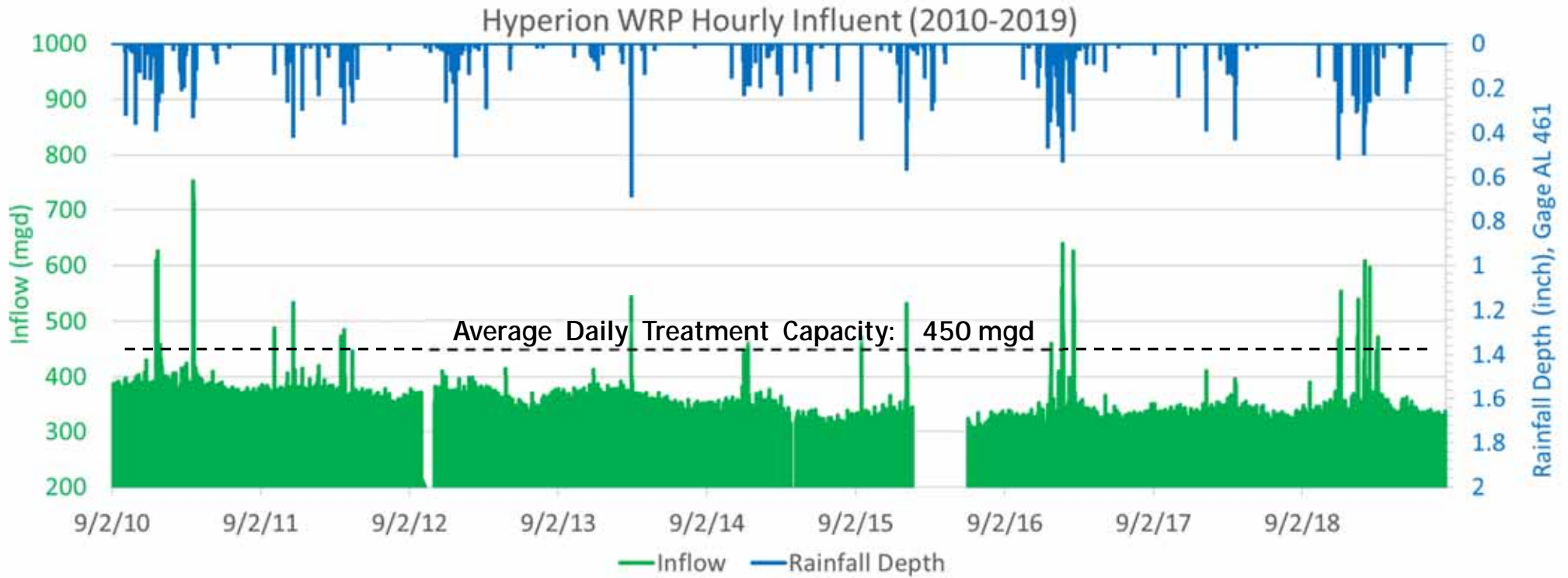
## Rainfall Frequency (AL 461)

- Dry Weather Flow Day: days with  $\leq 0.1$ " precipitation
- Compliance 96% of days if capturing all dry weather flow days

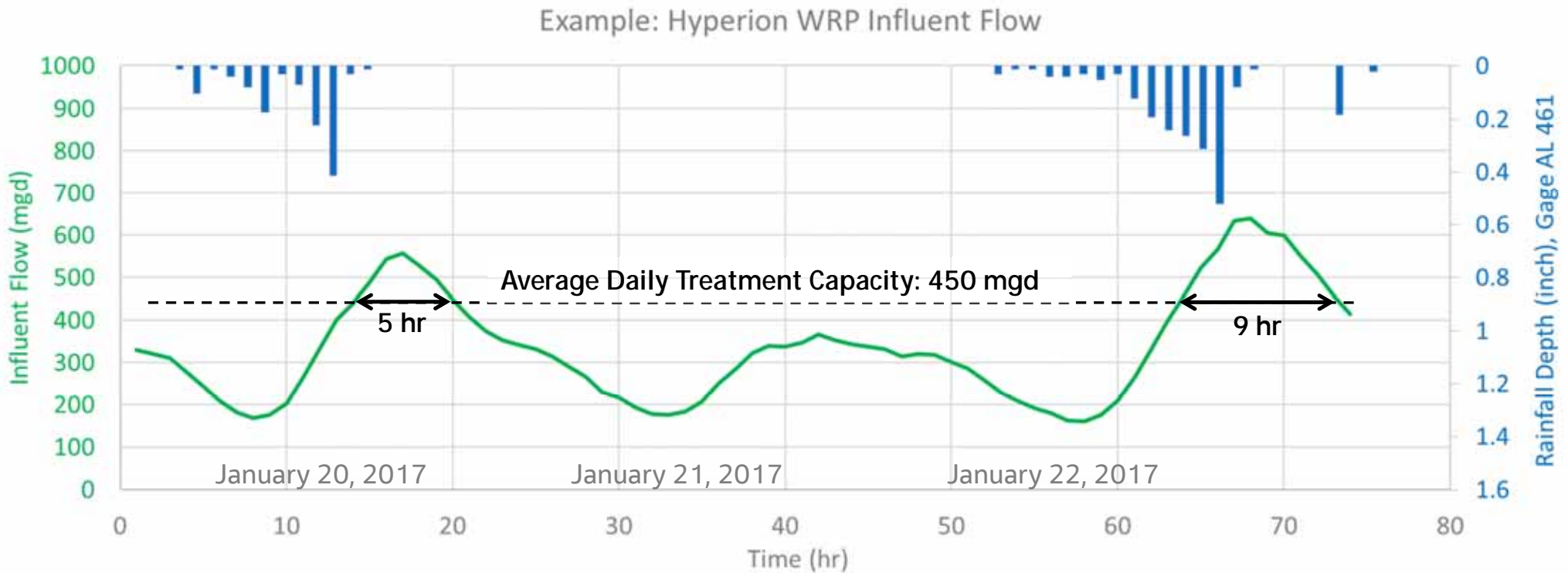
24-hr Rainfall Depth (inch)	Number of Days (2008-2019)	Percent	Cumulative Percent
0	3,913	92%	92%
0.01 – 0.1	154	4%	96%
>0.1	173	4%	100%



# Hourly flows seldom exceed average daily treatment capacity (0.2% of hours)

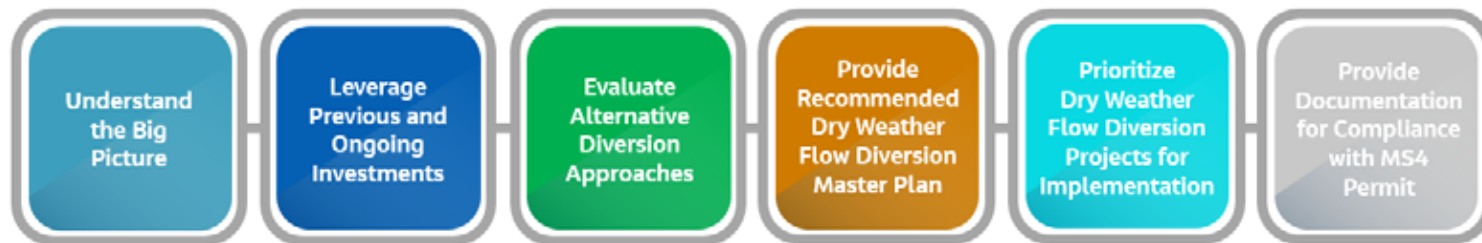


Influent peaks typically have lag time of 3-4 hours with short peak periods (~5-12 hr)



## Next Steps Beyond Phase 2

- Optimize/expand existing diversions on a case by case basis:
  - Review O&M and monitoring practices
  - Shorten delay in bringing DWD online after a storm event
  - Smart system conversion to control and operational capabilities
  - Expand storage, pump, and conveyance capacities
  - Revise policies/permits to allow wet-weather on case by case basis
- Improve coordination among stakeholders
- Develop dry weather/first flush strategy
- Identify early action projects

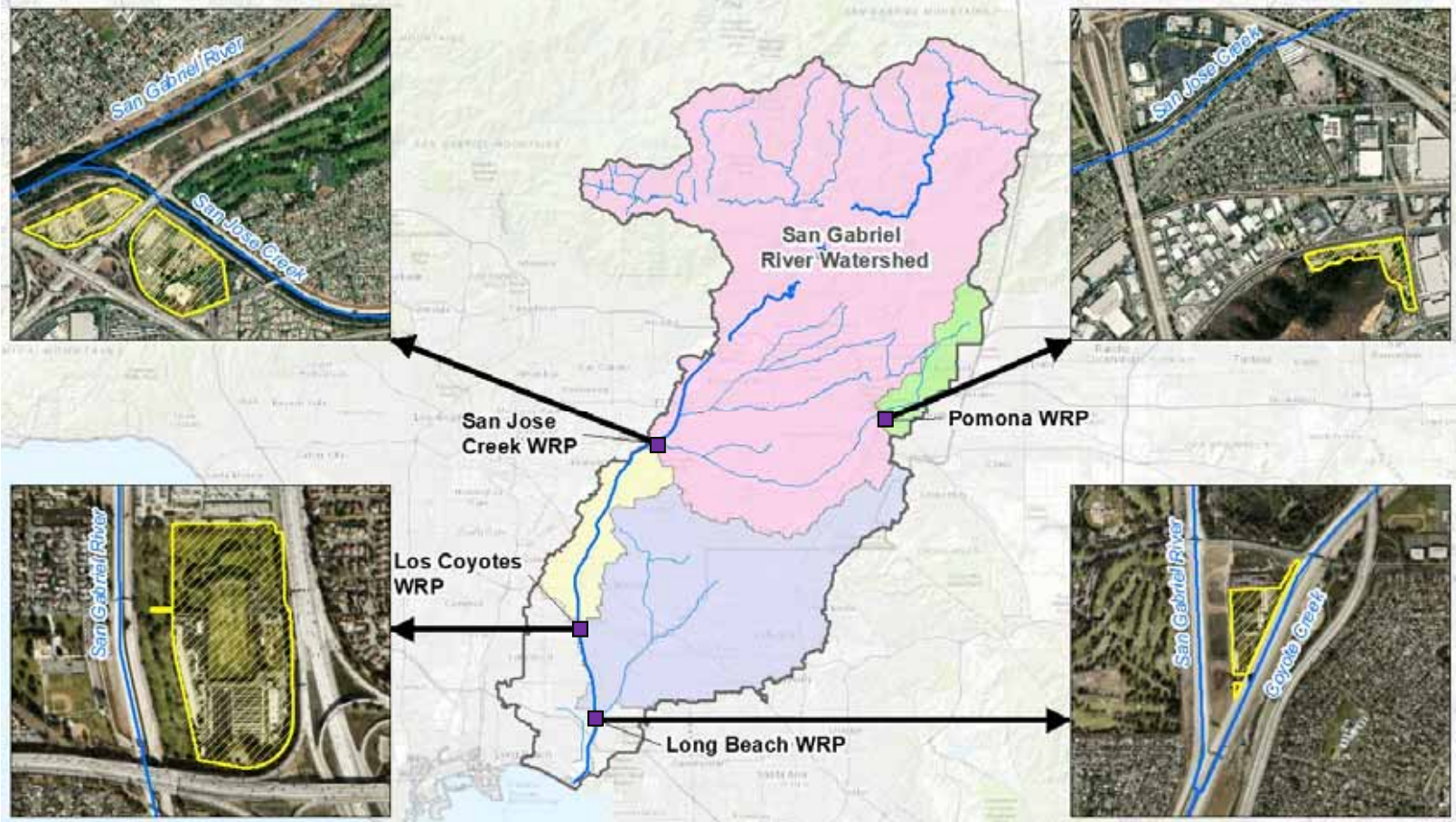


# Identifying Early Action Projects





# Identifying Early Actions: San Gabriel River Watershed



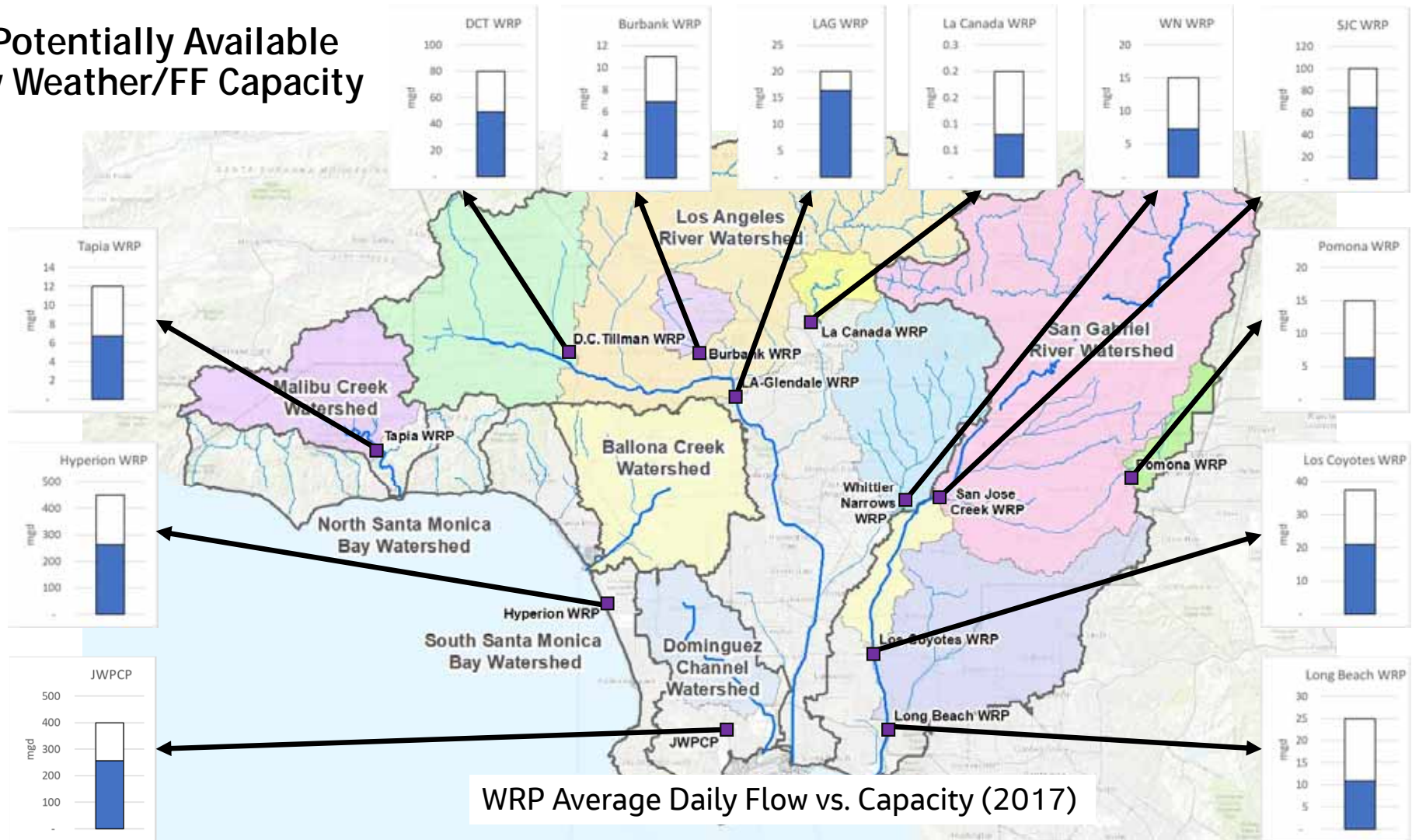
# Identifying Early Actions: Los Angeles River Watershed



# Identifying Early Actions: Malibu Creek, Ballona Creek, Dominguez Channel



# WRPs Potentially Available for Dry Weather/FF Capacity



WRP Average Daily Flow vs. Capacity (2017)

# Watershed Mass Emission Monitoring Stations



# Steps to MS4 Compliance

Verify Dry Weather Flows



Identify Dry Weather Early Action Projects



Analyze Capture of First Flush



Analyze Wet Weather Diversion Beyond First Flush

Step 1: Eliminate Dry Weather

Step 2: Identify Wet Weather Feasibility

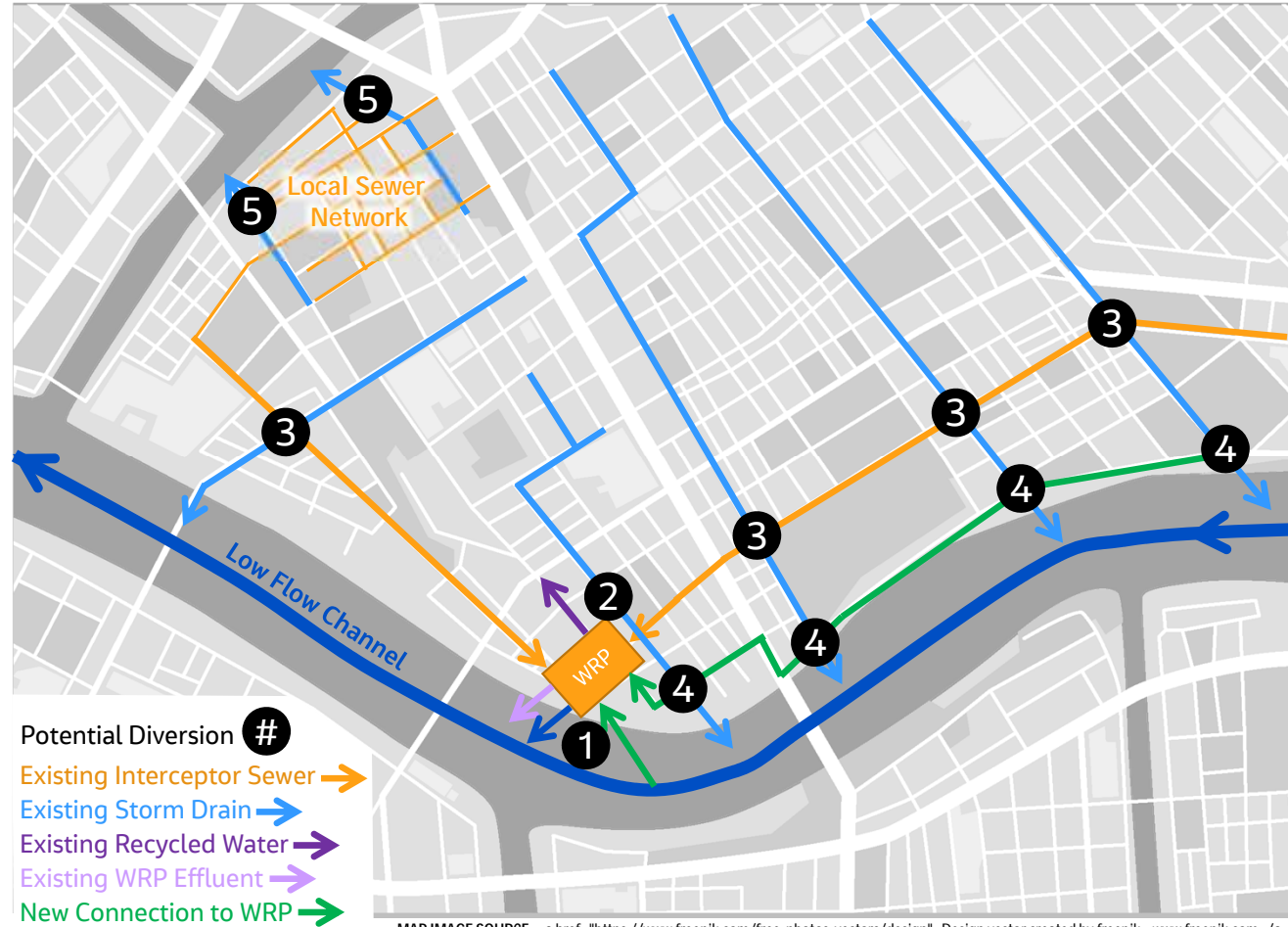
# Permissive and Controlled Dry Weather Diversion Potential Approach

## Early Action Projects:

1. Divert adjacent receiving water to WRP

## Other Diversion Strategies:

2. Divert nearby storm drains to WRP
3. Divert storm drain to nearby interceptor sewers
4. New dedicated conveyance from multiple DWDs to WRP
5. Divert individual storm drains to local sanitary sewer (existing DWDs)



## In closing:

1. Capturing dry weather and up to 0.1" rainfall results in ~96% of days in MS4 compliance.
2. Some estimate ~100 mgd of dry weather flow in LA County. From conservation, ~90 mgd additional treatment capacity became available.
3. Capturing first flush after a dry period would mitigate buildup of pollutants.
4. Utilizing available wastewater system capacity for permissive diversion and treatment in consideration of receiving waters' beneficial uses appears to be the fastest and most cost-effective compliance strategy.



Thank you!

Stay Safe