

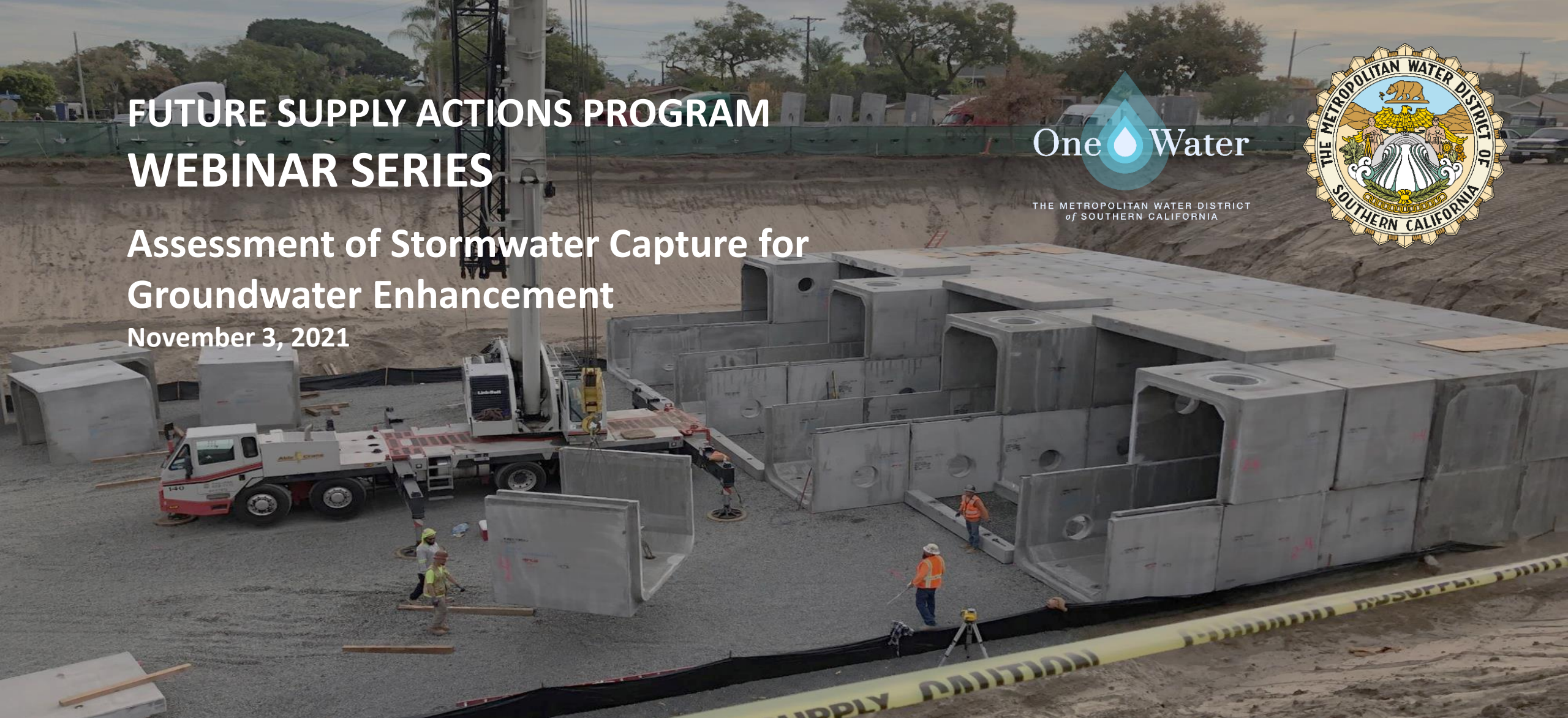
FUTURE SUPPLY ACTIONS PROGRAM WEBINAR SERIES

Assessment of Stormwater Capture for Groundwater Enhancement

November 3, 2021



THE METROPOLITAN WATER DISTRICT
of SOUTHERN CALIFORNIA



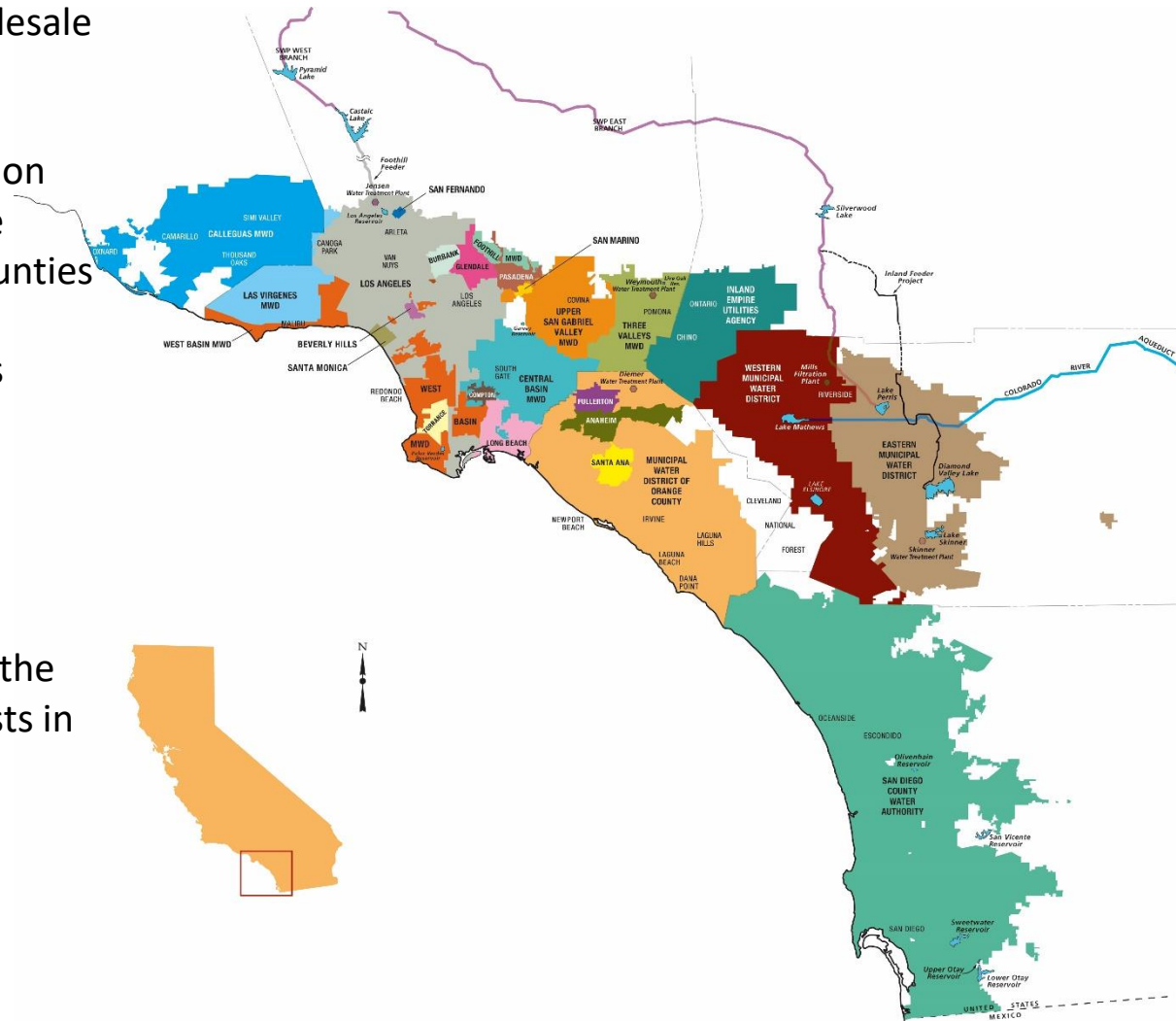
Agenda





The Metropolitan Water District of Southern California

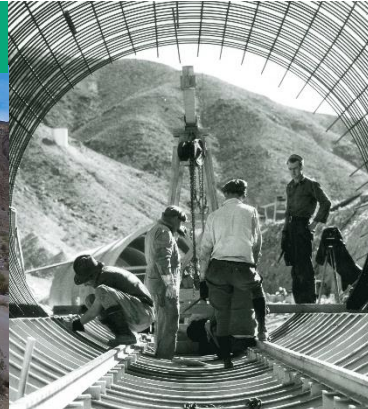
- Nation's largest wholesale water provider
- Service area: 19 million people/5,200 square miles/parts of six counties
- 26 member agencies
- Supports \$1 trillion regional economy
- Imports water from Northern Sierra and the Colorado River, invests in local projects





Metropolitan's Role for Southern CA

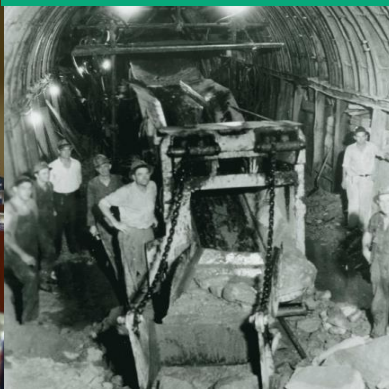
REGIONAL PROVIDER



INNOVATION



VISION



Flexible System



SAFE & RELIABLE



Future Supply Actions Funding Program

Future Supply Actions established in 2010 IRP

Drive innovation

Pilot new approaches
and technologies

Remove barriers to
supply development

Benefit the region

Local Resources

Groundwater

Stormwater

Reuse

Desalination



Current Program

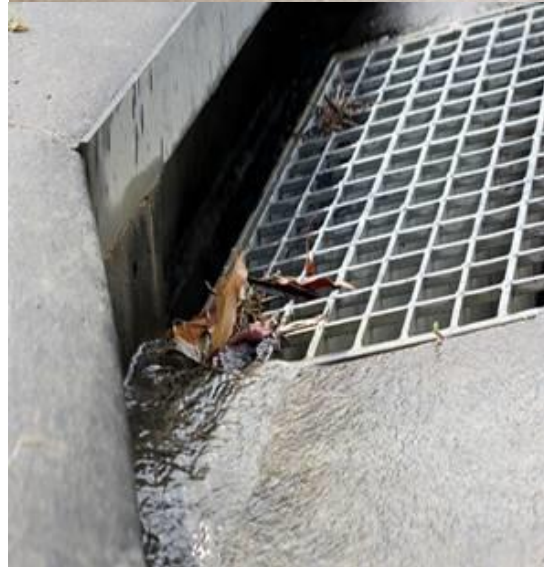
Member Agency

- 14 studies
- \$3.1 million

Water Research Foundation

- 6 potable reuse studies
- 1 agricultural reuse study
- \$975k

Regional Assessment of Stormwater Capture, Treatment, and Infiltration for Groundwater Enhancement

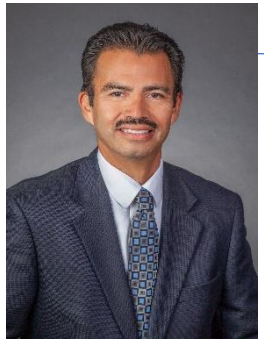




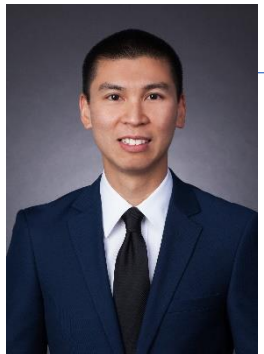
Speaker Spotlight



Kyle Aube, City of Anaheim
Assistant Engineer



Hector Ruiz, GHD
Executive Advisor



Ulysses Fandino, GHD
Senior Project Manager



Agenda



- 1. Purpose of Study**
- 2. Overall Benefit**
- 3. Framework for User Fees**
- 4. Financial Mechanisms Analyzed**
- 5. Financial Models and Results**
- 6. Conclusion and Recommendations**



Purpose of Study



- 1. Purpose of Study**
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Evaluate the Feasibility for a Dedicated Stormwater Funding Source



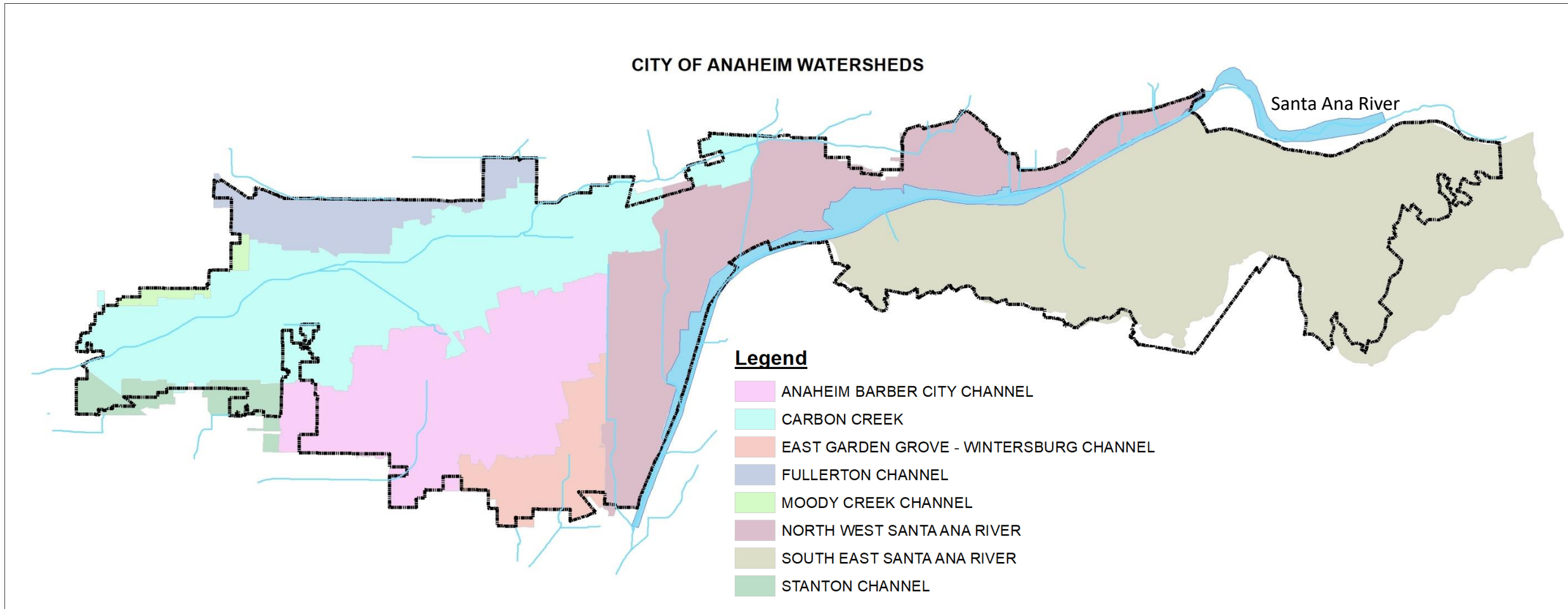


Overall Benefit

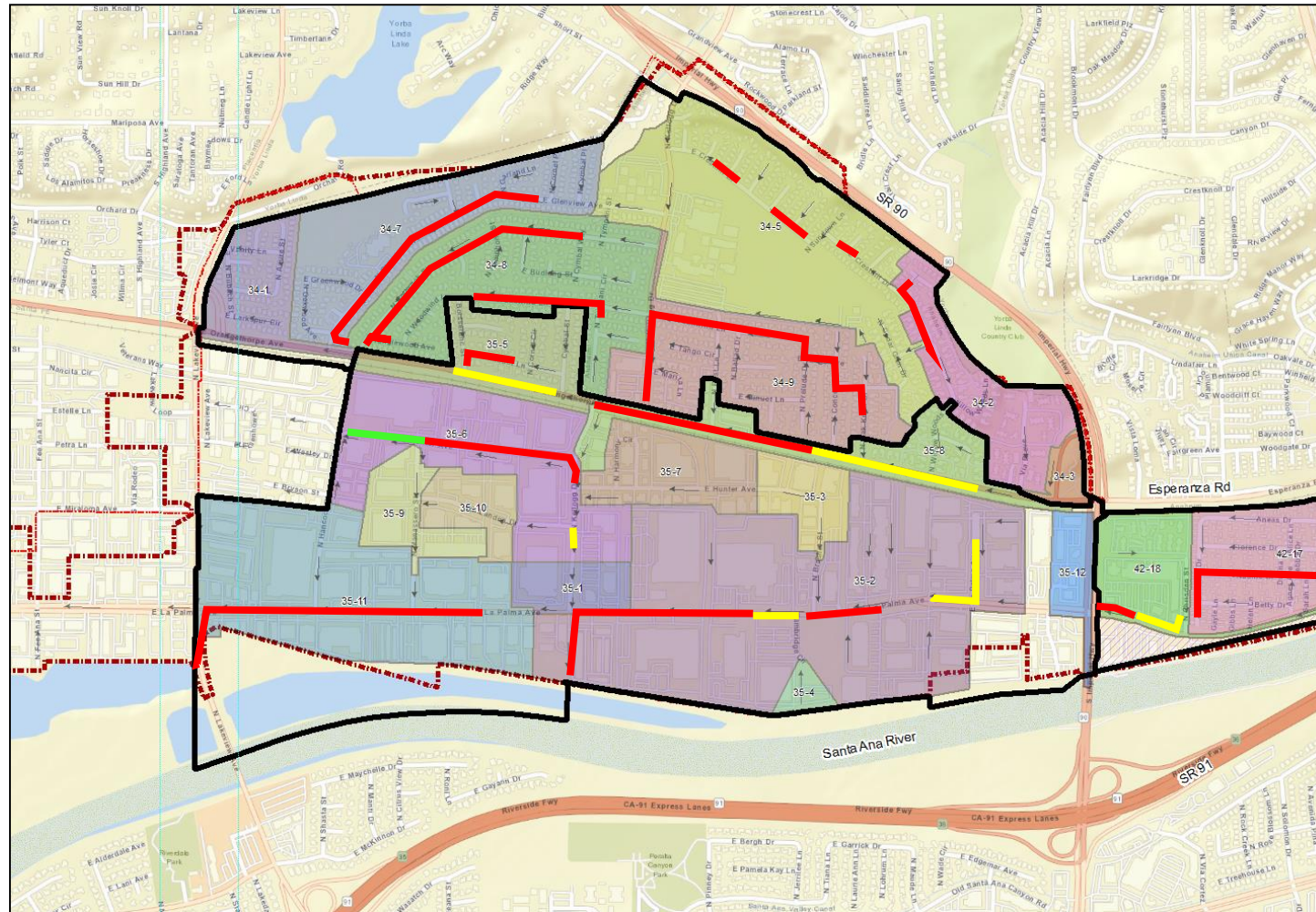


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Deficiencies Identified in Master Plans of Storm Drainage



Deficiencies Identified in Master Plans of Storm Drainage



Legend:

- Priority 1
- Priority 2
- Priority 3

Benefits of Dedicated Funding Source

Proactive Approach



Reactive Approach



Benefits of Infiltration

Storm Drain Deficiencies Addressed through Infiltration



Modjeska Park Infiltration
Project



Green Alley Program



La Palma/Richfield Diversion
and Infiltration Project

Benefits of Infiltration

- Improves water quality
- Recharges the groundwater aquifer
- Reduces energy costs to import water
- Provides drought resiliency



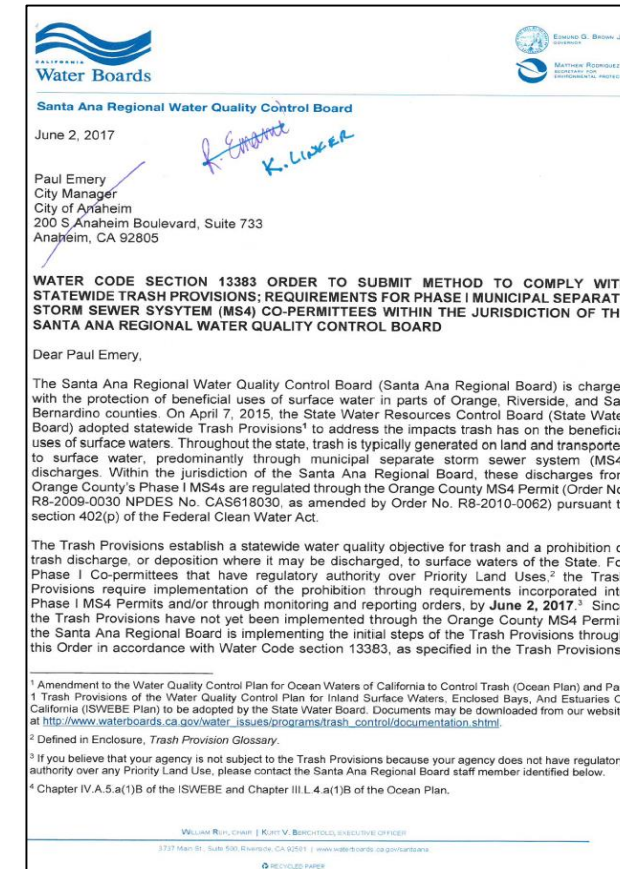
NPDES and Trash Amendment Compliance

Catch Basin Trash Capture Device Insert



Source: Swimsclean

State Letter to City regarding Trash Provisions Requirements



Water Boards

Santa Ana Regional Water Quality Control Board

June 2, 2017

Paul Emery
City Manager
City of Anaheim
200 S Anaheim Boulevard, Suite 733
Anaheim, CA 92805

R. Emery
K. Linzer

WATER CODE SECTION 13383 ORDER TO SUBMIT METHOD TO COMPLY WITH STATEWIDE TRASH PROVISIONS; REQUIREMENTS FOR PHASE I MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) CO-PERMITTEES WITHIN THE JURISDICTION OF THE SANTA ANA REGIONAL WATER QUALITY CONTROL BOARD

Dear Paul Emery,

The Santa Ana Regional Water Quality Control Board (Santa Ana Regional Board) is charged with the protection of beneficial uses of surface water in parts of Orange, Riverside, and San Bernardino counties. On April 7, 2015, the State Water Resources Control Board (State Water Board) adopted statewide Trash Provisions¹ to address the impacts trash has on the beneficial uses of surface waters. Throughout the state, trash is typically generated on land and transported to surface water, predominantly through municipal separate storm sewer system (MS4) discharges. Within the jurisdiction of the Santa Ana Regional Board, these discharges from Orange County's Phase I MS4s are regulated through the Orange County MS4 Permit (Order No. R8-2009-0030 NPDES No. CAS618030, as amended by Order No. R8-2010-0062) pursuant to section 402(p) of the Federal Clean Water Act.

The Trash Provisions establish a statewide water quality objective for trash and a prohibition of trash discharge, or deposition where it may be discharged, to surface waters of the State. For Phase I Co-permittees that have regulatory authority over Priority Land Uses,² the Trash Provisions require implementation of the prohibition through requirements incorporated into Phase I MS4 Permits and/or through monitoring and reporting orders, by **June 2, 2017**.³ Since the Trash Provisions have not yet been implemented through the Orange County MS4 Permit, the Santa Ana Regional Board is implementing the initial steps of the Trash Provisions through this Order in accordance with Water Code section 13383, as specified in the Trash Provisions⁴

¹ Amendment to the Water Quality Control Plan for Ocean Waters of California to Control Trash (Ocean Plan) and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries Of California (ISWEBE Plan) to be adopted by the State Water Board. Documents may be downloaded from our website at http://www.waterboards.ca.gov/water_issues/programs/trash_control/documentation.shtml.

² Defined in Enclosure, *Trash Provision Glossary*.

³ If you believe that your agency is not subject to the Trash Provisions because your agency does not have regulatory authority over any Priority Land Use, please contact the Santa Ana Regional Board staff member identified below.

⁴ Chapter IV.A.5.a(1)B of the ISWEBE and Chapter III.L.4.a(1)B of the Ocean Plan.

William R. Ehrig | Kurt V. Birchholz, EXECUTIVE OFFICER
1777 Main St., Suite 500, Riverside, CA 92501 | www.waterboards.ca.gov/santana
RECYCLED PAPER

Funding for Maintenance of Stormwater Facilities





Framework for User Fees



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Prop 218 and SB 231

- **Implementation follows similar process as for the City's water and wastewater rates**
- **Legislature's response to *Howard Jarvis Taxpayers Association vs. City of Salinas* decision (2002)**
- **SB 231 defines "sewer" to include storm water**



Framework for User Fees



- **Storm Drain User Fees are based on a parcel's land use and runoff contribution**
- **Parcel's Land Use Type and Impervious Percentage Values from Orange County Hydrology Manual**
- **Conducted a Citywide Impervious Area Analysis**
- **Verified with GIS, aerial imagery, remote sensing software**



Framework for User Fees



Orange County Hydrology Manual Land Use Impervious Percentages

| Land Use | Recommended Value for Percent Impervious Area |
|--|---|
| Natural or Agriculture | 0 |
| Public Park | 15 |
| School | 40 |
| Single-Family Residential: | |
| 2.5-Acre Lots | 10 |
| 1-Acre Lots | 20 |
| 2 Dwellings/Acre | 30 |
| 3-4 Dwellings/Acre | 40 |
| 5-7 Dwellings/Acre | 50 |
| 8-10 Dwellings/Acre | 60 |
| More Than 10 Dwellings/Acre | 80 |
| Multi-Family Residential: | |
| Condominiums | 65 |
| Apartments | 80 |
| Mobile Home Parks | 75 |
| Commercial, Downtown Business, or Industrial | 90 |



Land Use Impervious Percentages

| Land Use (LU) | Recommended Value for Percent Impervious Area |
|---|---|
| Parks or Open Space | 10 |
| Municipal Facilities, Police, Fire | 90 |
| Public Schools | 40 |
| Single-Family Residential: | |
| (High Density) 4-8 Dwelling Units ("DUs")/Acre | 50 |
| (Medium Density) 1-3 DUs/Acre | 35 |
| (Low Density) less than 1 DU/Acre | 20 |
| Multi-Family Residential (Includes more than 8+ DUs/Acre) * | 75 |
| Commercial, Industrial | 90 |

* Multi-Family Residential includes condominiums and apartments, both LU types share the same impervious area percentage

Framework for User Fees



-  Impervious Area
-  Pervious Area



Framework for User Fees



Land Use Impervious Percentages

| Land Use (LU) | Recommended Value for Percent Impervious Area |
|---|---|
| Parks or Open Space | 10 |
| Municipal Facilities, Police, Fire | 90 |
| Public Schools | 40 |
| Single-Family Residential: | |
| (High Density) 4-8 Dwelling Units ("DUs")/Acre | 50 |
| (Medium Density) 1-3 DUs/Acre | 35 |
| (Low Density) less than 1 DU/Acre | 20 |
| Multi-Family Residential (Includes more than 8+ DUs/Acre) * | 75 |
| Commercial, Industrial | 90 |

Verified Land Use Impervious Percentages

| Land Use (LU) | Recommended Value for Percent Impervious Area |
|---|---|
| Parks or Open Space | 15 |
| Municipal Facilities, Police, Fire | 75 |
| Public Schools | 50 |
| Single-Family Residential: | |
| (High Density) 4-8 Dwelling Units ("DUs")/Acre | 50 |
| (Medium Density) 1-3 DUs/Acre | 35 |
| (Low Density) less than 1 DU/Acre | 30 |
| Multi-Family Residential (Includes more than 8+ DUs/Acre) * | 60 |
| Commercial, Industrial | 80 |

Cost per Impervious Area

1) Total Citywide Impervious Area = $\sum(\text{Land Use Gross Area} \times \% \text{ Impervious Area per Land Use})$

2) Cost per Impervious Area = $\frac{\text{Total Program Cost (Revenue Required)}}{\text{Total Citywide Impervious Area}}$

3) Program Cost per Land Use = Cost per Impervious Area \times Impervious Area (per Land Use)



Financial Mechanisms Analyzed



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Financing Mechanisms Analyzed



| Financing Mechanism | Overview |
|--|--|
| Prop 218 (Post-SB 231) | Requires public noticing and needs less than a majority protest to pass. |
| Prop 218 (Pre-SB 231) | Requires either a simple majority of property owners or 2/3 voter approval by registered voters subject to the proposed fee. |
| Parcel Tax | Decided by registered voters and require at least a 2/3 voter approval to pass. |
| Mello-Roos Community Facilities District (CFD) | Requires 2/3 vote of property owners. Revenue can only be used for new impacts related to development in CFD. |
| Assessment District | Improvements of general benefit to the community are not eligible for financing. |
| Development Impact Fees | Strict nexus and special benefit requirements apply when establishing an impact fee. Cannot include costs attributable to existing deficiencies. |



Financial Models and Results



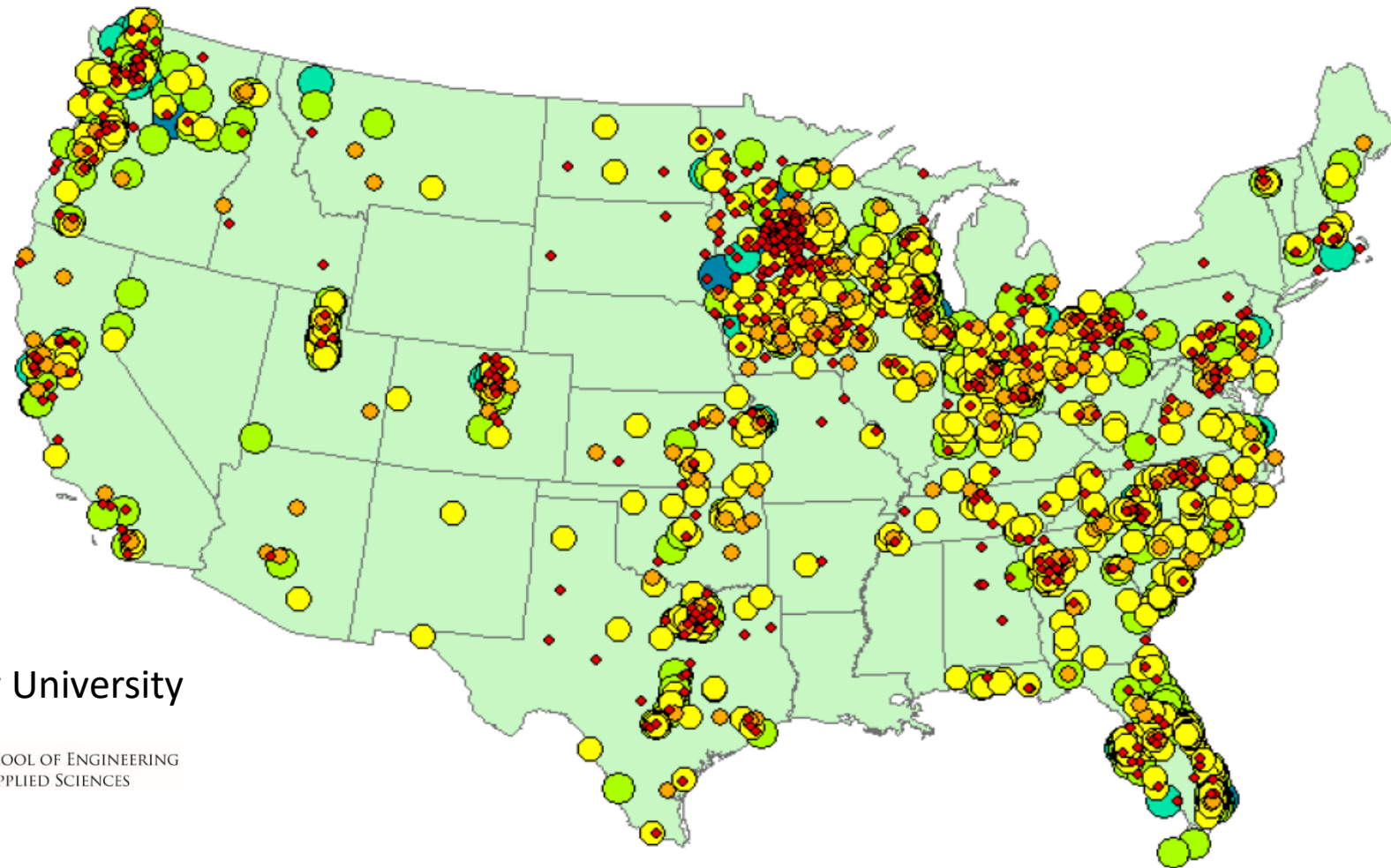
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Nationwide Survey of Agency Funding of Storm Drain Maintenance and Repair

Monthly
Fee - 2019



Source: Western Kentucky University





Nationwide and California Storm Drain User Fee Survey



| Agencies | Agencies Surveyed | Monthly Fee Ranges Reported | Average Monthly Fee |
|---|--------------------------|------------------------------------|----------------------------|
| United States | 1,716 | \$0.21 - \$38.10 | \$5.85 |
| California | 56 | \$0.48 - \$23.71 | \$4.83 |
| Orange County | 1 | \$5.02 | \$5.02 |
| Nationwide Agencies with similar population to Anaheim | 30 | \$1.08 - \$16.82 | \$6.14 |

Source: Western Kentucky University Survey 2019



City of Anaheim Annual Stormwater Costs

| Annual Funding Requirements (Year 1) |
|---|
| 1. Current Maintenance = \$ 1.4 M |
| 2. Priority 1 Capital Improvements = \$ 5.92 M |
| 3.1 NPDES Stormwater Regulatory Compliance Administration = \$ 1.63 M |
| 3.2 NPDES Stormwater Regulatory Compliance Maintenance = \$ 0.06 M |
| 4. Trash Amendment/BMP Installations/Maintenance = \$ 0.5 M |



Expenditures vs. National Average Revenue

| Total 5-year Stormwater Costs | 5-Year National Average Rate Revenue |
|-------------------------------|--------------------------------------|
| \$31.5 M | \$34.5 M |



Conclusion and Recommendations



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Conclusion and Recommendations



| APPROACH | PROS | CONS |
|----------------------|--|--|
| Prop 218 Post SB 231 | Similar to City's water and wastewater rate process: - Less than majority protest to pass | First implementer likely subject to legal challenge |
| Prop 218 Pre SB 231 | Not likely subject to Legal challenge | Higher voting threshold: - either 2/3 registered voter approval or - majority of property owners |



Questions and Answers