



San Diego Region Stormwater Capture & Use Feasibility Study (SWCFS)

Final Study Results
IRWM RAC Meeting
December 5, 2018

Presented by Stephanie Gaines, County of San Diego and David Pohl, ESA

Study Purpose

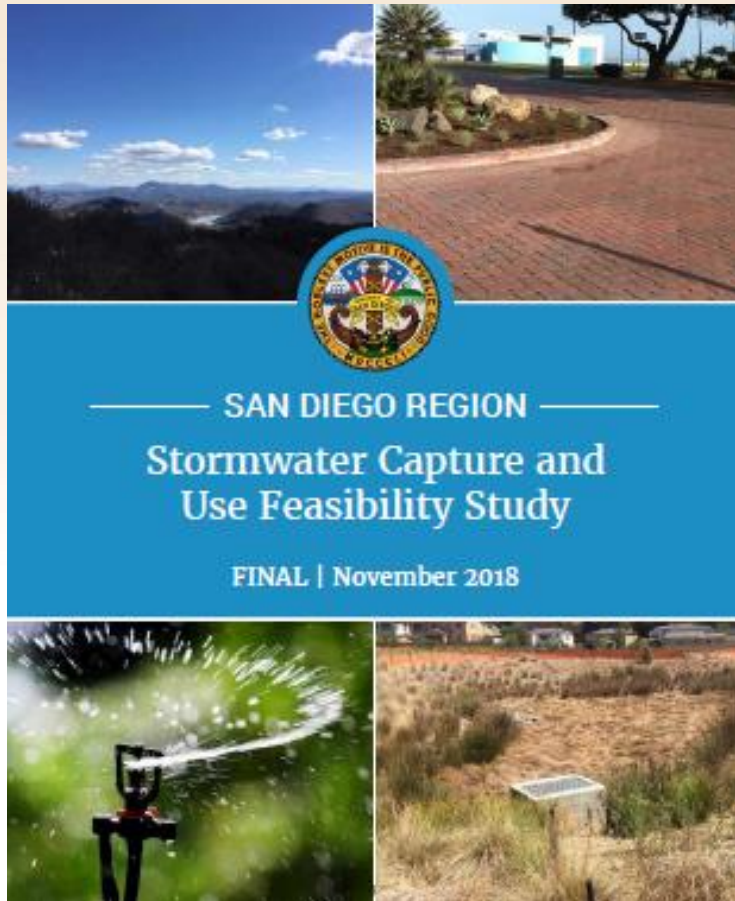
Provide a regional analysis to determine the feasibility of planning, constructing, operating & managing facilities that capture & use stormwater beneficially

- Compliant with Stormwater Resource Plan (SWRP) Guidelines
- Integrate results into 2019 Integrated Regional Water Management (IRWM) Plan Update
- Useful management tool that identifies the San Diego Region's unique challenges to stormwater capture & use potential

Technical Advisory Committee & Consulting Team



Feasibility Study Tasks

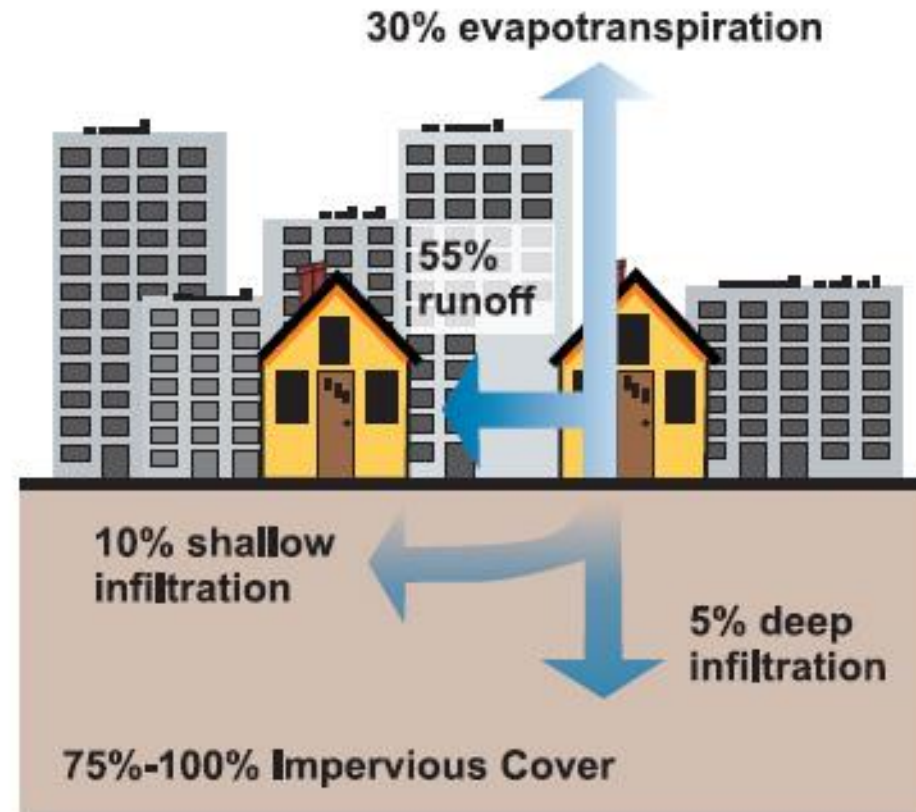
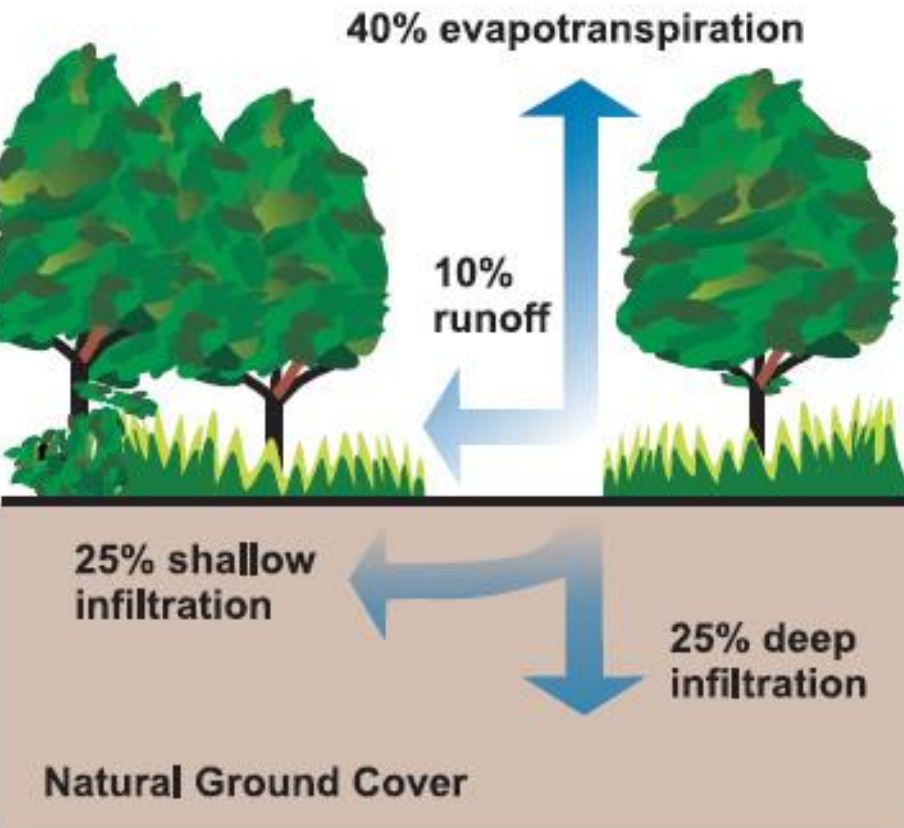


1. Existing Conditions Analysis
2. Technical Feasibility Analysis (modeling)

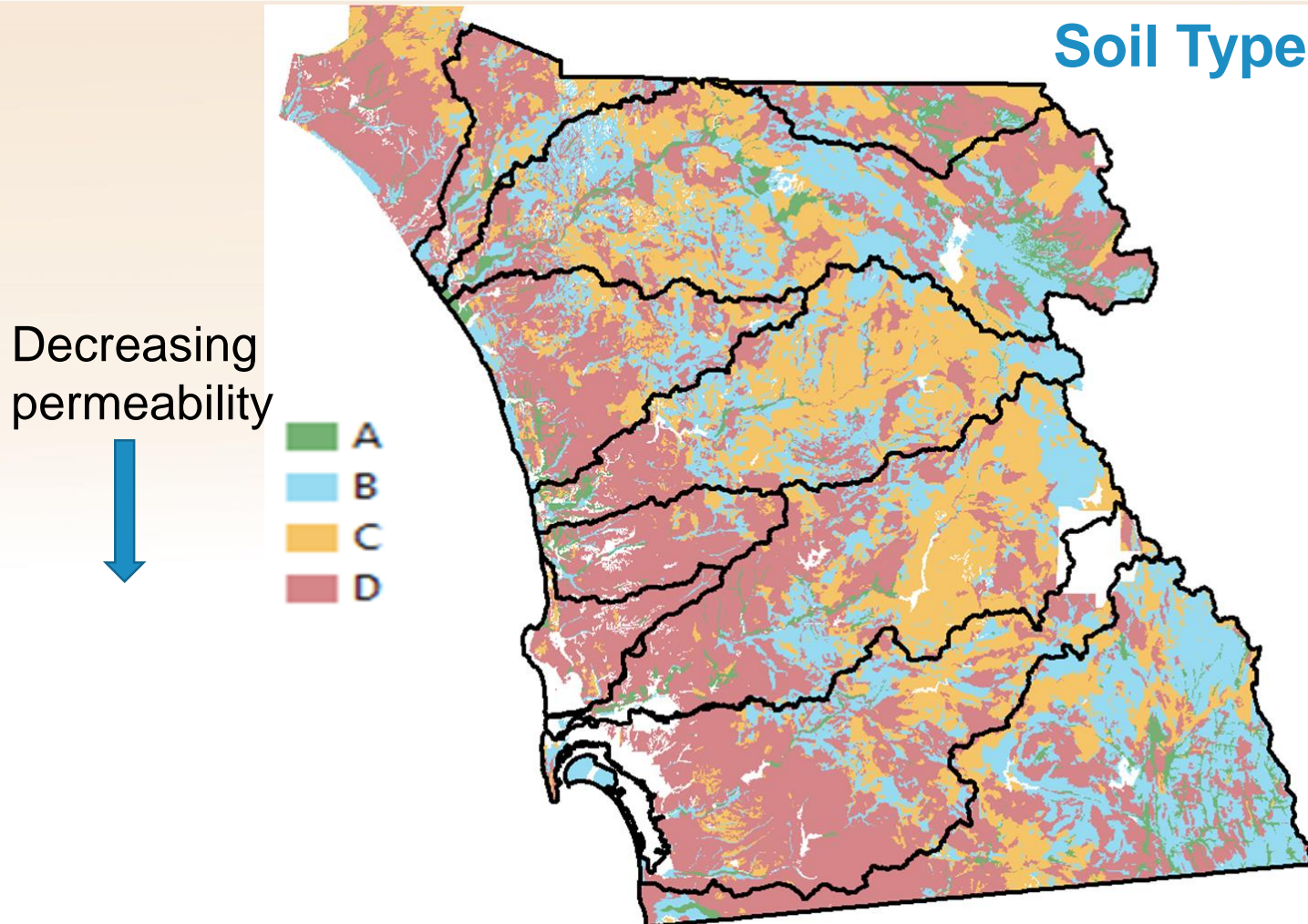
Capture & Use Alternatives

3. Cost Analysis
4. Prioritization

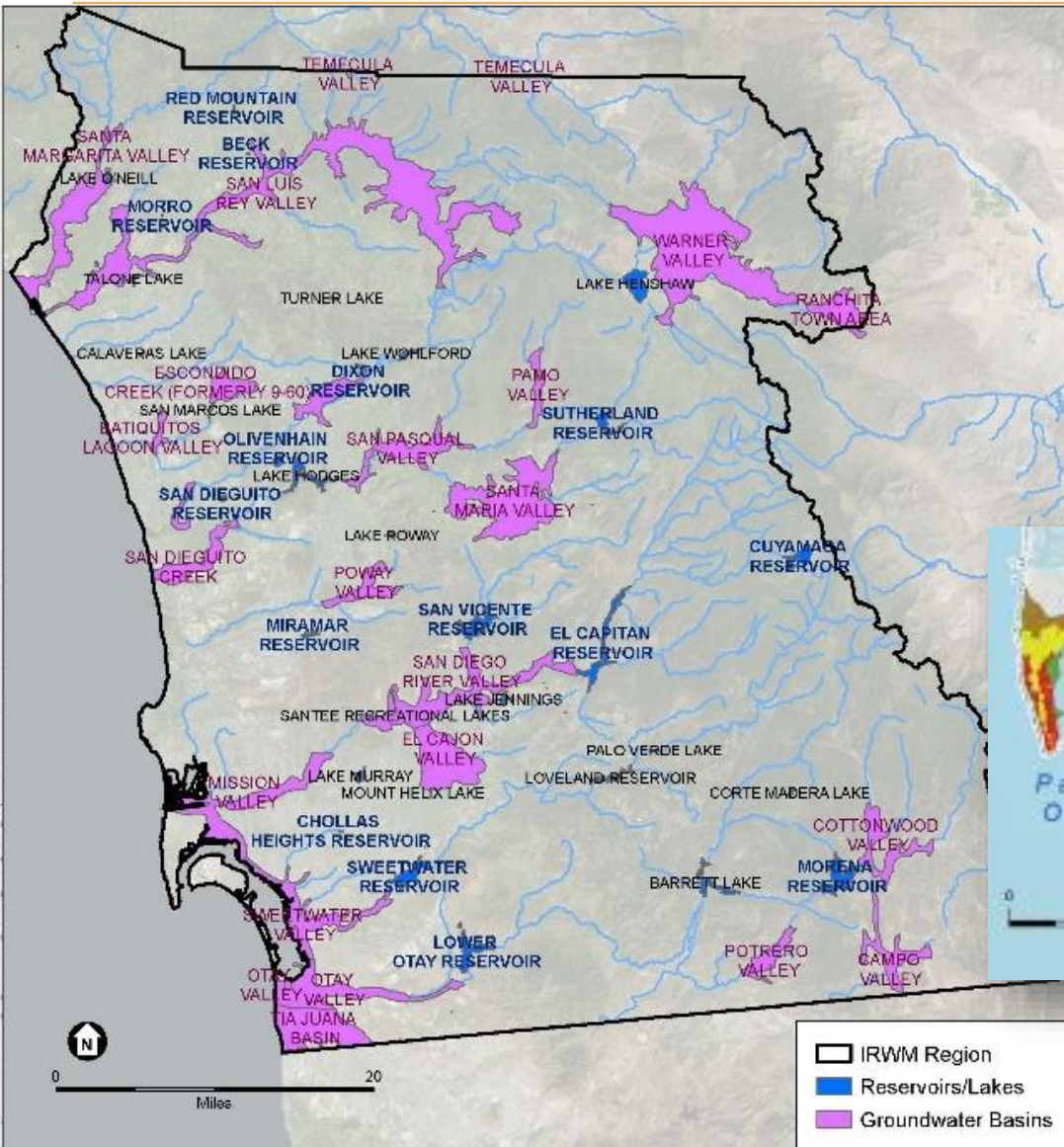
San Diego Region Challenges



What makes San Diego Different?

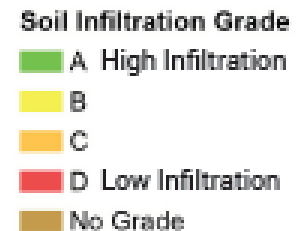
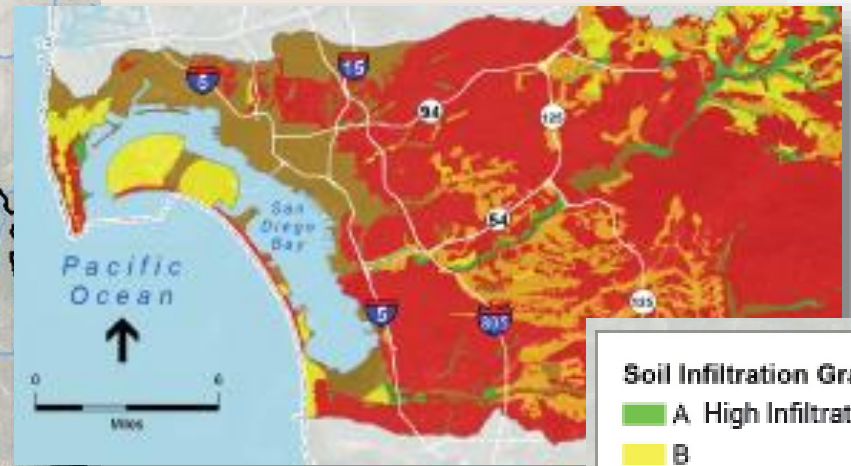


What Makes San Diego Different?

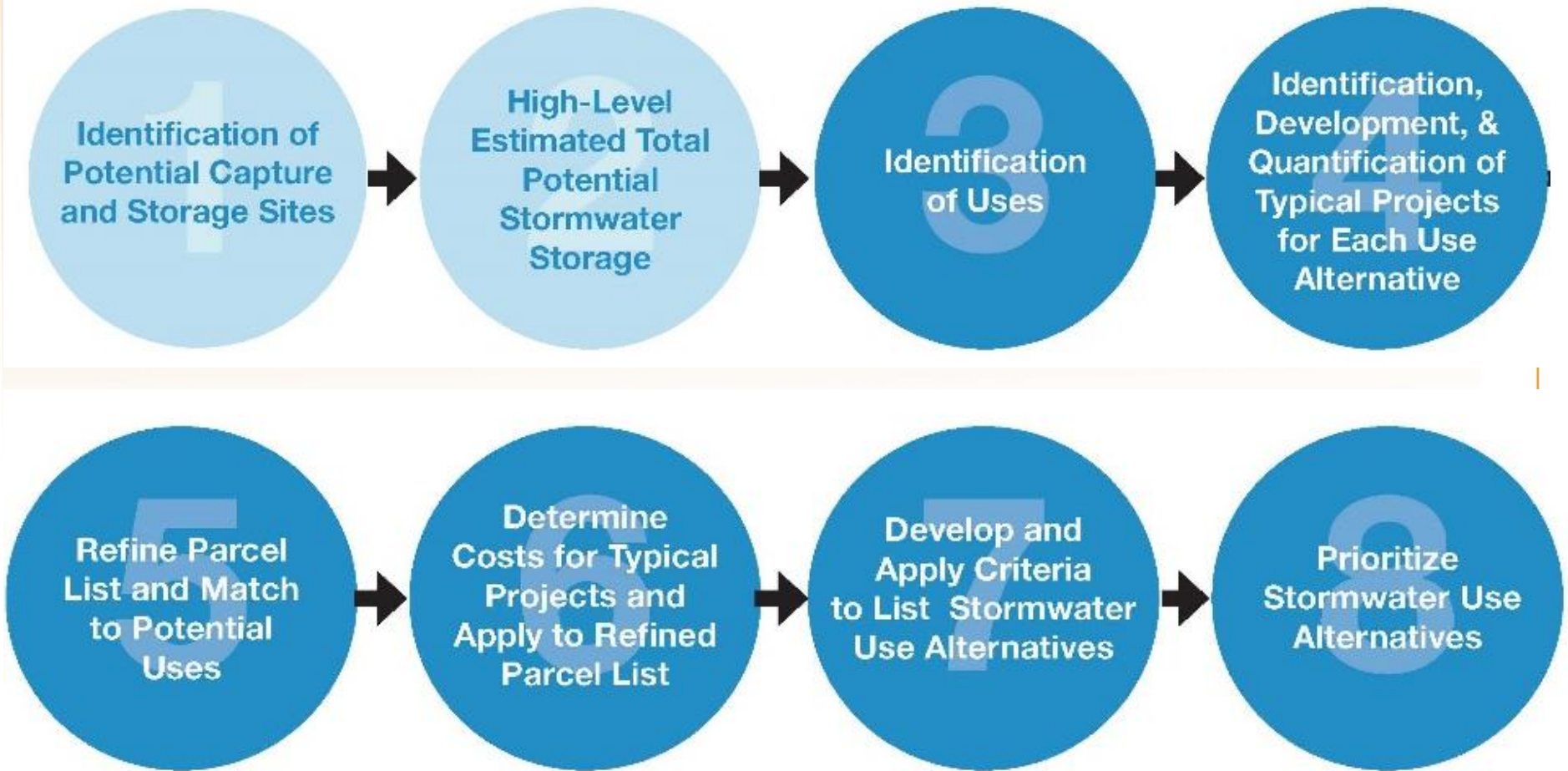


Storage!

- Natural
- Constructed



Process



Stormwater Use Alternatives



A

Direct discharge to designated groundwater basins to be extracted for potable use.



B

Discharge to groundwater to reestablish natural hydrology and, by extension, to restore biological uses.



C

Irrigation to be used on-site or at nearby parks, golf courses, or recreational areas on public parcels.



Stormwater Use Alternatives



D

Small scale on-site use for irrigation and other private use on private parcels.

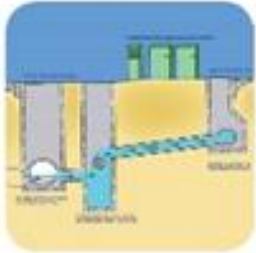


E

Flow-through to sustain vegetation in natural treatment system (wetland treatment) and/or restoration sites.



Stormwater Use Alternatives



F

Controlled discharge to wastewater treatment plants for solids management during low flows.



G

Controlled discharge to wastewater treatment plants for indirect potable use.



H

Controlled discharge to wastewater treatment plants for recycled water use.



Project Types



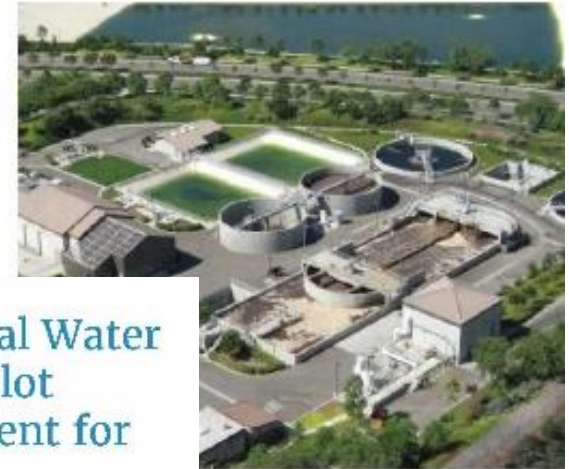
San Diego Zoo Safari Park – Green Parking Lot and Storm Water Capture and Use Project



San Diego Safari Park



Olivenhain Municipal Water District 4S Ranch Pilot Stormwater Treatment for Recycled Water



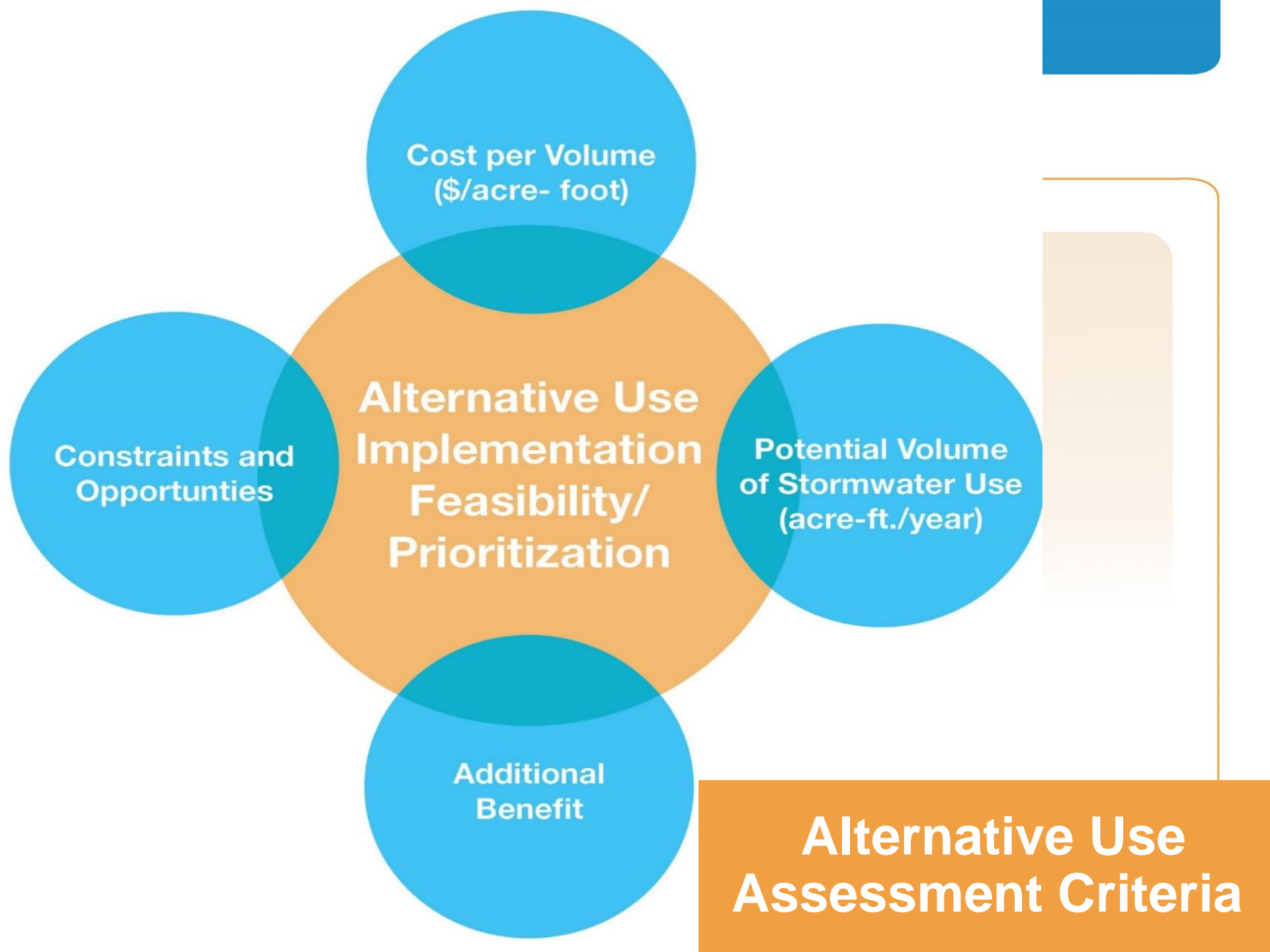
Dry Weather Flow Diversion at Los Coches Creek Outfall, Alternative 1



Los Coches Creek



San Marino Drive Green Street and Dry Weather Flow Management



**Cost per Volume
(\$/acre-foot)**

**Constraints and
Opportunities**

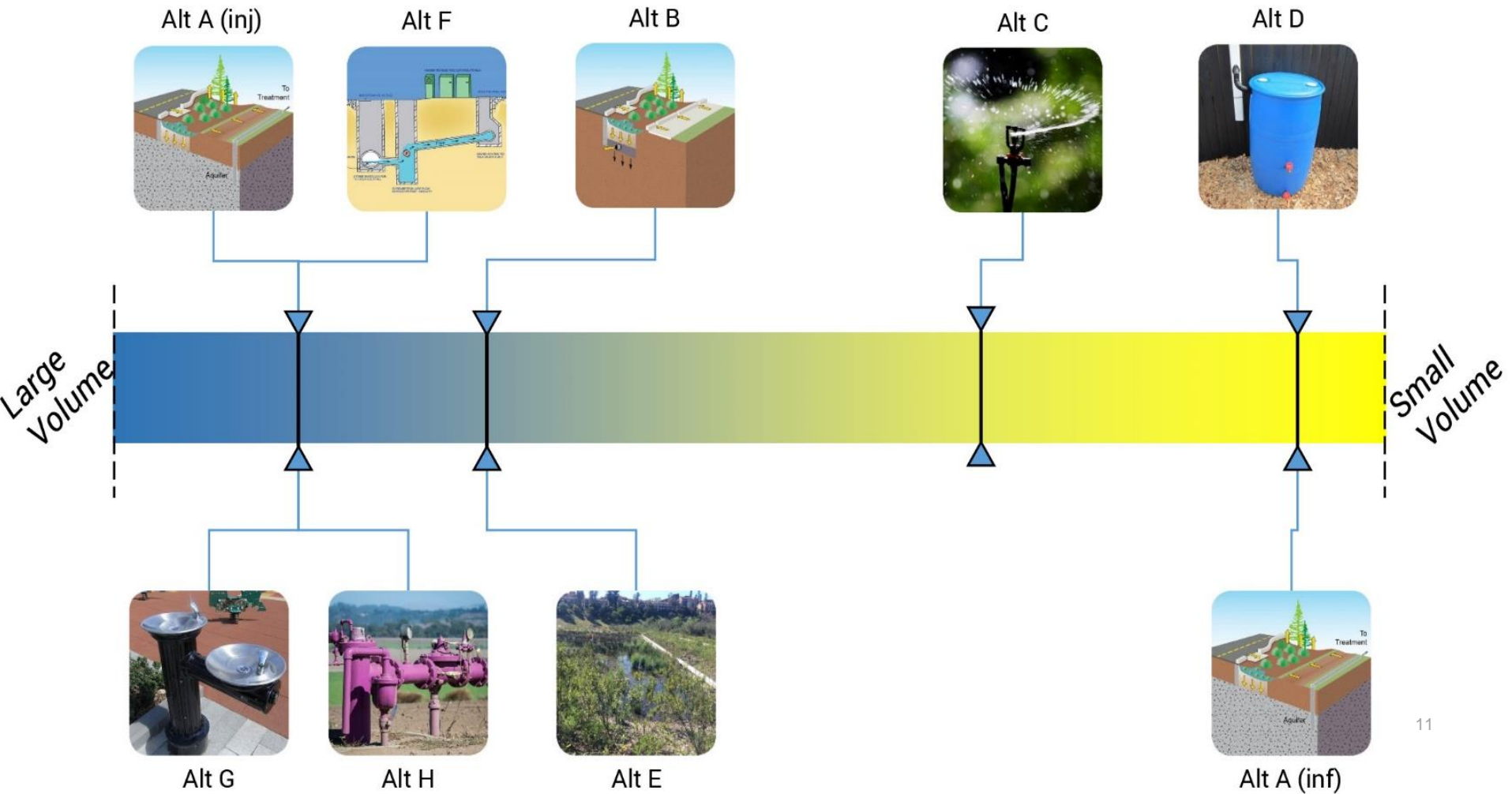
**Alternative Use
Implementation
Feasibility/
Prioritization**

**Potential Volume
of Stormwater Use
(acre-ft./year)**

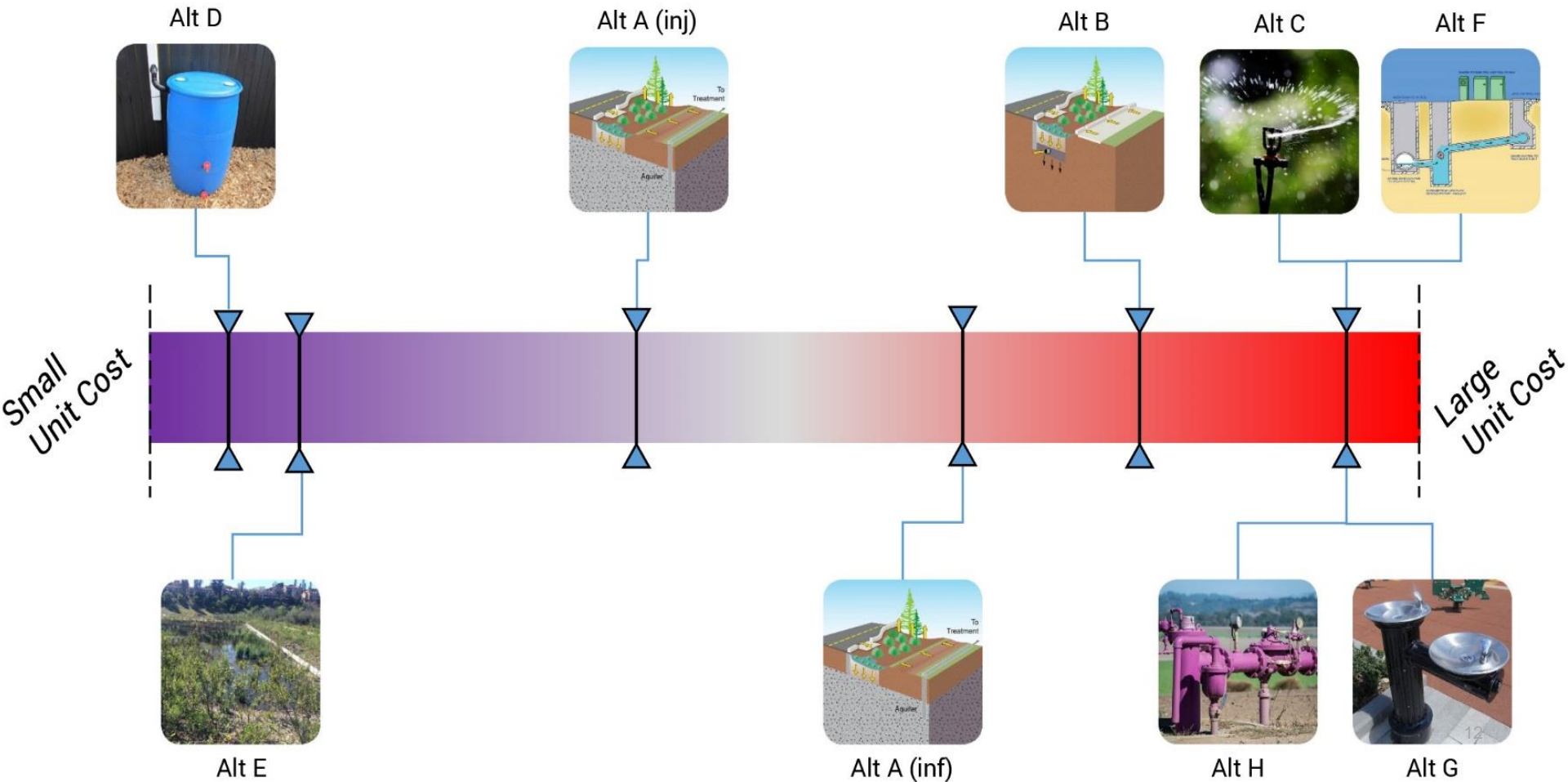
**Additional
Benefit**

**Alternative Use
Assessment Criteria**

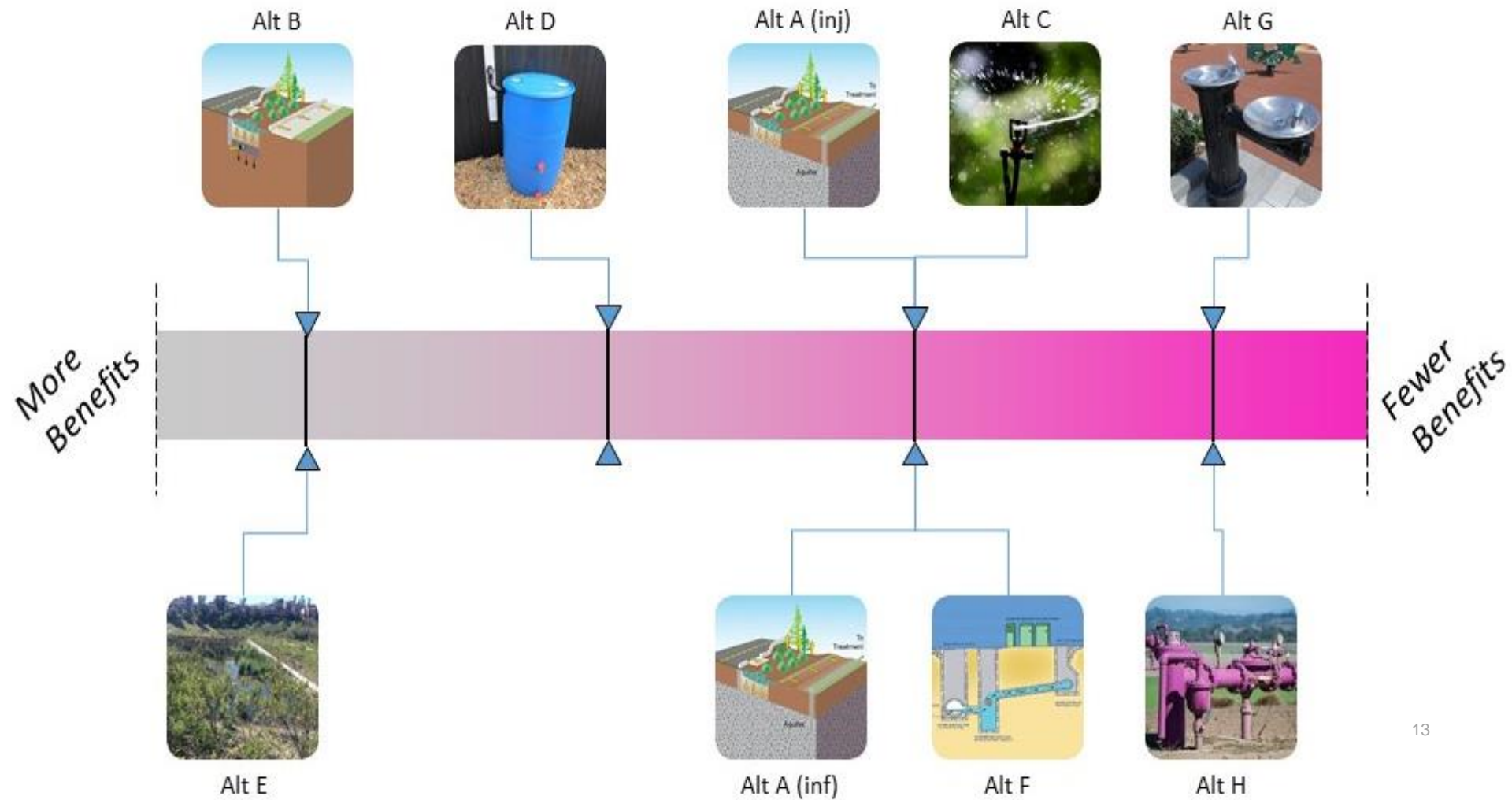
Capture & Use Volume Criterion



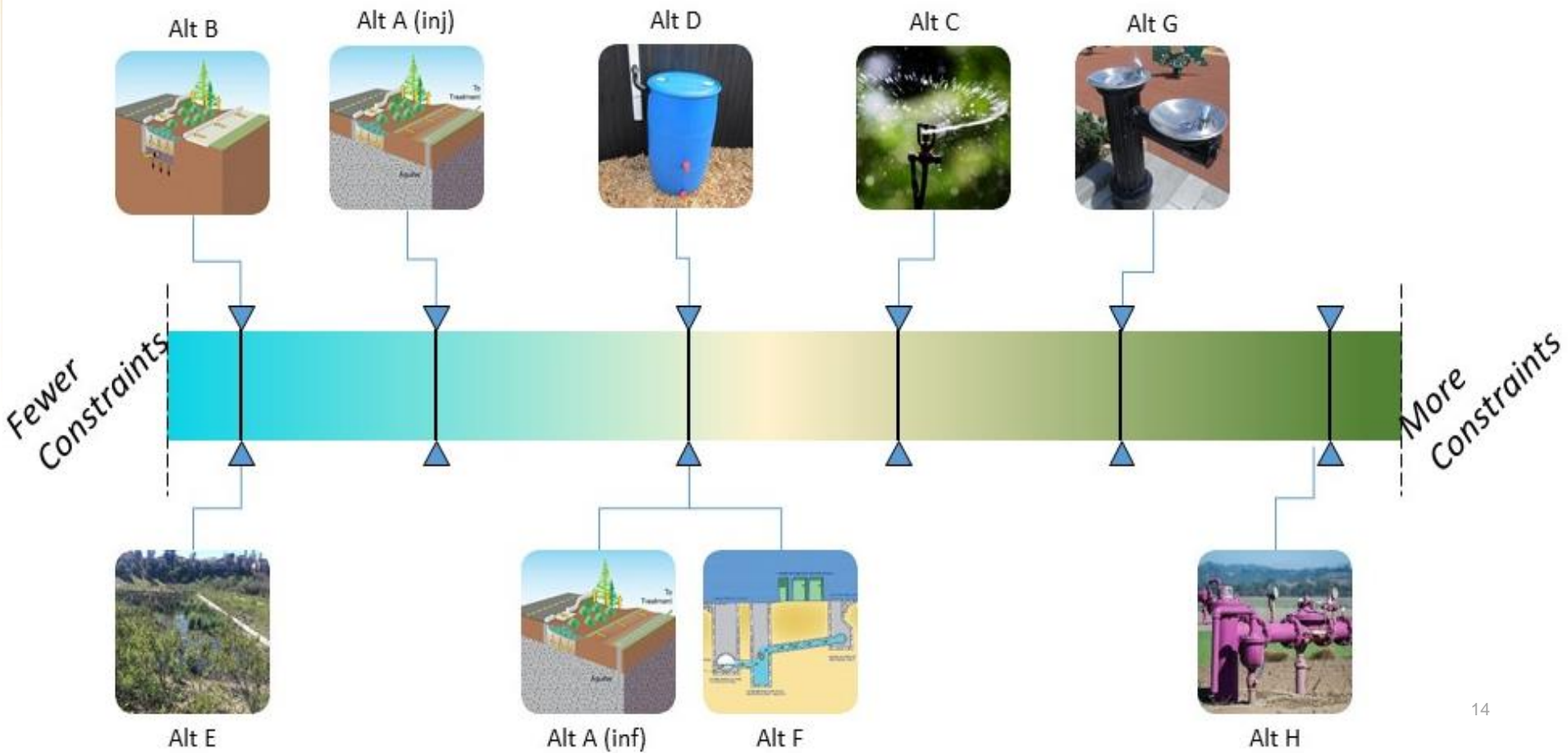
Cost per Volume Criterion



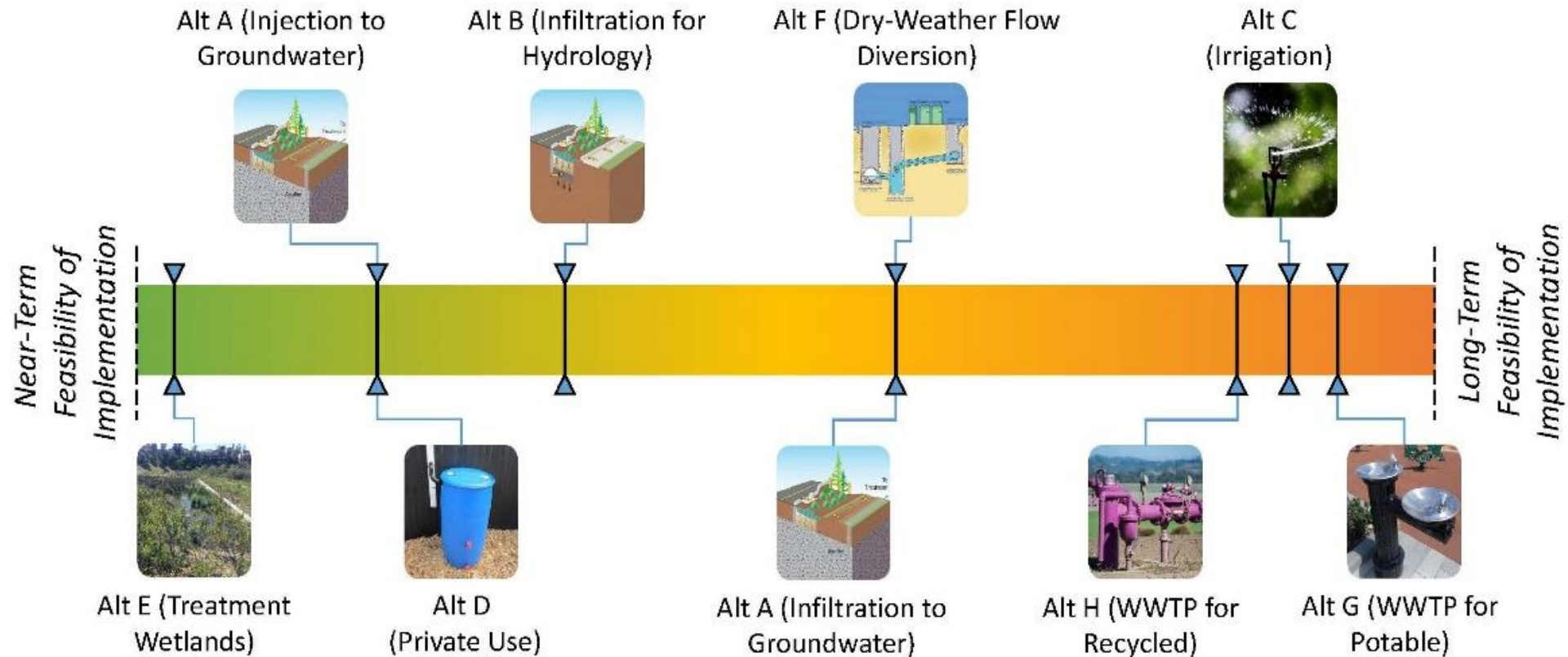
Multi-Benefit Criteria



Opportunities & Constraints



Feasibility of Implementation

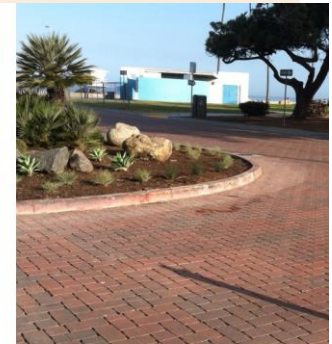
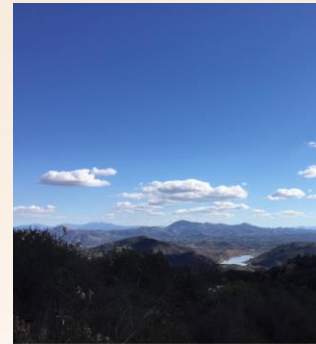


Opportunities



Regional Conclusions

- San Diego region is different
- Capture & use alternatives already implemented
- Stormwater as a supply is costly
 - Multiple-benefits offset costs
 - Position for funding
- Including dry-weather flow volumes reduces unit costs



Regional Conclusions



Low End



High End



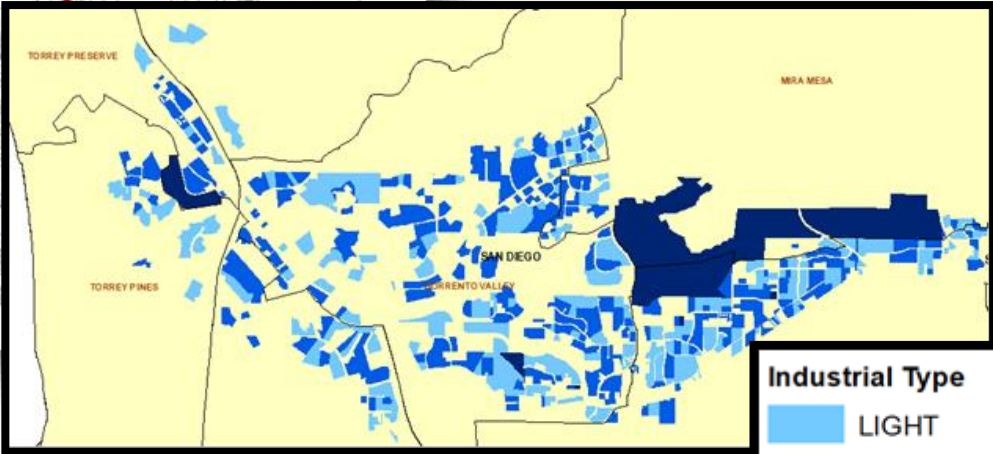
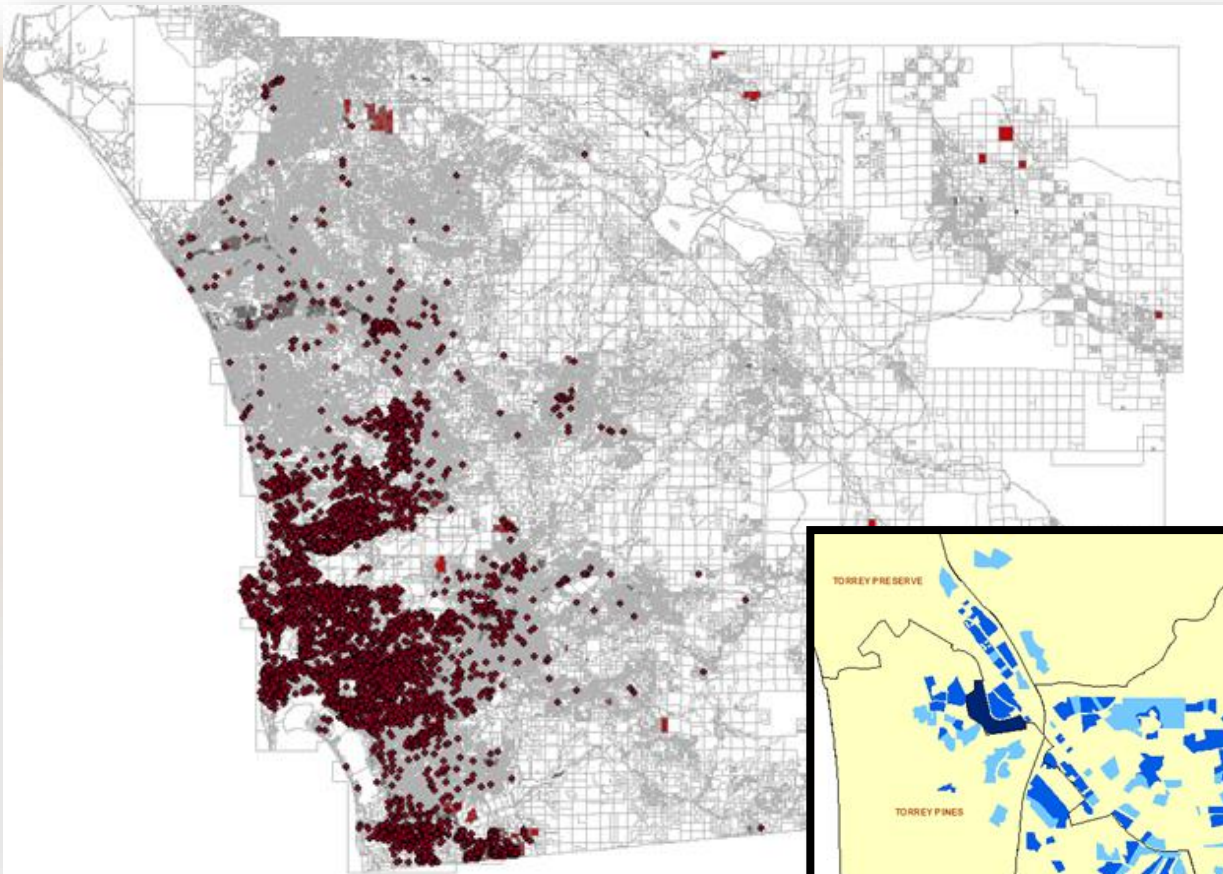
~ 4.5% of regional need

Next Steps

- Integrate with 2019 IRWM Plan Update
- Use - Management Tool: determine whether or which constraints to overcome
- Finalize Industrial Land Use Study



Industrial Parcel Quantification



Industrial Type	
Light Blue	LIGHT
Medium Blue	MEDIUM
Dark Blue	HEAVY

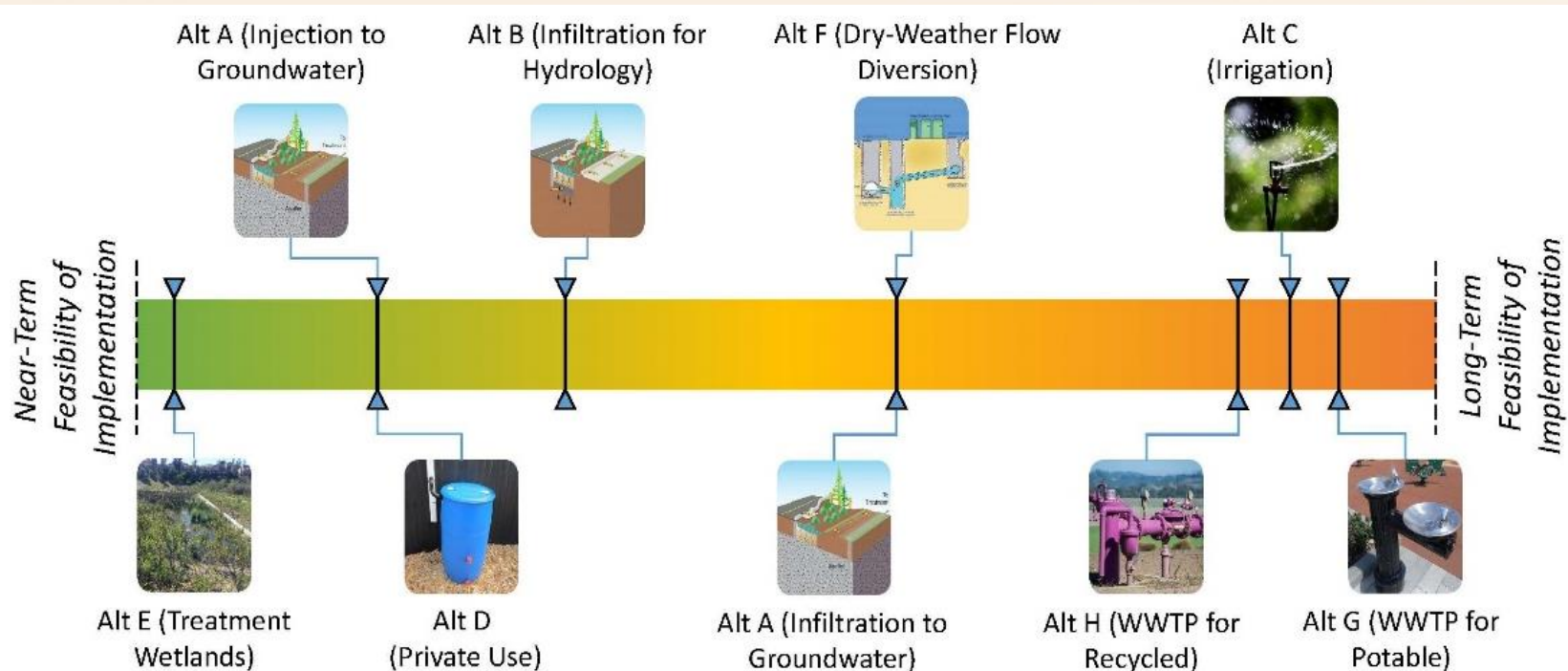
How can this study be used?

- **A planning tool (*not recommendations*)**
 - Parcel assessment: Identifies project opportunities
 - Alternatives Feasibility: identify constraints and opportunities associated with the Alternatives studies
 - Demonstrates multiple project benefits to attract grant funding
 - Demonstrates how the San Diego region is different

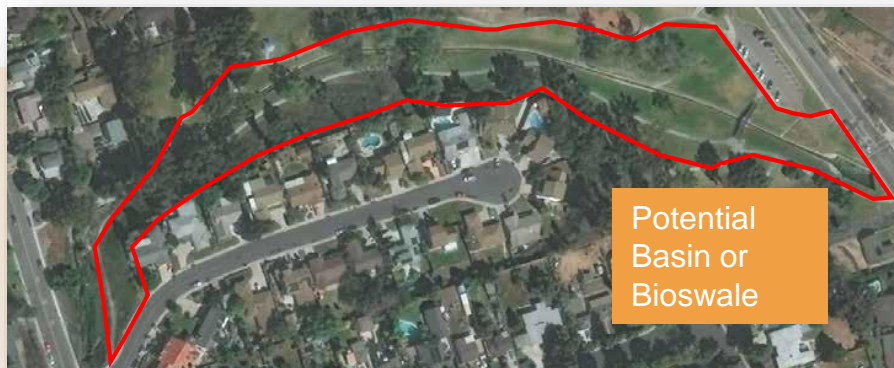


Programmatic Approach

- Where do you want to focus resources?
 - What are collaborations that need to happen?
 - What are regulatory barriers?



Project Level Approach



1

Quantify Capture and Use Volumes

2

Calculate Project Costs

3

Determine Additional Benefits

4

Consider Constraints and Opportunities

How does the SWCFS relate to IRWM?

- IRWM / SWRP Funding Available
- Projects with a stormwater component
 - Add to SWRP / OPTI database
- Criteria for IRWM project selection
 - 15% stormwater weighting
 - Tools help quantify, improve score
 - Projects that include stormwater capture component will score higher



Key Questions for RAC

- Focus resources on stormwater capture and use?
- Where do we see the most opportunities, and which to move forward on?
 - Collaboration
 - Regulations
 - Policy
 - Other
- Based on study results, how does RAC want to address constraints ?

Id project to move forward

- From identified projects in the study

Thank you!

