

# REGIONAL STORMWATER CAPTURE & USE FEASIBILITY STUDY TAC MEETING #1 - JULY 18, 2017

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# Agenda

1. Welcome & Introductions
  - Project Team
  - Technical Advisory Committee (TAC)
2. Study Overview
3. TAC Charter
4. Project Elements
  - Task 1: Data Gaps
5. Next Steps
6. Public (Stakeholder) Comments



# Welcome & Introductions

## Project Team:

County of San Diego – *Stephanie Gaines*

ESA – *David Pohl, Lindsey Sheehan*

Brown & Caldwell – *Lisa Skutecki, Tony Hancock*

Burns & McDonnell – *Steve Gruber*

Katz & Associates – *Lewis Michaelson, Natalia Hentschel*

# Regional Stormwater Capture & Use Feasibility Study TAC Meeting #1 - July 18, 2017

## AGENDA ITEM #2: Study Overview

- Project Purpose, Funding, Tasks and Schedule

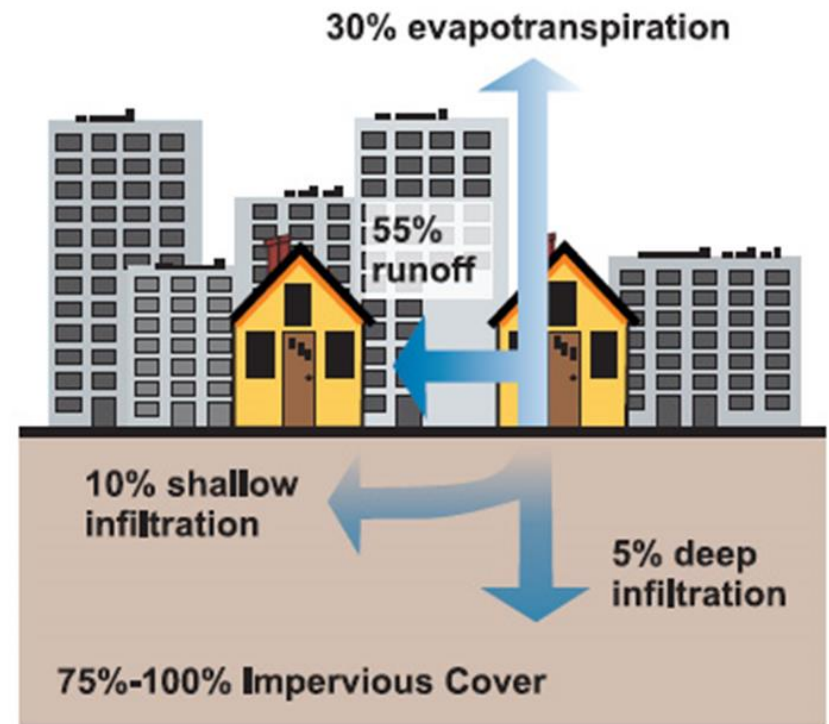
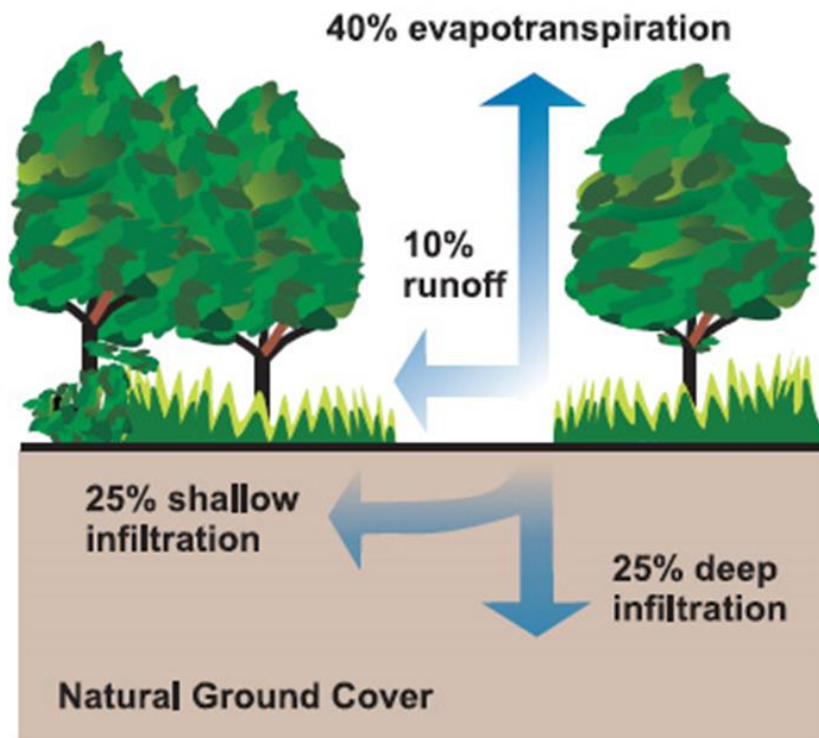


# Project Purpose

Provide a County-wide analysis to **determine the feasibility** of planning, constructing, operating, and managing facilities that **capture and use stormwater** beneficially.



# Project Purpose



Up to 55% Runoff

- Where are the opportunities?

# Project Funding

- Awarded SDIRWM Prop1 Planning Grant
  - \$149,941
- Contract Awarded to ESA
  - Brown & Caldwell, Burns & McDonnell, Katz & Associates
  - \$339,997
- Funding delta
  - \$190,056
  - Water agencies, Copermittees, NGO's



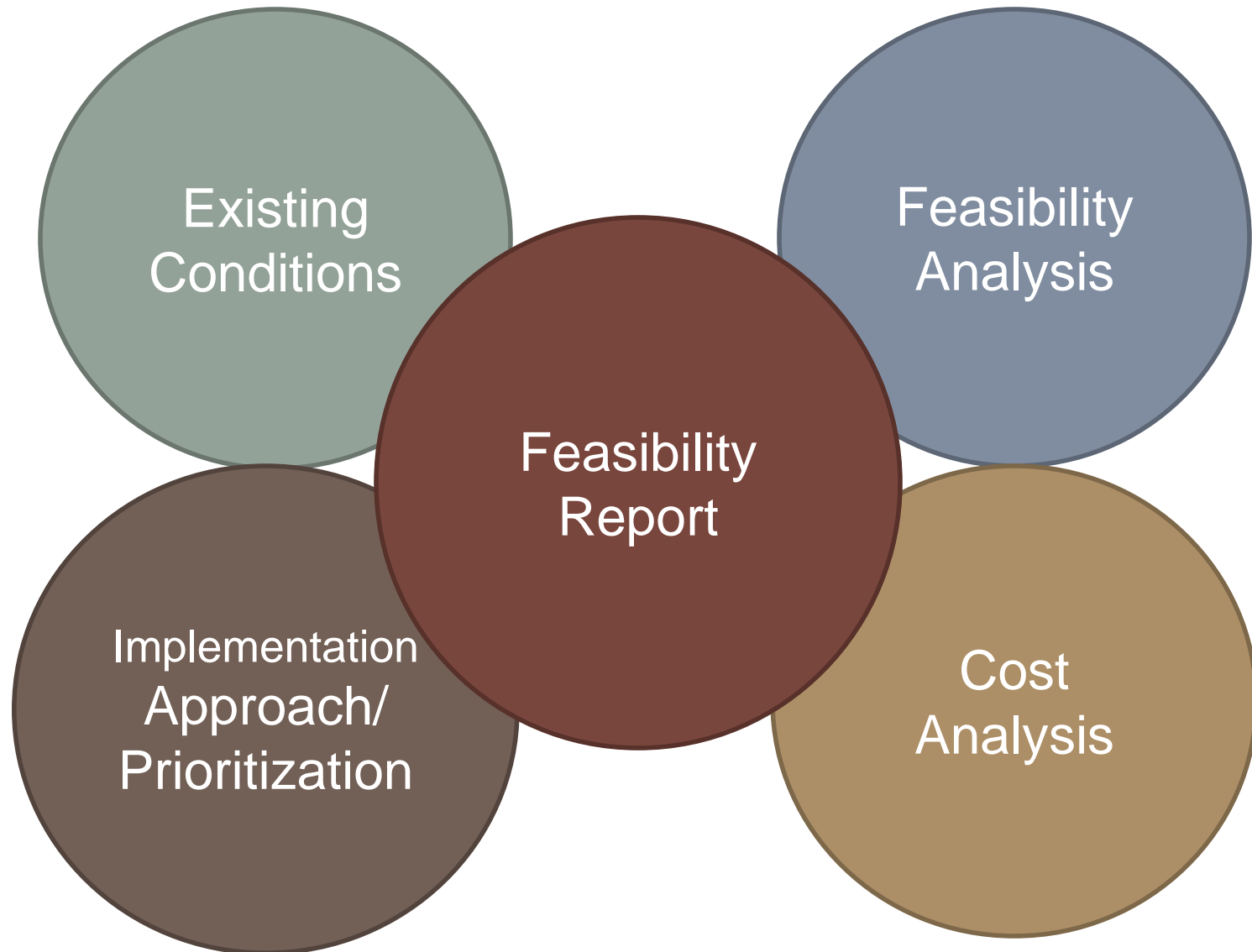


# Project Tasks

1. Data Collection & Existing Conditions Analysis
2. Technical Feasibility Analysis of Stormwater Capture & Use
3. Cost Analysis of Stormwater Capture Alternatives
4. Implementation Approach for Capture & Use and Prioritization
5. Feasibility Report

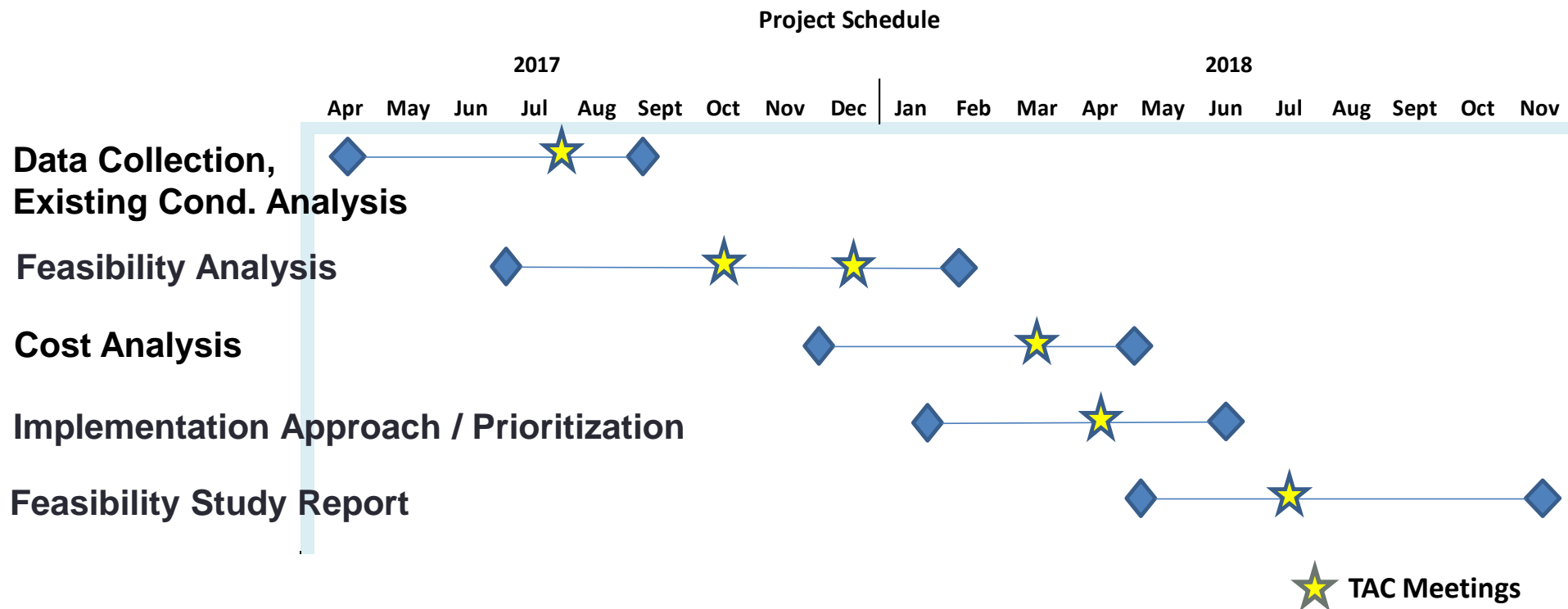


# Project Overview- Feasibility Report



# Project Schedule

- 18 month project
- Incorporation into IRWM Plan Update



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## AGENDA ITEM #3:

- TAC Mission and Principles of Participation;  
Stakeholder Engagement Plan



# Stakeholder Engagement Plan

## Objectives

- Clearly communicate the purpose of the study
- Minimize any misconceptions
- Foster understanding and confidence in the data and methodology
- Conduct an open and transparent development process
- Solicit input, ideas and feedback to inform the study
- Ensure consistency of information

# Engagement Activities

- Technical Advisory Committee (6 meetings)
  - Open to the Public
- Online Content
  - [www.projectcleanwater.org](http://www.projectcleanwater.org)
  - [www.sandiegocounty.gov/dpw](http://www.sandiegocounty.gov/dpw)
- Informational materials
- Briefings to stakeholder groups
- Updates to contact database
  - eBlast announcements

# Technical Advisory Committee (TAC)

## Mission

To provide input and feedback during the preparation of the Study. TAC members will:

- Share data sources
- Review and provide comments on sections of the study
- Serve as a representative voice of their stakeholder group, organization or agency

# TAC Responsibilities

1. Become familiar with the purpose and scope of the study
2. Provide informed feedback
3. Read all agenda and background materials distributed prior to the meetings
4. Review sections of Study and provide comments using the comment form provided



## TAC Responsibilities (Cont.)

5. Publicize opportunities for their respective organizations and others to participate in the study development process
6. Listen carefully to others
7. Help create a respectful and productive working environment

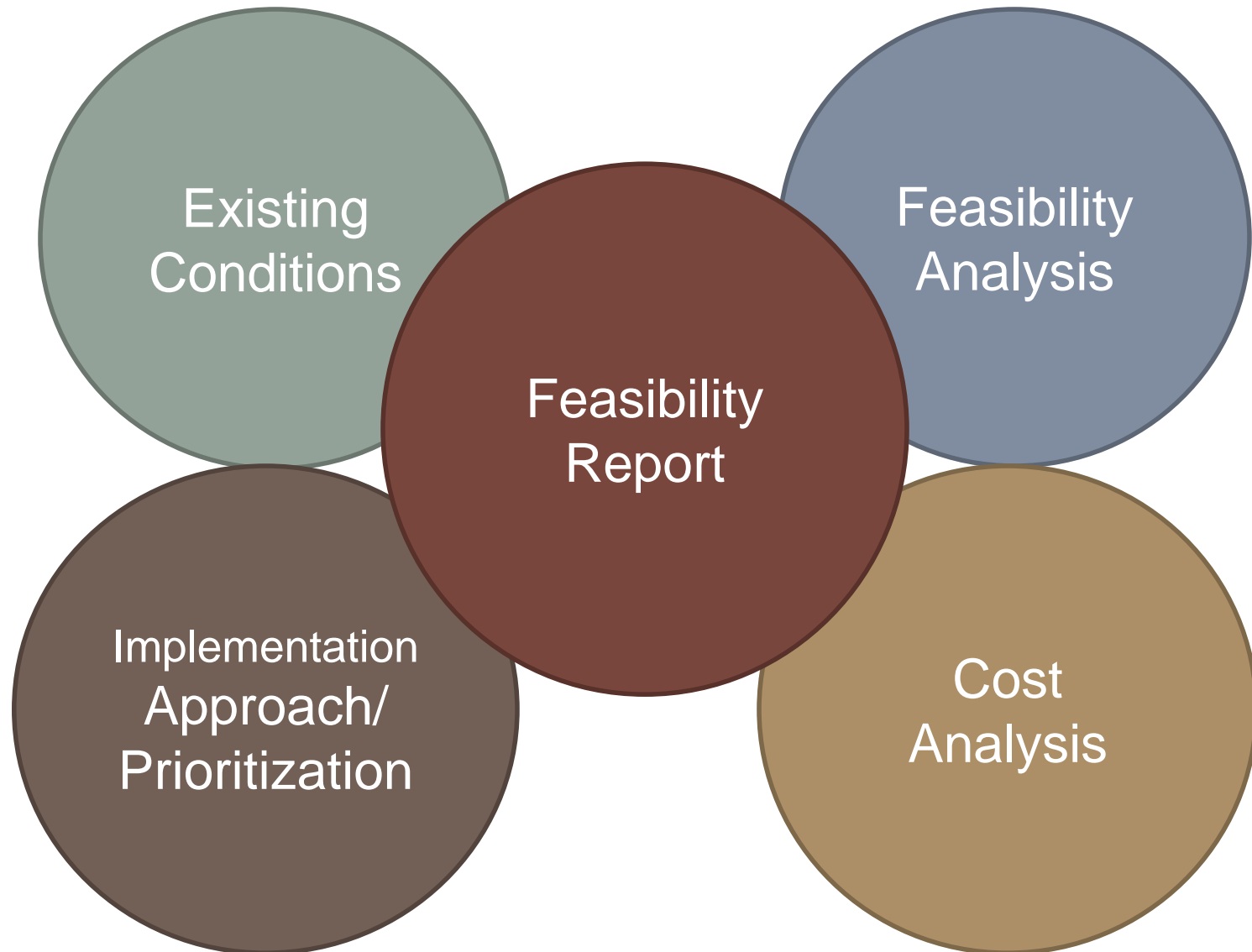
# Regional Stormwater Capture & Use Feasibility Study TAC Meeting #1 - July 18, 2017

## AGENDA ITEM #4:

- Project Elements
  - Feasibility Analysis
  - Cost Analysis
  - Implementation Approach – Prioritization
  - Feasibility Report
  - TAC Questions



# Project Overview- Feasibility Report

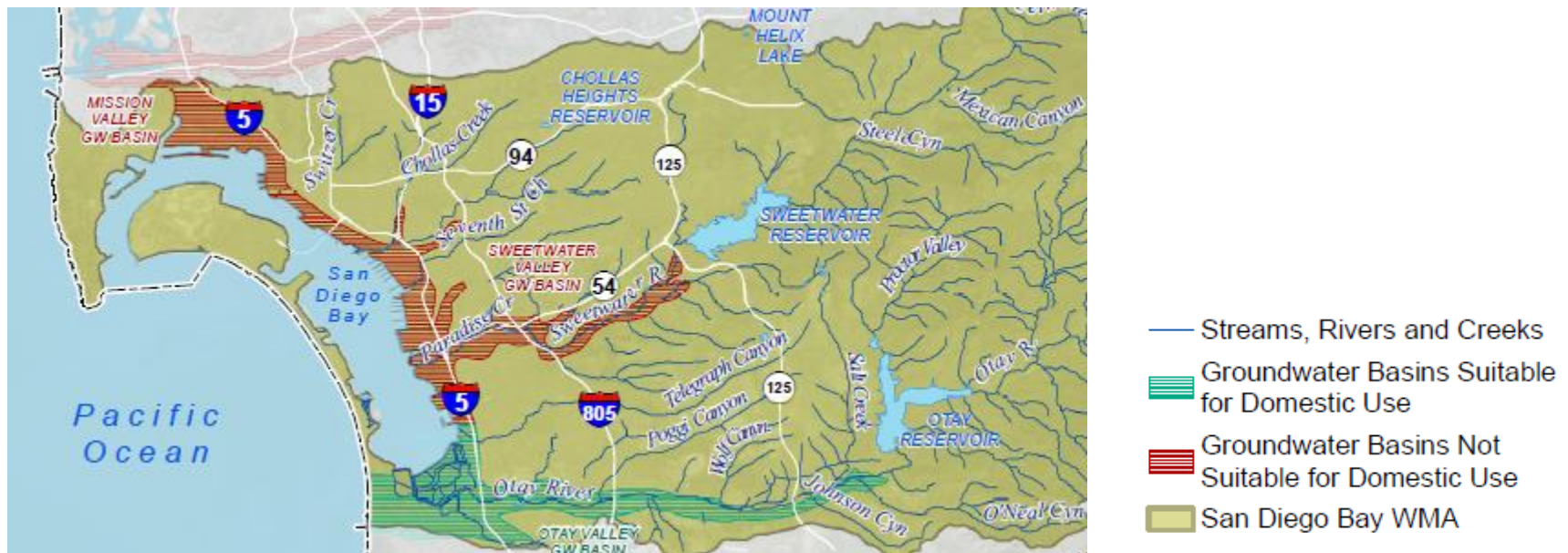


# Feasibility Report: Compilation of Technical Memoranda

1. Data Collection & Existing Conditions Memo
2. Technical Feasibility Analysis of Stormwater Capture & Use Memo
3. Cost Analysis of Stormwater Capture Alternatives Memo
4. Implementation Approach for Capture & Use Memo
5. Feasibility Report

# Project Overview - Data Collection

- Existing watershed conditions
- Inventory of stormwater capture facilities
- Current plans and studies
- Regulatory framework



# Project Overview - Feasibility Analysis

- Technical Feasibility Analysis of Stormwater Capture & Use Memo
  - Description and rationale for modeling approach
  - Model results and analyses
  - Conclusions on opportunities and constraints

Collection  
and  
distribution  
to storage

Retention  
and storage

Identification  
of beneficial  
uses

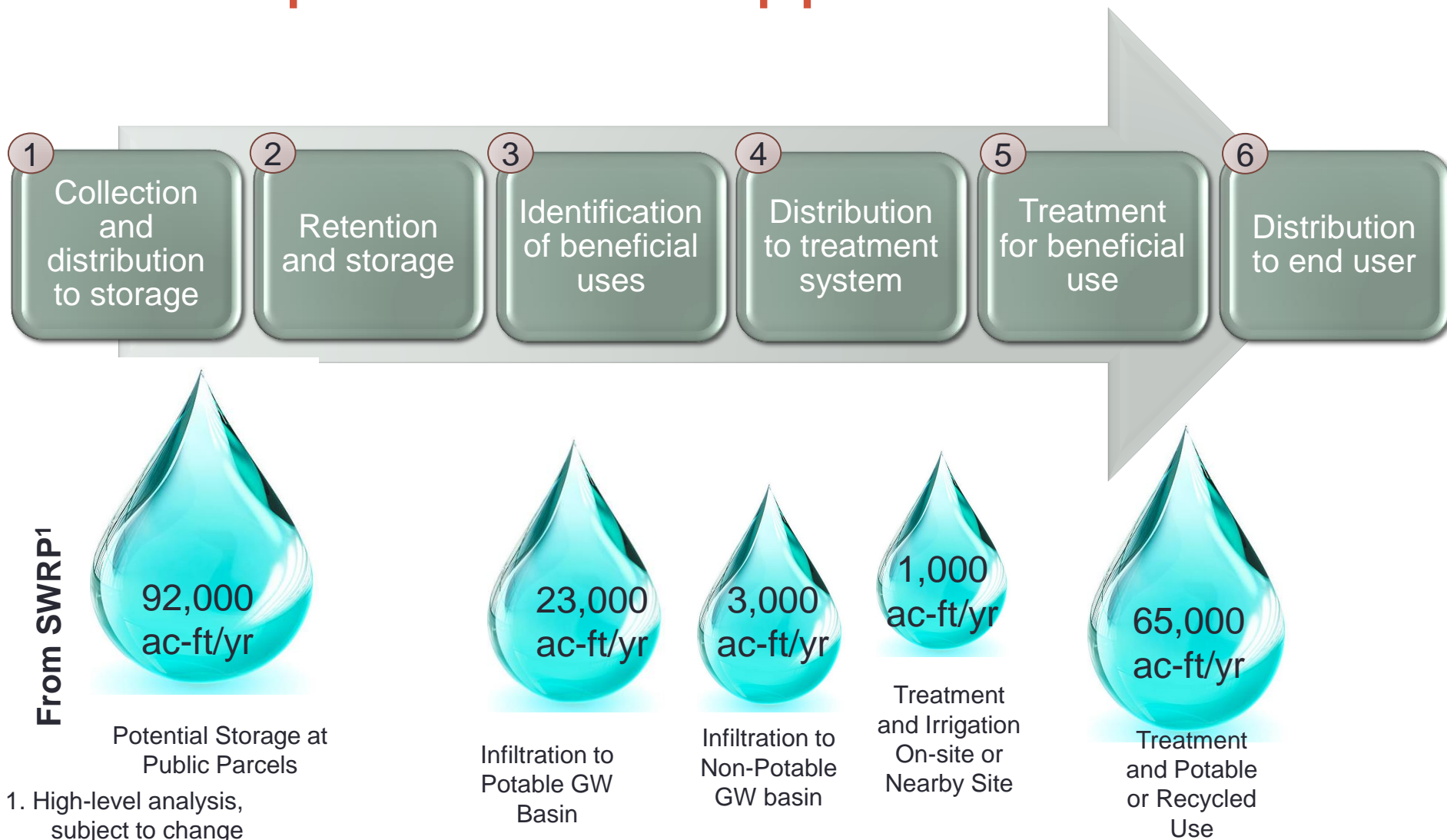
Distribution  
to treatment  
system

Treatment  
for beneficial  
use

Distribution  
to end user

# Project Overview - Feasibility Analysis

## Conceptual Model Approach





# Feasibility Analysis Conceptual Model Approach

Collection and  
distribution to  
storage

Retention and  
storage

Identification of  
beneficial uses

Distribution to  
treatment  
system

Treatment for  
beneficial use

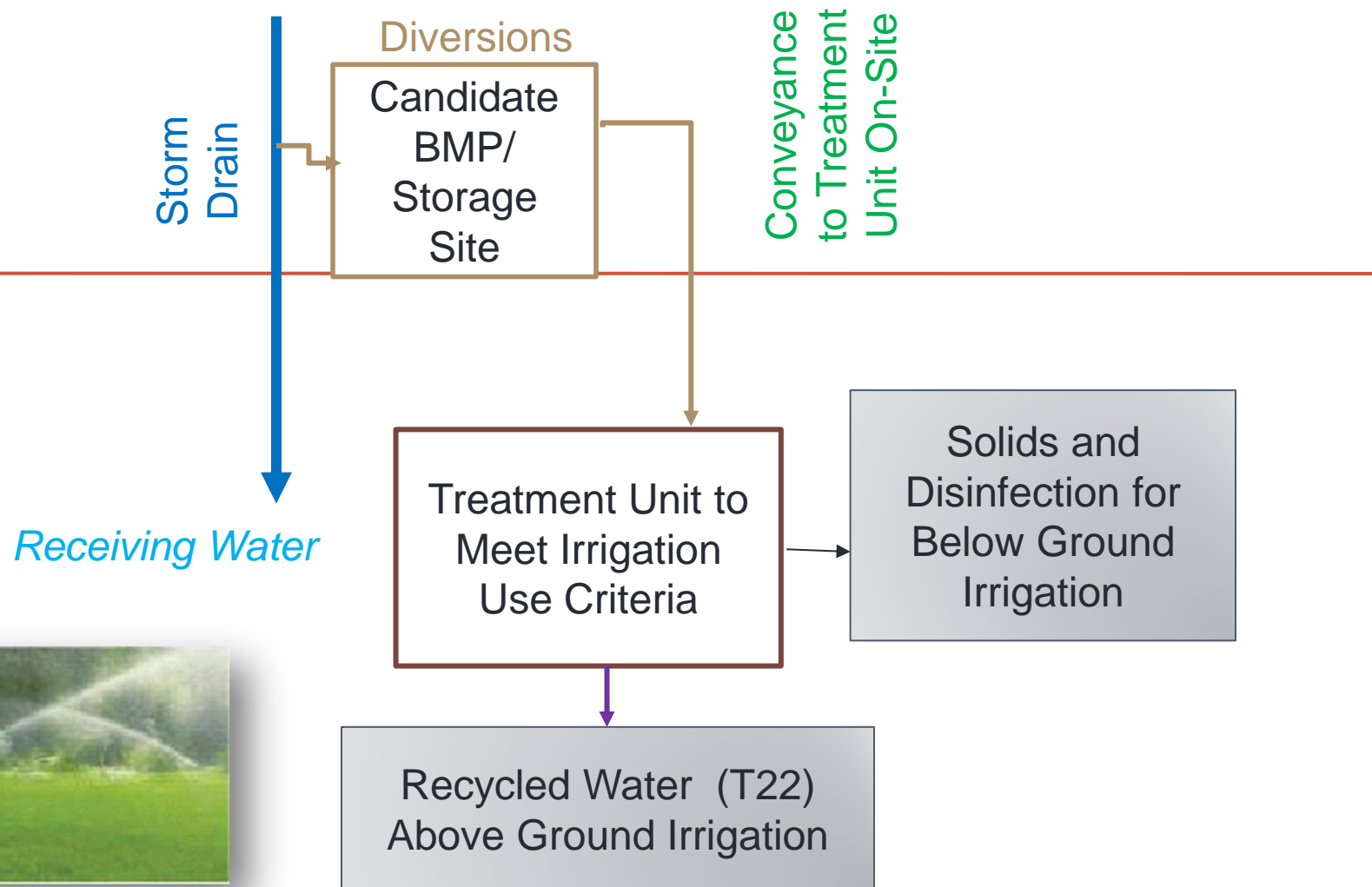
Distribution to  
end user

## Potential Beneficial Uses

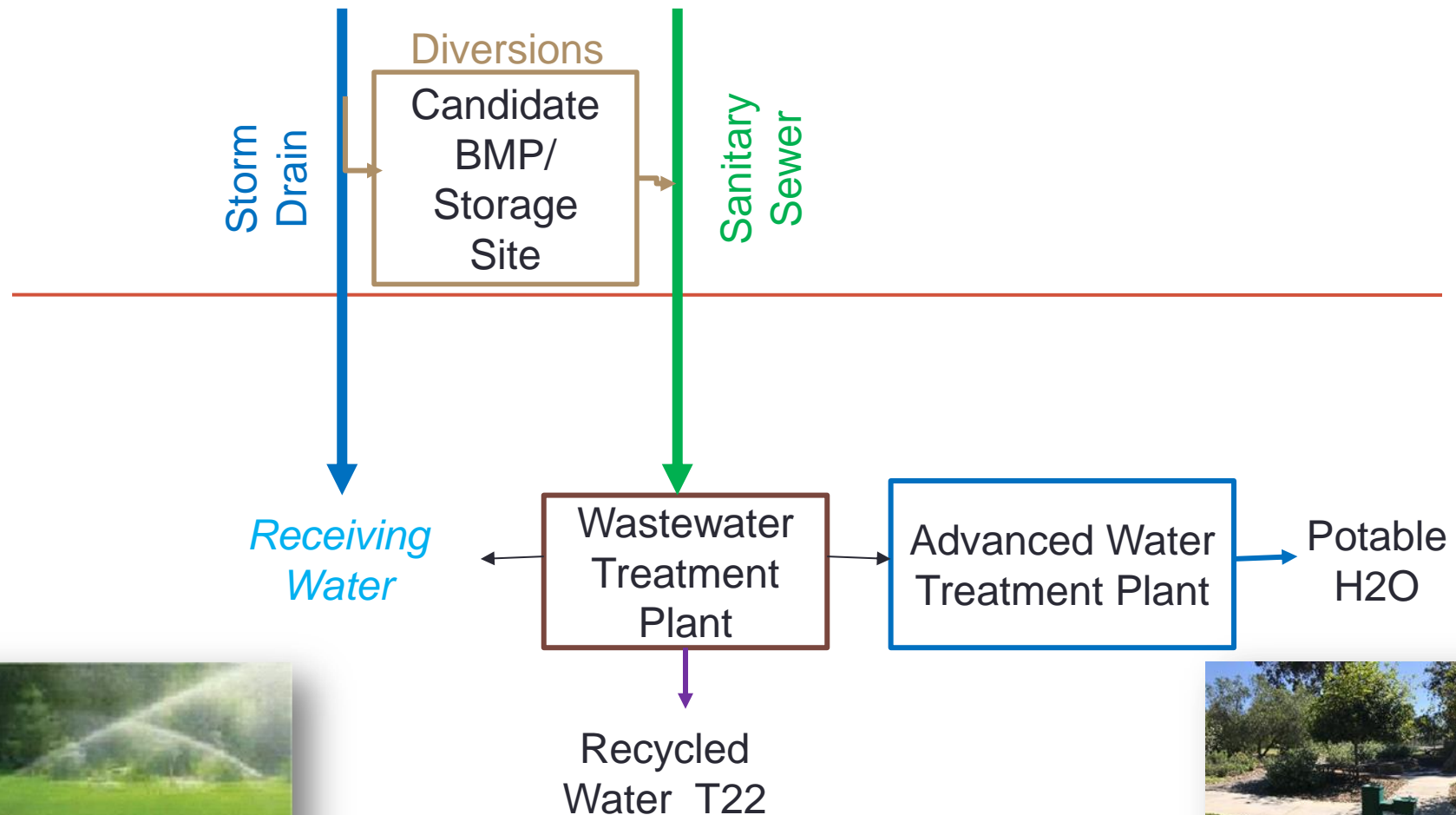
- A. Direct Discharge to designated Groundwater Aquifer and extracted for potable use
- B. Discharge to groundwater to reestablish natural hydrology – to restore biological beneficial uses
- C. Irrigation for On-site or nearby Park, Golf Course, Recreational Area
- D. Small scale on-site use for irrigation and other private use
- E. Sustain Vegetation in Natural Treatment System (wetland treatment) and/or restoration site
- F. Controlled discharge to Waste Water Treatment for Solids Management during Low Flows
- G. Controlled discharge to Waste Water Treatment for Indirect Potable Use
- H. Controlled discharge to Waste Water Treatment for Recycled Water Use



# Beneficial Uses: Irrigation On-site or Nearby Park, Restoration or Landscaped Area – Process Diagram



# Beneficial Uses: Recycled Water and Indirect Potable Use – Process Diagram



# Recycled Water and Indirect Potable Use: Analysis Methodology & Data Gaps

Steps	Description	Inputs – Data Gaps	Outputs
1. Evaluate Storage Capacity	This step looks at the amount and timing of stormwater that can be captured and stored on future BMP sites within the sewersheds. Recommend evaluating total potential storage using daily time-steps throughout the course of a representative year.	<ul style="list-style-type: none"> <li>Representative daily precipitation totals (from models)</li> <li>Storm drain pipes shapefile (capacity, flows, elevations)</li> <li>Candidate sites previously modeled by ESA in the SWRP</li> <li>Types of storage systems</li> </ul>	<ul style="list-style-type: none"> <li>Total storage capacity by sewershed</li> <li>Estimated daily stored volume by sewershed throughout course of year</li> </ul>
2. Evaluate Conveyance Capacity	This step will evaluate the existing capacity of large ( $\geq 36$ -inches) sanitary sewer pipes to accept diverted stormwater flows. Recommend evaluating total available capacity using daily time-steps throughout the course of a representative year.	<ul style="list-style-type: none"> <li>Sanitary sewer pipes shapefile (capacity, elevation)</li> <li>Modeled dry and wet weather sewer flows</li> <li>SSO occurrences</li> </ul>	<ul style="list-style-type: none"> <li>Available capacity by pipe and total by sewershed</li> <li>Compare to BMP storage locations from step 1</li> </ul>
3. Evaluate Treatment Plant Capacity (see next slide)	This step will evaluate the ability for wastewater treatment plants and advanced water treatment plants to accept a blend of diverted stormwater to their influent. Recommend evaluating treatment plant capacity using a steady state model for a dry weather scenario and wet weather scenario.	<ul style="list-style-type: none"> <li>Process data and influent quality for NCWRP</li> <li>Infiltration and inflow (I/I) data</li> <li>Stormwater quality data</li> <li>Data for other WWTPs</li> </ul>	<ul style="list-style-type: none"> <li>Acceptable stormwater : wastewater ratio for plant influent</li> <li>Operational and costs considerations and impacts</li> </ul>
4. Determine Limiting Constraints	Based on steps 1-3, a limiting set of constraints will be identified.	<ul style="list-style-type: none"> <li>Outputs from steps 1-3</li> </ul>	<ul style="list-style-type: none"> <li>Governing set of constraints for stormwater capture and diversion to sanitary sewer systems</li> </ul>
5. Quantitative Capture Analysis	After determining the limiting set of constraints from step 4, the total amount of stormwater that can be captured and treated will be estimated.	<ul style="list-style-type: none"> <li>Outputs from steps 1-4</li> </ul>	<ul style="list-style-type: none"> <li>Estimated annual capture potential (acre-feet/year)</li> </ul>
6. Qualitative Discussion	This step will discuss other regulatory and operational opportunities and constraints qualitatively. Recommendations for next steps will be identified.	<ul style="list-style-type: none"> <li>Subject matter experts</li> </ul>	<ul style="list-style-type: none"> <li>Identification of opportunities, constraints, and next steps</li> </ul>

# Project Overview - Cost Analysis

- Cost out select concept projects
- Capital, O&M, rehabilitation, and replacement costs
- Use select concepts as basis for compiling cost for similar projects and sites
- Develop unit costs – \$/volume
- Identify potential funding





# Project Overview - Implementation Approach - Prioritization

## Implementation Approach for Capture & Use

- Description of implementation approach and classification scheme
- Implementation analysis of specific projects, areas or alternatives for increasing stormwater capture and use
- A summary table of ranking or priority for each area, project or alternative

# Project Overview - Implementation Approach - Prioritization

- Develop Criteria
  - Volume of local water supply augmented
  - Multi-Benefits (Stormwater Resource Plan Scoring)
  - Feasibility
    - Sources vs. Needs
    - Constructability – Level of new infrastructure needed
    - Cost - Funding
    - Short and Long-Term Implementation Time Line
- Prioritize projects
- Identify short-, mid- and long-term projects





# Regional Stormwater Capture & Use Feasibility Study - TAC Meeting #1 - July 18, 2017

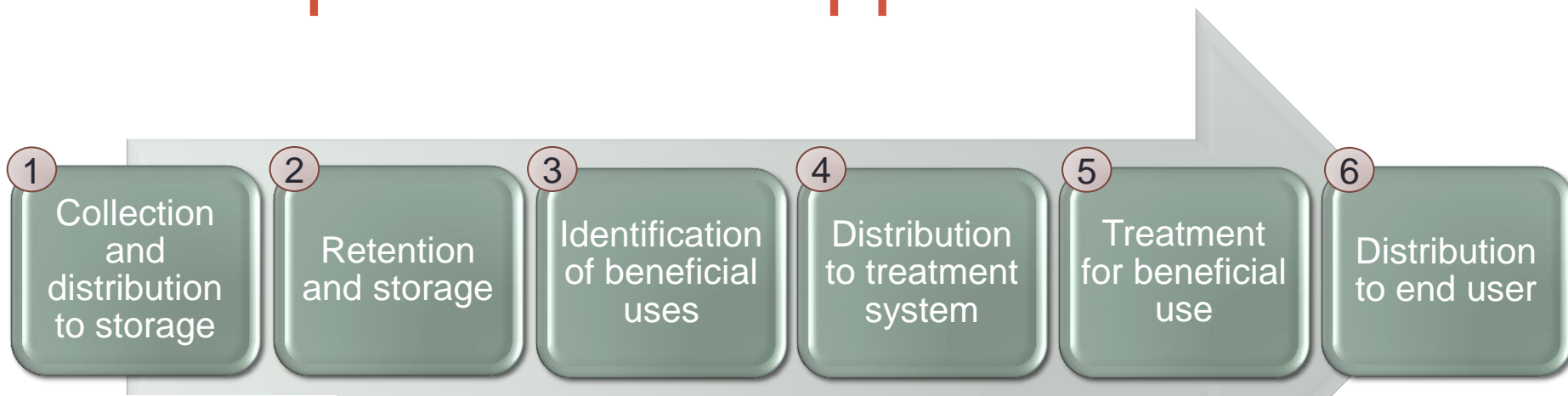
## AGENDA ITEM #4 (continued):

- Data Gaps – Current Task
  - Request for TAC Input on Data Gaps



# Project Overview - Feasibility Analysis

## Conceptual Model Approach



From SWRP<sup>1</sup>



Potential Storage at  
Public Parcels



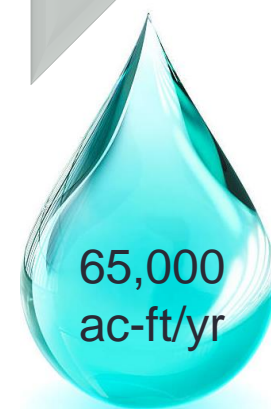
Infiltration to  
Potable GW  
Basin



Infiltration to  
Non-Potable  
GW basin



Treatment  
and Irrigation  
On-site or  
Nearby Site



Treatment  
and Potable  
or Recycled  
Use

1. High-level analysis,  
subject to change

# Current Task – Data Gathering, Data Gaps



3) Beneficial Uses	4) Distribution to Treatment System	5) Treatment System for Beneficial Use	6) Distribution to User
Direct Discharge to designated Groundwater Aquifer and extracted for potable use	DG: existing and planned well systems	DG: location and capacity of existing facilities	DG: Capacity and need of existing and plants systems – does extra capacity exist?
Irrigation for On-site or nearby Park, Golf Course, Recreational Area			DG: Existing or planned recreational areas that would benefit from augmentation of irrigation supply
Sustain Vegetation in Natural Treatment System (wetland treatment) and/or restoration site			DG: Planned or implemented wetland treatment systems
Controlled discharge to Waste Water Treatment for Solids Management during Low Flows, Indirect Potable Use, or Recycled Water Use	DG: Pre-treatment, maximum and minimum flows and times when flows are needed for potential sanitary sewer lines	DG: What treatment is performed at the facility and what are pre-treatment/quality requirements for stormwater	DG: Potential uses, need, and capacity to augment current sources of water with stormwater and dry weather flows

# Current Task: Data Gathering, Data Gaps

- Data List and Gaps Handout
- Request for TAC Input on Data Gaps
  - *Do you have data to respond to Data Gaps?*
  - *Are there any additional data important to Feasibility Study to augment current list?*
- Input and Data requested by August 1, 2017

**Thank you for your support and help!**

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## AGENDA ITEM #5: Next Steps



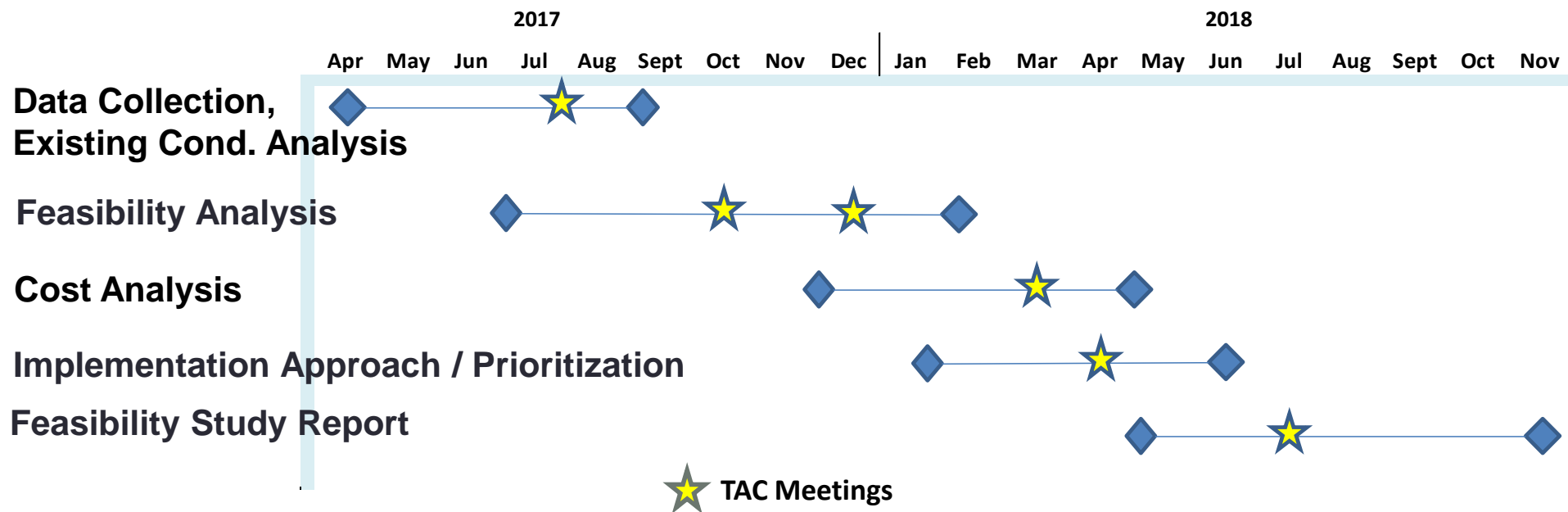
# Next Steps

Milestone	Time frame
TAC Member input:  Data List and Data Gaps <i>Provide via input form</i>	8/1/17
Project Team:  Publish Technical Memo – Data Collection & Existing Conditions	9/19/17

# Next Steps

Milestone	Time frame
Project Team: Technical Feasibility Analysis, Model Approach – Draft Memo	10/23/17
TAC Meeting #2: Model Approach	Late October

Project Schedule



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AGENDA ITEM #6:  
Public/Stakeholder Comments





# Thank you!



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*Watershed Protection Program*

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