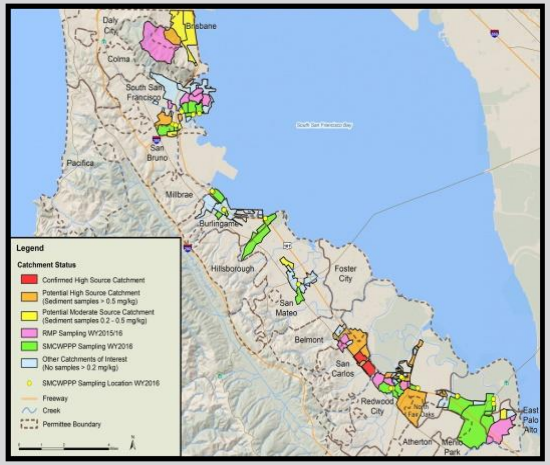
Reducing PCBs and Mercury Loads in Stormwater Runoff in San Mateo County



Jon Konnan - EOA, Inc.

C/CAG Stormwater Committee

July 16, 2020

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Summary of Presentation Topics

Status of addressing PCBs in SM County stormwater runoff per MRP

1. **Interim Accounting** (current permit term) – load reductions achieved compared to requirements
2. **RAAs** (future permit terms) – basis for new long-term "plan" that presents scenarios and costs to reach TMDL goals

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PCBs Controls for Stormwater Runoff

Largest load reductions in Bay Area via:

1. Management of PCBs during building demolition
2. Source property identification and referral
3. Green infrastructure
4. Trash controls

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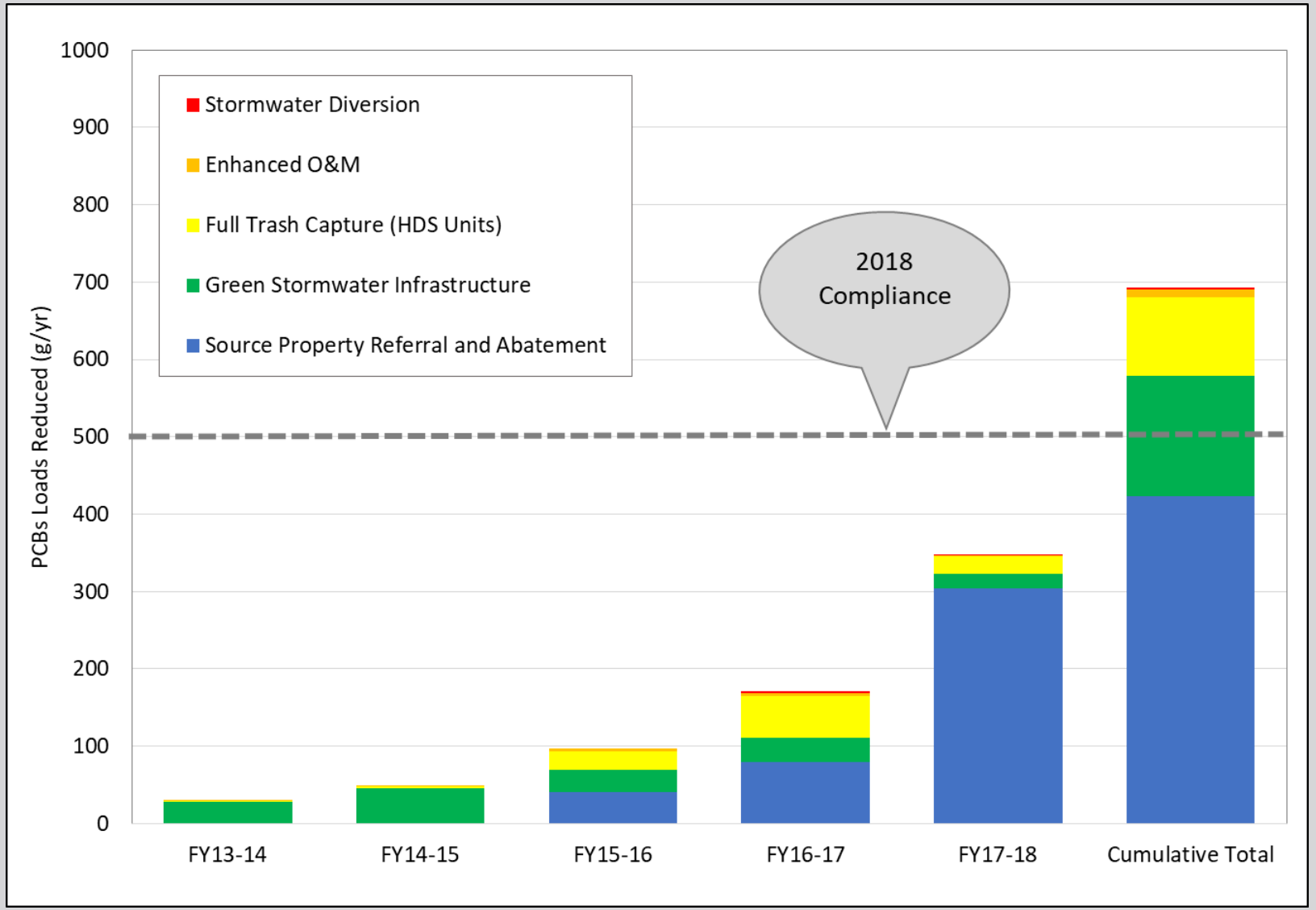
PCBs Load Reductions as of June 2018 (Regional)



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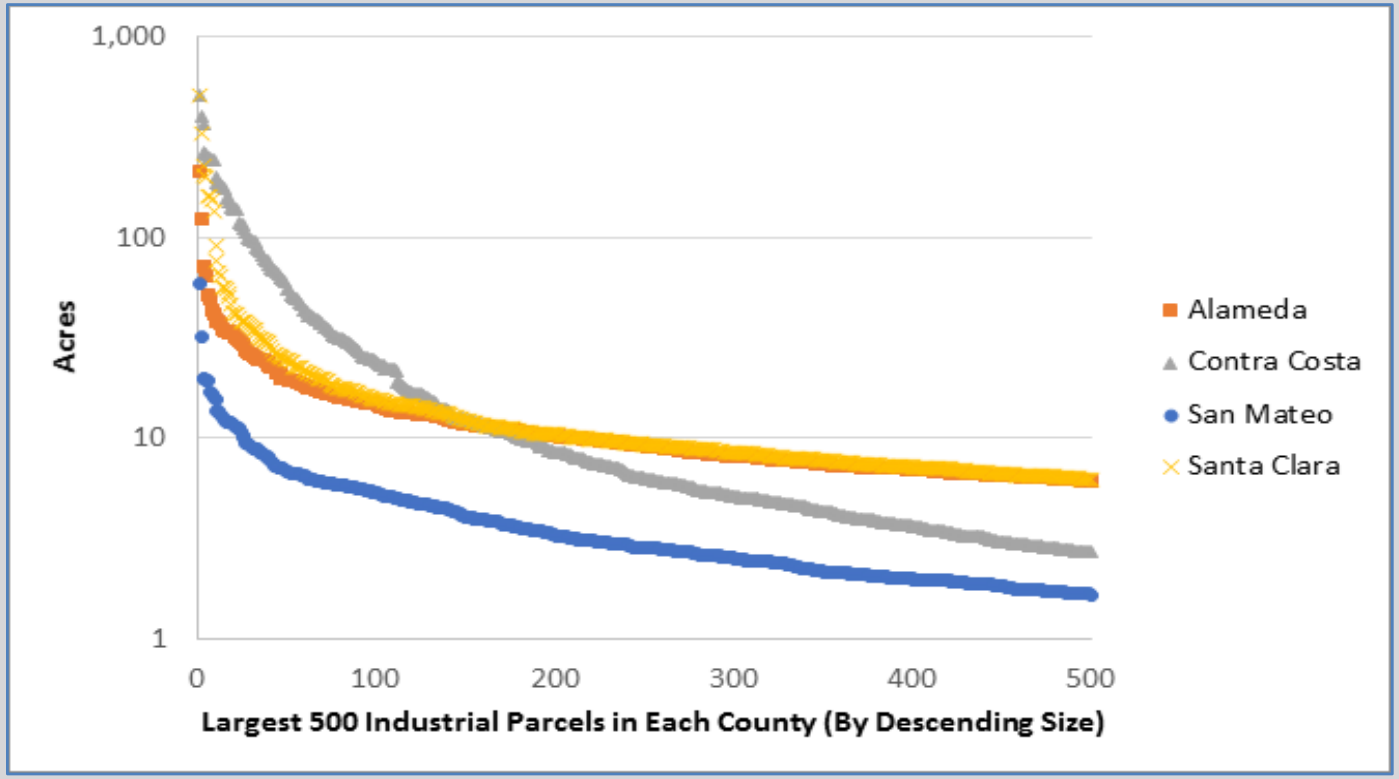
Industrial Land Use in Four Bay Area Counties

	San Mateo County	Alameda County	Contra Costa County	Santa Clara County
Total Industrial Area (acres)	3,000	14,000	13,000	16,000
Average Industrial Parcel Size (acres)	1	2	8	3



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PCBs Load Reductions as of June 2020 (Countywide)

Control Measure Category		PCBs Loads Reduced (g/year)								
		Reported to-Date							Cumulative Load Reduced through June 2020	Required Load Reduction by June 2020
		FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20		
Source Property ID and Abatement	Delta Star / Tiegel, San Carlos						15		**15**	
	Bransten Road, San Carlos						5		**5**	
	1411 Industrial Road, San Carlos							48	**48**	
Green Infrastructure	Parcel-Based New or Redevelopment	12	4	5	3	11	4	5	**44**	**15**
	Green Streets or Regional Retrofit	0.01	0.1	0.10	0.02	0.05	0.06		**0.3**	
Trash Full Capture	Small Devices							5	**5**	
	Large Devices					2	0.3	9	**11**	
Enhanced O&M Measures									**0**	
Manage PCBs in Building Materials								247	**247**	
Manage PCBs in Infrastructure									**0**	
Diversion to POTW									**0**	
Other									**0**	
TOTAL - ALL CONTROLS		**12**	**4**	**5**	**3**	**13**	**24**	**314**	**376**	**370**

Mercury and PCBs Control Measures Plan

- Pollutant Control Measures Implementation Plan – **Scenarios** to Achieve PCBs and Mercury S.F. Bay TMDL Wasteload Allocations in San Mateo County
- Prepare "plan" to reach PCBs TMDL allocation 2030 that identifies
  - —all "technically and economically feasible" controls,
  - —implementation schedule
  - —costs
- Due September 30, 2020

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General Approach

1. Based on new baseline pollutant loads from SM County to SF Bay in Phase I RAA report, summarize PCBs load reduction needed to attain the PCBs TMDL wasteload allocation.

2. Project estimated PCBs load reductions by 2030 from various source controls using the methods in the BASMAA source control RAA report (assume MRP 3.0 level of effort from 2020 - 2030).

3. Project estimated PCBs load reductions by 2030 from green infrastructure (**based on MRP 2.0 requirement for 3 kg/yr PCBs load reduction via GI by 2040, translated by RAA to 17.6% reduction**):

   — On parcels (e.g., via implementation of MRP Provision C.3 during redevelopment).

   — In the public right-of-way (ROW) (e.g., regional stormwater capture projects, green streets).

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General Approach (cont.)

4. Calculate the total load reductions for all existing and projected control measures by 2030 (sum of Steps 2 and 3).
5. Assuming the PCBs wasteload allocation not met by 2030 via load reductions from the combination of above existing/projected source controls and green infrastructure, determine the gap that needs to closed (Step 4 subtracted from Step 1).
6. Develop scenario(s) to close this gap with additional control measures (generally via building additional green infrastructure in the public ROW).
7. Evaluate the technical and economic feasibility of the above control measure program implementation scenario(s).

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RAA - PCBs Load Reduction based on Modeling of Baseline Load (Step 1)

Table 10-2. Calculation of stormwater improvement goals to address PCBs TMDL.

TMDL Component		PCB Loads	
		Bay-wide	San Mateo County
1	Existing PCB Load (kg/year)	20[1]	1.3[2]
2	Existing Sediment Load (t/year)	2,000,000[1]	8,107[2]
3	Target Sediment Concentration (µg/kg)	1[1]	n/a
4	Wasteload Allocation for Municipal Stormwater Discharges(kg/year)	2[1]	0.2[1]
5 = 1 - 4	Load Reduction for Municipal Stormwater Discharges (kg/year)	18[1]	1.1[3]
6 = 5 / 1	Percent Reduction	90[1]%	84.6[3]%

1: Reference: SFBRWQCB 2008b

2: Determined using the RAA model based on simulation of Water Year 2002, defined by the Bay Area RAA Guidance to be representative of average annual loading conditions for comparison to TMDL WLAs.

3: Calculated based on the difference between the RAA modeled Existing PCB Load (blue = 1.3 kg/yr) and the TMDL WLA (green = 0.2 kg/yr).

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RAA Assumptions

Assumed RAA Scenario 1 (most conservative, GI plans):

- **Jurisdictional versus Countywide** - Assumed each jurisdiction must individually achieve at least a 17.6% load reduction of PCBs by 2040.
- **Sediment vs. PCBs Load Reduction Objective** - given the uncertainties about PCB source areas, the model targeted an overall 17.6% load reduction of cohesive sediment (silts and clays) to achieve 2040 PCBs load reduction objective for GI.
  - —As opposed to potential cost savings that could be realized if the model had targeted PCBs source areas for GI implementation.

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RAA Assumptions

Assumptions about pace of green infrastructure implementation:

- Analysis by CD+A determined the projected amount of LID associated with new development and redevelopment by 2030 and 2040.
- For each Permittee, 33% of green streets required by 2040 will be implemented by 2030.
- Regional projects with funding (at the time modeling conducted), Cartan Field in Atherton, Orange Memorial Park in South San Francisco to be built and operational by 2030. Other regional projects on-line by 2040.

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RAA Assumptions

Project	Status	RAA Assumed On-line Time Frame
Cartan Field, Atherton	On hold indefinitely	By 2030
Orange Memorial Park, South SF	100% design, advertise Sept - Dec, Construction 2021, on-line late 2021?	By 2030
I-280/I-380, San Bruno	$ allocated for design, RFP for design work in process, design commences 2020, no funds yet for construction	By 2040
Red Morton Park, Redwood City	$ allocated for design, RFP for design work in process, design commences 2020, no funds yet for construction, 2 phases	By 2040
Twin Pines Park, Belmont	Now larger and similar to San Bruno and Redwood City, $ allocated for design and joint effort with creek restoration, no funds yet for construction	By 2040

RAA Results

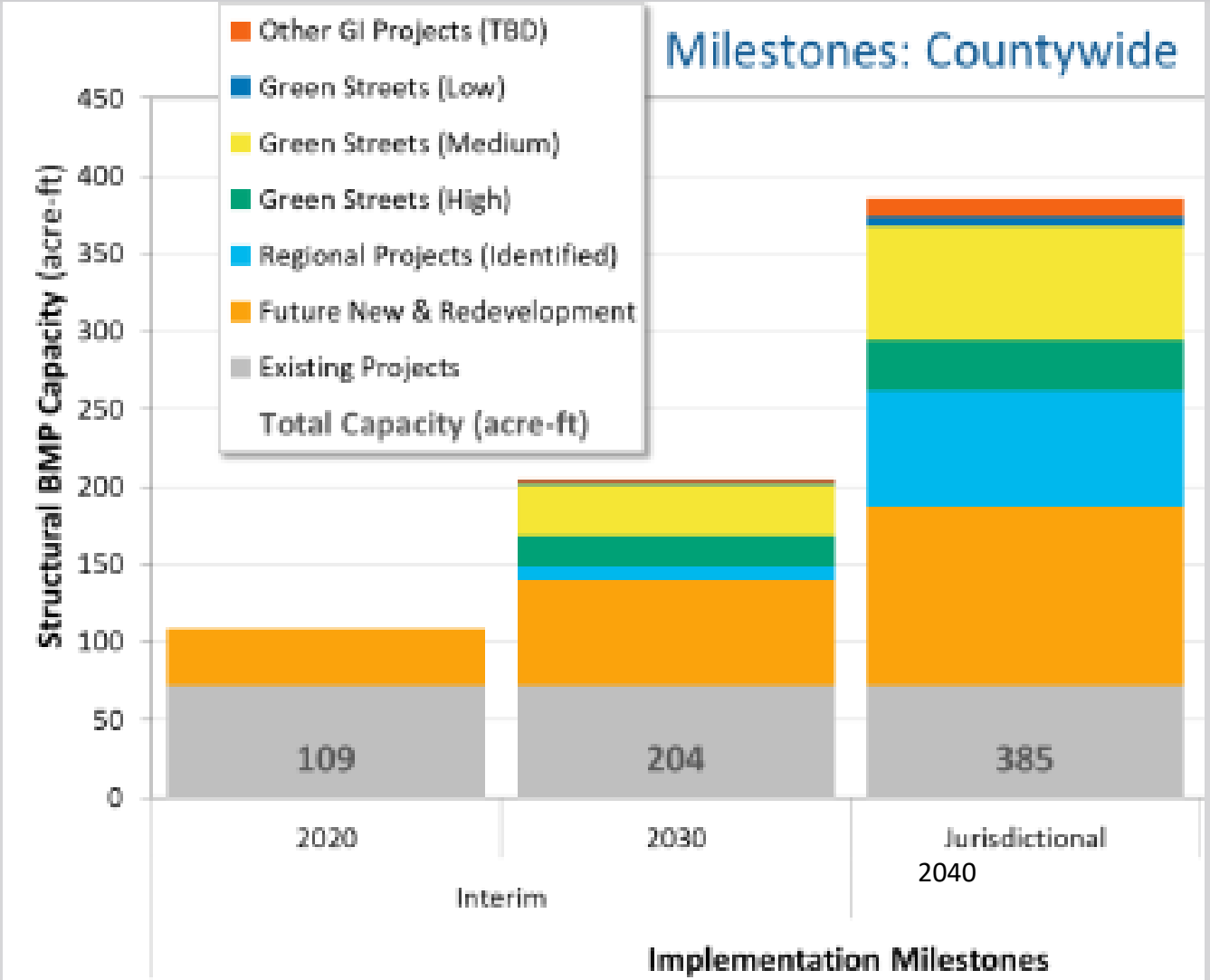

Figure 9-1. Summary of GI storage capacity by implementation milestone.

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Prelim Estimated PCBs Load Reductions (Countywide)

Control Measure Program		Estimated PCBs Load Reduction (grams/year)		Assumptions
		by 2030	by 2040	
Green Infrastructure	Public Regional & Green Street Projects	**60**	**128**	Based on RAA assumptions
	Parcel-Based New or Redevelopment	**83**	**155**	Based on rate of redevelopment outlined in RAA appendix and existing projects in EOA database.
Source Area Identification, Referral and Abatement Program		**62**	**88**	5,252 acres of old industrial area was investigated/screened prior to 2020 0.6% success rate. 1,411 old industrial remaining. Accounts for full credit 10 years after referral. **Diminishing returns?**
PCBs in Builidng Materials Management during Demo Program		**247**	**247**	Continued implementation at current level and MRP 2.0 stipulated credit, but new data may change.
PCBs in Electrical Utilities Management Program	OFEE Removal Programs	**44**	**62**	New program discussed by MRP 3.0 workgroup. Assumes an additional 1.3% equipment removal rate achieved each year.
	Enhanced spill cleanup	**1**	**1**	New program discussed by MRP 3.0 workgroup. Assumes average value for improved cleanup efficiency rate (i.e., 25%).
PCBs in Roadway and Stormdrain Infrastructure Caulk Management Program	Joint sealant removal during demo	**2**	**4**	Assumes steady rate of demolition over time.
	Longitudinal sealant removal during demo	**4**	**8**	
Enhanced Operation & Maintenance Controls	Enhanced Inlet Cleaning - no FTC	**0**	**0**	No enhancement
	Enhanced Inlet Cleaning with FTC Devices	**76**	**76**	Assumes additional full capture treatment as described in trash table in ROWD
	Enhanced Street Sweeping	**0**	**0**	No enhancement
Large Trash Full Capture Systems Implementation Program	HDS Units	**1**	**1**	No additional devices
	GSRD	**5**	**5**	No additional devices
	Baffle Boxes	**1**	**1**	No additional devices
Diversion to POTW Program		**0**	**0**	No enhancement
		585	**775**	**PCBs Load Reduction TMDL Target Based on RAA: 1,100 grams/year**

Outcomes

- Potentially request extended PCBs TMDL time frame to make more economically feasible
  - —Permittees must first demonstrate that all technically and economically feasible PCBs/mercury controls will be implemented within the original timeline
- As needed, integrate this planning with ongoing efforts by C/CAG to assist municipalities obtain funding for GI
  - —Support applications for state or federal grant funds
  - —Potentially work with new Flood and Sea Level Rise Resiliency District to develop a GI investment plan

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Schedule

- July 21 - Meeting with RWB staff
- Jul 29 - Distribute first draft report to SM County Permittees for review
- Aug 14 - Comments on first draft report due to EOA
- Aug 20 - Follow-up presentation to SW Committee
- Sep 2 - Distribute second draft along with draft SMCWPPP Annual Report
- Sep 18 - Comments on second draft due to EOA (two days after SMCWPPP AR comments due).
- Sep 30 - Address any remaining comments and submit final report to RWB staff by this date.

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QUESTIONS?

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