Storm Water Resource Plan

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C/CAG Stormwater Committee
June 16, 2016

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Overview of Concepts

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Final Steps for Storm Water Resource Plan

- June
  - Complete Draft Concept Plans for C/CAG review
  - Finalize Concept Plans
  - Prepare Prop 1 Grant Proposal (based on subset of project concepts)
- July-August
  - Prepare Draft Storm Water Resource Plan for C/CAG review
  - Finalize Storm Water Resource Plan

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Reasonable Assurance Analysis

- Permittees shall prepare a reasonable assurance analysis that demonstrates how green infrastructure will be implemented in order to achieve a PCBs load reduction of 3 kg/yr across the permit-area by 2040 (C.12.c.ii(2)).
- Permittees shall prepare a plan and schedule for PCBs control measure implementation and reasonable assurance analysis demonstrating that sufficient control measures will be implemented to attain the PCBs TMDL wasteload allocations by 2030 (C.12.d.i).

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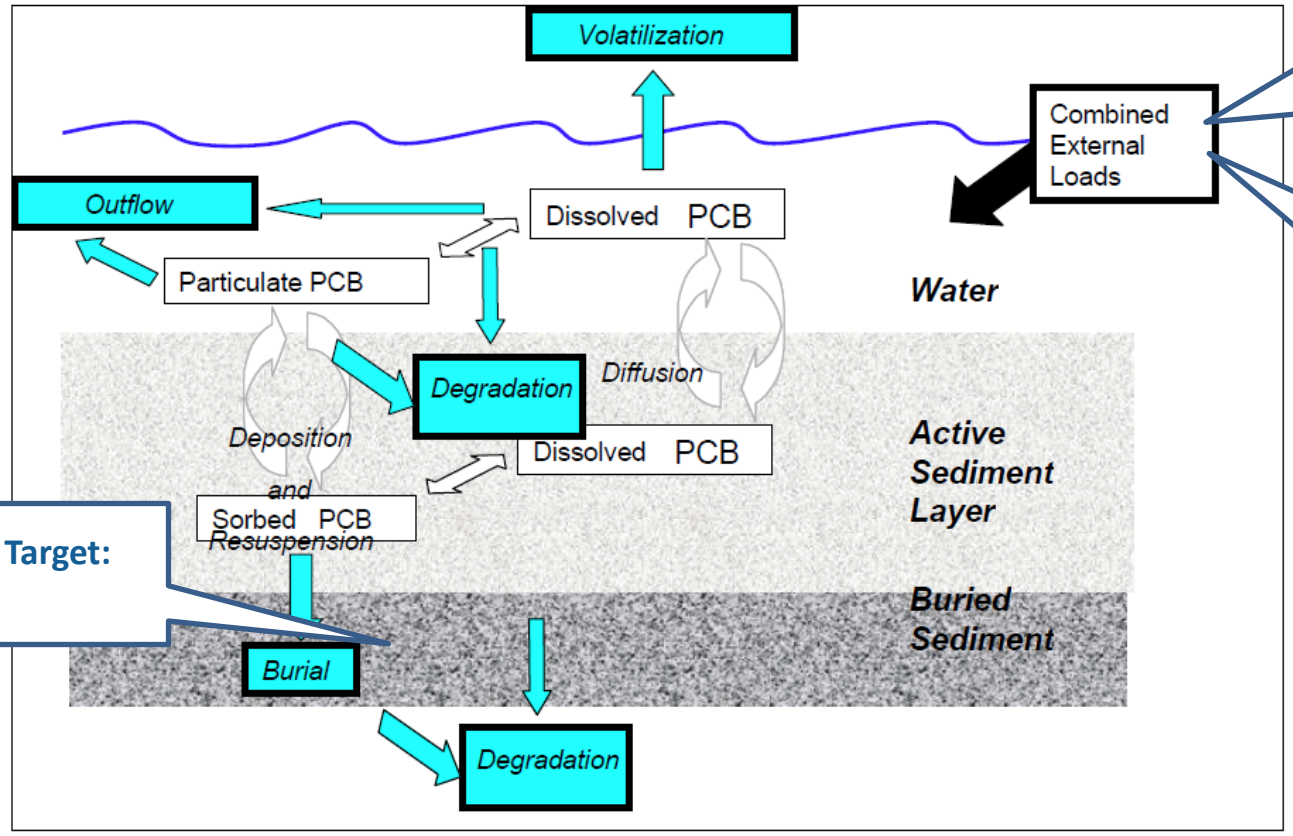
San Francisco Bay PCBs TMDL



Sediment Target:
1 ug/kg

Wasteload Allocation:
- 1 ug/kg
- 2M tons sediment/yr
- = 2 kg/yr

Combined External Loads

Existing Load:
- 20 kg/yr
- 90% load reduction

Provision C.12.c
- 120 g/yr reduction during each of final 3 yrs of permit (0.6% reduction)
- 3 kg/yr reduction by 2040 via green infrastructure (15% reduction)
- Reporting of progress by 2020, 2030, and 2040

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Initial Phase of RAA

Update: Calibrate to meet RAA guidelines (hydrology and sediment/PCB/Hg transport)

Builds off of system developed during Stormwater Resource Planning

HSPF/LSPC

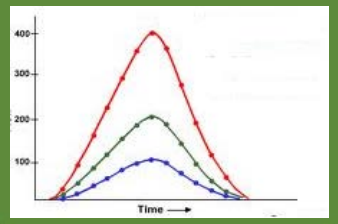
Data
- Rainfall
- HRUs/Land Use
- Impervious
- Elevation
- Slopes
- Evaporation
- Infiltration

Watershed Model

Update Results

Hourly Runoff and sediment/pollutant loads

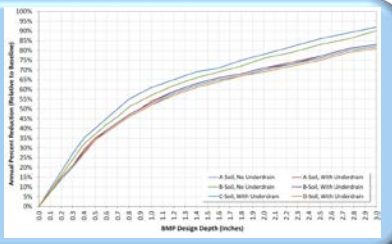
Critical Period (TBD)



SUSTAIN

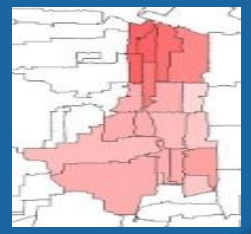
Stormwater Capture Model

GI Response Curves



WAMP

GIS tool to provide user interface



Calculation of project capture volumes

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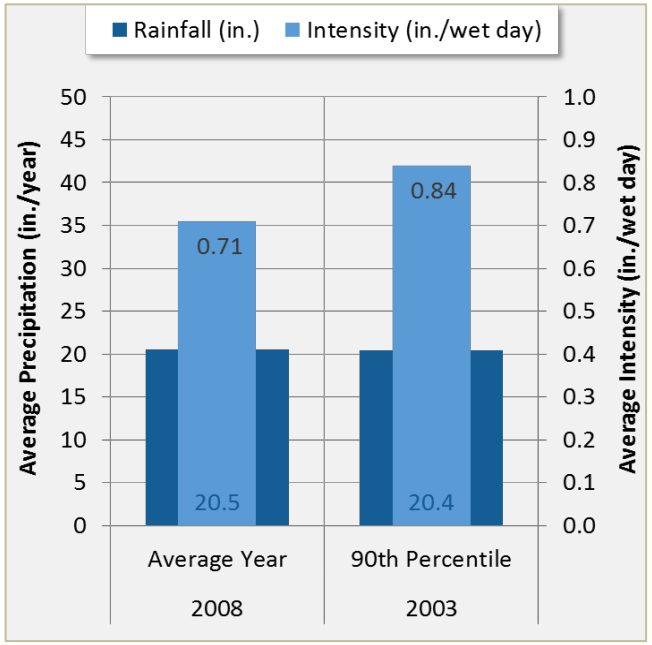
Determine Hg/PCBs Wasteload Allocations

Watershed model provides the ability to recalculate the SMC wasteload allocations

- Improved estimate of sediment loading (basis of allocation)
- Assessment of critical period
- Incorporation of local Hg/PCBs concentrations



1 Period Used to Base Avg. Annual Load	2 Avg. Annual Sediment Load (tons/yr)	3 Target Sediment Concentration (µg/kg sediment)	4 Existing PCBs Sediment Concentration (µg/kg sediment)	5 = 2 X 3 PCBs Wasteload Allocation (kg/yr)	6 = 2 X 4 Existing PCBs Load (kg/yr)	7 = 6 – 5 Load Reduction (kg/yr)
2003-2005	**2 million**	**1.0**	**10.0**	**2.0**	**20.0**	**18.0**

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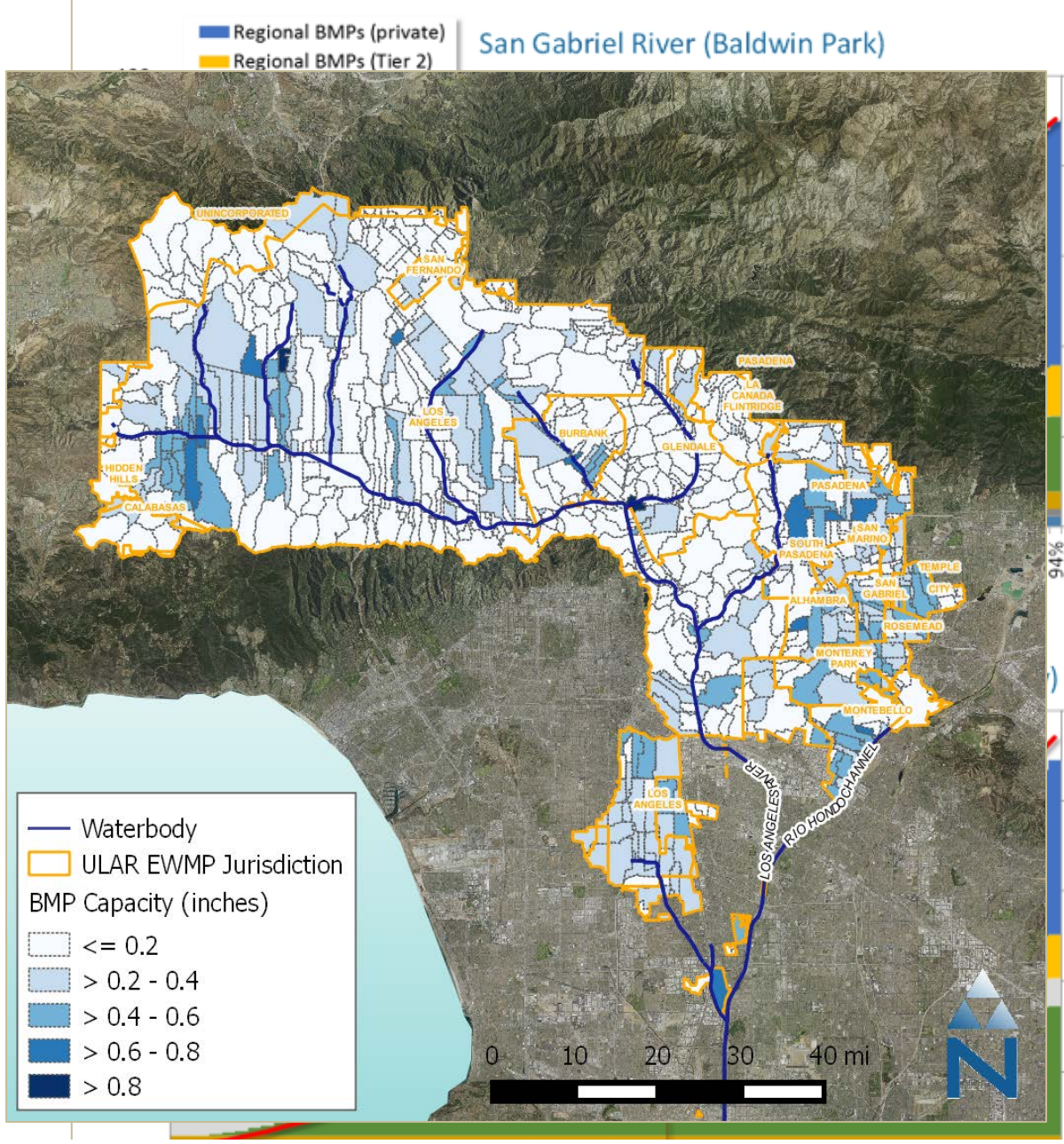
Perform Reasonable Assurance Analyses

- Quantitative relationship between GI implementation and Hg/PCBs reduction
- Optimization to ensure cost-effective planning
- Separate analyses performed for each jurisdiction



Example Map of Treatment Capacities

Perform Reasonable Assurance Analyses

Table 1. Example RAA Output - City of Long Beach Toxics TMDL (including PCBs)

TMDL Assessment Area	Future Year	TMDL Target			Treatment Capacities							
		Retention Volume (acre-ft/year)		Milestone	Existing/ Planned LID		Public LID		Green Streets		Regional BMPs	
		Incremental	Cumulative		Incremental (ac-ft)	Cumulative (ac-ft)	Incremental (ac-ft)	Cumulative (ac-ft)	Incremental (ac-ft)	Cumulative (ac-ft)	Incremental (ac-ft)	Cumulative (ac-ft)
Harbor Toxics TMDL	2019	1.0	1.0	10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2024	77.7	78.7	20%	6.6	6.6	5.6	5.6	0.0	0.0	0.0	0.0
	2032	1,649.0	1,728	100%	26.1	32.7	38.1	43.7	24.7	24.7	234.1	234.1
Domin -guez Toxics TMDL	2019	0.1	0.1	10%	---	---	0.0	0.0	0.0	0.0	0.0	0.0
	2024	17.7	17.7	20%	---	---	2.1	2.1	0.0	0.0	0.0	0.0
	2032	66.9	84.7	100%	---	---	5.8	7.9	0.9	0.9	2.1	2.1

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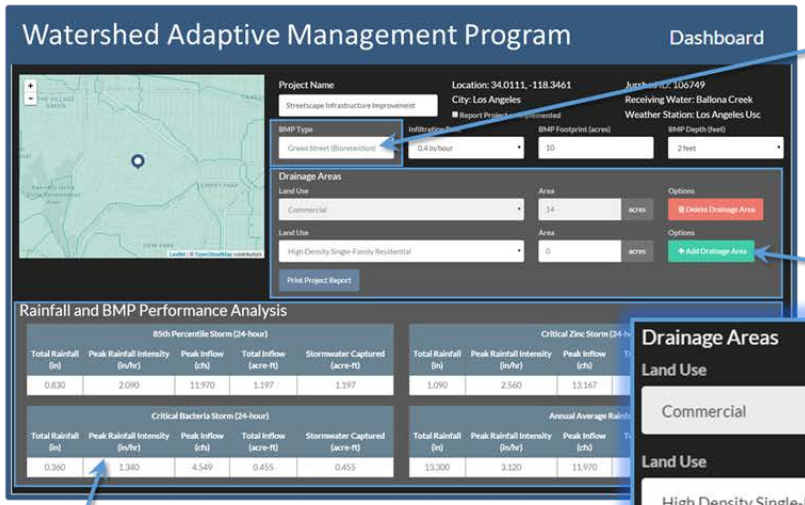
Watershed Adaptive Management Program (WAMP)



1 Many different types of green infrastructure

2 Drainage Area Information

3 Stormwater capture volumes and rainfall and peak flow information

Rainfall and BMP Performance Analysis

85th Percentile Storm (24-hour)

Total Rainfall (in)	Peak Rainfall Intensity (in/hr)	Peak Inflow (cfs)	Total Inflow (acre-ft)	Stormwater Captured (acre-ft)
0.830	2.090	11.970	1.197	1.197

Critical Zinc Storm (24-hour)

Total Rainfall (in)	Peak Rainfall Intensity (in/hr)	Peak Inflow (cfs)	Total Inflow (acre-ft)	Stormwater Captured (acre-ft)
1.090	2.560	13.167	1.317	1.317

Critical Bacteria Storm (24-hour)

Total Rainfall (in)	Peak Rainfall Intensity (in/hr)	Peak Inflow (cfs)	Total Inflow (acre-ft)	Stormwater Captured (acre-ft)
0.360	1.340	4.549	0.455	0.455

Annual Average Rainfall

Total Rainfall (in)	Peak Rainfall Intensity (in/hr)	Peak Inflow (cfs)	Total Inflow (acre-ft)	Stormwater Captured (acre-ft)
13.300	3.120	11.970	10.534	10.534

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Final Products for FY 16/17

- Refinement of County PCBs/mercury reductions required to meet phased TMDL implementation
- Stormwater/sediment capture goals for the Green Infrastructure Plan
  - Jurisdictional goals
  - Watershed goals
- Watershed Adaptive Management Program
  - Web-based model tool to support GI planning and identification/accounting of projects to meet goals
- Begin development of accounting methodology for other control measures
  - Trash Capture
  - PCBs in building materials and infrastructure

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