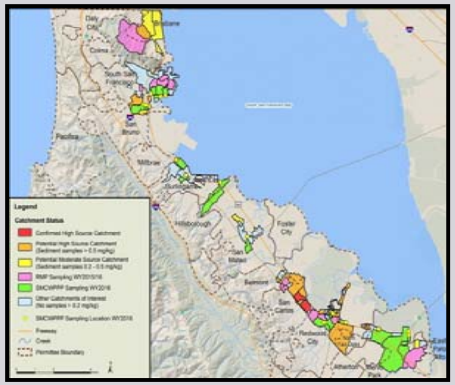
Reducing PCBs and Mercury Loads in Stormwater Runoff in San Mateo County



Jon Konnan - EOA, Inc.

C/CAG Stormwater Committee

August 20, 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. **CMP/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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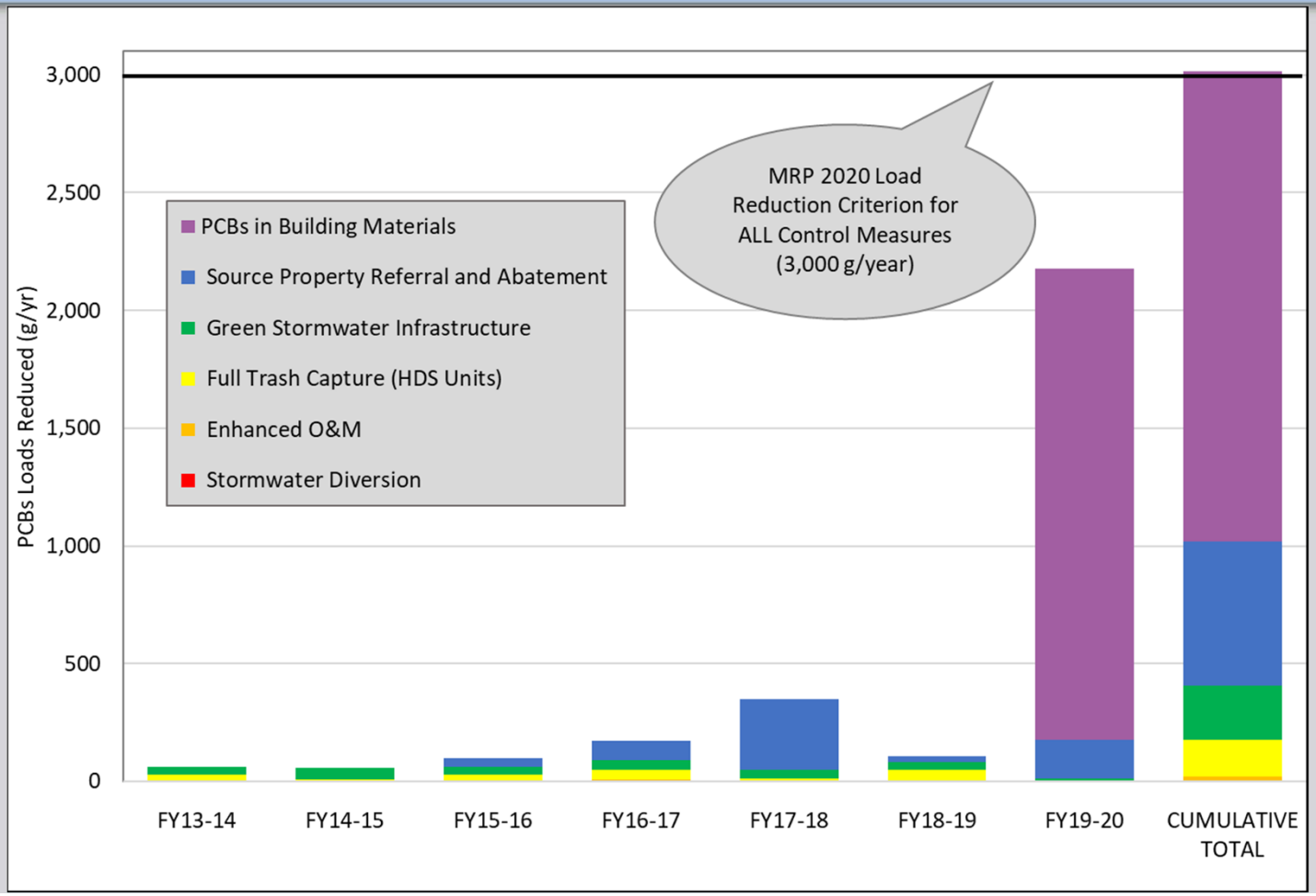
PCBs Load Reductions as of June 2020 (Regional)



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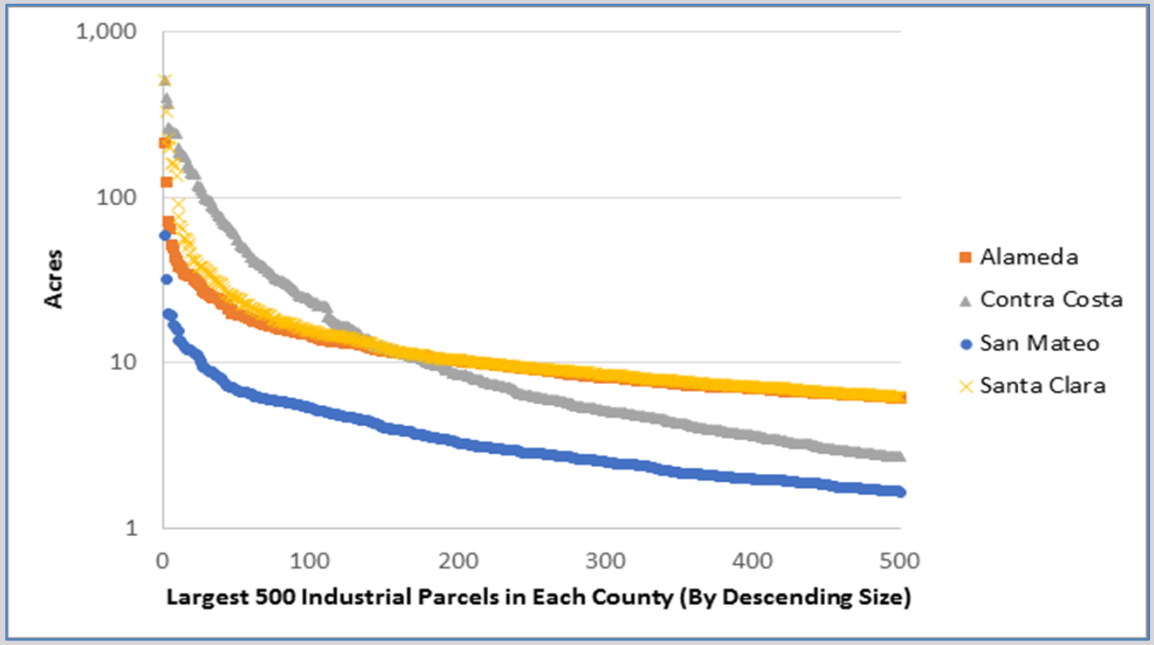
PCBs Load Reductions as of June 2020 (Countywide)

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						16		16	
	Bransten Road, San Carlos						5		5	
	1411 Industrial Road, San Carlos								0	
Green Infrastructure	Parcel-Based New or Redevelopment	10	4	4	3	11	4	5	41	15
	Green Streets or Regional Retrofit	0.01	0.1	0.10	0.02	0.05	0.06	0.06	0.4	
Trash Full Capture	Small Devices	4	0.6	0.002	0.6				5	
	Large Devices	7				2			9	
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		21	5	4	4	13	25	252	323	370

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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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, 2040, and 2080 from various source controls using the methods in the BASMAA source control RAA report (generally assume MRP 3.0 level of effort).

3. Project estimated PCBs load reductions by 2030 and 2040 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 (sum of Steps 2 and 3).
5. Assuming the PCBs wasteload allocation not met 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 - Modeled Baseline PCBs Load in SM County

Entity/Area	PCBs (kg/yr)	Mercury (kg/yr)
San Mateo County MRP Permittees	**1.3**	**1.63**
Other NPDES Permitted and Open Space	**0.4**	**0.73**
Open Space	0.001	0.56
Caltrans NPDES	0.08	0.08
Individual Industrial NPDES Permittees (e.g., SFO)	0.225	0.07
Industrial General Permittees	0.09	0.02
Total	**1.7**	**2.4**

SFO - San Francisco International Airport

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PCBs and Mercury Load Reduction Targets for SM County

	PCBs (kg/yr)	Mercury (kg/yr)
A. Baseline Load for San Mateo County (2002)	1.7	2.4
B. TMDL Waste Load Allocation	0.2	8.4
C. Load Reduction Target (A – B)	**1.5**	**NA**

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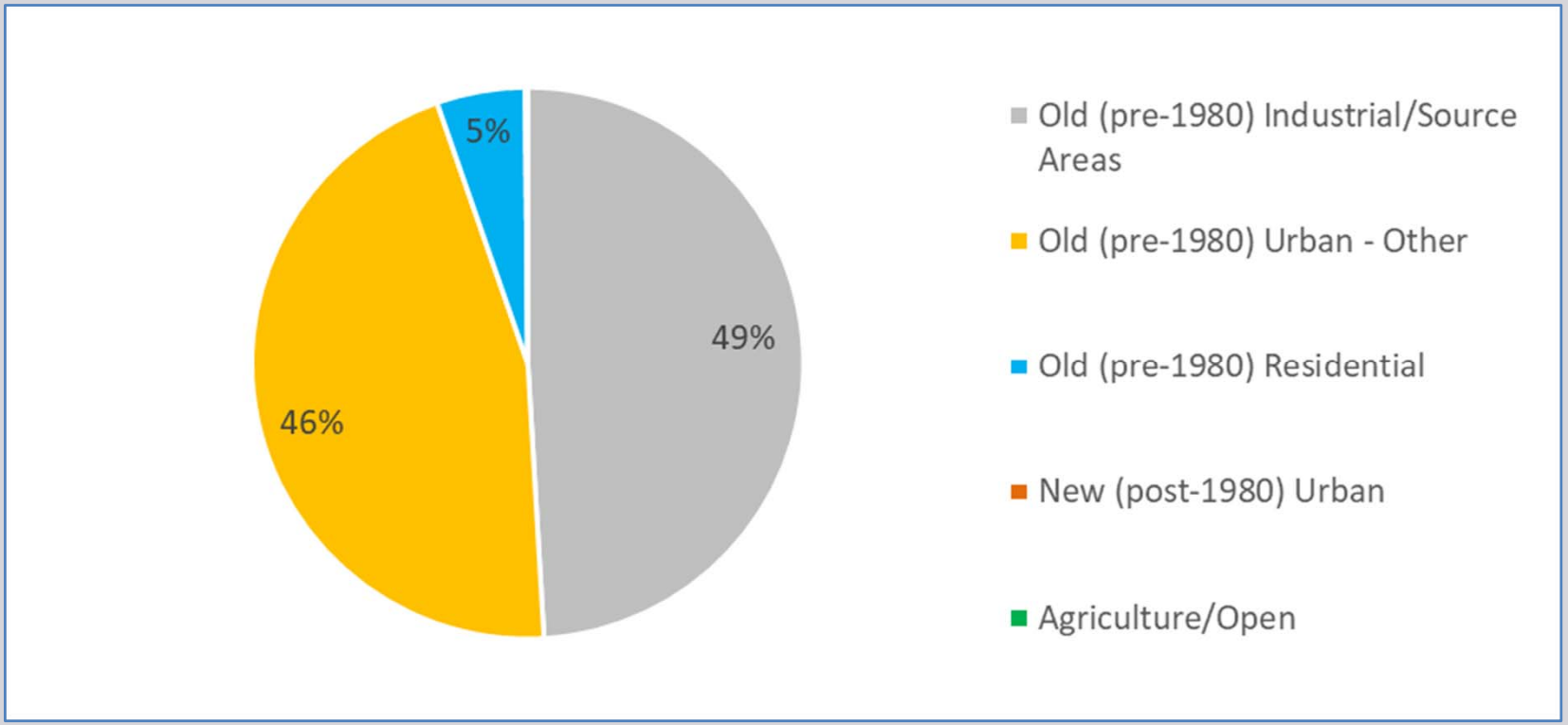
RAA – Modeled Baseline PCBs Load by Land Use



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Estimated PCBs Load Reductions (Countywide)

Control Measure		Estimated PCBs Load Reduction (g/yr)			
		By 2020	By 2030	By 2040	By 2080
Source Area Identification, Referral, and Abatement		25	62	88	101
PCBs Management during Building Demolition		247	247	247	247
High Flow Capacity Trash Capture Systems		7	7	7	7
Enhanced O& M - Enhanced Cleaning of Inlet-based Trash Full Capture Systems		76	76	76	76
PCBs in Electrical Utilities Management		26	44	62	136
PCBs in Roadway and Storm Drain Infrastructure Caulk Management		--	6	12	36
Green Stormwater Infrastructure (GSI)	Existing Projects (public and private)	65	65	65	65
	Future Parcel-based GI via New and Redevelopment (public and private)	--	40	69	208
Totals		**447**	**548**	**625**	**875**
Load Reduction Needed to Achieve TMDL WLA		***1,500***	***1,500***	***1,500***	***1,500***

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Estimated PCBs Load Reductions (Countywide)

	Estimated Cumulative PCBs Load Reduction (g/yr)			
	By 2020	**By 2030**	**By 2040**	**By 2080**
Existing and Planned Control Measures	**447**	**548**	**625**	**875**
PCBs TMDL Load Reduction Target	1,500	1,500	1,500	1,500
Load Reduction Gap	***1,053***	***952***	***875***	***625***

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GI RAA Results

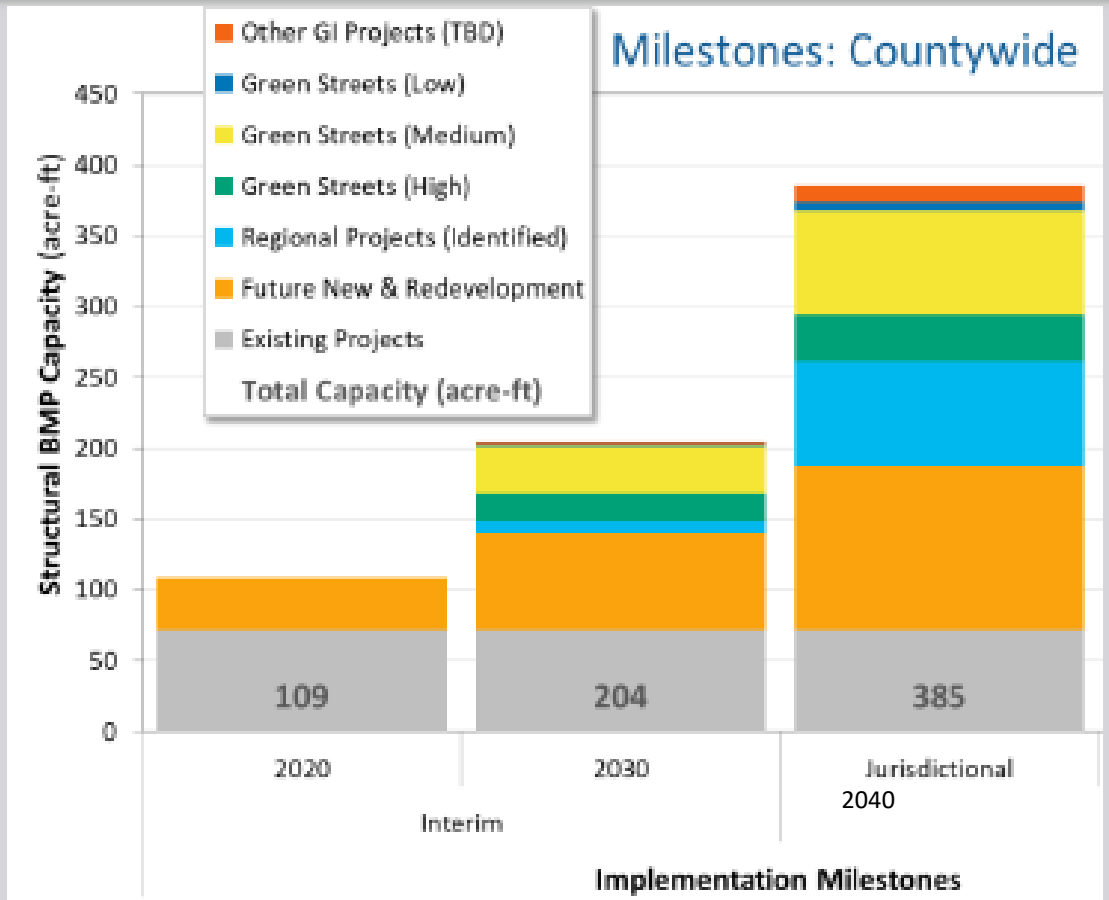

Figure 9-1. Summary of GI storage capacity by implementation milestone.

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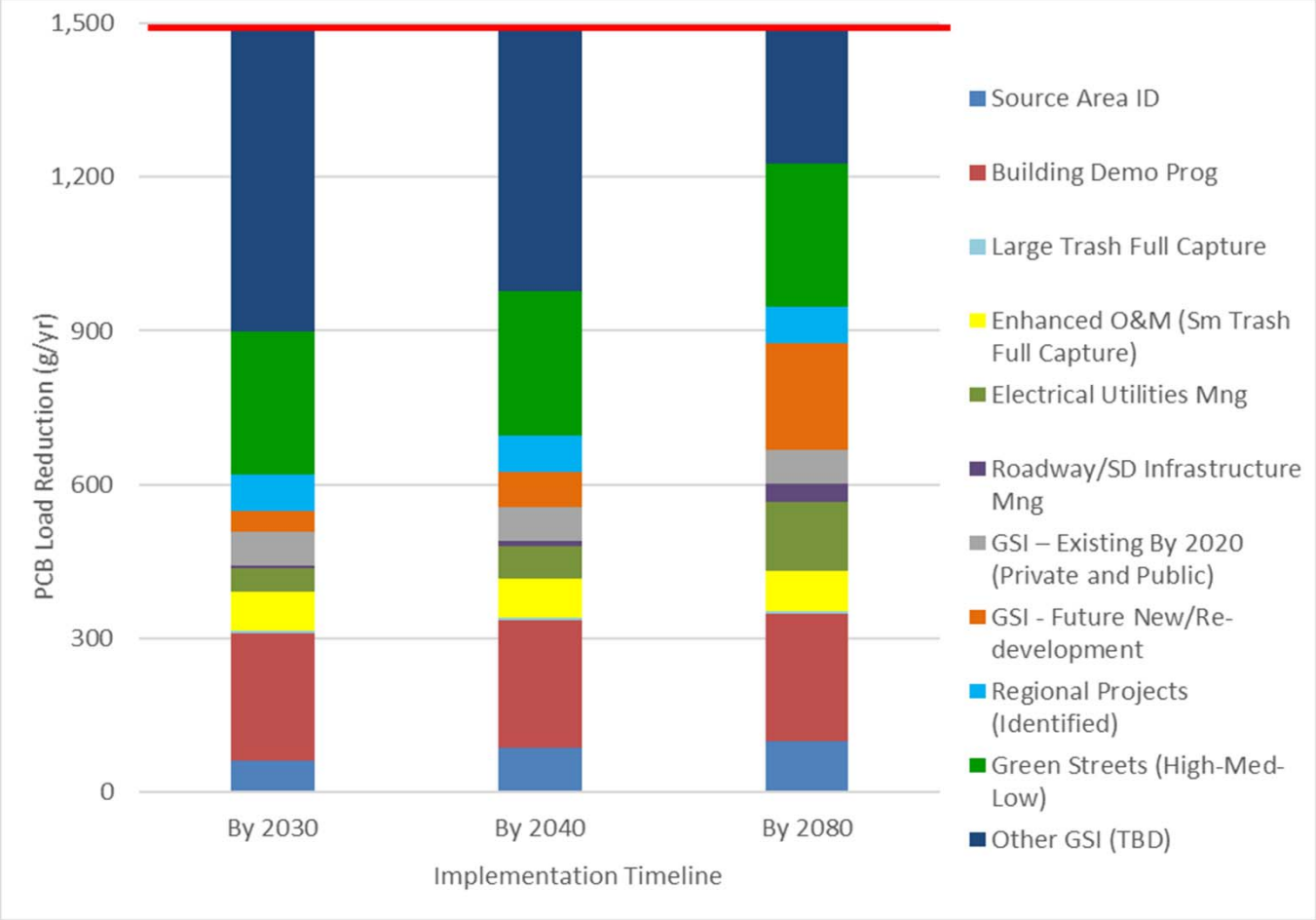
Control Measure Load Reductions Scenarios



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Estimated Control Measure Costs (Countywide)

Control Measure	Acres Treated	Cost Estimates			
		Initial/Capital		Annual Ongoing	
		Existing (pre-2020)	Future	Existing (pre-2020)	Future
Source Controls		$16 Million	$0.5 Million	$2.3 Million	$2.3 Million
Existing (through 2020) Public GI	35	$7.5 Million		$0.3 Million	$0.3 Million
Scenario 1 - Additional Public GI through 2030	8,341		$1.14 Billion		$46 Million
Scenario 2 - Additional Public GI through 2040	7,930		$1.10 Billion		$44 Million
Scenario 3 - Additional Public GI through 2080	4,563		$760 Million		$30 Million

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Conclusions and Next Steps

- Building green infrastructure facilities in public ROW to realize the remaining load reduction needed to achieve the PCBs WLA by 2030, 2040, nor 2080 is not economically feasible
- Permittees should consider requesting that the RWQCB review and revise PCBs TMDL (e.g., extend time frame) to make more economically feasible
  - Permittees must demonstrate that all technically and economically feasible PCBs/mercury controls will be implemented within the original timeline

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Conclusions and Next Steps

- Permittees should consider requesting that the RWQCB engage other permitted entities with land areas contributing PCBs to stormwater runoff (such as Caltrans)
- As needed, integrate this planning with ongoing efforts by C/CAG to assist SM County municipalities obtain funding for GI and track countywide
  - —SWRP, SSMP, the Safe Routes to School / Green Streets, and several regional stormwater capture projects
  - —Support applications for state or federal grant funds
  - —Potentially work with Flood and Sea Level Rise Resiliency District to develop a GI investment plan

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Schedule

- Jul 16 – Initial presentation to Stormwater Committee
- July 21 – Meeting with Regional Water Board staff
- Aug 20 – Follow-up presentation to Stormwater Committee
- Aug 24 – Distribute first draft to San Mateo County Permittees for review
- Sep 9 – Comments on first draft due to EOA
- Sep 14 – Distribute final draft
- Sep 25 – Comments on final draft due to EOA
- Sep 30 – Address any remaining comments and submit final to Regional Water Board by this date

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QUESTIONS?

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EXTRA SLIDES

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

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

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