



Update on the San Mateo County Reasonable Assurance Analysis

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Paradigm Environmental



February 21, 2019

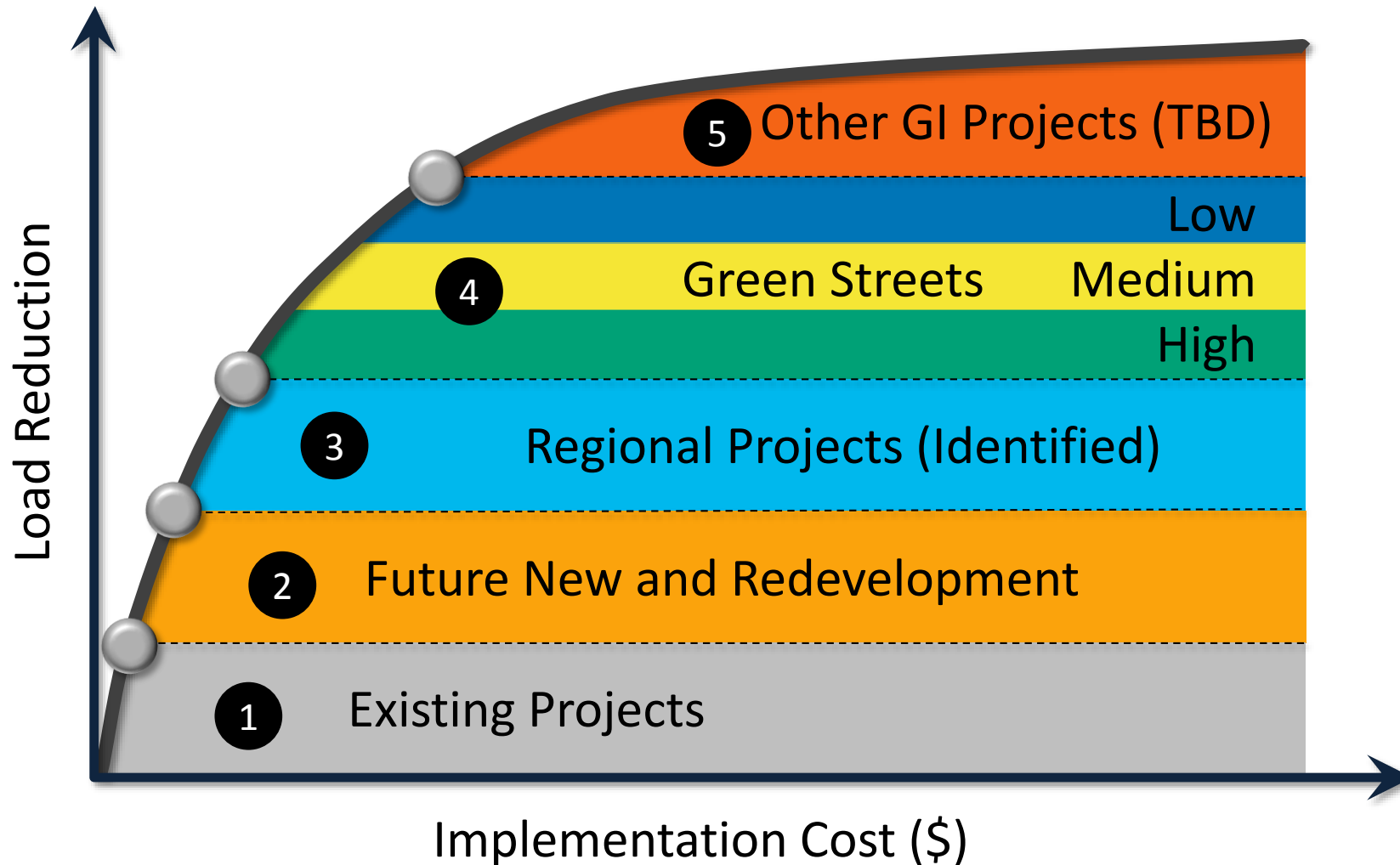
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Comparing Scenarios

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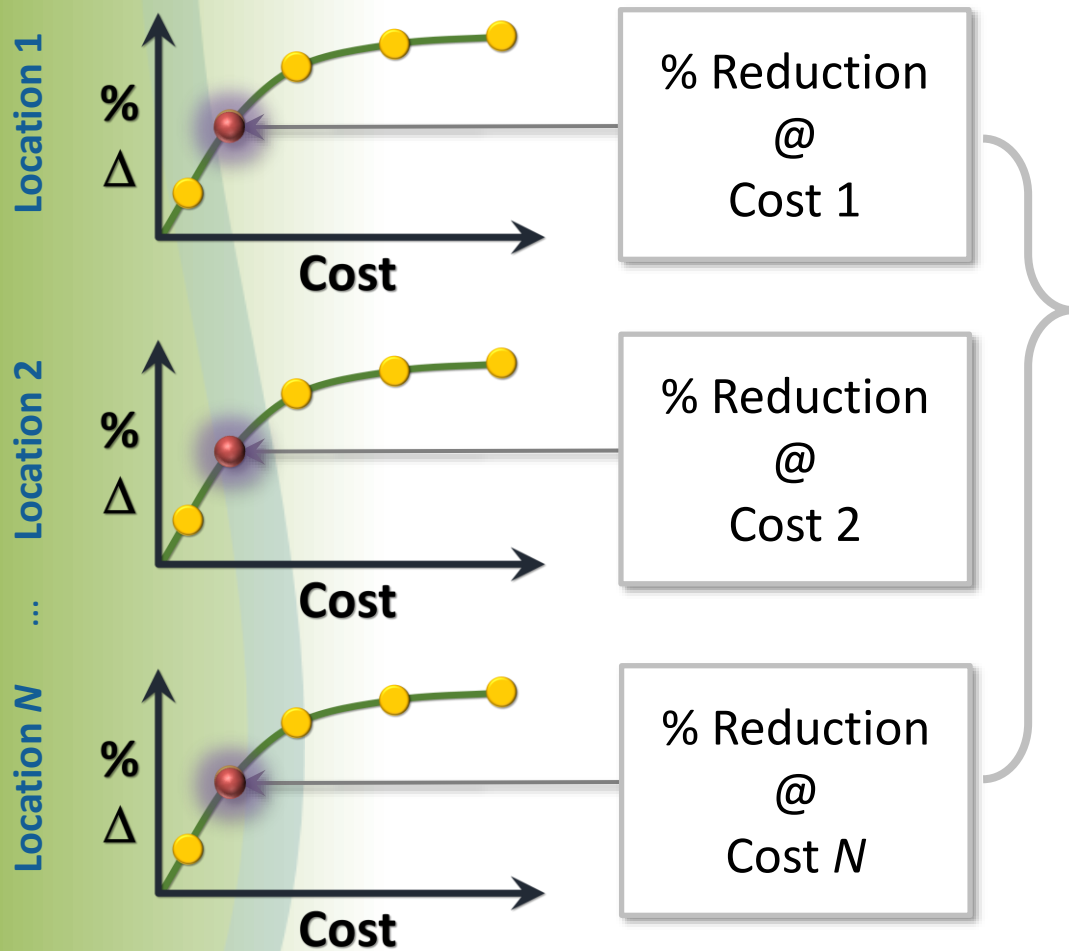
Load Reduction Objective	Percent of Total GI Cost to Achieve Reduction Objective		
	Jurisdictional	Countywide	<i>Total Savings (Jurisdictional vs. Countywide)</i>
<u>Cohesive Sediment</u> 17.6% Reduction	Scenario 1	Scenario 2	→ <i>Savings</i>
<u>Total PCBs</u> 17.6% Reduction	Scenario 3	Scenario 4	→ <i>Savings</i>
<i>Total Savings (Sediment vs. PCBs)</i>	↓ <i>Savings</i>	↓ <i>Savings</i>	↘ <i>Overall Savings</i>

GI Opportunity & Sequence



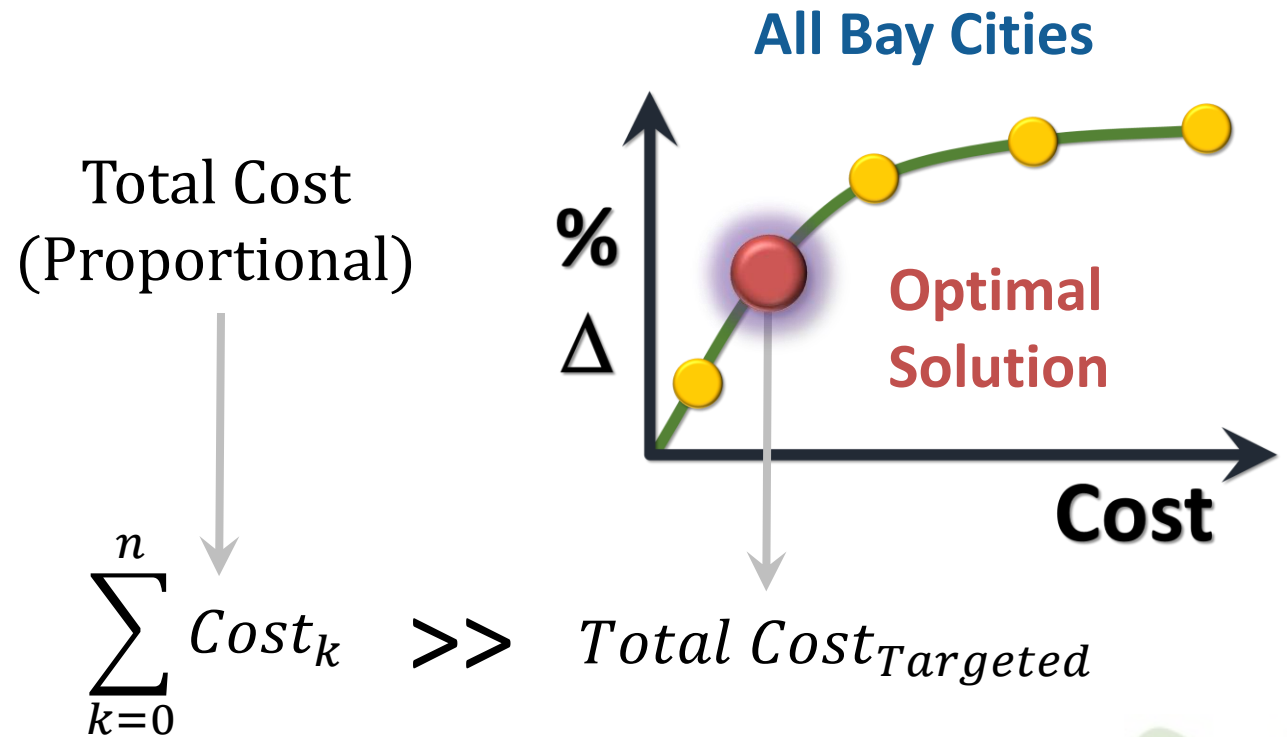
Jurisdictional

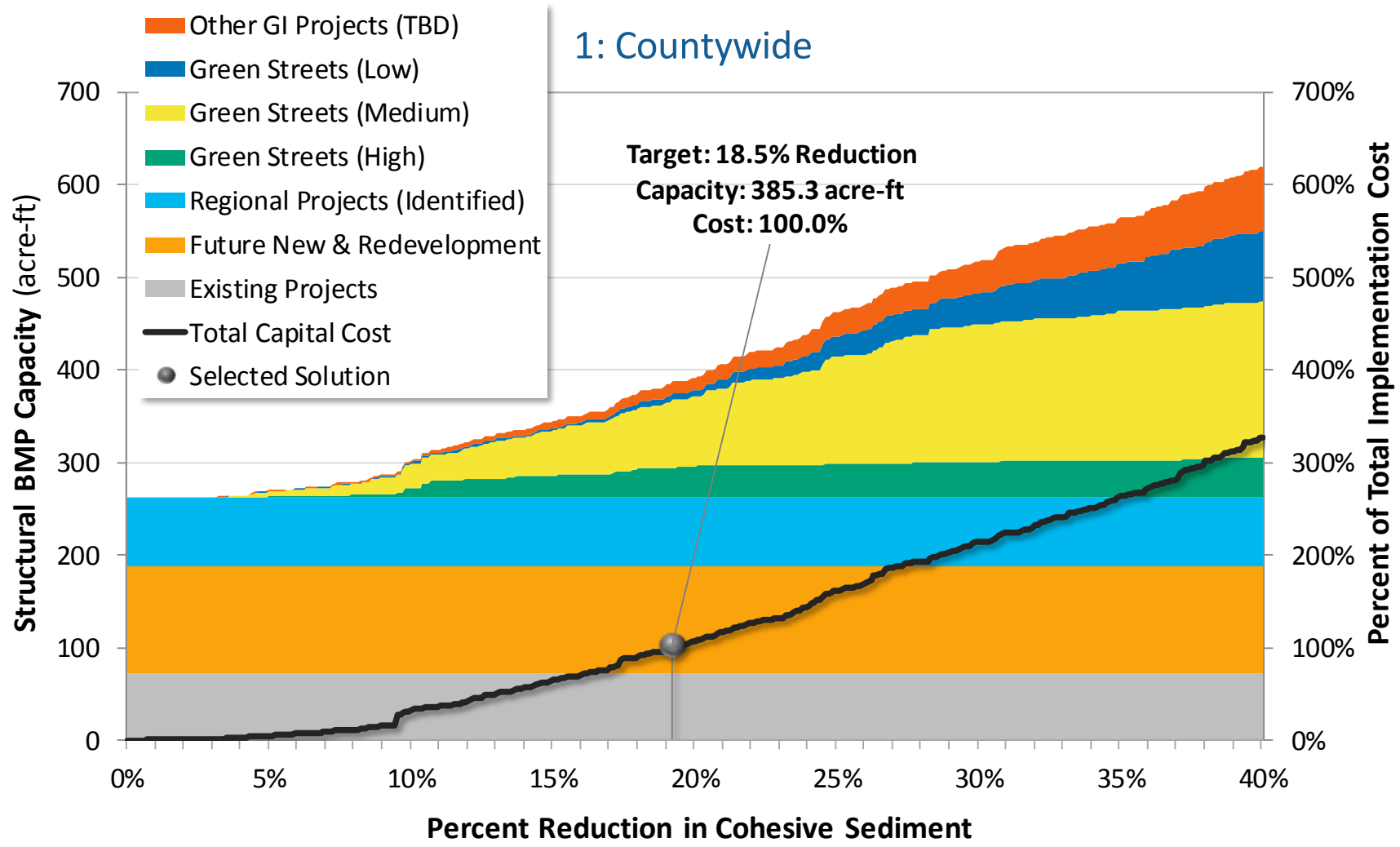
Each **location** is responsible for individually achieving the target load reduction

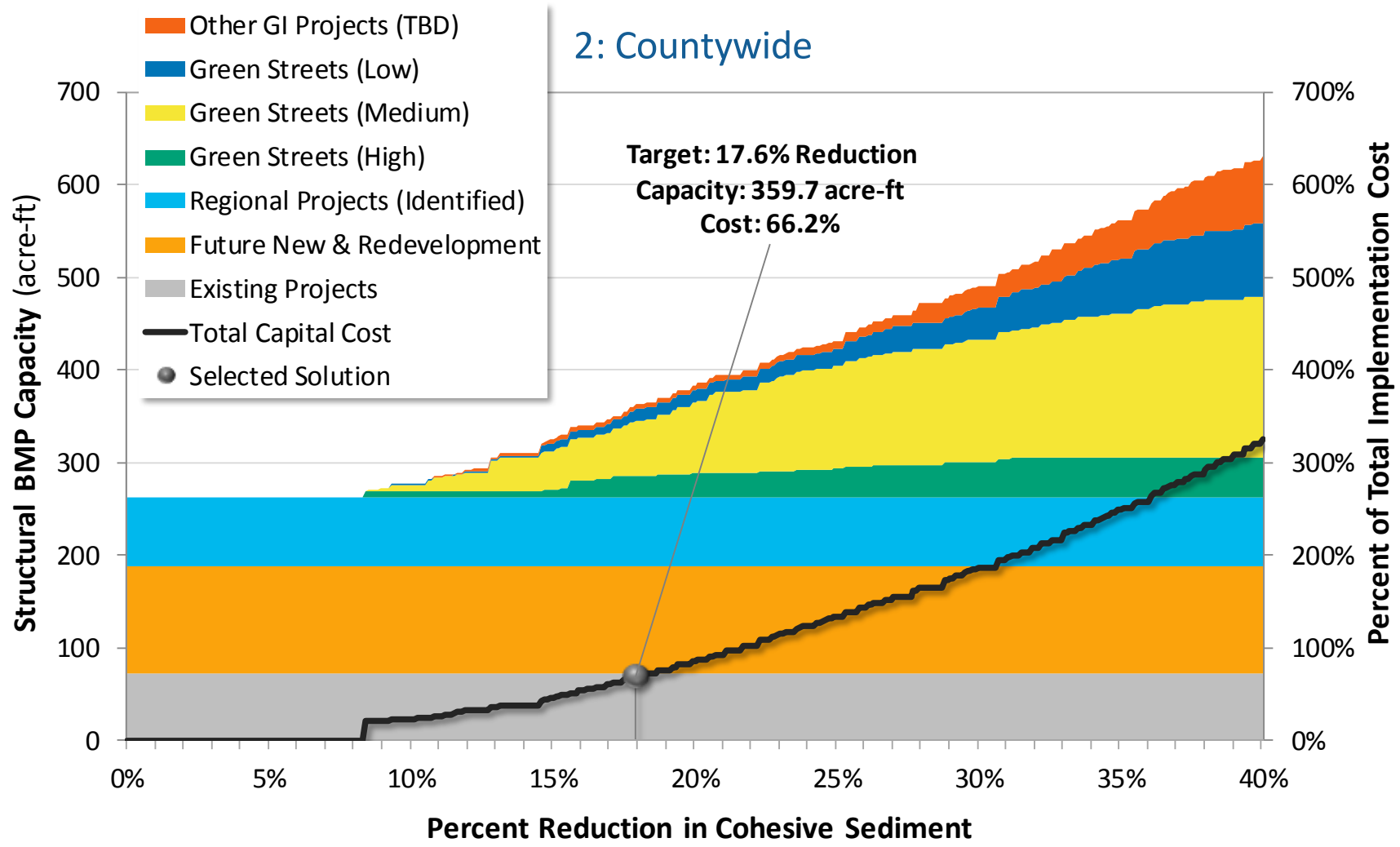


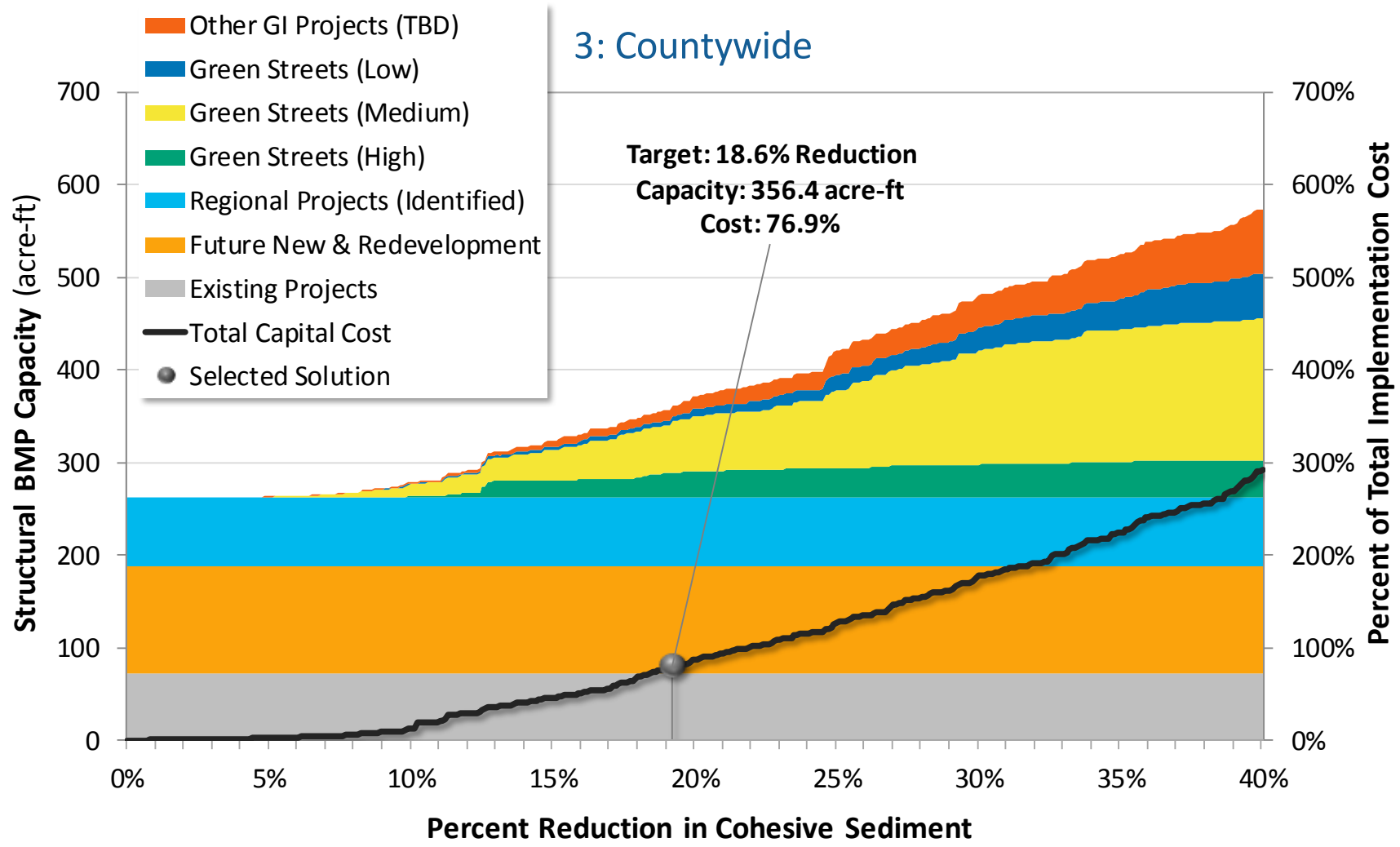
Countywide

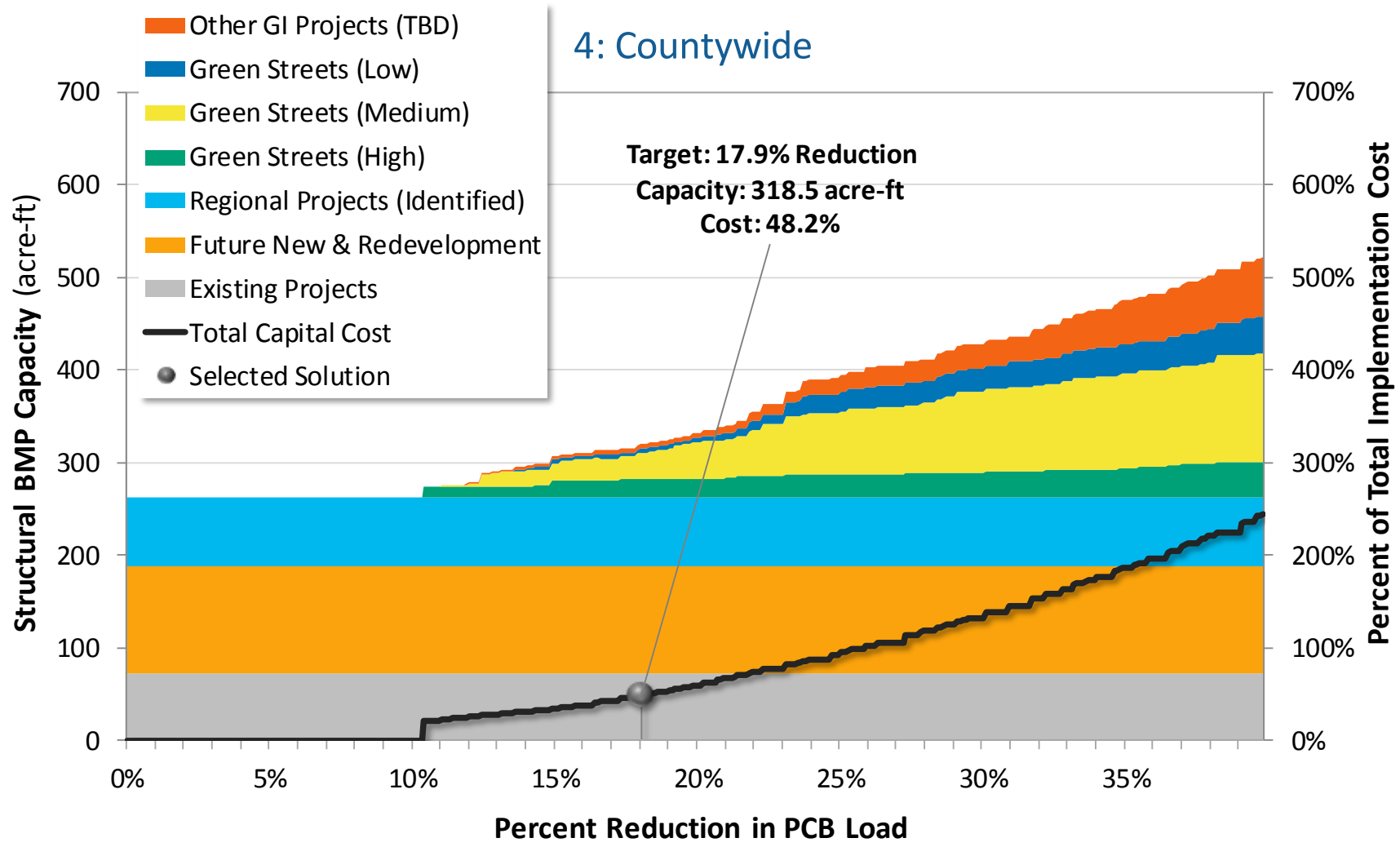
Optimization approach reduces total implementation cost by targeting specific source areas across **locational** boundaries





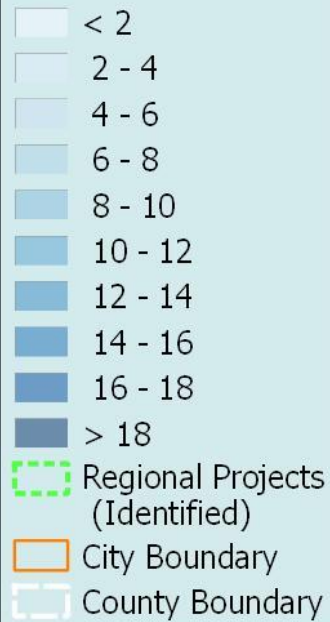






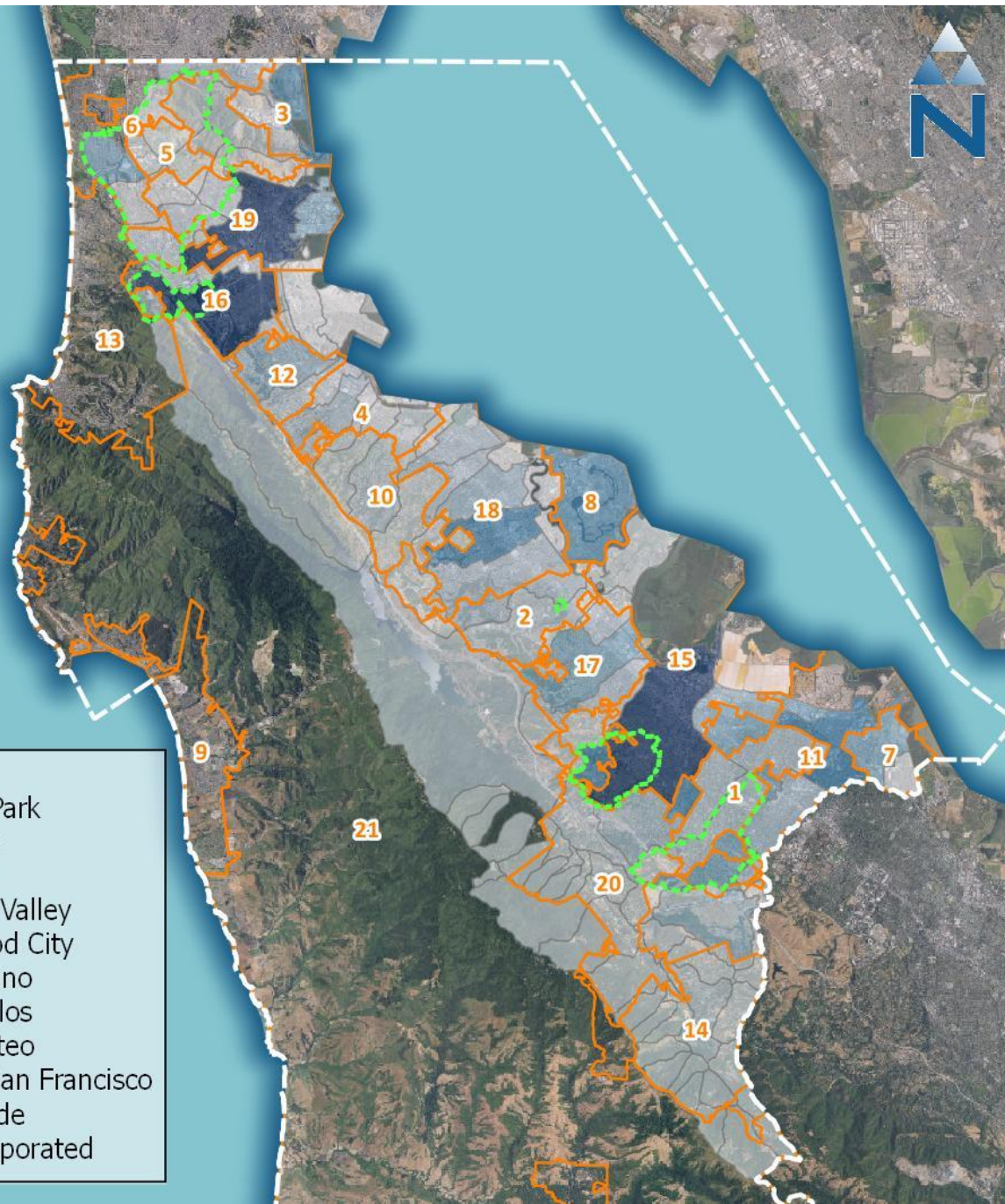
Scenario 1

Capacity (acre-feet)



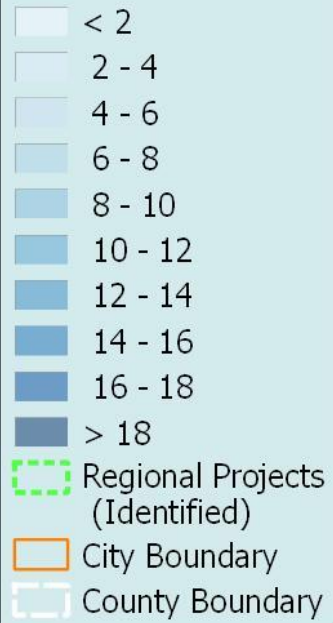
Cities

1. Atherton	11. Menlo Park
2. Belmont	12. Millbrae
3. Brisbane	13. Pacifica
4. Burlingame	14. Portola Valley
5. Colma	15. Redwood City
6. Daly City	16. San Bruno
7. East Palo Alto	17. San Carlos
8. Foster City	19. South San Francisco
9. Half Moon Bay	20. Woodside
10. Hillsborough	21. Unincorporated



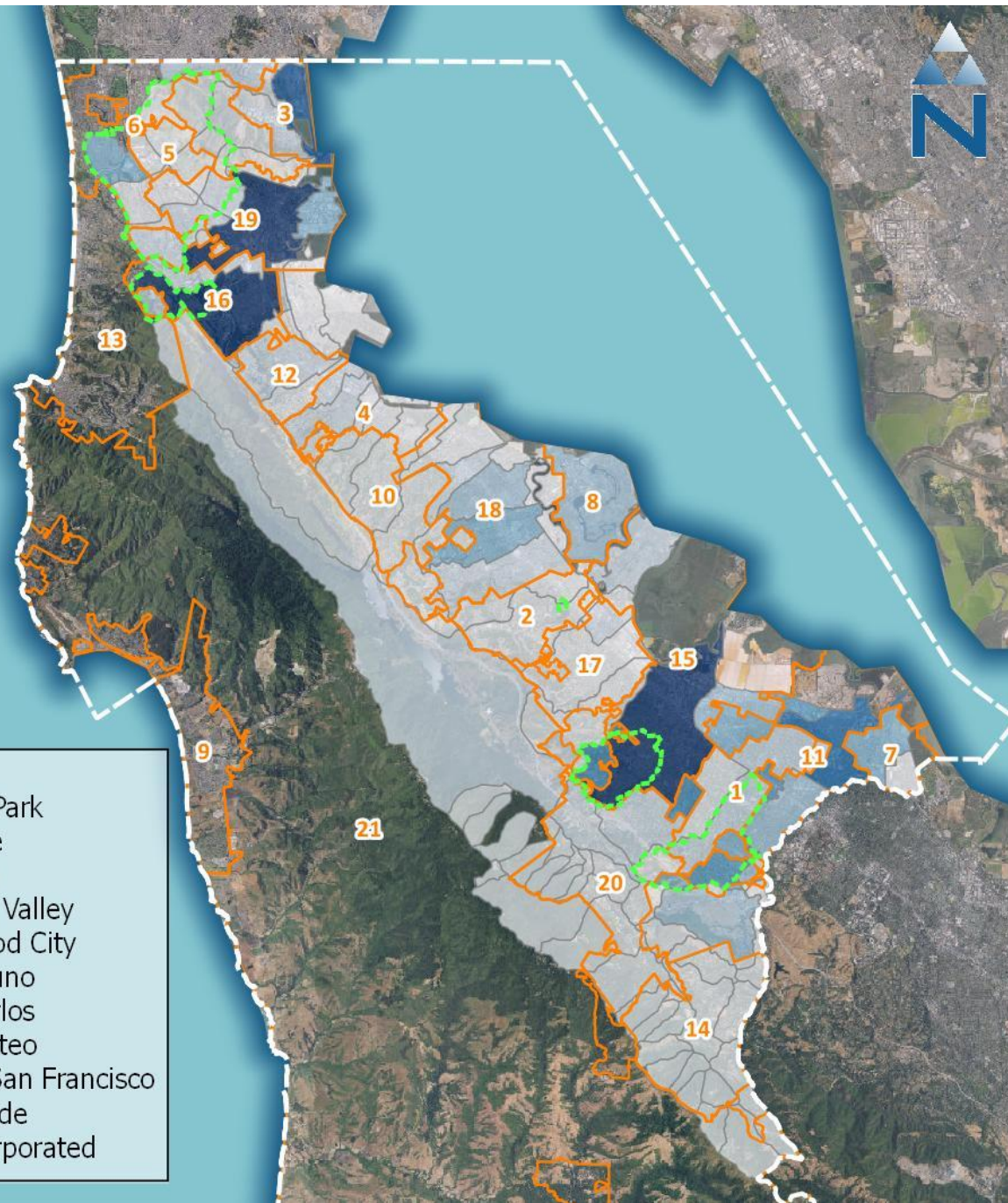
Scenario 2

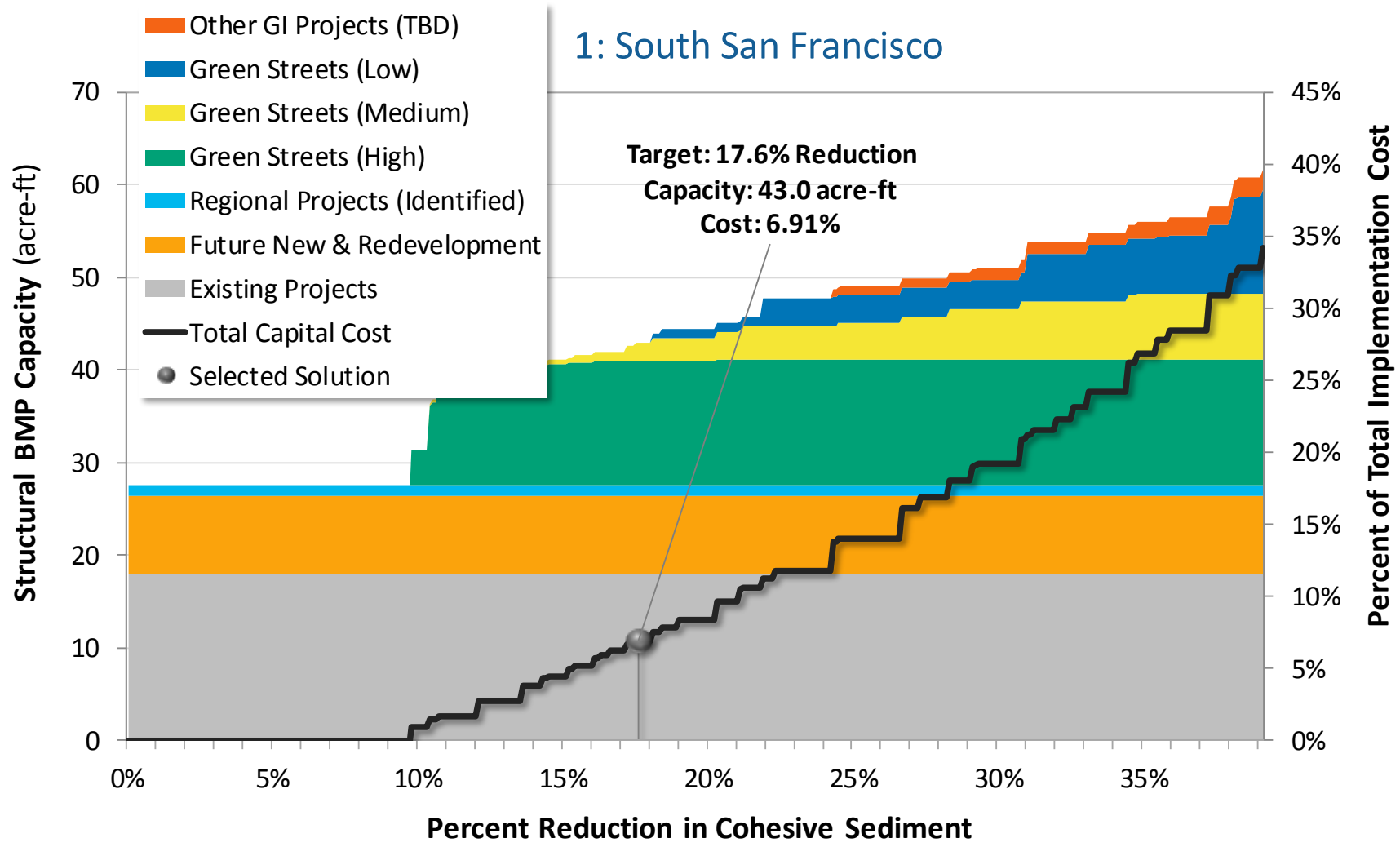
Capacity (acre-feet)

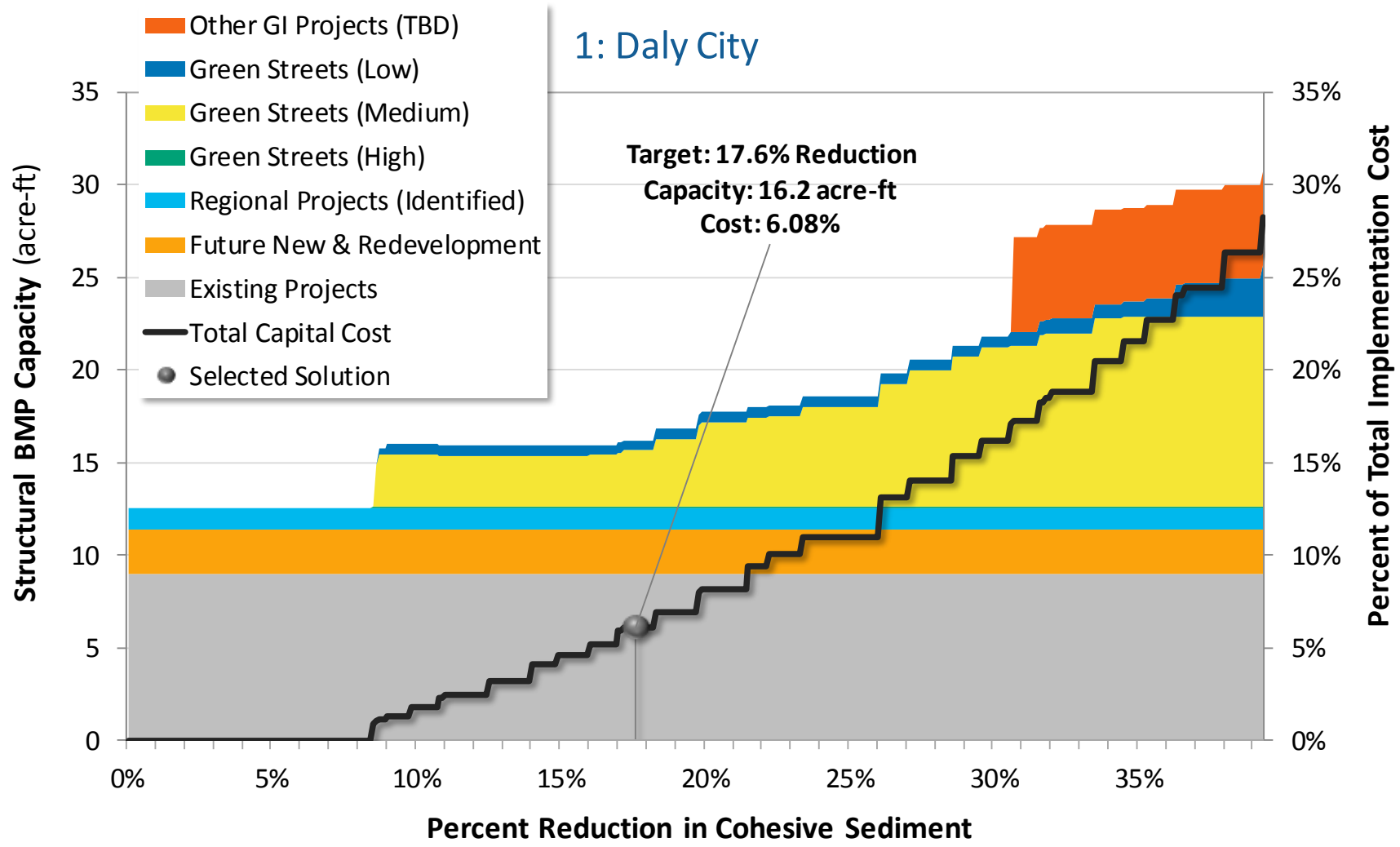


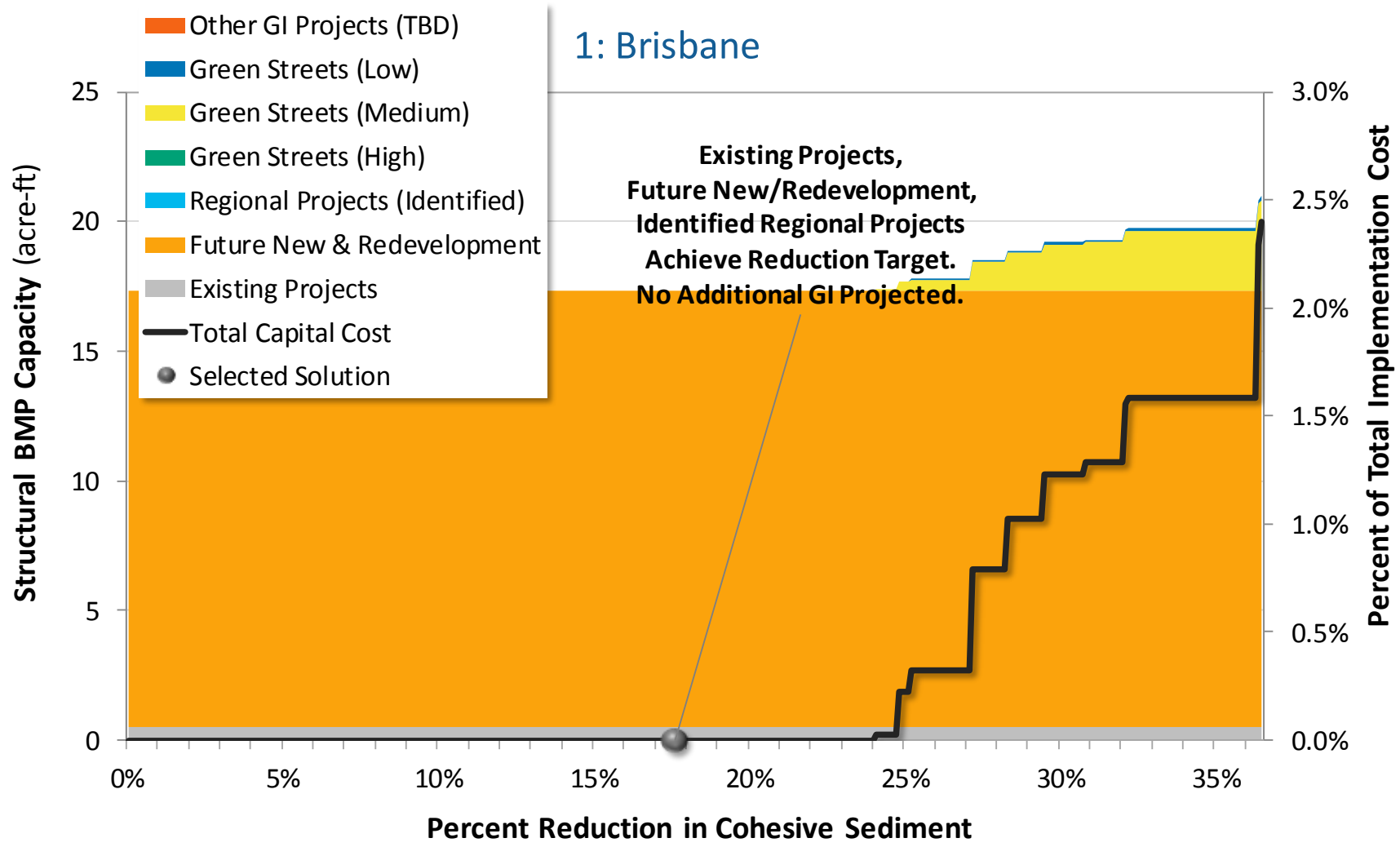
Cities

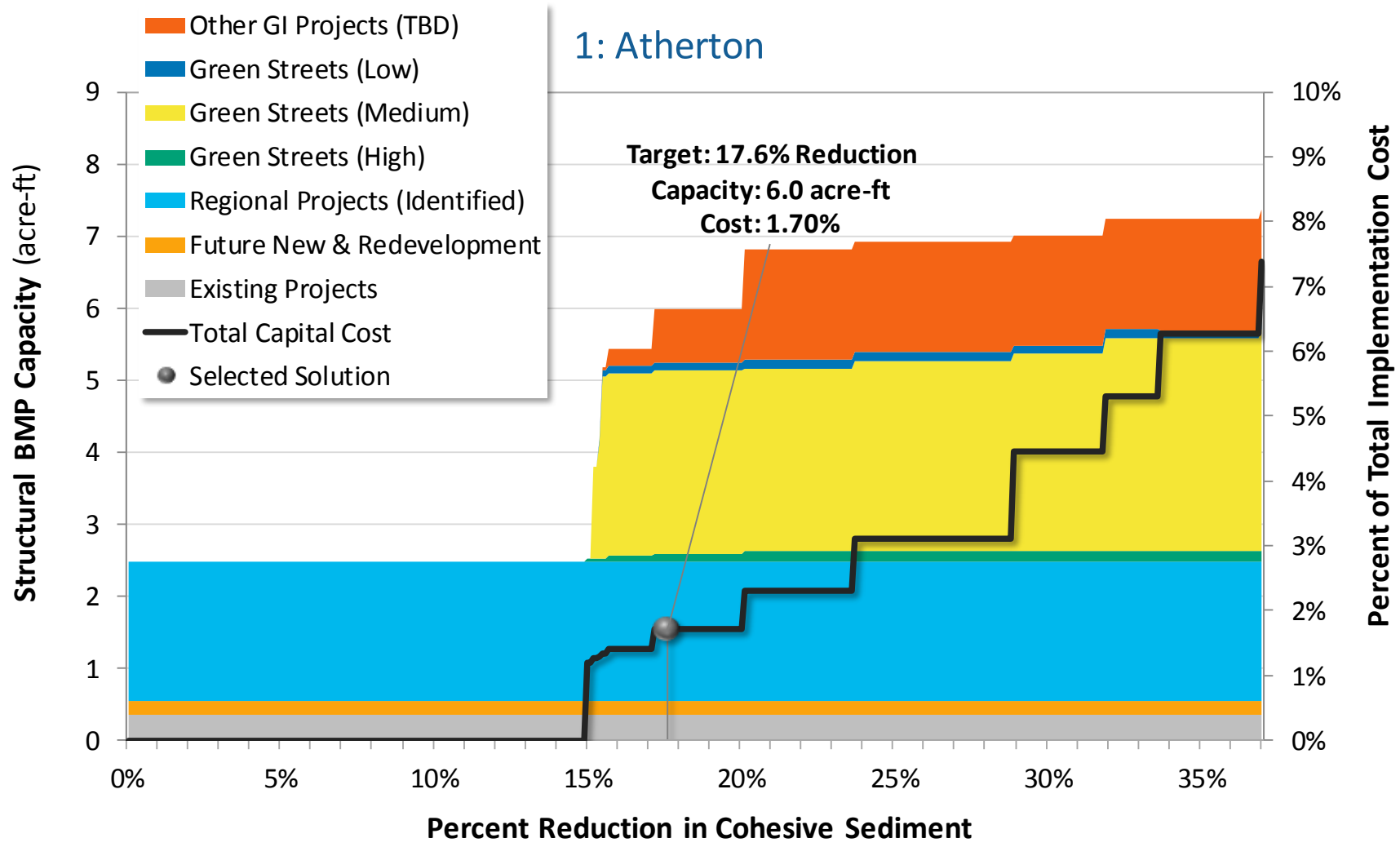
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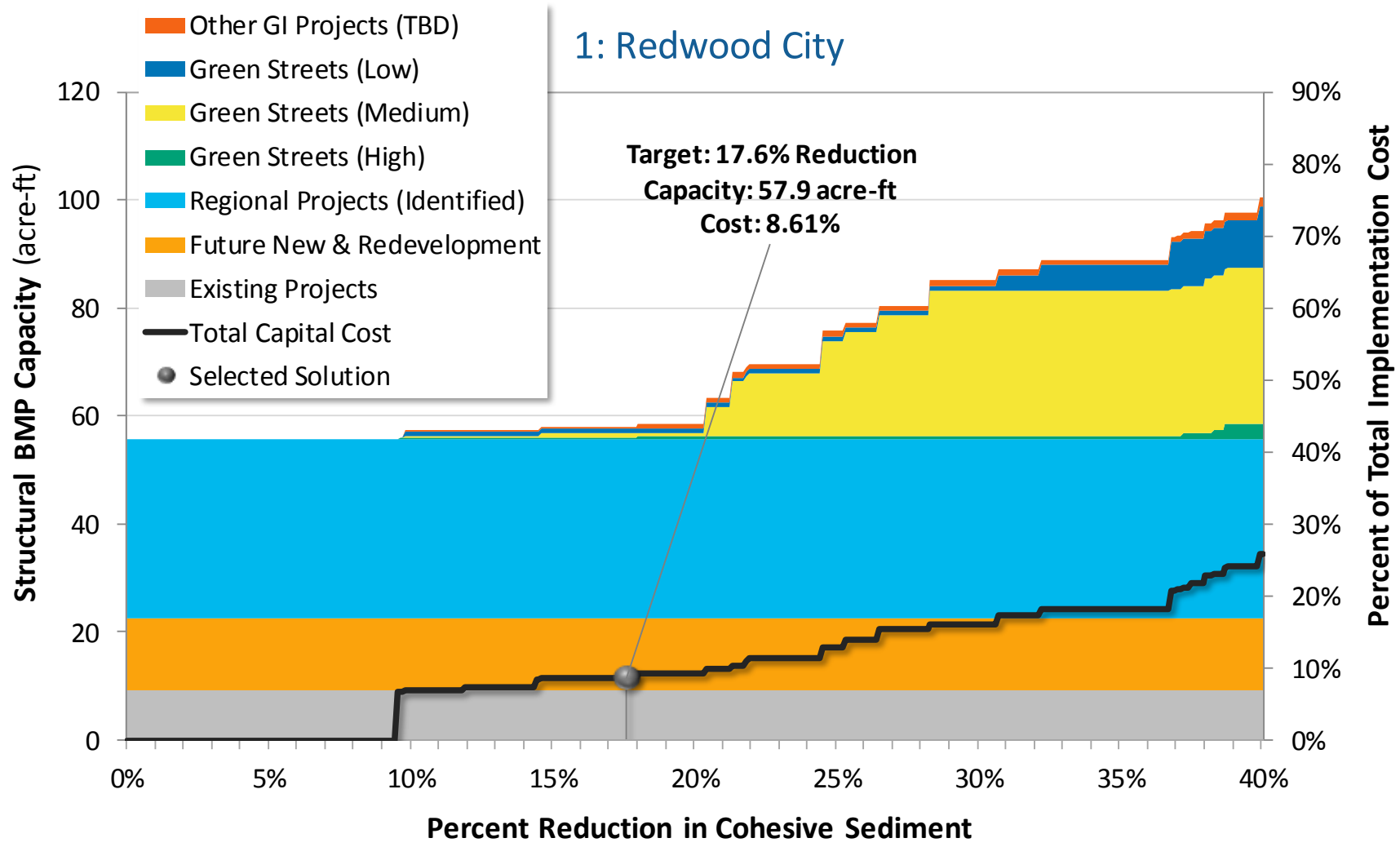


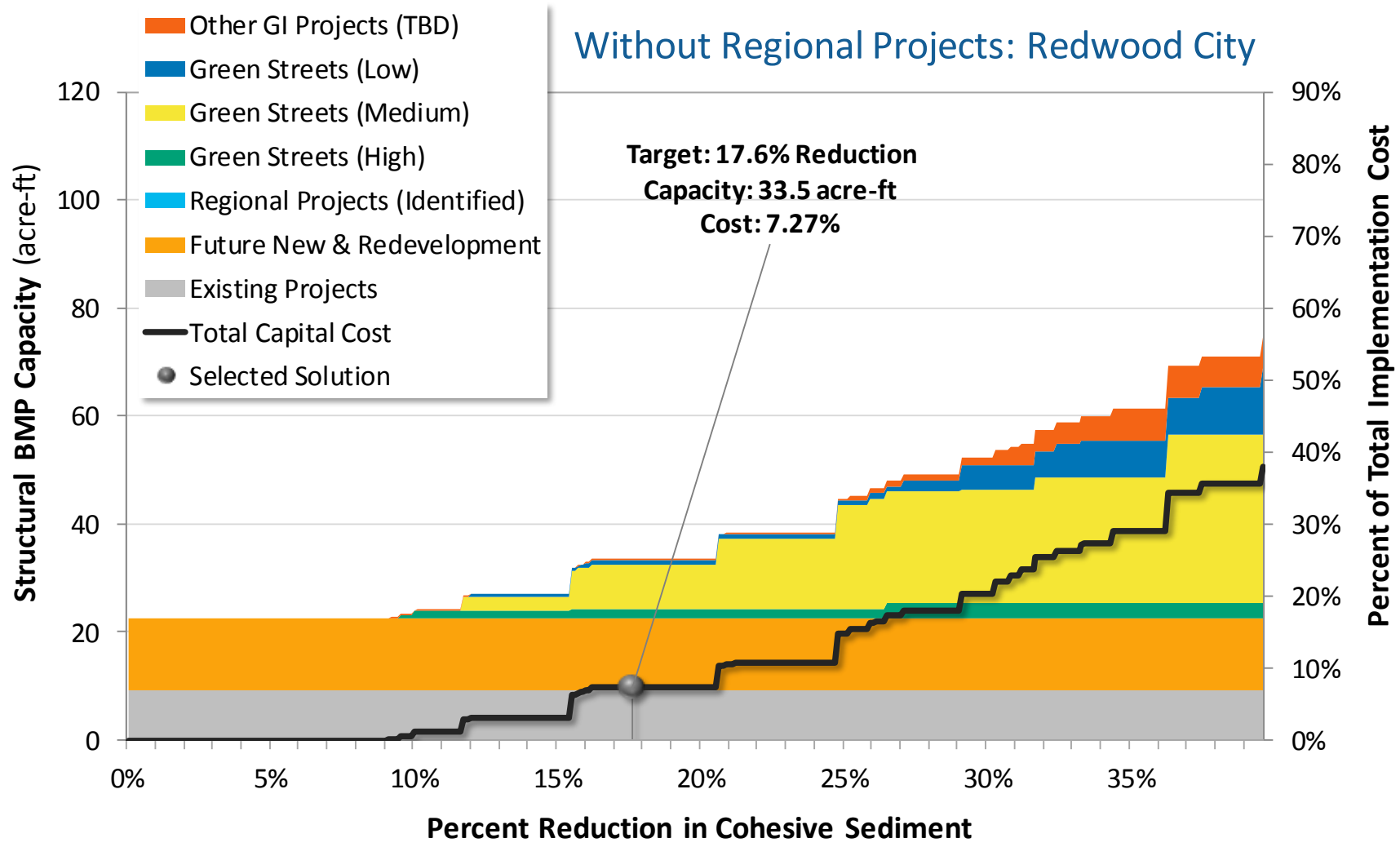


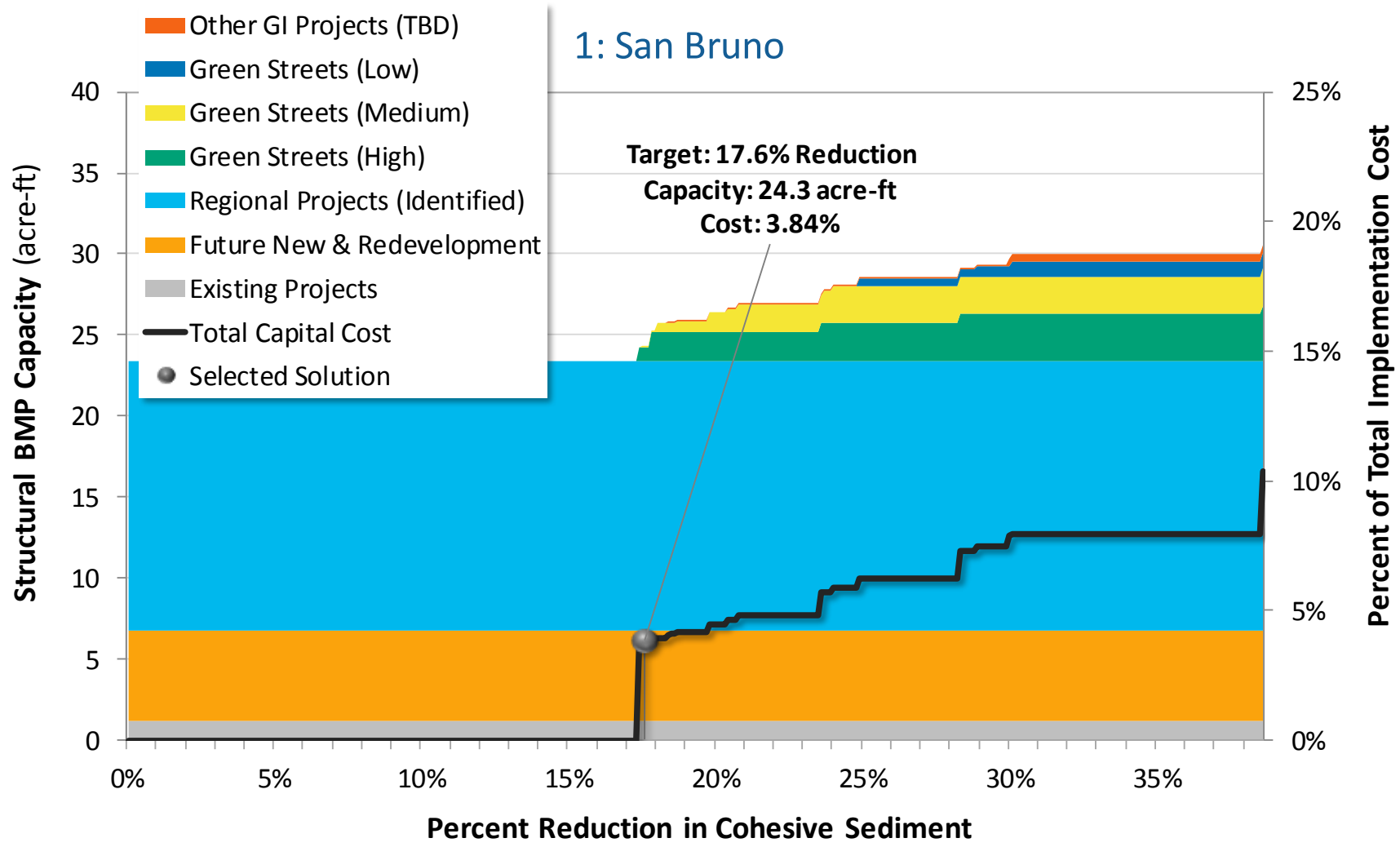


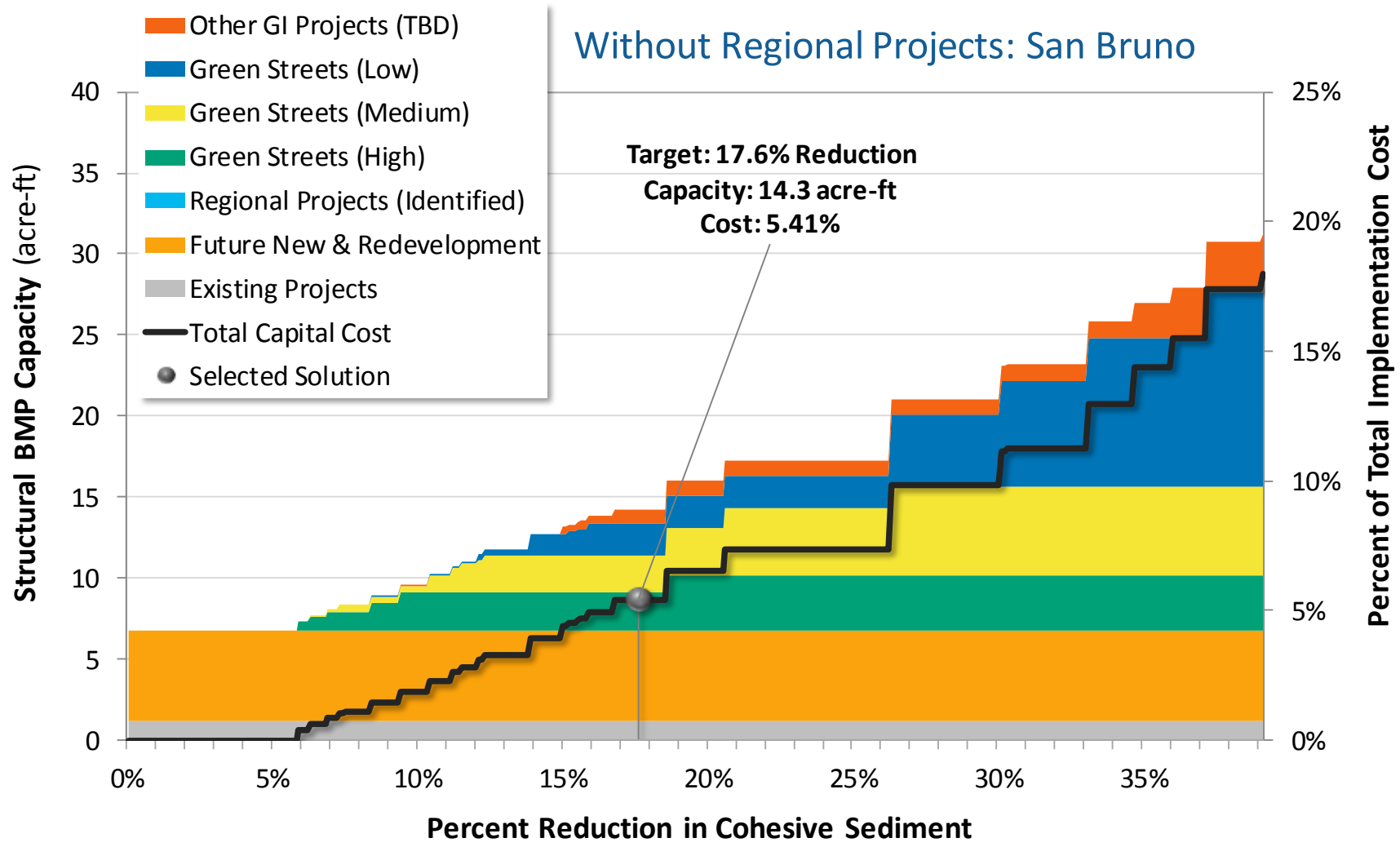












“Recipes for Compliance”

Subwatershed ID	Management Metrics for GI			Green Infrastructure Capacity to Achieve 17.6% Reduction Target (Capacity expressed in units of acre-feet)							
	% Load Reduction PCBs (Annual)	Annual Volume Managed (acre-ft)	Impervious Area Treated (acres)	Existing/Planned			Green Streets			Other GI Projects (TBD)	Total BMP Capacity (acre-ft)
				Existing Projects	Future New & Redevelopment	Regional Projects (Identified)	High	Medium	Low		
Subwatershed ID	PCB Load Reduction	Volume Managed	Treated Impervious	Storage Capacity of Green Infrastructure (acre-feet)							

South City: Scenario 1

Subwatershed ID	Management Metrics for GI			Green Infrastructure Capacity to Achieve 17.6% Reduction Target (Capacity expressed in units of acre-feet)							
	% Load Reduction PCBs (Annual)	Annual Volume Managed (acre-ft)	Impervious Area Treated (acres)	Existing/Planned			Green Streets			Other GI Projects (TBD)	Total BMP Capacity (acre-ft)
				Existing Projects	Future New & Redevelopment	Regional Projects (Identified)	High	Medium	Low		
232519	24%	4.67	4.55	0.15	0.10	--	0.08	0.00	--	--	0.3
232619	31%	0.29	0.07	--	0.01	--	--	0.01	0.01	0.00	0.0
240119	24%	3.67	321.35	10.40	4.09	0.01	9.43	0.30	--	--	24.2
240219	16%	68.00	25.93	0.18	0.80	0.25	1.26	--	--	--	2.5
240319	16%	165.61	28.27	0.74	1.07	0.61	1.38	--	--	--	3.8
240419	24%	37.28	9.66	0.05	0.14	0.09	0.38	--	--	--	0.7
240519	16%	83.65	14.14	0.14	0.38	0.31	0.87	--	--	--	1.7
250119	27%	150.75	161.72	5.91	1.21	--	0.00	1.84	0.49	--	9.5
250219	16%	13.46	9.87	0.30	0.58	--	0.00	0.19	--	--	1.1
250319	3%	0.79	1.32	--	0.08	--	--	--	--	--	0.1
Total	18.0%	528.2	576.9	17.9	8.5	1.3	13.4	2.3	0.5	0.0	43.8

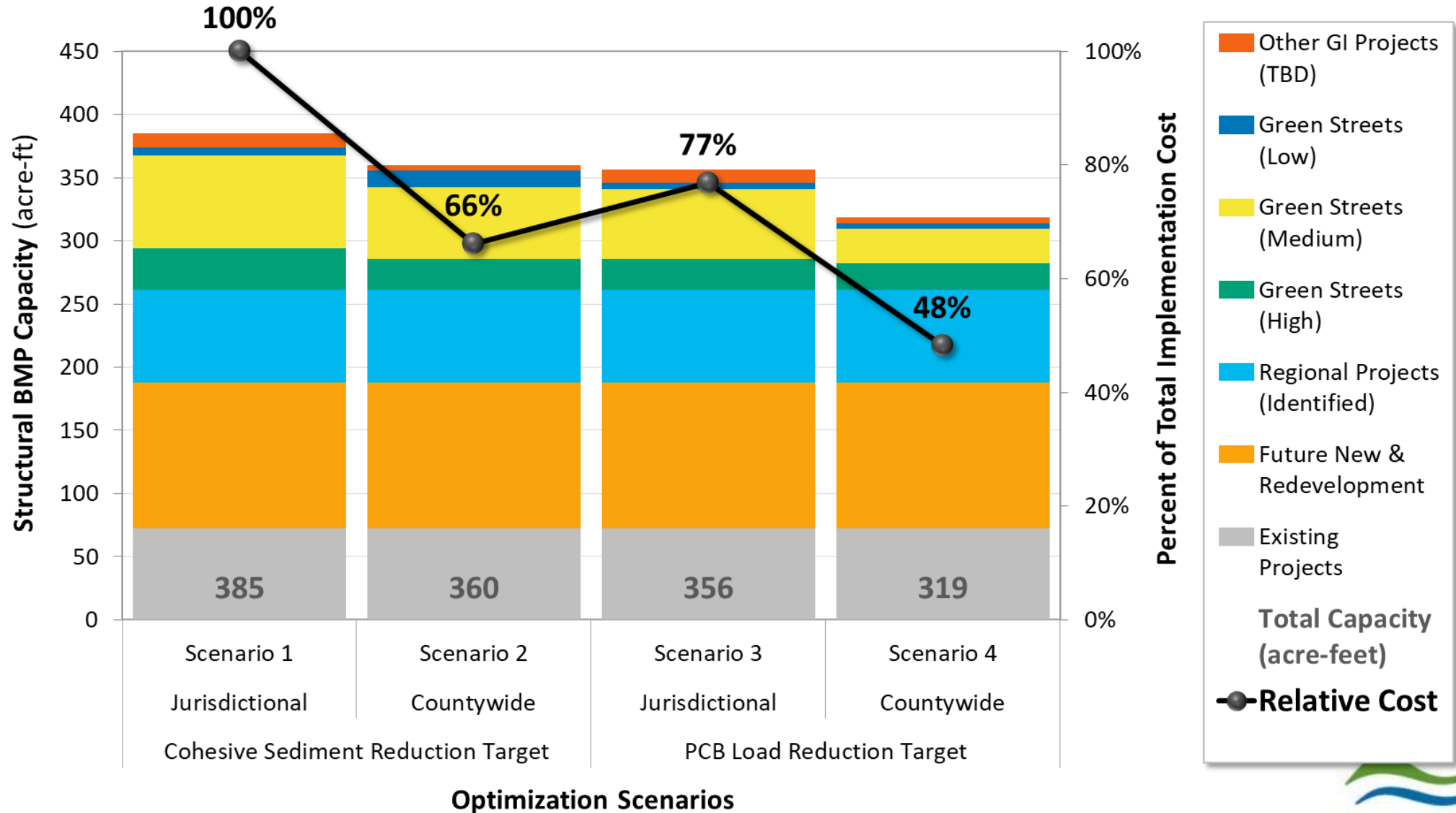
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Load Reduction Objective	Percent of Total GI Cost to Achieve Reduction Objective		
	Jurisdictional	Countywide	<i>Total Savings (Jurisdictional vs. Countywide)</i>
<u>Cohesive Sediment</u> 17.6% Reduction	<u>Scenario 1:</u> 100%	<u>Scenario 2:</u> 66%	34%
<u>Total PCBs</u> 17.6% Reduction	<u>Scenario 3:</u> 77%	<u>Scenario 4:</u> 48%	29%
<i>Total Savings (Sediment vs. PCBs)</i>	23%	18%	52%

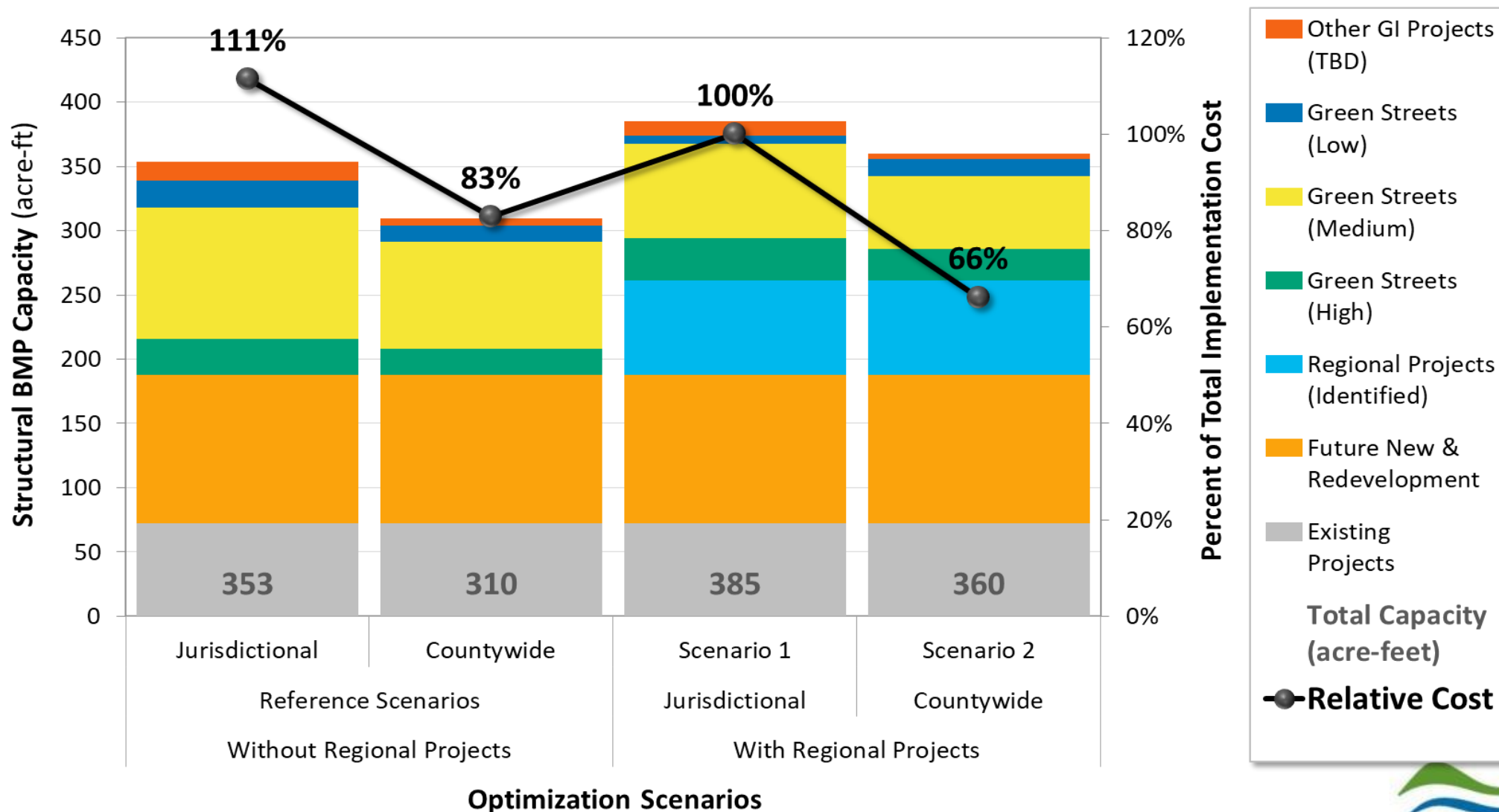
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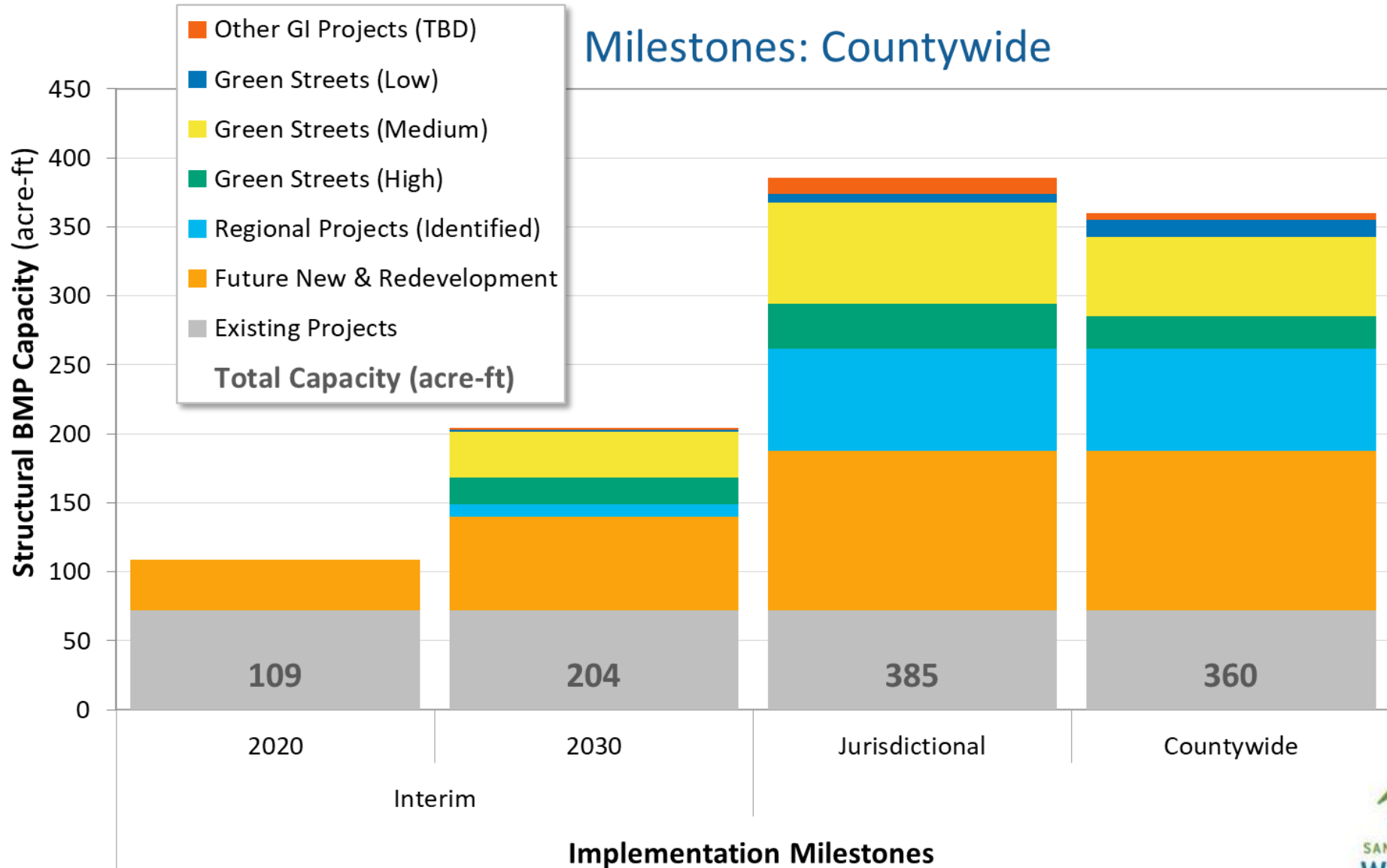
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Phased Implementation

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Phased Implementation

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Implementation Metrics		Implementation Milestones: Countywide					
		Incremental		Cumulative		Final 2040	
		2020-2030	2030-2040	2020	2030	Jurisdictional	Countywide
Index	% Load Reduction	5.4%	6.8%	6.3%	11.7%	18.5%	17.6%
	Volume Managed (acre-ft/yr)	1,291.1	1,627.9	1,574.2	2,865.3	4,493.2	3,701.3
	Treated Impervious (acres)	627.0	1,945.8	916.3	1,543.2	3,489.1	3,395.7
Capacities (acre-ft)	Existing Projects	0.0	0.0	72.1	72.1	72.1	72.1
	Future New & Redevelopment	30.9	48.3	36.6	67.5	115.8	115.8
	Regional Projects (Identified)	--	64.6	--	9.0	73.6	73.6
	Green Streets (High)	--	12.6	--	20.0	32.6	24.0
	Green Streets (Medium)	--	40.7	--	32.9	73.6	57.1
	Green Streets (Low)	--	4.5	--	1.4	5.9	12.8
	Other GI Projects (TBD)	--	10.6	--	1.2	11.8	4.3
	Total	30.9	181.3	108.7	204.0	385.3	359.7

Web-Based Viewer

San Mateo SUSTAIN Output View

Not secure | web.paradigmh2o.com/sanmateo-sustain/

Selected Assessment Area: COUNTY WIDE Scenario: Scenario 2 (Sed.): County-wide Save

All Catchments

Optimization Result: Window Spin All Catchments

Optimization Result:	Target	Selected
Total Reduction:	17.6%	17.7%
Total Life Cycle Cost:	84.32%	\$84.32%
Other GI Projects (TBD)	8.76	8.76
Green Streets (Low)	23.04	23.04
Green Streets (Medium)	74.42	74.42
Green Streets (High)	20.32	20.32
Regional Projects (Identified)	52.05	52.05
Future New & Redevelopment	61.26	61.26
Existing Projects	72.01	72.01

View Associated Reductions for other Constituents

Total Watershed Life Cycle Cost for Selected Solutions			
Location	Scenario	Reduction	Cost (%)
COUNTY WIDE	2	17.7%	84.32%
Total Watershed Life Cycle Cost:			84.32%

Selected: 17.7%
Capacity: 311.86 ac-ft
Cost: 84.32%

Structural BMP Capacity (ac-ft)

Percentage of Total Implementation Cost

Percent Load Reduction

BMP Capacity (ac-ft) Utilization (%) 0.00: 73.62

N MATED COUNTYWIDE
Water Pollution
vention Program

Next Steps

- Agency review of revised RAA results
- Planning a WebEx to discuss/answer questions
- Incorporation into GI Plans
 - “Goals” for GI implementation
 - Adaptive Management Approach
- Phase II Modeling Report
- Peer Review
- Coordination with Sustainable Streets Master Plan
- TMDL Implementation Plan (2020)