

MS4 TMDL Compliance

Pete Wood

DNR Sturtevant

262-884-2360

Peter.Wood@Wisconsin.gov



BUREAU OF WATERSHED MANAGEMENT PROGRAM GUIDANCE

Storm Water Management Program

TMDL Guidance for MS4 Permits: Planning, Implementation, and Modeling Guidance

Effective: October 20, 2014
Guidance #: 3800-2014-04

MS4 TMDL Plans

- ▶ 7 MS4s in Rock and Milwaukee Watersheds
- ▶ 4 Consultants
- ▶ Typical MS4 TMDL Reachshed
 - ▶ 12% TSS Deficit
 - ▶ 31% TP Deficit
 - ▶ 0.12 tons/acre TSS load

Planning Approaches

- ▶ Use quantified practices to achieve TSS compliance and non-quantifiable practices to make up the remaining TP deficit
- ▶ Quantifiable practices
 - ▶ Modeled using WinSLAMM
 - ▶ Practices ranked or listed in alternative groups
- ▶ Non-quantified practices discussed in narrative format

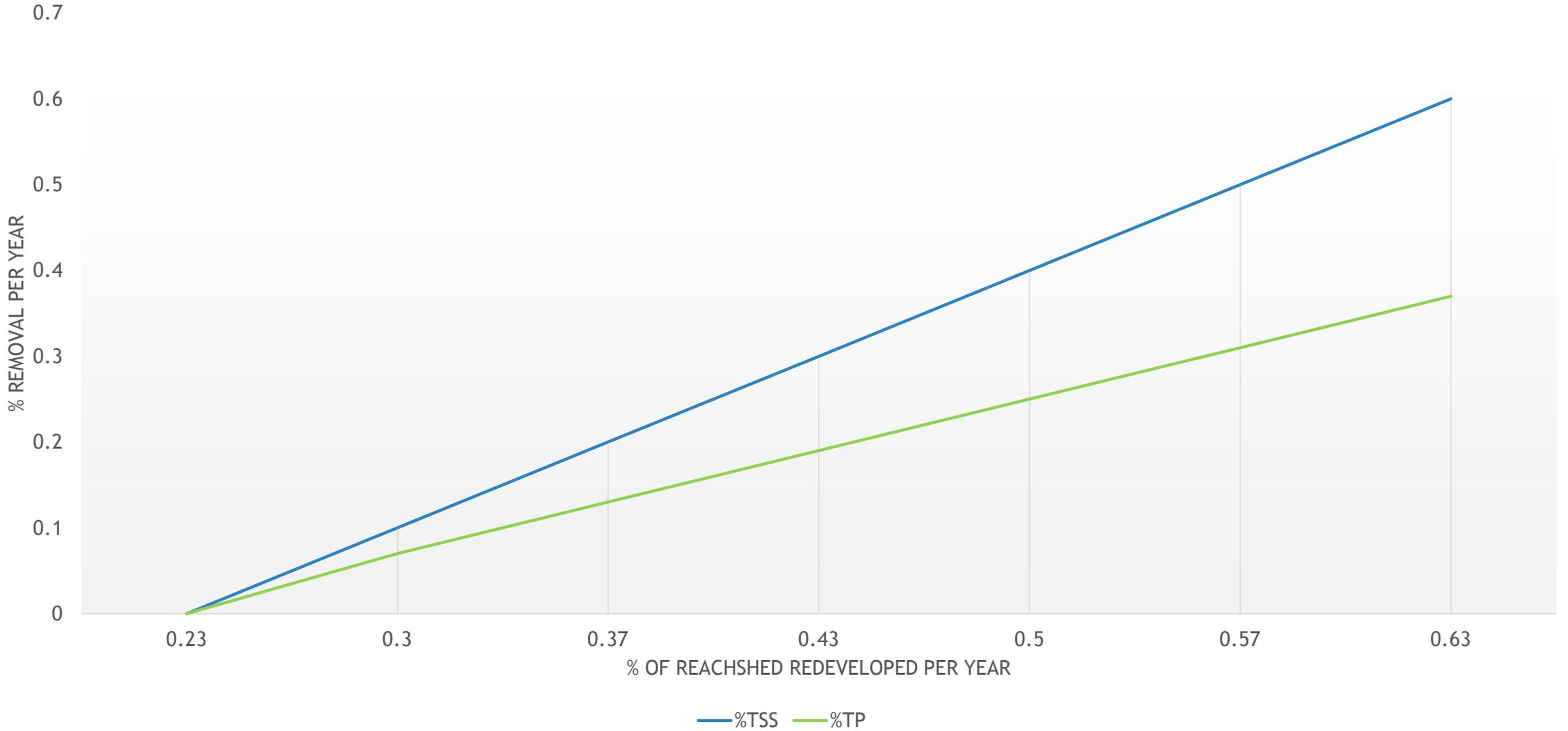
Non-Quantifiable Practices

- ▶ Pollutant trading
- ▶ Adaptive management
- ▶ GI with road reconstruction and redevelopment
- ▶ SW ordinance modifications for TP
- ▶ Streambank erosion control
- ▶ River monitoring
- ▶ Leaf collection
- ▶ New technology

Quantifiable Practices

- ▶ Redevelopment
- ▶ Street sweeping
- ▶ Catch basins with sumps
- ▶ Wet ponds
 - ▶ New
 - ▶ Retrofits
 - ▶ Underground
- ▶ Infiltration basins
- ▶ Biofilters
- ▶ Permeable pavement

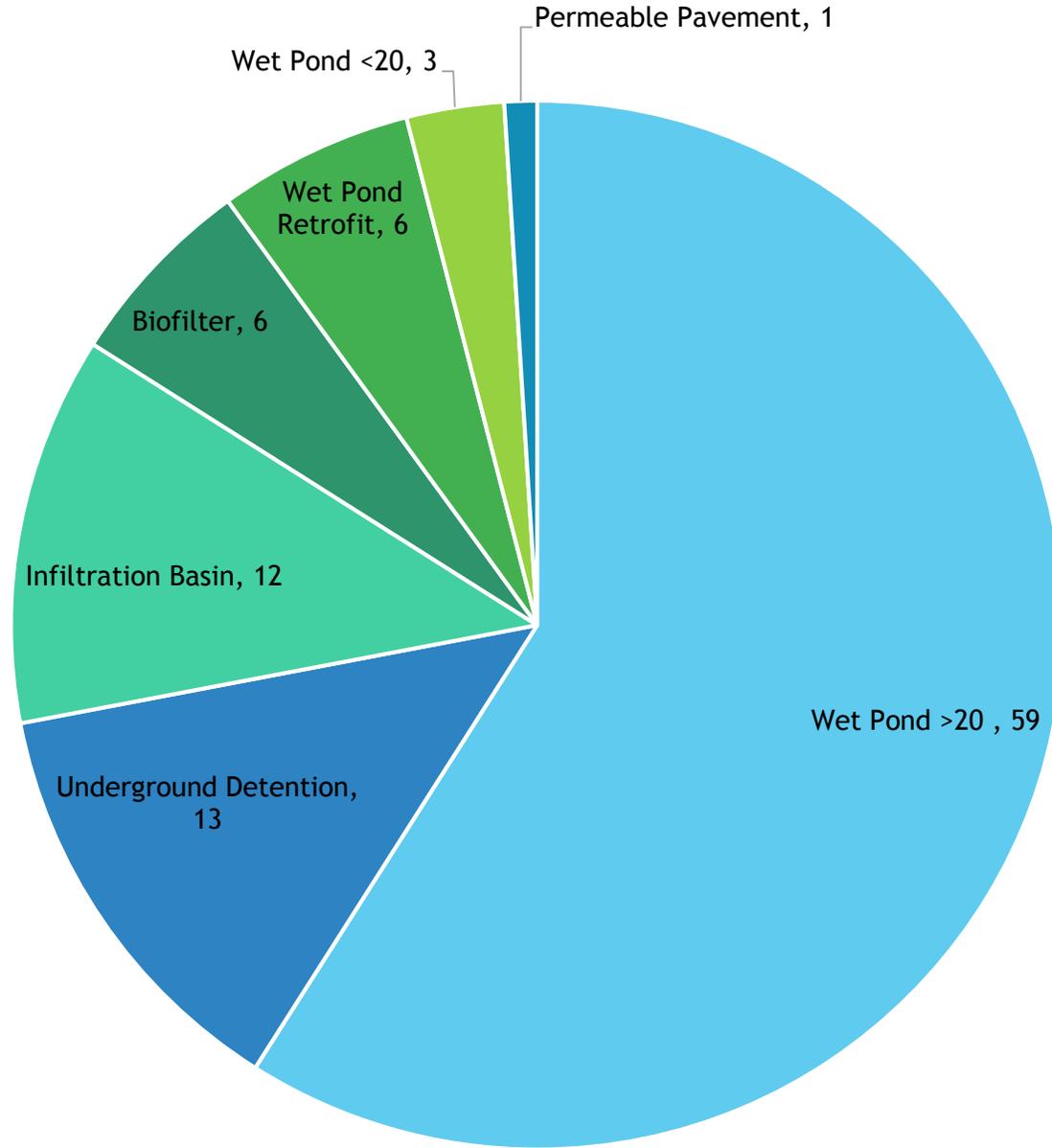
Redevelopment with 80% TSS Reduction



Street Sweeping & Catch Basins

- ▶ Street sweeping
 - ▶ Increase to every week
 - ▶ 8% TSS gain
 - ▶ 5% TP gain
 - ▶ Increase to every other week
 - ▶ 3% TSS gain
 - ▶ 2% TP gain
- ▶ Catch basins with sumps
 - ▶ 4% TSS gain
 - ▶ 3% TP gain

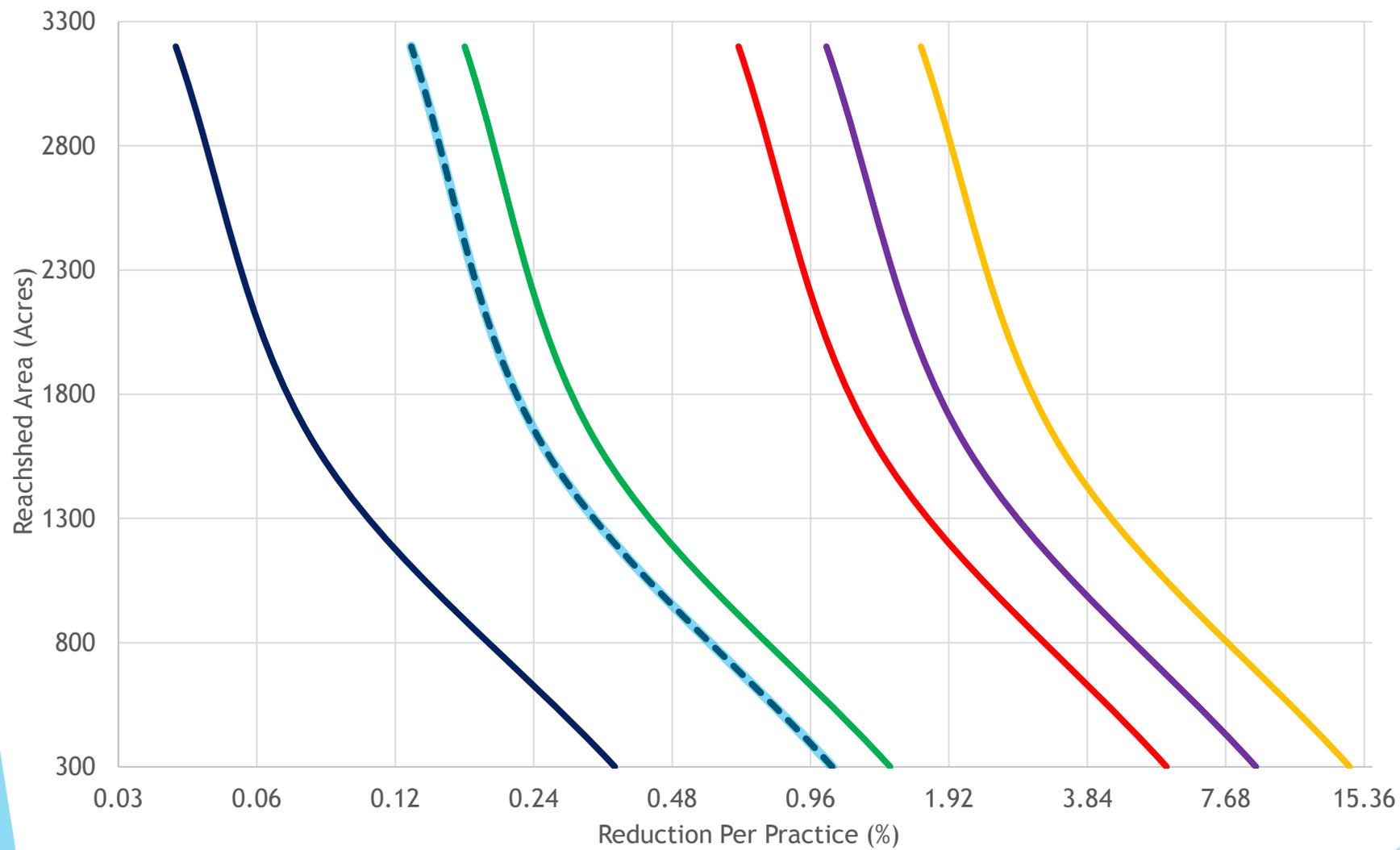
Percent of Total TP Reduction



Typical Practice

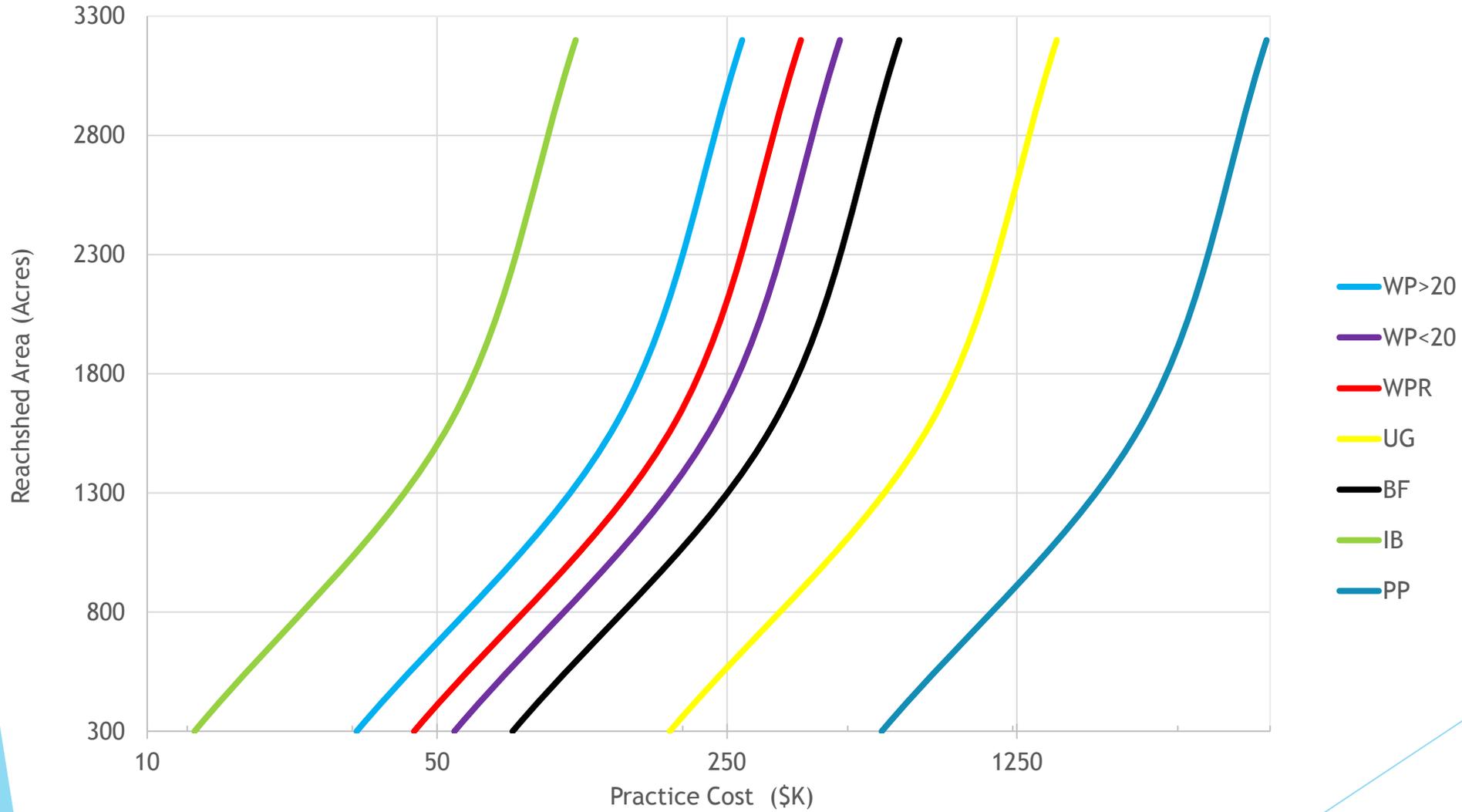
	Drainage Area (acres)	Practice Area (sq ft)	Total Cost (\$)
Wet Pond > 20	107	38,000	454,000
Underground Detention	53	14,800	1,039,000
Infiltration Basin	32	29,000	112,000
Wet Pond Retrofit	10	10,000	63,000
Wet Pond > 20	10	4,800	59,000
Biofilter	6	7,900	81,000
Permeable Pavement	1	9,700	210,000

Total Phosphorus Reduction by Practice Type



- WP>20
- WP<20
- WPR
- UG
- BF
- IB
- PP

Cost Per 1% Total Phosphorus Reduction



COMPLIANCE SCHEDULE

Benchmark (BM)	Description of BM Measure	Outfalls Affected by BM control	Affected Drainage Areas (as modeled)	Implementation Date	Measure Treatment Performance	BM % Reduction toward TMDL Reduction	MS4 Cumulative % Control (from no controls)
N/A	Existing control measures	All	All	Ongoing	TSS: 32% TP: 24%	TSS: 32% TP: 24%	TSS: 32% TP: 24%
1	Increased SWM control for Roadway Reconstruction	All	All	1/1/2020	TSS: 60% TP: 40% to MEP	TSS: 0.6% (annually) TP: 0.4% (annually) (30% TSS reduction over 50 years)	TSS: 35% TP: 26% (Accounts for 5 years of reduction)
2	Implement Enhanced Street Cleaning Program	001 003 004 008	1A - 1D 3A - 3K 4C - 4F 8D	1/1/2020	TSS: 12% TP: 8% (no redundant controls)	TSS: 9% TP: 6% (eff. reduced for redundant measures)	TSS: 44% TP: 32%
3	Implement Enhanced Yard Waste Collection Program	All	All	1/1/2021	TSS: 2% TP: 6% (no redundant controls)	TSS: 1.6% TP: 5% (eff. reduced for redundant measures)	TSS: 46% TP: 37%
4	Ordinance Revised – Higher Redevelopment Standard	All	All	1/1/2022	TSS: 60% TP: 40% to MEP	TSS: 0.6% (annually) TP: 0.4% (annually) (30% of TSS reduction over 50 years)	TSS: 49% TP: 39% (Accounts for 5 years of reduction)
5	Retrofit 2 nd St. Basin into wet basin	002	B4	1/1/2023	TSS: 60% TP: 40%	TSS: 2% TP: 1% (only serves part of MS4)	TSS: 51% TP: 40%
6	New Wet Basin B15	005	5B - 5H	1/1/2023	TSS: 60% TP: 40% to MEP	TSS: 3% TP: 2% (only serves part of MS4)	TSS: 54% TP: 42%
7	Stabilize MS4 Drainage Ways between X and Y streets	003	3D and 3E	1/1/2024	20 tons/year sediment reduction	N/A Streambank & MS4 stabilization does not count against TMDL reduction requirement	TSS: 54% TP: 42%

Questions?