District of Columbia
TMDL Implementation Planning

April 20, 2015

Metropolitan Washington COG

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MS4 Permit Requirements- TMDLs

- Consolidated TMDL IP for all MS4 WLAs
  - Schedule for attainment and, where applicable, interim milestones and numeric benchmarks
  - Demonstration of how WLAs will be attained
  - Narrative for the schedules and controls
- Public for review and comment and submitted to EPA by **May 2015**

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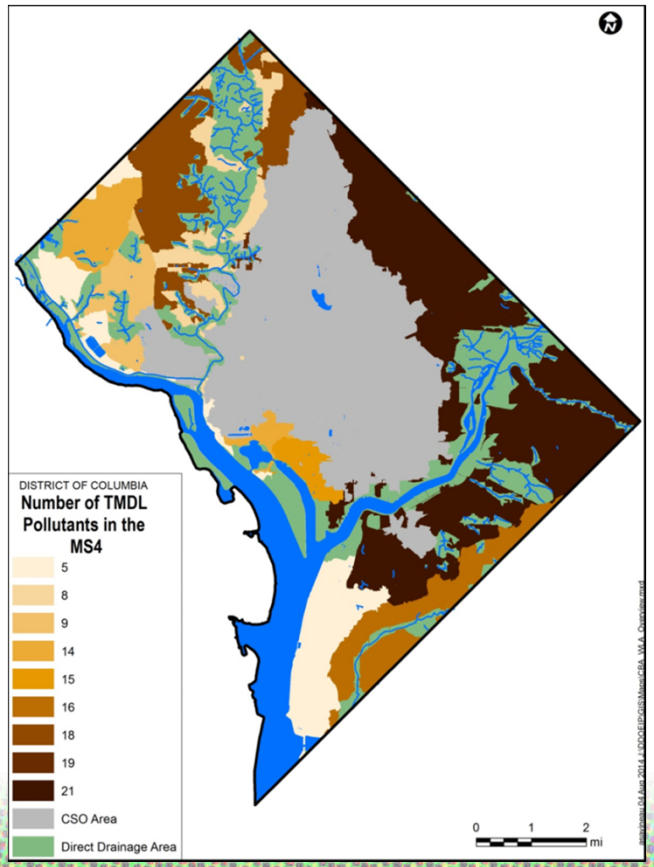
DISTRICT TMDLS

- 26 TMDL studies
- 3 major waterbodies
  - Anacostia, Potomac, Rock Creek
- 45 water segments
- 24 different pollutants
- >380 total WLAs
- Multiple possible WLA expressions
  - Annual, seasonal, monthly, daily



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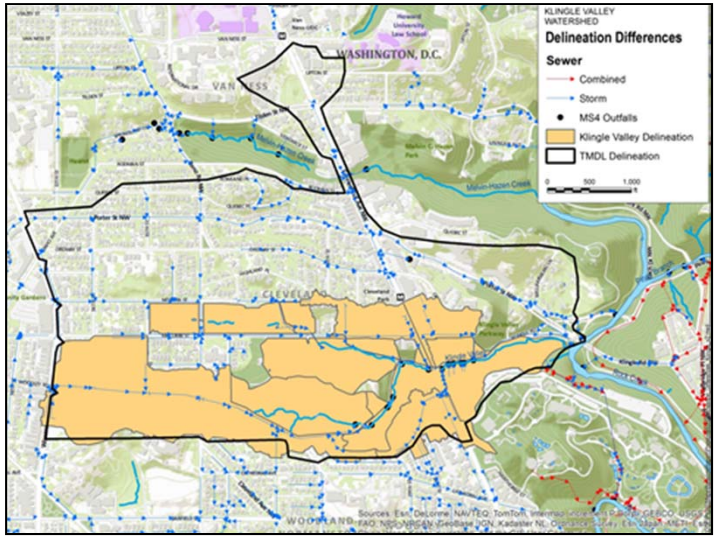
REVIEW OF TMDLS

- TMDLs supported by varying levels of data
  - Questionable impairment data
    - TMDLs/MS4 WLAs for toxics being re-evaluated
  - Inconsistent data and modeling approaches
- Other issues
  - TMDLs superseded/replaced
  - Overlapping TMDLs



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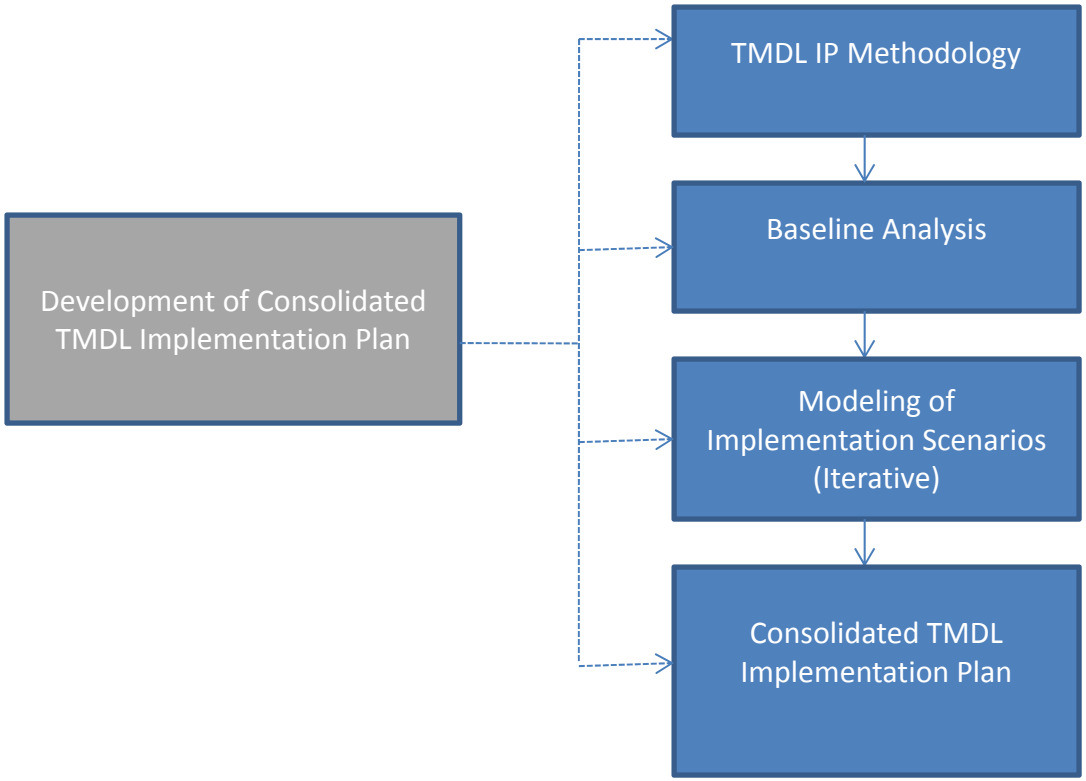
PROJECT CONCEPT AND APPROACH



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CONSOLIDATED TMDL IP

- Summary and history of TMDLs in DC
- Evaluation of applicable TMDLs/MS4 WLAs
- Summary of implementation to date
  - Structural and non-structural BMPs
- Modeling of current and future (growth/development) scenarios
- Plan to close gaps in implementation
- Schedule for compliance with each TMDL with benchmarks
- Discussion of stakeholder and public involvement
- Integration with other plans/programs
- Potential sources for funding

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CHALLENGES

- History of TMDL development in DC
- “Consolidated” TMDL implementation planning
- Monitoring and compliance tracking
- Need for practical decision-making and adaptive management
- Long term projections
- Enforceable requirements

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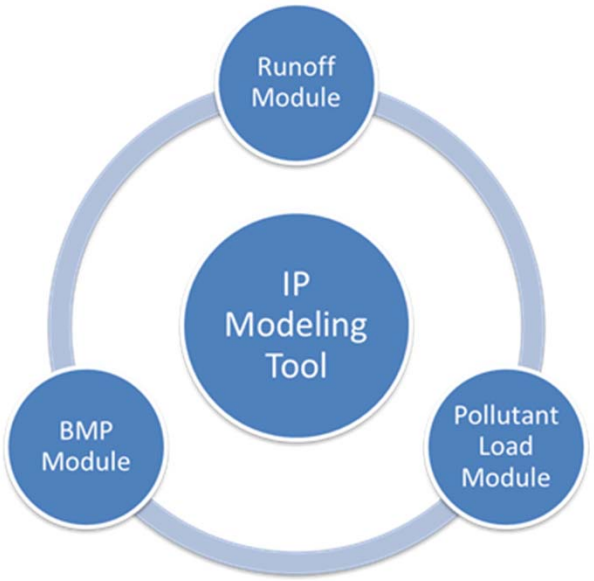
IMPLEMENTATION PLAN MODELING

- Modules to model runoff, pollutant loads, and load reductions via BMPs
- Runoff and pollutant loads calculated via Simple Method
- Updated model inputs for watershed delineations, event mean concentrations (EMCs), etc.



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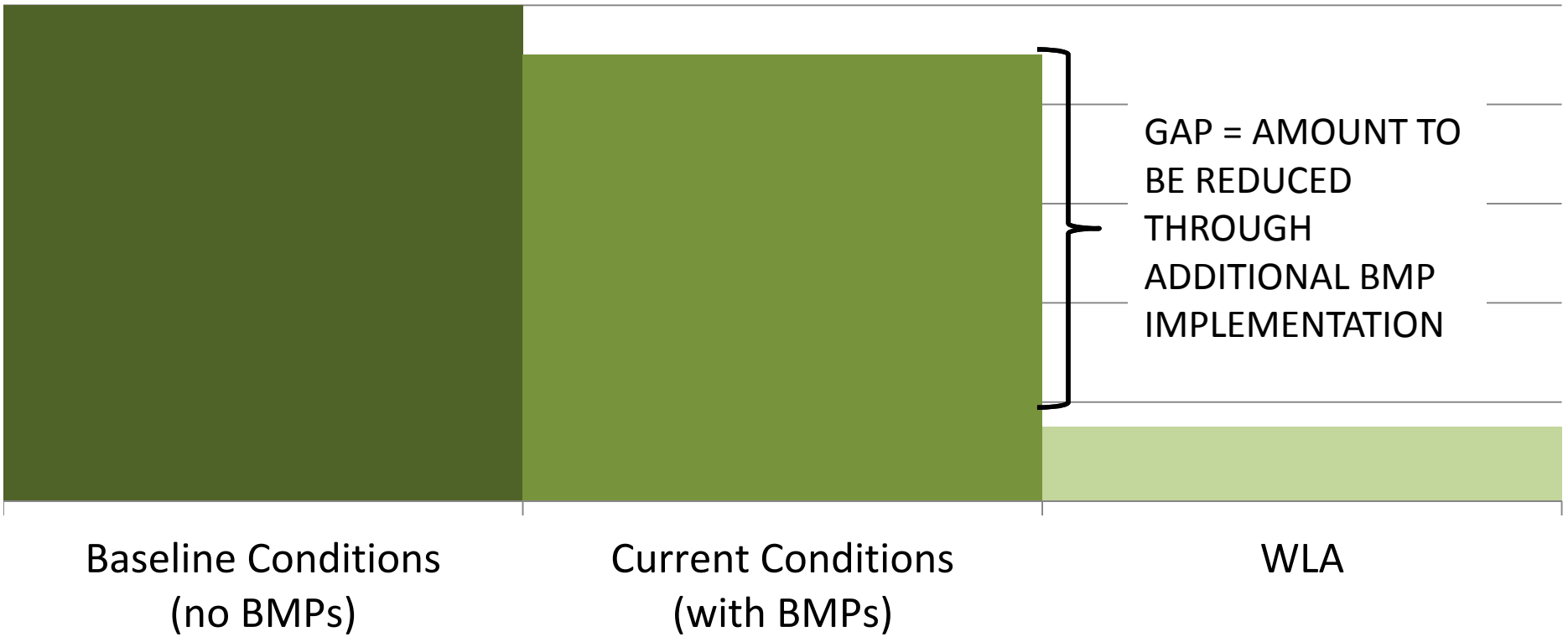
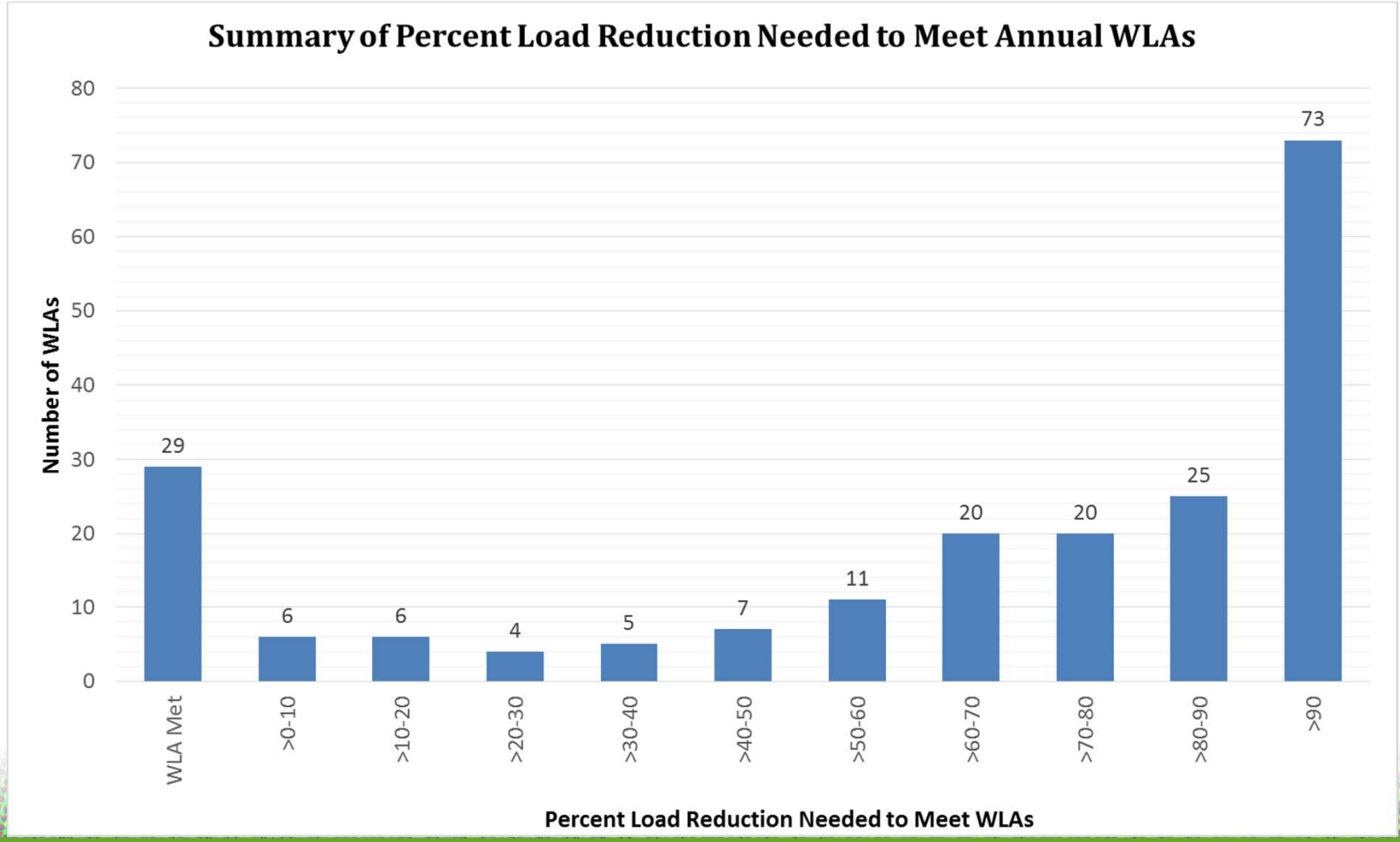
MODELING, CON'T.

Gap = Modeled Current Load – Original TMDL WLA



GAP ANALYSIS RESULTS



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Scenario Modeling and Implementation Planning

- Implementation projections
  - Ongoing BMP implementation
  - Development/re-development build-out
  - Existing watershed planning
- Schedule development

Washington, DC, Streetscape – 2008

Washington, DC, Streetscape – 2028

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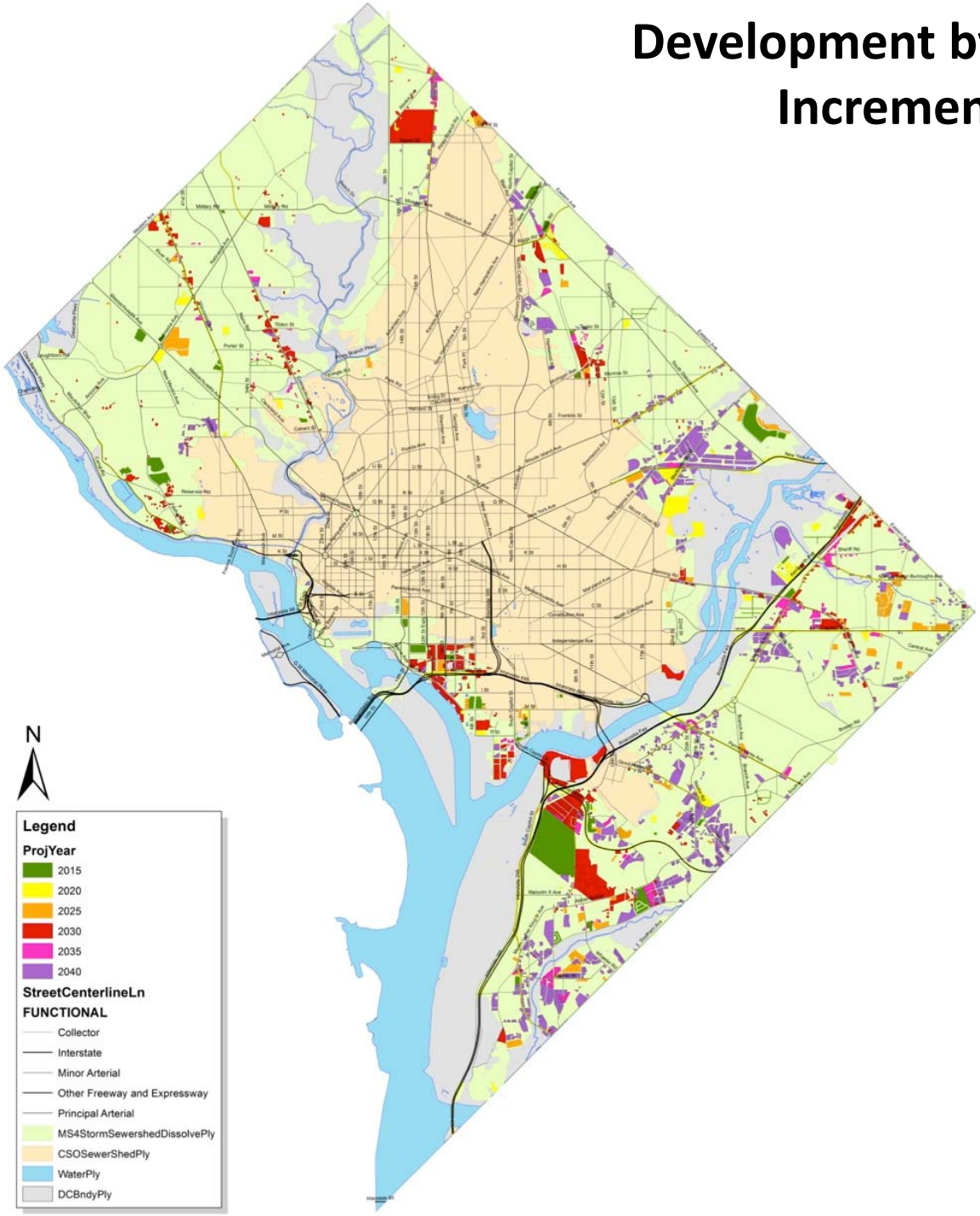
Development by 5 year Increment



Programmatic and source control efforts

Quantifiable (modeled)	Non-Quantifiable (not modeled)
Street sweeping	Catch basin cleaning
Coal tar ban/sealant removal	Pet waste removal
Phosphorus fertilizer ban	Public outreach
Trash removal	IDDE
	Others

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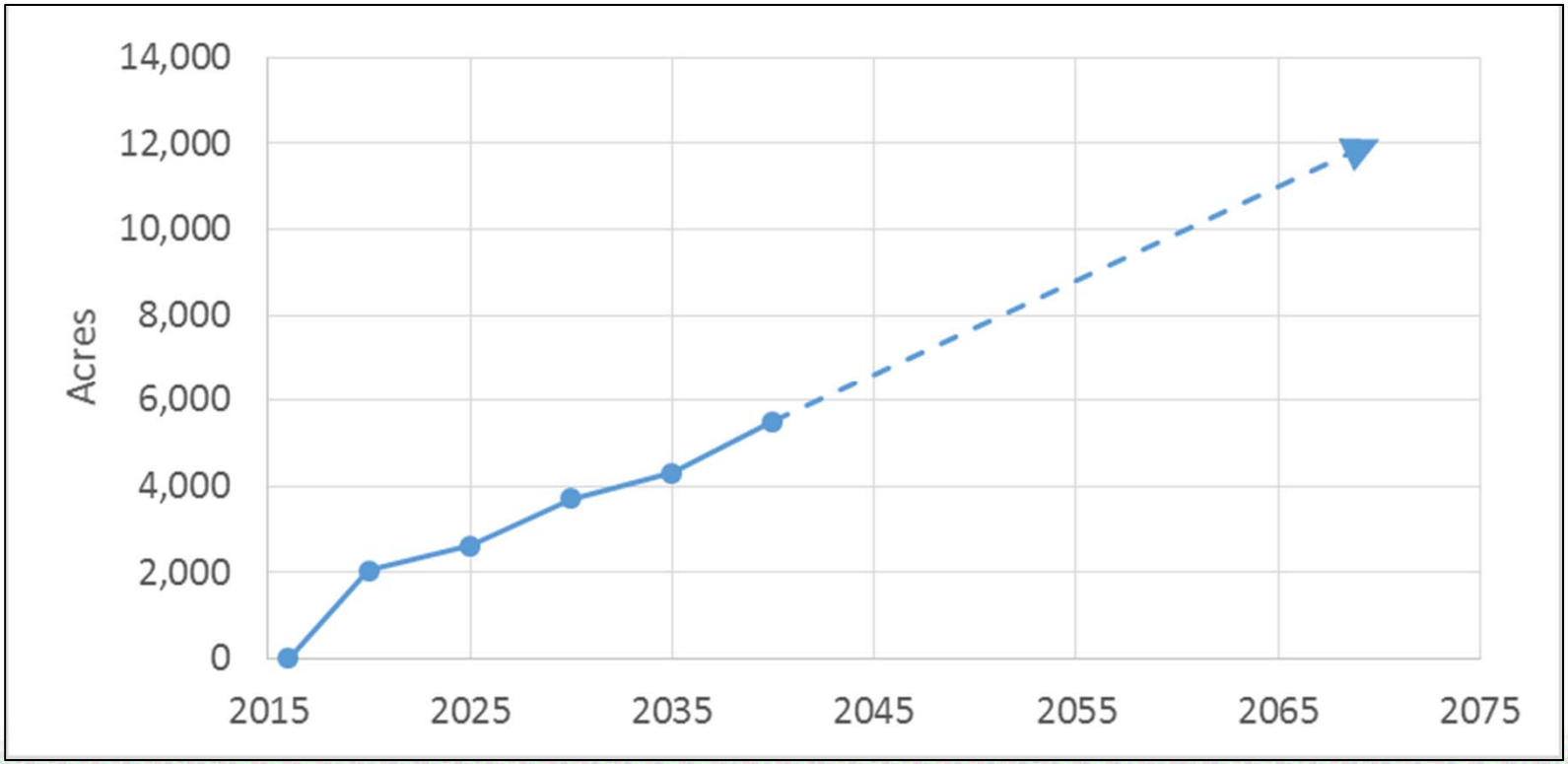
SCENARIO MODELING RESULTS

- All loads are reduced but only 11 WLAs additional to be attained by 2040 (54 total)

Segment	Pollutant	Year
Washington Ship Channel	Heptachlor Epoxide	2015
Lower Beaverdam Creek	BOD	2020
Watts Branch - Upper	Dieldrin	2020
Texas Avenue Tributary	Arsenic	2025
Anacostia Lower	Copper	2030
Anacostia Upper	Dieldrin	2030
Nash Run	Lead	2030
POTTF_MD	TN	2030
ANATF_DC	TSS	2040
Hickey Run	Dieldrin	2040
Oxon Run	Zinc	2040

Total Projected Area of Development/Redevelopment in MS4 over time



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Milestone and Benchmark Definitions

- Milestone - interim step toward attainment of a WLA
  - Included when final attainment of applicable WLAs requires more than five years
  - Enforceable
- Benchmark - quantifiable goal or target used to assess progress towards milestones
  - Numeric annual pollutant load reductions
  - Aid in adaptive management
  - Not enforceable

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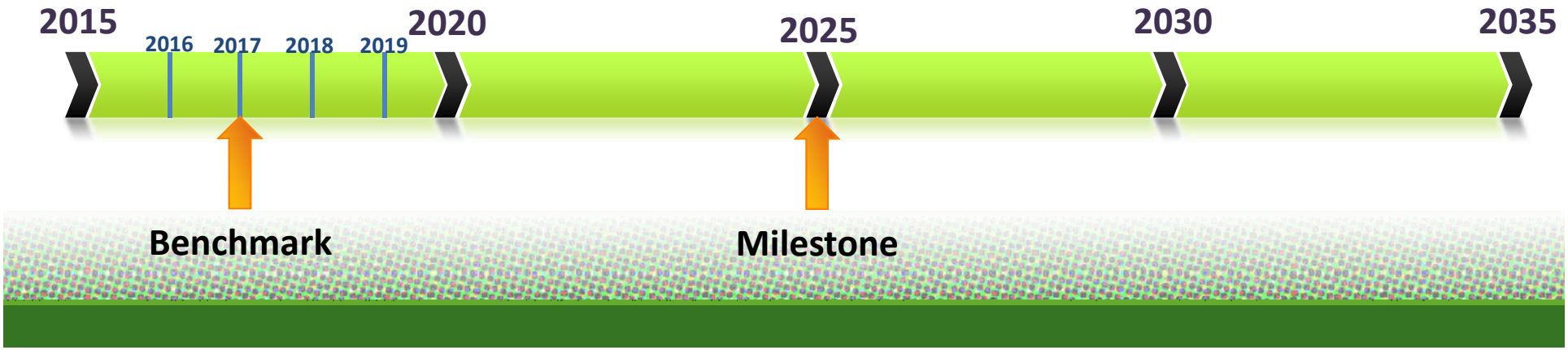
Purpose of Milestones and Benchmarks

Track progress towards meeting WLAs

- Milestones are set at 5 year increments until ultimate attainment of WLAs
- Benchmarks are set annually



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Milestones

- Measures physical progress in controlling pollutants
- Targets to be assessed over multi-year span
- Set at major basin level
- Based on model projections

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Developing Milestones

- 2016 to 2040
  - Use projections of area controlled by BMPs
- After 2040
  - Use projections of predicted load reductions

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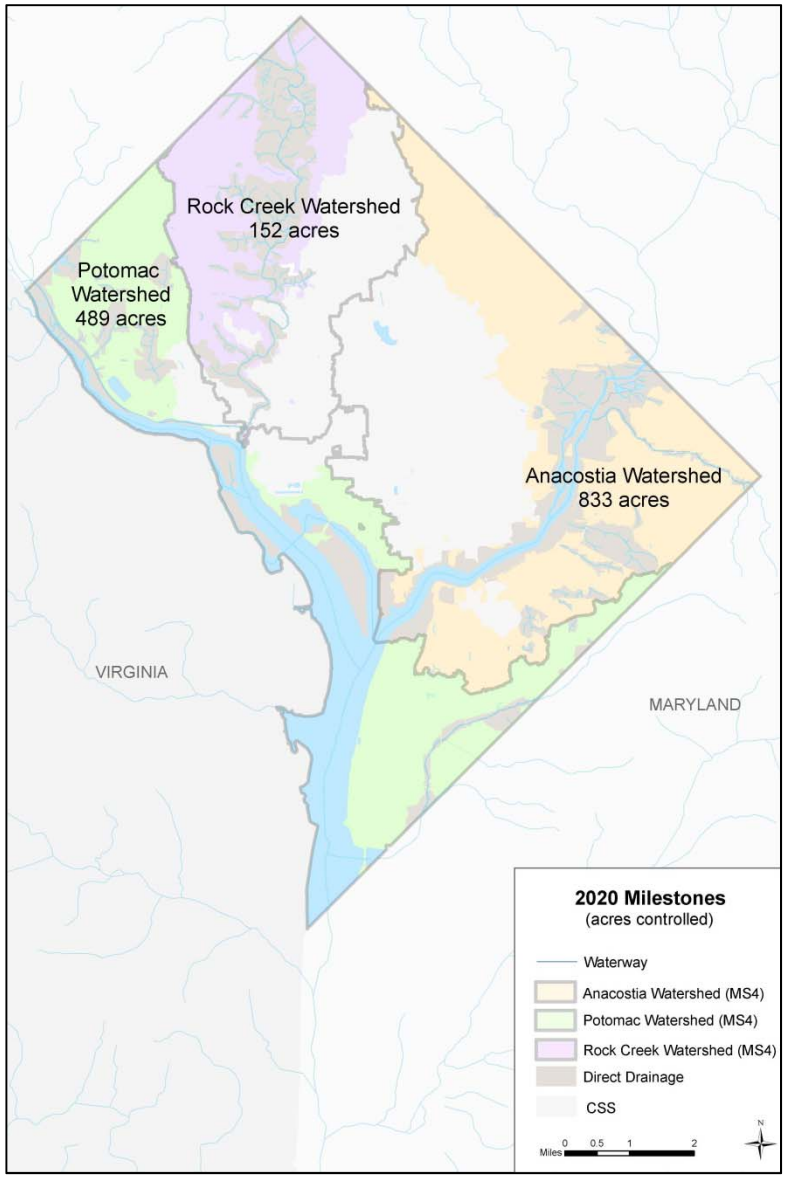
Example Milestones

2020 Milestones	
Major Basin	**Milestone (acres of area controlled)**
Anacostia	833
Potomac	489
Rock Creek	152

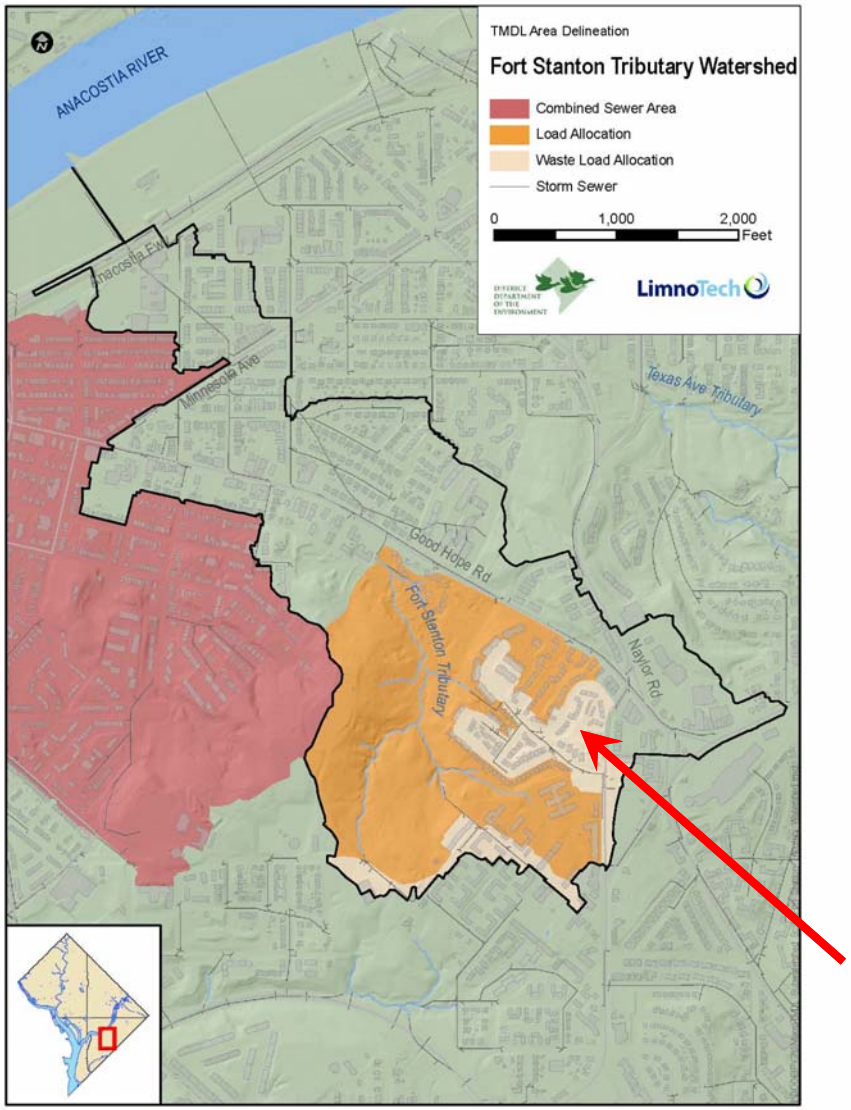


Benchmarks

- Developed for every individual MS4 WLA
  - Based on average annual amount of pollutant reduction needed
  - Allows evaluation of progress for individual MS4 WLA

Example Benchmarks

Fort Stanton Tributary	
Pollutant	**Benchmark (lbs/yr)**
TN	N/A*
TP	N/A*
TSS	N/A*
E. coli	27.5 Billion MPN/yr
BOD	N/A*
Trash	N/A*
Arsenic	1.80E-03
Copper	7.10E-02
Lead	2.20E-02
Mercury	N/A*
Zinc	N/A**
Chlordane	1.10E-05
DDD	3.50E-06
DDE	1.50E-05
DDT	3.80E-05
Dieldrin	4.10E-07
Heptachlor Epoxide	1.10E-06
PAH1	9.00E-04
PAH2	4.60E-03
PAH3	3.00E-03
* No WLA	
**WLA met in 2014	



PROJECTED RESULTS

- Currently 29 WLAs achieved
- By 2040 – 30% of MS4 retrofit to 1.2” retention standard
  - Significant load reductions achieved for all WLAs
  - Only 44 WLA achieved

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IMPLICATIONS

- Implementation timelines for some WLAs will be extremely long
- Level of control for some WLAs exceeds what is achievable by current treatment BMPs, or practical by runoff retention
- Plan will focus on making year-over-year progress in a consistent fashion, tracking improvements, and adaptively managing
- Underscores the importance of revisiting and refining the District's TMDLs

PUBLIC OUTREACH / STAKEHOLDER ENGAGEMENT

- Stakeholder engagement critical to success of project
- Involving stakeholders early and often
  - Regular meetings of a group of District and Federal agency, industry, and environmental stakeholders
- Intent is to provide understanding of project decisions and improve buy-in/acceptance of final Plan

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QUESTIONS?

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