



## Alternatives Analysis Report

### Agenda

- RWWMP Preparation Overview
- Selected Level of Service
- Preliminary Affordability Measures
- Next Steps

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## RWWMP – Consent Decree Objectives

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- To achieve full compliance with the Clean Water Act
- Eliminate SSOs from the HRSD Sanitary Sewer System
  - Capacity-related SSOs from the Regional Sanitary Sewer System up to an approved level of service
  - Preventable dry weather overflows (maintenance-related)
- Eliminate Bypasses from the STPs up to an approved level of wet weather capacity

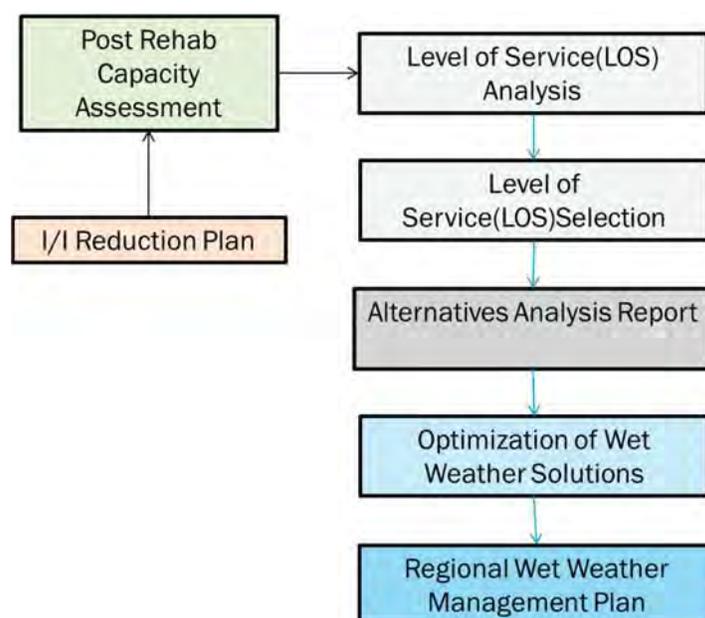
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## Major Steps in RWWMP

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**HRSD**

## Schedule



▲ - Review with HRSD Staff

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## Context

- Solutions based on complex and dynamic hydraulic model
- Proposed solutions will be refined in the optimization step after the Alternatives Analysis Report and prior to the submittal of the RWWMP
- True up of flows during plan implementation
- Monitoring and modeling will be used after RWWMP to confirm LOS achieved

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## Alternatives Analysis Report

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- Document for Agency review and comment – not approval
- Selected LOS along with planning level alternatives
- Justification for selected LOS
- Cost estimates for attaining the selected LOS
- Implementation period - Best estimate number of years bracketed by a range of years needed
- Submitted August 1, 2016

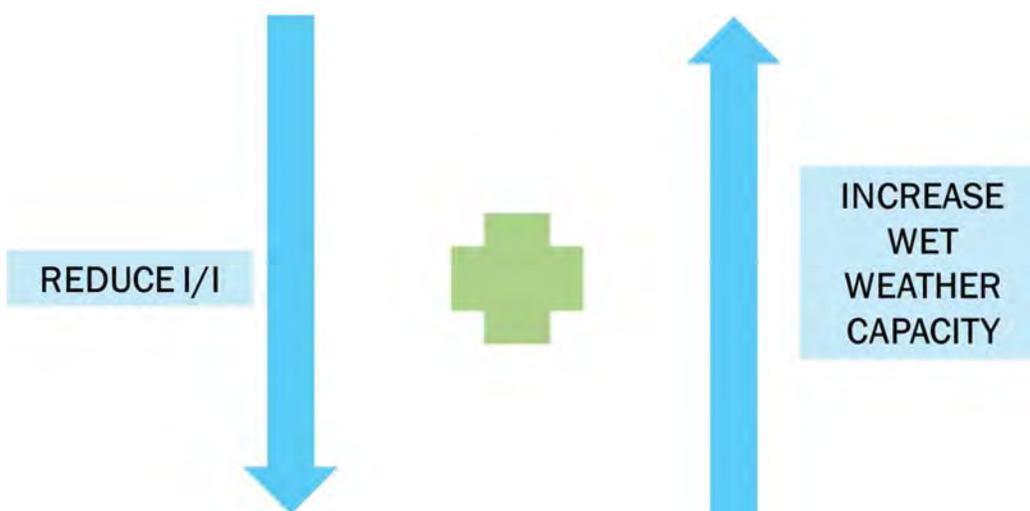
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## RWWMP Approach

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## Capacity Solutions

Storage Tanks



Larger Pipelines



Increase Operating Pressures



Pumping Stations and Pressure Reducing Stations

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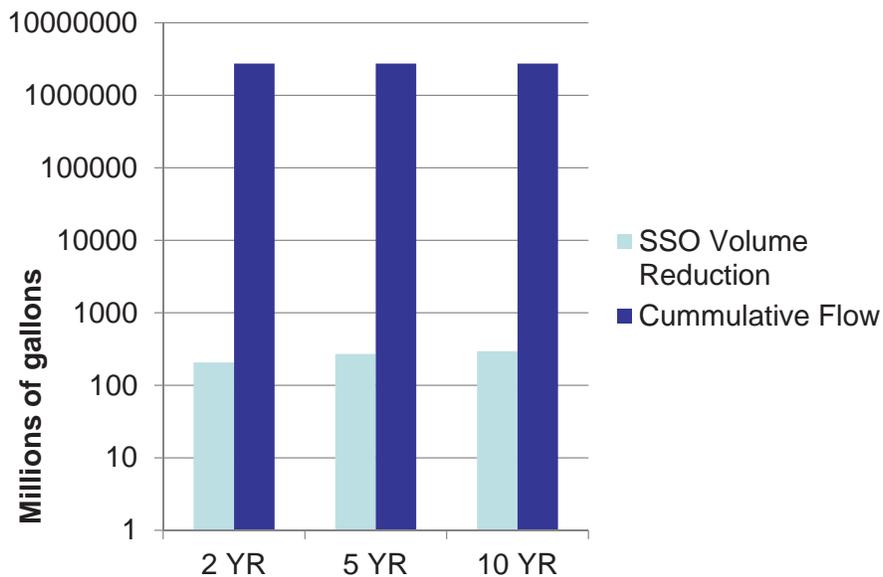
## RWWMP Capital Costs

Level of Service, year	Capital Costs, 2016\$
2	\$1,939,000,000
5	\$2,179,000,000
10	\$2,423,000,000

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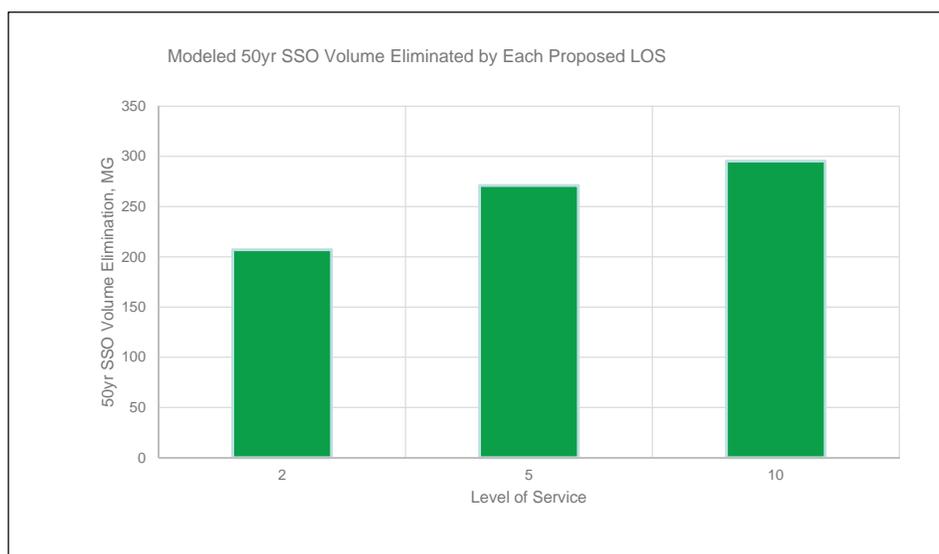
### Modeled SSO Lifecycle Reduction Benefit



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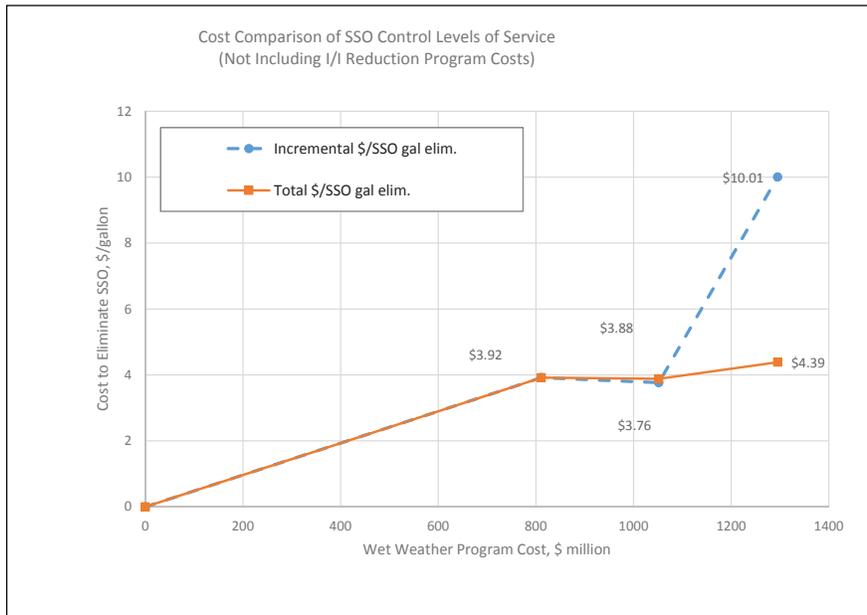
### Modeled SSO Lifecycle Reduction Benefit



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## Incremental and Total Cost per Gal SSO



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## Capital Costs for 5 Year LOS

Capacity Improvements in HRSD System	Capacity Improvements in Locality's System	I/I Reduction in Locality Systems	I/I Reduction Private Property	TOTAL Costs
\$774,000,000	\$278,000,000	\$977,000,000	\$150,000,000	\$2,179,000,000

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## Selected Level of Service

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- 4 year LOS as the Federal Consent Decree performance requirement
- Design and construct improvements to meet the 5 year LOS as a margin of safety
- Conduct the Post RWWMP Monitoring and Performance Assessment to demonstrate a 4 year LOS was achieved

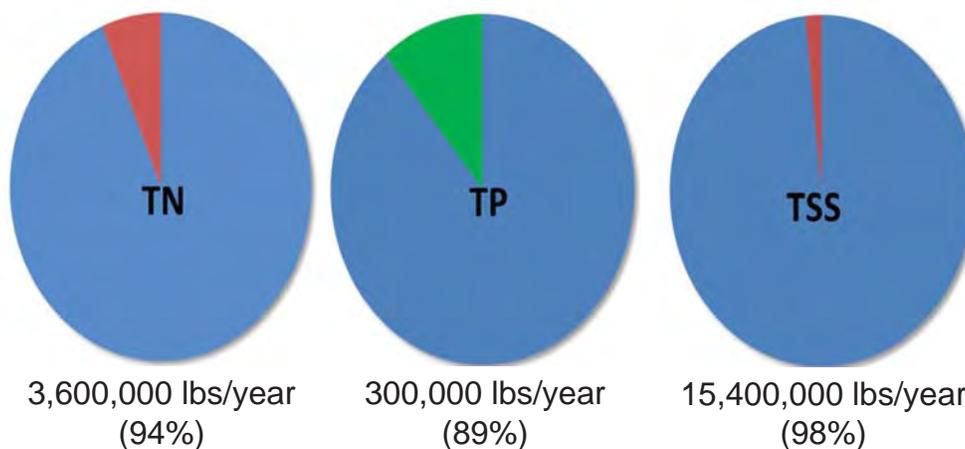
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## The Integrated Plan Provides Major Load Reductions to the Chesapeake Bay

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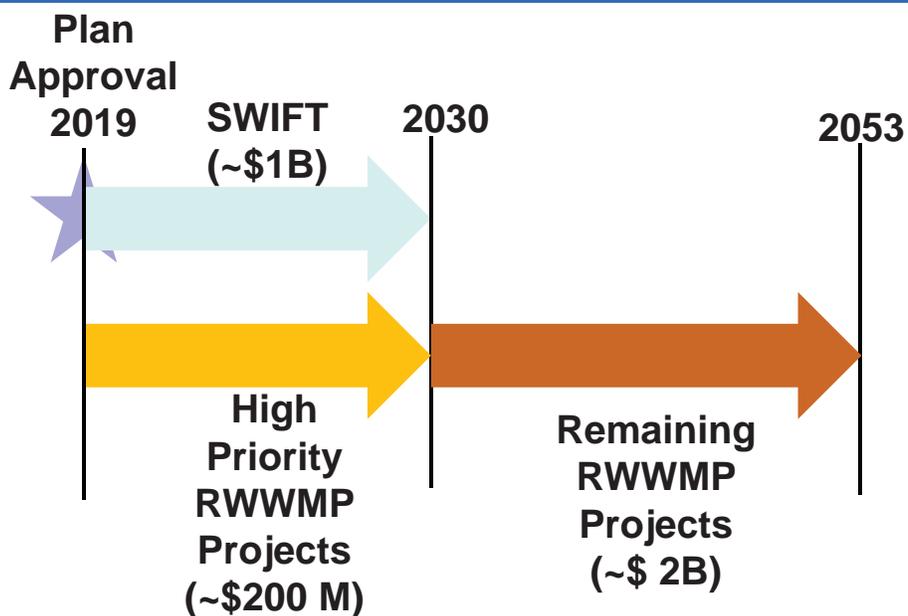
## Financial Constraints

- Capital costs within the published HRSD 20-year Financial Plan
- O&M costs within the published HRSD 20-year Financial Plan
- Debt Service Coverage Ratio stays above 2.0

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## Sequence Places the Greatest Water Quality Benefits First



## Possible Criteria for Prioritizing RWWMP Projects During SWRI Implementation

- Pollutant Load Reduction
- Benefit to Public Beaches
- Benefit to Drinking Water Sources
- Benefit to Open Shellfish Grounds
- Drains to Bacterially Impaired Waters
- I/I Reduction

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## Preliminary Affordability

Parameter	Current Values HRSD Financial Plan	Integrated Plan with Ches Bay SW TMDL Costs Reduced by 75%(2053)	RWWMP Only (2042)
Peak Residential Indicator, % MHI <sup>1</sup>	1.14%	1.88%	2.12%
High Burdened <sup>2</sup> Households, %	23%	46%	54%
Peak Annual Cost, \$/household	\$718	\$1,184	\$1,333

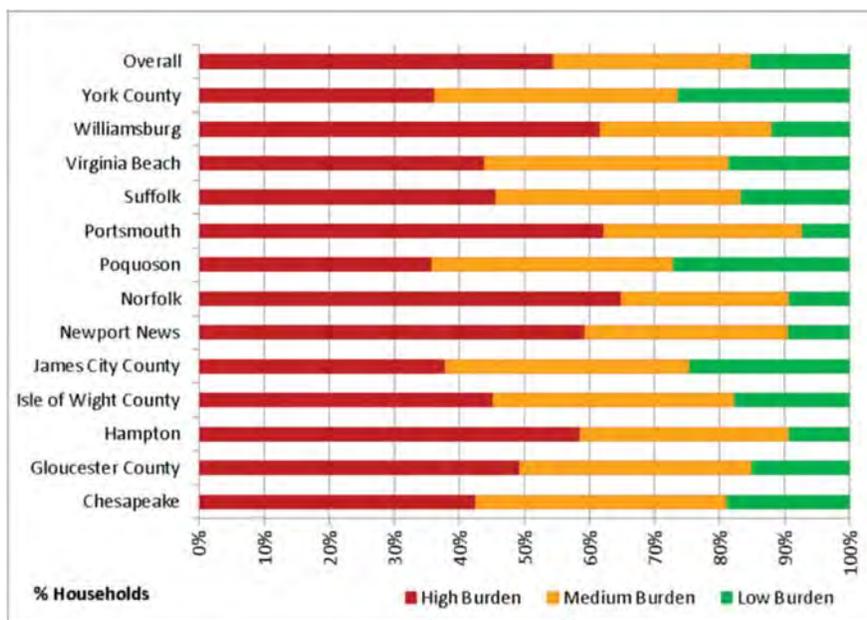
<sup>1</sup> EPA considers a residential indicator of greater than 2% to be significant

<sup>2</sup> High Burden is greater than 2% of household income for wastewater and stormwater costs

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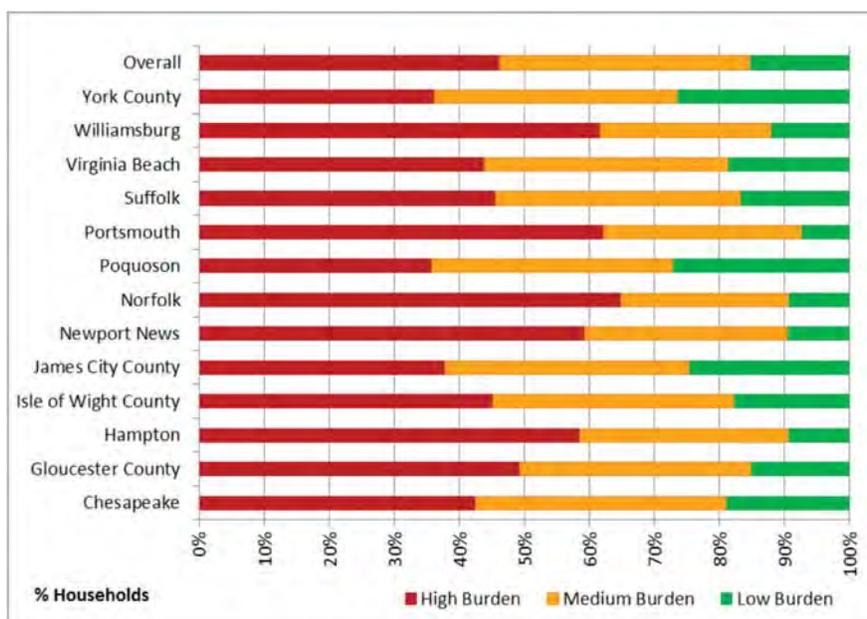
## High Burdened – RWWMP 2042



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## High Burdened – Integrated Plan 2053



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## Residential Indicator by Income Quintiles

Quintile	Average Income	Peak RI, RWWMP	Peak RI, Integrated Plan
Lowest	\$14,402	9.3%	8.2%
Second	\$37,116	3.6%	3.2%
Third	\$59,616	2.3%	2.0%
Fourth	\$89,983	1.5%	1.3%
Fifth	\$176,275	0.8%	0.7%

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## Next Steps

- Finalize Alternatives Analysis Report and submit to EPA/DEQ
- Meet with EPA/DOJ/DEQ to review AAR and discuss possible Consent Decree Amendment on Integrated Plan/RWWMP submittal
- Meet with Localities to review capacity improvements in their systems
- Optimize solution set for the selected LOS
- Work on affordability
- Submit final integrated RWWMP in October 1, 2017

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## Related Issue – EPA Information Request

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- EPA has begun talking about a new 308 request for additional financial information
  - Areas served by HRSD, septic, other
  - Total O&M FY 13, 14 and 15 excluding depreciation
  - Total debt service related to wastewater collection system
  - Annual capital expenditures
  - Future expected capital “beyond normal”
  - Estimate of flow attributable to residential
  - Stormwater management program – similar info

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## Related Issue – EPA Information Request

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- HRSD requested EPA hold off until they review AAR
- We gathered much of this information to do preliminary affordability analysis
  - Baked into model
  - Now pulling out to provide to EPA explicitly
    - Responses you provided
    - Publically available documents (CAFRs, Budgets, etc.)
    - Extrapolations to fill in gaps
- We owe EPA a “gap” analysis between what we have and what they are looking for

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