

***Revisions to the
Delaware Sediment & Stormwater Regulations***

***Technical Subcommittee Meeting
February 8, 2011***

Schedule for Revisions to Regulations *Update*

Chesapeake Bay TMDLs: *Update*



Executive Order 13508
Draft Strategy for
TMDLs in
the Chesapeake Bay
November 9, 2009

Developed by the Federal Leadership Committee for the Chesapeake Bay



USDA





**Chesapeake Bay Total Maximum Daily Load
for Nitrogen, Phosphorus and Sediment**

Established by the U.S. Environmental Protection Agency

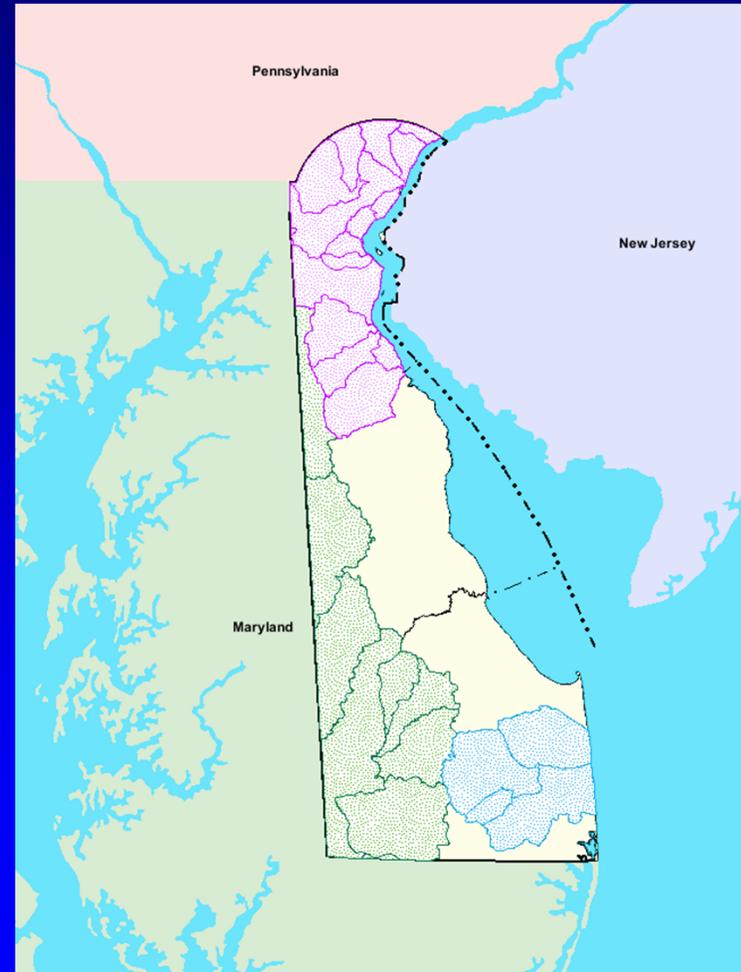


Shawn M. Garvin, Regional Administrator
U.S. Environmental Protection Agency
Region 3

Judith A. Enck, Regional Administrator
U.S. Environmental Protection Agency
Region 2

DATE

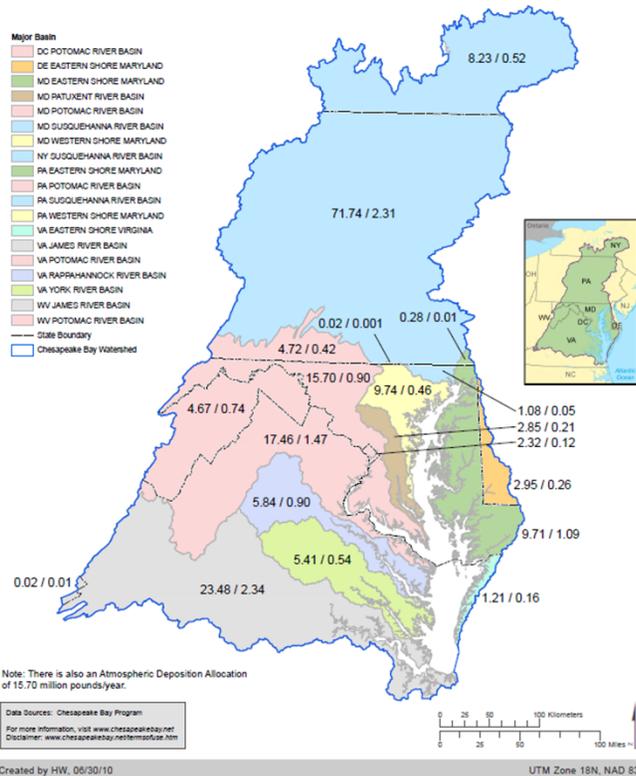
12/29/10



TMDL Allocations

Chesapeake Bay Major River Basin Nitrogen and Phosphorus July 1, 2010 Proposed Allocations

(N / P in million pounds per year)



Chesapeake Bay TMDL

The TMDL loadings to the basin-jurisdictions are provided in Table ES-1. These loadings were determined using the best peer-reviewed science and through extensive collaboration with the jurisdictions and are informed by the jurisdictions' Phase I WIPs.

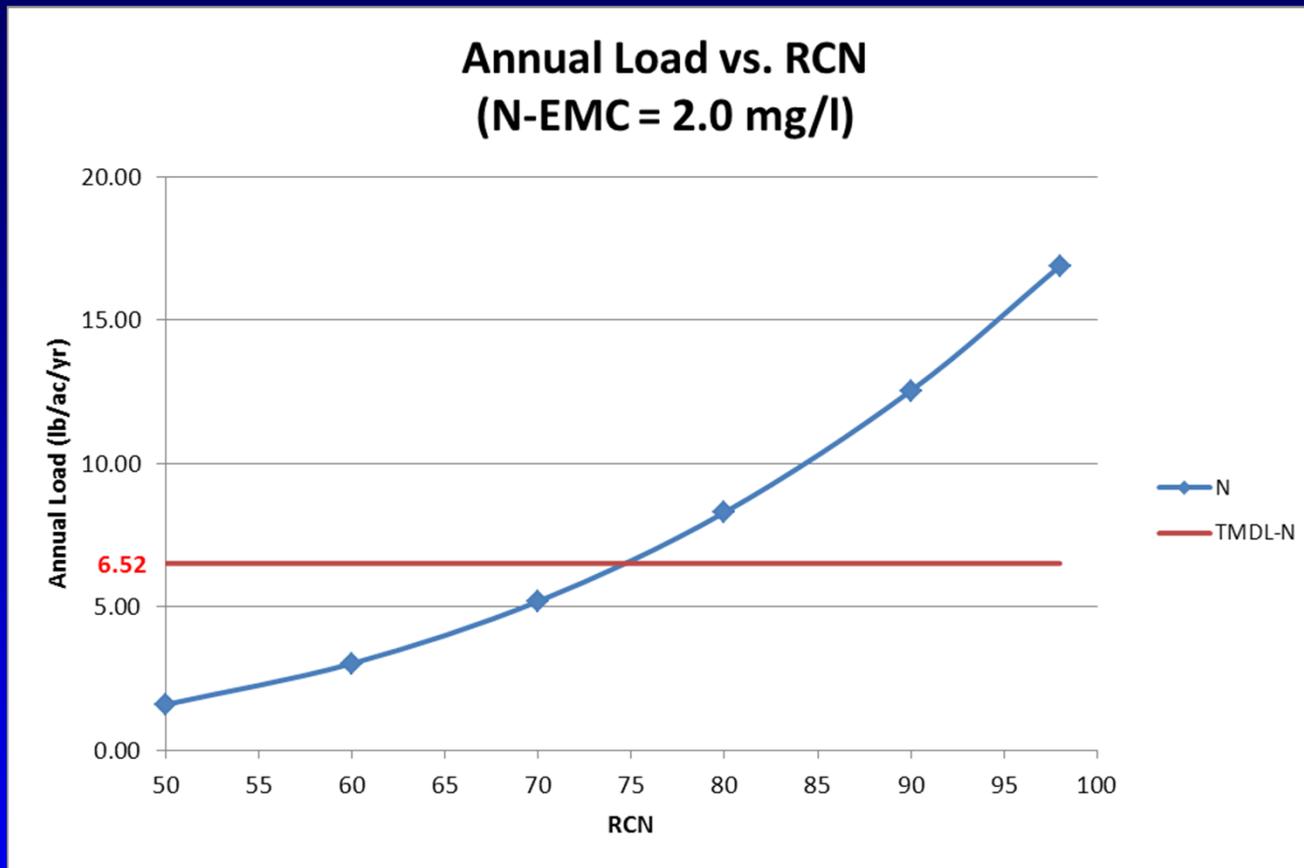
Table ES-1. Chesapeake Bay TMDL watershed nitrogen, phosphorus and sediment final allocations by jurisdiction and by major river basin.

| Jurisdiction | Basin | Nitrogen allocations (million lbs/year) | Phosphorus allocations (million lbs/year) | Sediment allocations (million lbs/year) |
|--|-----------------|---|---|---|
| Pennsylvania | Susquehanna | 68.90 | 2.49 | 1,741.17 |
| | Potomac | 4.72 | 0.42 | 221.11 |
| | Eastern Shore | 0.28 | 0.01 | 21.14 |
| | Western Shore | 0.02 | 0.00 | 0.37 |
| | PA Total | 73.93 | 2.93 | 1,983.78 |
| Maryland | Susquehanna | 1.09 | 0.05 | 62.84 |
| | Eastern Shore | 9.71 | 1.02 | 168.85 |
| | Western Shore | 9.04 | 0.51 | 199.82 |
| | Patuxent | 2.86 | 0.24 | 106.30 |
| | Potomac | 16.38 | 0.90 | 680.29 |
| | MD Total | 39.09 | 2.72 | 1,218.10 |
| Virginia | Eastern Shore | 1.31 | 0.14 | 11.31 |
| | Potomac | 17.77 | 1.41 | 829.53 |
| | Rappahannock | 5.84 | 0.90 | 700.04 |
| | York | 5.41 | 0.54 | 117.80 |
| | James | 23.09 | 2.37 | 920.23 |
| | VA Total | 53.42 | 5.36 | 2,578.90 |
| District of Columbia | Potomac | 2.32 | 0.12 | 11.16 |
| DC Total | 2.32 | 0.12 | 11.16 | |
| New York | Susquehanna | 8.77 | 0.57 | 292.96 |
| | NY Total | 8.77 | 0.57 | 292.96 |
| Delaware | Eastern Shore | 2.95 | 0.26 | 57.82 |
| DE Total | 2.95 | 0.26 | 57.82 | |
| West Virginia | Potomac | 5.43 | 0.58 | 294.24 |
| | James | 0.02 | 0.01 | 16.65 |
| | WV Total | 5.45 | 0.59 | 310.88 |
| Total Basin/Jurisdiction Draft Allocation | | 185.93 | 12.54 | 6,453.61 |
| Atmospheric Deposition Draft Allocation | | 15.7 | N/A | N/A |
| Total Basinwide Draft Allocation | | 201.63 | 12.54 | 6,453.61 |

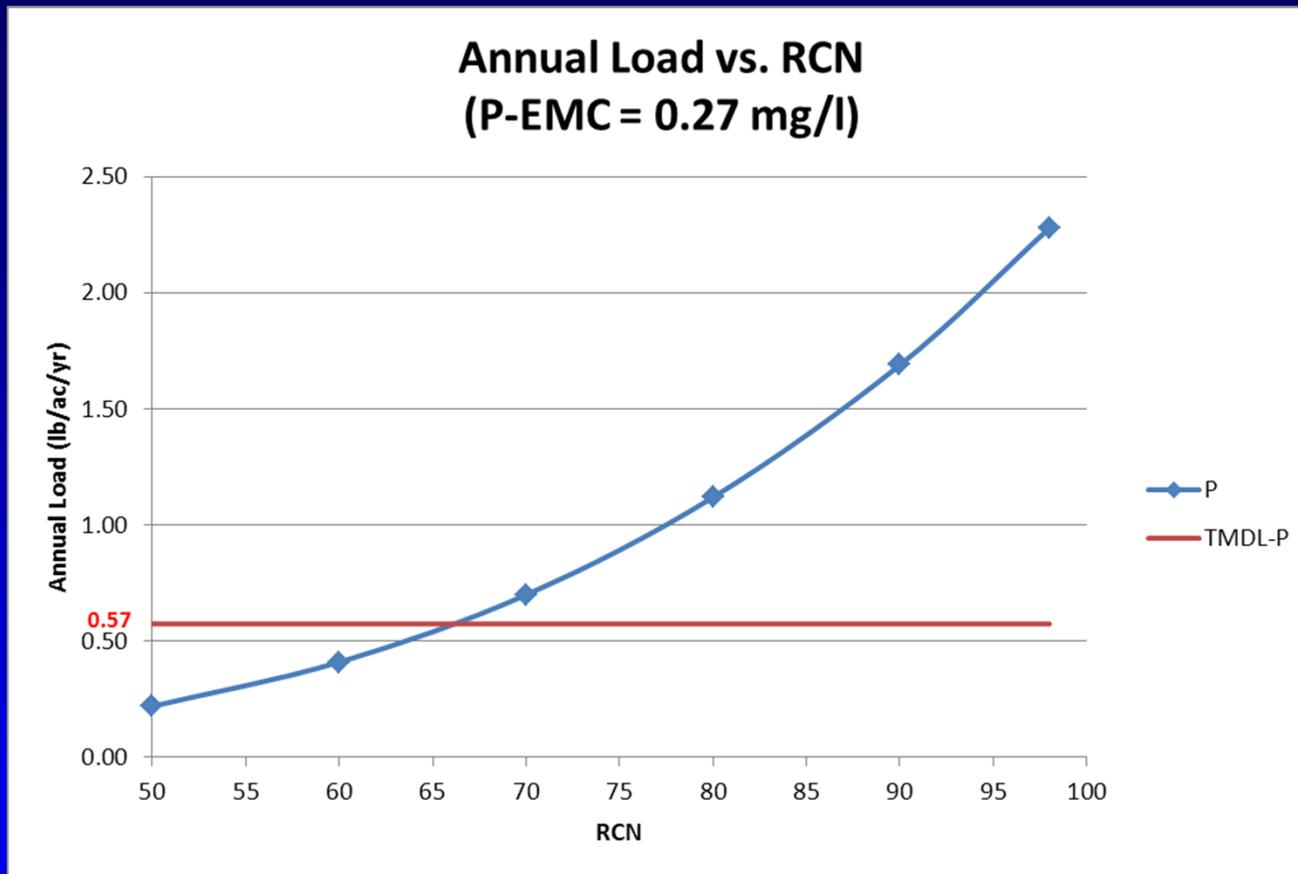
^a Cap on atmospheric deposition loads direct to Chesapeake Bay and tidal tributary surface waters to be achieved by federal air regulations through 2020.

Chesapeake Bay TMDL Delaware Allocation

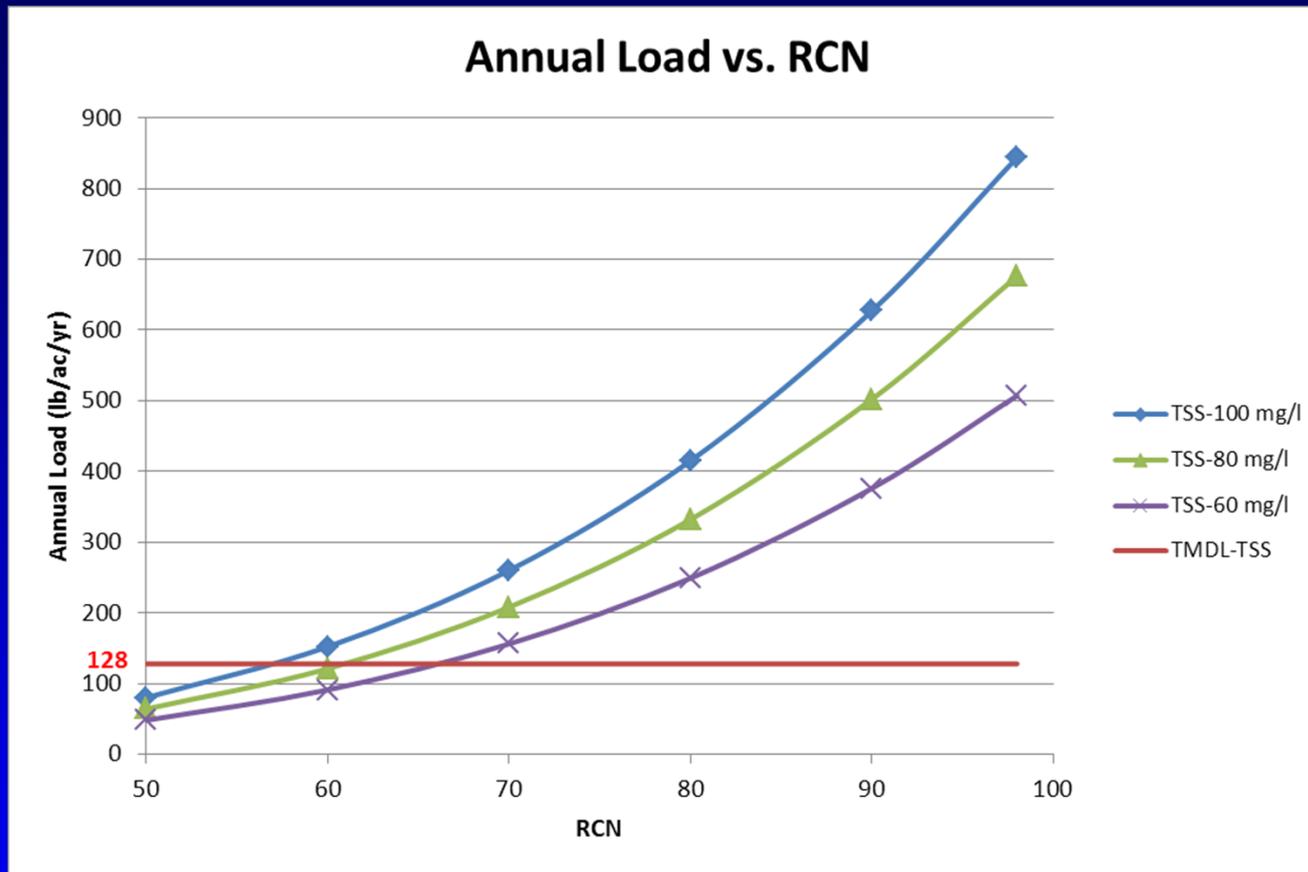
- Total Delaware Area in CB: 452,361 ac.
- Nitrogen
 - Allocation: 2.95 million lbs/yr
 - TMDL Load: 6.52 lbs/ac/yr
- Phosphorus
 - Allocation: 0.26 million lbs/yr
 - TMDL Load: 0.57 lbs/ac/yr
- Sediment
 - Allocation: 57.82 million lbs/yr
 - TMDL Load: 128 lbs/ac/yr (0.06 tons/ac/yr)



NOTE: Load calculation based on est. annual runoff with N-EMC = 2.0 mg/l; **NO** septic load

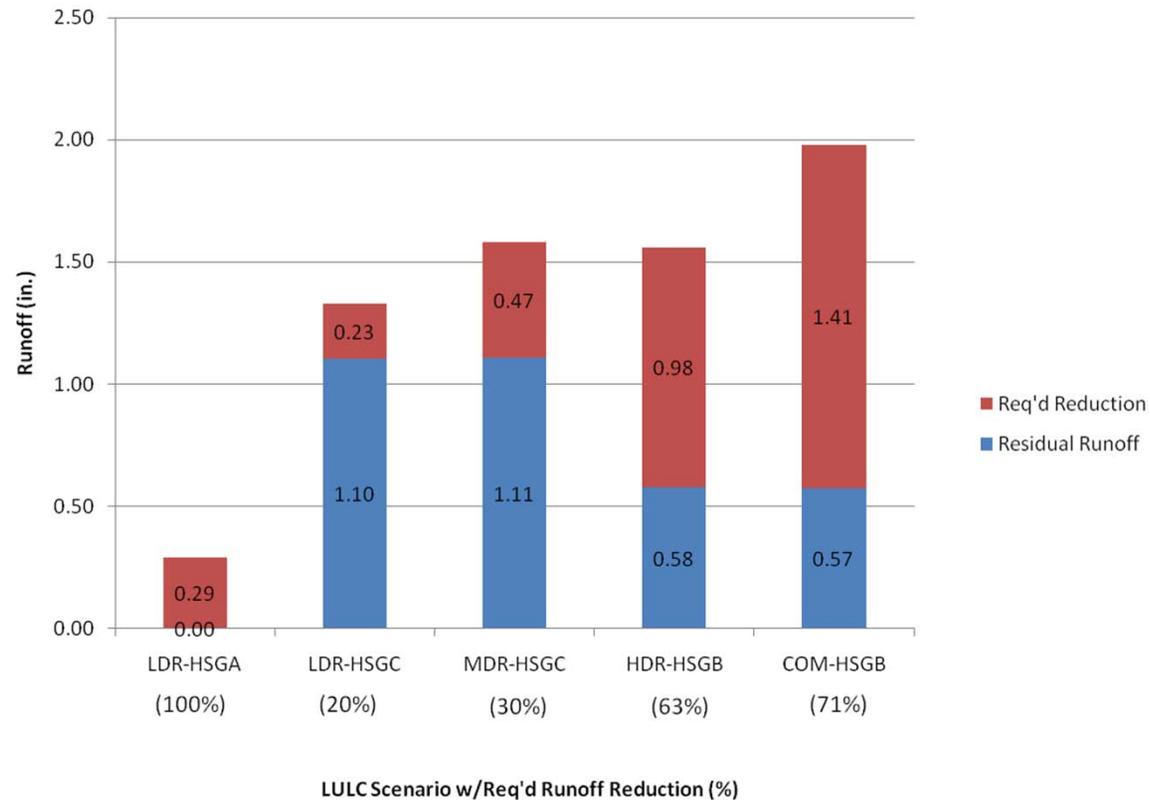


NOTE: Load calculation based on est. annual runoff
with P-EMC = 0.27 mg/l ; **NO** septic load



NOTE: Load calculation based on TSS-EMC values as noted

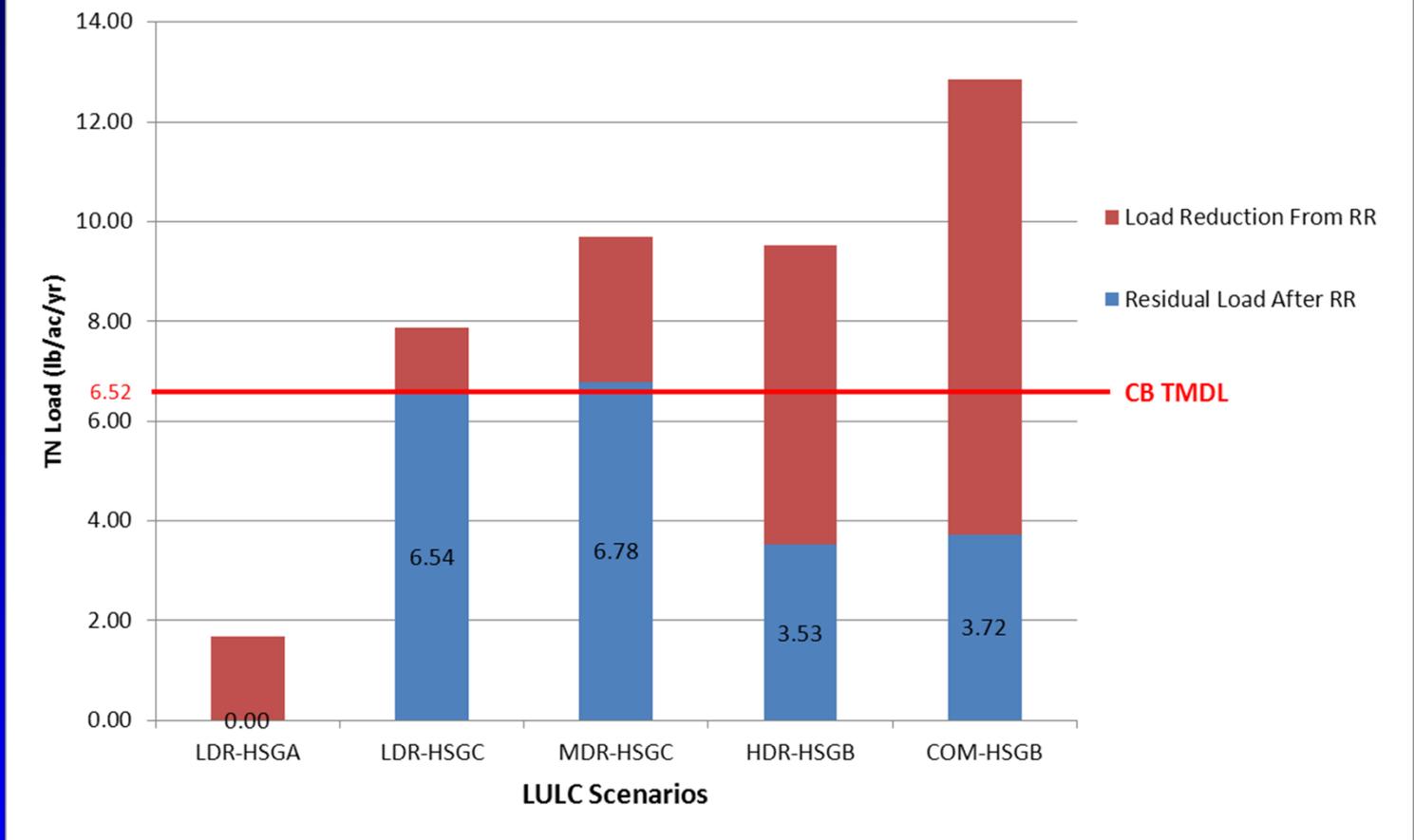
Runoff Reduction for Various LULC Scenarios



Key

LDR-HSGA: Low Density Residential, 20% Imp., HSG A
 LDR-HSGC: Low Density Residential, 20% Imp., HSG C
 MDR-HSGC: Medium Density Residential, 40% Imp., HSG C
 HDR-HSGB: High Density Residential, 60% Imp., HSG B
 COM-HSGB: Commercial, 80% Imp., HSG B

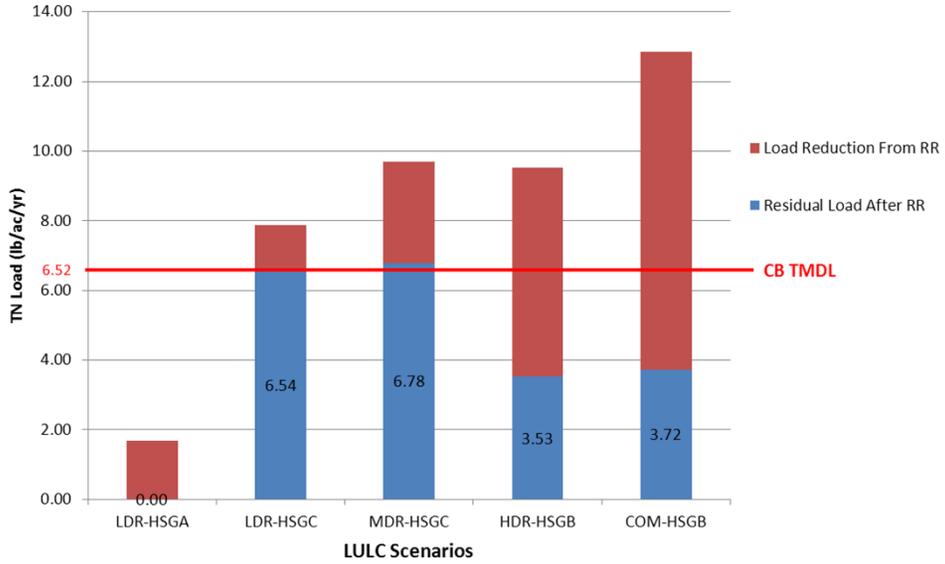
TN Reduction for Various LULC Scenarios



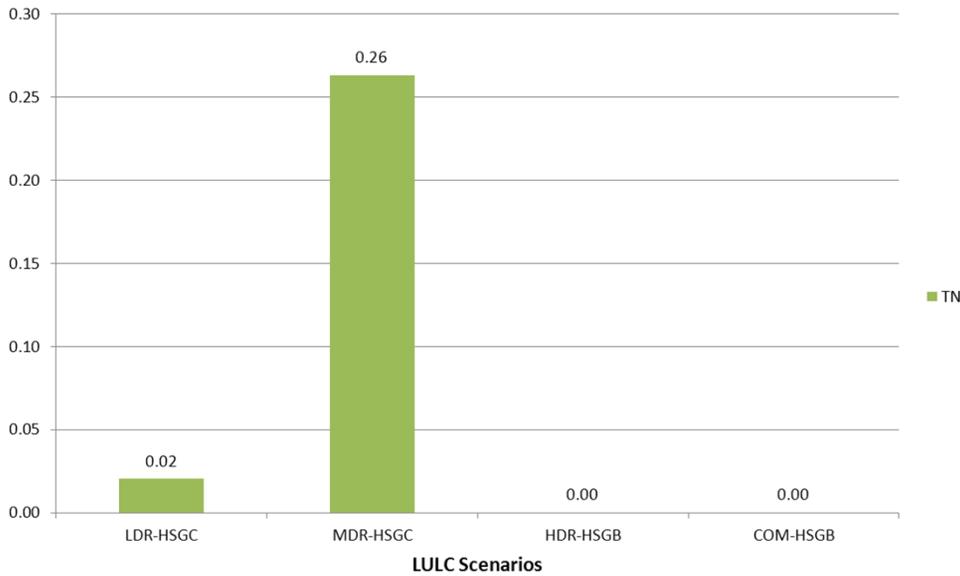
Key

- LDR-HSGA: Low Density Residential, 20% Imp., HSG A
- LDR-HSGC: Low Density Residential, 20% Imp., HSG C
- MDR-HSGC: Medium Density Residential, 40% Imp., HSG C
- HDR-HSGB: High Density Residential, 60% Imp., HSG B
- COM-HSGB: Commercial, 80% Imp., HSG B

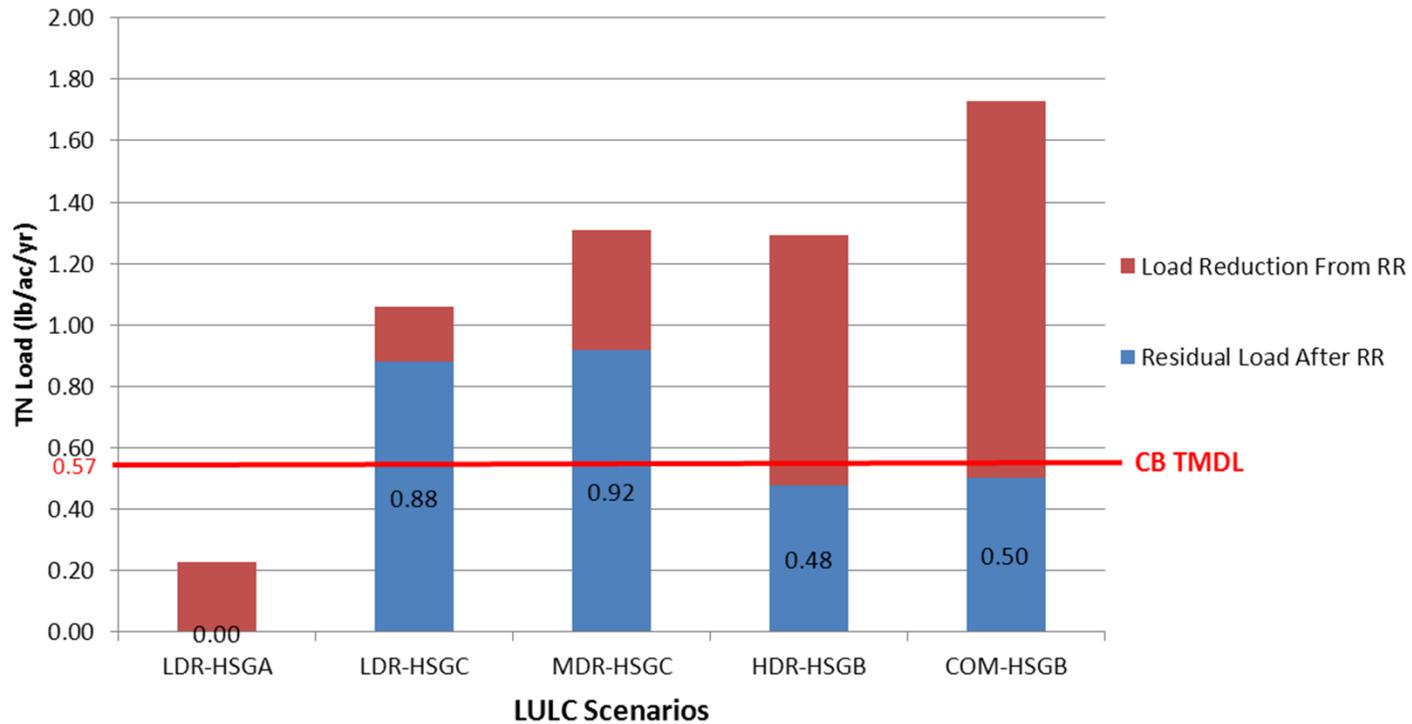
TN Reduction for Various LULC Scenarios



Additional Reduction to Meet TMDL-TN (lb/ac/yr)



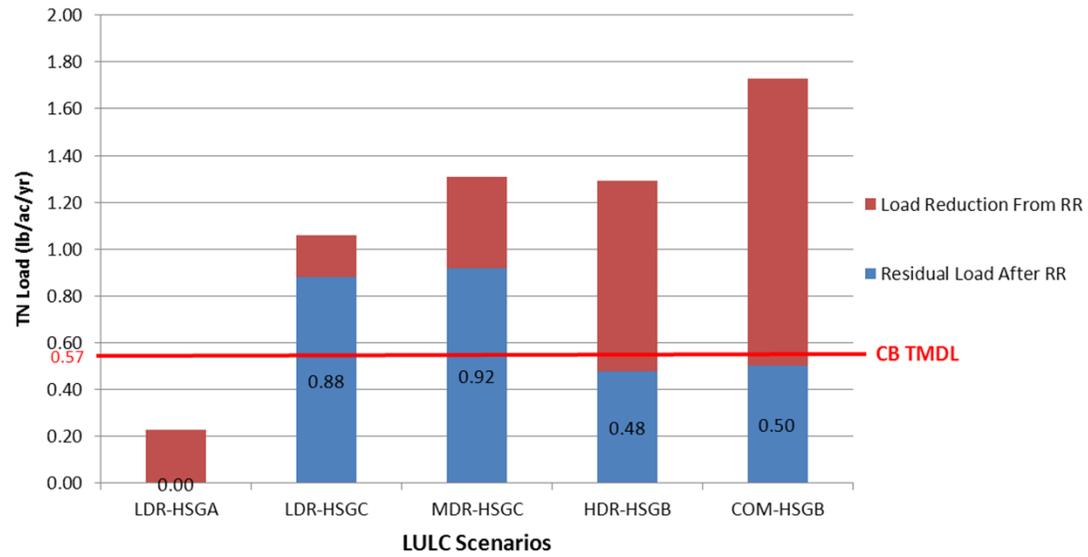
TP Reduction for Various LULC Scenarios



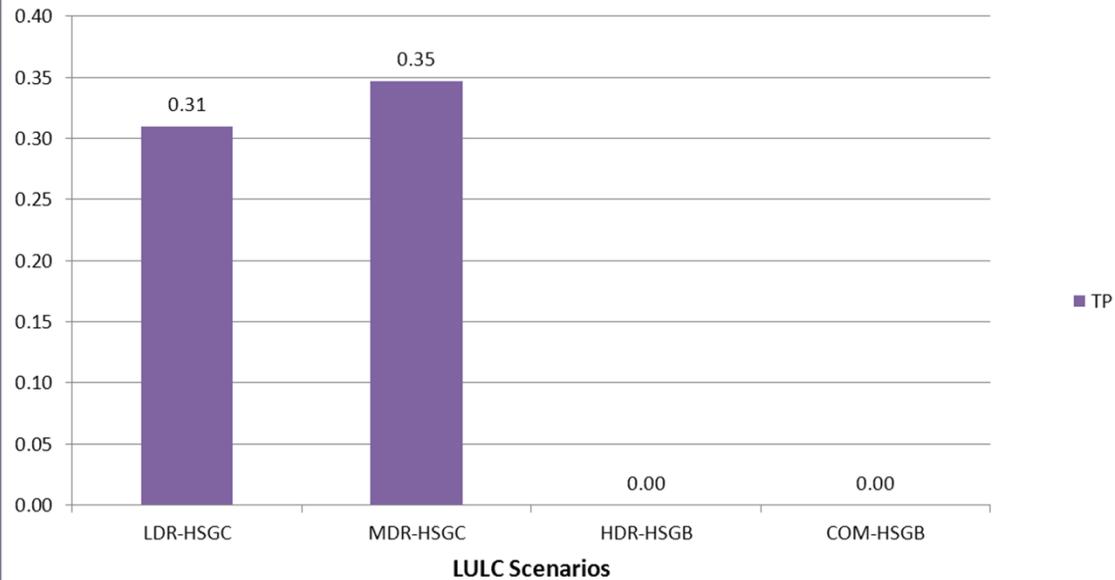
Key

LDR-HSGA: Low Density Residential, 20% Imp., HSG A
LDR-HSGC: Low Density Residential, 20% Imp., HSG C
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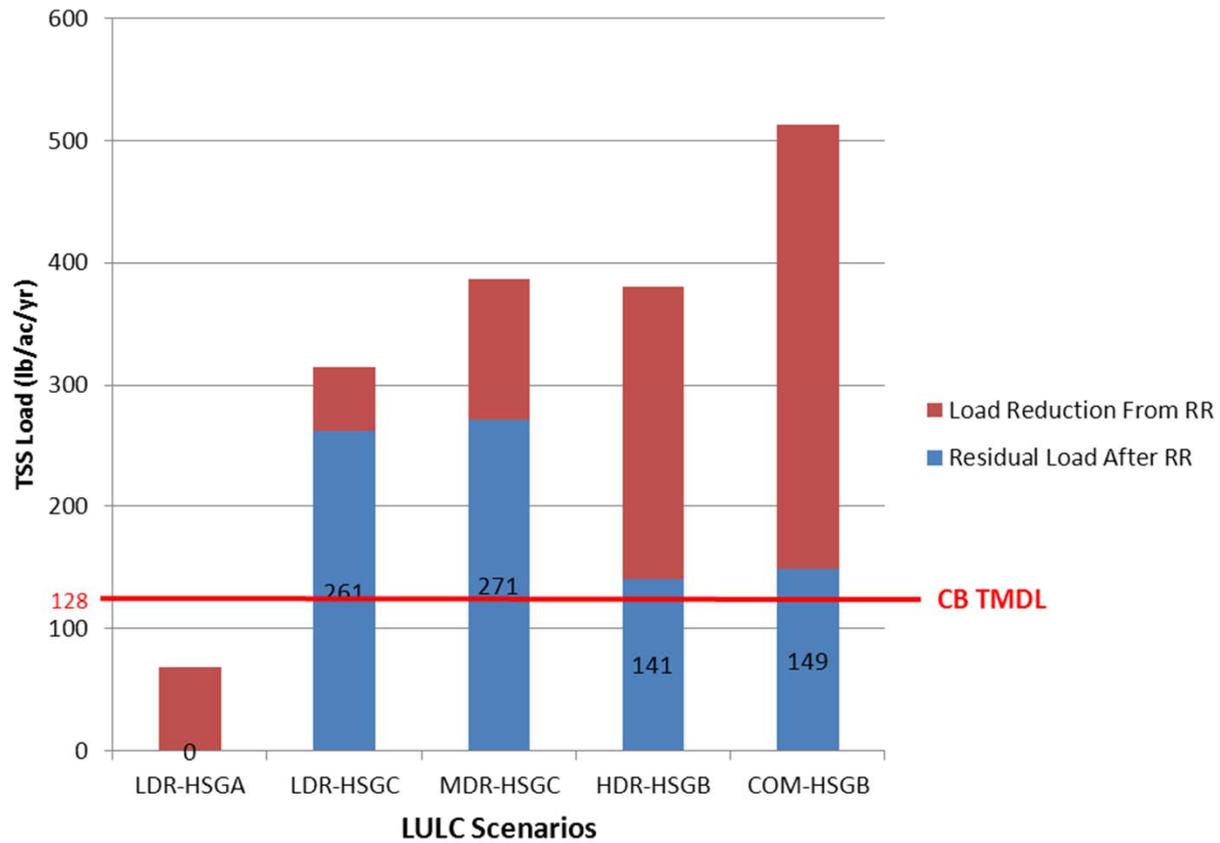
TP Reduction for Various LULC Scenarios



Additional Reduction to Meet TMDL-TP (lb/ac/yr)



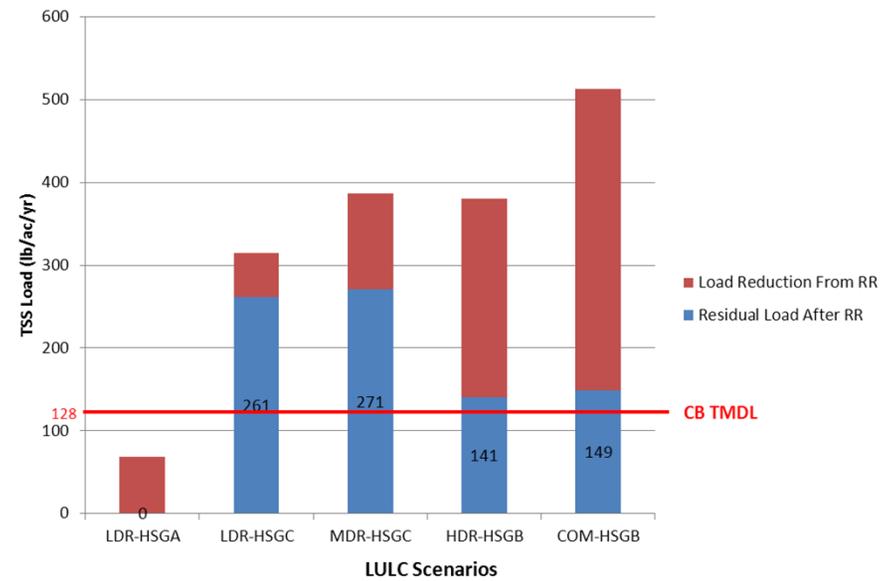
TSS Reduction for Various LULC Scenarios



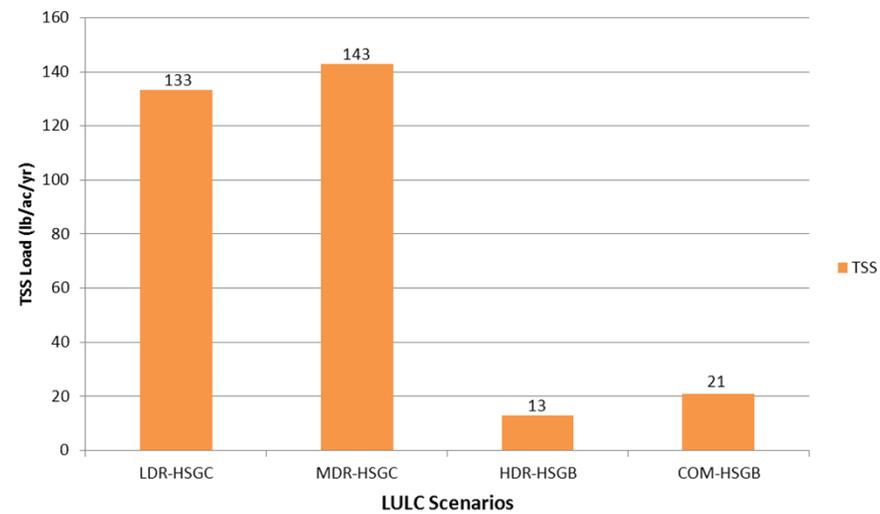
Key

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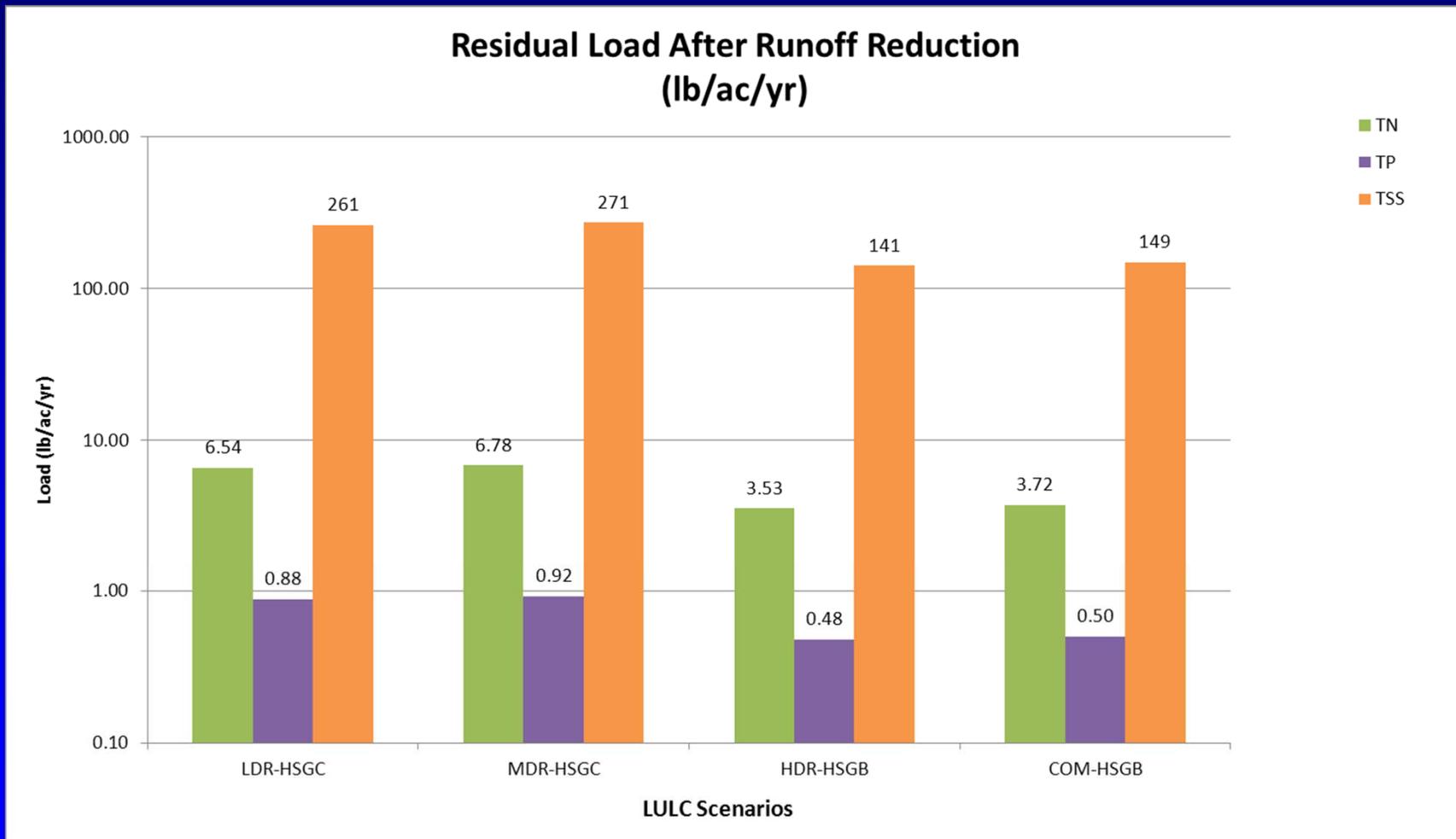
TSS Reduction for Various LULC Scenarios



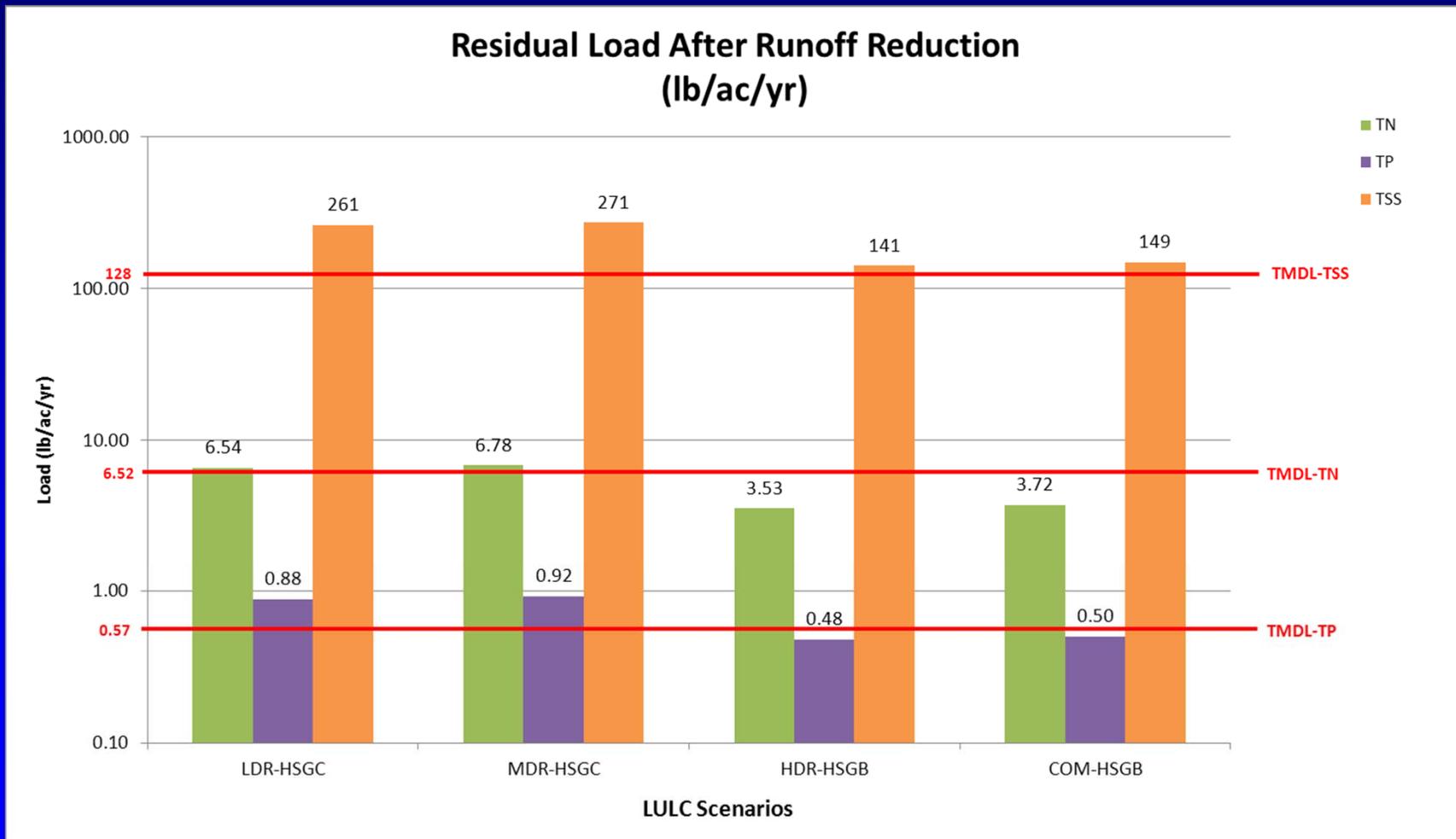
Additional Reduction to Meet TMDL-TSS (lb/ac/yr)



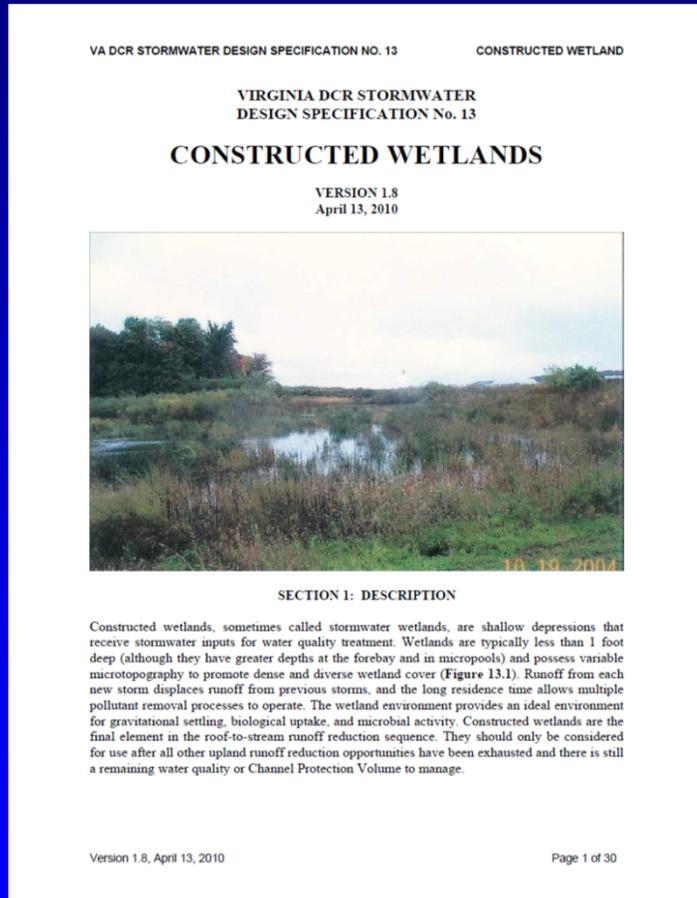
w/Minimum Runoff Reduction



w/Minimum Runoff Reduction



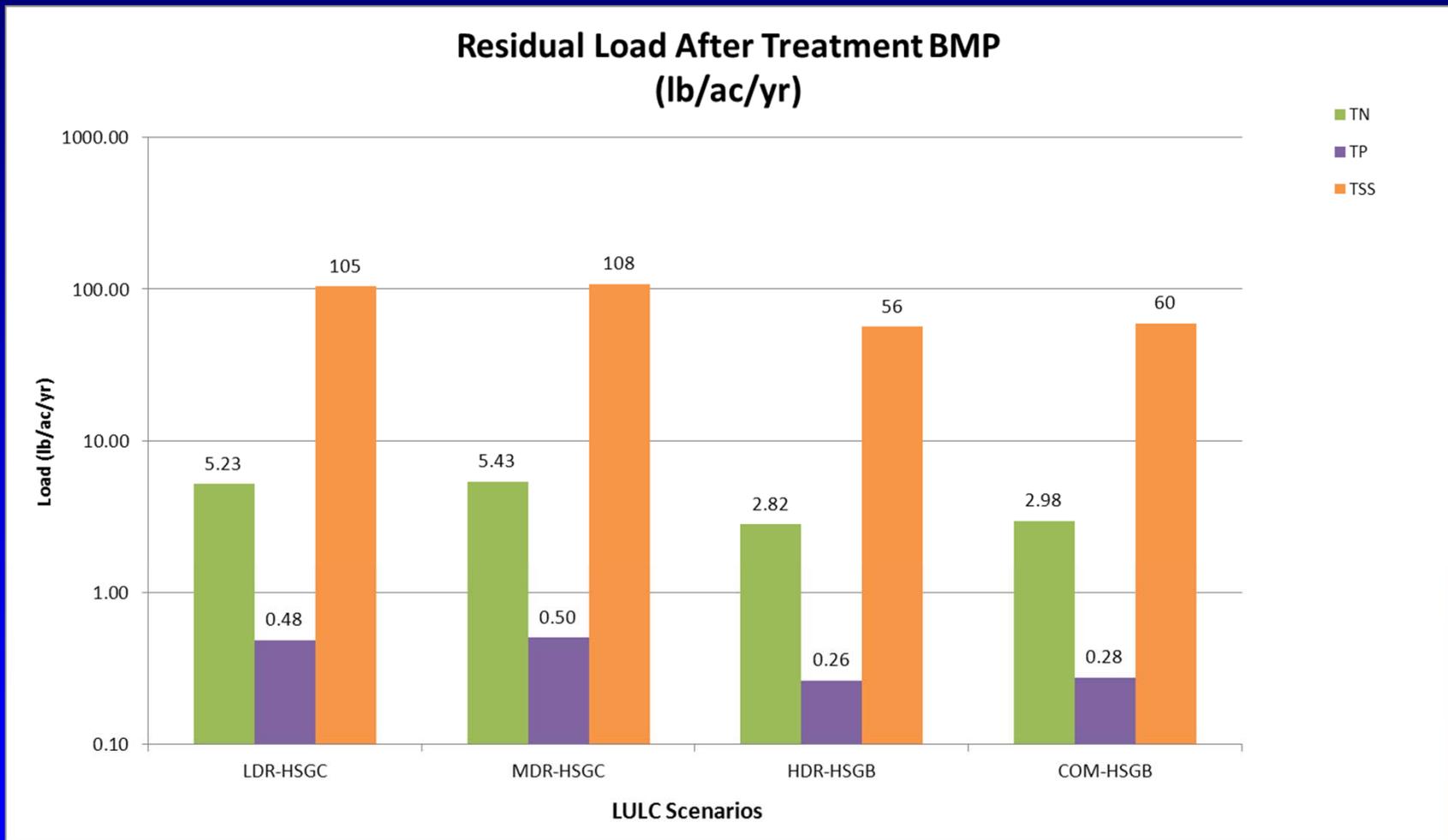
Treatment BMP Removal Efficiencies*



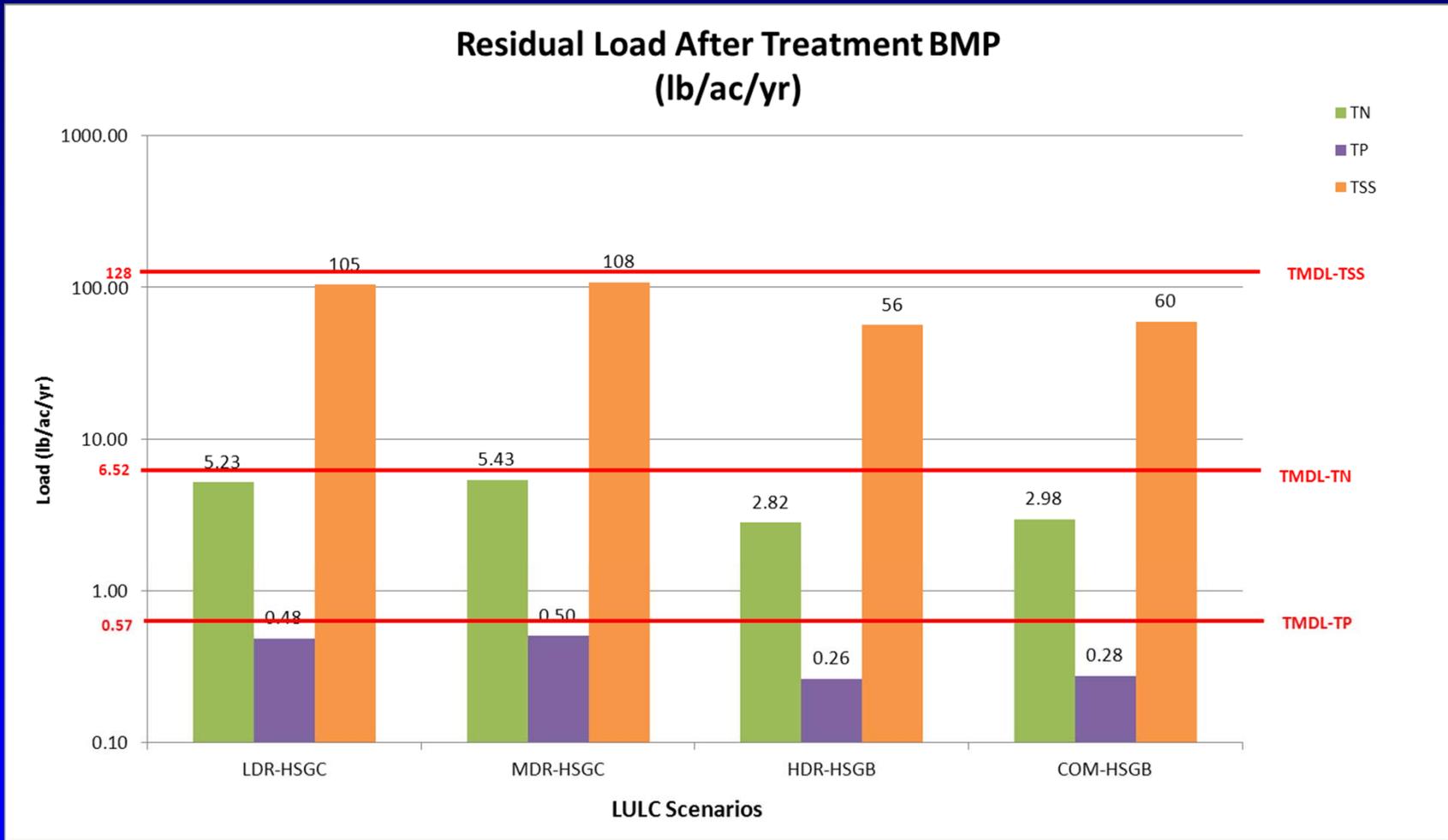
- TN: 20%
- TP: 45%
- TSS: 60%

*EPA CBP Scenario Builder Documentation

Runoff Reduction + Treatment BMP



Runoff Reduction + Treatment BMP



DURMM v.2

DURMM_v2_2011-01-10_no-offset.xls [Compatibility Mode] - Microsoft Excel

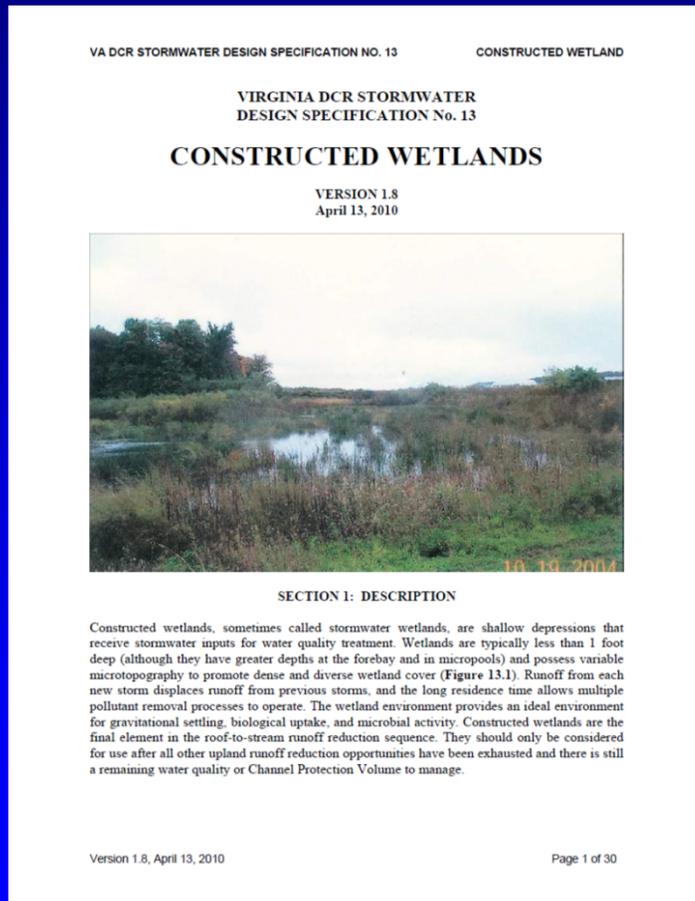
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | | | | |
|----|--|---------|----|-----|------|----|---------|-----|------|----|----|---------|------|----|----|-----|---------|----|----|-----|------|---------|----|-----|--|--|
| 1 | PROJECT: | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | DRAINAGE SUBAREA ID: | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | TMDL WATERSHED: | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | BMP 1 | | | | | BMP 2 | | | | | BMP 3 | | | | | BMP 4 | | | | | BMP 5 | | | | |
| 6 | Type: | 0 | | | | | 0 | | | | | 0 | | | | | 0 | | | | | 0 | | | | |
| 7 | Data | TN | TP | TSS | Data | TN | TP | TSS | Data | TN | TP | TSS | Data | TN | TP | TSS | Data | TN | TP | TSS | Data | TN | TP | TSS | | |
| 8 | 1.1 Total contributing area to BMP (ac) | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 1.2 Contributing area RCN | #DIV/0! | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 1.3 Annual runoff volume (in) | #DIV/0! | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 1.4 Annual runoff volume (liters) | #DIV/0! | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Step 2 - Calculate Annual Pollutant Load | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 2.1 EMC (mg/l) | 2.0 | | | | | 0.27 | | | | | 80 | | | | | | | | | | | | | | |
| 15 | 2.2 Load (mg/yr) | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | |
| 16 | 2.3 Load (lb/ac/yr) | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Step 3 - Adjust for Runoff Reduction | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | 3.1 BMP Runoff Reduction (%) | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | |
| 20 | 3.2 Adjusted load (lb/ac/yr) | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | |
| 21 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | Step 4 - Adjust for BMP Treatment | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 4.1 BMP Removal Efficiency | #N/A | | | | | #N/A | | | | | #N/A | | | | | #N/A | | | | | #N/A | | | | |
| 24 | 4.2 Adjusted load (lb/ac/yr) | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | |
| 25 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | Step 5 - Calculate Pollutant Reduction | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 5.1 TMDL (lb/ac/yr) | #N/A | | | | | #N/A | | | | | #N/A | | | | | #N/A | | | | | #N/A | | | | |
| 28 | 5.2 Reduction met? | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | | #DIV/0! | | | | |
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Ready | C.A. RCI | LOD | OLOD | RPv | TMDL | Cr | Fv | DURMM Report | 90%

DURMM v.2

Runoff Reduction Allowances & BMP Removal Efficiencies

DURMM v.2: Sources of BMP Performance Data



- CBP Scenario Builder
- CSN Tech Note 4
- VADCR RR Methodology
- GA SWM Manual
- Coastal Stormwater Supplement to the GA SWM Manual

DURMM v.2: Alternatives for Areas Managed by Runoff Reduction

- Option 1
 - Adjust for portion of subarea managed
- Option 2
 - Break subarea into separate managed areas

DURMM v.2: Alternatives for Areas Managed by Runoff Reduction



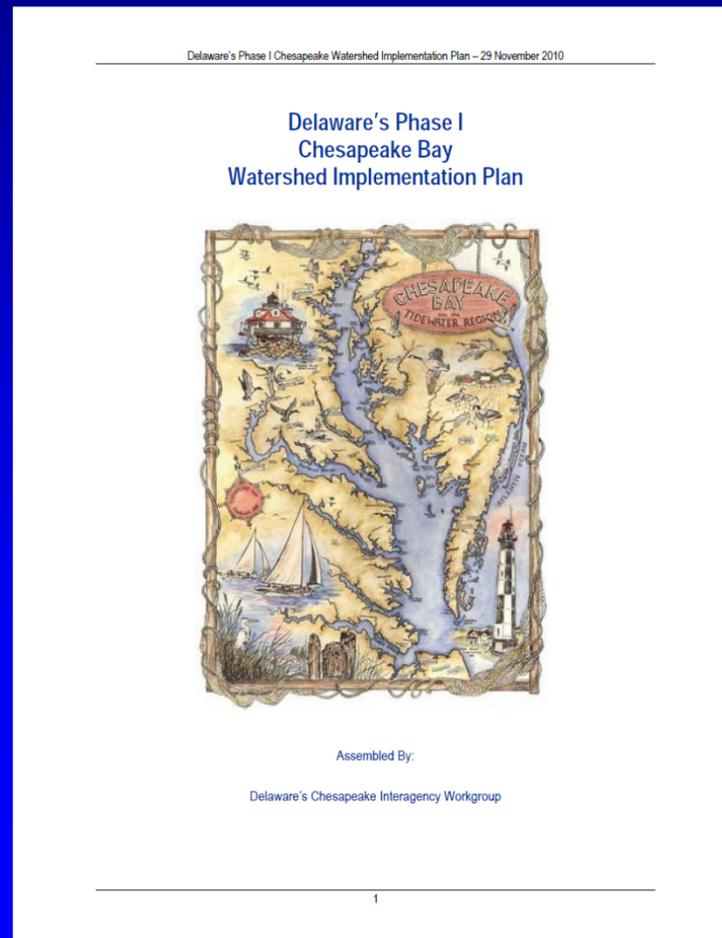
DURMM v.2: Alternatives for Areas Managed by Runoff Reduction



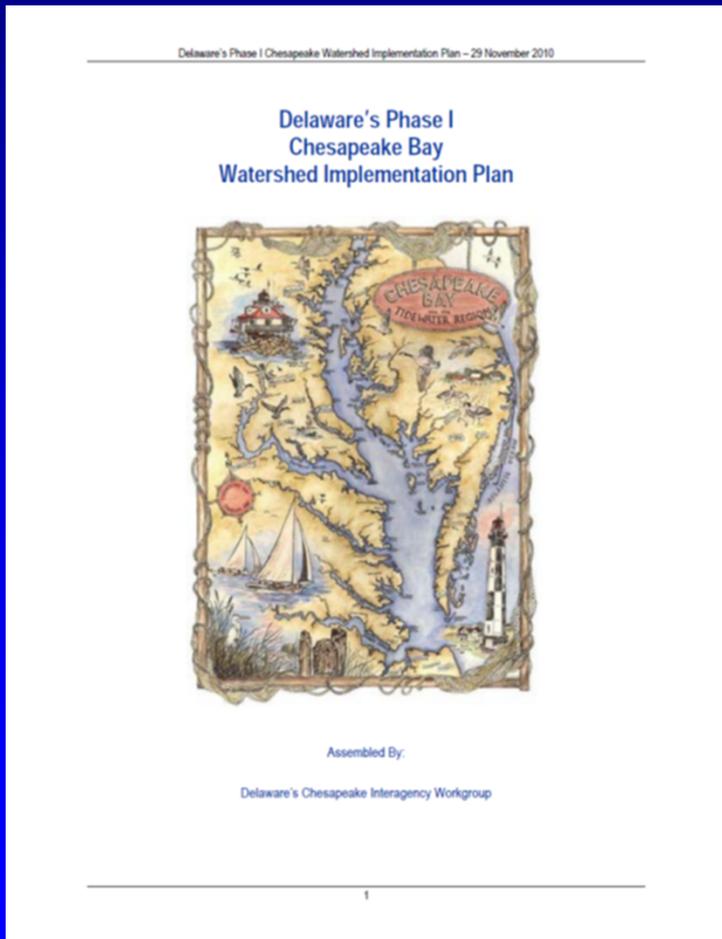
- Option 1
 - 1 subarea
 - % disconnected impervious
- Option 2
 - 2 subareas
 - Connected & disconnected

Requirements for Redevelopment *Update*

Delaware's Final Phase I Chesapeake Bay Watershed Implementation Plan (WIP)

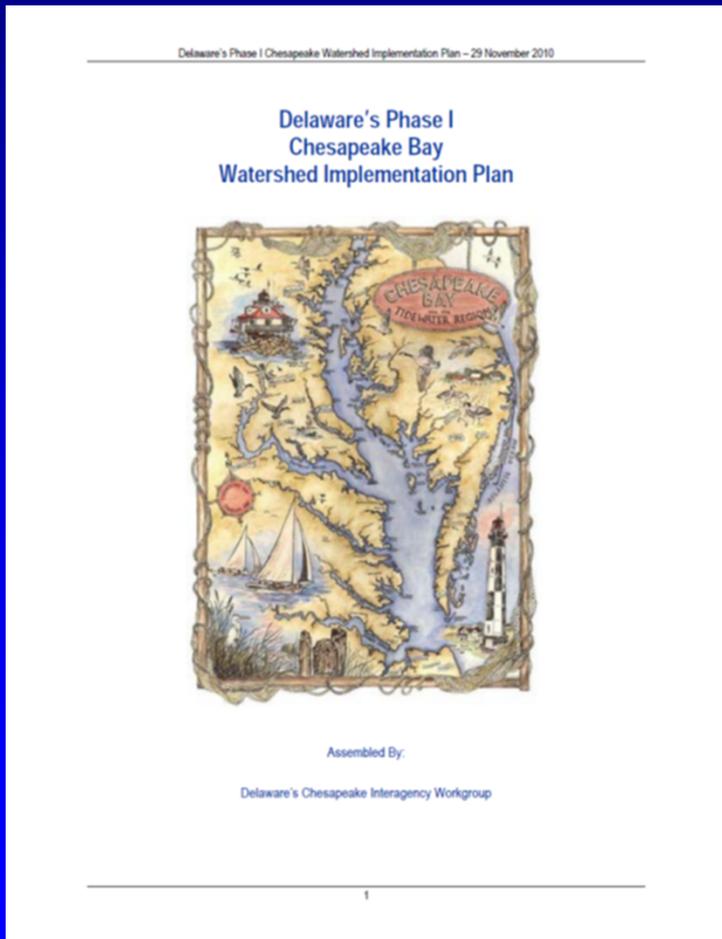


Delaware's Phase I WIP



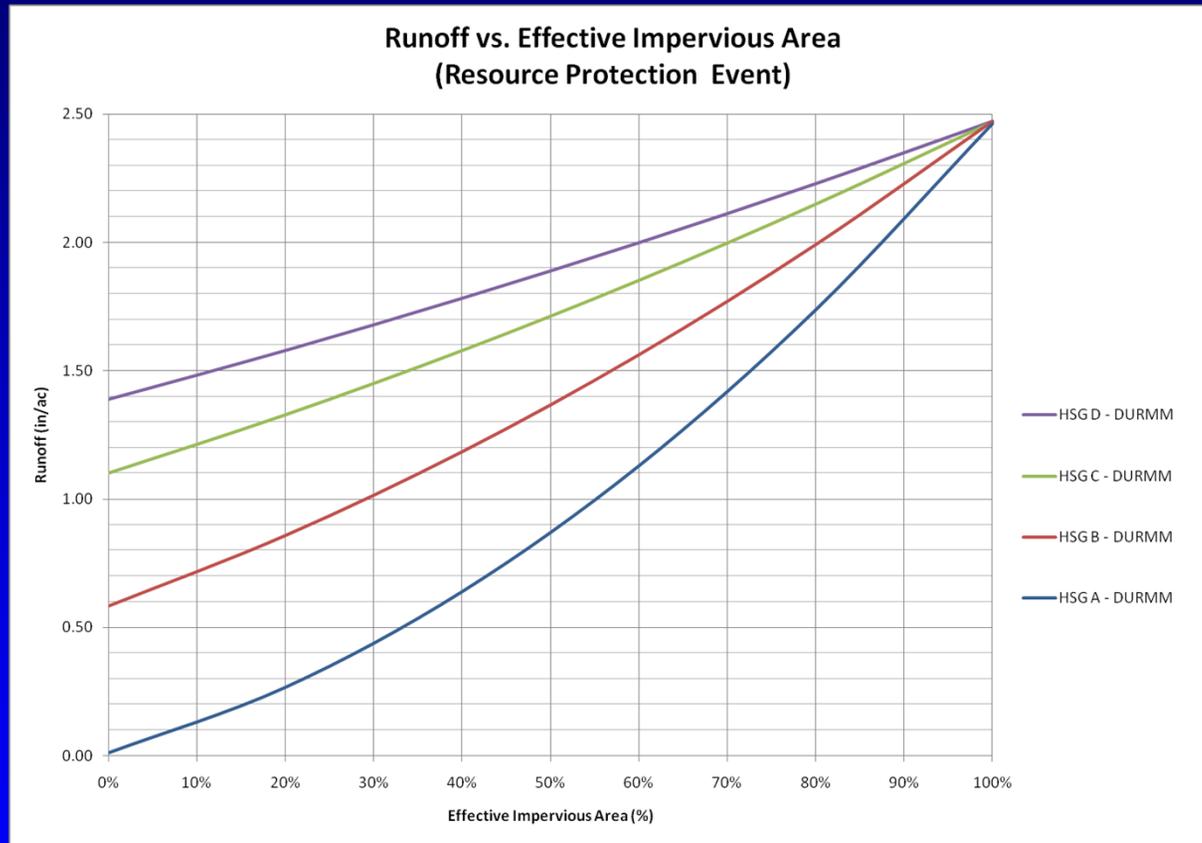
- Section 7.4.1
 - “Redevelopment projects will be required to construct in accordance with the current Sediment and Stormwater Regulations, essentially retrofitting areas as they become redeveloped.”

Delaware's Phase I WIP



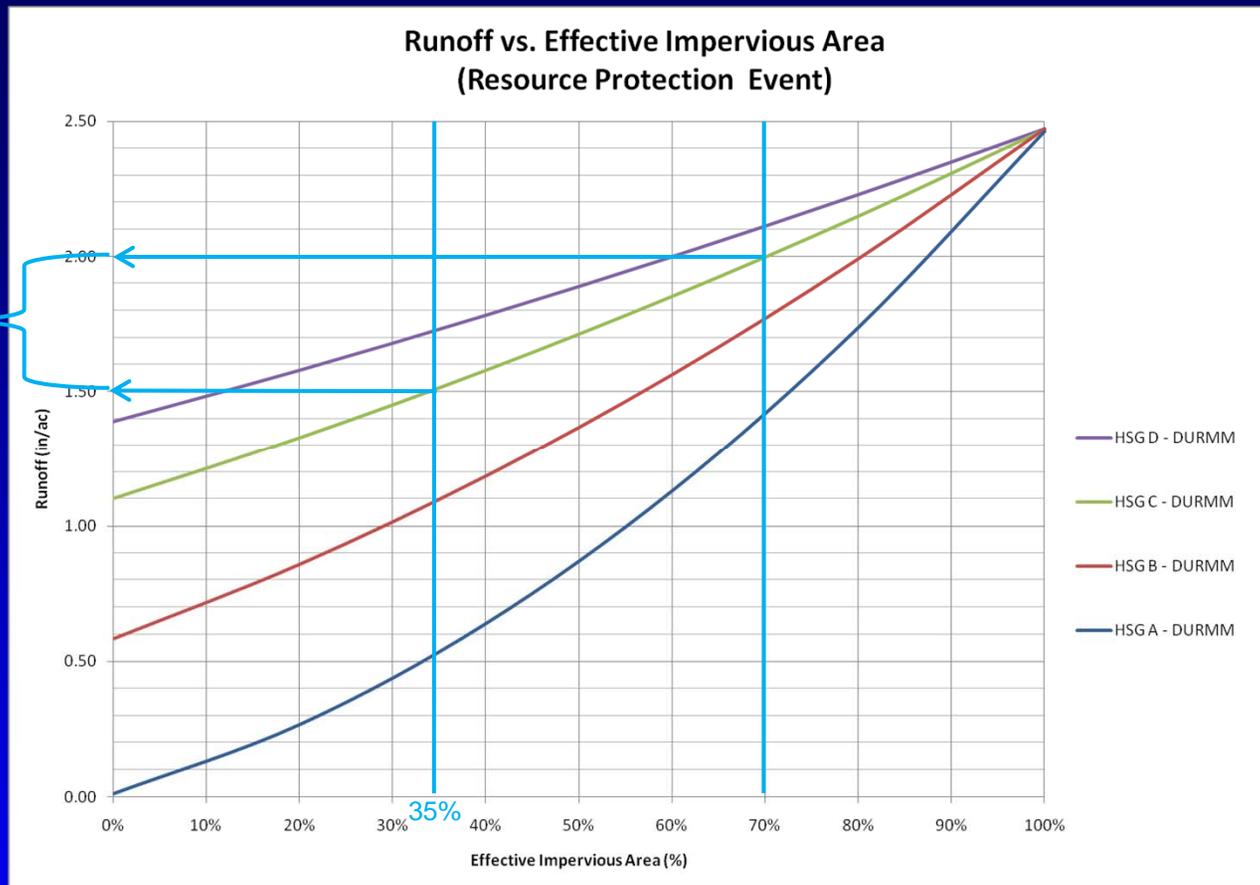
- Section 7.5
 - “Redevelopment projects would be required to reduce their effective imperviousness to 50% of the existing condition, with a consequential 50% reduction in the existing pollutant load.”

Proposed Minimum RR for Redevelopment

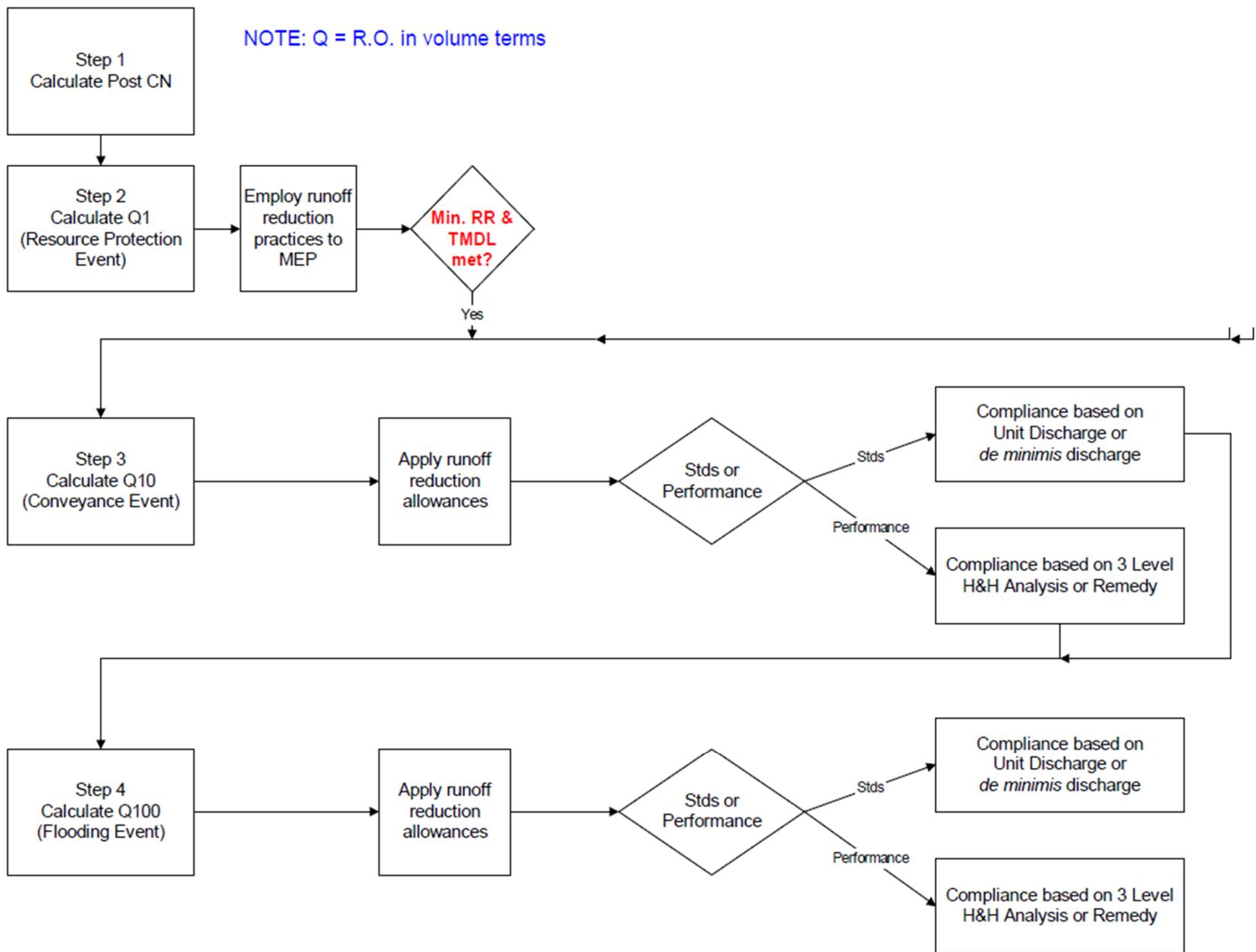


50% Reduction in **Existing Effective** Imperviousness

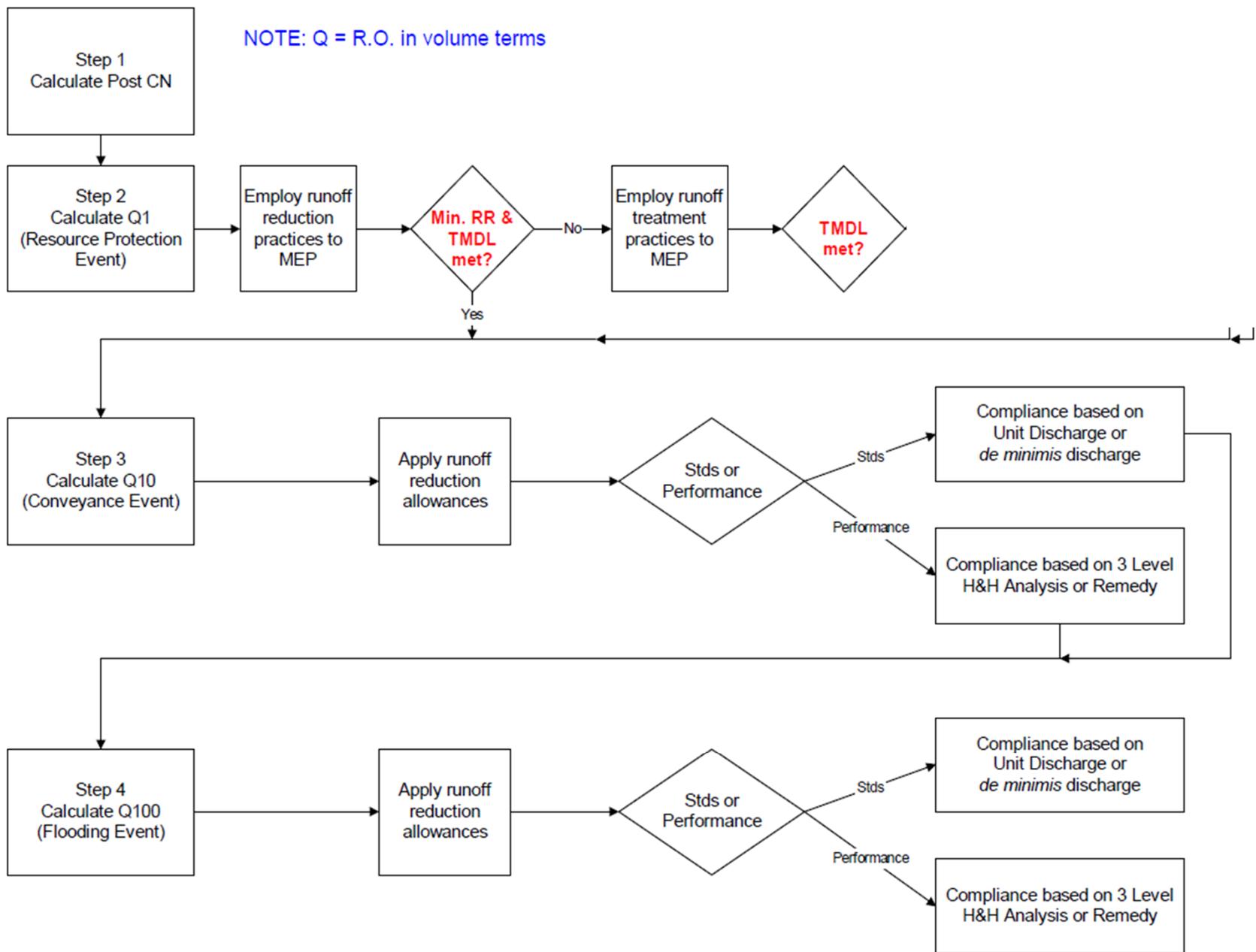
Redev.
Site RR



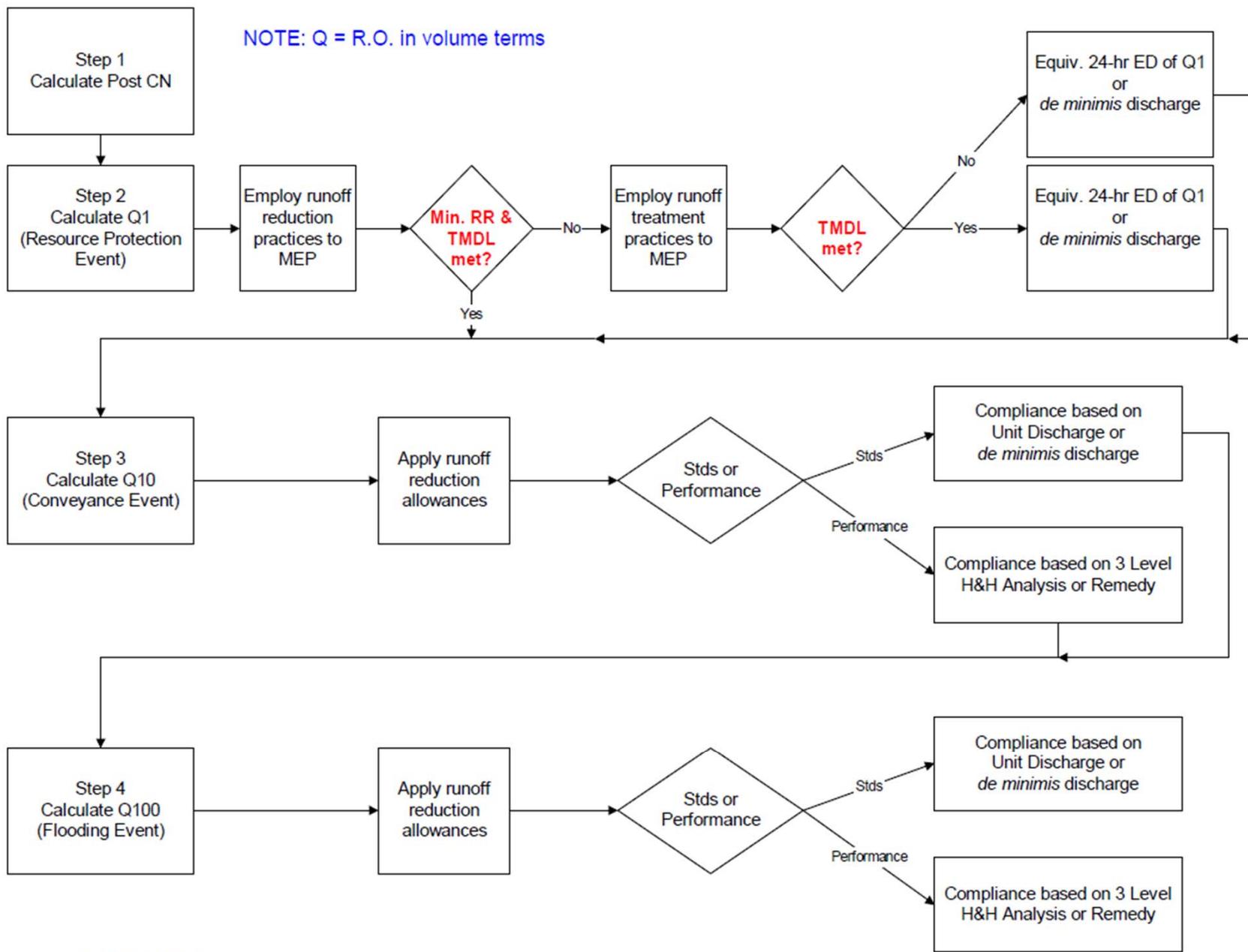
Redevelopment Site: 70% Ex. Effective Imperviousness, HSG C Soil
Runoff = 2.0"
Redeveloped Effective Imperviousness = 0.5 (70%) = 35%
Maximum Allowable Runoff for Compliance = 1.50"



draft 09/2010



draft 09/2010



Questions???

RegRevisions - Windows Internet Explorer

http://www.swc.dnrec.delaware.gov/Drainage/Pages/RegRevisions.aspx

Delaware.gov | Text Only

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State of Delaware
The Official Website of the First State

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Phone Numbers Help

DNREC : Division of Soil & Water Conservation : Drainage and Stormwater Section

Drainage & Stormwater Section

Home

- About Us
- Contact Us/Office Locations
- Newsroom
- FAQ
- Sections/Programs
- DNREC Public Notices

Services

- Conservation Districts
- Contractor Services
- Debris Pit Program
- Environmental Navigator
- Environmental Navigator (Revised - Beta version)
- Loans/Grants/Cost-Share
- Macroalgae Harvesting
- Permits/Licenses/Approvals
- Restoration

Information

- Alphabetical Listing of Information
- Delaware Estuarine Research Reserve
- Regs/Laws
- Request for Qualifications
- SWC Publications & Newsletters

Revisions To The Delaware Sediment And Stormwater Regulations

Revisions to the Delaware Sediment and Stormwater Regulations are currently under way. To assist with this effort, the Delaware Sediment and Stormwater Program has contracted with a consultant team consisting of the Center for Watershed Protection, Johnson, Mirmiran & Thompson, and the Horsely Witten Group.

[Regulatory Advisory Committee \(RAC\)](#)
The Regulatory Advisory Committee (RAC) was formed to help guide the revisions to the Delaware Sediment and Stormwater regulations.

Upcoming RAC Meetings: TBD
[Find details on all DNREC meeting locations and times](#)

RAC Meeting Summaries To Date

- May 27, 2010 [Agenda, Meeting Notes, Presentation](#)
- Feb. 25, 2010 [Agenda, Meeting Notes, Presentation](#)
- Feb. 9, 2009 [Agenda, Meeting Notes, Presentation](#)
- March 27, 2008 [Agenda, Meeting Notes](#)
- Jan. 22, 2008 [Agenda, Meeting Notes](#)
- Oct. 16, 2007 [Agenda, Meeting Notes](#)

RAC Subcommittees & Meeting Summaries

Documents

- [DRAFT Technical Document](#) - Sept. 2010
- [DURMM/2](#) - July 2010
- [Second Draft](#) - May 2010
- [First draft comment responses](#) - May 2010
- [September 2009 RAC Update Memo](#)
- [Stormwater Assessment Report \(Final\)](#)
- [First working draft of Sediment and Stormwater Regulations](#) Feb. '09
- [See comments on first working draft regs under RAC Subcommittees](#)
- [Update memo to RAC](#) Aug. '08
- [Subcommittee Outline Comments](#) March '08
- [Gov. Minner's Task Force on Surface Water Management](#) April 2005

Sign Up to Receive Updates

If you wish to receive regulatory revision updates and notices of public meetings related to revisions to the regulations, please send an e-mail containing your contact information to Elaine.Webb@state.de.us.

start | 0-Data | Technical Subcommittee | Microsoft PowerPoint... | RegRevisions - Windo... | 11:21 AM

Discussion

