

Center Street, North Wales Homeowner Basin



Re-grading



Planting & Seeding



**5 Days of Rain.....infiltration trenches
required**



**Upper Gwynedd Township
Stormwater Basin Retrofit**



**HABITAT
RESTORATION
IN PROGRESS**

 **WISSAHICKON
WATERSHED
ASSOCIATION**

215-646-8866 | www.wwa.org

**Crossway's Preserve
Meadow Restoration**



**Plymouth Dam Removal
During**



**Plymouth Dam Removal
After**



**Ambler Borit Asbestos Site
Remediation/Stream Bank
Stabilization**

Municipal Separate Storm Sewer System (MS4) and Total Maximum Daily Load (TMDL)

- Wissahickon sediment TMDL (10-9-2003)
- September 2011 General Permit PAG-13 – TMDL Requirements
- Individual municipalities or part of regional/watershed plan

*Upstream load includes the TMDL load from subwatershed 4

Table 4-12. Summary of sediment wasteload allocations for streambank erosion and overland load by municipality (MS4)

| Municipality | Existing Load from Streambank Erosion (lbs/yr) | Streambank Erosion WLA (lbs/yr) | Percent Reduction for Streambank Erosion | Existing Overland Load (lbs/yr) | Overland Load WLA (lbs/yr) | Percent Reduction for Overland Load (lbs/yr) | TOTAL WLA (lbs/yr) |
|--------------|--|---------------------------------|--|---------------------------------|----------------------------|--|--------------------|
| Abington | 121,604.46 | 41,116.77 | 0.66 | 362,538.56 | 87,796.68 | 0.76 | 128,913.40 |

| Municipality | Existing Load from Streambank Erosion (lbs/yr) | Streambank Erosion WLA (lbs/yr) | Percent Reduction for Streambank Erosion | Existing Overland Load (lbs/yr) | Overland Load WLA (lbs/yr) | Percent Reduction for Overland Load (lbs/yr) | TOTAL WLA (lbs/yr) |
|--------------|--|---------------------------------|--|---------------------------------|----------------------------|--|--------------------|
| Ambler | 17,974.49 | 9,346.73 | 0.48 | 75,008.50 | 32,843.24 | 0.56 | 42,189.97 |
| Cheltenham | 1,758.29 | 1,512.13 | 0.14 | 20,549.46 | 4,449.00 | 0.78 | 5,961.13 |
| Horsham | 2,611.24 | 1,267.20 | 0.51 | 5,764.44 | 2,288.51 | 0.60 | 3,555.71 |
| Lansdale | 10,032.37 | 5,216.83 | 0.48 | 60,295.96 | 47,115.59 | 0.22 | 52,332.43 |
| Lower G. | 168,245.82 | 87,487.83 | 0.48 | 575,510.64 | 349,872.50 | 0.39 | 437,360.30 |
| Montgomery | 25,443.78 | 13,230.77 | 0.48 | 135,550.26 | 97,897.57 | 0.28 | 111,128.30 |
| North Wales | 8,414.77 | 4,375.68 | 0.48 | 50,070.60 | 37,955.87 | 0.24 | 42,331.55 |
| Philadelphia | 133,827.01 | 115,091.23 | 0.14 | 1,413,863.47 | 265,770.10 | 0.81 | 380,861.30 |
| Springfield | 51,241.03 | 38,361.29 | 0.25 | 700,517.47 | 151,803.80 | 0.78 | 190,165.00 |
| Upper Dublin | 350,903.91 | 131,125.58 | 0.63 | 906,098.66 | 333,482.10 | 0.63 | 464,607.60 |
| Upper G. | 73,016.96 | 37,968.82 | 0.48 | 695,874.85 | 512,615.60 | 0.26 | 550,584.30 |
| Upper M | 1,108.17 | 366.85 | 0.67 | 1,303.29 | 494.72 | 0.62 | 861.57 |
| Whitemarsh | 79,221.96 | 51,034.76 | 0.36 | 479,266.95 | 188,497.70 | 0.61 | 239,532.40 |
| Whitpain | 105,137.80 | 55,148.05 | 0.48 | 357,776.46 | 236,125.20 | 0.34 | 291,273.30 |
| Worcester | 1,423.06 | 739.99 | 0.48 | 10,644.84 | 9,610.08 | 0.10 | 10,350.07 |

PAG-13 TMDL Timeline

- **September 14, 2012** submittal to meet **March 15, 2013** permit renewal
- TMDL plan with schedule at 9/14/12 submittal
- TMDL design details developed in **first year**
- Report on implementation in **third year report** (physical pollutant removal measures in ground) + at **next permit renewal**.
- Implement plan **as soon as practicable**...may be multiple permit cycles

TMDL Plan

- Strategy – 9 example control measures:
 - Riparian forest buffers
 - Disconnection impervious surfaces
 - Tree planting
 - Recharge/infiltration facilities
 - Basin retrofits
 - Restore stream banks
 - Green infrastructure (rain gardens, roofs)
 - Additional provisions
 - Trading and offset program

TMDL Implementation Requirements

- Demonstrate waste load allocation reductions
 - Analysis to explain control measures (mathematical methods)
- Provide schedule...timeline as soon as practicable
- Assure proper O/M
- Engineer approved plan
- Annual reports

Analytical Methods?

- The **Simple Method** to Calculate Urban Stormwater Loads
 - Subwatershed drainage area, impervious cover, stormwater runoff pollutant concentrations, and annual precipitation.
- The Stormwater Manager's Resource Center (<http://www.stormwatercenter.net/>); Center For Watershed Protection via EPA grant
- **Opportunity for Partnership research and collaboration**

Other areas of collaboration

- Act 167 plan, project inventory and associated resources
- Trading and offset program allowed
 - Approval of proposal for trading and offset from DEP
 - Identify and negotiate credits
 - Enter trading and offset contract