



**DORMONT BOROUGH
TOTAL MAXIMUM DAILY LOAD
STRATEGY PLAN**

DECEMBER 31, 2015

DRAFT

Dormont Borough (PAG 136284) Total Maximum Daily Load (TMDL) Revised Narrative and Strategy for Nutrients and Sediment PAG 136284 Saw Mill Run

1.0 Background and Purpose

1.1 Location

The Saw Mill Run watershed is located within the upper Ohio River Basin. Approximately 491 acres of the approximately 12,000 acre watershed are located in Dormont Borough. Following the guidelines of Section 303(d) of the Clean Water Act for TMDLs, the United States Environmental Protection Agency (EPA) established a TMDL in Dormont Borough for Sediment on April 4, 2007 and for Nutrients (phosphorus) on July 1, 2008. The U.S. EPA developed TMDLs for Sediment and Nutrients (phosphorus) for both point and non-point sources in Saw Mill Run.

1.2 Dormont Borough Characteristics

Dormont Borough is a highly urbanized area that was almost 100% built out by 1930. Land use is dominated by residential structures (e.g., single-family homes, duplexes and apartment buildings on relatively small lots). Dormont Borough has a small business (i.e., commercial) district but no industrial areas. Perennial and intermittent streams that were present prior to the Borough's development were small and have all been placed in culverts. There is a single ephemeral stream located in the northeastern corner of the Borough and is the location of the Borough's only day lighted MS4 outfall (Stormwater Sewer System Map, Figure 1). This urbanization severely limits the number, type and areal coverage available for constructed BMPs (e.g., bioswales, wetlands, etc.).

The Borough's "urbanization ratio" was calculated as part of a stormwater fee study in 2014-2015. This was expressed as the percent of impervious coverage for the entire Borough. This calculation was performed using GIS and aerial mapping. For residential properties, the impervious coverage of a statistically valid sample of specific housing type (i.e., single-family, 2-family, etc.) was utilized and then extrapolated over the entire Borough for that housing type. The impervious area of all commercial properties was individually measured. The impervious area of all streets, alleys and sidewalks was measured separately. Finally, the impervious coverage at each Borough park was considered. Based upon this analysis, the impervious coverage of the entire Borough was calculated to be 63%. If the parks, ball fields and unbuildable wooded areas are excluded from consideration, the net impervious coverage was calculated to be 67%. By contrast, the impervious coverage of the fully built out community on Dormont's southern border, the municipality of Mt. Lebanon, has impervious coverage of approximately 17%.

1.3 Purpose

The purpose of this TMDL Strategy is to reply to PaDEP's letter of February 12, 2015 to provide a more detailed strategy concerning the methodologies and BMP's that Dormont Borough will employ to reduce Dormont Borough's source contribution of Sediment and Nutrients (phosphorus) from Saw Mill Run to meet those water quality standards established in the TMDL studies.

1.4 TMDL Analysis and Results

1.4.1 Analysis

Pollutant loads associated with all municipal MS4s within the Saw Mill Run watershed were estimated using the ArcView Generalized Watershed Loading Functions (AVGWLF) model, which is based on the nutrient unit loads for each land use in the specific MS4 area. The nutrient loads allocated to each MS4 area were then included in the waste load allocation component of the TMDL. In the Saw Mill Run watershed approximately 46% (5,767 acres) of the total watershed area is associated with the various MS4 areas. Dormont Borough has approximately 10% of that total area.

1.4.1.1 Nutrients (Phosphorous)

For Nutrient (phosphorus), starting with a target load of 435.3 lbs/yr, the model found that the annual existing Nutrient (phosphorus) load in Saw Mill Run to be significantly larger at 13,439.2 lbs/yr. The model was then used to determine the Nutrient (phosphorus) load for each of the MS4's in the watershed and the reduction required to meet the water quality standards for the stream. Dormont Borough's annual load or contribution of the phosphorus was calculated to be 170.9 lbs./annual growing season. Dormont borough was then assigned a Nutrient (phosphorus) allocation of 8.2 lbs./annual growing season. Therefore, in order to meet this allocation, Dormont Borough must develop an acceptable strategy to reduce its Nutrient (phosphorus) input to the Saw Mill Run by 95%, which equates to 162.7 lbs./annual growing season.

1.4.1.2 Sediment

The same model was used to determine the Sediment load for each of the MS4's in the watershed. Dormont Borough's annual sediment load contributed to Saw Mill Run was calculated to be 91.35 tons/yr. Dormont Borough was then assigned a Sediment allocation of 24.5 tons/yr. Therefore, in order to meet this allocation, Dormont Borough must develop an acceptable strategy to reduce its sediment input to Saw Mill Run by 73.4%, which equates to 66.85 tons/yr.

2.0 Analysis of Alternative BMPs

2.1 Potential Sources of Pollution in Dormont Borough

This strategy was developed to reduce Nutrient (phosphorus) and Sediment pollution in the Saw Mill Run Watershed originating from Dormont Borough to meet its assigned TMDL targets. To develop the strategy for TMDL reduction it was first necessary to identify the possible sources of each of the two pollutants (i.e., sediment and phosphorus). As noted above, Dormont Borough is almost 100% built out: it is the most densely populated borough in Allegheny County. There are no farms, new developments or day-lighted intermittent or perennial streams in the 0.76 square mile Borough. Because the “usual suspects” of sources of sediment and phosphorus (e.g., farms, stream banks, and large scale developments) are absent from Dormont Borough, we had to consider a different more “exotic” set of sources for these pollutants. The following are the sources of Sediment and Nutrient (phosphorus) pollution identified by Dormont Borough along with the BMPs intended to address the pollutant:

2.1.1 Sediment

1. Falling Leaves & Grass Clippings – Falling leaves in autumn and grass clippings throughout the growing season find their way to the street where they are washed into the storm sewer system. As they decompose they create sediment.
2. Roof Shingles – As roof shingles age, with rain events, they lose the surface grit. This surface grit is washed to the roof downspouts, whereupon it is typically piped to the street discharging at the curb.
3. Deteriorating Concrete (Curbs & Sidewalks) – As the condition of concrete deteriorates (spalls) due to salt usage on curbs and sidewalks, creates sediment that washes into the street and then to the storm sewer system.

2.1.2 Phosphorous

Leaves & Grass clippings - Research studies indicate that 80 percent of the phosphorous from urban settings comes from lawn clippings and leaves that end up in street gutters. While a few grass clippings mowed into the street look rather innocent, collectively they have a major impact on our water quality. Since phosphorus can be dissolved or adsorbed in particulate matter, mainly sediment, control measures to reduce the sediment load will also directly impact and reduce the phosphorus loading to the receiving stream” (2006, Saw Mill Run TMDL Report).

3.0 Plan for Achieving Ultimate TMDL Obligations

Because the two pollutants (sediment and phosphorous) of concern in the Saw Mill Run Watershed are linked, it is expected that with the implementation of those measures (BMPs) described below that Dormont will be able to meet the reduction requirements for each. Therefore, The Borough, working with its stormwater authority plans to implement the following BMP's to achieve the required TMDL reductions:

3.1 Administrative BMP

3.1.1 Funding of BMP's. It is estimated that implementation of the BMP's identified above will require an average expenditure of approximately \$400,000.00/year. Because that amount taken from the Borough's general fund each year would cripple the delivery of many of the Borough's important other services including public safety, the Borough will establish a Stormwater Authority and develop a funding source dedicated to stormwater quality and quantity improvement and control.

3.2 Public Education and Outreach BMPs

3.2.1 **Residents-** The Dormont Stormwater Authority and the Borough will develop a robust public education campaign on a host of stormwater and water quality issues. Some of these will focus on consent decree issues and others will focus on MS4 and Section 401 Clean Water Act issues. This campaign will utilize multiple tools such as:

- 3.2.1.1.1 the expansion of its ad hoc stormwater citizens advisory committee;
- 3.2.1.1.2 use of Borough website, Facebook and other social media;
- 3.2.1.1.3 Soil kits and training will be provided to residents by the Authority
- 3.2.1.1.4 direct interaction by Borough and Authority personnel through activities at the Borough's annual events such as its October Street and Music Festival and Dormont Day July 4th;
- 3.2.1.1.5 articles in the Borough's quarterly newsletters and informational flyers in the Stormwater Authority's billing statements. Topics that will be covered will include but not be limited to:
 - 3.2.1.1.5.1.1 Use of mulching lawnmowers

- 3.2.1.1.5.1.2 Soil testing and the type, amount and proper timing of lawn, tree, flower/vegetable bed fertilizing
- 3.2.1.1.5.1.3 Landscaper recommended specifications, “know what your landscaper is doing”
- 3.2.1.1.5.1.4 Impact and control of pet waste on water quality, partnered with ALCOSAN pet waste program

3.2.2 **Target Groups-** In addition to Borough residents, the Borough and Stormwater Authority will target specific groups and activities that likely contribute to both sediment and phosphorous pollution loads. For example:

3.2.3 Landscapers who work in the Borough (as well as their customers) are identified as a target audience.

3.2.3.1.1 The landscapers will be provided with public education materials specifically related to control of sediment and collection of grass and leaf materials during their lawn and other landscape maintenance activities (e.g., mulching, planting, tree trimming and removal, etc.).

3.2.3.1.2 The issue of proper disposal of yard waste will also be one component of the Borough’s ongoing public education campaign for all of its residents on the stormwater issue.

3.2.4 The Borough through the Dormont Stormwater Authority will actively partner with the Allegheny County Sanitary Authority (ALCOSAN) in its PUPS4Clean Water initiative.

3.2.5 Concrete, carpet cleaning and other contractors are also identified as target groups who will be provided with public education materials, explanations and notices of those activities that are inconsistent with Borough ordinances (i.e., illicit discharges) and good environmental stewardship.

3.2.6 Keystone Oaks School District

3.3 Direct BMPs

3.3.1.1 Falling Leaves & Grass Clippings

3.3.1.1.1 The Borough will continue to have an organized leaf collection in the fall. The contracted waste hauler will pick up bagged leaves 3 times a year.

- 3.3.1.1.2 Throughout the fall the street department will run a vactruck to pick up piles of leaves in the street.
- 3.3.1.2 Roof Shingle Surface Grit, Deteriorating Concrete, etc.
 - 3.3.1.2.1 The Borough currently performs Street Sweeping 8 times a year, from April through November. Each street is currently being swept once a month during this period. The frequency of street sweeping may be increased if deemed necessary following quantitative assessments.
 - 3.3.1.2.2 Street sweeping will be extended to include alleys and parking lots.
 - 3.3.1.2.3 Stormwater Inlets are to be inspected on a regular schedule. Those inlets identified with accumulated sediment, will be vacuum cleaned. The amount of sediment will be tracked. These activities will occur in accordance with the Borough maintenance plan.
- 3.3.1.3 The Borough and its Stormwater Authority will develop a comprehensive concrete curb and sidewalk evaluation, repair and maintenance program. Based upon the comprehensive survey performed to evaluate the condition of the curb and sidewalk, the Borough will develop and implement a curb and sidewalk restoration program. The curbs and sidewalks identified as exhibiting the worst spalling, will be replaced in accordance with an annual maintenance program, as the budget allows.

3.4 Constructed BMPs (Figure 1)

- 3.4.1 Potomac Avenue Reconstruction – Under this project Potomac Avenue will be reconstructed with porous pavers from West Liberty Avenue to Espy Avenue. This reconstruction calls for the removal of the existing asphalt street and concrete sidewalk; and replacement with a porous concrete paver surface.
- 3.4.2 Construction of bioswales at various locations within the Borough. Three locations preliminarily identified are as follows:
 - 3.4.2.1 Dormont Park along Dormont Avenue.
 - 3.4.2.2 Along the edge of Delwood Avenue, at the toe of the slope and the soccer practice field.
 - 3.4.2.3 At Beggs Snyder Park, at the toe of the slope below the parking lot along the edge of the playing fields.
- 3.4.3 Repair of outfall into ephemeral* streams to control stream bed and bank erosion during rain and snow melt events

* streams that flow only during and immediately after precipitation are termed *ephemeral*

3.5 Addressing of TMDLs at a Watershed Level

Working actively within the Saw Mill Run Watershed Association to assist in the development and implementation of constructed BMPs, community outreach and other stormwater projects at a watershed level, it is expected that Saw Mill Run Watershed MS4s can achieve TMDL compliance in a timely fashion. However, for that program to be fully and effectively functional, PaDEP must assist (e.g., development of a trading and off-setting program) in the development of guidelines or procedures that recognizes that the current approach to the solution of water quality issues as they occur within relatively small watersheds, such as Saw Mill Run, may only be possible where the approach is holistic and not based on political boundaries.

4.0 TMDL BMPs Milestones & Implementation Schedule

The following implementation schedule, along with the associated milestones, has been developed to achieve the required TMDL reduction:

BMP	BEGINNING DATE	ENDING DATE	MILESTONE
Public Education & Outreach	On-going	Ongoing	Various activities including newsletters, websites, use of social media, public workshops and events (e.g., Annual Street Fair, Dormont Days), stenciling of catch basins, etc.
Stormwater Ordinance	10/5/2015	12/31/2015	Adoption of a Stormwater Ordinance
Establishment of a Stormwater Authority and dedicated funding source	1/1/2016	Ongoing	Securing papers of incorporation from PA. Dept. of State
Leaf Pickup		Ongoing	Performed 3-times per year*
Street Sweeping	Already Started	Ongoing	Begin Alley and Parking Lot sweeping (Perform a minimum of 8-times per year). Frequency going forward to be evaluated*
Storm Inlet Cleaning	1/01/2016	Ongoing	All sediment laden basins to be cleaned on an annual basis*
Curb and Sidewalk Repair and Maintenance Program	4/1/2016	Ongoing	Quantitative survey completion*
Constructed BMP's			
Potomac Avenue Porous Paver Project	1/01/2016	12/21/2016	Project Completion

Repair of outfall into ephemeral stream to control stream bed and bank erosion during rain and snow melt events	2016	11/25/2016	Project Completion
Dormont Park Bioswale	2016	2017	Project Completion
Delwood Avenue Bioswale	2017	2018	Project Completion
Begg Snyder Park Bioswale	2018	2019	Project Completion
Saw Mill Run Integrated Watershed Management Approach			Contingent on PaDEP Approval
Watershed Study	Already Started	12/31/2015	Completion of Study
Project Identification	12/31/2015	12/31/2016	Identification of possible projects. Selection of initial project
PaDEP Recognition/approval/guideline for a pilot trading and off-set program	12/31/2015	12/31/2017	Draft pilot program
Project design	12/31/2016	12/31/2017	Completion of initial design
Construction	12/31/2017	12/31/2018	Completion of initial project

* In accordance with the Borough and Authority Maintenance Plan

5.0 Ordinance Review and Revision

The Borough's stormwater, subdivision and land development and zoning ordinances were reviewed for consistency with modern stormwater control practices. Based upon this review the Borough's stormwater ordinance was revised to address current PaDEP and EPA requirements. In early September, 2015, a notice of the revised ordinance and the public hearing date was placed in the area's newspaper of record and was posted on the Borough's website. In addition, the revised ordinance was posted on the Borough's website and hard copies were available upon request at the Borough's offices. A public hearing was held on November 2, 2015 and the ordinance was adopted at the subsequent Borough Council meeting held on the same date. **A copy of the adopted ordinance is attached.**

6.0 Full Achievement of Pollutant Reductions

Considering that the Borough is a congested urban area with a high percentage of impervious coverage (63%-67%), the possibilities for constructed BMPs is limited. As such, in order to achieve full TMDL reduction compliance the Borough may be dependent upon the successful implementation of the development and implementation of the proposed Saw Mill Run Watershed Integrated Management Program (see 4.5 above). With this approach full achievement of the TMDL for Saw Mill Run may be possible by the end of 2046.

6.1 Dormont Borough

Absent several years of quantitative data to establish reduction trends, it is not possible to accurately predict when full compliance with the required WLAs can occur following implementation of all BMP's outlined in this strategy plan. It is a well-known fact in the pollution control industry that it is often possible to achieve a dramatic reduction of any pollutant in the first few phases of the implementation of a plan but then additional, and usually more costly, measures must be developed and implemented to achieve full compliance. As you know, this is the reason why the resource agencies have approved an adaptive management plan for the Allegheny County Consent Decree. The Borough of Dormont is confident that implementation of those BMP's presented in Section 4.0 above will result in significant pollutant reductions by 2026. However, the Borough and its engineers and water quality experts are also confident that to bring Saw Mill Run into compliance a broader, more holistic approach needs to be adopted. That approach is discussed in sub-section 6.2 below.

6.2 Saw Mill Run Watershed

The EPA-approved TMDLs with WLAs for the MS4s are only one of the sources for a sub-set of the impairments to the streams in the watershed, and plans to implement the TMDLs alone will not achieve CWA compliance. The TMDL requirements of each of the MS4s need to be considered along with the other regulatory requirements to plan for investment in projects that can maximize the water quality benefits across multiple sources. A Saw Mill Run Integrated Watershed Management Program will provide this mechanism and will include a clear demonstration of how stormwater runoff quality and quantity pollution can be cost-effectively addressed to maximize water quality improvements and to achieve CWA compliance. With the development and implementation of the Saw Mill Run Integrated Management Plan, we are confident that full compliance that full compliance of TMDL requirements for the watershed can be achieved by 2046.

7.0 Constructed BMP Locations

A BMP Location Map (Figure 2) has been prepared for the Borough that shows the location of proposed BMPs to be constructed.

8.0 Permit Term BMPs

The following is a list on BMPs anticipated to be completed within the current term (by 3/14/2018):

1. Establishment of a Stormwater Authority
2. Public Education and Outreach – Anticipated to be completed in accordance with Borough and Authority Maintenance Plan.
3. Adoption of an updated Stormwater Ordinance.
4. Street Sweeping & Leaf Pickup - Anticipated to be completed in accordance with Borough and Authority Maintenance Plan.
5. Implementation of a comprehensive concrete curb and sidewalk maintenance program.
6. Storm Sewer Inlet Inspection & Cleaning – Formal program to be implemented. Inspection and cleaning to be performed in accordance with Borough and Authority Maintenance Plan.
7. Potomac Avenue Porous Paver Project.
8. Dormont Park Bioswale.
9. Delwood Avenue Bioswale.
10. Outfall stabilization in the ephemeral stream.
11. Saw Mill Run Watershed Approach – completion of the watershed study, identification of projects and design of a project.

9.0 Preparation of a PaDEP Progress Report

To be submitted by 3/14/2016.

10.0 Development of TMDL Design Details

TMDL design details will be developed within 1-year following the effective date of the next MS4 permit renewal, or 3/14/2019. (These details will consider future development, growth, and anticipated changes in land usage) By this date the Borough will perform the following:

1. Develop a full list of BMPs that are appropriate for the Borough.
2. All constructed BMPs will be located on an updated BMP Location Map.
3. The TMDL Implementation schedule listed above will be revised as needed.
4. The Borough will develop and provide operation and maintenance procedures for all implemented, and anticipated to be implemented, BMPs.

11.0 Public Participation and Involvement on TMDL Strategy

The Borough involved the public in the development of the TMDL Strategy Plan in accordance with the following schedule:

1. The draft TMDL Strategy Plan was completed November 6, 2015.
2. The week of November 7, 2015 an ad was placed advising the public of a public hearing that was held at the December 7, 2015 Council Meeting to discuss the plan and to solicit comments. The draft TMDL Strategy Plan was made available to the public at the Borough Secretaries office and on the Borough website.
3. The public hearing on the TMDL Strategy Plan was held on December 7, 2015 during the monthly Council Meeting. At this meeting the plan was discussed and comments solicited from the public. The Borough Council listened to all comments and, by resolution, approved the TMDL Strategy Plan including all appropriate public comments.
4. By 12/31/2015 the finalized TMDL Strategy Plan was forwarded to the PaDEP.

12.0 Develop Documentation for the Current Permit Term

During the current permit term, which expires on 3/14/2018, the Borough will develop and implement the following documentation:

1. Develop a Storm Sewer System Inventory and System Map – Mapping of the Borough's storm sewer system has been performed and is part of the Borough's GIS Mapping. The inventory data that is included in the GIS database can be output in spreadsheet format. During the current permit term, the entire storm sewer system will be CCTVed to assess the current condition. The GIS Mapping and database will be updated on a yearly basis.
2. The Borough will update estimates of the sources of TMDL Pollutants.
3. The Stormwater Management Plan will be updated to address the six minimum control measures (MCMs) identified in the MS4 Permit.

13.0 Perform Stormwater Sampling and Flow Monitoring

The Borough will continue to perform the required outfall screenings and flow monitoring in accordance with MCM 3. If there is evidence of an illicit discharge, samples will be taken and lab analyzed.