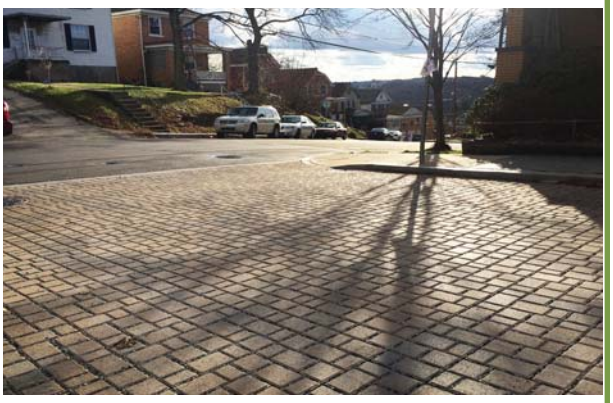
Municipality of Monroeville

MS4 Pollution Reduction Plan

September 2017



Prepared by

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INTRODUCTION

ms consultants, inc (ms) has been authorized by the Municipality of Monroeville ("Monroeville") to develop a Pollution Reduction Plan (PRP) for inclusion in its PAG-13 General Permit renewal, in accordance with Pennsylvania Department of Environmental Protection (PADEP) requirements. This plan strives to reduce the amount of pollutants that reach local surface waters impaired for nutrients or sediment.

Pollutant loadings in existing conditions and required reductions have been calculated in accordance with the PADEP guidance. To achieve the requisite pollution reduction, a plan for the implementation of Best Management Practices (BMPs) over the next five (5) years has been developed and outlined herein.

The following PRP has been developed using the guidelines set forth in the PADEP *National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges from Small Municipal Storm Sewer Systems Pollutant Reduction Plan (PRP) Instructions*, dated March 2017; the PADEP *MS4 Requirements Table Instructions*, dated July 29, 2016; the PADEP *Pollutant Aggregation Suggestions for MS4 Requirements Table Instructions*, dated April 4, 2017; and the PADEP *National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems BMP Effectiveness Values,* dated May 2016.

Section A
Public Participation

Implementation of the Municipality of Monroeville PRP followed the public participation requirements detailed in Section II.A of the PRP Instructions. The methodology employed for public engagement is outlined below.

The applicant shall make a complete copy of the PRP available for public review.

This PRP document was made available at all public comment events.

The applicant shall publish, in a newspaper of general circulation in the area, a public notice containing a statement describing the plan, where it may be reviewed by the public, and the length of time the permittee will provide for the receipt of comments. The public notice must be published at least 45 days prior to the deadline for the submission of the PRP to DEP.

The public announcement was made at the Municipality of Monroeville Public Meeting and was published in the newspaper on July 17, 2017, at which time the public review period commenced.

A copy of the public notice is attached to this plan in *Appendix 1 – Public Notice.*

The applicant shall accept written comments for a minimum of 30 days from the date of public notice.

The public notice included instructions for citizens to submit their comments for review, and written comments were accepted through the public comment period, from July 18 through August 17, 2017.

A copy of all written comments received are included in *Appendix 2 – Public Comment.*

The applicant shall accept comments from any interested member of the public at a public meeting or hearing, which may include a regularly scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.

A public hearing was held on August 3, 2017, during which comments were accepted and logged.

A copy of all comments from the public hearing are included in *Appendix 2 – Public Comment.*

The applicant shall consider and make a record of the consideration of each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment.

Public comments were considered and incorporated to the plan during a 30-day review from August 17 through September 16, 2017.

A copy of all comments and the associated responses are included in *Appendix 2 – Public Comment.*

Section B
Maps

A series of maps have been developed for this PRP. They are included in *Appendix 3 – Maps*.

Map 1: PROJECT PLANNING AREA depicts the project Planning Area, the existing impervious land area, and the Chapter 93 Streams and their watersheds. As the Municipality of Monroeville storm sewer coverage is very extensive and all stream watersheds are impaired according to the Pollutant Aggregations Suggestions Table, the entirety of the municipal boundary was used as the PRP Planning Area. Existing impervious area was extracted from the U.S. Geological Survey National Land Cover Database (2011). All land classified as "Developed" was highlighted as impervious.

Map 2: PRP EXEMPTED PLAN AREA depicts land area which was "parsed" from the Planning Area. All properties with existing NPDES permits, which includes Pennsylvania Department of Transportation- and Pennsylvania Turnpike Commission-owned right-of-way, was removed from the calculations.

Map 3: EXISTING STORMWATER BMP MAP depicts the locations of existing private BMPs which have been installed in the Municipality and included in the PRP calculations. At the time of the development of this plan, only existing *private* BMPs have been mapped; Municipally-owned BMP data is forthcoming.

Map 4: CONCEPTUAL BMP LAYOUT depicts the proposed BMPs which will be implemented to achieve the pollutant reductions required by this plan. For more information about the proposed BMPs and the associated pollution reduction, see Section E.

Section C
Pollutants of Concern

The Municipality of Monroeville PRP is concerned with impaired waters whose pollutants are covered in Appendix E of the PAG-13 General Permit. As such, siltation and nutrients are the pollutants of concern for this report. The MS4 Requirements Table and the Pollutants Aggregations Suggestions Table have been consulted to determine which watersheds within the Municipality require pollutant mitigation.

The entirety of Monroeville lies within watersheds which are impaired for nutrients and/or siltation (Thompson Run, Turtle Creek, and their tributaries), so the entire Municipality was considered for the PRP Planning Area.

See *Appendix 4 – MS4 Requirements* for PADEP impaired watershed information.

Section D
Determine Existing Loading for Pollutants of Concern

Existing pollutant loading for the Monroeville PRP was performed using the methods outlined by PADEP. In accordance with Section 1.B of the PRP Instructions document, a 10% siltation removal was treated as a proxy for the required 5% total phosphorous reduction.

As the extents of the Municipality were assumed to be the Planning Area, the Planning Area acreage and assumed percentage impervious cover were taken from the PADEP Statewide MS4 Land Cover Estimates table. Existing NPDES-permitted areas, including State-owned roadway right-of-way, were then excluded from the total acreage. Pollutant loadings from the PRP Instructions document were used to determine existing sediment loading for the aggregated Planning Area, and reductions due to existing private BMPs were subtracted from this total before imposing the required 10% sediment removal.

The total existing sediment loading for Monroeville was calculated to be **8,013,017 lb/yr**. The total required reduction in sediment loading is 10% of the calculated total or **801,302 lb/yr**. See *Appendix 5 – Calculations* for more information on the calculations outlined above.

Section E
Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading

A set of BMPs has been proposed throughout the Municipality to achieve the required sediment loading reduction of **801,302 lb/yr**. For the purposes of this plan, all BMPs proposed at this time will be implemented on parcels currently owned by the Municipality. However, if Monroeville acquires property and installs BMPs in the future or requires private developers to perform additional sediment removal beyond NPDES requirements, this Plan will be amended to account for these adjustments.

Additionally, the potential mitigation of **905,764 lb/yr** shown in Table 5 in *Appendix 5 - Calculations* is intended to provide more than the 10% reduction required by PADEP to allow flexibility in implementation of the proposed BMPs. If site conditions do not allow BMP construction in certain cases, there is leeway in the proposed calculations.

BMPs chosen for this PRP include the following:

Bioswales

Bioswales are conveyance channels which are overexcavated and backfilled with engineered growing media and topsoil and planted with native vegetation. They allow for stormwater to infiltrate into the subgrade while providing conveyance capacity for larger storms. Bioswales in this plan will be implemented by enhancing existing drainage channels to provide storage and infiltration capacity.

Bioretention

Bioretention ponds are excavated pits backfilled with engineered growing media and topsoil and planted with native vegetation. Stormwater is temporarily ponded and, depending on subgrade infiltration rates, allowed to infiltrate into the subgrade or slowly released into the storm sewer system, while filtering pollutants from the stormwater. For this project, existing ponds will be enhanced to provide bioretention benefits, and new bioretention ponds will be constructed at selected sites.

Permeable Pavement

Permeable pavement or permeable pavers are an alternative paving option that can replace conventional asphalt or concrete surfaces. They allow for stormwater to infiltrate into the subgrade while filtering pollutants from the runoff. Permeable pavement is proposed as a replacement for conventional paving at Monroeville-owned parking areas and low-traffic associated drives.

Street Sweeping

A street sweeping program is proposed for municipally-owned roads, and will be undertaken biweekly, or approximately 25 times per year.

Stream Restoration

Stream restoration involves practices which reduce nutrient and sediment loading by preventing channel and bank erosion for existing zero- to third-order streams (Strahler scale). For this project, restorative practices are assumed to be undertaken within Municipally-owned right-of-way, and

10% of the stream length is assumed to be available for restorative practices. This will be confirmed in the field and this plan will be amended accordingly.

Forested Buffers

Forested buffers consist of an area at least 35 feet wide along the side of a streambank, where native trees, shrubs, and other vegetation are established to stabilize the contributing drainage area, infiltrate runoff, and filter out/utilize nutrients and other pollutants. For the implementation of this PRP, existing forested buffers will be evaluated, enhanced with plantings if necessary, and protected with a conservation easement in perpetuity. In areas with proposed forested buffers, vegetative cover will be established in accordance with the PADEP Stormwater BMP Manual, and a conservation easement will be delineated to ensure the BMP remains in place in perpetuity.

See *Appendix 5 – Calculations* for the pollutant loading reductions per BMP and the sediment reduction summary over the proposed Planning Area.

Section F
Identify Funding Mechanism(s)

According to PADEP in the information presentation titled "MS4 Program Management: Nutrients/Sediment Pollutant Reduction Plans (PRPs) – Update Workshop," Municipalities using the Statewide MS4 Land Cover Estimates can expect the costs of implementing the PRP to be approximately $47 per pound of sediment removed over the five-year implementation period. Accordingly, the total cost for the **801,302 lb/yr** loading reduction is expected to cost $37.7 million dollars total, or **$7.5 million/yr**. Monroeville will be offsetting these expected costs through partnerships, sponsorships, and grant funding.

The Municipality currently intends to fund implementation of the PRP through the only revenue stream available, tax revenue. The Municipality will carefully evaluate additional funding mechanisms as they become available. It should be noted that the Municipality expects future private development and redevelopment to significantly reduce the quantity of sediment reduction that must be accomplished using municipal BMPs, thus reducing the direct cost to the public. As alternative funding sources are pursued and private sediment reduction is analyzed, this plan will be updated as needed.

Section G
Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

The Monroeville PRP currently proposes all BMPs to be constructed on Municipally-owned land, and, as such, all operations and maintenance will be the responsibility of the Municipality. If, in the future, private BMPs are required to be installed by developers as part of the PRP implementation, O&M will be the responsibility of the landowner and Monroeville will engage in regular inspections to ensure proper BMP upkeep and performance. In this event, this PRP will be amended to reflect the proper O&M requirements.

Maintenance of proposed BMPs should follow the procedures outlined in the PADEP Pennsylvania Stormwater Best Management Practices Manual and below:

Bioswales/Bioretention

Bioswales and bioretention areas should be inspected annually and after major rainfall events. At the time of inspection, detritus should be removed and erosion/sediment buildup/weed growth should be corrected. Larger plants, such as trees and shrubs should be inspected twice a year and appropriate steps should be taken to ensure continued plant health. Perennial plants should be cut down at the end of the growing season (as required) and during times of drought, bioretention areas may need to be watered. Any associated inlets and their filtration (if applicable) should be inspected and cleaned along with the bioretention area.

Permeable Pavement

Permeable pavement will be inspected biannually for sediment buildup, plant growth, and damaged pavement areas. At the time of inspection, the pavement surface should be vacuumed with a commercial cleaning unit and any associated underdrains and/or inlets should also be flushed and cleaned out. Plant growth should be removed using a weed burner or other approved method. Herbicides should not be used to kill unwanted plant growth. Any damage to the permeable paving system should be repaired at this time, and any sources of sediment should be sought out and stabilized.

Street Sweeping

Street Sweeping of Municipally-owned roads must be completed biweekly or at least 25 times per year.

Stream Restoration

Streams which undergo restorative practices should be inspected twice a year and after major rainfall events. Any damage to the BMP should be undertaken immediately. Any invasive growth should be removed immediately and native plantings restored. Use of herbicides is allowed only under the regulation of the PA Department of Agriculture.

Forest Buffer

Proposed Forest Buffers should be inspected four times per year for the first four years of establishment, after which time annual inspections are appropriate. Annual inspections should also be performed for existing forest buffers protected under a conservation easement. Proposed forest buffers should show at least a 70% survival rate; if this is not maintained consult a certified arborist

for mitigation actions. Forest buffers should be watered as needed during their establishment period and during periods of extended drought. Any invasive growth should be removed immediately and native plantings restored. Use of herbicides is allowed only under the regulation of the PA Department of Agriculture. If deer damage is noted, implement appropriate protection for the forest buffer.

Monroeville will keep a report of all inspections, associated observations, and any required maintenance for review by PADEP.

APPENDIX 1

PUBLIC NOTICE

Municipality of Monroeville
A Home Rule Charter Municipality

Municipal Center
2700 Monroeville Boulevard
Monroeville, PA 15146-2388

Phone (412) 856-1000
Fax (412) 856-3386
www.monroeville.pa.us

July 12, 2017

Pittsburgh Post-Gazette
ATTN: Pam Reed
Legal Advertising Department

ATTN: Legal Ad Department
RE: Public Notice

Dear Pam:

Please run the attached legal advertisement in your Monday, July 17, 2017 edition of the Pittsburgh Post-Gazette.

Please take note that our billing address for this legal advertisement is as follows:

Municipality of Monroeville
Paul R. Hugus, Director
Building, Engineering and Community Devp.
2700 Monroeville Boulevard
Monroeville, PA 15146

If you have any questions, please do not hesitate to contact this office at (412) 856-3368.

Sincerely,

MUNICIPALITY OF MONROEVILLE

Paul R. Hugus, Director
Building Engineering &
Community Development

Attachment

MUNICIPALITY OF MONROEVILLE

PUBLIC NOTICE

The Municipality of Monroeville is preparing a permit application for an Individual Stormwater Permit to be submitted in September of 2017 to the PA Department of Environmental Protection (PADEP) per the Federal Clean Water National Pollution Discharge Elimination System (NPDES), PA Clean Streams Law and the PADEP-issued Municipal Separate Stormwater Sewer System (MS4) Permit for municipalities in watersheds with Total Maximum Daily Load (TMDL) and Pollution Reduction Plan (PRP) requirements.

A Public Meeting to present the Draft Plan will be held during the Monroeville Council Work Session Meeting on August 3, 2017, at 7:00 p.m., in Council Chambers in the Monroeville Municipal Building, 2700 Monroeville Boulevard, Monroeville, Pennsylvania. The community is invited to provide verbal comments on the plan at the meeting.

In addition, members of the community have an opportunity to review and provide written comments on the Pollution Reduction Plans (PRPs). There will be a 30-Day Public Comment Period from July 18 through August 17, 2017 in order allow the members of the public to read and submit written comments on the draft PRP report. A copy of the plan will be available on or before July 18, 2017 on the Municipal website, at http://www.monroeville.pa.us/stormwater.htm, and a hardcopy can be reviewed in person at the Monroeville Municipal Office between the hours of 8:00 a.m. to 4:30 p.m. Monday through Friday. Written comments can be submitted to the Monroeville Engineering Department, 2700 Monroeville Boulevard, Monroeville, PA 15146. All comments on the plan must be received by close of business, August 17, 2017.

Paul R. Hugus, Director
Building, Engineering &
Community Development

APPENDIX 2

PUBLIC COMMENT

APPENDIX 2

Municipality of Monroeville Pollutant Reduction Plan (PRP)

Public Comments & Responses

1. **Comment:** John Yakim (8/2/17 via email) - Is there a requirement as to how this program is to be funded? Is there any state, county or federal regulation that states that funding mechanism has to be a fee vs a tax? Is there any state, county or federal requirement that requires all property owners to be charged in a similar fashion? For instance, does the law permit or require schools and churches to be charged the same as commercial or residential property?

   Response: There is no requirement or regulation of how the MS4 program is to be funded, including whether the funding mechanism is a fee versus a tax or whether all property owners need to be charged in a similar fashion. As it stands today there does not appear to be a requirement that churches be charged the same as commercial or residential property. That being said in the future new regulations or legal challenges and decisions could change the answer to these questions especially if fees are not equitable.

2. **Comment:** John Yakim (8/8/17 via email) – The online proposal calls for $7.5 million dollars per year. Could you show a breakdown of how you will obtain that revenue?

   Response: The only method the Municipality currently has available to fund our MS4 obligations is tax revenue. Many Municipalities are looking towards user-fees to fund MS4 obligations and the Municipality has entertained such fees in the form of a Pollution Control & Flood Reduction Fee. Funding will need to be obtained from one or both of these sources. Due to the compressed timeframe available to develop the PRP a detailed breakdown has not been developed as the PRP is in its infancy and the costs have not been well-defined at this point. The $7.5 million listed in the PRP is a gross cost estimate simply based on the sediment removal required multiplied by $47/lb/yr which was offered by PADEP as a starting point for estimating costs. It the Municipality's belief that we can meet our obligations at a cost significantly lower than $7.5 million as the PRP is fine-tuned, as individual projects are identified and completed, and as private development and redevelopment chip-away at the required reduction at no direct cost to taxpayers.

3. **Comment:** Cheryl Boise (8/9/17 via email) - There clearly is still a great deal of confusion about this, and the time frame is not giving everyone a lot of time to look into this. I have been reading the state website. I could have missed this- did you have the consultant shown on the plan come out and explain all of this in a public meeting? You just did that with the seismic testing in Monroeville. Was there a similar meeting on this watershed issue, and if so when? If not then should we not have a public meeting which is announced. I realize, after reading the state website, much of this is out of a municipalities control. However, I think we need more clarification on this. I realize this is to be on display for only 30 days (time to lapse shortly), but there is way too much confusion on this issue. Can someone from the state come out and explain the details of what municipalities are required to do? I find it interesting that the state is involved with this issue at the same time they are permitting commercial logging in suburban neighborhoods, while over ruling local ordinances. The elimination of trees can impact watershed-you would think. Is this an issue of the left and right hand in Harrisburg working against each other? Any kind of fee or tax required to address this issue will blow up in the face of Monroeville, if this is not explained more clearly going step by step as to what will transpire.

   Response: Unfortunately the timeframe to develop the PRP was very tight, however the Municipality did follow PADEP regulations for soliciting public comment. The PRP was advertised in the Pittsburgh Post-Gazette on July, 17, 2017 at which time the PRP became available for review in the Municipal Building and on the Municipality's website. The public meeting was advertised ahead of time in the Pittsburgh Post-Gazette on July, 17, 2017 and the public meeting conducted at the Council work session on August 3, 2017. Public comment was accepted until August 17, 2017. The state is unlikely to come to the Municipality and explain the details, however plenty of information is readily available on PADEP's website for example. While timber harvesting may adversely affect stormwater quality the Municipality has regulated that practice to the maximum extent allowable, we can only assume that the state is doing its best to balance property owner's rights, the need for natural resources such as timber, and protecting water quality. Public meetings including powerpoint presentations by Municipal staff and consultants have been conducted previously regarding MS4 and Pollution Control & Flood Reduction Fees (3/3/16, 9/12/16, 10/3/16, 10/5/16), and future implementation of taxes or fees will be advertised and discussed at public meetings and will include the ability of the public to question and comment.

4. **Comment:** Alyson Fearon - I would like to know why the Municipality is not considering and/or pursuing delinquent or absent landowner properties which could be key GI sites? A quick search revealed 0859-F-00287-0000-00 along Mosside Blvd is tax delinquent, which is adjacent to an impacted stream with little identified stormwater management sites. At the bottom of the hill where the stream enters Turtle Creek is another potential key site which has a single landowner since 1977 with no development (0747-M-00226-0000-00). The draft MS4 does not appear to comment on this issue, I would appreciate a response with rationale.

   Response: The former property is all slope adjacent to a stream and could only really be used as a riparian buffer or possibly stream improvements, although that would be complicated by the adjacent PennDOT highway and the existence of a mapped FEMA floodplain. The latter property was slated for a Wal-Mart and has been discussed for a treatment plant or equalization tanks. In either case given the condensed timeline required to develop the PRP we would not feel comfortable proposing BMP's on property we do not control. In the future we may look at obtaining additional properties or partnering with private property owners to locate public BMP's on private property where it is advantageous to do so.

APPENDIX 2

Municipality of Monroeville Pollutant Reduction Plan (PRP)

Public Meeting Minutes

MUNICIPALITY OF MONROEVILLE

CITIZEN'S NIGHT MEETING

AUGUST 3, 2017

MINUTES

The meeting was called to order at 7 p.m. by Mayor Greg Erosenko.

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was recited at this time.

ROLL CALL

The following were present: Mayor Erosenko, Linda Gaydos, Nick Gresock, Ron Harvey, Jim Johns, Paul Caliari, Steve Duncan, Tom Wilson, Tim Little, Bob Wratcher, Josephine Rock, Paul Hugus, Joe Sedlak, Paul Whealdon and Jamie Storey.

NOTE: Due to a prolonged discussion regarding seismic testing that lasted over 3 hours and 19 pages of meeting minutes these meeting minutes have been edited such that all discussion not related to MS4/ PRP has been deleted for purposes of inclusion in the PRP. This meeting was advertised as the public meeting for public comment on the PRP and Jamie Storey, Staff Engineer, gave a brief description of the purpose and content of the PRP prior to opening the floor for public comment on the PRP. The following minutes document that public comment.

CHAD STUBENBORT

Mr. Chad Stubenbort, resident, came forward to express his concerns about the MS4 Storm Water Management fee or tax that will be assessed or proposed. He pointed out there is a draft available on the website that reflects an annual cost of $7.5 million and Mr. Little agreed. Mr. Stubenbort reported that in a presentation in September 2016 the school district was included because they were one of the top facilities that would be affected by the proposed tax or fee. He inquired whether $2.5 million would come from the assessed fee and Mr. Little answered affirmatively. Mr. Stubenbort explained one mill is equivalent to $2.2 million and suggested that is a 25 percent increase in

proposed taxes or fees. Mr. Little stated it is not proposed and council has not discussed it for a while. Mr. Stubenbort pointed out it was just recently added to the municipal website. Mr. Little explained on the agenda for the work session is the promulgation or advertisement for a benchmark for the MS4 Program. He stated MS4 represents the municipal separate storm water system which has nothing to do with the storm water management fee. Mr. Stubenbort indicated he was referring to the Municipality of Monroeville MS4 Pollution Reduction Plan of June 29, 2016 draft listed on the website. He again stated the cost is $7.5 million per year and $2.5 million will be assessed by way of a fee. Mr. Little suggested the word proposed is premature and that council has only discussed it. Mr. Stubenbort reported the school district was contacted in September 2016 regarding this could be adopted as early as January 1, 2017. Again Mr. Little reported council has not discussed it any further. Mr. Stubenbort felt since it was recently posted on line that it would be discussed. Dr. Gresock indicated that it was a compliance issue for the MS4. Mr. Hugus inquired what he was referring to on line and Mr. Stubenbort indicated it is a 30 to 40 page document. Mr. Hugus stated it was for the pollution control and reduction which is the pollution reduction plan. He explained the municipality currently has been operating under an MS4 permit which is required to prepare a pollution reduction plan when submitting a permit. He further explained that the DEP requires that a municipality develop a plan reflecting a 10 percent reduction in pollutants. He stated DEP has given everyone the same number to use as benchmark for their pollution reduction plan of 10 percent. He read DEP recommends that $47 per pound of sediment be removed which calculates $7.5 million per year. He pointed out that everyone across the commonwealth has to use the same figure. He reported what is on line is the pollution reduction plan not the plan discussed last year which is required to make a new application to get a new five-year MS4 permit.

Mr. Stubenbort agreed and pointed out on Page 8 of the document that it states that it would be $7.5 million per year for five years. He stated it indicated that it would be met by partnerships, sponsorships and grant funding. He suggested the $7.5 million is on the table for discussion. He referred to a comment made by the mayor on his Facebook page in 2014 encouraging residents to oppose the library tax proposed so the millage rate would not be raised from four to five. Mr. Stubenbort urged council to strongly consider looking at an alternative method. He suggested if it is a fee everyone will be assessed that fee so the residents will not be taxed once but five times. He reviewed how this will affect everyone including the mall, the municipality and places of worship. He suggested this is more detrimental than a one mill tax increase. He pointed out Mt. Lebanon has been doing this for seven years but Monroeville seems to be just discussing the issue.

Mr. Harvey explained there are numerous ways to take care of a federal mandate. He reported there are boroughs that have already been fined over $300,000 for not being up to date on the mandate. He pointed out what he was referring to is just one option. Mr. Stubenbort agreed and again encouraged council to consider other options. He mentioned the street sweeping is done twice a year so there are other ways of reducing the storm water management. Further discussion ensued. Mr. Duncan stated the street sweeping is done in the fall and spring but the sweeper runs daily.

ELISA BECK

Dr. Elisa Beck, resident again came forward to respond to the comments made about the MS4. She suggested there could be an ordinance that requires the mall to put on a green roof and have permeable pavement in the parking lots so there would be no runoff. She recommended it would cost a lot less to hire a permeable culture consultant to implement ordinances to provide permaculture solutions that will cost a fracture of the $7.5 million.

Dr. Gresock inquired whether the mall or any business could create permeable surface and be impacted differently. Mr. Hugus explained the pollution reduction plan is what the municipality is required to do not for private property owners. He mentioned it is doing improvements to the detention basins to help reduce the amount of sediments. He agreed the street sweeping would help and there are other best management practices that could be done. He felt it would be difficult for the municipality to make commercial businesses put on a green roof because it is costly. Dr. Gresock questioned whether the municipality could take credit for it if a business chose to do it. Mr. Storey reported the municipality can take credit for anything it requires a private developer to do that is not already required by state law. He stated the municipality can use private development to meet their obligations. He explained the problem is DEP wants a pollution reduction plan but there is no certainty of what will happen with private development. He suggested planning for it not to occur but taking credit for it as it happens.

STANLEY BECK

Mr. Stanley Beck, a resident, came forward to address the MS4. He reported they have implemented things around his house since 1993 and it is time for the municipality to realize these ideas. He explained they have a rain barrel on one of their down spouts. He referred to the nine-mile run water shed association in the eastern part of Pittsburgh helps with those rain barrels. He suggested it would be a big improvement in Monroeville if there were a rain barrel on every downspout. Mr. Harvey added Mt. Lebanon has a discount for them. Mr. Beck explained how they have permaculture landscape and they get cited for it occasionally but he felt things needs to change. He felt if everyone landscaped that way it would absorb a lot of water. He mentioned pervious pavement and green roofs and he explained green roofs absorb the water and grows plants and helps with heating and cooling. He felt there are a lot of solutions that could be implemented for the storm water management.

Mr. Beck submitted petitions for the seismic testing ordinance. He inquired if the municipality enacts an ordinance whether the activity that PennDOT allows must comply with the ordinance. Mr. Wratcher disagreed.

Mr. Beck inquired whether the mayor, council, manager or solicitor had any conflict of interest that would influence them to act against the interests of the citizens of Monroeville in connection with oil and gas or any business that is related. Mayor Erosenko answered anyone with a conflict would have to recuse themselves by law.

ROB MARROW

Pastor Rob Marrow, a resident, came forward to question the MS4. He inquired whether the $7.5 million is a firm or estimated number. Mr. Hugus indicated it was an estimated figure from DEP so that everyone across the Commonwealth would use the same number when determining their pollution plan. Pastor Marrow questioned whether the main thing is to reduce it by 10 percent and Mr. Hugus answered affirmatively. He added the sediments have to be reduced by 10 percent. He explained the municipality is ahead of the curve because they have lands and areas to do it. Pastor Marrow asserted he would be happy to put in the permaculture grounds and roof if the $7.5 million is taken aware.

ADJOURNMENT

There being no one further come forward to make comment, the meeting adjourned at 10:20 p.m.

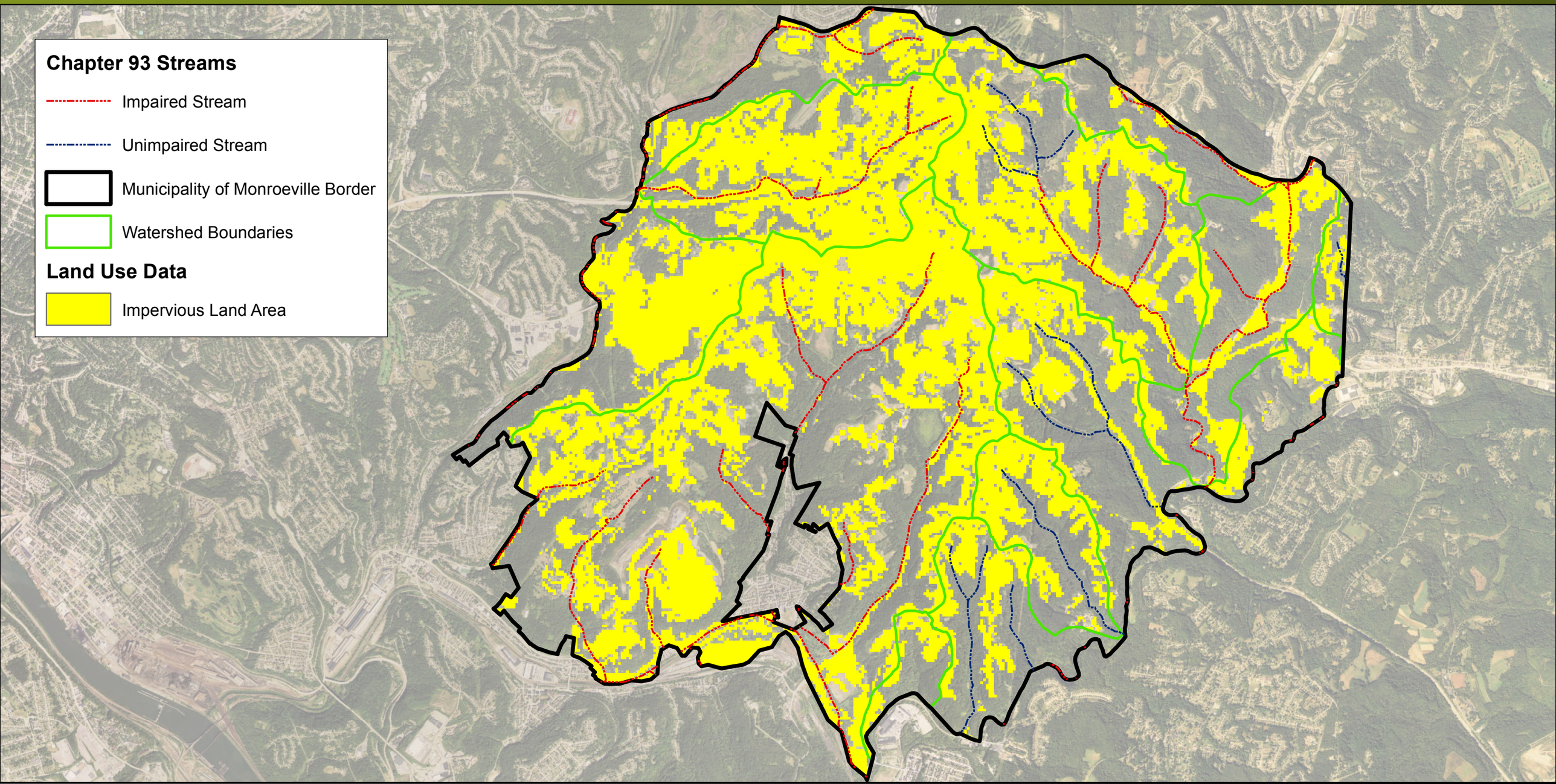
Respectfully submitted,

Timothy J. Little
Municipal Manager

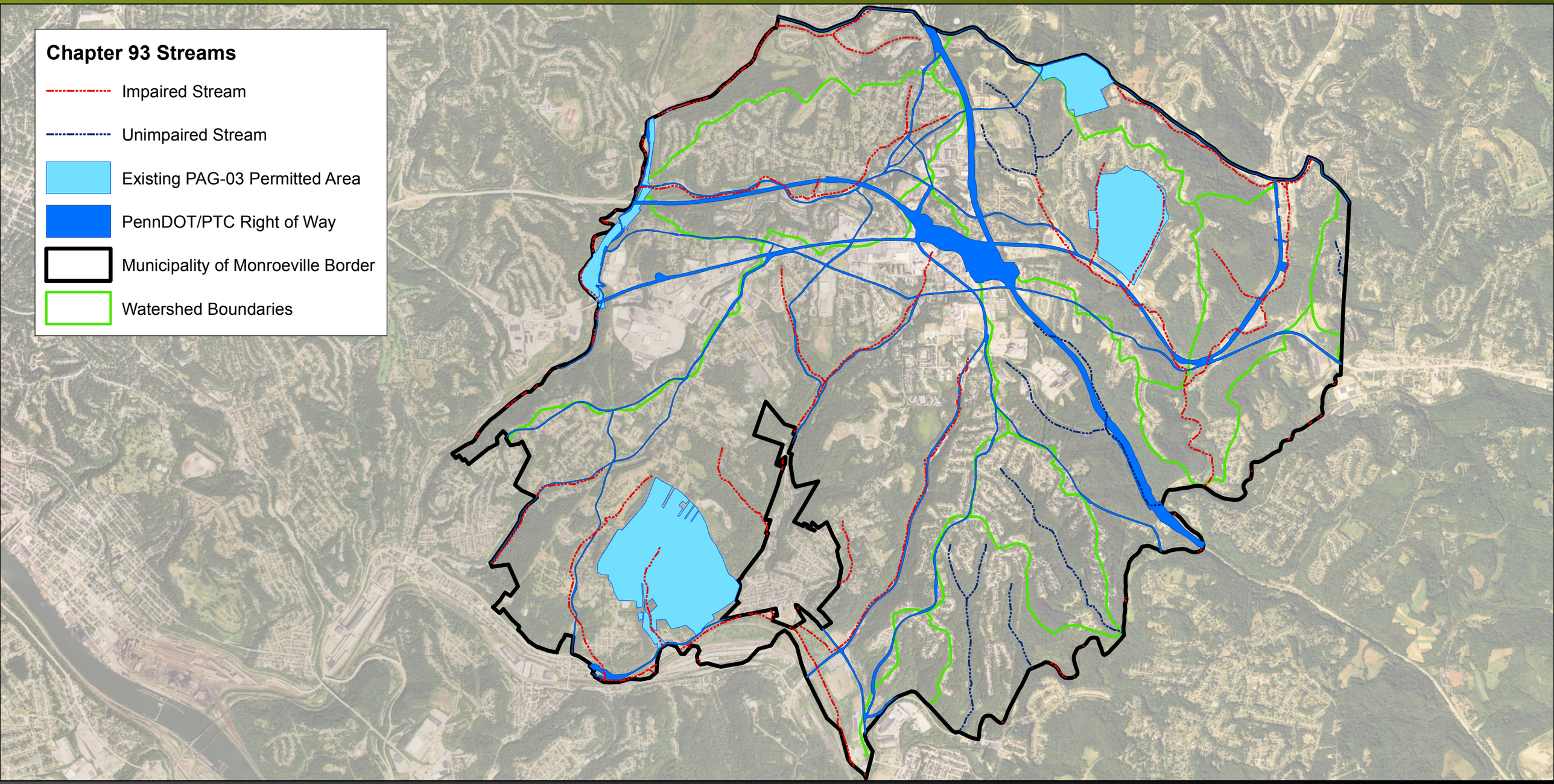
TJL/sam

APPENDIX 3

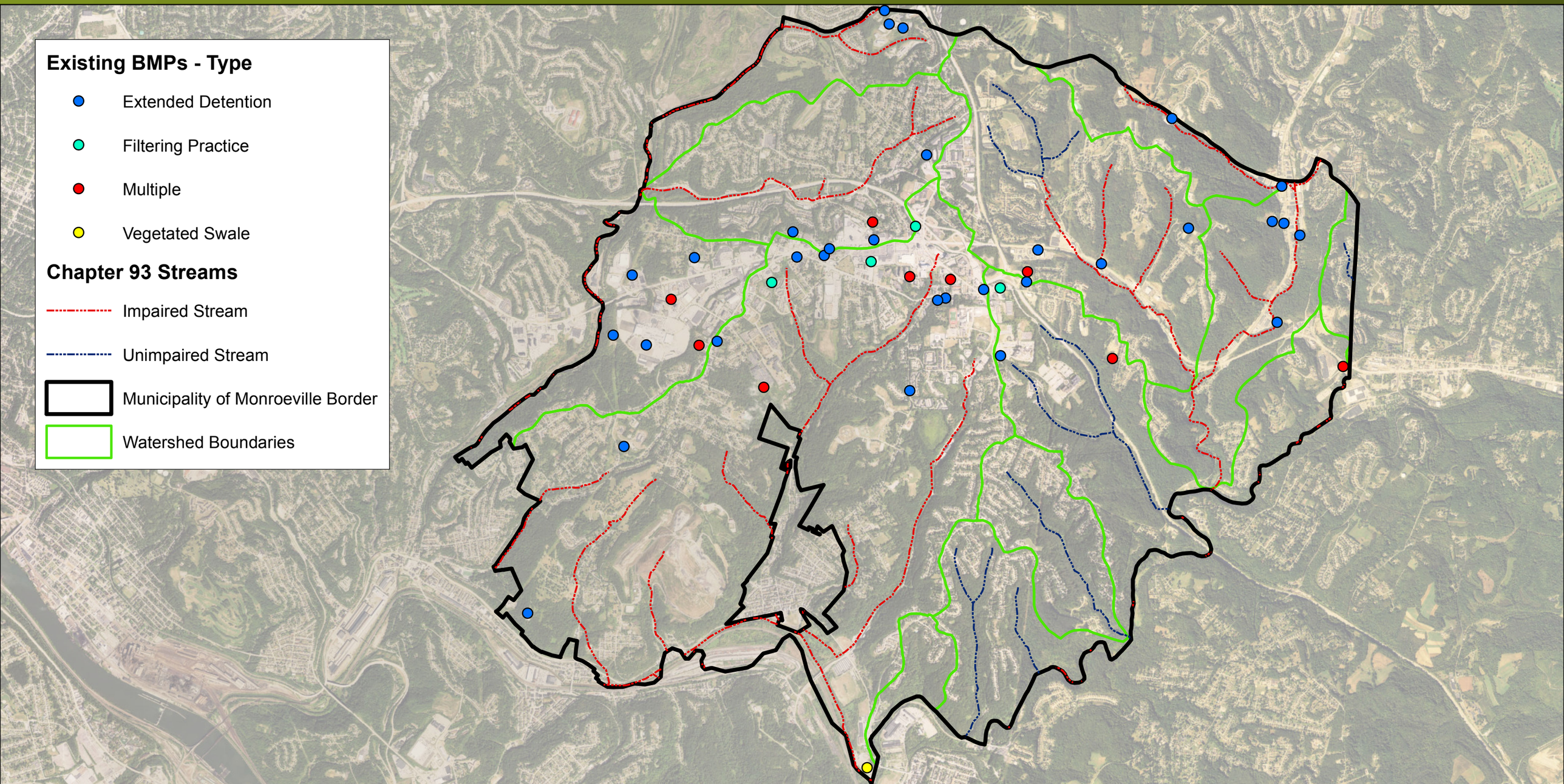
MAPS



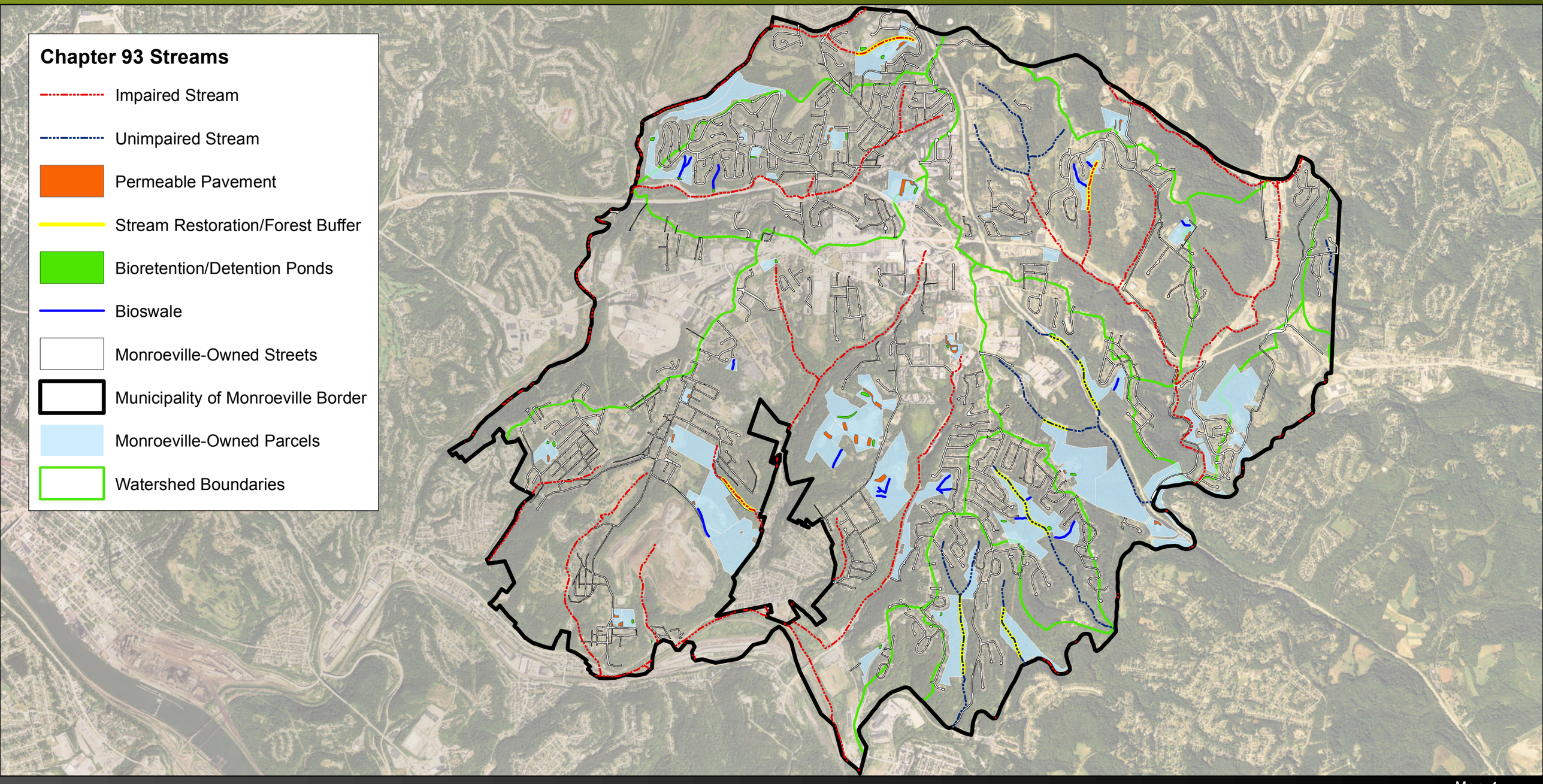
Map 1
PROJECT PLANNING AREA



Map 2
PRP EXEMPTED PLAN AREA



Map 3
EXISTING STORMWATER BMP MAP



Map 4
CONCEPTUAL BMP LAYOUT

APPENDIX 4

MS4 REQUIREMENTS

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Allegheny County						
MILLVALE BORO	PAG136150	No		Girtys Run	Appendix E-Nutrients (5)	
				Allegheny River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	
				Ohio River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	
MONROEVILLE BORO	PAG136176	Yes	SP	Turtle Creek	Appendix A-Metals, pH (4a), Appendix E-Nutrients, Siltation (5)	
				Abers Creek		Flow Alterations (4c)
				Thompson Run	Appendix A-Metals, pH (4a), Appendix E-Siltation (5)	
				Piersons Run	Appendix E-Siltation (5)	
				Leak Run	Appendix E-Siltation (5)	
				Monongahela River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	
MOON TWP	PAG136274	No		McClarens Run	Appendix A-Metals (4a), Appendix E-Organic Enrichment/Low D.O., Siltation (5)	
				Montour Run	Appendix A-Metals, pH (4a), Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (5)	Nonpriority Organics, Un-ionized Ammonia (5)
				Spring Run	Appendix E-Organic Enrichment/Low D.O., Siltation (5)	
				Flaugherty Run	Appendix E-Organic Enrichment/Low D.O., Siltation (5)	
				McCabe Run	Appendix E-Organic Enrichment/Low D.O., Siltation (5)	
				Unnamed Tributaries to Ohio River	Appendix E-Organic Enrichment/Low D.O., Siltation (5)	
				Ohio River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	
MT LEBANON TWP	PAG136275	Yes	TMDL Plan	Ohio River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	
				Sawmill Run Nutrients	TMDL Plan-DO/BOD, Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				Sawmill Run AMD and Sediment	TMDL Plan-Siltation (4a)	
					Appendix A-Metals, pH (4a)	
				Sawmill Run	Appendix A-Metals (4a)	Other Habitat Alterations, Water/Flow Variability (4c)
				Painters Run	Appendix A-Metals (4a), Appendix C-Chlordane, PCB (4a), Appendix E-Suspended Solids (4a), Appendix E-Siltation (5)	TDS, Turbidity (5)
				Chartiers Creek	Appendix A-Metals (4a), Appendix C-PCB (4a), Appendix E-Suspended Solids (4a), Appendix E-Siltation (5)	TDS (5)
				Scrubgrass Run	Appendix A-Metals (4a), Appendix E-Suspended Solids (4a), Appendix E-Siltation (5)	TDS (5)
MT OLIVER BORO	PAG136242	No		Ohio River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	
				Unnamed Tributaries to Monongahela River	Appendix E-Siltation (5)	
				Monongahela River	Appendix C-PCB (4a), Appendix B-Pathogens (5)	

MS4 Name	Permit Number	HUC 12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Allegheny County				
MCCANDLESS TWP	PAG136140	Allegheny River-Ohio River	Pine Creek	Appendix B-Pathogens
		Kilbuck Run-Ohio River, Lowries Run	Unnamed Tributaries to Ohio River	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
		Kilbuck Run-Ohio River, McCabe Run-Ohio River	Ohio River	Appendix B-Pathogens, Appendix C-PCB
		Little Pine Creek-Pine Creek, Pine Creek-North Park Lake	Little Pine Creek, Pine Creek, Rinaman Run, Wexford Run	Appendix B-Pathogens, Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
		Allegheny River-Ohio River, Girtys Run	Girtys Run, Pine Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
MCKEES ROCKS BORO	PAG136375	Lower Chartiers Creek	Chartiers Creek	Appendix A-Metals, Appendix C-PCB, Appendix E-Siltation, Suspended Solids
		Kilbuck Run-Ohio River, McCabe Run-Ohio River	Ohio River	Appendix B-Pathogens, Appendix C-PCB
MCKEESPORT CITY	PAG136219	Fallen Timber Run-Monongahela River, Streets Run-Monongahela River	Monongahela River	Appendix C-PCB
		Long Run	Unnamed Tributaries to Long Run	Appendix A-Metals
		Streets Run-Monongahela River	Crooked Run, Monongahela River	Appendix B-Pathogens, Appendix E-Siltation
		Long Run, Pollack Run-Youghiogheny River	Long Run	Appendix E-Siltation
MILLVALE BORO	PAG136150	Allegheny River-Ohio River	Allegheny River	Appendix B-Pathogens, Appendix C-PCB
		Kilbuck Run-Ohio River	Allegheny River, Ohio River	Appendix B-Pathogens, Appendix C-PCB
		Girtys Run	Girtys Run	Appendix E-Nutrients
MONROEVILLE BORO	PAG136176	Brush Creek, Haymakers Run-Turtle Creek, Sawmill Run-Turtle Creek, Thompson Run	Thompson Run, Turtle Creek	Appendix A-Metals, pH
		Streets Run-Monongahela River	Monongahela River	Appendix B-Pathogens, Appendix C-PCB
		Haymakers Run-Turtle Creek, Sawmill Run-Turtle Creek, Thompson Run	Leak Run, Piersons Run, Thompson Run, Turtle Creek, Unnamed Tributaries to Thompson Run	Appendix E-Nutrients, Siltation
MOON TWP	PAG136274	Crows Run-Ohio River, McCabe Run-Ohio River	Ohio River	Appendix B-Pathogens, Appendix C-PCB
		Flaugherty Run, Kilbuck Run-Ohio River, McCabe Run-Ohio River, Montour Run	Flaugherty Run, McCabe Run, McClarens Run, Montour Run, Spring Run, Unnamed Tributaries to Ohio River	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
		Kilbuck Run-Ohio River, Montour Run	McClarens Run, Montour Run	Appendix A-Metals, pH
MT LEBANON TWP	PAG136275	Lower Chartiers Creek	Chartiers Creek, Painters Run, Scrubgrass Run	Appendix A-Metals, pH, Appendix C-Chlordane, PCB, Appendix E-Siltation, Suspended Solids
		Kilbuck Run-Ohio River, Sawmill Run	Sawmill Run AMD and Sediment, Sawmill Run Nutrients	Appendix A-Metals, pH, TMDL Plan-DO/BOD, Nutrients, Organic Enrichment/Low D.O., Siltation
		Kilbuck Run-Ohio River	Ohio River	Appendix B-Pathogens, Appendix C-Chlordane, PCB
MT OLIVER BORO	PAG136242	Streets Run-Monongahela River	Monongahela River, Unnamed Tributaries to Monongahela River	Appendix B-Pathogens, Appendix C-PCB, Appendix E-Siltation
		Kilbuck Run-Ohio River	Monongahela River, Ohio River	Appendix B-Pathogens, Appendix C-PCB
MUNHALL BORO	PAG136142	Streets Run-Monongahela River	Homestead Run, Monongahela River, West Run	Appendix A-pH, Appendix B-Pathogens, Appendix C-PCB, Appendix E-Siltation

APPENDIX 5

CALCULATIONS

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***

Job No: 61-20499-00

Computed By: MEP *Checked By:* JJB

Date: 6/23/2017 *Date:* 1/15/2018

Table 1: Monroeville PRP General Summary		
Municipality of Monroeville Land Area:	**12,573**	**ac** [1]
Calculated Exemptions:	1,255	ac
Applicable Area:	**11,318**	**ac**
Estimated % Impervious Land Area:	29% [1]	
Estimated % Pervious Land Area:	71% [1]	
Impervious Area Sediment Loading Rate:	1,839	lb/ac/yr [2]
Pervious Area Sediment Loading Rate:	265	lb/ac/yr [2]
Impervious Area Sediment Loading:	6,036,040	lb/yr
Pervious Area Sediment Loading:	2,129,173	lb/yr
Calculated Sediment Removal from Existing BMPs:	152,196	lb/yr
Total Existing Sediment Loading:	8,013,017	lb/yr
Required 10% Sediment Removal:	**801,302**	**lb/yr** [3]
Potential BMP Sediment Removal:	**905,764**	**lb/yr**

[1] Statewide MS4 Land Cover Estimates, PA DEP. Plan includes all of Monroeville urbanized area in Planning Area extents.

[2] Pollutant Reduction Plan Instructions, PA DEP Document 3800-PM-BCW0100k

[3] This plan operates under the assumption (from PA DEP PRP Instructions) that a 10% Sediment Loading reduction will result in the requisite 5% TP Loading reduction.

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***

Job No: 61-20499-00

Computed By: MEP *Checked By:* JJB

Date: 6/23/2017 *Date:* 1/15/2018

Table 2: PRP Exempted Area Tabulation [1]	
Exempted Roadway:	554 ac
Existing NPDES Permits:	701 ac
Total Planning Area Exemptions:	**1,255 ac**

[1] PRP Instructions allow for removal of existing NPDES/MS4 permitees from Municipal Planning area

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***
Job No: 61-20499-00
Computed By: MEP
Date: 6/23/2017
Checked By: JJB
Date: 1/15/2018

Table 3: Existing NPDES Permit Tabulation

Property Owner	Property Owner Address	Parcel Size (ac)
Transtar/Union Railroad	1200 Penn Ave, Suite 300, Pittsburgh, PA 15222	0.82
		8.68
		3.33
		7.03
		26.34
		1.31
		0.04
		0.19
		0.63
		378.15
	Subtotal:	**426.52**
Chambers Development Co, Inc	600 Thomas St, Monroeville, PA 15146	8.05
		0.97
	Subtotal:	**9.02**
Allegheny County - Boyce Park	595 Beatty Rd, Monroeville, PA 15146	1.53
		76.21
	Subtotal:	**77.74**
PPG Industries, Inc	440 College Park Dr, Monroeville, PA	187.65
	Subtotal:	**187.65**

GRAND TOTAL: 701 ac

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***
Job No: 61-20499-00
Computed By: MEP *Checked By:* JJB
Date: 6/23/2017 *Date:* 1/15/2018

Table 4: Monroeville Existing Private BMP Tabulation [1]

Property Name	Latitude	Longitude	Permit No.	Type of BMP	Drainage Area (Total) (SF)	Drainage Area (Impervious) (SF)	Reduction Efficiency [2]	Pollutant Loading (lb/yr)	Pollutant Reduction (lb/yr)	Operations & Maintenance
Allegheny Veterinary	40.4334	-79.7574	04-13-ST	Detention Tank	87,404	42,058	60%	2,020	1,212	Inspect annually during May. Needed maintenance to be completed within 60 days of inspection
Arby's	40.438	-79.7727	06-17-ST	Detention Tank	22,496	22,496	60%	950	570	Inspect once a month and after storm events.
Beamsley	40.4417	-79.7151	03-04-ST	Detention Tank	36,628	18,018	60%	861	517	Inspect for structural integrity, blockages, and sediment buildup weekly and after each heavy storm event.
Buckeye Properties	40.4353	-79.7813	08-02-ST	Bio-retention Basin	70,495	70,495	55%	2,976	1,637	
Catholic Cemeteries Association	40.4011	-79.8109	05-13-ST	Detention Basin	59,880	36,077	60%	1,651	991	Inspect for damage and debris after every major storm event. Maintence to be completed within 48 hours.
CBL	40.4281	-79.7962	12-2-ST	Detention Basin	813,384	813,384	60%	34,339	20,603	Inspect quarterly and after all large runoff events.
Cedars	40.4362	-79.7469	08-06-ST	Infiltration Trench/Rain Garden	42,212	42,212	82%	1,782	1,461	Inspect April 15 and November 15 annually and after heavy rainfall events.
Chipotle	40.439	-79.7669	13-02-ST	Detention Tank	24,183	24,183	60%	1,021	613	
Cleveland Steward	40.4297	-79.7558	08-13-ST	Rain Garden	10,264	10,264	55%	433	238	Inspect every three months or after significant rainfall event.
Cochran	40.4384	-79.7456	13-04-ST	Detention Tank	679,426	611,483	60%	26,181	15,709	Inspect semi-anually during the moths of April and October. Needed maintence to be completed within 60 days of inspection.
Concordia	40.4352	-79.7470	15-06-ST	Detention Tank	20,576	20,576	60%	869	521	Inspect and clean at least 4 times a year.
CVS Pharmacy 1791 Golden Mile Highway	40.4453	-79.7140	15-03-ST	Detention Tank	25,590	25,590	60%	1,080	648	Inspect and clean at least twice a year. Remove sediment and debris as necessary.
CVS Pharmacy 3893 William Penn Highway	40.4375	-79.7793	09-02-ST	Bio-retention Basin	55,946	55,946	55%	2,362	1,299	Inspect and clean after every storm event. Remove debris as necessary.
DRS	40.3865	-79.7662	03-17-ST	Dry Swale	89,734	89,734	50%	3,788	1,894	
Easley & Rivers	40.4602	-79.7638	14-11-ST	Detention Tank	26,085	26,085	60%	1,101	661	Inspect inlets, manholes, and pipes twice a year and after major storm events. Inpect underground detention system annually. Remove debris and blockages as necessary.
Eastern Car Rental	40.4389	-79.7519	10-1-ST	Rain Garden	40,178	40,178	55%	1,696	933	Inspect at least 4 times per year for damage, erosion, stability and signs of contamination. Clean as needed.
Elmhurst/ Bechtel	40.4241	-79.7808	06-14-ST	Detention Vault, Filtration Manhole (Baysaver)	405,421	405,421	92%	17,116	15,747	Remove silt and debris as needed. Replace or repair temporary controls as needed.
Enterprise Car Rental	40.4317	-79.7142	14-07-ST	Detention Basin	448,668	224,334	60%	10,679	6,407	Inspect once every 3 months and after every heavy storm event
Family Dollar	40.4416	-79.7136	14-3-ST	Detention Tank	51,009	51,009	60%	2,153	1,292	Replace, repair, and clean facilities as needed to maintain intended function.
Forbes Hospital	40.4278	-79.7501	14-9-ST	Detention Basin	1,165,167	932,134	60%	40,608	24,365	Inspect at least once a month and after every runoff event. Clean facilities as needed to maintain intended function.
Forza Group	40.4353	-79.7569	07-04-ST	Bio-retention Basin/Pervious Pavers	5,700	5,700	80%	241	192	Inspect at least twice a year. Remove sediment and repair erosion as needed.
Forza Group	40.4353	-79.7569	07-04-ST	Detention Tank	18,339	18,339	60%	774	465	Inspect at least twice a year.
Grace Baptist	40.4277	-79.7355	11-1-ST	Detention Basin	130,974	78,584	60%	3,600	2,160	Inspect periodically or after heavy rainfall event.
Grace Baptist	40.4277	-79.7355	11-1-ST	Bio-retention Basin/detention basin	18,954	13,268	82%	591	484	Inspect periodically or after heavy rainfall event.
Grace Baptist	40.4277	-79.7355	11-1-ST	Bio-retention Basin/detention basin	25,343	202,744	82%	7,604	6,235	Inspect periodically or after heavy rainfall event.
Grace Life	40.4299	-79.7276	16-03-ST	Detention Basin	25,265	22,738	60%	974	584	Inspect annually. Remove debris as necessary.

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***
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Computed By: MEP *Checked By:* JJB
Date: 6/23/2017 *Date:* 1/15/2018

Table 4: Monroeville Existing Private BMP Tabulation [1]

Property Name	Latitude	Longitude	Permit No.	Type of BMP	Drainage Area (Total) (SF)	Drainage Area (Impervious) (SF)	Reduction Efficiency [2]	Pollutant Loading (lb/yr)	Pollutant Reduction (lb/yr)	Operations & Maintenance
Grace Life	40.4299	-79.7276	16-03-ST	Detention Basin	36,155	21,693	60%	994	596	Inspect annually. Remove debris as necessary.
Grace Life	40.4299	-79.7276	16-03-ST	Dry Swale	19,602	19,602	50%	828	414	Inspect annually. Remove debris as necessary.
Guardian	40.4372	-79.7372	15-09-ST	Detention Tank	19,575	19,575	60%	826	496	Inspect annually and after large rain events for damage and obstructions. Clean sediment and debris as necessary.
Guardian	40.4372	-79.7372	15-09-ST	Detention Basin	41,123	30,842	60%	1,357	814	Inspect annually and after large rain events for damage and obstructions. Clean sediment and debris as necessary.
Guardian	40.4372	-79.7372	15-09-ST	Detention Basin	29,491	22,118	60%	973	584	Inspect annually and after large rain events for damage and obstructions. Clean sediment and debris as necessary.
Gymkhana	40.4518	-79.7285	03-15-ST	Detention Basin	49,568	44,611	60%	1,910	1,146	
HET	40.4605	-79.7656	03-11-ST	Detention Tank	49,875	34,913	60%	1,555	933	Inspect periodically or after heavy rainfall event. Complete necessary maintenance within 5 days of inspection.
Hindu Jain Temple	40.4409	-79.7260	09-07-ST	Detention Tank	75,259	67,733	60%	2,900	1,740	Inspect at least twice a year, in the spring nd fall. Remove sediment and debris as necessary.
HIX	40.4371	-79.7769	15-04-ST	Detention Tank	24,277	24,277	60%	1,025	615	Inspect at least once a year. Replace, repair, and clean features as necessary.
HIX	40.4371	-79.7769	15-04-ST	Detention Tank	10,545	10,545	60%	445	267	Inspect at least once a year. Replace, repair, and clean features as necessary.
Imamia	40.4476	-79.7603	14-08-ST	Detention Basin/Tank/Tank	41,146	30,860	60%	1,358	815	
Jobe Funeral Home	40.4483	-79.7616	05-17-ST	Bio-retention Basin	6,410	3,846	55%	176	97	
Knapp	40.4619	-79.7662	08-15-ST	Detention Tank	7,069	7,069	60%	298	179	Perform maintenance annually and within 48 hours of every major storm event.
L.A. Fitness	40.4368	-79.7672	07-10-ST	Inlet Filter	79,861	79,861	80%	3,372	2,697	Inspect after runoff event greater than 1 inch. Replace and clean when necessary. Inspect weekly during the fall and remove leaves/trash immediately.
Manorcare	40.4346	-79.7801	97-08-ST	Other	3,049	3,049	80%	129	103	Inspect at least once a year.
Marriot Courtyard	40.4374	-79.7733	04-14-ST	Detention Tank	105,851	79,388	60%	3,494	2,096	Inspect annually during May. Needed maintenance to be completed within 60 days of inspection
Mcginley Place	40.4273	-79.7510	08-03-ST	Bio-retention Basin	18,503	11,102	55%	509	280	Inspect annually for sediment buildup, erosion, and vegetative conditions.
Meadows Custard	40.4345	-79.7504	14-6-ST	Snout	12,554	12,554	80%	530	424	Inspect features at least 4 times a year and after every major runoff event. Needed maintenance to be completed within 30 days of inspection.
MMA	40.4179	-79.7988	04-17-ST	Detention Pond	563,923	281,962	60%	13,422	8,053	
Monroeville Cleaners	40.4332	-79.7585	05-09-ST	Detention Tank	36,629	21,977	60%	1,007	604	Inspect periodically or after a heavy runnoff event. Needed maintenance to be performed within 5 days of inspection.
Monroeville Convention Center	40.4326	-79.7931	09-3-ST	Dry Swale	24,161	21,745	50%	931	466	Inspect and maintain once every three months or after a significant rainfall event.
Monroeville Convention Center	40.4326	-79.7931	09-3-ST	Bio-retention Basin	154,646	139,181	55%	5,959	3,278	Inspect and maintain once every three months or after a significant rainfall event.
Monroeville Convention Center	40.4326	-79.7931	09-3-ST	Rain Garden/Detention Basin	40,370	36,333	82%	1,556	1,276	Inspect and maintain once every three months or after a significant rainfall event.
Monroeville Dodge	40.435	-79.7983	08-03-C	Detention Tank	29,649	26,684	60%	1,143	686	Inspect after runoff events. Clean at least twice a year and remove obstructions and sediment as necessary.

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***
Job No: 61-20499-00
Computed By: MEP *Checked By:* JJB
Date: 6/23/2017 *Date:* 1/15/2018

Table 4: Monroeville Existing Private BMP Tabulation [1]

Property Name	Latitude	Longitude	Permit No.	Type of BMP	Drainage Area (Total) (SF)	Drainage Area (Impervious) (SF)	Reduction Efficiency [2]	Pollutant Loading (lb/yr)	Pollutant Reduction (lb/yr)	Operations & Maintenance
Monroeville Pet Hospital	40.4408	-79.7672	06-12-ST	Dry Swale/Bioretention Area	5,214	3,650	78%	163	126	Inspect annually for sediment buildup, erosion, and vegetative conditions.
Muslim Community Center	40.4369	-79.7902	07-02-ST	Detention Basin	147,949	88,769	60%	4,066	2,440	Inspect annually for sediment buildup, erosion, and vegetative conditions.
Persoma	40.4286	-79.7870	03-12-ST	Detention Tank	9,364	8,428	60%	361	217	Inspect at least once a year. Clean as necessary.
Premier Land	40.4451	-79.7544	11-03-ST	Rain Garden	21,162	19,046	55%	815	449	Inspect periodically or right after a heavy runoff event. Needed maintence to be performed withing 5 days of inspection.
Primanti Brothers	40.4396	-79.7775	06-11-ST	Detention Tank	29,380	26,442	60%	1,132	679	Inspect at least once a month and after every runoff event. Remove obstructions as needed.
Primanti Brothers	40.4396	-79.7775	06-11-ST	Detention Tank	12,549	12,549	60%	530	318	Inspect at least once a month and after every runoff event. Remove obstructions as needed.
Respironics	40.4404	-79.7115	07-01-ST	Detention Basin	97,600	97,600	60%	4,120	2,472	Inspect at least twice a year and after runoff events. Needed maintenance to be completed within 60 days of inspection.
Spring Run	40.4241	-79.7618	06-16-ST	Detention Basin	213,834	128,300	60%	5,877	3,526	Inspect annually during May. Needed maintenance to be completed within 60 days of inspection
Todorovich Car Wash	40.4343	-79.7525	06-15-ST	Detention Tank	8,911	8,020	60%	343	206	
Twin Fountains Plaza	40.4281	-79.7894	06-01-ST/04-7-ST	Detention Basin	33,935	33,935	60%	1,433	860	Inspect annually for sediment buildup, erosion, and vegetative conditions.
Twin Fountains Plaza	40.4281	-79.7894	06-01-ST/04-7-ST	Rain Garden/Detention Basin	4,094	3,685	82%	158	129	Inspect annually for sediment buildup, erosion, and vegetative conditions.
Valley Honda	40.4404	-79.7616	03-03-ST	Other - Stone Pit	82,764	82,764	80%	3,494	2,795	Inspect routinely or after heavy runoff event. Needed maintenance to be completed within 5 days of inspection.
Walnut Commons	40.4354	-79.7622	06-06-ST	Detention Tank	8,444	5,911	60%	263	158	Inspect periodically or after heavy runoff event. Needed maintenance to be completed within 5 days of inspection.
Walnut Commons	40.4354	-79.7622	06-06-ST	Infiltration Swale/Detention Tank	4,984	2,990	92%	137	126	Inspect periodically or after heavy runoff event. Needed maintenance to be completed within 5 days of inspection.
Walnut Commons	40.4354	-79.7622	06-06-ST	Bioretention Area	4,836	1,451	55%	79	44	Inspect periodically or after heavy runoff event. Needed maintenance to be completed within 5 days of inspection.
Wendys	40.4275	-79.7055	13-01-ST	Snout/Detention Tank	30,052	30,052	92%	1,269	1,167	
Wendys	40.4275	-79.7055	13-01-ST	Detention Tank	6,706	4,694	60%	209	125	
Life Church Pittsburgh	40.4295	-79.7275	16-03-ST	Detention Pond	10,410	10,410	60%	439	264	Inspect at least 4 times a year and after every storm greater than 1 inch. Remove sediment as needed.

GRAND TOTAL: 152,196 lb/yr

[1] Data extracted from Municipality of Monroeville MS4 Front MS4 Management Software and is not a comprehensive list of BMPs throughout Monroeville

[2] Pollutant removal effectiveness values taken from PA DEP Small Municipal Separate Storm Sewer BMP Effectiveness Values Table (Pub. 3800-PM-BCW0100m). Best estimation of appropriate values was used. Increased pollutant removal potential was calculated for BMPs in series (Treatment Trains) according to the PA DEP Stormwater BMP Manual.

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***

Job No: 61-20499-00

Computed By: MEP *Checked By:* JJB

Date: 6/23/2017 *Date:* 1/15/2018

Table 5: Potential Sediment Loading Reduction Summary		
Required Sediment Loading Reduction:	**801,302**	**lb/yr**
Pollutant Reduction, Permeable Pavers :	19,519	lb/yr
Pollutant Reduction, Street Sweeping :	94,736	lb/yr
Pollutant Reduction, Stream Restoration:	79,212	lb/yr
Pollutant Reduction, Forest Buffer:	82,822	lb/yr
Pollutant Reduction, Bioswales/Bioretention:	494,325	lb/yr
Add' l Pollutant Reduction, Inlet Filtration @ Bioretention:	135,150	lb/yr
Estimated Total Potential Pollutant Reduction:	**905,764**	**lb/yr**

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***

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Date: 6/23/2017 *Date:* 1/15/2018

A/B Soil Permeable Paver Pollutant Removal Effectiveness: 85% [1]

C/D Soil w/ Underdrain Permeable Paver Pollutant Removal Effectiveness: 55% [1]

Impervious Area Sediment Loading Rate: 1,839 lb/ac/yr

Table 6: Permeable Paver Potential Pollutant Mitigation Tabulation

BMP No.	Location	Street	Description	Area (Ac)	Pollutant Removal Effectiveness [1]	Sediment Removal Potential (lb/yr)
PP-1	Monroeville Frisbee Golf	Tilbrook Road	Parking Area	1.34	85%	2,100
PP-2	Overlook Park	Thomas St	Parking Area and Assoc. Drive	0.47	55%	480
				0.30	85%	465
PP-3	Bellwood Park	Ohio St	Parking Area	0.35	85%	542
PP-4	Monroeville Muni Authority	Old Wm Penn Hwy	Parking Area and Assoc. Drives	2.09	55%	2,111
				0.17	55%	174
PP-5	Patton Heights Park	Rosecrest Dr	Parking Area	0.24	55%	245
PP-6	Pioneer Park Willow Dr	Willow Dr	Parking Area	0.42	55%	428
PP-7	Monroeville Public Safety Training Ctr.	Johnston Rd	Parking Area	0.19	55%	191
PP-8	Monroeville Community Park	Tilbrook Rd	Parking Areas and Assoc. Drives	0.90	55%	907
				0.78	85%	1,218
				0.89	55%	904
				0.79	55%	803
				1.59	85%	2,486
PP-9	Municipality of Monroeville Public Library/Senior Citizens	Gateway Campus Blvd	Parking Areas and Assoc. Drives	0.51	85%	798
				1.15	85%	1,797
				0.35	55%	349
PP-10	Heritage Park	Saunders Station Rd	Parking Area	0.19	55%	190
PP-11	Monroeville Community Pool	Abers Creek Rd	Parking Area	0.54	85%	847
PP-12	Hawkeye Park	Hawkeye Dr	Parking Area	0.56	55%	570
PP-13	University Park Elementary	Noel Dr	Parking Area	0.24	55%	238
				0.47	55%	480
PP-14	Evergreen Park	Fairlawn Dr	Parking Area	0.20	55%	206
				0.26	55%	266
PP-15	Monroeville Animal Control	Starr Dr	Parking Area	0.72	55%	725

GRAND TOTAL: 19,519 lb/yr

[1] Pollutant removal effectiveness values taken from PA DEP Small Municipal Separate Storm Sewer BMP Effectiveness Values Table (Pub. 3800-PM-BCW0100m).

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Job No: 61-20499-00

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Date: 6/23/2017 *Date:* 1/15/2018

Table 7: Street Sweeping Potential Pollutant Mitigation Tabulation		
Land Area of Local Roads:	572	ac
Impervious Area Sediment Loading Rate:	1,839	lb/ac/yr
Total Sediment Loading:	1,052,626	lb/yr
Removal Efficiency:	9% [(1)]	
Total Potential Pollutant Reduction:	**94,736**	**lb/yr**

[(1)] Pollutant removal effectiveness values taken from PA DEP Small Municipal Separate Storm Sewer BMP Effectiveness Values Table (Pub. 3800-PM-BCW0100m).

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***

Job No: 61-20499-00

Computed By: MEP *Checked By:* JJB

Date: 6/23/2017 *Date:* 1/15/2018

Stream Restoration Pollutant Removal Effectiveness: 44.88 lb/LF/yr [1]

Table 8: Stream Restoration Potential Pollutant Mitigation Tabulation

BMP No.	Street Name (Parcel #)	Stream Name	Strahler Number	Length (LF)	Available BMP Length (LF)[2]	Sediment Removal (lb/yr)
STR-1	COLLEGE PARK DR (976-H-180)	UNT 37375 TO THOMPSON RUN	1	1,787	179	8,019
STR-2	SAUNDERS STATION RD (980-D-353)	UNT 37371 TO TURTLE CREEK	1	885	89	3,974
STR-3	STARR DR (854-F-196)	UNT 37232 TO THOMPSON RUN	1	2,240	224	10,054
STR-4	JOHNSTON RD (641-G-53)	UNT 37242 TO TURTLE CREEK	1	1,654	165	7,422
STR-5	BRICKYARD RD (981-K-159)	UNT 37351 TO TURTLE CREEK	1	1,956	196	8,781
STR-6	HAYMAKER RD (860-G-301)	UNT 37349 TO TURTLE CREEK	2	2,857	286	12,822
STR-7	LOLLY DR (1107-N-334)	UNT 37370 TO TURTLE CREEK	1	1,934	193	8,681
STR-8	NORTHERN PIKE (978-F-27)	UNT 37370 TO TURTLE CREEK	1	708	71	3,178
STR-9	MONTICELLO DR (980-K-144)	SIMPSON RUN	1	3,124	312	14,022
STR-10	WILLOW DR (640-K-32)	UNT 37242 TO TURTLE CREEK	1	503	50	2,260

GRAND TOTAL: 79,212 lb/yr

[1] Pollutant removal effectiveness values taken from PA DEP Small Municipal Separate Storm Sewer BMP Effectiveness Values Table (Pub. 3800-PM-BCW0100m).

[2] 10% of length of stream assumed available for stream restoration BMP implementation.

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***

Job No: 61-20499-00

Computed By: MEP *Checked By:* JJB

Date: 6/23/2017 *Date:* 1/15/2018

Forest Buffer Pollutant Removal Effectiveness:	50%	[1]
Impervious Area Sediment Loading Rate:	1,839	lb/ac/yr [2]
Pervious Area Sediment Loading Rate:	265	lb/ac/yr [2]

Table 9: Forested Buffer Potential Pollutant Mitigation Tabulation

BMP No.	Street Name (Parcel #)	Stream Name	Length (LF)	Existing or Proposed Forest Buffer?	Estimated Contributing Drainage Area (AC)	Assumed % Impervious	Pollutant Loading (lb/ac/yr) [3]	Sediment Removal (lb/yr)
STR-1	COLLEGE PARK DR (976-H-180)	UNT 37375 TO THOMPSON RUN	1,787	Existing	12.1	5%	344	2,086
STR-2	SAUNDERS STATION RD (980-D-353)	UNT 37371 TO TURTLE CREEK	885	Existing	23.5	5%	344	4,034
STR-3	STARR DR (854-F-196)	UNT 37232 TO THOMPSON RUN	2,240	Proposed	70.7	10%	422	14,937
STR-4	JOHNSTON RD (641-G-53)	UNT 37242 TO TURTLE CREEK	1,654	Proposed	48.9	5%	344	8,408
STR-5	BRICKYARD RD (981-K-159)	UNT 37351 TO TURTLE CREEK	1,956	Proposed	68.6	5%	344	11,788
STR-6	HAYMAKER RD (860-G-301)	UNT 37349 TO TURTLE CREEK	2,857	Existing	81.8	5%	344	14,063
STR-7	LOLLY DR (1107-N-334)	UNT 37370 TO TURTLE CREEK	1,934	Existing	54.2	10%	422	11,443
STR-8	NORTHERN PIKE (978-F-27)	UNT 37370 TO TURTLE CREEK	708	Existing	12.1	5%	344	2,077
STR-9	MONTICELLO DR (980-K-144)	SIMPSON RUN	3,124	Existing	58.7	10%	422	12,387
STR-10	WILLOW DR (640-K-32)	UNT 37242 TO TURTLE CREEK	503	Existing	7.6	10%	422	1,598

GRAND TOTAL: 82,822 lb/yr

[1] Pollutant removal effectiveness values taken from PA DEP Small Municipal Separate Storm Sewer BMP Effectiveness Values Table (Pub. 3800-PM-BCW0100m).

[2] Pollutant Reduction Plan Instructions, PA DEP Document 3800-PM-BCW0100k

[3] Weighted average of sediment pollutant loading from impervious and pervious portions of the contributing drainage area to the BMP:
Pollutant Loading = [(1839 lb/ac/yr) x (Assumed % Impervious) + (265 lb/ac/yr) x (1 - (Assumed % Impervious))]

Job Description: ***Municipality of Monroeville Pollution Reduction Plan***
Job No: 61-20499-00
Computed By: MEP *Checked By:* JJB
Date: 6/23/2017 *Date:* 1/15/2018

Bioswale Pollutant Removal Effectiveness:	80%	(1)
Bioretention (A/B Soils w/ Underdrain) Pollutant Removal Effectiveness:	80%	(1)
Bioretention (C/D Soils w/ Underdrain) Pollutant Removal Effectiveness:	55%	(1)
Filtering Practices Pollutant Removal Effectiveness:	80%	(1)
Impervious Area Sediment Loading Rate:	1,839	lb/ac/yr (2)
Pervious Area Sediment Loading Rate:	265	lb/ac/yr (2)

Table 10: Bioretention/Bioswale Potential Pollutant Mitigation Tabulation

BMP No.	BMP Type	Parcel No.	Watershed	Drainage Area (ac)	Bioretention Hydrologic Soil Group Classification	Assumed % Impervious	Pollutant Loading (lb/ac/yr) (3)	% Pollutant Reduction (1)(4)	Pollutant Reduction (lb/yr)	Unmitigated Pollution Remaining (lb/yr)	Supplemental Pollution Removal Potential from Filtering Practices (Inlet Filtration) % Pollutant Reduction (1)	Supplemental Pollution Removal Potential from Filtering Practices (Inlet Filtration) Additional Pollutant Reduction (lb/yr) (5)	Total % Pollutant Reduction with Filtering Practices Included (6)	Notes
BSW-01/ BRT-01	Bioswale + Bioretention	637-S-332	Leak Run	68.3	C/D	29%	721	91%	44,839	4,435	80%	3,548	98%	Treatment Train
BSW-02/ BRT-02	Bioswale + Bioretention	637-R-538, 637-P-347	Leak Run	32.6	C/D	29%	721	91%	21,402	2,117	80%	1,693	98%	Treatment Train
BSW-03	Bioswale	980-K-144	Simpson Run	26.6	-	20%	580	80%	12,327	3,082	-	-	-	
BSW-04	Bioswale	980-K-144	Simpson Run	30.8	-	29%	721	80%	17,779	4,445	-	-	-	
BSW-05	Bioswale	980-K-144	Simpson Run	8.0	-	10%	422	80%	2,709	677	-	-	-	
BSW-06	Bioswale	1107-N-334	Simpson Run	20.3	-	20%	580	80%	9,396	2,349	-	-	-	
BSW-07	Bioswale	1106-F-21	UNT 37374 To Thompson Run	4.4	-	5%	344	80%	1,203	301	-	-	-	
BSW-08	Bioswale	976-H-180	UNT 37375 To Thompson Run	6.3	-	20%	580	80%	2,909	727	-	-	-	
BSW-09	Bioswale	976-H-180	UNT 37375 To Thompson Run	25.3	-	29%	721	80%	14,602	3,650	-	-	-	
BSW-10	Bioswale	859-B-118	UNT 37245 To Turtle Creek	54.2	-	25%	658	80%	28,538	7,134	-	-	-	
BSW-11	Bioswale	858-N-207	UNT 37245 To Turtle Creek	22.7	-	10%	422	80%	7,686	1,921	-	-	-	
BSW-12	Bioswale	858-N-207	UNT 37245 To Turtle Creek	8.3	-	5%	344	80%	2,287	572	-	-	-	
BSW-13	Bioswale	745-S-395	UNT 37241 To Turtle Creek	30.2	-	5%	344	80%	8,305	2,076	-	-	-	
BSW-14	Bioswale	639-S-315	UNT 37241 To Turtle Creek	52.8	-	35%	816	80%	34,470	8,617	-	-	-	
BSW-15	Bioswale	641-G-53, 641-M-261	UNT 37241 To Turtle Creek	38.2	-	15%	501	80%	15,328	3,832	-	-	-	
BRT-03	Bioretention	980-K-144	Simpson Run	24.3	C/D	20%	580	55%	7,749	6,340	80%	5,072	91%	
BRT-04	Bioswale + Bioretention	980-K-144	Simpson Run	58.6	C/D	35%	816	91%	43,490	4,301	80%	3,441	98%	Treatment Train with BSW-05
BRT-05	Bioretention	543-P-79	UNT 37234 To Turtle Creek	11.2	C/D	15%	501	55%	3,089	2,528	80%	2,022	91%	
BRT-06	Bioretention + Bioretention	543-L-397	UNT 37234 To Turtle Creek	58.5	C/D	50%	1052	80%	49,068	12,459	80%	9,967	96%	Treatment Train with BRT-05
BRT-07	Bioretention	980-D-353	UNT 37370 To Turtle Creek	11.0	C/D	10%	422	55%	2,557	2,092	80%	1,674	91%	
BRT-08	Bioretention	978-F-27	UNT 37370 To Turtle Creek	38.9	C/D	29%	721	55%	15,420	12,616	80%	10,093	91%	
BRT-09	Bioretention	860-N-238	UNT 37245 To Turtle Creek	9.3	C/D	35%	816	55%	4,152	3,397	80%	2,718	91%	
BRT-10	Bioretention	860-B-301	UNT 37349 To Turtle Creek	11.6	C/D	29%	721	55%	4,595	3,759	80%	3,007	91%	
BRT-11	Bioretention	857-L-12	UNT 37245 To Turtle Creek	5.1	C/D	50%	1052	55%	2,960	2,422	80%	1,937	91%	Enhance existing dry extended detention basin w/ bioretention
BRT-12	Bioretention	855-N-105	UNT 37241 To Turtle Creek	13.0	C/D	50%	1052	55%	7,509	6,144	80%	4,915	91%	
BRT-13	Bioretention	854-F-196	UNT 37232 To Thompson Run	10.9	C/D	29%	721	55%	4,325	3,539	80%	2,831	91%	
BRT-14	Bioretention	741-H-100	UNT 37232 To Thompson Run	10.5	C/D	50%	1052	55%	6,075	4,971	80%	3,976	91%	Enhance existing dry extended detention basin w/ bioretention
BRT-15	Bioretention	858-J-173	UNT 37241 To Turtle Creek	8.3	C/D	29%	721	55%	3,285	2,688	80%	2,150	91%	
BRT-16	Bioretention	858-J-173	UNT 37245 To Turtle Creek	9.7	C/D	29%	721	55%	3,842	3,144	80%	2,515	91%	
BRT-17	Bioretention	858-J-173	UNT 37241 To Turtle Creek	25.8	C/D	25%	658	55%	9,351	7,651	80%	6,121	91%	
BRT-18	Bioretention	743-N-195	UNT 37243 To Turtle Creek	47.4	C/D	70%	1367	55%	35,645	29,164	80%	23,331	91%	
BRT-19	Bioretention	742-H-195	Leak Run	10.0	C/D	15%	501	55%	2,756	2,255	80%	1,804	91%	
BRT-20	Bioretention	642-K-275	UNT 37239 To Turtle Creek	11.1	C/D	10%	422	55%	2,582	2,112	80%	1,690	91%	
BRT-21	Bioretention	642-E-170	UNT 37239 To Turtle Creek	18.8	C/D	29%	721	55%	7,476	6,117	80%	4,893	91%	
BRT-22	Bioretention	639-K-394	Thompson Run	31.3	C/D	35%	816	55%	14,067	11,510	80%	9,208	91%	
BRT-23	Bioretention	742-J-213	Leak Run	102.2	C/D	29%	721	55%	40,552	33,179	80%	26,543	91%	

Total Bioretention/Bioswale Mitigation:	**494,325**	**lb/yr**
Potential Add'l Mitigation from Filtration System:	**135,150**	**lb/yr**
GRAND TOTAL:	**629,475**	**lb/yr**

[1] Pollutant removal effectiveness values taken from PA DEP Small Municipal Separate Storm Sewer BMP Effectiveness Values Table (Pub. 3800-PM-BCW0100m).

[2] Pollutant Reduction Plan Instructions, PA DEP Document 3800-PM-BCW0100k

[3] Weighted average of sediment pollutant loading from impervious and pervious portions of the contributing drainage area to the BMP: Pollutant Loading = [(1839 lb/ac/yr) x (Assumed % Impervious) + (265 lb/ac/yr) x (1 - (Assumed % Impervious))]

[4] Aggregate pollution mitigation % is calculated when BMPs are in series and performing as a treatment train. The calculuated % takes into account the types of BMPs in series along with the Bioretention hydrologic soil group (A/B or C/D).
EXAMPLE: Bioswale + Bioretention (C/D) Pollution Mitigation = [80% + (100%-80%) x (55%/100%)] = 91%

[5] Additional sediment pollution removal if Bioretention BMP is supplemented with Filtering Practice BMP: Additional Pollutant Reduction = [80% x (Unmitigated Pollution Remaining)]

[6] Aggregate pollution mitigation % is calculated when BMPs are in series and performing as a treatment train. The calculuated % takes into account the primary BMP and supplemental Filtering Practice removal efficiencies.
EXAMPLE: Bioswale + Bioretention (C/D) Pollution Mitigation w/ Inlet Filtration = [80% + (100%-80%) x (55%/100%)] + [(100% - (80% + (100%-80%) x (55%/100%))) x 80%] = 98%