

APPENDIX C

BMP IMPLEMENTATION SCHEDULE

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**Table C-1
Joint MS4s Combined Schedule of BMP Implementation**

BMP ID	MS4 Entity*	BMP/GI/LID Description	BMP Type	BMP Location		Improvements for Crediting	Permit Cycle 1 (April 2014 - March 2019)				
				Latitude	Longitude		Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	LCT	Adopt County PEOP Plan	Plan	N/A	N/A	Adopt Plan					
MCM 1-1	All	Review and update PEOP	Plan	N/A	N/A	Update Plan					
MCM 1-2	FT, HT, LCT	Identify target audience list for public education	Report	N/A	N/A	Create Report					
MCM 1-3	LCT	Document publication of Stormwater educational Materials	Report	N/A	N/A	Create Report					
MCM 1-4	FT, LST, LCT	Document two separate methods of distribution of Stormwater educational Materials	Report	N/A	N/A	Create Report					
MCM 2-1	FT, HT, LCT, OLT, PCT	Adopt County PIPP Plan	Plan	N/A	N/A	Adopt Plan					
MCM 2-1	All	Review and update PIPP	Plan	N/A	N/A	Update Plan					
MCM 2-3	FT, LST	Document public meetings held	Report	N/A	N/A	Create Report					
MCM 3-1	FT, HT, LST, LCT, OLT, MB	Adopt IDD&E Plan	Plan	N/A	N/A	Adopt Plan					
MCM 3-2	FT, HT, LCT	Inspect 40% of outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A	Inspect & Report					
MCM 3-2	LST, MB	Inspect all outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A	Inspect & Report					
MCM 3-3	FT, HT, LST, LCT, OLT, MB	Create Illicit discharge complaint tracking system	Report	N/A	N/A	Create Report					
MCM 3-4	FT, HT, LST, LCT	Create map including outfalls, receiving waters, stormwater drainage collection, swales, basins, etc.	Mapping	N/A	N/A	Create Map					
MCM 3-5	FT, HT, LCT	Record stormwater sampling & monitoring	Report	N/A	N/A	Create Report					
MCM 3-5	LT, OLT, PCT, MB	Record stormwater sampling & monitoring	Report	N/A	N/A	Create Report					
MCM 4-3	All	Create plan to record and manage public inquiries	Plan	N/A	N/A	Create Plan					
MCM 5	All	Compare Township/Borough Stormwater Ordinances to MS4 Ordinance checklist.	Plan	N/A	N/A	Update Plan					
MCM 5-1	HT, LCT	Adopt County model stormwater ordinance modifications as needed	Plan	N/A	N/A	Adopt Plan					
MCM 5-2	FT, HT, LCT, OLT, MB	Create BMP Tracking System	Report	N/A	N/A	Create Report					
MCM 5-3	HT, LST, LCT	Record BMP Inspections	Report	N/A	N/A	Create Report					
MCM 5-4	LST	Adopt stormwater ordinance including enforcement of BMP implementation	Plan	N/A	N/A	Adopt Plan					
MCM 5-5	FT, HT, LST, LCT, OLT, MB	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A	Create Plan					
MCM 6-1	LCT	Create inventory of municipal facilities & land uses that are stormwater contributors	Report	N/A	N/A	Create Report					
MCM 6-2	FT, HT, LST, LCT	Adopt written operation and maintenance plan addressing housekeeping	Plan	N/A	N/A	Adopt Plan					
MCM 6-3	FT, HT, LST, LCT, OLT, MB	Adopt written employee training program	Plan	N/A	N/A	Adopt Plan					
LST3	LST	Detention and infiltration basin at Loyalsock Senior High School.	Infiltration Basin	41°15'40.73"N	76°57'50.51"W	Reconstruct, Document O&M					
WC4	WC	Rain Garden at Recycling Center.	Rain Garden	41°14'14.52"N	77° 2'37.21"W	Document O&M					
LC3	FT, HT, LST, LCT, OLT, MB	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A	Install Plantings, Document O&M					
LST14	LST	Detention Basin (Bull Run), owned/maintained by Loyalsock Township School District, drainage area of 5 acres. Future improvements to the site will most likely facilitate removal of the Basin. Replacement BMP will be created when the old basin is removed.	Infiltration Basin	41°15'42.77"N	76°56'58.98"W	Document O&M					

* See Map E-3 for Planned BMP Locations

**Table C-1
Joint MS4s Combined Schedule of BMP Implementation**

BMP ID	MS4 Entity*	BMP/GI/LID Description	BMP Type	BMP Location		Improvements for Crediting	Permit Cycle 1 (April 2014 - March 2019)				
				Latitude	Longitude		Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
PCT3	PCT	Inlet Sumps are currently located on the campus of the Pa. College of Tech. outside of Dauphin Hall, and are cleaned annually.	Underground Detention Storage	41°14'5.14"N	77° 1'50.61"W	Document O&M					
WC6	WC	Detention basin at Laurel Run Circle.	Extended Detention Basin	41°14'10.19"N	77° 4'58.61"W	Document O&M					
LST2	LST	Rain Garden at Loyalsock Senior High School.	Rain Garden	41°15'41.56"N	76°57'50.96"W	Document O&M					
PCT1	PCT	Infiltration Trench on Rose Street directly opposite Dauphin Hall. Services College Dorms. 3.08 acres.	Infiltration Trench	41°14'6.98"N	77° 1'56.63"W	Document O&M					
MB11	MB	Plans for improving Indian Park (behind Borough's building near the recycling center) currently proposed. The project will improve the water quality at the park and restore the ecology of the park's pond. Improvements include wetland/stream restoration, educational programs and community plantings.	Wetland / Stream Restoration	41°15'33.71"N	76°55'23.12"W	Construct, Document O&M					
OLT8	OLT	Relocated Recycling Facility at 1250 Princeton Ave, Old Lycoming Township PA 17701. BMPs to be implemented. They are flexible as to BMP type, and are willing to receive community input.	Rain Garden	41°15'15.37"N	77° 4'15.51"W	Design, Construct, Document O&M					
PCT5	PCT	Install oil/water separator at General Services Facility.	Oil/Water Separator	41°13'39.31"N	77° 3'8.89"W	Design, Install, Document O&M					
							Structural BMP construction complete on or before this year.				
							Full permitting compliance achieved for BMP				

MS4 Entity Legend	
PCT	Pennsylvania College of Technology
FT	Fairfield Township
HT	Hepburn Township
LCT	Lycoming Township
LC	Lycoming County
LST	Loyalsock Township
MB	Borough of Montoursville
OLT	Old Lycoming Township
WC	City of Williamsport

* See Map E-3 for Planned BMP Locations

**Table C-2
LYCOMING COUNTY
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

**Table C-2
LYCOMING COUNTY
Schedule of BMP Implementation**

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Lycoming County Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
LC1	2 riparian buffers proposed on both sides of Lycoming Creek; creek is a cold water fishery with significant development pressure. Buffer intended to protect floodplain, preserve habitat, prevent erosion, and improve water quality.	Riparian Buffer Restoration
LC2	Riparian buffer along Hoagland Run where it is a high quality-cold water fishery. Intended to improve water quality and preserve habitat. Run goes into Lycoming Creek, but is not located in an urbanized area.	Riparian Buffer Restoration

Lycoming County Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
1	Strategic Action to develop a primer entitled "Beyond the Beauty: Environmental and Community Benefits of Forestland," to provide information on forest benefits to water quality, reduced flooding, and groundwater recharge.	Lycoming County Comprehensive Plan
1	Strategic Action to identify and map riparian forest buffers, wetlands, and natural undeveloped water retention areas and encourage stream bank preservation programs. Educate local officials on their ability to regulate riparian buffer areas and distribute information on the value of riparian buffers to officials and the general public.	Lycoming County Comprehensive Plan
1	Strategic Action to protect water supply and water quality by incorporating BMPs into ordinances. Ex. replace high maintenance lawn requirements with seasonal meadow options. Provide demonstration areas to show how BMPs are designed and maintained and what benefits are gained.	Lycoming County Comprehensive Plan
1	Mitigation Action to provide education for residents about water-saving landscaping techniques.	Lycoming County 2014 All-Hazard Mitigation Plan
1	The Public Education and Outreach Program (PEOP) of each MS4 Entity will be updated.	MCM Compliance Breakdown
1	A target audience list will be developed for each MS4 Entity, and will be kept up-to-date.	MCM Compliance Breakdown
1	Planning Department staff updates Lycoming County Conservation District on their current projects at the monthly Board of Directors public meetings.	MCM Compliance Breakdown
1	MS4 Updates presented by Lycoming County at the Lycoming/Sullivan County Boroughs Association Meetings.	MCM Compliance Breakdown
1	Flyers and educational brochures (including "Only Rain Down the Storm Drain", "How to Build a Rain Garden", "Endless Mountain Water Resources", and "5 Easy Ways to Make a Rain Barrel"), and other MS4 information distributed and presented at major events across the County, including Stormwater and Municipal Summits, Local Environmental Chapters, Conventions, public meetings, and Municipal/non-municipal Board Meetings. Bulletin Board located in the Executive Plaza also provides general stormwater and MS4 information for the public.	MCM Compliance Breakdown
1, 2	Strategic Action to establish watershed associations for all watersheds.	Lycoming County Comprehensive Plan
2	Update and implement Public Involvement and Participation Programs (PIPP) for each MS4 Entity.	MCM Compliance Breakdown
2	Municipalities' Supervisor and Council Meetings are posted and available for all public to attend monthly to provide review and input.	MCM Compliance Breakdown

* See Map E-3 for Planned BMP Locations

**Table C-2
LYCOMING COUNTY
Schedule of BMP Implementation**

Lycoming County Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
2	Public involvement and comments allowed and encouraged at various MS4 Events held countywide. These events include Stormwater and Municipality Summits, MS4 Public Meetings, and MS4 Roadshows. Future events are planned with public comment encouraged.	MCM Compliance Breakdown
3	An Illicit Discharge Detection and Elimination plan will be updated and adopted by each of the MS4 Entities.	MCM Compliance Breakdown
5	Strategic Action to promote the use of conservation design techniques such as open space or conservation subdivisions.	Lycoming County Comprehensive Plan
6	Strategic Action to have LCPC Staff and Penn State Cooperative Extension perform a systematic audit of local ordinances and make recommendations on how to improve the regulation of landscaping and tree planting requirements.	Lycoming County Comprehensive Plan
6	An Operations and Maintenance (O&M) Plan will be developed and adopted by each MS4 entity.	MCM Compliance Breakdown
6	Township Training provided during MS4 Coalition Meetings. Topics include O&M Programs, MS4 Tracking, Maintenance, and Procedures.	MCM Compliance Breakdown

* See Map E-3 for Planned BMP Locations

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**Table C-3
PA COLLEGE OF TECHNOLOGY
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 2-1	Adopt County PIPP Plan	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
PCT3	Inlet Sumps are currently located on the campus of the Pa. College of Tech. outside of Dauphin Hall, and are cleaned annually.	Underground Detention Storage	41°14'5.14"N	77° 1'50.61"W					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
PCT1	Infiltration Trench on the other side of Rose Street that services College Dorms. 3.08 acres.	Infiltration Trench	41°14'6.98"N	77° 1'56.63"W					
PCT5	Install oil/water separator at General Services Facility.	Oil/Water Separator	41°13'39.31"N	77° 3'8.89"W					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

**Table C-3
PA COLLEGE OF TECHNOLOGY
Schedule of BMP Implementation**

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

PA College of Technology Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
PCT2	Underground detention and infiltration at parking lot on Rose St.	UDS
PCT4	The placement of a rain garden is currently being discussed, and will be located near the field house and tennis courts.	Rain Garden

PA College of Technology Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
3	The college currently employs an Illicit Discharge Detection and Elimination Plan, and incorporates a complaint and investigation program with its Environmental Specialist. Spill Response Reports may be filed.	PCT Illicit Discharge Detection and Elimination Plan
6	The college provides its Environmental Specialist (ES) with HAZMAT training and Hazardous Materials Management training. The ES is also trained as a Certified Stormwater Inspector. The document gives training frequencies and meeting types.	PCT Illicit Discharge Detection and Elimination Plan

**Table C-4
FAIRFIELD TOWNSHIP
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEEP.	Plan	N/A	N/A					
MCM 1-2	Identify target audience list for public education	Report	N/A	N/A					
MCM 1-4	Document two separate methods of distribution of Stormwater educational Materials	Report	N/A	N/A					
MCM 2-1	Adopt County PIPP Plan	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 2-3	Document public meetings held	Report	N/A	N/A					
MCM 3-1	Adopt IDD&E Plan	Plan	N/A	N/A					
MCM 3-2	Inspect 40% of outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A					
MCM 3-3	Create Illicit discharge complaint tracking system	Report	N/A	N/A					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
MCM 5-2	Create BMP Tracking System	Report	N/A	N/A					
MCM 5-5	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A					
MCM 6-2	Adopt written operation and maintenance plan addressing housekeeping	Plan	N/A	N/A					
MCM 6-3	Adopt written employee training program	Plan	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
MCM 3-4	Create map including outfalls, receiving waters, stormwater drainage collection, swales, basins, etc.	Mapping	N/A	N/A					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

**Table C-4
FAIRFIELD TOWNSHIP
Schedule of BMP Implementation**

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Fairfield Township Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
FT1	Detention basin South of Old State Road.	Infiltration Basin

Fairfield Township Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
4	Zoning Ordinance states that if more than five (5) spaces are to be provided in a parking area, the surface of the parking area shall be considered as impervious for the purposes of preparing a stormwater management plan for the site.	Zoning Ordinance
4, 5	Ordinance requires a Stormwater Management Plan for all regulated activities with the submission of preliminary and/or final subdivision or land development plan.	Stormwater Management Ordinance
5	Stormwater management ordinance contains design standards for detention basins and for facilities to encourage recharge.	Stormwater Management Ordinance

**Table C-5
HEPBURN TOWNSHIP
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOB.	Plan	N/A	N/A					
MCM 1-2	Identify target audience list for public education	Report	N/A	N/A					
MCM 2-1	Adopt County PIPP Plan	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 3-1	Adopt IDD&E Plan	Plan	N/A	N/A					
MCM 3-2	Inspect 40% of outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
MCM 5-2	Create BMP Tracking System	Report	N/A	N/A					
MCM 5-5	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A					
MCM 6-2	Adopt written operation and maintenance plan addressing housekeeping	Plan	N/A	N/A					
MCM 6-3	Adopt written employee training program	Plan	N/A	N/A					
MCM 3-3	Create Illicit discharge complaint tracking system	Report	N/A	N/A					
MCM 5-1	Adopt County model stormwater ordinance modifications as needed	Plan	N/A	N/A					
MCM 5-3	Record BMP Inspections	Report	N/A	N/A					
MCM 3-4	Create map including outfalls, receiving waters, stormwater drainage collection, swales, basins, etc.	Mapping	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

**Table C-5
HEPBURN TOWNSHIP
Schedule of BMP Implementation**

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Hepburn Township Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
HT1	Detention and Infiltration basin at intersection of Route 973 and Lycoming Creek Road.	Infiltration Basin

Hepburn Township Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
4	Subdivision and Land Development Ordinance states that no subdivision and land development plan can be approved without an E&S plan.	Subdivision and Land Development Ordinance
4	Ordinance requires that, to the maximum extent practicable, all regulated activities should incorporate techniques for low impact development practices described in the PA BMP Manual.	Stormwater Management Ordinance
4, 5	Lycoming Creek Watershed Stormwater Plan adopted 2010.	MS4 Annual Report 2009-2010
5	Stormwater management ordinance contains design standards for stormwater facilities.	Stormwater Management Ordinance

* See Map E-3 for Planned BMP Locations

**Table C-6
LYCOMING TOWNSHIP
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 1-2	Identify target audience list for public education	Report	N/A	N/A					
MCM 1-4	Document two separate methods of distribution of Stormwater educational Materials	Report	N/A	N/A					
MCM 2-1	Adopt County PIPP Plan	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 3-1	Adopt IDD&E Plan	Plan	N/A	N/A					
MCM 3-2	Inspect 40% of outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A					
MCM 3-3	Create Illicit discharge complaint tracking system	Report	N/A	N/A					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
MCM 5-1	Adopt County model stormwater ordinance modifications as needed	Plan	N/A	N/A					
MCM 5-2	Create BMP Tracking System	Report	N/A	N/A					
MCM 5-3	Record BMP Inspections	Report	N/A	N/A					
MCM 5-5	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A					
MCM 6-2	Adopt written operation and maintenance plan addressing housekeeping	Plan	N/A	N/A					
MCM 6-3	Adopt written employee training program	Plan	N/A	N/A					
MCM 1-1	Adopt County PEOP Plan	Plan	N/A	N/A					
MCM 1-3	Document publication of Stormwater educational Materials	Report	N/A	N/A					
MCM 6-1	Create inventory of municipal facilities & land uses that are stormwater contributors	Report	N/A	N/A					
MCM 3-4	Create map including outfalls, receiving waters, stormwater drainage collection, swales, basins, etc.	Mapping	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

**Table C-6
LYCOMING TOWNSHIP
Schedule of BMP Implementation**

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Lycoming Township Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
1	Lycoming Township Newsletter distributed to residents that includes instructions on how to wash your car without harming the environment.	MCM Compliance Breakdown
4	A Complete Erosion and Sedimentation Control (ESC) Plan is required for various land-disturbance activities. This section outlines ESC Plan eligibility requirements.	Lycoming Township SLDO
4, 5	Lycoming Township Stormwater Management Plan is currently provided by the Township. This plan is a requirement in the Lycoming Twp. SALDO Plan (Section 508, page 54).	Lycoming Township Stormwater Ordinance
4, 5	Lycoming Creek Watershed Stormwater Plan adopted 2010.	MS4 Annual Report 2009-2010
5	Strategic Action to promote the use of conservation design techniques such as open space or conservation subdivisions.	Comprehensive Plan for Lower Lycoming Creek Planning Area
5	Outlines water quality management options, including: implementing measures to minimize floodplain disturbance, maintain or extend forested buffers, minimize soil disturbances, etc.	Lycoming Township Stormwater Ordinance

* See Map E-3 for Planned BMP Locations

**Table C-7
LOYALSOCK TOWNSHIP
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 1-4	Document two separate methods of distribution of Stormwater educational Materials	Report	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 2-3	Document public meetings held	Report	N/A	N/A					
MCM 3-1	Adopt IDD&E Plan	Plan	N/A	N/A					
MCM 3-3	Create Illicit discharge complaint tracking system	Report	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5-3	Record BMP Inspections	Report	N/A	N/A					
MCM 5-5	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A					
MCM 6-2	Adopt written operation and maintenance plan addressing housekeeping	Plan	N/A	N/A					
MCM 6-3	Adopt written employee training program	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
MCM 5-4	Adopt stormwater ordinance including enforcement of BMP implementation	Plan	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
LST3	Detention and infiltration basin at Loyalsock Senior High School.	Infiltration Basin	41°15'40.73"N	76°57'50.51"W					
MCM 3-4	Create map including outfalls, receiving waters, stormwater drainage collection, swales, basins, etc.	Mapping	N/A	N/A					
LST14	Detention Basin (Bull Run), owned/maintained by Loyalsock Township School District, drainage area of 5 acres. Future improvements to the site will most likely facilitate removal of the Basin.	Infiltration Basin	41°15'42.77"N	76°56'58.98"W					
MCM 3-2	Inspect all outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
LST2	Rain Garden at Loyalsock Senior High School.	Rain Garden	41°15'41.56"N	76°57'50.96"W					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

Table C-7
LOYALSOCK TOWNSHIP
Schedule of BMP Implementation

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Loyalsock Township Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
LST1	Oil/water separator at township maintenance building.	Oil/Water Separator
LST4	Infiltration trench at Greenview Commons development site.	Infiltration Basin
LST5	Detention and infiltration basin at Mill Creek Estates.	Infiltration Basin
LST6	Infiltration system at Windfield Drive.	Infiltration Basin
LST7	Detention basin at Poco Estates.	Infiltration Basin
LST8	Detention basin and wetlands at Northwoods Estates.	Infiltration Basin
LST9	4 rain gardens associated with the Grafius Run receiving body of water that are privately owned/maintained.	Rain Garden
LST10	Wetland Recharge associated with the Grafius Run receiving body of water, privately owned/maintained.	Infiltration Basin
LST11	Detention basin (Grafius Run) privately owned/maintained, drainage area of 4 acres.	Infiltration Basin
LST12	Detention basin (Mill Creek), owned/maintained by Lycoming County Commissioners, drainage area of 2 acres.	Infiltration Basin
LST13	Detention basin (Mill Creek), Privately owned/maintained, drainage area of 45 acres.	Infiltration Basin
LST15	In the area by the levee, behind TJMaxx shopping center between 180 and the "golden strip": Currently, the area is mowed and maintained but has the potential to be converted into an infiltration area or have trees planted as flood control. Future costs could be higher due to levee permitting.	Infiltration Basin

Loyalsock Township Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
1	E&S fact sheet distributed by MS4s and County Conservation District.	2012 MS4 Report
1	Rain Drain Brochures distributed by MS4s and County Conservation District at County Fair.	2012 MS4 Report
1	Lycoming County staff performed public education presentations on low impact stormwater practices, stormwater management, and flooding to Leadership Lycoming and Lycoming Tioga Flood Summit.	2012 MS4 Report
1	County Conservation district purchased storm drain markers installed by County and MS4 personnel.	2012 MS4 Report
1	"When it Rains it Drains" brochure distributed to all applicants for building permits and land developments, and distributed at the county fair.	2012 MS4 Report
2, 3	Outfall screening and sampling conducted by Penn College Environmental Technology students.	2012 MS4 Report
3	MS4 outfall mapping done for entire MS4 area, including photos and GPS locations.	2012 MS4 Report
4	Stormwater Management Ordinance requires E&S Plan and stormwater management plan for any project with disturbance activity of > = 5,000 sq. ft. Ordinance also requires minor stormwater plan for sites between 1,000 and 5,000 sq. ft. of contiguous area.	2012 MS4 Report
4	E&S Control for Earthmoving Sites Fact Sheet prepared by conservation district was distributed to all developers and to any applicant for a building permit or land development approval.	2012 MS4 Report
4, 5	Lycoming Creek Watershed Stormwater Plan adopted 2010.	MS4 Annual Report 2009-2010
5	Stormwater management ordinance contains design standards governing stormwater drainage facilities.	Stormwater Ordinance

* See Map E-3 for Planned BMP Locations

**Table C-7
LOYALSOCK TOWNSHIP
Schedule of BMP Implementation**

Loyalsock Township Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
5	Subdivision and Land Development Ordinance contains design standards for storm drainage facilities in subdivisions. Facilities must be designed to handle a 25-yr frequency 24-hr duration rainfall.	Subdivision and Land Development Ordinance
5	Strategic Action to promote the use of conservation design techniques such as open space or conservation subdivisions.	Comprehensive Plan for Lower Lycoming Creek Planning Area
6	Street sweeping along Freedom Road.	MS4 Compliance Inspection Report July 2014
6	Strategic Action to review local ordinances for standards that require excessive impervious coverage, e.g. wider than necessary streets, excessive parking, etc. Revise such standards with provisions for better stormwater management practices, e.g. for shared parking, uncurbed streets, where appropriate.	Comprehensive Plan for the Greater Williamsport Alliance Planning Area

* See Map E-3 for Planned BMP Locations

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**Table C-8
BOROUGH OF MONTOURSVILLE
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 3-1	Adopt IDD&E Plan	Plan	N/A	N/A					
MCM 3-3	Create Illicit discharge complaint tracking system	Report	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
MCM 5-2	Create BMP Tracking System	Report	N/A	N/A					
MCM 5-5	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A					
MCM 6-3	Adopt written employee training program	Plan	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
MCM 3-2	Inspect all outfalls. Document results in standard inspection form and in illicit discharge tracking system.	Inspect & Report	N/A	N/A					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
MB11	Plans for improving Indian Park (behind Borough's building near the recycling center) currently proposed. The project will improve the water quality at the park and restore the ecology of the park's pond. Improvements include wetland/stream restoration, educational programs and community plantings.	Wetland / Stream Restoration	41°15'33.71"N	76°55'23.12"W					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

Table C-8
BOROUGH OF MONTOURSVILLE
Schedule of BMP Implementation

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Montoursville Borough Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
MB1	Infiltration trench at South Loyalsock Avenue.	Infiltration Basin
MB2	Porous pavement and underground infiltration at Montoursville Area High School at 100 N Arch St.	UDS
MB3	UDS 1, owned by Montoursville Area School District.	UDS
MB4	UDS 2, owned by Montoursville Area School District.	UDS
MB5	UDS 3, owned by Lycoming Physical Therapy.	UDS
MB6	Infiltration/Detention Basin owned by Parkside Elderly Housing, LLC.	Infiltration Basin
MB7	Rain Garden owned by Sooner Pipe.	Rain Garden
MB8	UDS 4, owned by VisionMax.	UDS
MB9	Infiltration Basin owned by Euro-Optics.	Infiltration Basin
MB10	Possible Infiltration improvements at the Borough Maintenance Yard. Currently, there is an outfall that drains from the direction of the route 87 to an open field area. Naturalization of the area could be used to improve the site.	Basin Naturalization
MB12	Mill Race currently runs through Indian Park and during wet periods it fills and ponds, then slowly infiltrates into the ground. The area is currently lined with trees, however there is a possibility of naturalization.	Basin Naturalization
MB13	The Borough currently owns 140.6 acres (including the larger island in the river and a smaller portion north along Loyalsock Creek that extends North) near the Williamsport Airport, which does not have stormwater runoff control. The area located in between the runway and river (located off of Miller St.) receives the runoff from the runway, and could be improved to help capture runoff.	Basin Naturalization
MB14	Farm Field located west of RT 180 W Highway in the Floodway of Loyalsock Creek, has an existing tree line stream buffer. Possible BMP improvements.	Basin Naturalization
MB15	Current paving projects are underway that have BMP implementation possible during construction, including curb cuts, detention basins, street trees, etc.	Street Trees

Montoursville Borough Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
1	Lycoming Township Newsletter distributed to residents of Montoursville that includes County Environmental Brochures and MS4 information.	MCM Compliance Breakdown
4, 5	Montoursville Township Stormwater Management Plan is currently provided by the Municipality.	Montoursville Township Stormwater Ordinance
5	Strategic Action to promote the use of conservation design techniques such as open space or conservation subdivisions.	Comprehensive Plan for Montoursville – Muncy Planning
5	Improvements to control drainage and runoff will be designed to increase infiltration and control rate of release of runoff off-site. Deed Covenants are suggested, which restrict the allowable impervious area on each lot, swales, basins, etc.	Ordinance 381 Zoning Ordinance
5	Drainage requirements and suggestions are provided in this section, and include, but are not limited to: Drainage Easement requirements, open channel suggestions, minimizing of impervious surfaces, etc.	Ordinance 453 Stormwater Management
5	Encourages integration of landscaping and stormwater management infiltration BMPs. Bio-retention facilities are specifically mentioned.	Ordinance 381 Zoning Ordinance
6	Strategic Action to review local and County ordinances for standards that require excessive impervious coverage, e.g. wider than necessary streets, excessive parking, etc. Revise such standards with provisions for better stormwater management practices, e.g. for shared parking, uncurbed streets, where appropriate.	Comprehensive Plan for Montoursville – Muncy Planning Area
6	Details Stormwater Management Facility inspection frequencies.	Ordinance 453 Stormwater Management

* See Map E-3 for Planned BMP Locations

**Table C-9
 OLD LYCOMING TOWNSHIP
 Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 2-1	Adopt County PIPP Plan	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 3-1	Adopt IDD&E Plan	Plan	N/A	N/A					
MCM 3-3	Create Illicit discharge complaint tracking system	Report	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
MCM 5-2	Create BMP Tracking System	Report	N/A	N/A					
MCM 5-5	Create inspection program for proper BMP operation and maintenance	Plan	N/A	N/A					
MCM 6-3	Adopt written employee training program	Plan	N/A	N/A					
LC3	Flood-prone properties (Fairfield, Hepburn, Lycoming, Loyalsock, Montoursville, Old Lycoming) were/will be acquired, cleared, and returned to open space as part of the countywide flood mitigation initiative.	Open Space Restoration	N/A	N/A					
MCM 3-5	Record stormwater sampling & monitoring	Report	N/A	N/A					
OLT8	Relocated Recycling Facility at 1250 Princeton Ave, Old Lycoming Township PA 17701. BMPs to be implemented. They are flexible as to BMP type, and are willing to receive community input.	Rain Garden	41°15'15.37"N	77° 4'15.51"W					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

Table C-9
OLD LYCOMING TOWNSHIP
Schedule of BMP Implementation

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

Old Lycoming Township Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
OLT1	Underground detention and infiltration on PSS property at 1431 Dewey Avenue.	UDS
OLT2	The Lacomie Detention Basin is located just South of Ridge Road between Lacomie Street and Round Hill Road in the Township. It is dredged and cleaned as often as necessary, depending on the number and magnitude of storms. The last major cleaning of the Basin was in 2013.	Infiltration Basin
OLT3	Detention and infiltration basin on Hillview Baptist Church property at 40 Hillview Avenue. Visually inspected at least every three months and cleaned as needed.	Infiltration Basin
OLT4	Oil/water separator and collection system at township maintenance building.	Oil/Water Separator
OLT5	Underground detention and infiltration on the C&N Bank Property at 1510 Dewey Avenue.	Infiltration Basin
OLT6	Stormtech Underground Detention System (UDS) on Susquehanna Bank property at 1901 Lycoming Creek Road	UDS
OLT7	Stormtech Underground Detention System (UDS) at site of CVS Store on Lycoming Creek Road.	UDS

Old Lycoming Township Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
3	Old Lycoming Township provides an up-to-date list of Storm Sewer Outfall Locations.	OLT StormSewer Outfall Locations
4	A Complete Erosion and Sedimentation Control (ESC) Plan is required for various land-disturbance activities. This section outlines ESC Plan eligibility requirements.	Old Lycoming Twp Chapter 22 Subdivision and Land Development
4	Outlines requirements for future landscaping, and limits removal of existing green space. BMPs are encouraged to facilitate drainage and reduce impacts from any removed vegetation.	Old Lycoming Twp Chapter 22 Subdivision and Land Development
4	Requires that all activities include measures to maintain buffers, minimize disturbance, and generally ensure that runoff is directed to pervious surfaces whenever possible.	Old Lycoming Twp Chapter 26 Stormwater Management
4, 5	Lycoming Creek Watershed Stormwater Plan adopted 2010.	MS4 Annual Report 2009-2010
4, 5	Old Lycoming Township Stormwater Management Plan is currently provided by the Municipality.	Old Lycoming Township Chapter 26 Stormwater Management
5	Strategic Action to promote the use of conservation design techniques such as open space or conservation subdivisions.	Comprehensive Plan for Lower Lycoming Creek Planning Area
5	This section outlines grading requirements applicable to future development projects. It outlines grading design and cut/fill design requirements.	Old Lycoming Twp Chapter 22 Subdivision and Land Development
5	Outlines Storm Sewer requirements, and suggests using swales in lieu of or in addition to storm sewers wherever practicable. Gives design criteria for vegetated swales.	Old Lycoming Twp Chapter 26 Stormwater Management
6	Strategic Action to review local ordinances for standards that require excessive impervious coverage, e.g. wider than necessary streets, excessive parking, etc. Revise such standards with provisions for better stormwater management practices, e.g. for shared parking, uncurbed streets, where appropriate.	Comprehensive Plan for the Greater Williamsport Alliance Planning Area

* See Map E-3 for Planned BMP Locations

**Table C-10
CITY OF WILLIAMSPORT
Schedule of BMP Implementation**

BMP ID	BMP/GI/LID Description	BMP Type	BMP Location		Permit Cycle 1 (April 2014 - March 2019)				
			Latitude	Longitude	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	Apr 2017 - Mar 2018	Apr 2018 - Mar 2019
MCM 1-1	Review and update PEOP.	Plan	N/A	N/A					
MCM 2-1	Review and update PIPP.	Plan	N/A	N/A					
MCM 4-3	Create plan to record and manage public inquiries	Plan	N/A	N/A					
MCM 5	Compare Township/Borough Stormwater Ordinances to the MS4 Ordinance checklist.	Plan	N/A	N/A					
WC4	Rain Garden at Recycling Center.	Rain Garden	41°14'14.52"N	77° 2'37.21"W					
WC6	Detention basin at Laurel Run Circle.	Extended Detention Basin	41°14'10.19"N	77° 4'58.61"W					
					Structural BMP construction complete on or before this year.				
					Full permitting compliance achieved for BMP				

* See Map E-3 for Planned BMP Locations

Table C-10
CITY OF WILLIAMSPORT
Schedule of BMP Implementation

The following is an inventory of other structural and non-structural BMPs that have not been prioritized as part of this CBPRP and are not included in the implementation schedule. These BMPs may be selected and/or prioritized for future MS4 permit cycles.

City of Williamsport Total Structural BMPs		
BMP ID	BMP/GI/LID Description	BMP Type
WC1	Bioretention/Storm Ceptor at William Street Kohl's Department Store. Six acre drainage area.	Rain Garden
WC2	Bio retention at Susquehanna Health parking area on High Street. Two acre drainage area.	Rain Garden
WC3	Infiltration Trench at YMCA construction site. 4.35 acres.	Infiltration Basin
WC5	Detention basin at Moran Logistics. Twenty-two acres.	Infiltration Basin
WC7	Installed 3 detention, 3 bio-retention, 1 infiltration trench, 1 infiltration basin, inlet sumps, and a bio-retention/storm cepter between 2003 and 2012.	Infiltration Basin
WC8	Reach Road Industrial Park Project will involve drainage improvements that include stormwater BMPs.	UDS
WC9	The City of Williamsport's 2012 Street Reconstruction Project reconstructed ten (10) inlets and forty-two (42) catch basins, and converted thirteen (13) inlets to safety grates at various locations throughout the municipality. It also constructed a new storm sewer which removed three (3) catch basins from the sanitary sewer system at the intersection of Court and W 3rd Streets.	UDS
WC10	New Parking Garage. Provide Streetscaping, street trees, BMPs	Street Trees
WC11	On Basin Street (Southeast of Route 180), there is a concrete triangle in the middle of the road that has BMP potential. Proposal to mimic the beautification that the traffic circles have (First Church volunteered their time to plant the flowers in existing traffic circles). Private maintenance for the project is possible, since adjacent traffic circles are privately maintained.	Rain Garden
WC12	Currently, a re-design of the intersection is under way near Bowman Field/Memorial Park. They have proposed a raised median strip (planter box) that could incorporate bio infiltration. This can be coordinated with the current redesign of the intersection.	Rain Garden
WC13	Brodart Project. Curb cut to infiltration trench	Infiltration Trench
WC14	Street Improvement Project at the southeast corner of Pine Street and Edwin Street. Curb cut to infiltration trench	Infiltration Trench
WC15	Street Improvement Project at the northwest corner of Willow Street and William Street. Curb cut to infiltration trench	Infiltration Trench
WC16	Ways Garden project including pervious pavement parking lot	Pervious Pavement

City of Williamsport Total Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
1	When It Rain, It Drains brochure is distributed at events and available in the department offices. Also distributed to all applicants for building permits and land developments at the County Planning Department and the City of Williamsport Bureau of Codes.	MS4 Annual Report 2012-2013
1	Several hundred storm drain markers were purchased and installed to discourage dumping.	MS4 Annual Report 2012-2013; Storm Drain Marker News Release
1	Storm drain marker educational brochure (Only Rain Down the Storm Drain) designed and will be distributed in water and sewer bills.	MS4 Annual Report 2012-2013; "Only Rain" Brochure
1	E & S fact sheet distributed by MS4s and County.	MS4 Annual Report 2012-2013
1	Lycoming County staff performed a widespread public educational campaign about Chesapeake Bay issues including presentations made to various Williamsport local groups.	MS4 Annual Report 2012-2013; Public Education Plan
1	An "Erosion and Sediment Control for Earthmoving Sites" Fact Sheet prepared by the Lycoming County Conservation District was distributed to all developers and to any applicant for a building permit or land development approval.	MS4 Annual Report 2012-2013
3	All outfalls and receiving water-bodies mapped in GIS for entire urbanized area.	MS4 Annual Report 2012-2013; West Branch outfalls maps

* See Map E-3 for Planned BMP Locations

**Table C-10
CITY OF WILLIAMSPORT
Schedule of BMP Implementation**

City of Williamsport Total Non-Structural BMPs		
MCM #	BMP/GI/LID Description	Document
3	Outfall screening and sampling conducted by Penn College environmental technology students (previously) and completed by City staff under the direction of Penn College staff.	MS4 Annual Report 2012-2013
3	Williamsport Bureau of Codes receives complaints and investigates illicit discharges into the city's storm sewer system. Reports are tracked through GeoPlan (GIS-based code enforcement program).	Illicit Discharge Detection and Elimination Plan
3	City of Williamsport works with the Williamsport Municipal Water and Sanitary Authority to investigate illicit sanitary connections to the storm sewer system.	Illicit Discharge Detection and Elimination Plan
3, 6	Williamsport Bureau of Fire personnel are trained with HAZMAT training to respond to spills of hazardous material to ensure that it does not enter the storm sewer system.	Illicit Discharge Detection and Elimination Plan
4	Under the amendment to the Stormwater Management Ordinance (adopted April 5, 2012), a stormwater management plan and E&S plan is required for any project with an earth disturbance activity of 5,000 square feet or more. Williamsport Bureau of Codes requires the review and approval of all E&S plans prior to the issuance of a building permit.	MS4 Annual Report 2012-2013
4	Planning and Zoning Code contains design and construction standards governing stormwater drainage. Requires erosion and sediment control BMPs for all regulated earth disturbance activities.	City of Williamsport Planning and Zoning Code
4, 5	Lycoming Creek Watershed Stormwater Plan adopted 2010.	MS4 Annual Report 2009-2010
5	Roof drains and sump pumps must discharge to infiltration or vegetative BMPs to the maximum extent practicable.	Stormwater Management Ordinance
6	Strategic Action to review local ordinances for standards that require excessive impervious coverage, e.g. wider than necessary streets, excessive parking, etc. Revise such standards with provisions for better stormwater management practices, e.g. for shared parking, uncurbed streets, where appropriate.	Comprehensive Plan for the Greater Williamsport Alliance Planning Area
6	Williamsport Department of Streets and Parks developed practices and procedures utilized during 2012 to control solids and floatable materials from being discharged into the city's storm sewer system.	MS4 Annual Report 2012-2013
6	Developed a maintenance plan for storm water facilities on the site of River Valley Transit and the Williamsport Department of Public Services at 1500 West Third Street.	MS4 Annual Report 2012-2013
6	The City of Williamsport and River Valley Transit, at their vehicle maintenance areas, has spill absorbent materials for use if necessary. Vehicle truck washing areas are designed with oil interceptor facilities which are regularly maintained. Department personnel are trained in the use of these facilities on a regular basis with review by the City's Safety Committee.	MS4 Annual Report 2012-2013
6	Green Infrastructure Assessment Project – study to looking at land cover contributing to urban runoff, calculate nutrient and sediment reductions, and identify geographic areas for implementation of BMPs.	MS4 letters of support for National Fish and Wildlife grant
6	In preparation of a measurable rainfall event that considerable runoff is anticipated, city crews are dispatched to clean storm sewer grates prior to and during the storm event.	Sanitary Authority Report
6	City operates a Jet-Vac Truck and cleaned approximately forty-five (45) storm sewer basins and laterals during 2012.	Sanitary Authority Report
6	Public Service vehicles are washed inside of the 1550 W Third Street facility which is equipped with a sediment and grease trap cleaned on a monthly basis.	Sanitary Authority Report

* See Map E-3 for Planned BMP Locations

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APPENDIX D

STRUCTURAL BMP PRIORITIZATION METHODOLOGY

Appendix D

Prioritization Elements for Stormwater Management Facilities in the Lycoming County MS4 Coalition

BACKGROUND

The purpose of this document is to describe the prioritization methodology used for evaluating existing and proposed stormwater management facilities within the eight municipalities involved in the Lycoming County MS4 Coalition. The identification and prioritization of these facilities is being completed to support compliance with Executive Order 13508 – Chesapeake Bay Protection and Restoration and to respond to the requirements of the Chesapeake Bay Pollution Reduction Plan.

The results of the prioritization provide the Coalition with a ranking of facilities so that limited funding can be dedicated to projects with the greatest expected outcome relative to compliance. The prioritization continues to be modified to favor more sustainable approaches, such as low impact development or LID, and to reflect emerging crediting guidance.

OVERVIEW

Stormwater Management facilities (BMPs) were prioritized based on information gathered during the field assessment and from GIS and CADD data provided, acquired, or developed as discussed in the main report. The purpose of prioritization is to develop a ranking system that is broadly applicable to all Coalition facilities and which will identify opportunities that provide the greatest benefit to restoring the Chesapeake Bay at a high benefit-to-cost ratio, and with minimal secondary impacts. To accomplish this, a ranking system based on four broad scoring categories, each with multiple elements, has been developed for this project. These categories are listed below and the table on the following page presents the categories along with their respective scoring elements and associated scoring information:

- 1) Benefits
- 2) Environmental Need
- 3) Constraints
- 4) Relative BMP Cost Factors

Category	Scoring Elements	Maximum Element Score	Maximum Category Score
1) Benefits	A. Area Treated by BMP	20	30 (25%)
	B. Pollution Removal Effectiveness	10	
2) Environmental Need	A. Located in Impaired Catchment	15	30 (25%)
	B. Existing Landscape & Land Use	10	
	C. Receiving Waterbody Sensitivity	5	
3) Constraints	A. Land Classification (Public/Private)	15	30 (25%)
	B. Space Constraints	5	
	C. Community Support	10	
4) Relative BMP Cost Factors	A. Planning Level Design & Construction Cost	10	30 (25%)
	B. Maintenance Burden/Cost	10	
	C. Available Funding Mechanisms	10	
Total Maximum Possible Score:			120
Fatal Flaws - Considerations that may preclude certain opportunities from being viable, as described at the end of this section of Appendix A			F

Following sections of this document provide an explanation of the method of assessment, rationale for scoring, and site-specific interpretation for each category and associated element. Site specific interpretation is helpful and necessary due to the broad scale differences between facilities (physiography being a prime example) and also to enhance the ability to differentiate within the facility. Ranking elements are intended to be widely applicable from facility to facility, and within any given facility to each discreet unit being assessed, have minimal redundancy, and be of a comprehensive nature based on available data sources for a planning study of this nature. These elements are aggregated to develop sub-total scores for each category. The sub-total allows for a quick assessment of the driving influence on total score that can then be considered when selecting BMPs for conceptual or final design and installation.

For each element, a scoring reference table is provided with the selection options and corresponding scores. To help maintain the desired flexibility, the element options tend to allow

a degree of subjectivity. It is noted that this flexibility is not intended to be used to undermine the relative importance of the various ranking elements, as denoted by their scoring. An overall total score of 120 is possible; BMPs in the top one-half, or those achieving a minimum threshold score, will be the focus of further review to assess their feasibility, practicality and cost-effectiveness relative to the other high-scoring BMPs.

The typical approach to identifying BMP locations involves eliminating areas that are not conducive to facility implementation. However, areas may appear feasible during the assessment, but later determined to have a fatal flaw that would prevent implementation. These fatal flaws may be based on present or future site conditions. The following fatal flaws have been identified..

- **Located outside of Regulated MS4 area:** Any existing or proposed BMP facility located outside of the Regulated MS4 area that will not help achieve compliance with the Pollutant Reduction Plan requirements.
- **Aquatic Resource Impact:** Any proposed BMP activity that threatens to negatively impact a regulated water body (stream, wetland, etc.), particularly when the proposed impact is permanent and/or the water resource quality is high.
- **Threat to Cultural or Historic Resource:** Any proposed BMP activity that threatens the integrity of a cultural or historic resource (e.g. archeological sites, historic buildings, etc.) without an apparent solution to mitigate the potential impact.
- **Operational Constraints:** Any proposed BMP activity that is impractical based on present or future land use, logistical considerations, access or site layout constraints including property boundaries or adjacent land use conflicts, groundwater contamination, or other comparable factors that impinge on the viability of the area selected for opportunity siting, or make the recommendation unsuitable will be considered a fatal flaw.
- **Unacceptable Flooding Risk:** If riverine or tidal flooding has a high likelihood of occurring, or occurring frequently, within the operable life of the BMP and this would pose significant risk to the long-term viability of BMP, a fatal flaw designation is applied based on this unacceptable risk for flooding.

PRIORITIZATION MATRIX

CATEGORY 1: BENEFITS (Score Range: 0 to 30)

This category delineates water quality and water quantity to be derived from opportunity implementation and includes:

- Water quantity score based on BMP size
- Water quality score pollution removal effectiveness

A. Water Quantity Score for Drainage Area Treated (0 to 20): Evaluates the BMP opportunity

1. Method: Performed with GIS or CADD measurement based on topographic data provided, analysis of sewer sheds, field observations, or available data provided by County.
2. Rationale: The BMP drainage area is strongly correlated to the mitigated runoff volume. Note that if the BMP size is too small to treat this volume, the Constraints score based on available space (refer to Category 3, Element B) may be reduced to counter-balance the BMP Size score.
3. Facility Specific Interpretation or Notes: The area draining to each BMP was estimated from available data. Where Acres Treated data was not available, a relative score was used based on BMP type
4. Calculation: The top 15% of sites with the largest contributing drainage areas (DAs) were assigned the maximum score. All other BMPs DAs were scored as a percentage of the 85th percentile DA based on the equation:

$$Score = BMP\ DA / 85\% \text{ Percentile } DA \times \text{Maximum Score}$$

OR

Stormwater Management Practice Relative DA	Score	Comment
Extra Large	18	
Large	16	
Medium	10	
Small	4	
Extra Small	2	

C. Water Quality Score for Pollution Removal Effectiveness (0 to 10): Evaluates the BMP opportunity

1. Method: Determine solely by BMP type and data from the Chesapeake Bay Expert Panel Report.
2. Rationale: The BMP type is strongly correlated to the benefits to the water quality of the runoff.

3. Facility Specific Interpretation or Notes: The Chesapeake Bay report utilizes terminology that matches Virginia Regulations. The table below has been reworded to match PaDEP terminology for all BMPs analyzed.

Stormwater Management Practice	Score	Comment
- Rooftop disconnection - Tree box filter - Herbaceous buffer establishment - Soil amendment	1	Average N, P, Sed. removal efficiency 0-5%, or No Credit.
- Step pool storm conveyance system - Dry detention - Hydrodynamic structures (incl. Oil Water Separators) - Underground Detention System - Vegetated (grass) open channels	3	Average N, P, Sed. removal efficiency 5-25%.
- Flow to open space or filter strip C/D soils - Permeable pavement C/D soils - Dry extended detention	5	Average N, P, Sed. removal efficiency 25-35%.
- Constructed wetland (Shallow marsh pond) - Bioretention or bioswale C/D soils, with underdrain - Rain Garden - Wetland restoration - Forest buffer establishment	6	Average N, P, Sed. removal efficiency 35-45%.
- Flow to open space or filter strip A/B soils - Permeable pavement A/B soils, with underdrain - Filtering practice sand/organic/peat	8	Average N, P, Sed. removal efficiency 45-65%.
- Impervious cover removal - Reforestation/Land Use Conversion - Bioretention or bioswale A/B soils, with or without underdrain - Permeable pavement A/B soils, no underdrain - Infiltration A/B	10	Average N, P, Sed. removal efficiency 65-90%.

*Adapted from: Final_CBP_Approved_Expert_Panel_Report_on_Stormwater_Performance_Standards LONG.pdf, Accessed 1/5/15

CATEGORY 2: ENVIRONMENTAL NEED (Score Range: 0 to 30)

This category delineates environmental factors related to the degree of impact anticipated from implementation of that opportunity and includes the following:

- Receiving waterbody impairment
- Stormwater benefits from existing landscape and land use
- Receiving waterbody sensitivity.

A. Receiving Waterbody Impairment (0 to 15): Describes the extent to which the receiving waterbody is impaired. Impairment due to nutrients, solids, or sediments was

prioritized because these are pollutants of greater concern to the Bay and pollutants that BMPs can mitigate.

1. Method: Obtain best available data from 303(d) list and use classification.
2. Rationale: Increased sensitivity of receiving water increases the benefit to be derived from implementation of the opportunity.
3. Facility Specific Interpretation or Notes:

Impairment	Score	Comment
No impairment	0	No known sensitivity or problems (other than Bay-wide nutrient and sediment TMDL).
Moderate impairment	3	Receiving water impairment for pollutants other than nutrients, solids, or sediments.
High impairment	5	Receiving water impairment for nutrients, solids, or sediments.

B. Stormwater Benefits from Existing Landscape and Land Use (0 to 10): Benefits from existing landscape describes the extent to which existing vegetation or ground cover serves to disconnect impervious areas by slowing and dispersing runoff and reducing pollutant transport. Where possible, stormwater retrofit opportunities that encourage infiltration are desirable both from a pollutant removal standpoint and from an environmental quality standpoint (groundwater recharge, vegetation management, etc.). Land Use describes the character of development, or lack-there-of, in the subwatershed draining to an opportunity

1. Method: Aerial imagery and field visual observation.
2. Rationale: Sites that receive benefit from the existing landscape are a lower priority for implementation as lower amounts of pollutants will enter the site. Land use is a potential indicator of the type and extent of pollutants derived from runoff over the landscape to the opportunity location. A higher score is given to land use types that contribute more pollutants. Facility specific interpretation of this category should be given appropriate consideration in making assumptions based on land use.
3. Facility Specific Interpretation or Notes: BMP-sheds with drainage to natural areas or through buffers were scored as low priority. Some areas drained immediately to ditches. In cases where these ditches drain to hydraulic structures that detain water, the opportunities were considered low or medium priority, where no such treatment existing, they were considered medium to high priority. Juxtaposition of pollutant generating surfaces were considered in the evaluation. Opportunities with a high percentage of impervious surface were typically called “Commercial”, particularly when they include road or parking facilities that receive frequent use. BMPs that only collect rooftop runoff typically scored as “Residential”. If an area has some industrial activity, or a comparable activity with a potential to produce comparable types of loading, these scored highest –

included in this category are known areas of fertilized turf. Impervious areas that are small, do not receive (or only receive minimal) traffic, or are a mix of impervious and pervious typical to residential settings were called “Residential”. Open Space was reserved for areas consisting predominantly of unmowed grass and/or woods.

Priority based on Stormwater Benefits from Existing Landscape	Score	Comment
Meadow/Woods	0	Existing buffer width, vegetation height and density, and flow path length has significant affect in dispersing runoff and/or encouraging infiltration.
Grass	3	Existing buffer width, vegetation height and density, and flow path length has a moderate effect on dispersing runoff and/or encouraging infiltration.
Impervious	5	Existing buffer width, vegetation height and density, and flow path length has minimal effect on dispersing runoff and/or encouraging infiltration – e.g. Impervious areas directly connected.

Priority based on Land Use	Score	Comment
Open Space	0	
Residential	1	Unfertilized, applies to BMP-sheds that include only rooftop runoff, applies to BMP-sheds with low total acreage of impervious area, level of usage of roads/parking considered, and high percent grass/gravel.
Commercial	2	Typical source of N, P from atmospheric deposition on impervious surfaces, must include paved road/parking lot runoff or runoff from compacted gravel surfaces.
Urban	4	Typical source of N, P from atmospheric deposition on impervious surfaces, must include nearly 100% paved road/parking lot runoff or runoff from compacted gravel surfaces.
Industrial/ Fertilized Turf	5	Fertilized turf applies golf courses or other sports facilities where application has been verified.

C. Receiving Water Sensitivity (0 to 5): Classifies the receiving waterbody with some level of sensitivity to existing fish habitat

1. Method: Obtain best available data from Pa Code Chapter 93 list and use classification.

2. Rationale: Increased sensitivity of receiving water increases the benefit to be derived from implementation of the opportunity.
3. Facility Specific Interpretation or Notes

Sensitivity	Score	Comment
WWF	2	Minor habitat concerns
TSF	3	Seasonal habitat concerns
HQ-CWF	5	High Quality or Exceptional Value waterways.

CATEGORY 3: CONSTRAINTS (Score Range: 0 to 30)

This category refers to site-specific factors that would impact design, construction, and/or maintenance costs of a proposed BMP opportunity and includes:

- Land Classification
- Space constraints
- Community Support

A. Land Classification (0 to 15): Evaluates whether the BMP is located on lands easily accessible to the municipality for future maintenance activities.

1. Method: BMPs are classified by their location on private or public land
2. Rationale: BMPs located on private lands may not be maintained in accordance with permit regulations. These BMPs are not reliable credits towards meeting the permit.

Land Classification	Score	Comment
Private	-15	Located on Private lands with no municipal easements or other access rights.
Public	15	Located on public lands or private lands where the landowner has granted access to the municipality through an easement or similar.

B. Space Constraints (0 to 5): Evaluates whether there is enough space available in the opportunity area to meet applicable design criteria.

1. Method: Available space is determined through aerial imagery and field verification
2. Rationale: Undersized BMPs increase likelihood of failure, higher maintenance requirements and may be partially or total ineligible for programmatic recognition of benefits. The design of future BMPs in space constrained areas may complicate the design and construction resulting in higher costs. They should therefore be given a lower ranking.
3. Facility Specific Interpretation or Notes: Available space was determined based on parcel size. Large parcels of land where any future expansion / retrofits to existing BMPs would not negatively impact any adjacent landowners are

preferable sites to use. Existing BMPs that utilize the entire parcel size and future BMPs that appear undersized relative to the drainage area may not be able to mitigate the entire pollution load entering the site and receive a lower score.

Space Constraint	Score	Comment
Inadequate	2	Appears too small to treat entire drainage area. Utilizes entire parcel or BMP abuts on adjacent landowners
Sufficient	3	Space available for BMP is fair to good in terms of BMP size relatives to drainage area size.
Unlimited	5	Site is located away from adjacent landowners or on a very large land parcel.

C. Community Support (0 to 10): Evaluates whether any community or local groups may work to support or oppose the BMP

1. Method: Local knowledge utilized to identify sites where strong community support or opposition exists.
2. Rationale: Community support from local groups will reduce BMP costs by providing maintenance for the municipality. Strong community opposition may cause additional costs to be incurred during the design and construction phase.
3. Facility Specific Interpretation or Notes: Local support may reduce costs and expedite the design process. Community opposition may delay project implementation and undermine BMP effectiveness (i.e. by mowing naturalized basins)

Community Support	Score	Comment
For	10	Local community group will provide long term maintenance of the BMP and reduce BMP cost
Neutral	5	No help or opposition anticipated from community or adjacent landowners.
Against	1	Opposition anticipated that may impact the BMP design and increase BMP cost.

CATEGORY 4: RELATIVE BMP COST FACTORS (Score Range: 0 to 30)

This category refers to BMP type and site specific factors that would impact design, construction cost, and maintenance costs of a proposed BMP opportunity and includes:

- Planning Level Design & Construction Cost
- Maintenance Burden/Cost
- Available funding mechanisms

A. Planning Level Design & Construction Cost (0 to 10): Planning-level cost estimate of BMP implementation based on BMP type. This distinguishes between BMPs by BMP

type from less costly (e.g. swales) and more costly (e.g. permeable pavement). This favors Existing BMPs as their Design and Construction costs have already been incurred.

1. Method: Based on BMP type chosen. Flexibility is allowable for BMPs where known engineering constraints exist that would greatly increase the BMP design cost
2. Rationale: There are BMPs that are more and less costly to implement. This element scores the cost of the selected BMP on a consistent basis for comparison.
3. Facility Specific Interpretation or Notes: The scoring was based on BMP type and not BMP size because size has already been accounted for in the scoring system. Using size criteria twice would unfairly skew the rankings. A more accurate cost will be generated during conceptual design of the facility.
4. Calculation: For Proposed BMPs where the costs of design have been budgeted, but the costs of construction have not been incurred it is assumed that some of the total cost has already been incurred and the score is based on the equation:

$$\text{Score} = (\text{Maximum Score} - \text{Design \& Construction Cost Score}) / 2 + \text{Design \& Construction Cost Score}$$

Design & Construction Cost	Score	Comment
Underground Detention System	1	Relatively high design and construction cost.
Detention Basin	2	Relatively high design and construction cost.
Infiltration Basin	3	Relatively moderate design and construction cost.
Rain Garden	5	Relatively moderate design and construction cost.
Detention Basin Naturalization	6	Relatively low design and construction cost.
Wetland/Stream Restoration	6	Relatively low design and construction cost.
Riparian Buffer	7	Relatively low design and construction cost.
Oil/Water Separator	8	Relatively low design and construction cost.
Existing BMP	10	No design or construction cost.

B. Maintenance Burden/Cost (0 to 10): Assesses the long term maintenance requirements of the recommended BMP opportunity.

1. Method: Based on BMP type chosen, and with consideration of site conditions.
2. Rationale: Maintenance is not an insignificant factor in cost and planning for BMP installations and low-maintenance BMPs should be given favor when appropriate.
3. Facility Specific Interpretation or Notes: The primary factor considered was BMP type. In general, planting, naturalization and stream or wetland restoration was considered low. Above ground facilities with outlet structures and/or underdrains

were considered medium. Underground facilities, such as oil/water separators and infiltration practices, were considered high. Factors such as presence of sediment sources, undersized BMPs or BMPs treating high end of intended impervious area range, and other higher maintenance risk conditions were considered in the ranking.

Maintenance	Score	Comment
Oil/Water Separator	1	Relatively high maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Underground Detention System	2	Relatively high maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Detention Basin	3	Relatively high maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Infiltration Basin	4	Relatively moderate maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Rain Garden	5	Relatively moderate maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Wetland/Stream Restoration	6	Relatively moderate maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Detention Basin Naturalization	7	Relatively low maintenance cost in comparison to typical pollution reduction achieved for BMP Type.
Riparian Buffer	8	Relatively low maintenance cost in comparison to typical pollution reduction achieved for BMP Type.

C. Available Funding Mechanisms (0 to 10): Assesses the availability of funding for the BMP.

1. Method: Based on local knowledge of available funding sources
2. Rationale: BMPs that have funding available or previously allocated are prioritized in the ranking. BMPs with funding sources available to help offset BMP costs are also scored higher.

Maintenance	Score	Comment
None	1	No outside funding sources available. No monies allocated towards the BMP.
Partial	5	Some outside funding may be available to offset BMP cost. Some money previously allocated towards BMP, but this pot may not cover the entire BMP cost.
Complete	10	The BMP cost has already been accounted for in the capital budget or outside funding sources will cover the entire cost of BMP implementation.
Unknown	3	Possibility of outside funding exists, but source and amount unknown.