9 INFRASTRUCTURE PLAN

OUR PUBLIC WATER & SEWER INFRASTRUCTURE

PUBLIC WATER SUPPLY SYSTEMS

THE CITY OF LEBANON AUTHORITY

The City of Lebanon Authority (CoLA) provides public water service to about 19,328 water customers in the central urbanized areas of Lebanon County, including 8,022 customers in North Cornwall, North Lebanon and South Lebanon Townships, plus Cornwall Borough as a bulk water customer.[16] CoLA is permitted to draw water, independently or in combination, from the 1.2 billion gallon Lebanon Reservoir, (Christian E. Seigrist Dam) located in Schuylkill County, and from the Swatara Creek. While agriculture and mining activities are found in these watersheds, the raw water contains no significant loadings of nitrogen, phosphorus or metals that would require specialized treatment.[17]

CoLA's water treatment plant is located off Grace Avenue in Swatara Township. Raw water is filtered and treated with chlorine for disinfection. Water quality from the plant is monitored regularly for contaminants. While the recent water quality samples have met state and federal standards, additional treatment processes may be needed to meet future water quality standards.

The plant has a treatment capacity of 10 million gallons per day (mgd) and an average rate of 7.0-7.5 mgd. With modifications and improvements, the plant's capacity rating could increase to 12mgd, 15 mgd, or even 20 mgd. The primary limitation to the plant's capacity is the hydraulic capacity of the pumps—7 mgd from the reservoir and 8 mgd from Swatara Creek.

Storage facilities for treated water include a 3 million gallon underground clearwell, a 6 million gallon underground storage reservoir; 3 standpipes with capacities of 3 million, 1.75 million, and 0.5 million gallons; and a 1 million gallon Hydropillar.

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[16] CoLA Water Customers, March 10, 2010.

[17] Source Water Assessment Public Summary, Lebanon Water Authority, file dated 12/2007, accessed at www.dep.state.pa.us.

Treated water is distributed to three separate systems: the North System, serving northern Lebanon County; the South System, serving Lebanon, West Lebanon, Cornwall, and portions of North Cornwall, North Lebanon, and South Lebanon Townships; and the Sandhill System, serving additional areas of North Lebanon Township.

CoLA's distribution and transmission system is in fair to good condition for its age. Current projects include construction of water mains along East Chestnut Street from South Lincoln Avenue to South 5th Avenue at South Lebanon Township and along Oak Street from 10th Street to 12th Street.

Water Supply Planning

A study from October 2000 indicates that the current average daily source water demands exceed the safe yield of the existing sources of supply, i.e. the Swatara Creek and Siegrist Reservoir, under drought conditions. Significant reductions in demand could be needed in the event of a drought. The reductions in demand would likely consist of water conservation measures that would significantly limit water use, especially outdoor water use, such as irrigation. Further investigation of interconnection of systems and potential sources of supply are needed to ensure a safe water supply for current customers and potential community and economic growth. CoLA plans to address the issue of limited water supply in the coming 5-10 years. Previous plans considered construction of a dam and reservoir at Swatara State Park; however, the approved master plan for the park does not include a dam or reservoir. CoLA has considered this decision final and expects to pursue investigation of groundwater sources for additional supply.

Further water system extension is likely to occur within the municipalities already served. Extensions of the water system may be made by municipalities to address water supply for properties with failing wells and/or septic systems; by developers for new construction; or by CoLA to create loops that eliminate dead ends and balance system flow and pressure. Extensions by municipalities and developers require an agreement with CoLA for water service based on the developer's construction of system components to CoLA's standards. CoLA plans to formalize the dedication process. CoLA requires that an approved agreement with CoLA be made part of the municipal subdivision and land development approval procedures. Extensions typically include installation of hydrants every 500-800 feet.

Municipalities rely on CoLA for water public water service and for assurance that water supply is available for proposed developments. CoLA has indicated that water supply capacity for small projects is available. However, the CoLA board has concerns with taking on large industrial customers that need several hundred thousand gallons per day since one customer could use up a large portion, if not all, of the remaining capacity.

SMALL COMMUNITY WATER SYSTEMS

There are a few small community water systems in the region: Countryside Mobile Home Park, Gretna Springs, Quentin Water Company, Sycamore Hill, and Timber Service Corporation. A mid-1990s study, done by the U. S. Army Corps of Engineers, identified potential interconnections and improved inspection and maintenance options to ensure water supply and improve compliance with state regulations. The first phase of the study was completed and made recommendations for each system; the second phase of the study was not completed. Further investigation of the feasibility of system interconnection is needed to ensure a safe water supply for current customers and potential community and economic growth. Mount Gretna Campmeeting and Mt. Gretna Heights also each have their own water systems; both are interconnected with Mt. Gretna Borough Authority's water system for reliability.

PUBLIC SEWERAGE (WASTEWATER) SYSTEMS

The municipalities of the Cornwall-Lebanon region each manage their own municipal sewer collection systems and direct flows to the City of Lebanon Authority for treatment. CoLA provides treatment for approximately 20,000 sewer connections in central Lebanon County, including roughly 10,000 customers in the Cornwall-Lebanon Region.[18] Mount Gretna Campmeeting, Mt. Gretna Heights, and Stoberdale have separate public sewer systems served by Mt. Gretna Borough Authority's wastewater treatment plant.

All but North Lebanon direct flows to the Cornwall Borough interceptor. These plus additional flows from South Lebanon and North Cornwall contribute to the Snitz Creek interceptor and flow through the Dairy Road Pumping Station. Flows from North Cornwall are also directed to the Beck Creek interceptor and Cleona Boulevard Pumping Station as well as the Chestnut Street interceptor.

The wastewater treatment plant has a treatment capacity of 8 million gallons per day (mgd) and an average rate of 4.5 to 6 mgd. During wet weather, the flows exceed capacity-reaching 10, 15, or even 20 mgd for short periods of time.

Municipalities served by the treatment plant have purchased a total of 7.6 mgd in capacity, including the recent allocation to Heidelberg Township. Municipalities of the Cornwall-Lebanon Region hold 4.1 mgd, as shown in Table 9-1. CoLA owns the remaining capacity, 0.4 mgd. If it were to sell additional capacity above the rated 8.0 mgd, it would be in violation of exceeding daily flows.

Table 9-1 Sewage Treatment Capacity

System	Allocated Capacity (gpd), 2010
CLSD Region	4,126,924.5
Cornwall Borough	531,666.5
North Cornwall Township	868,295.5
North Lebanon Township	1,072,640.0
South Lebanon Township	1,554,322.5
West Cornwall Township	100,000.0

Source: 2010 CoLA Municipal Meeting (Minutes & Handouts)

CoLA considers all municipalities to be operating at their full allocation, assuming a portion of the allocated capacity is needed for infiltration, businesses or homes that are not using their full capacity (but could in the future), and other factors. Like the water system, municipalities rely on CoLA for sewage treatment service and for assurance that treatment capacity is available for proposed developments.

Wastewater Plant Upgrade

In order to comply with the Pennsylvania Department of Environmental Protection's Chesapeake Bay Strategy for nutrient reduction in the Bay, CoLA is expanding and altering its wastewater treatment plant. Contracts totaling $46 million have been awarded. After the upgrade is completion, the plant's treatment capacity will be re-rated. A new rating of 10 mgd is expected. However, the plant's true capacity will be limited by the nutrient concentration of its discharge rather than by the hydraulic flow. The additional 2 mgd will be owned by CoLA and sold to municipalities on an as-needed, by development project, basis and will likely include consideration for nitrogen, phosphorus, and / or biological oxygen demand, in addition to

[18] CoLA Municipal and Authority Customers Report, 2007, showed 19,200 sewer connections in central Lebanon County – 9,752 customers in the Cornwall-Lebanon Region.

hydraulic flow. Until the upgrade is complete, the CoLA board has concerns with taking on large industrial customers that need several hundred EDU's since one customer could use up a large portion, if not all, of the current available capacity.

Sewage Facilities Planning

The Pennsylvania Sewage Facilities Act (Act 537) of 1965 requires every municipality to have a sewage facilities plan approved and filed with the Pennsylvania Department of Environmental Protection. The plan outlines the municipality's needs for public and private sewerage facilities for the next 20 years. The plan requires testing of at least 15 percent of residents' septic systems and wells to ensure that systems are not malfunctioning and contaminating drinking water.

Sewage facilities plan dates and ages are shown in Table 9-2. South Lebanon's plan is dated 1988—24 years old. Cornwall and West Cornwall's plans are each nearing the 20 year horizon, though West Cornwall has made amendments. North Cornwall's plan is 5 to 10 year old; North Lebanon made amendments in 2010.

Table 9-2 Municipal Act 537 Sewage Facilities Plans

Municipality	Date of Approved Sewage Facilities Plan	Age of Sewage Facilities Plan
Cornwall Borough	10/20/1993	Plan between 10 and 20 years old
North Cornwall Township	02/16/2005; amended	Plan between 5 and 10 years old
North Lebanon Township	10/30/2003; amended	Plan less than 5 years old
South Lebanon Township	04/26/1988	Plan older than 20 years old
West Cornwall Township	06/11/1992; amended	Plan between 10 and 20 years old

Source: PA DEP

STORMWATER MANAGEMENT

MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4S)

Municipal Separate Storm Sewer Systems (MS4s) collect stormwater and ultimately discharged into local rivers and streams generally without treatment. In 1990, the EPA established Phase I of the National Pollutant Discharge Elimination System (NPDES) stormwater program, requiring operators of "medium" and "large" MS4s to implement a stormwater management program to reduce the discharge of pollutants. In 1999, the program was expanded to small MS4s (serving populations under 100,000 located within U.S. Census defined Urbanized Areas and select others) under Phase II. The program aims to address common pollutants, such as oil and grease from roadways, pesticides from lawns, sediment from construction sites, and litter, which can impair the waterways, discouraging recreational use of the resource, contaminating drinking water, and interfering with fish and wildlife habitat.

The majority of the Region is located in the Chesapeake Bay watershed. As a result of declining water quality in the Bay, the U.S. Environmental Protection Agency has begun to regulate non-point nutrient pollution sources. To comply with federal law, those states that are contributing to the impairment of the Bay—Pennsylvania, Maryland, Virginia, and the District of Columbia—are required to address nutrient loadings to their Bay tributaries. Dating back to 1983, the states have agreed to restore the Bay. Pennsylvania's Chesapeake Bay Tributary Strategy was established in December 2004 by the Department of Environmental Protection (DEP) and updated in 2010. Pennsylvania's strategy is to share the burden of nutrient and sediment reductions among the several groups of sources, primarily agriculture, wastewater treatment plants, urban stormwater (municipal separate storm sewer systems – MS4s), and septic systems. DEP has been working to implement the strategy update, initially emphasizing agricultural best management practices and new standards for wastewater treatment discharge.

Over the past few years, DEP has rolled out the MS4 stormwater management requirement as a NPDES stormwater permit. DEP requires that owners/operators of MS4s (municipalities) obtain a General Permit (PAG-13) for Stormwater Discharges from MS4s or apply for a waiver. The permittee must, within the first five-year permit term, develop, implement and enforce a Stormwater Management Program to reduce the discharge of pollutants from its regulated MS4s to the Maximum Extent Practicable (MEP) to meet water quality standards and satisfy the appropriate water quality requirements of the federal Clean Water Act and the Pennsylvania Clean Streams Law. The program must be approved by DEP and contain Best Management Practices (BMPs) and measurable goals for each of the six Minimum Control Measures (MCMs):

1. Public Education and Outreach – to provide information and raise awareness among the general public
2. Public Participation and Involvement – opportunities for program involvement
3. Illicit Discharge Detection and Elimination – storm sewer system inlet and outfall mapping; water quality sampling at outfalls; elimination of discharges; and prohibition of additional discharges
4. Construction Site Runoff Control – erosion and sediment control planning
5. Post-Construction Stormwater Management in New Development and Redevelopment – structural and non-structural techniques and regular inspection
6. Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance – best practices and employee training

Given their proximity to the Lebanon Urbanized Area, all five municipalities are required to comply with the MS4 program and its requirements. Compliance includes annual reporting to DEP.

The program represents a DEP mandate to monitor environmental quality and achieve water quality standards at the municipal level. In this Region, as well as many other urbanized municipalities across the state, there has been no baseline stormwater quality data or municipal storm sewer system mapping. Financially, it represents a significant and specialized effort for municipal staff, or its contractors, without state financial assistance.

Municipal staff and elected officials are still ramping up efforts to understand and comply with the requirements without any supplemental funding for this mandate. Municipalities have made the most progress in complying with requirements that can be integrated with existing municipal staff and services, i.e. stormwater management ordinances and public education. Water quality sampling and analysis must be conducted according to procedures approved under 40 CFR Part 136. Only North Lebanon has completed this requirement. System mapping requires a new and potentially large data collection effort for which the municipalities have relatively few available resources (staff, data collection equipment, and data management equipment).

In an effort to understand the new regulations for permit renewal, share knowledge and best practices, and possibly to cooperate in achieving program compliance among the affected municipalities in Lebanon County, the Lebanon County Clean Water Alliance has been established under the leadership of the Lebanon County Planning Department. Similar county- and multi-municipal partnerships are in place in Lancaster, Lycoming, and Delaware Counties.

In 2011, the Capital Resource Conservation and Development (RC&D) Area Council sought funding from the National Fish and Wildlife Foundation for a regional model of reduction impacts to help municipalities evaluate stormwater projections, impacts, and potential management strategies. Lebanon and Adams Counties were to be the pilot counties for modeling, given their vulnerability to development and other factors. Unfortunately, the funding request was not successful. However, the RC&D remains a potential

partner in researching this topic and developing sustainable financing for storm water management. Though state funding for Act 167 Stormwater Management Plans has been small in recent years, the Lebanon County Clean Water Alliance could emerge as a working group toward watershed-based plans or countywide plan.

FINDINGS ON INFRASTRUCTURE

1. Municipalities rely on CoLA for public water service and for assurance that water supply is available for proposed developments. CoLA has indicated that water supply capacity for small projects is available. However, the CoLA board has concerns with taking on large industrial customers that need several hundred thousand gallons per day since one customer could use up a large portion, if not all, of the remaining capacity.

2. A mid-1990s study, done by the U. S. Army Corps of Engineers, identified potential interconnections and improved inspection and maintenance options among small community water systems. Further investigation of the feasibility of system interconnection is needed to ensure a safe water supply for current customers.

3. Like the water system, municipalities rely on CoLA for sewage treatment service and for assurance that treatment capacity is available for proposed developments. Until the upgrade is complete, the CoLA board has concerns with taking on large industrial customers that need several hundred EDU's since one customer could use up a large portion, if not all, of the current available capacity.

4. Three municipal sewages facilities plans are nearing or beyond their 20-year planning horizon: South Lebanon, Cornwall and West Cornwall.

5. All municipalities are required to comply with the MS4 program. Compliance with the permitting process represents a significant and specialized effort for municipal staff, or its contractors, without state financial assistance. Municipalities have made initial progress in complying with requirements that can be integrated with existing municipal staff and services, i.e. stormwater management ordinances and public education. Municipal staff and elected officials are still ramping up efforts to understand and comply with the requirements without any supplemental funding for this mandate. The Lebanon County Clean Water Alliance has been established under the leadership of the Lebanon County Planning Department with assistance from the Lebanon County Conservation District to gather and share information among the affected municipalities in Lebanon County.

GOALS, OBJECTIVES AND RECOMMENDATIONS

GOAL 7. PLAN, BUILD AND MAINTAIN SUSTAINABLE PHYSICAL INFRASTRUCTURE.

Objectives

A. Maintain and implement timely management plans for sewer service capacity and on-lot septic systems.

Rec 48. Update municipal Act 537 Sewage Facilities Plans.

Act 537 plans typically have a 20-year planning horizon. South Lebanon's plan is dated 1988—24 years old. Cornwall and West Cornwall's plans are each nearing the 20 year horizon, though West Cornwall has made amendments. North Cornwall's plan is 5 to 10 year old; North Lebanon amended its plan in 2010.

Updating these plans provides a current inventory and assessment of the system and identifies needed maintenance, improvements, and expansion to protect the health, safety and welfare of residents and businesses. It is intended to be proactive, addressing problems before or as they emerge and thus can be undertaken at any time. Where conditions are changing rapidly, an update at 5 or 10 years may be appropriate. Where conditions have had little or no change, the plan may need only minor revision but the process ensures that data, mapping, and associated municipal policies are kept current.

Following the comprehensive plan adoption and zoning amendments, municipalities should at minimum review their existing and future service area maps for consistency with ***Map 11, Future Land Use Map*** and zoning map and amend their 537 plans as appropriate. South Lebanon should pursue a more comprehensive update process.

Time for Action:	Medium Term (0-5 years)
Lead Partners:	Municipal Officials; Municipal Authorities
Support Partners:	Municipal Planning Commission; Lebanon Authority
Funding Sources:	PA DEP Act 537 Planning Assistance (reimbursement grant)

Rec 49. Limit water/sewer service expansion to the Planned Development Area.

Water and sewer service should be planned, reasonable and predictable. Exceptions for public health and safety should be few.

The Planned Development Area provides a geographic boundary for both zoning of intensive land uses and water and service areas. Service extensions should follow these principles:

- Extend water/sewer service within the Planned Development Area.
- Avoid service extensions into the Planned Conservation Area except to address water supply and quality issues.
- Do not allow the expansion of new water or sewer lines into the Planned Conservation Area to be the justification for changes to municipal zoning maps that could result in more intensive development

Time for Action: Ongoing

Lead Partners: Municipal Officials; Municipal Authorities

Support Partners: Municipal Planning Commission; Lebanon Authority

Funding Sources: n/a

Rec 50. Identify and prioritize major maintenance and capital improvements to the water and sewer systems.

Whether through a formal (e.g. Act 537) or informal planning process, annually list and prioritize infrastructure needs. Consider scheduling projects and funding through a capital improvement program.

Time for Action: Short term (0-2 years) and Ongoing

Lead Partners: Municipal Officials; Municipal Authorities

Support Partners: Lebanon Authority

Funding Sources: n/a

Rec 51. Adopt on-lot management districts in Cornwall and South Lebanon.

On-lot (disposal or septic system) management requires regular pumping of on-lot disposal system tanks. Pumping of the tank provides property owner an opportunity to identify and fix problems before they become severe and offers the municipality a record of concerns. On-lot management districts are designated areas for the pumping requirement (if not the entire municipality) and are adopted by ordinance. An on-lot management program requires administration to ensure pumping occurs. The Lebanon County Planning Department administers sewage management programs in North Lebanon and West Cornwall Townships. North Cornwall has its own program.

Time for Action: Medium Term (0-5 years)

Lead Partners: Cornwall and South Lebanon and associated Municipal Authorities

Support Partners: Lebanon County Planning Department

Funding Sources: General and Authority Funds

Rec 52. Adopt well construction standards.

Because of the Region's karst topography, water flows readily beneath the surface. Well construction standards are intended to protect contaminated water from entering the well. The State Water Plan suggests that well construction standards should address 1) well siting/location (to avoid proximity to potential contamination sources), 2) construction (specifications for grouting, casings and screening materials to preclude the entrance of contaminants), and 3) reporting of post-drilling water quality and quantity to the landowner and the appropriate regulatory agencies.

Time for Action: Medium Term (0-5 years)

Lead Partners: Municipal Officials, Engineers and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

Rec 53. Adopt wellhead protection zones for public water wells.

Pennsylvania's Wellhead Protection Program is designed to provide for the protection of groundwater resources that serve as a source of drinking water for community water systems. Through the program, wellhead protection areas are delineated, potential sources of contamination are identified, and communities are encouraged to adopt land use zoning and other ordinances to ensure the protection of their water supply.

Time for Action: Medium Term (0-5 years)

Lead Partners: Municipal Water Authorities; Municipal Officials, Engineers and Planning Commissions

Support Partners: PA DEP; Lebanon County Planning Department; Lebanon County Conservation District

Funding Sources: General Funds; Pennsylvania Source Water Protection Program; Pennsylvania Water Resources Education Network; Pennsylvania Rural Water Association

GOAL 8. INTEGRATE WATER RESOURCES MANAGEMENT.

A. Minimize site disturbance and impervious surfaces, and maximize infiltration.

Rec 54. Review and revise regulations to minimize site disturbance.

Review and revise zoning and land development standards to reduce excessive impervious cover requirements, e.g. street widths, parking.

The Pennsylvania Stormwater Best Management Practices Manual (2006) provides guidance, on development approaches and standards that reduce stormwater volumes.

Time for Action: Short Term (0-2 years)

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

Rec 55. Incorporate and encourage the use of low impact development approaches.

Incorporate low impact development approaches, such as permeable/pervious pavement (interlocking concrete, pervious concrete, or pervious asphalt) and curbs without rise (to protect pavement and allows surface flow), to reduce the stormwater load and stormwater management techniques, such as vegetated/grassed swales, constructed wetlands, and wet ponds, in addition to conventional dry retention/detention basins, to maximize on-site infiltration. Karst areas of the Region require special consideration; not all techniques are

appropriate in karst areas. Consider incentives to encourage the use of these approaches.

The Pennsylvania Stormwater Best Management Practices Manual (2006) provides guidance, standards and references to other resources for stormwater management techniques.

Time for Action: Short Term (0-2 years)

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

Rec 56. Request a county-led groundwater study to define significant aquifer recharge areas.

Because karst topography and the Region's core development coincide, the county and municipalities need to understand the groundwater capacity and recharge in order to make informed land use decisions. Since the guidance of the county comprehensive plan and the karst topography both extend beyond this Region, the county should coordinate this effort. This was recommendation 1A1 of the Natural Resources Plan of Lebanon County's Comprehensive Plan, 2007. The City of Lebanon Authority also has a stake in groundwater supply as a future water source.

In addition, the Swatara Creek watershed was nominated as a critical water planning area in the State Water Plan, 2009. If designated, a critical area resource plan could be developed to identify practical alternatives for assuring an adequate supply of water to satisfy existing and future reasonable and beneficial uses. Improving or at least sustaining groundwater recharge rates are one possible alternative.

Once a study is completed, municipalities should review zoning ordinances to confirm that areas are protected or develop overlay ordinances to protect those areas most critical to groundwater recharge.

Time for Action: Medium Term (0-5 years)

Lead Partners: Lebanon County Planning Department

Support Partners: Municipalities; Lebanon Authority

Funding Sources: PA DEP

Rec 57. Revise ordinances to require predevelopment hydro geological studies for lots to be served by septic systems and when required by federal or state law.

In the absence of a groundwater study, municipalities should continue to seek information to support informed decision-making that protects water resources for existing and future citizens.

Time for Action: Short Term (0-2 years) and Ongoing

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

B. Maintain or improve water quality.

Rec 58. Incorporate stormwater filtration techniques into land development ordinances.

Consider bioretention basins (also known as rain gardens, particularly on single residential lots), bioswales (where conveyance is needed), constructed or stormwater wetlands, and stormwater ponds. Again, karst areas of the Region require special consideration; not all techniques are appropriate in karst areas.

Time for Action: Short Term (0-2 years) and Ongoing

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

Rec 59. Adopt riparian buffer ordinances when and where required by state and federal law; consider adoption of the same for all waterways and waterbodies.

In 2010, The Environmental Quality Board amended Chapter 102, Erosion and Sediment Control and Stormwater Management, of the state code. Citing scientific literature, PA DEP determined that riparian forest buffers are necessary to protection Exceptional Value and High Quality waters of the Commonwealth from development activities. The proposed rulemaking listed requirements for incorporating riparian forest buffers. As a result of public comment and additional analysis, the final rulemaking made riparian forest buffers not mandatory, but rather an optional BMP that the applicant may choose to manage their post construction stormwater. The amendment also addresses the composition, zones, and management requirements for required riparian forest buffers.

The unnamed headwater tributaries of Chiques (Chickies) Creek in Cornwall and West Cornwall and the unnamed headwater tributaries of Cocalico Creek in South Lebanon are designated high quality cold water fisheries. These municipalities should ensure that appropriate provisions for riparian forest buffers, under both attaining and non-attaining use conditions, are included among optional BMPs for post construction stormwater management.

Municipalities may consider listing similar riparian or riparian buffer provisions for all streams, though such is not required by federal or state law at this time. Lebanon County's Subdivision and Land Development Ordinance includes a provision for riparian buffers for ponds, wetlands and streams. The buffer is to be a minimum of 25 feet wide or the width of the 100-year floodplain, where designated.

Time for Action: Short Term (0-2 years)

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

Rec 60. Design and install stormwater management improvements on public lands as demonstration projects, where reasonable water quality improvement can be achieved.

Given their public access, public parks and other municipal facilities are ideal locations to demonstrate new technologies and best practices for stormwater management. Sites with water bodies can be used to demonstrate riparian forest buffers. Other sites can feature approaches to maximize filtration and infiltration. Projects may be eligible for grant funding, particularly where public education signage or other materials are produced to encourage understanding and boarder use of demonstrated techniques.

Time for Action: Long Term (0-10 years)

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Watershed Associations

Funding Sources: General Funds; Watershed Associations

C. Coordinate MS4 Stormwater Management Program services.

Rec 61. Continue to participate in the Lebanon County Clean Water Alliance.

The Lebanon County Clean Water Alliance provides a forum for municipal officials and staff to learn about regulations and guidance on MS4 stormwater management compliance. By working together, municipalities can share the cost of both learning and program compliance.

Time for Action: Short Term (0-2 years) and Ongoing

Lead Partners: Municipal Officials, Managers, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: n/a

Rec 62. Regionalize public education efforts required by the MS4 Stormwater Management Program.

Stormwater management education for the public generally consists of principles and practices that are applicable to a wide region. The content of public education messages is not expected to vary substantially, if at all, among the affected (mandated) municipalities in this Region. By working together, municipalities can share the cost of developing and distributing public education messages, which may include newsletter articles, website announcements, mailing, community service announcements via radio or television broadcast, and special event participation, among other modes deemed appropriate and effective.

Time for Action: Short Term (0-2 years) and Ongoing

Lead Partners: Municipal Officials, Engineers, and Planning Commissions

Support Partners: Lebanon County Planning Department

Funding Sources: General Funds

Rec 63. Regionalize service contracts, e.g. for water quality sampling at storm boxes, inlet and outfall mapping, for MS4 Stormwater Management Program compliance.

Program compliance requires data collection and environmental monitoring that have not been typical a part of local government services in this Region. These activities will require specialized staff to be hired, trained, or contracted. These activities are not likely to support a full-time position in each municipality but will require specialized skills. Together, the municipalities could hire or train a circuit rider, a position shared among participating municipalities, or contract services at a cost effective rate.

Time for Action:	Short Term (0-2 years) and Ongoing
Lead Partners:	Municipal Officials, Engineers, and Planning Commissions
Support Partners:	Lebanon County Planning Department
Funding Sources:	General Funds

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