

CHAPTER V. BMP SELECTION PROCESS AND FEASIBILITY CONCERNS

In order to develop a strategy to restore the watershed and meet the watershed goals, the Wolf Run Watershed Council held a series of meetings and activities to select the BMPs best suited to accomplish the watershed goals.

The Wolf Run Watershed Council met quarterly beginning in December 2010 and technical presentations and discussion of watershed activities and plan development were discussed during each meeting. These quarterly meetings were utilized as a platform to educate stakeholders on the impairments in the watershed and maximize the public involvement in the selection of BMPs to address these impacts. The following is an overview of the agendas of each meeting:

- December 2010: Overview of watershed planning and invitation to join council
- April 2011: Group discussions of current and proposed watershed projects and objectives
- June 2011: Presentation of microbial source tracking results by Dr. Gail Brion
- September 2011: Update on monitoring results and formation of Outreach Campaign Committee
- December 2011: Finalization of public outreach strategy
- March 2012: Water quality resource fair and BMP identification exercise
- June 2012: Watershed monitoring results and draft watershed goal development
- September 2012: Watershed goal finalization, draft water quality BMP plan, and formation of Water Quality BMP Technical Committee
- December 2012: Finalization of water quality BMP plan and development of implementation team

Two technical committees were launched in order to provide detailed discussion and analysis of BMP strategies. The Outreach Campaign Committee and the Water Quality BMP Technical Committee each took input from the Watershed Council, developed a more comprehensive strategy, and then presented the results to the Council for prioritization and finalization.

A. Public Education and Outreach Strategy

The Outreach Campaign Committee was formed on September 19, 2011 and met twice during October and November 2011. During these meetings, the group discussed goals, strategies, target audience, and messaging. Four goals were developed for public education and outreach with an ultimate goal of improving water quality:

- Increase the public's awareness that they live/work in the Wolf Run Watershed and the impacts (both positive and negative) their lifestyle choices and behavior have on water quality within the watershed.
- Educate property owners of the importance and benefits of restoration of the riparian buffer zone along Wolf Run.
- Educate residents on the fiscal and environmental impacts sump pumps and downspout connections have on the sanitary sewer system and water quality.
- Provide citizens with information and training to empower them to take action to reduce stormwater runoff within the watershed. Currently, 40 percent of the watershed is covered with impervious surfaces, resulting in significant stormwater runoff.

The technical committee identified specific groups within the watershed to receive targeted messaging to support the developed goals and strategies. The audience includes:

- Streamside landowners including governmental, residential, commercial and institutional
- Property management companies of apartment complexes
- Neighborhoods identified by sanitary sewer assessment surveys to be in high-flow areas
- Key commercial districts such as Southland Drive
- Institutions with significant footprint in the watershed, such as the University of Kentucky, Fayette County Public Schools, hospital campuses, and parks

The committee found that messages must engage and resonate with that specific audience and spur them to take a specific action. To do so, messages should:

- Be clear and direct
- Be relevant for the audience
- Be positive, providing examples of “what to do” as opposed of “what not to do”
- Instill a sense that individual actions matter

The Watershed Council prioritized the specific strategies developed by the technical committee at a subsequent meeting. Each Council member was given 10 markers in order to indicate the strategies they thought were of the highest priority. The amount of support for each education and public outreach strategy was utilized to prioritize them as high, medium, and low priority. These results have been incorporated into the comprehensive strategy for success presented in the following chapter.

B. BMP Selection Process

1. Water Quality Resource Fair

In order to familiarize stakeholders with BMPs and generate discussion about what type of BMPs should be installed to address water quality improvement, a water quality resource fair was held on March 19, 2011. The resource fair was also intended to introduce stakeholders in the area to technical experts capable of installing, operating, and maintaining BMPs in the watershed. Four categories of experts were present to answer questions of stakeholders, who were submitting a list of BMPs they believed would be the most effective in addressing the watershed impairments:

- Funding: Representatives of funding agencies, including KDOW and LFUCG, were available to address whether the practice would be eligible for funding
- Social Acceptance: A panel of neighborhood association presidents and city council members were present to provide feedback on political acceptance of practices in the watershed
- Appropriate: Technical representatives were available to indicate whether the BMP would address impairment in the watershed
- Technical Feasibility: Local consultants, engineers, non-profits, and other parties experienced in installing, operating, and maintaining BMPs were available to discuss their capabilities and recommendations. Participants included:
 - Bluegrass Rain Garden Alliance
 - Bluegrass PRIDE Environmental Program
 - CDP Engineers

- Cedar Creek Engineering
- EcoGro
- LFUCG Division of Water Quality
- Montgomery Plumbing
- National Environmental Compliance
- Third Rock Consultants

Stakeholders completed “BMP Bingo” cards indicating if the practices they recommended were fundable, acceptable, appropriate, and technically feasible. Table 39 summarizes the practices most recommended. To determine the priority of projects, these BMP recommendations were considered along with land owner willingness to participate, impairments addressed, amount of pollutants removed, and the cost effectiveness.

TABLE 39 – WATER QUALITY RESOURCE FAIR BMP RECOMMENDATION SUMMARY

| Rank | Type of BMP |
|--------|------------------------------|
| High | Bio-swales / Rain Gardens |
| High | Riparian Buffers |
| Medium | Parking Lot Retrofits |
| Medium | Streetscape Improvements |
| Low | Erosion and Sediment Control |
| Low | Educational Activity |
| Low | Green Roofs |
| Low | Rainwater Harvesting |
| Low | Enforcement of Ordinances |
| Low | Sanitary Sewer Repairs |

2. *Water Quality BMP Locations*

During the September 17, 2012 Wolf Run Watershed Council Meeting, the council was asked to provide recommendations for locations for BMP implementation, including the rationale behind these selections and the feasibility concerns for the area.

In order to development these initial plan BMP recommendations, the Council was provided with various decision-making tools including:

- Results of the water quality resource fair to evaluate the practices deemed most appropriate by their peers
- Cost and effectiveness summary of structural BMPs
- Maps summarizing the impairments in the Wolf Run Watershed, as presented in Chapters III and IV
- A large aerial map indicating the location of various water infrastructure

The Council was divided into five groups based on geographic area. The groups specified locations and types of BMPs best suited to address the impairments in these respective areas. The groups were asked to consider structural, source control, and educational BMPs to address the impairments to the warmwater aquatic habitat use.

The results of this effort were compiled and submitted to the Water Quality BMP Technical Committee for further development. The Technical Committee considered the recommendations of the council, adding the requisite details to form the implementation strategy presented in the following chapter. Each of the watershed implementation tasks were then prioritized into a high, medium, or low priority by the Watershed Council.

C. Feasibility Considerations

The Wolf Run Watershed contains unique challenges and feasibility constraints due to the land use, geology, and regulatory mechanisms in the watershed. These factors were considered during the implementation plan development and influenced the type of BMPs considered within various geographic areas.

1. Development into the Floodplain

The encroachment of development into the floodplain and riparian zone of some streams within the Wolf Run Watershed have rendered restoration of certain reaches unfeasible due to the high cost involved with the acquisition of property and stream and floodplain restoration. Specifically, over 4,300 feet of Wolf Run upstream of Clays Mill Road is either located within a concrete channel or has stone armored banks. Much of this reach is also located between roadways or shopping centers. These urban constraints limit the restoration options for these reaches and make restoration very difficult; thus, stream restoration is considered unfeasible for these reaches. Green infrastructure to contain stormwater onsite and reduce runoff volumes is considered a more feasible BMP in this area.



Armored Banks on Wolf Run at Lafayette Parkway

2. Private Versus Public Ownership

The ownership of property was considered when determining the feasibility of BMPs. Publicly-owned lands were given priority for BMP installation, particularly for stream restoration, due to the ease in procuring funding and coordination and avoidance of some of the challenges of obtaining landowner permission and participation. When projects are located on properties owned by multiple landowners, the coordination process is often slow and can fail after considerable expense has gone towards conceptual development and planning. Therefore, projects with public ownership or single property ownership were preferred.



Wolf Run, Concrete Channel Beside Southland Drive

3. *Infiltration and Karst*

As the Wolf Run Watershed has karst features in many areas, infiltration BMPs may not be suitable in some areas. These activities may have a negative impact on surrounding areas, such as raising the groundwater table or discharging pollutants into the groundwater. Particularly in the McConnell Springs/Preston's Cave karst basin, infiltration practices are not always feasible for pollutant reduction. Additionally in these areas, geotechnical studies should be conducted prior to stream restoration projects, lest a surface water stream be converted to a sinking stream.

4. *Consent Decree Requirements*

The Consent Decree (United States 2006) contains compliance measures that relate to the storm sewer system, sanitary sewer system, and additional environmental projects. In regards to the sanitary sewer system, the Consent Decree mandates the implementation of the remedial measures plan developed for Wolf Run Watershed and the other Lexington area watersheds. As the Consent Decree schedules take precedence over watershed planning goals and objectives, the timelines for Consent Decree projects and objectives were assumed in this watershed plan. No attempts to modify project timelines or schedules were made in this watershed plan. Therefore, reduction goals are made to correspond with expected achievements under the remedial measures plan with additional efforts added to these fixed goals.