Upper Arlington Stormwater Management Plan 2014 – 2019

Prepared by:
The City of Upper Arlington
Franklin Soil and Water Conservation District

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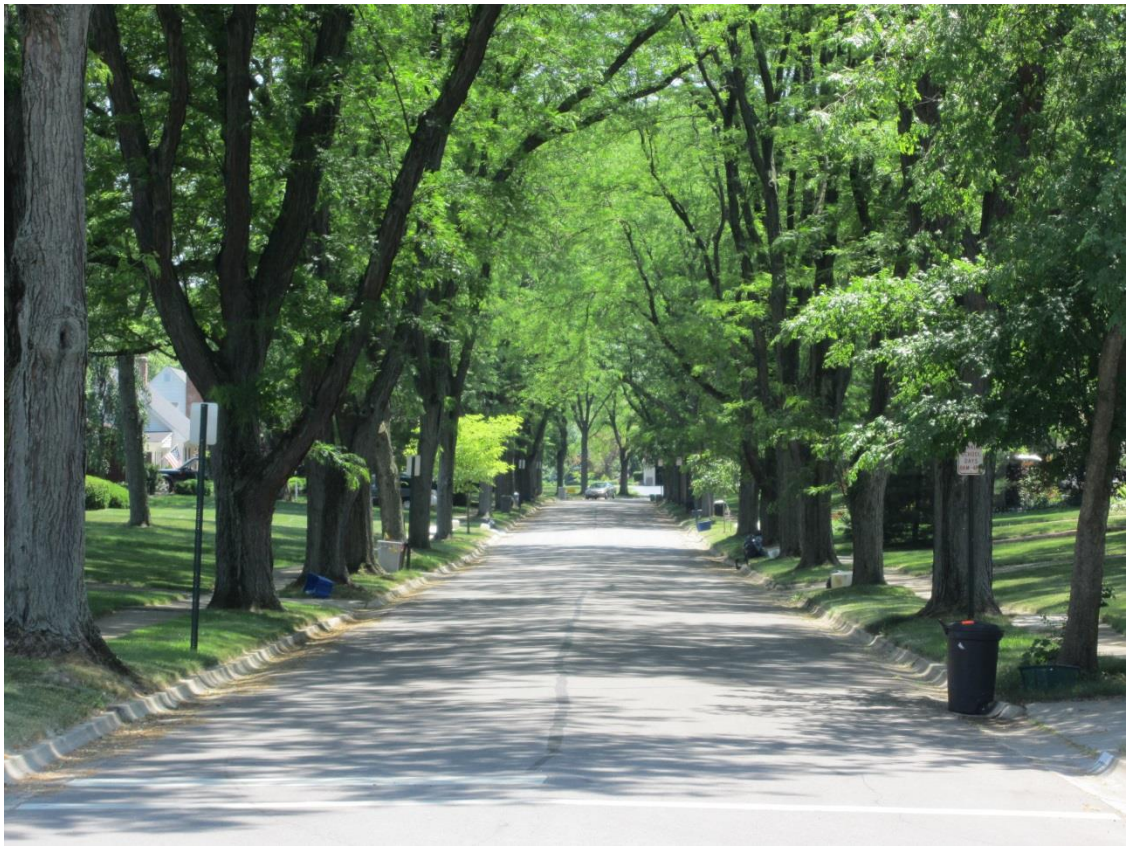

Table of Contents

Executive Summary

The City of Upper Arlington's Stormwater Management Program has been developed to comply with state and federal stormwater regulations in a manner that is beneficial to drainage management, water quality initiatives, community sustainability efforts, and overall quality of life of Upper Arlington residents.

Stormwater regulations are authorized by the Federal Clean Water Act, mandated by the US Environmental Protection Agency and executed by the Ohio Environmental Protection Agency, Division of Surface Water. The purpose of the stormwater program is to reduce water quantity and improve water quality of stormwater runoff that is conveyed through municipal storm sewers to community streams.

The stormwater program requires urbanized communities to increase community awareness and involvement in managing stormwater; maintain accurate records on location of municipal storm sewers including structures, pipes, and ditches; identify and eliminate illegal discharges into storm sewers and ditches; regulate and inspect active construction sites and completed developments to ensure compliance with state regulations; and manage stormwater runoff from municipal properties and community roadways.

The successful implementation of the stormwater program will require support from City Council and multiple City Departments. This commitment does involve funding, coordination of municipal operations, local regulations, and dedicated staff. The City of Upper Arlington's Stormwater Program will be managed by the Public Service Department in coordination with Community Development, Community Affairs, City Manager's Office and Parks and Recreation. Positions involved in program implementation include community affairs, safety coordinator, planning officer, fleet maintenance supervisor, and assistant city engineer. Outside agencies involved in the stormwater program include Franklin Soil and Water Conservation District, Upper Arlington School District and Franklin County Public Health.

The plan is organized by six minimum control measures as required by the small municipal stormwater permit. Under each minimum measure are best management practices as outlined in annual reporting requirements. Planned activities are outlined under each best management practice and have been developed after a review of permit requirements, city operations, and the community environment. These planned activities are intended to meet permit requirements while making the best use of available resources, knowledge and experience.

In summary, the Upper Arlington Stormwater Management Plan is a necessary document in order to comply with state regulations and the Federal Clean Water Act. This effort will be most successful with commitment and awareness by the City's elected officials, administrators, staff, and the larger community. City wide awareness and participation will reduce costs and improve success by making use of existing activities including established green/ sustainability efforts within the city administration and the community.

Introduction and Background

1. Requirements

The 1972 Federal Clean Water Act set the ultimate goal of ensuring streams are fishable and swimmable, while the Ohio Environmental Protection Agency (Ohio EPA) is the state authority that develops regulations to comply with federal mandates. Complying with the Federal Clean Water Act has been a progressive effort to regulate and manage pollution sources into our waterways. As a result, urbanized communities have been required to manage the quality and quantity of stormwater within their communities since 2003. Water that runs off the land makes its way to storm drains and then is directed through storm sewer systems into our streams. The purpose of the Stormwater Management Program (SWMP) is to manage the quality and quantity of this stormwater runoff.

In order to comply with Ohio EPA Municipal Separate Storm Sewer System (MS4) stormwater general permit regulations, the City of Upper Arlington has developed, implemented and managed a SWMP to protect water quality to the maximum extent practicable (MEP). In order to comply with the most recent MS4 stormwater permit, this SWMP has been reviewed and updated in 2015. The Upper Arlington SWMP includes management practices, control techniques, and system, design, and engineering methods. The plan may be reviewed, modified and updated periodically to include provisions as City of Upper Arlington staff and/or Ohio EPA determine appropriate based on program evaluations and audits.

Requirements for the SWMP are regulated by the Ohio EPA through the National Pollutant Discharge Elimination System (NPDES) General Permit for MS4 Stormwater. The permit requirements address six minimum control measures: 1) Public Education and Outreach on Stormwater Impacts, 2) Public Involvement/Participation, 3) Illicit Discharge Detection and Elimination, 4) Construction Site Stormwater Runoff Control, 5) Post-Construction Stormwater Management in New Development and Redevelopment, and 6) Pollution Prevention/Good Housekeeping for Municipal Operations.

The SWMP shall include best management practices (BMPs) for each minimum control measure. Identified BMPs shall include statements of legal authority and rationale as to how and why each BMP was selected. A table of organization that identifies the primary point of contact for each minimum control measure and person responsible for the implementation or coordination of BMPs in the SWMP Plan is included. The full text of the permit and other guidance documents can be viewed at:
http://www.epa.state.oh.us/dsw/permits/GP_MS4StormWater.aspx.

All small urbanized communities in Ohio and across the nation are required to comply with the same minimum requirements for management of stormwater runoff. This means that Upper Arlington residents can benefit not only from their efforts, but also the efforts of other communities. This is because water quality is impacted by activites outside of municipal boundaries and more specifically by activities up-stream as well as within the community.

Improved water quality in our communities has the benefits of reducing water treatment costs, improving recreation opportunities including hiking, fishing, canoeing, bird watching and protecting public health from impacts of sewage and hazardous waste that can end up in our streams. Clean water and streams improves the overall quality of life and further helps establish Central Ohio and Upper Arlington as a great place to live, work and play.

2. Review and Update of the SWMP

In 1991, the City of Upper Arlington developed a comprehensive plan designed to resolve existing stormwater issues and to plan and implement cost-effective solutions as future needs arose. To fund stormwater needs the City initiated a stormwater management utility. In 2002 the City of Upper Arlington began developing a stormwater Management Program initiated by a study conducted by EMH&T.

With a better understanding of stormwater program management gained through the first generation permit, it was decided to revise the City of Upper Arlington stormwater Plan in 2009 with the 2nd generation of the Ohio EPA Small MS4 Stormwater Regulations. Planning meetings were started within the Upper Arlington Public Service Department. Through these meetings, it was decided that a more comprehensive update of the Stormwater Management Program and corresponding plan could be accomplished internally by the Upper Arlington Green Team. The Green Team had representative members from the City Manager's Office, Development Department, Finance Department, Information Technology Department, Parks and Recreation Department, and Public Service Department. Over several meetings from August through November, feedback and recommendations for updating the Stormwater Management Program and Plan were developed. Issuance of the 3rd generation permit in September 2014, required resubmittal to OEPA of the SWMP to include all updates relative to the most current permit requirements.

The City of Upper Arlington Public Service Department and Franklin Soil and Water Conservation District staff partnered to research community needs, Ohio EPA permit requirements, and effective options for a stormwater management plan.The individual departments and staff positions responsible for the implementation of this plan are outlined in the table of organization, Appendix A.

Community input into the SWMP is an important part of the planning process. The plan is available for comment to stakeholder groups, community leaders, and the public. Managing stormwater for water quality will be most successful with the full support of the residents, businesses and elected officials of Upper Arlington.

3. Community Description

Historic Upper Arlington was initially designed utilizing modern concepts for city planning in 1917. The plan included curved streets to follow the land's contours with an abundance of trees, in contrast to traditional grid-like patterns. The City of Upper Arlington was incorporated in 1918 and has grown into a primarily residential community of 34,000 people covering 9.67

square miles.[1] Despite being a 'built-out' community, there is ongoing redevelopment for residential and commercial properties.

Open space and abundance of trees continue to be assets to the City. Upper Arlington is a recognized Tree City for 27 years by the Arbor Day Foundation with a 35% tree canopy cover. About 664 acres of open space exist within the City. This includes City-owned parkland (165 acres), recreation facilities at Upper Arlington schools (39 acres), and the two major golf courses (Scioto Country Club and The Ohio State University, which together total about 460 acres).[2]

Upper Arlington continues to be a unique Central Ohio community. Residents take pride in their community and are actively involved in numerous organizations, volunteer boards, and commissions of the City government in addition to enjoying the many cultural and recreational activities available. Civic organizations such as Sustainable Upper Arlington and Leadership UA, the City's well utilized Lifelong Learning and Leisure division of the Parks and Recreation Department, and an active and growing Recreation division of the Parks and Recreation Department provide excellent means to involve the community in water quality issues and stormwater management.

The municipal separate storm sewer system (MS4) is a combination of structures, pipe and grassed swales managed and maintained by the City. Conventional subdivisions in the City use curb and gutter systems for stormwater conveyance. The community has centralized sanitary sewers with approximately 9 properties relying on household sewage treatment systems (HSTS).

Stormwater runoff from the MS4 is directed to Slate Run, Fishinger Run, Waltham Creek, Turkey Run and Slyth Run. These are tributaries to two watersheds; the Lower Olentangy River and Scioto River. The Olentangy River has an approved Total Maximum Daily Load (TMDL). A Total Maximum Daily Loads (TMDL) calculates the maximum amount of a pollutant that can occur in a waterbody and allocates the necessary reductions to one or more pollutant sources. A TMDL serves as a planning tool for restoration or protection activities with the ultimate goal of attaining or maintaining water quality standards. Under section 303(d) of the Clean Water Act, states, territories and authorized tribes are required to submit lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet water quality standards. The law requires that the states develop TMDL for these waters.[3] Turkey Run is listed as in non-attainment in the Olentangy TMDL.[4] Nutrient enrichment is listed as the reason for a poor stream assessment with urban and golf course runoff noted as the causes from data collected in 2003. The Scioto River TMDL report is draft at this time.

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[1] *City of Upper Arlington: Living in UA, About UA, A Brief History* *http://www.uaoh.net/historical/index.php?fDD=113-0* (accessed December, 2016)

[2] *City of Upper Arlington Master Plan*, 2001 , Volume 3 Section J, pp 3-4

[3] *USEPA* Implementing Clean Water Act Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDLs), https://www.epa.gov/tmdl (accessed December 2016)

[4] Ohio EPA Olentangy River Watershed TMDLs Appendix C (accessed December 2016) http://www.epa.state.oh.us/portals/35/tmdl/OlentangyTMDL_final_Appendix_C_aug07.pdf

Additional impacts to water quality are impervious pavement, flood plain filling and stream channelization. These impacts results in increased frequency of high flows, redistribution of water from base flow to storm flow, increased daily variation in streamflow contributing to limited aquatic life and increased stream bank erosion. Turkey Run is a source of stream erosion and flooding complaints by adjacent landowners. Studies in the 1990's were conducted in this watershed providing recommendations for regional basins at the head waters of Turkey Run. Reviewing new information and technologies that have been developed since these studies were conducted may result in new ideas. This could include retrofitting development sites in the headwaters, restoring access to floodplain along the stream, and retaining runoff on residential sites and city right-of-ways in cooperation with willing landowners.

The Plan

This Stormwater Management Program is organized by Minimum Control Measures (MCMs). The SWMP Plan includes best management practices, measurable goals, rationale, Decision Process (Rationale), responsible parties, time schedules, and other appropriate information. This section is designed to correspond with Ohio EPA annual reporting requirements. This plan can be updated annually and used as a tool to complete required annual reporting.

1. Public Education and Outreach

A. Introduction

Pollution from urban stormwater runoff is impacted by activities and land use decisions in the community. Homeowners, businesses, students, community organizations, and visitors to Upper Arlington make decisions regarding how they manage their trash, waste disposal, landscaping, runoff from roof tops and streets, construction activities, accidental spills and hazardous waste which in turn impact water and stream quality. Public knowledge and awareness is the first step to changing attitudes and behaviors.

The first minimum control measure requires the City to distribute educational materials to the community about the impacts of stormwater discharges and steps the public can take to reduce pollutants to water bodies. An informed and knowledgeable community is important to a successful stormwater program. It lays the foundation for community participation in responsible land management, compliance with local and state regulations, and support for the community projects and programs needed for a successful stormwater program.

Benefits to the City include a successful stormwater program, increased pride in the community, and the support of residents of the City of Upper Arlington for a “green” community.

Summary of Requirements from Ohio EPA Permit:

- Develop a plan to inform and involve individuals and households about steps they can take to reduce stormwater pollution, including measurable goals, target audiences, target pollutants, outreach strategy, and input to the development of the SWMP.
- Develop five different stormwater themes or messages to be conveyed to target audiences during the permit term. Developers will be the target audience for one theme or message.
- Develop rationale for target audiences and pollutants that will make the greatest difference for reducing stormwater pollution and improving water quality local waterways
- Identify approaches and mechanisms (e.g., printed brochures, media outreach, workshops, etc.) to reach target audiences, and how many people will be reached over the permit term. At least 50 percent of the population needs to be reached over the permit term.
- Evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.

B. Decision Process (Rationale)

To address this minimum control measure, the City will create a public education and outreach program that informs the public and encourage changes in attitude and behavior. Residential interest and active involvement in their community will benefit public education efforts. Existing community groups and activities will be used to inform both youth and adults about land management activity impacts on water quality and to help them make good decisions about their own actions.

Based on a review of the Olentangy TMDL report, water quality data and community description the following have been identified as priority pollutants for this public education and outreach.

i. flow alterations/ hydrology
ii. nutrients
iii. sediment
iv. metals, oil and toxic chemicals

The program will target residents, businesses, including the development and construction community, and K-12 students. Consideration will be given to special populations within the City, including residents along streams, local scout troops, civic organizations, adult learning programs, and other community organizations.

The City will continue to evaluate progress, opportunities and needs for education and update the SWMP accordingly. This may include evaluating small businesses for potential education opportunities, surveying residents for knowledge and perceptions of stormwater concepts, and seeking feedback from residents, local leaders and elected officials.

Other outreach considerations and opportunities include:

i. Publication of the quarterly city newsletter City Insight, which is mailed to Upper Arlington households and is available online.
ii. A well maintained website (www.uaoh.net) with contact information for various city departments.
iii. Regular city council meetings that are open to and attended by city residents.
iv. An active and well utilized adult learning program, senior center, public libraries and parks.
v. A partnership with Franklin Soil and Water Conservation District for stormwater program management support.
vi. Nine schools with approximately 5,700 students in Upper Arlington City School district located within the City of Upper Arlington.
vii. Active community group called Sustainable Upper Arlington.
viii. Leadership Upper Arlington program.

C. Best Management Practices

When selecting BMPs for this MCM, community, demographics, land use, potential pollution sources, existing water quality, stormwater system information, and community resources were considered. The following BMPs may be used for public education and outreach:

i. **Distribute educational information** through newsletters, website, and fact sheets to target audiences.
ii. Provide **environmental educational** presentations and interactive programs to students K-12.
iii. Organize and advertise **community outreach** and demonstrations that engage residents in conservation practices and activities that benefit stormwater quality.

D. Themes

The City of Upper Arlington will address at least five different education themes during the duration of this permit. The themes will target existing and potential community pollution sources. As resources allow, the City plans to address the following themes over the permit term.

i. **Put things where they belong (PTWTB)** will focus on proper disposal of household waste. This will incorporate proper household hazardous waste disposal and recycling opportunities. A focus of this education will be informing/ reminding residents and businesses that storm drains convey water to the streams and not the water treatment plant.
ii. **Stewardship For Businesses (SFB)** will focus on stormwater pollution prevention opportunities for small businesses.
iii. **Residential Lawn and Landscape Management (RL)** will focus on responsible application of fertilizers, and herbicides as well as yard waste disposal. .
iv. **Community Backyards (CB)** will focus on the use of composting, rain barrels, rain gardens, native vegetation, and trees to capture stormwater, manage erosion, and protect stream corridors.
v. **Better Site Design for construction sites (BSD)** will focus on how to properly manage construction projects from planning through post-construction maintenance for better water quality, infiltration, and regulation compliance. Emphasis will be placed on the benefits of green infrastructure for better stormwater management, healthier streams and cleaner water on both developed and redeveloping parcels.
vi. **Managing your Home Sewage Treatment System (HSTS)** will focus on educating home owners on responsibilities and proper management of onsite sewage treatment systems.

E. Responsible Party and Legal Authority

The City Engineers Office will be responsible for the overall management and implementation of the stormwater public education and outreach program. Planned activities are well within the authority and ability of the City of Upper Arlington in partnership with Franklin Soil and Water Conservation District, City of Upper Arlington Schools, and Life Long Learning and Leisure Division of the Parks and Recreation Department. The City will continue to pursue association with partnering agencies outside of City government. No additional regulation development or authority will be required for education and outreach.

F. Public Education and Outreach: Measureable Goals and Planned Activities

BMP / Responsible Party	Measurable Goal	Theme or Message	Target Audience	Estimated # reached	Summary of Planned Activities	Proposed Schedule
i.Distribute educational information. Engineering Assistant City Engineer	Inform all households about the City of Upper Arlington's stormwater program and what residents can do to keep the community waters cleaner.	PTWTB RL CB HSTS	City of Upper Arlington residents	90% of households over 5-year permit period	a. Publish at least one article per year in the City of Upper Arlington quarterly newsletter, *City Insight*, that is distributed to all households. Engineering technician will decide which message to convey in each article based on current concerns; at least five messages will be covered over permit period. b. Include information on the City's stormwater program and how residents can keep community waters cleaner at http://www.uaoh.net. c. Include stormwater program information in City of Upper Arlington's Green Guide brochure that is available at city hall. d. Utilize public service announcements about how individuals can affect water quality through stormwater runoff. e. Use local neighborhood newspapers to inform residents about rain gardens, native plants, and rain barrels and why they are important.	Annually 2014-2019 2014-2019 2014 – 2019 2014-2019
	Inform all HSTS households on responsibilities and proper management of onsite sewage treatment systems	HSTS	House-holds with HSTS	100% of HSTS households over permit term	f. In coordination with Franklin County Public Health locate fact sheet to distribute to HSTS homeowners and a system to distribute information annually.	2014-2019

Continued….						
BMP / Responsible Party	**Measurable Goal**	**Theme or Message**	**Target Audience**	**Estimated # reached**	**Summary of Planned Activities**	**Proposed Schedule**
i. Distribute educational information *continued…*	Inform all developers, consultants and landowners requesting variance, permit, or other approvals from City of Upper Arlington about the City's Stormwater program and its requirements.	BSD	Landowners, consultants, and contractors engaging with City of Upper Arlington staff.	100% of those requesting permits, variances, etc.	g. Provide brochures and fact sheets specifically targeted to those considering or conducting earth moving or construction activities. h. Provide these fact sheets with permit information and during permit applications, visits with city staff, and during preconstruction meetings. . i. Make available *The Urban Review*, a quarterly developing lands newsletter from Franklin Soil and Water.	2014-2019
Engineering Assistant City Engineer, Public Service City Planner, Development						
ii.Environmental Educational	Provide stormwater education information to students for improved knowledge base of students and their parents.	PTWTB ORDTD RL BC	Students K-12	200 students annually	a. Inform teachers about existing stormwater education resources.	Annually
Education Specialist, FSWCD						
Parks and Recreation					b. Work with Parks and Recreation to provide opportunities to students at schools and parks (Sunny 95 Park, Jones Middle School rain gardens, and green roof at Wickliffe Progressive Community School, UA Library).	2014-2019

Continued….						
BMP / Responsible Party	**Measurable Goal**	**Theme or Message**	**Target Audience**	**Estimated # reached**	**Summary of Planned Activities**	**Proposed Schedule**
iii. Community Outreach Assistant City Engineer, Public Service	Provide information on Upper Arlington SWMP and its importance to clean community waterways at community events, and organization, or religious, and city council meetings.	PTWTB SFB RL CB BSD HSTS	Residents, Elected officials, organization members	500 annually	a. Advertise community backyards and other outreach and involvement programs at events in City newsletters and website. .	2014-2019

2. Public Involvement/Participation

A. Introduction

Pollution from urban stormwater runoff is impacted by all activities and land use decisions in the community. Homeowners, businesses, students, community organizations, and visitors to Upper Arlington make decisions regarding how they manage their trash, waste disposal, landscape management, runoff from roof tops and streets, construction activities, accidental spills and hazardous wastes that impact water and stream quality. Managing urban stormwater runoff and improving the quality of our water and streams requires community action.

This minimum measure requires the City of Upper Arlington to engage the public to elicit input for the SWMP and participation in activities that improve water quality. Public involvement with the SWMP results in better understanding of stormwater issues, broader public support, improvements to the program plan, shorter implementation schedules, and greater benefits to water quality in the City and watershed-wide.

Benefits to the City include identification of resources and opportunities outside of existing city operations. Participation is also in keeping with Upper Arlington's tradition of active civic engagement.

Summary of Requirements from Ohio EPA Permit:

- Describe public involvement opportunities in developing and implementing your SWMP.
- Describe target audiences for public involvement including ethnic, economic groups, and stakeholder groups.
- Describe public involvement activities with a minimum of five public involvement activities over the permit term.
- Evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.

B. Decision Process (Rationale)

To address this MCM, the City will engage in a SWMP that allows for and encourages community participation. Stakeholders include residents; businesses; community groups; and one watershed group, Friends of Lower Olentangy Watershed. The plan will be posted on the City's website where feedback and support will be requested. BMPs are focused on involving the community in the stormwater management plan. This is important because majority of land use decisions are being made by City residents, landowners and businesses. The City has identified opportunities to encourage better decisions through public involvement and participation in addition to the public education and outreach BMPs identified in MCM1.

Other participation and involvement opportunities include:

i. Publication of the quarterly city newsletter City Insight, which is mailed to Upper Arlington households and is available online.
ii. A well maintained website (www.uaoh.net) with contact information for various City Departments and the ability to send comments to city employees.

iii. Regular City Council meetings that are open to and attended by city residents.
iv. A partnership with Franklin Soil and Water Conservation District for stormwater program management support with multiple programs that encourage public participation including Community Backyards, Get Grassy and Community Water Quality Partners.
v. Engaging community groups and businesses in stream clean-ups and green infrastructure projects and distribution of stormwater messages.

C. Best Management Practices

The following BMPs will be used for public involvement/ participation.

i. Provide opportunity for and consideration of **public input and feedback** into SWMP and community development projects.
ii. **Public participation** in implementation of stormwater program and improvement of the stormwater system.
iii. **Support existing watershed protection efforts** that complement and support the City SWMP.

D. Themes See Public Education and Outreach Themes, page 10.

E. Target Audience

In Minimum Control Measure 2, the SWMP makes a distinction between "residents" and "homeowners." This distinction is made because, as we move from education to participation, there are some activities such as HSTS maintenance and rain garden installation that are more pertinent to homeowners than renters.

i. Residents of Upper Arlington
ii. Homeowners in Upper Arlington
iii. Businesses in Upper Arlington
iv. Community Groups
    a. Homeowners associations
    b. Civic or religious associations such as Leadership UA and Rotary Club
    c. Watershed groups
        1. Friends of the Lower Olentangy (FLOW)

F. Responsible Party and Legal Authority

The Assistant City Engineer will be responsible for the overall management and implementation of the stormwater public involvement/participation minimum control measure. Franklin Soil and Water Conservation District will provide assistance with educational materials and presentations.

These activities are well within the authority and ability of the City of Upper Arlington in partnership with Franklin Soil and Water. No additional regulation is required.

G. Public Involvement/ Participation: Measureable Goals and Planned Activities

BMP / Responsible Party	Measurable Goal	Theme or Message	Target Audience	Estimated # Participating	Summary of Planned Activities	Proposed Schedule
i.Public Input Assistant City Engineer, Public Service	Stakeholders will have access to and the opportunity for input to the SWMP and review of annual report.	PTWTB SFB RL CB BSD HSTS	Residents Homeowners Businesses Community groups	TBD	a. Make SWMP available for on the website for public comment.	2016 ongoing Annually
ii.**Public Participation** Assistant City Engineer, Public Service	Engage Upper Arlington residents, community groups and businesses in conservation practices and activities that benefit stormwater quality or quantity. Increase voluntary participation in stormwater management on residential, municipal, and commercial properties.	PTWB SFB RL CB BSD	Residents Homeowners Businesses Community groups	40 annually	a. Provide stormwater information and assistance to homeowners with stormwater related complaints on their property. b. Advertise workshops on a stormwater practice such as rain gardens, composting, rain barrels, native species planting, etc. through community backyards. c. Advertise annual household hazardous waste collection in coordination with SWACO d. Incorporate stormwater involvement questions into Turkey Run Survey with residents.	2014-2019 2014-2019 Annually 2015

Continued….						
BMP / Responsible Party	**Measurable Goal**	**Theme or Message**	**Target Audience**	**Estimated # Participating**	**Summary of Planned Activities**	**Proposed Schedule**
iii. Public Participation ***continued…***	previous page	previous page	previous page	previous page	e. Increase Water Quality Partnership participation for businesses. f. Engage community in stream clean-up, storm drain stenciling, or public rain garden installation/ maintenance as opportunities and resources allow.	2014-2019 Annually
Assistant City Engineer, Public Service FSWCD						
iv. Existing watershed protection efforts	Engage sustainability and watershed management and protection efforts to benefit the environmental quality of the Lower Olentangy and Scioto Watersheds and the City of Upper Arlington.	PTWTB RL CB BSD HSTS	Community groups	TBD	a. Maintain communications with watershed organizations and community groups for additional support and participation in the City's SWMP. b. Evaluate opportunities to support or participate in mutually beneficial goals and activities.	2014-2019 Ongoing
Assistant City Engineer, Public Service						

3. Illicit Discharge Detection and Elimination

A. Introduction

Illicit Discharge Detection and Elimination involves the inventory of outfalls, identification of illegal discharges into, and the elimination of those illegal discharges in to the storm sewer system. An illicit discharge is any discharge to an MS4 that is not composed entirely of stormwater with some exceptions. These exceptions are waterline flushing, springs, water from crawl space and sump pumps, footing drains, landscape irrigation, lawn watering, diverted stream flows, rising ground waters, individual residential car washing, uncontaminated groundwater, foundation drains, uncontaminated pumped groundwater, air conditioning condensation, de-chlorinated swimming pools, potable water sources, flow from riparian habitats and wetlands, street wash water, and discharges or flows from firefighting activities. Addressing this minimum control measure includes mapping, legal prohibition and enforcement, and a plan to detect and address illicit discharges.

Benefits to the City include: leading by example to improve water quality in the City, improved ability to identify pollution paths for spills or other pollution issues, opportunity to display storm sewers, streams, and other drainage structures together electronically for desktop availability, having information available to support sewer extensions if and where needed, and promotion of the City as a "green" community and a great place to live and work.

Requirements from Ohio EPA Permit:

- Develop, implement, and enforce a program to detect and eliminate illicit discharges into your small MS4
- Complete a comprehensive storm sewer system map, showing the location of all outfalls and the names and location of all surface waters of the State that receive discharges from those outfalls. The comprehensive storm sewer system map shall also include your MS4 system, including catch basins, pipes, ditches, flood control facilities (retention/detention ponds), post-construction water quality BMPs, and private post construction water quality BMPs. The map must be updated annually and as needed.
- Mapping must contain a list of all on-site sewage disposal systems (HSTS) connected to discharge to your MS4. This map shall include details on the type and size of conduits/ditches in your MS4 that receive discharges from HSTS, the water bodies receiving the discharges from your MS4, and location of additional water quality protection devices and practices.
- Prohibit through ordinance or other regulatory mechanism, illicit discharges into your storm sewer system and implement appropriate enforcement procedures and actions.
- Develop and implement a plan to detect and eliminate non-stormwater discharges, including illegal dumping, to your system.
    - Identify residences with existing individual discharging HSTS that can legally, feasibly, and economically be connected to central sewers.
    - Develop or enhance an operation and maintenance program which determines if existing HSTS are operating as designed and intended and if not, then a program that requires elimination, upgrade, or replacement of the systems.

    - Investigate the source of contamination in outfalls identified during dry weather screen process.
    - Work with local waste water authorities to evaluate the planned or possible future installation of sewers for areas which contain high densities of discharging HSTS.
- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
- Identify and address non-stormwater discharges such as illicit discharges if they are significant contributors to your MS4, and
- Revise priorities and goals annually based on data collected and evaluated.

B. Decision Process (Rationale)

To address this minimum control measure the City will use a combination of mapping, monitoring, education, and enforcement. All surface drainage, intersections, and outlets have been mapped in ArcGIS to sub meter accuracy by Franklin Soil and Water staff as part of a larger county-wide stream and drainage mapping effort. Included in the database are the outfalls and the names and location of all surface waters of the state that receive discharges from those outfalls. Upper Arlington's storm sewer infrastructure has also been mapped including drain pipes, catch basins, open drainage and channels. GIS staff from Upper Arlington and Franklin Soil and Water will collaborate to update this data as new construction, annexations, or inconsistencies are discovered.

Throughout previous permit terms, dry weather screening of all outfalls was conducted to identify potential illicit discharges. Data was also collected relating to dumping of debris and trash into the open channels. This information includes location, identification and documentation of visual and odor cues for pollution. Additional information from previous complaints, Ohio EPA stream assessments, and prior studies including EMH&T identification of areas of concern, and studies on Turkey Run have also be reviewed.

Beyond field work and mapping, city staff has reviewed and updated ordinances prohibiting illicit discharges into the storm sewer system as well as complaint procedures that help identify problems and implement appropriate enforcement procedures and actions. It is the City's belief that this multi-avenue approach is the most effect way to minimize illicit discharges and improve the quality of the City's streams and water bodies. With reference to the TMDLs for the Lower Olentangy River (see Section: '3. Community Description' above), the activities undertaken with this MCM help to minimize nutrients entering into our streams and rivers.

C. Best Management Practices

i. Prohibit illicit discharges by developing an **ordinance or other regulatory mechanism**.

ii. Develop and maintain a **storm sewer system map.**

iii. Develop an **HSTS map** and list to assist with identification and resolution of potential failing systems.

iv. Develop and implement an **IDDE plan** with the assistance of existing maps and related storm sewer system information.

v. **Provide information about the hazards of illicit discharges** to households and businesses for greater awareness and compliance with stormwater program.

vi. **Conduct dry weather screening of outfalls** by inspecting each at least once during the permit period during dry weather periods for the identification and resolution of potential illicit discharges.

D. Responsible Party and Legal Authority

The Engineer's Office will be responsible for the overall management and implementation of the illicit discharge detection and elimination program.

The City maintains a working agreement with Franklin County Public Health to address HSTS issues, which Franklin County Public Health has the legal authority to address.

The City of Upper Arlington has the authority to address illicit connections and illegal dumping into to its storm sewers through local ordinances.

E. Illicit Discharge Detection and Elimination: Measureable Goals and Planned Activities			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**
i. Ordinance or Other Regulatory Mechanism Assistant City Engineer, Public Service City Planner, Development	Approved City ordinance prohibiting illicit discharges into the storm sewer system with enforcement procedures and actions.	a. Address illegal dumping into the MS4 through 931.13 and illegal connection into MS4 in 931.14. Review and update as necessary. b. Cite Local Code(s) being used including the web link for the code if available in the Annual Report.	Ongoing Annually
ii. Storm Sewer System Map Assistant City Engineer, Public Service	Existing storm sewer and surface drainage maps for the City.	a. Upper Arlington and Franklin Soil and Water GIS staff to evaluate existing and overlapping maps for accuracy and provide recommendation for updates. b. Appropriate GIS staff will make recommended updates to storm sewer infrastructure and surface drainage maps.	Annually Annually
iii. HSTS Mapping and List Assistant City Engineer, Public Service	Use and update excel spreadsheet list showing addresses and Parcel ID's of all HSTS and develop a map of on-site sewage disposal systems within the City.	a. Reference and update current list of on-site sewage disposal systems. b. Reference and update the location of all known home sewage treatment systems connected to the City's MS4 either in-house or by working with a consultant or through Franklin Soil and Water Conservation District.	Ongoing Ongoing

Continued….			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**
iv. IDDE Plan Public Service	Documentation for identifying and eliminating significant sources of pollutants and illicit discharges from and to the City's MS4.	a. Follow IDDE plan that guides the identification and elimination of significant sources of pollutants. Update the plan as new information is acquired. b. Follow protocol for accepting, addressing and documenting public and City staff complaints related to pollution and illicit discharges.	Ongoing Ongoing
v. Provide information about hazards of illicit discharges Assistant City Engineer, Public Service	Reach 50% of the residents, employees, and businesses about hazards of illicit discharges. (Reference MCM I)	a. Annually notify HSTS homeowners about maintenance responsibilities in coordination with Franklin County Public Health. b. Prepare and distribute press releases, news articles, and/or sewer bill inserts to City of Upper Arlington residents on at least 3 occasions. Include information on UA website. c. Educate employees and residents of protocol and procedures to identify and respond to complaints and information regarding potential illicit discharges within the City.	Annually 2014-2019 Annually
vi. Dry-Weather Screening of Outfalls Assistant City Engineer, Public Service	Continued dry weather screening of outfalls.	a. Dry weather screening will be conducted for outfalls which had been identified as having a potential illicit discharge from the previous year's screening and a subset of all outfalls, so that all outfalls are screened within a permit term.	2014-2019

4. Construction Site Stormwater Runoff Control

A. Introduction

Construction site stormwater runoff control addresses how erosion is minimized on disturbed land. Good construction site management starts with the creation of the stormwater pollution prevention plan and continues with the installation and management of erosion control BMPs until the site is stabilized.

Sediment is a major water pollutant of concern in Ohio. During a short period of time, uncontrolled construction sites can contribute more sediment to streams than can be deposited naturally during several decades. Siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to local streams. Increased sedimentation also increases the cost of water treatment and drainage maintenance. The heavy clay soils in Ohio can be especially challenging as fine sediments can remain suspended in the water column for longer periods of time. Good construction site management considers erosion and sediment control from plan review to site stabilization. Designs should consider failure rates of BMPs and identify secondary containment options whenever possible. Clear and frequent communication between regulators, site managers and contractors is also essential.

Benefits to the City include improved quality of streams for recreation and fishing, and reduced costs for water treatment and stormwater sewer system maintenance.

Requirements from Ohio EPA Permit:

- An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance. For a disturbance of more than one acre, the regulation will be equivalent to the technical requirements set forth in the Ohio EPA NPDES General Stormwater Permit for Construction Activities.
- Require construction site operators to implement appropriate erosion and sediment control BMPs for all land disturbances of one acre or greater.
- Require construction site operators to control waste such as, but not limited to, discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
- For disturbances equal to or greater than one acre, develop procedures for stormwater pollution prevention plan review which incorporate consideration of potential water quality impacts.
- Procedures for receipt and consideration of information submitted by the public.
- Procedures for site inspection and enforcement of control measures with a frequency of at least monthly.

B. Decision Process (Rationale)

The City will continue to develop, implement, and enforce a program to reduce pollutants and control construction site runoff on construction sites in accordance with the general construction permit.

In order to control polluted runoff from construction sites, the City uses existing zoning and building codes including sanctions and enforcement mechanisms and state regulations to require and enforce erosion and sediment controls at construction sites. The City's zoning code sets limitations on how much area of a given property can be developed, requiring that the remainder of the site be landscaped or undeveloped. The

ordinances will be reviewed to ensure continued compliance with the most current general construction and municipal stormwater general permit language. Larger, commercial developments are required to provide stormwater controls that limit the rate of runoff to pre-development conditions. The City also inspects and maintains the flow-handling capability of its culverts, removing any restrictions that might reduce stream capacity. The City plans to update regulations for improved requirements and enforcement mechanisms for development sites as needed. Updated regulations will be centered on current NPDES Construction and NPDES small MS4 general permit requirements.

As a requirement of the NPDES general construction stormwater permit, all on-site operators are to maintain records and reports that keep track of the inspections completed by the on-site operator. The City of Upper Arlington has developed procedures for site inspection and enforcement through zoning compliance to deter infractions. Inspections give the City an opportunity to provide additional guidance and education, issue warnings, or assess penalties.

The City will track the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities, both written and verbal. This will recognize the important role that the public can play in identifying cases of noncompliance. To ensure sites are inspected for erosion and sediment control, stormwater pollution prevention, and compliance with all current regulations, the City and Franklin Soil and Water Conservation District will inspect all active, permitted construction sites biweekly. If any of the sites are found to be out of compliance, the Engineering and Construction Division will enforce the regulations and implement penalties as necessary.

To better address water quality impairments related to hydrology and flow alterations the City will look for opportunities to encourage stormwater control practices on developed and developing lands within the City. This involves a review of submitted development plans to look for opportunities for reducing stormwater flows off of developing sites.

C. Best Management Practices

To address this minimum control measure the City will address the following best management practices as a part of its construction site stormwater runoff control program:

i. Update **ordinances and other regulatory mechanisms** for improved management of stormwater runoff on construction sites. Also require construction site operators to control wastes. Such waste includes, but is not limited to, discarded building materials, concrete truck washouts, chemicals, litter, and sanitary waste. Regulations must meet minimum requirements in Ohio EPA's MS4 and construction stormwater general permits.

ii. Ensure that construction site operators implement **erosion and sediment control requirements** equivalent to the technical requirements set forth in Ohio EPA's statewide NPDES CGP for the consideration of potential water quality impacts.

iii. Establish **complaint process** for the receipt and consideration of information submitted by the public.

iv. Create **site plan review procedures** for pre-construction stormwater pollution prevention plan review for all projects that result in a land disturbance of greater than or equal to one acre.

v. Create **site inspection procedures** for all permitted, active construction sites. Inspections will be performed biweekly. Sites that contain or are situated within 100 feet of a waterway or sensitive natural area, or have a history of noncompliance may be inspected more frequently at the City's discretion.

v. Create **enforcement procedures** to effectively address non-compliance with stormwater regulations on construction sites. Develop sanctions and enforcement mechanisms to ensure compliance with construction site control measures and BMPs including the possible use of fines, bonding requirements, stop work orders, and/or permit denials for non-compliance. Include guidelines for when certain sanctions will be used.

D. Responsible Party and Legal Authority

The Development Department will be responsible for the overall management and implementation of the construction site stormwater runoff controls. The Service Department will provide oversight to engineering plan reviews and construction site inspections. Franklin Soil and Water will conduct site inspections and provide technical assistance and educational opportunities to assist the City in employee training, and regulation revisions to meet the requirements of this MCM.

The City of Upper Arlington has updated ordinances and procedures for addressing construction site stormwater runoff controls to the extent allowable under state or local law in coordination with the most current Ohio EPA NPDES general construction permit. Corresponding ordinances or regulatory mechanisms address implementation and enforcement.

E. Construction Site Runoff Control: Measureable Goals and Planned Activities

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
i. Ordinance or Other Regulatory Mechanism City Planner, Development	Review, update and enforce ordinances requiring permit coverage, erosion and sediment controls and waste controls at construction sites that disturb one acre or more.	a. Review existing language in current regulation including UA Ch 11.UDO Part 6.04.B.2 and 6.04.H to reference and/or consider updates to meet current state general construction permit minimum requirements. b. Review all relevant ordinance and procedures to ensure that it meets the minimum requirements set forth in the Ohio EPA's MS4 and general construction stormwater permits. c. Cite Local Code(s) being used including the web link for the code if available in the Annual Report.	2016 2016 Annually
ii. Sediment and Erosion Control Implementation Engineering Assistant City Engineer, Public Service	Review, update and enforce standards for sediment and erosion BMPs through the endorsement of existing stormwater manual(s).	a. Use existing stormwater manuals for to plan reviews and approvals. b. Establish and maintain communications and identify educational opportunities for development community. c. Stormwater runoff control standards being used will be reported in the annual report.	Ongoing Ongoing Annually
iii. Complaint Process City Planner, Development	Procedures developed and implemented for receipt and consideration of information submitted by the public.	a. Educate employees and residents of protocol and procedures to identify and respond to complaints and information regarding potential illicit discharges and water pollution within the City. b. Implement complaint procedure including the documentation of complaints and resolution. c. Number of complaints received and followed-up on will be recorded in the annual report.	Ongoing Ongoing Annually

Continued….			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**
iv. Site Plan Review Procedures Engineering Assistant City Engineer, Public Service	Review, update and follow process developed for pre-construction stormwater pollution prevention plan review for all projects that result in a land disturbance of greater than or equal to one acre, including both residential and commercial sites.	a. 604.6 requires full engineering review and NOI including issuance of UASUMP prior to BZAP final approval. b. Follow procedures for site plan review into building and zoning code for both engineering and stormwater pollution prevention and update as needed. c. Number of sites requiring plans and number of plan reviews will be reported in the annual report.	Ongoing Ongoing Annually
v. Site Inspection Procedures Engineering Assistant City Engineer Public Service	Review, update and follow procedures for monthly inspection of construction site BMPs including site prioritization.	a. Follow site inspection procedures and make revisions as needed to meet minimum requirements in MS4 and construction site general permits b. Develop annual a staff training plan for public site inspection. c. Update working agreement for site inspections. d. Number of sites, number of inspections, and average frequency of inspections will be reported in the annual report.	Ongoing 2017 Annually Annually
vi. Enforcement Procedures Engineering Assistant City Engineer, Public Service	Follow enforcement procedures outlined in regulatory mechanisms for erosion and sediment controls, construction site waste controls, and stormwater pollution prevention to ensure all requirements are being met.	a. Follow enforcement procedures and make revisions to meet minimum requirements in MS4 and construction site general permits as needed b. Number of violation letters and number of enforcement actions will be reported in the annual report.	Ongoing Annually

5. Post-Construction Stormwater Management in New Development and Redevelopment

A. Introduction

Post construction stormwater management starts with programmatic development of municipal ordinances that promote green infrastructure like stream setbacks, tree preservation, and infiltration practices, and continues through long term operation and maintenance of stormwater management practices that remain on site after construction is completed. Good post construction design incorporates the use of non-structural BMPs, including wise use of green space, bio-swales and open drainage as appropriate. These practices may also reduce cost of construction and ongoing maintenance.

As post construction runoff flows over developed land, it carries pollutants such as sediment, oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus) to nearby ditches and streams. Once deposited, these pollutants impact water quality and viability of aquatic organisms. Post construction runoff also increases the quantity of water delivered to ditches and streams during storm events.

Unmanaged storm water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water body. The effects of this process include stream bank erosion and downstream flooding. Untreated stormwater carries with it sediment and pollutants which are the primary contributor to poor water quality in urbanized communities. When stormwater is directed into streams and ditches through hard surfaces and pipes, less water infiltrates down through the soils. This impacts ground water availability for drinking water and base stream flows.

Managed stormwater is directed to a combination of engineered and natural systems to reduce stormwater volume as well as sediment and pollutant loads directed to streams and ditches. Stormwater management identifies opportunities to hold and infiltrate stormwater runoff for reduced peak flows in streams and increased ground water recharge from storm events.

Benefits to the City from controlling post-construction runoff include reduced erosion and sedimentation along waterways and ditches, reduced maintenance and improved life span of existing stormwater infrastructure, improved quality of streams for recreation and fishing, reduced property damage from flooding, and continued availability of a quality drinking water supply.

Requirements from Ohio EPA Permit:

- Develop, implement and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb one-acre of land or greater to help minimize water quality impacts.
- Consideration of non-structural BMPs for stormwater management program, including, as appropriate: policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space, provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation.

- Consideration of structural BMPs in the program, including, as appropriate: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, bio-retention cells, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches.
- Identify the mechanisms (ordinance or other regulatory mechanisms) to address post construction runoff from development and redevelopment and include reasons for selection of the mechanism(s) within the first two years of the permit.
- Ensure that long-term operation and maintenance (O&M) plans are developed and agreements in place for all applicable sites within the first two years of the permit.

B. Decision Process (Rationale)

The City of Upper Arlington will continue to develop, implement, and enforce programs and procedures to address post construction management needs including needs identified in Ohio EPA water quality studies and assessments including Olentangy Watershed TMDLs. These programs and procedures will identify opportunities to improve stormwater management, incorporate best available technologies, and comply with current MS4 and construction general permits.

The greatest challenge for the City of Upper Arlington to address post-construction management is the long term management of redeveloped sites. Current practices in place and under consideration are an extension of previous detention style structures. Retrofitting in a built-out community has challenges related to space and design limitations. .

To guide new developments, the City references the Columbus storm water manual to encourage the use of best available technology. This manual referenced by the City continues to be updated to better address water quality and runoff reduction needs based on new information, requirements and technology. These improvements will continue to address urban stormwater volumes and pollution associated with these flows.

To promote post construction non-structural BMPs, Upper Arlington will establish and revise policies and/or ordinances that direct growth away from environmentally sensitive areas and encourage the use of green infrastructure. Some examples of these policies include protection of existing woodlots, stream corridors, easements around storm management facilities, and tree ordinances. Current regulations have incentives for open space by reducing storm water management requirements.

Stormwater pollution prevention plans currently note that the property owner is required to maintain post construction management practices. City Code considers operation and maintenance (O&M) plans for all post-construction BMP's under Section 931. The new code requires the responsible party for maintaining the BMP be clearly identified and allows for city employees to ingress and egress on the property for random inspections. Additionally owners will be required to provide annual proof of maintenance. When selecting post construction BMPs, land use, potential pollution sources, existing water quality, long-term maintenance liabilities and stormwater system information will be considered.

For the greatest measurable improvement to water quality and stream protection, the City will also encourage improved stormwater management on developed lands. Upper Arlington

engineering staff is considering rain gardens and alternative street retrofits as a starting point for this. Education will also be an important component to increasing opportunities for implementing post construction BMPs.

C. Best Management Practices

To address this minimum control measure the City will address the following best management practices as a part of its post construction management program:

i. Review and update **ordinance or other regulatory mechanism** for the long-term management of post construction BMPs. Regulations must meet minimum requirements in Ohio EPA's MS4 and construction general permits.

ii. Require **post construction BMPs implementation when applicable.**

iii. Review and update **site plan review procedures** to guide and evaluate management of post construction practices.

iv. Develop and implement **site inspection procedures** to ensure compliance with the most current post construction regulations and requirements.

v. Develop and implement **enforcement procedures** to ensure compliance with the most current post-construction regulations and requirements.

vi. Require **long-term O&M plans** for the management, maintenance and repair of post construction practices.

D. Responsible Party and Legal Authority

The Development Department will be responsible for the overall management of the post construction stormwater management program. The Service Department will provide oversight to Engineering, O&M plan reviews and construction site inspections. Franklin Soil and Water will provide technical assistance and educational opportunities to assist the City in employee training and meeting this minimum control measure as requested.

The City of Upper Arlington has ordinances and procedures for addressing post construction runoff from new development and redevelopment projects to the extent allowable under state or local law and coordinate with the Ohio EPA NPDES general construction permit. This ordinance or regulatory mechanism addresses implementation and enforcement.

E. Post Construction Stormwater Management in New Development and Redevelopment: Measureable Goals and Planned Activities

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
i. Ordinance or Other Regulatory Mechanism City Planner, Development	Review and update ordinances (604, 931, 937) that requires the post construction requirements as listed in Ohio EPA's general construction permit. Consider adopting regulations that encourage the use of green infrastructure and protect environmentally sensitive areas on developed and redeveloping land.	a. Review ordinance language to ensure that it meets the minimum requirements set forth in the Ohio EPA's MS4 and general construction permits. b. Meet with appropriate city personnel to coordinate implementation and adoption of the ordinance. c. Recommend revisions and additions to existing ordinances for City Council to adopt. d. Cite Local Code(s) being used including the web link for the code if available in the Annual Report.	2014-2019 2014-2019 2014-2019 Annually
ii. Post-Construction BMP Implementation Engineering Assistant City Engineer, Public Service	Identify, evaluate opportunities to implement post construction practices and encourage or require the use of green infrastructure practices. Establish standards for post construction BMPs through the endorsement of existing stormwater manual(s).	a. Review best available technologies and identify opportunities to promote the use of these technologies in Upper Arlington. c. Continue to review stormwater manuals and endorse the use of one or more of these manuals for post construction management in Upper Arlington. d. Structural and non-structural standards and practices that are required, encouraged and/ or implemented will be reported in the annual report.	2014-2019 Ongoing Annually

Continued….

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
iii. Site Plan Review Procedures City Planner, Development	Follow, review and update site review procedures to ensure early consideration of and correct implementation of preferred post construction requirements starting at plan review through to site stabilization.	a. Use site review procedures to ensure implementation of effective post construction practices. b. Use regulations that site plan review is tied to issuance of stormwater permit for compliance. c. Clearly communicate procedure to all staff and officials involved in development plan reviews and approvals. d. Number of sites requiring plans and number of plan reviews will be reported in the annual report.	2014-2019 Ongoing Annually Annually
iv. Site Inspection Procedures Engineering Assistant City Engineer, Public Service	All post construction structural and non-structural BMPs will be inspected during implementation and prior to the developer signing off on the site to ensure the BMP will function as intended to reduce stormwater runoff from new development and redevelopment projects. Post construction BMPs will be inspected and maintained by property owner. Post construction BMP maintenance and inspections will be monitored by qualified staff.	a. Follow, review and update existing procedures. b. Require and review documentation from property owner on post construction BMP inspection and maintenance. c. The City will inspect all post construction BMPs at least once during the 5 year permit and as needed. d. Number of sites, number of inspections, and average frequency of inspections will be reported in the annual report.	Ongoing Annually 2014-2019 Annually
Continued….			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**

v. Enforcement Procedures Assistant City Engineer, Public Services	Follow, review and update enforcement procedures that ensure post construction BMPs are in place and operating as intended and according to the general stormwater permit and city ordinances.	a. Use enforcement mechanism to recover costs of repairing or maintaining neglected post construction BMPs out of compliance with O&M agreement. b. Number of violation letters and number of enforcement actions will be reported in the annual report.	Ongoing Annually
vi. Long-Term O&M Plans/Agreements Assistant City Engineer, Public Services	All sites will have an O & M plan developed and adhered to for post construction BMPs under construction.	a. Enforce requirement within code that all development projects need an operation and maintenance plan that identifies who is responsible for which BMPs and for how long. b. Number of sites requiring plans and number of agreements in place will be reported in the annual report.	Ongoing Annually

6. Pollution Prevention and Good Housekeeping

A. Introduction

This measure requires the City of Upper Arlington to set the example for the community through the actions of municipal staff and decisions made for municipal operations. The SWMP needs to evaluate and identify opportunities to reduce pollution collected by stormwater runoff from streets, landscaping, parking lots, managed parkland, materials storage, and vehicle maintenance areas and discharged to local waterways.

Benefits to the City include leading by example to improve water quality in the City, possible cost savings through timely maintenance of storm sewer systems, conservation in fertilizer and pesticide use, reduction in salt costs and promotion of a "green" community.

The City of Upper Arlington provides exceptional city services to its residents. Residents enjoy free leaf collection every fall, just by raking leaves to the curb during the collection period. When leaves are picked up, the storm drain inlets are also cleared of any residual leaves. The City promotes the use of alternative water quality practices starting with installation of numerous rain gardens at the Sunny 95 Park.

The City prides itself on having one of the best snow removal services in central Ohio, with the aim of returning normal driving conditions to all city streets within 24 hours of the end of a snowstorm. The City has also adopted alternative measures for deicing and practices salt conservation.

Since 1992, the City of Upper Arlington has utilized its trash sticker program as part of its commitment to developing innovative ways to reduce the waste stream. While maintaining recycling collection services at no additional charge, residents are encouraged to improve their recycling habits and maintain control of their refuse removal costs.[3]

Requirements from Ohio EPA Permit:

- Must include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.
- Must include a list of industrial facilities that MS4 owns and operates. Stormwater Pollution Prevention Plans (SWPPP) need to be developed and implemented for listed facilities within the first two years of the permit.
- Must address maintenance activities, schedules, inspection procedures, and proper waste disposal for controls to reduce pollutants to your MS4s.
- Must ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices and practices.

[3] *City of Upper Arlington, Living in UA, Resident Services*. http://www.uaoh.net/category/subcategory.php?fCS=3-12 (Accessed June, 2010)

B. Decision Process (Rationale)

The City of Upper Arlington has one fleet management facility at Roberts Road that requires a stormwater pollution prevention plan. This facility is a modern facility with stormwater and polluted water directed to stormwater or sanitary sewer inlets as appropriate. Other municipal facilities include the Municipal Service Center on a 7.3-acre site. The Public Service Center (3600 Tremont Road) is located on a 25.4-acre site. The Upper Arlington Senior Center (1945 Ridgeview Road) is at the former Tremont Elementary School Annex.[1] These facilities do not require a SWPPP.

Daily operations at the service center already incorporate many of the required practices. Over this permit term attention will be given to updating employee policies and procedures that can be utilized as guidance to ensure consistency in implementing best management practices.

Parks and Recreation staff practices minimum use of fertilizer and pesticides. Currently fertilizers and pesticides are used only as needed with spot application when feasible. Staff is in the process of evaluating organic alternatives for landscape management. Opportunities to extend these practices to street maintenance will be considered.

Upper Arlington does not own, operate or maintain any structures on public or private property for the purpose of flood control.

Opportunities to demonstrate best management practices and green infrastructure have been and will continue to be identified to address both Good Housekeeping and Public Education and outreach.

C. Best Management Practices

To address this minimum control measure the City will address the following best management practices as a part of its pollution prevention and good housekeeping management program:

- **i.** **Employee training program** will be developed to include regular training for new and existing employees.
- **ii.** The **list of facilities subject to the program** currently is one of the fleet management facility. All municipal facilities will be evaluated for opportunities for stormwater retention and pollution reduction.
- **iii.** **MS4 maintenance** of stormwater system will be evaluated and conducted annually.
- **iv.** **Proper disposal of wastes** will be managed through policy, procedures, documentation, and audits.
- **v.** **Road salt** will be managed for efficient use through policy, procedures, documentation, and audits for the benefit of both safety and water quality.
- **vi.** **Pesticide and herbicide usage** will be managed for efficient use through policy, procedures, documentation, and audits for the benefit of both weed and pest management and water quality.
- **vii.** **Fertilizer usage** will be managed for efficient use through policy, procedures, documentation, and audits for the benefit of both turf management and water quality.

viii. **Street sweeping** will be utilized as a practice for the benefit of storm system maintenance and water quality.
ix. **Flood management projects** will be evaluated for impact to Stormwater retention and water quality management.

D. Stormwater Pollution Prevention Plan

The Public Service Department and Maintenance Facility at 4100 Roberts Road has been identified as requiring a Stormwater Pollution Prevention Plan (SWPPP). This plan is complete. Activities at this facility include fleet management, road maintenance, and materials storage. Additionally, Ohio Mulch and the Upper Arlington School District lease City of Upper Arlington property. These entities will be notified of the City's Stormwater Management Program and the expectation that they comply with good housekeeping and pollution prevention in good faith and in compliance with Ohio EPA.

The center contains 42,000 square feet of equipment/materials storage space, 14,500 square feet of office space, and a 4,000-ton Salt Storage Building.

E. Responsible Party and Legal Authority

The Assistant City Engineer will be responsible for the overall management and implementation of the pollution prevention and good housekeeping program. The Safety Coordinator/Public Works Supervisor will provide a bulk of the oversight and assistance on the Best Management Practices. The Public Service Department will be responsible for the creation and implementation of a Stormwater Pollution Prevention Plan.

These activities are well within the authority and ability of the City of Upper. No additional regulation is required.

F. Pollution Prevention and Good Housekeeping: Measureable Goals and Planned Activities			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**
i. Employee Training Program Safety Coordinator, Public Service	Provide comprehensive training to all new employees and annual training to all staff who work with the streets, parks and utilities departments.	a. Identify and/ or develop staff training opportunities. b. Require all staff members to attend at least one good housekeeping training a year. d. Target Audience and attendance will be recorded in annual report.	Ongoing Annually Annually
ii. List of Facilities Subject to Program Safety Coordinator, Public Service Department	Complete a Stormwater Pollution Prevention Plan (SWPPP) for 4100 Roberts Road. This plan will include developed procedures, audit forms and schedules.	a. Follow, review and enforce SWPPP developed for Roberts Road facility. b. Update SWPPP and related policies and procedures as needed.	Ongoing Ongoing
iii. MS4 Maintenance Safety Coordinator, Public Service Department	Continue to manage leaves on residential streets for improved water quality in MS4. Document and map all repairs and maintenance to stormwater systems.	a. Conduct an annual fall leaf pick up that includes the cleaning of leaves out of stormwater inlets. b. Document and summarize maintenance activity schedules in the annual report.	Annually Annually

Continued….			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**
iv. Disposal of Wastes Safety Coordinator, Public Service Department	Ensure proper disposal wastes of concern following established procedures and maintaining disposal records.	a. Follow, review and update procedures for proper handling and disposal of wastes of concern. b. Report procedures and amounts of waste disposed of in the annual report.	Ongoing Annually
v. Road Salt Safety Coordinator, Public Service Department	Continue to manage salt usage while maintaining high standard for effective and timely deicing of streets.	a. Follow, review and update application procedures for salt conservation efforts for water quality. b. Document and report tons of salt used and procedures for salt management in annual report.	Ongoing Annually
vi. Pesticide & Herbicide Usage Safety Coordinator, Public Service Department	Continue to practice conservative weed and pest management measures and investigate opportunities for improvement.	a. Follow, review and update application procedures for herbicide and pesticide conservation efforts for water quality. b.Document and report gallons of pesticide and herbicide used and procedures for pesticide and herbicide management in annual report.	Ongoing Annually
vii. Fertilizer Usage Safety Coordinator, Public Service Department	Continue to practice conservative fertilizer application and investigate opportunities for improvement.	a. Follow, review and update application procedures for fertilizer conservation efforts for water quality. b. Document and report gallons of pesticide and herbicide used and procedures for pesticide and herbicide conservation use in annual report.	Ongoing Annually

Continued….			
BMP & Responsible Party	**Measurable Goal**	**Summary of Planned Activities**	**Proposed Schedule**
viii. Street Sweeping Safety Coordinator, Public Service Department Safety Coordinator, Public Service Department	Continue to manage litter, sediment and related pollution on Upper Arlington streets.	a. Conduct street sweeping (frequency). b. Follow documented disposal procedures. c. Document amount of material collected and properly disposed.	Ongoing Ongoing Annually