

City of Shaker Heights, Ohio



SHAKERHEIGHTS

General Storm Water
Permit No. 3GQ00037*AG

Fifth Annual Report

Covering Storm Water Management Programs
Conducted from January 2007 – December 2007

March 2008

Prepared by:



SHAKERHEIGHTS

Contents

	<i>PAGE</i>
1. Summary of Year 5 (2007) Activities	2
A. Public Education and Outreach	2
B. Public Participation and Involvement	7
C. Illicit Discharge Detection and Elimination	10
D. Construction Site Runoff Control	11
E. Post-Construction Runoff Control	12
F. Pollution Prevention/Good Housekeeping	14
2. Anticipated Activities for Year 6 (2008)	16
A. Public Education and Outreach	17
B. Public Participation and Involvement	18
C. Illicit Discharge Detection and Elimination	19
D. Construction Site Runoff Control	19
E. Post-Construction Runoff Control	20
F. Pollution Prevention/Good Housekeeping	21
3. Proposed Changes to SWMP	21
4. Appendices A - F	



1. Summary of Year 5 (2007) Activities

This section provides a status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable, and the measurable goals for each of the minimum control measures.

A. PUBLIC EDUCATION AND OUTREACH

The City will continue its partnership with the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes (NCSL) to educate the general public on the impact of storm water discharges and ways they can reduce pollutants. The tasks identified for Year 4 of the Public Education and Outreach program include:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
<ul style="list-style-type: none"> Continue to Update Storm Water Page for City Website 	Document changes to the website	Communications Department
<ul style="list-style-type: none"> Continue to Publish Articles on Storm Water Page 	Document articles used and dates of publication	Communications Department
<ul style="list-style-type: none"> Continue to Publish/Distribute Brochures & Handouts 	Record number of copies of materials used, media source, and dates of publication	Communications Department/ DBWP/Nature Center at Shaker Lakes
<ul style="list-style-type: none"> Continue to Distribute Brochures/Handouts/ Conduct Public Education Program 	Document materials date of programs and those in attendance	Communications Department/ DBWP/Nature Center at Shaker Lakes

Storm Water Website

The City’s Communications Department has continued to update the website regularly and has kept links to the DBWP website and the Nature Center website active. There were 789 visits to the site during this reporting period which is a 496% increase over the numbers reported in the Fourth Annual Report (Year 4). See Appendix A.

A copy of the City’s SWMP is still currently included on the City’s main website and is also available for review at City Hall and the Public Works department.



Educational Materials

The City continues to partner with the Doan Brook Watershed Partnership and the Nature Center at Shaker Lakes in its effort to identify, develop and distribute brochures and handouts on storm water management to the media and public.

Public Education Program

The City has partnered with the Doan Brook Watershed and the Nature Center at Shaker Lakes on public education programs and related activities in the region.

The following public education and outreach activities were conducted during Year 4:

- | <u>Date</u> | <u>Activity</u> |
|---------------|---|
| • Spring 2006 | Brook Notes. The DBWP published its "Brook Notes" newsletter in the Spring of 2006, a four-page color publication that was mailed to over 2,000 residents of Shaker Hts. (approx. 700), Cleveland Hts. (approx. 1200) and Cleveland (approx. 150). Another 300 copies were distributed at education/outreach events. |
| • Jan. 2006 | Doan Brook Geology. A seminar on the “Geology Along the Doan Brook Gorge” was held during the Environmental Town Hall series. |
| • Feb. 2006 | Gardens for the 21st Century. The DBWP, Nature Center at Lakes, Cleveland Botanical Garden and Cleveland Metroparks teamed up to present the one-day symposium “Beauty and Sustainability: Gardens for the 21 st Century.” Held at the Botanical Garden. The symposium attracted approx. 200 persons who heard talks from national leaders on sustainable landscaping using native plants and rethinking landscaping for backyard and public spaces. The DWBP and NCSL had an informational table at the symposium and provided watershed information to some 50 people. |
| • April 2006 | Rain Barrel Workshop. To both slow residential roof runoff and conserve fresh water, the Nature Center at Shaker Lakes hosted three Rain Barrel Workshops throughout the month of April. All three events sold out, with 90 new home rain barrels created. |
| • August 2006 | American Green. Public discussion on lawn runoff and alternative approaches to landscaping occurred when the Nature Center at Shaker Lakes and Loganberry Books hosted a book signing for Dr. Steinberg who wrote <u>American Green: America’s Obsession With Lawns</u> . As a resident of the Doan Brook watershed Dr. Steinberg elucidated the many links between lawn runoff and water quality. |



- Oct. 2006 **Doan Brook Connection.** A 1.5 hour brown bag lunch with 20-40 people in attendance was held at the Nature Center. The program was titled “Shaker Heights: The Doan Brook Connection”. The program charted the development of Shaker Heights and its relationship to the Doan Brook/Shaker Lakes region, illustrated with archival photos.
- Summer 2006 **Doan Brook – Ours to Protect.** The DBWP, working through its City Services and Capital Projects Committee and with assistance from the Nature Center at Shaker Lakes, installed 16 road-crossing signs, which read "Doan Brook - Ours To Protect" The signs have received positive feedback from motorists, pedestrians and bicyclists throughout the watershed, with many citizens indicating that they were never aware of the name of their local stream.
- 2006 **Doanbrook.org.** The DBWP updated its website, www.doanbrook.org, throughout 2006 to update citizens on educational and volunteer opportunities in support of Doan Brook restoration. The "Action Plan for the Doan Brook Watershed" is posted on the website, along with other relevant information and links to other websites.
- Jan. 2007 **Where are Doan Brook Creatures at this time of year?** A naturalist hike was held at the Nature Center at Shaker Lakes focused on Winter Stream Ecology.
- Feb. 2007 **Naturalist Led Hike.** The hike was held around Horseshoe Lake to examine man-made lakes in the Doan Brook stream system.
- March 2007 **Four Part Class.** In conjunction with the Nature Center at Shaker Lakes, a four-part class on trees and restoring the urban canopy was held for citizens and planners. Urban forests are critical to filtering non-point pollutants and slowing peak flows after significant rain events. In four consecutive weeks, the following topics were covered: Soils, the Tree’s growing environment, Selecting & Planting the Perfect Tree, What the Tree needs to Outlive You.
- March 2007 **Green Cities and the collaborative cultures.** Ivette Bolendander, a principal engineer in the Doan Brook Restoration Project and the City of Cleveland’s Comprehensive Lakefront Plan for Dike 14, spoke about green cities and the collaborative cultures needed to promote environmental stewardship, sustainability and the important links to the biotic community.



- March 2007 **Go Native.** This program was hosted to highlight the benefits of using native plants in our landscapes. Natives are more adapted to local conditions, requiring less water and nutrient inputs, making them a plus for water quality.
- Mar/Apr 2007 **Permaculture.** Two programs focused on the benefits of Permaculture, an approach that completely changes the paradigm of landscapes towards sustainability by recycling and harvesting water, growing organic food in flower beds, utilizing trees to save on heating and cooling bills etc.
- April 2007 **Rainbarrels.** Annual rainbarrel workshops were held to teach people how to convert 55 gallon food grade barrels into rain harvesting systems for roofs. Not only do plants prefer the natural pH of rainwater, but an aggregate of rain barrels can help to keep storm water “on-site” for longer of time. These, as well as a workshop in August, were all sold out at 40 participants in each.
- April 2007 **Stream monitoring.** The Doan Brook Watershed partnership hosted on-going stream monitoring demonstrations at the Nature Center at Shaker Lakes’ ‘Celebrate the Earth Festival’ which attracted over 500 people. Students of all ages got their feet wet while learning about stream habitats and benthic communities. The Partnerships also answered questions on nonpoint source pollution, erosion, CSOs etc. Participants were a mix of Cleveland Heights, Shaker Heights and Cleveland residents.
- April 2007 **Water Quality in the Doan Brook –** The Nature Center at Shaker Lakes teaches this class to all Shaker Heights 4th grade classes. Each class includes 2 hours of instruction on watershed, water quality and fish/wildlife/plant habitat specific to the Doan Brook Watershed. For all Cleveland Heights 4th graders, the class focused on building watershed models and understanding soils and vegetation differences between marsh, upland and lake habitats.
- May 2007 **Water of Life for the Eastern Inner Ring Suburbs of Cleveland.** The lecture presented by Roy Larick, PhD, an archeologist presented his research on Bluestone Brooks: Doan, Dugway, Euclid and Nine Miles creeks, which all run from the Portage Escarpment, north to Lake Erie.
- May 2007 **Bird Migration.** Dike 14 Education Collaborative hosted an interactive morning of tours and demonstrations to highlight bird migration through Dike 14 (at the mouth of the Doan Brook) and the brook’s important wooded, riparian greenway.



- May 2007 **Geology Hike.** This annual spring Doan Brook Geology hike hike was held through the Gorge.
- June 2007 **Are you Ready to Plant a Rain Garden?** At this brown-bag presentation, participants learned that, by planting rain gardens, storm water can be mitigated up to 30%. Meiring Borchers of the Chagrin River Watershed Partners explained the engineering involved and which plants most enjoy having “wet feet”.
- June 2007 **Brook Notes.** The DBWP published its “Brook Notes” 4 page color, newsletter, which was mailed to over 2,000 residents in Shaker Hts., Cleveland Hts., and Cleveland. Another 300 copies were distributed at education/outreach events. In keeping with the theme of the year, this issue focused on sustainable habitats and how they link to local waterways, like Doan Brook and Lake Erie.
- June 2007 **Hike to Doan Brook Grist Mill site.** This hike was structured to teach more about interdependence of the Shakers and the Doan Brook.
- July 2007 **Compositing workshop and bin drive.** The use of compost minimizes, if not negates, the need for fertilizer in local yards. Less fertilizer use through Doan brook watershed decreases the incidences of eutrication in the Shaker Lakes and Lake Erie.
- August 2007 **Naturalist Led Hike.** This was held around Lower Lake to identify the lakes amphibians and damselfly and dragonfly population.
- Oct. 2007 **Environmental Brownbag.** Invited Nature Center volunteer, Richard Hymas, to share how he transformed his backyard into a more sustainable habitat after participating in the Laudable Lawn and Home Habitat project, a program co-designed by the Nature Center and the Doan Brook Watershed Partnership.
- Oct. 2007 **Annual Fall Doan Brook Geology Hikes.** Was held with Dr. David Saja, mineralogist with the Cleveland Museum of natural History.
- Nov. 2007 **History and Hydrology of the Doan Brook.** Presentation was made to Heights Community Church.
- Nov. 2007 **Doan Brook Hike –** Naturalist led hike entitled Doan Brook Wetlands in the fall.



B. PUBLIC PARTICIPATION AND INVOLVEMENT

The public involvement component of the City’s SWMP has been developed to gain support of the citizenry and involve all socio-economic groups. The tasks identified for Year 4 of the Public Participation and Involvement program include:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
<ul style="list-style-type: none"> Public Notice Storm Water Meetings and Events 	Document publication dates	Communications Department
<ul style="list-style-type: none"> Modify CiviCall Program for Storm Water Responses 	Storm water response/ complaint program reviewed and revised, if required	Communications Department/ Information Technology
<ul style="list-style-type: none"> Conduct revised CiviCall Program 	Document the number of written complaints and calls received on the storm water response line. Document the number of problems /incidents resolved	Communications Department/ Information Technology
<ul style="list-style-type: none"> Conduct Community Education Programs 	Document the community activities and program elements conducted	Communications Department/ Public Works Department/ DBWP/Nature Center at Shaker Heights

Public Notice of Meetings/Events

Events that have been conducted by the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes and sponsored by the City have been publicized on the City’s website. Many storm water related events conducted by these entities will continue to be listed on the City’s storm water webpage.

Modify CiviCall Program for Storm Water Responses

CiviCall program has not been modified during the reporting year. The current codes as they relate to illicit discharges and water ponding on streets are considered sufficient at this time for monitoring storm water related issues. The City will continue evaluate the CiviCall codes on an annual basis.

Conduct Revised CiviCall Program

There were no calls related to water ponding in the streets. See Appendices B and C for more information.

There were six (6) incidents involving illicit discharges recorded. See Appendices B and C for more information.



Conduct Community Education Programs

As in previous years programs have been developed and are being conducted in partnership with the Doan Brook Watershed and Nature Center at Shaker Heights for community activities including general education, cleanup programs, stream monitoring, outdoor activities and other miscellaneous events.

The following public participation/involvement activities were conducted during Year 4 (note: the attendance records in most instances do not differentiate the number of Shaker Heights residents in attendance, just the total number of attendees):

<u>Date</u>	<u>Activity</u>
• April 2006	Doan Brook Community Cleanup. The DBWP in coordination with NCSL and the three watershed cities held its 4 th annual watershed-wide Doan Brook Community Cleanup. Some 60 people picked-up litter at two locations, up-stream and down-stream. The upstream site also included invasive removal of garlic mustard.
• April 2006	Celebrate the Earth Festival. The DBWP hosted a booth at the Nature Center at Shaker Lakes' 'Celebrate the Earth Festival', which attracted 472 people. Educational brochures were provided and questions were answered pertaining to the Partnership, nonpoint source pollution, etc. Participants were a mix of Cleveland Heights, Shaker Heights and Cleveland residents.
• April 2006	Stream Kleenrz. Hawken School middle students elected to start "Stream Kleenrz" to conduct volunteer stream monitoring and watershed awareness throughout the Doan Brook and near-shore Lake Erie.
• May 2006	Stream Monitoring. Targeted macro-invertebrate studies include benthic testing and identification with students from John F. Kennedy and Jane Adams High schools. Doan Brook Volunteer stream monitors were trained to collect benthic water quality samples, record data and submit their results to the Doan Brook Watershed Partnership and the Nature Center to better establish an on-going citizen science program within the watershed. Later in the year, these trained volunteers also submitted information to EPA's World Wide Water Quality Monitoring Day.
• August 2006	Burning River Fest. The DBWP participated in the annual "Burning River Fest" held at Wendy Park on Lake Erie in downtown Cleveland. An estimated 1,000 people were engaged and provided with watershed information. An estimated 5,000 people attended the festival, which had an environmental and water resources theme. Again, rain barrel demonstrations and kits were featured.



- Oct/Nov 2006 **Naturalist Walks.** Naturalist walks through the Doan Brook riparian corridor were held on October 8th, November 4th and November 11th. Topics included the Doan Brook Gorge, the History of the Doan Brook ~ From Native Americans to the Shakers, and Lakes and Streams in Winter ~ How Fish and macro-invertebrates that live in the Doan Brook and the Shaker Lakes as the water gets colder.
- October 2006 **DBWP Annual Meeting.** The Annual Partners Meeting of the DBWP was held at Shaker Heights Country Club. Close to 90 watershed residents and supporters attended. The program included a Powerpoint presentation on the restoration projects that were successfully completed on the Doan Brook last year. Participants were able to tour the restoration site before the meeting began.
- Spring 2006
• Fall 2006
• Winter 2006 **What Has Doan Brook Seen?** The Nature Center at Shaker Lakes teaches the class "What Has Doan Brook Seen?" to all Cleveland Heights and Shaker Heights 4th grade classes. Each class (average of 22 students per class) includes five (5) hours of instruction on watershed, water quality and fish/wildlife/plant habitat specific to the Doan Brook Watershed. A total of 52 classes were taught over the reporting period reaching 1,300 students. In addition, staff at the Nature Center at Shaker Lakes taught close to two dozen (1) hour wetlands classes to Cleveland Heights and Shaker Heights students, reaching a total of approximately 625 students.
- May 2007 **Annual Native Plant Sale.** Held to encourage the use of water saving natives in our back yards.
- May 2007 **Beat it then eat it.** Based on invasive removal throughout the Doan Brook floodplain, a Garlic Mustard Pest-ival dinner was hosted to reward hundreds of volunteers who assisted with habitat restoration throughout the growing season.
- August 2007 **Burning River Fest.** The DBWP participated in this annual event, held at Wendy Park on Lake Erie in downtown Cleveland. An estimated 1,000 were engaged and provided with watershed information. An estimated 5,000 people attended the festival, which had an environmental and water resources theme. Rain barrel demonstrations and kits were also featured.



- Summer 2007 **Sustainable Landscapes.** Throughout the summer, the Nature Center created a program that assisted citizens in creating more sustainable landscapes. The program provided a low cost visit from a landscape designer to assist individuals with the specific design needs of their yards. As a part of the contract, the citizens agreed to take steps toward a more sustainable yard.

C. ILLICIT DISCHARGE DETECTION AND ELIMINATION

The illicit discharge detection and elimination control measure will work to detect and eliminate illicit discharges. The tasks identified for Year 4 of the Illicit Discharge Detection and Elimination Program included:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
• Continue Comprehensive Illicit Discharge Program	Document Program	Public Works Department
• Enforce New Illicit Discharge Program	Document number of illegal connections identified	Public Works Department

Continue Comprehensive Illicit Discharge Program

The City continues with eliminating residential cross-connections through its Point-of-Sale inspection program.

In October 2007 the Cuyahoga County Board of Health (CCBH) completed sampling of 29 MS4 outfall locations. A summary of the report is included in Appendix C.

In December 2007 the City entered into a new two-year contract with Cuyahoga Board of Health (CCBH) in order to inventory the City’s MS4 outfalls. The CCBH will sample up to 25 pre-selected areas located within the storm sewer system for fecal coli form in 2008 and 2009.

In July 2007 the City’s Sewer Superintendent/Project Manager attended a workshop entitled “NPDES Storm Water Phase II Illicit Discharge Program Training” Workshop. The workshop was conducted at Lorain County Community College.

On September 20, 2007, the City Engineer and the Director of Public Works attended a workshop entitled “Implementing Illicit Discharge Programs and Conducting Illicit Discharge Investigations”. The workshop was conducted at the Ohio EPA’s Northeast Ohio District Office. Copies of the Certificates of Attendance are included in Appendix C.



Enforce New Illicit Discharge Program

The City continues its policy of eliminating cross connections in homes during its Point-of-Sale inspection process. There were no new cross-connections found in 2007. Letters were sent to four (4) residences as a result of this program in 2006. Residents were given six (6) months to resolve the cross-connection, which carried into 2007. Three out of the four residents have complied. See Appendix C for updates.

D. CONSTRUCTION SITE RUNOFF CONTROL

The Construction Site Runoff Control component of the City's SWMP is designed to control pollutants in storm water runoff from construction sites. The City actively seeks training opportunities for its regular staff. The following construction site runoff control activities were conducted during Year 4:

Conduct Revised Construction Site Training Program

On September 26, 2007 the City Engineer and the Project/Construction Manager both attended the NPDES Construction Site Inspection Training Program. The program was conducted at the Strongsville Recreation and Senior Center. See Appendix D.

Sediment Control Ordinance

The Department of Public Works continues to enforce its sediment control ordinance on construction projects. No 'Stop Orders' were given out this year. It should be noted that the City continues to check all drainage facilities before and after construction projects to insure they are free of debris. Contractors are advised to comply with all storm water management rules. The City is scheduled to adopt the model ordinances regarding controlling construction site soil erosion, sediment, and other wastes and storm water runoff.

In 2008 the City of Shaker Heights will be performing the South Woodland Area Infrastructure Improvements Project, which is a watermain and sewer improvements project. Because of the number of acres that will be disturbed by this project a Notice of Intent (NOI) was applied for. An approved NOI was received from the Ohio EPA dated November 11, 2007. NOI's were also received for the Horseshoe Lake Park – Phase 1 Improvement Project and the Shaker Median Fields Project. See Appendix D.

Review/Revise Site Plan Review Process

Building site plans continue to be reviewed by the Building Department for compliance with the ordinance. Construction site plans continue to be reviewed by the Department of Public Works for compliance with the ordinance. Based on the review of the program there is no need for revision at this time.



Conduct Revised Site Plan Review Process

The Building Department reviewed one (1) plan for compliance with the ordinance. The Department of Public Works reviewed four (4) construction plans for compliance with the ordinance.

Review/Revise Construction Site Inspection Procedures.

The construction site inspection procedures have been reviewed. City inspectors are aware of storm water management procedures. The City often hires outside inspectors for large scale jobs such as road rehabilitation. The City requires the outside inspectors should be well-versed in storm water management procedures.

Conduct Revised Construction Site Inspection Procedures

In 2007 there were 22 street resurfacing projects inspected under the purview of the Department of Public Works. Contractors complied with Storm Water Management procedures by keeping debris out of catch basins.

There was ongoing site inspection of the construction site for the Horseshoe Lake Park Phase I Improvements Project Storm Water Management procedures are in place.

The City was alerted to a contractor’s non-compliance of Storm Water Management activities on February 13, 2008 in regards to the Shaker Median Fields Project, which is the installation of new soccer fields. There was no activity on the site due to the weather and the contractor had failed to install silt fence as per the plans. The City instructed the contractor to install the silt fence. The site was re-inspected on February 21, 2008 where it was found that the silt fence had been installed improperly. The contractor was then instructed to reinstall the silt fence. See Appendix C for photos.

Conduct Revised Pre-Construction Plan Review Procedures

The Department of Public Works reviewed one (1) construction plan for compliance with the ordinance.

POST-CONSTRUCTION RUNOFF CONTROL

Post-construction runoff controls are important in limiting the amount of silt and sediment that is discharged to local receiving streams. The City has limited existing policies addressing post construction runoff. The tasks identified for Year 5 of the Post-Construction Runoff Control program include:



<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
<ul style="list-style-type: none"> Develop Post-Construction Runoff Ordinance 	Enact post-construction runoff ordinance.	Public Works Department/ Planning Department
<ul style="list-style-type: none"> Review/Revise Redevelopment Design Standards 	Document revisions to design standards/policies.	Public Works Department/ Planning Department
<ul style="list-style-type: none"> Implementing Retention Basin/Lake O&M Program 	Development of a conceptual plan for stream restoration	Public Works Department/DBWP/Shaker Heights Country Club
<ul style="list-style-type: none"> Conduct Retention Basin/Lake O&M Program 	Document progress of stream restoration	Public Works Department/DBWP/Shaker Heights Country Club

Develop Post-Construction Runoff Ordinance

The City is scheduled to adopt the model ordinances for Post-Construction Runoff by second quarter 2008. The development is currently in progress.

The City continues to seek and act upon training opportunities for its staff. On October 25, 2007 the City Engineer and the Project/Construction Manager attended a workshop conducted by the Ohio EPA entitled “Proven Post Construction Storm Water Practices for Small Drainage Areas”. The workshop was conducted at Strongsville Public Library.

Review/Revise Redevelopment Design Standards

This is an ongoing process. It will be further developed by working in a collaborative effort between Public Works, the Planning Department and the Doan Brook Watershed Partnership. It should be noted that the City incorporated both construction site runoff controls and post construction runoff controls in the plans for Horseshoe Lake Park Phase 1 Improvements.

In addition, the City implemented a number of Post Construction BMP’s in the redevelopment of Horseshoe Lake Park including a rain garden. See Appendix E for an excerpt of the plan.

In addition, The City will be adopting the model ordinances regarding riparian setbacks and wetlands setbacks by second quarter 2008. The development is currently in progress.

Implementing Retention Basin/Lake O&M Program

The City continues to engage the Shaker Heights Country Club in talks regarding restoration of the remaining 5,500 feet of Doan Brook that runs through their property. The cost to do a conceptual plan of the brook restoration is \$12,500.00 and the Country



has yet to commit to this cost. In addition, the City has committed to partnering with the Country Club to apply for a grant through the Natural Resources Assistance Council

(NRAC) which is a key component. Funds were not available in 2007 and they are not projected to be available until after November 2008. The City will continue to work with the Country Club to find other funding sources in the interim.

The City is currently in talks with the Northeast Ohio Regional Sewer District (NEORS) regarding their intent to develop a regional Storm Water Management Plan. They will be looking at “Core Roles” such as Stream System Manager and Regional and Watershed Coordinator. The outcomes of the regional Storm Water Management Plan will greatly affect the stream restoration project and the how the lakes are managed. See Appendix E for the key elements of the proposed program. Updates will be provided in the Year 6 report.

Conduct Revised Retention Basin/Lake O&M Program

The City has entered into contract with the consultant CT Consultants for remediation of both dams for Green and Horseshoe Lakes. The remediation will include upgrades to the dams in order to bring them into compliance with the rules of the Ohio Department of Natural Resources (ODNR). Updates will be provided in the Year 6 report.

F. POLLUTION PREVENTION/GOOD HOUSEKEEPING

The pollution prevention/good housekeeping control measure will ensure that pollution from municipal sources is minimized and City employees are properly trained in the operations and maintenance of the storm water system. The Doan Brook Watershed Partnership also created a report called “Review of City of Shaker Heights Municipal Storm Water Management Practices and Policies”. The tasks identified for Year 5 of the Pollution Prevention\Good Housekeeping program include:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
• Review/Revise Current Vehicle Maintenance Program	Document changes made to program. Record dates of inspection, issues discovered, and dates corrected	Public Works Department
• Inspect and Maintain All City Vehicles	Record dates of inspection, issues discovered, and dates corrected	Public Works Department
• Review/Revise Current Facilities Maintenance Program	Document changes made to existing facility O&M	Public Works Department



- Inspect Facilities and Conduct Facility O&M Program Record dates of inspection, issues discovered, and dates corrected Public Works Department
- Review/Revise Current Street Sweeping Program Document the modifications made to the Street Sweeping program Public Works Department
- Conduct Revised Street Sweeping Program Document the miles of street cleaned, amount of trash removed and frequency of street cleaning Public Works Department
- Review/Revise Storm Sewer Inspection/Maintenance Program Document the modifications made to the Storm Sewer Inspection/Maintenance Program Public Works Department
- Conduct Revised Storm Sewer Inspection/Maintenance Program Document number of catch basins cleaned and date of inspections. Public Works Department

Review/Revise Current Vehicle Maintenance Program

The current vehicle maintenance program has been reviewed. No changes in the current have been made. All vehicles are regularly inspected to eliminate oil, grease, and fluid leaks. Work orders are put into a software program called Mainstar. Mainstar is a program that includes all capabilities for Preventive Maintenance, Master Schedules and Work Orders. Work orders track type of leaks, dates leaks occurred, target date for repair and actual dates of repair. This program is ongoing.

Inspect and Maintain All City Vehicles

All vehicles are regularly inspected to eliminate oil, grease, and fluid leaks. All workers are required to do pre-trip and post-trip inspection report for the vehicles they are responsible for. Any leaks that are offsite are cleaned up at the site by putting down a drying agent.

There were a total of 82 vehicle leaks that could be classified as oil, grease, and/or fluid. A report regarding these leaks is included in Appendix F.

Review/Revise Current Facilities Maintenance Program

The current facilities maintenance program complies with the Storm Water Management Program.



On September 20, 2007 the City Engineer attended a workshop entitled “Pollution Prevention & Good Housekeeping for Storm Water Program Managers and Service Departments”.

Inspect Facilities and Conduct Facility O&M Program

The City is continuing with its aggressive catch basin cleaning program and the reduction in use of road salt by not salting side streets unless warranted for safety reasons.

Review/Revise Current Street Sweeping Program

The City continues to use two Mechanical Broom Sweepers (1-Elgin Pelican and 1-Elgin Eagle). One Mechanical Broom Sweeper is dedicated to the streets south of South Woodland Road and the other is dedicated to the streets north of South Woodland Road. They sweep the entire City in a 3-week cycle. The 3-week cycle is deemed adequate and will be maintained.

In addition the City has sweepers follow behind the brush and leaf crews to insure the debris does not reach the catch basins.

Conduct Revised Street Sweeping Program

Approximately 112 miles of streets are cleaned during the 3-week cycle. Between January 2007 and October 2007 the City picked up 631,620 pounds or 316 tons of debris for an increase of 18% as compared to the numbers reported in the Fourth Annual Report (Year 4).

Review/Revise Storm Sewer Inspection/Maintenance Program

The City is continuing with its current storm sewer inspection and catch basin cleaning program.

Conduct Revised Storm Sewer Inspection/ Maintenance Program

- The City has completed cleaning all 4,214 catch basins in the system over a two-year period utilizing a contractor. The City staff cleaned 122 catch basins and removed 45.15 tons (90,300 lbs) as part of the City’s routine maintenance and catch basin repair program. A total of 192 manholes were inspected during the reporting period.
- A comprehensive storm main cleaning program has been implemented. Through this program 98,483 ft of storm main was cleaned for an increase of 12.5% as compared to the numbers reported in the Fourth Annual Report (Year 4).

2. Anticipated Activities for Year 6 (2008)

This section summarizes the storm water activities to be undertaken during Year 6 of the permit reporting cycle.



A. PUBLIC EDUCATION AND OUTREACH

The City will continue its partnership with the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes to educate the general public on the impact of storm water discharges and ways they can reduce pollutants. The tasks identified for Year 5 of the Public Education and Outreach program include:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
<ul style="list-style-type: none"> Continue to update Storm Water Page for City Website 	Document changes to the website	Communications Department
<ul style="list-style-type: none"> Continue to Publish Articles on Storm Water Page 	Document articles used and dates of publication	Communications Department
<ul style="list-style-type: none"> Continue to Publish/Distribute Brochures & Handouts 	Record number of copies of materials used, media source, and dates of publication	Communications Department/ DBWP/Nature Center at Shaker Lakes
<ul style="list-style-type: none"> Continue to Distribute Brochures/Handouts/ Conduct Public Education Program 	Document materials date of programs and those in attendance	Communications Department/ DBWP/Nature Center at Shaker Lakes

Storm Water Website

The City’s Communications Department has developed the framework for the Storm Water Management Page. The website will continue to be regularly updated.

A copy of the City’s most current SWMP will continue to be included on the City’s main website and will continue to be for review at City Hall and the Public Works department.

Educational Materials

The City has partnered with the Doan Brook Watershed Partnership and the Nature Center at Shaker Lakes in its effort to identify, develop and distribute brochures and handouts on storm water management to the media and public.

Section 1 listed several handouts, brochures and educational materials that are being distributed by the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes. These materials, listed below, will be continued during Year 6:

- Stream Monitoring.** Volunteers will collect stream monitoring/sampling data. The information will be posted in a database on the Nature Center’s website.



- **Media.** Information on Doan Brook and how to protect water quality will be provided to local newspapers and radio stations.
- **Brook Notes.** The Doan Brook Watershed Partnership will continue to publish its *Brook Notes* newsletter and expand its distribution to Shaker Heights residents.

Public Education Program

The City has partnered with the Doan Brook Watershed and the Nature Center at Shaker Lakes on public education programs and related activities in the region. Section 1 listed several existing public education programs that are being conducted by the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes. These programs, listed below, will be continued during Year 6:

- **Celebrate the Earth Festival.** Event where the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes will host booths and offer informational flyers and educational brochures.
- **Doan Brook Watershed Lecture.** The Director of the Doan Brook Watershed Partnership will make future lectures on the problems and opportunities for the Doan Brook Watershed and the latest efforts to protect and restore Doan Brook.
- **Get to Know Doan Brook.** The Nature Center’s Watershed Education Specialist will host a table at the Earth Science Fair.

B. PUBLIC PARTICIPATION AND INVOLVEMENT

The public involvement component of the City’s SWMP has been developed to gain support of the citizenry and involve all socio-economic groups. The tasks identified for Year 5 of the Public Participation and Involvement program include:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
• Public Notice Storm Water Meetings and Events	Document publication dates	Communications Department
• Conduct Community Education Programs	Document the community activities and program elements conducted	Communications Department/ Public Works Department/ DBWP/Nature Center at Shaker Heights



Public Notice of Meetings/Events

All storm water meetings held solely by the City have been publicized and open to the public. Events that have been conducted by the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes and sponsored by the City have been publicized on the City’s website. In the future, all storm water related events conducted by these entities will be listed on the City’s storm water webpage.

Community Education Programs

Programs have been developed and are being conducted in partnership with the Doan Brook Watershed and Nature Center at Shaker Heights for community activities including general education, cleanup programs, outdoor activities and other miscellaneous events.

Section 1 listed several existing community education programs that are being conducted by the Doan Brook Watershed Partnership and Nature Center at Shaker Lakes. These programs, listed below, will be continued during Year 5:

- **Doan Brook Community Cleanup.** Event held by the Doan Brook Watershed Partnership for picking up trash and improving the Doan Brook Watershed.
- **Parade the Circle in University Circle.** Parade where a booth will be staffed by personnel from the Nature Center at Shaker Lakes to provide information on urban pollution problems.
- **Music By-the-Brook.** Events hosted by the Doan Brook Watershed Partnership where informational brochures on Doan Brook will be distributed.

C. ILLICIT DISCHARGE DETECTION AND ELIMINATION

The illicit discharge detection and elimination control measure will work to detect and eliminate illicit discharges. The tasks identified for Year 4 of the Illicit Discharge Detection and Elimination Program includes:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
• Continue with Current Illicit Discharge Program	Document Program	Public Works Department
• Enforce New Illicit Discharge Program	Document number of illegal connections identified	Public Works Department



Illicit Discharge Detection Program

In December 2007 the City entered into a new two-year contract with Cuyahoga Board of Health (CCBH) in order to inventory the City’s MS4 outfalls. The CCBH will sample up to 25 pre-selected areas located within the storm sewer system for fecal coli form in 2008 and 2009.

D. CONSTRUCTION SITE RUNOFF CONTROL

The Construction Site Runoff Control component of the City’s SWMP will reduce pollutants in storm water runoff from construction sites. The City will continue with its current program, but will actively seek training opportunities for its regular staff.

E. POST-CONSTRUCTION RUNOFF CONTROL

Post-construction runoff controls are important in limiting the amount of silt and sediment that is discharged to local receiving streams. The City has limited existing policies addressing post construction runoff. The tasks identified for Year 5 of the Post-Construction Runoff Control program includes:

<u>Best Management Practice</u>	<u>Measurable Goals</u>	<u>Responsibility</u>
• Develop Post-Construction Runoff Ordinance	Enact post-construction runoff ordinance	Public Works Department/ Planning Department/DBWP
• Review/Revise Redevelopment Design Standards	Document revisions to design standards/policies	Public Works Department/ Planning Department/DBWP
• Implement Lake O&M Program	Development of a conceptual plan for stream restoration	Public Works Department/DBWP
• Conduct Lake O&M Program	Document progress of stream restoration	Public Works Department/DBWP

Develop Post-Construction Runoff Ordinance

The City is scheduled to adopt the model ordinances for Post-Construction Runoff by second quarter 2008. The development is currently in progress.

Review/Revise Redevelopment Design Standards

The City will continue to incorporate Post Construction BMP’s into future redevelopment projects.



Implement Lake O&M Program

The City will continue to partner with the Shaker Heights Country Club to develop a plan for the restoration of the portion of Doan Brook that runs through their property. The City will also work with the Country Club to find alternative sources for funding. The City will continue to work with the NEORS in the development of a regional storm water management program.

The City will also determine how the dam upgrades to Green and Horseshoe Lakes will be implemented.

F. POLLUTION PREVENTION/GOOD HOUSEKEEPING

The pollution prevention/good housekeeping control measure will insure that pollution from municipal sources is minimized and City employees are properly trained in the operations and maintenance of the storm water system.

The City will continue with its Pollution Prevention/Good Housekeeping practices such as street sweeping and vehicle inspections. The City will also seek any and all opportunities to improve.

Proposed Changes to the SWMP

None.