



**Report on the Onondaga County Water
Environmental Protection (WEP)
Green Improvement Fund (GIF) Maintenance
Records 2016 Audit**

By Onondaga County Comptroller Robert E. Antonacci II, CPA, Esq.

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SECTION I

EXECUTIVE SUMMARY AND BACKGROUND

Executive Summary of Findings and Recommendations

During our review we noted the following:

1. Lack of Department cooperation to provide the Comptroller's Office Internal Audit Division maintenance records and monitoring data on completed Green Improvement Fund (GIF) Projects for audit review.
2. Lack of Department cooperation to set up an entrance meeting with the Comptroller's Office Internal Audit Division to discuss the audit of GIF Maintenance Records.
3. In lieu of the Department nonresponse, 7 of 82 completed GIF projects involving the installation of porous pavement were chosen for testing. The Grant recipients were requested to submit office copies of all maintenance records for porous pavement. The results were no records received from 3 of the 7 tested; and the other 4 submitted some information requested, but not all.

Our high level recommendations to WEP Management for these areas include:

4. Department recognition of the authority of the County Charter stating the County Comptroller is authorized to periodically access and audit the procedures and records of County Departments.
5. Follow up with grant recipients to ascertain they are maintaining green infrastructure and obtaining the proper support documentation in order to achieve and maintain compliance with applicable water pollution control requirements and the terms of the Amended Consent Judgment.
6. Request maintenance documentation annually from grant recipients as support that at all times the green infrastructure is operated and maintained properly in a manner consistent with the GIF Program standards and procedures. Failure to maintain green will cost the County "green."
7. When inspecting properties, implement procedures to document inspections are performed.
8. Department Supervisor review maintenance and inspection checklist signed by the grant recipient to ascertain maintenance work has been done and the inspection performed by the subcontractor of CH2M Hill (contracted to provide consulting services in connection with the evaluation of "green" and "gray" infrastructure in meeting the remaining obligations of the Amended Consent Judgment, ACJ)

Background

History

In the late 1980's, the Atlantic States Legal Foundation (ASLF) filed a complaint in federal court alleging Onondaga County violated federal statutes governing the discharge of sewage from the County's Metropolitan Syracuse Wastewater Treatment Plant (Metro) and combined sewer overflow (CSOs) points. New York State and the New York State Department of Environmental Conservation (DEC) joined in the action alleging violations of state statutes.

A judgment on consent was entered on February 1, 1989 obligating the County to, inter alia, develop a plan ("Municipal Compliance Plan" or "MCP") that would bring the County's effluent discharges from Metro and the CSOs into compliance with the State's effluent limitations and water quality standards and implement such plan.

The County submitted a proposed MCP to the DEC and ASLF on January 11, 1996 and they concluded the proposed plan contained certain deficiencies and did not satisfy the requirements of the Consent Judgment and informed the County.

On January 20, 1998, an amended consent judgment (ACJ) was signed by the plaintiffs, State, DEC and ASLF and defendant Onondaga County where they agreed to the terms and conditions set forth in the agreement that would rectify the deficiencies in the proposed MCP and would establish a framework for the approval and timely implantation of the various upgrades and other measures that are needed to bring the County's effluent discharges from Metro and the CSOs into compliance with the State's effluent limitations and water quality standards.

The ACJ was subsequently amended by orders entered on May 1, 1998, December 14, 2006, April 25, 2008 and on November 16, 2009. According to the Fourth Stipulation and Order dated November 16, 2009 amending the Amended Consent Judgment, "the parties have concluded that the implementation of certain specific combined green and gray infrastructure projects to address the discharge of raw sewage from CSOs into Onondaga Creek and Harbor Brook in conjunction with other green/gray infrastructure projects yet to be fully or specifically designed, will provide additional benefits as compared to the use of gray infrastructure alone as provided by the ACJ in its current form. The State, ASLF and the County hereby agree and stipulate to the entry of this proposed order by the Court." A combination of the grey and green infrastructure projects will have to satisfy the requirements of the ACJ amended by the Fourth Stipulation and Order via CSO Compliance Schedule-Stages I (December 31,2013), II (December 31,2015), III (December 31, 2016) and IV (December 31,2018). CSO Compliance Schedule-Stage IV,14G, states "Beginning no later December 31, 2018, the County shall capture for treatment or eliminate, within the meaning of EPA's National CSO Control Policy, no less than 95.0% by volume, on a system-wide annual average basis, of the combined sewage generated during precipitation events."

The Fourth Stipulation and Order further states, "the County shall submit a report on an annual basis ("Annual Report"), no later than April 1st of each year starting on April 1, 2011, for DEC and ASLF review and DEC approval. To the extent applicable in any given year, the Annual Report shall set forth in detail the status and progress during the prior calendar year of the various gray and green programs and projects required under the ACJ as amended by this Stipulation and Order. The report shall also set forth in detail those gray and green programs and

projects that the County proposes to implement/construct to satisfy the requirements of the ACJ as amended by this Stipulation and Order, including proposals by the County to implement additional projects to address compliance shortfalls as requires pursuant to paragraph 14J.” This report includes operation and maintenance requirements.

The term Green Infrastructure (GI) per the Onondaga County Save the Rain website, “refers to engineered systems designed to capture, infiltrate and absorb stormwater where it lands, preventing it from entering the sewer system.” GI technologies include but not limited to: rain gardens, bioretention, dry wells, underground infiltration systems, green roofs, porous pavement, tree plantings, tree trenches, planter boxes, cistern systems and added green space.

GI projects include public, as well as, private owned projects (commercial, business and not-for-profit owned properties) in a specific geographical locations within the Clinton, Harbor Brook and Midland Combined Sewersheds (CSS).

Onondaga County’s Green Improvement Fund (GIF) supports the development of green infrastructure and stormwater mitigation techniques on private property. Eligible property owners can apply to receive financial incentives for the installation of Green Infrastructure (GI) Technologies. Grant funding is made available for project features associated with the installation of green infrastructure solutions and elements of the project that are needed to mitigate stormwater runoff. Upon completion of a project the Grantee must submit a claim for reimbursement. Funding is financed from Serial Bonds.

Application

The GIF application process is administered by Onondaga County Water Environmental Protection (WEP) on a rolling, first come/first serve basis. Any project owner seeking Green Improvement Funds must complete a GIF Application form and all required documents during the application period.

The application includes a section entitled “Minimum Green Infrastructure Maintenance Requirements” informing the applicant he/she is responsible for proper maintenance of the green infrastructure installed and minimum level of maintenance to be performed. In the revised 2016 application, the following was added to this section, “The Applicant agrees to allow WEP or its representatives access to the project site for maintenance inspections, and if necessary, follow-up inspections. If inspections reveal that the Applicant is neglecting maintenance of the GI elements and effecting intended functionality, the Applicant agrees to allow WEP to complete the appropriate maintenance and bill the Applicant for the costs of doing so.” In the revised 2017 application, the following sentence was revised to read, “The Applicant agrees to allow WEP or its representatives access to the project site for maintenance inspections in the spring (April to May) and fall (October to November) of each year, and if necessary, follow-up inspections.”

Contract

Once a GIF project has been recommended for an award by WEP, a formal “Green Improvement Fund Terms and Conditions” contract agreement is signed by the County and the Applicant. It includes the clause stating, “Recipient understands and agrees that upkeep of green infrastructure components funded pursuant to this Agreement and the long term retention of the environmental benefits of the green infrastructure components funded pursuant to this Agreement are critical to

the COUNTY's long term ability to achieve and maintain compliance with applicable water pollution control requirements and the terms of the Amended Consent Judgment through which this Program is authorized.”

With the GIF contract, the recipient must also sign a Maintenance Agreement/Acknowledgement that includes the statements, “I am solely responsible for proper maintenance of the green infrastructure installed pursuant to the Agreement. I agree to maintain, preserve and keep the green infrastructure, or cause the green infrastructure to be maintained, preserved and kept in good repair and working order, shall provide proper maintenance documentation upon request and shall make or cause to be made all necessary repairs, replacements and renewals so that at all times the green infrastructure is operated and maintained properly in a manner consistent with the GIF Program standards and procedures.”

After Green Infrastructure Construction has been approved and a Certificate of Completion is issued, one of the documents the Grantee must provide for reimbursement is the Maintenance Phase Agreement/Acknowledgement. This long-term agreement includes the statement, “I agree that the effective term of the Maintenance Phase commences on the date of issuance of the Green Improvement Fund Certificate of Completion and thereafter for a period of ten (10) continuous years.” The Grantee agrees he/she is solely responsible for proper maintenance of the green infrastructure installed and agrees to maintain, preserve, and keep the green infrastructure, or cause the green infrastructure to be maintained, preserved and kept in good repair and working order, provide proper maintenance documentation upon request and make all necessary repairs, replacements and renewals so at all times green infrastructure is operated and maintained properly in a manner consistent with the GIF Program standards and procedures. The Grantee must also demonstrate he/she has a maintenance plan for the GIF Project.

Maintenance Tracking

In the 2011-2012 ACJ Annual Report prepared by WEP, Sections 3.2.5 and 4.1.4 GI (Green Infrastructure) O (Operation) & (Maintenance) Requirements includes the statement, “The County will track and schedule GI O & M tasks utilizing its Maximo asset management system.”

In the 2013 ACJ Annual Report prepared by WEP, Section 4.2.4 Green Infrastructure O & M Requirements includes the statement, “In 2014, Onondaga County will be conducting inspections of maintenance on previously completed private projects to ensure that the maintenance is being completed properly and at the required frequency.”

In the 2014 ACJ Annual Report prepared by WEP, Section 6.2.3 GIF Program Maintenance states the following, “In the spring, completed GIF project applicants were contacted to schedule routine maintenance follow-up visits. The site visits were conducted by GIF technical staff and applicants were required to provide proof of maintenance on-site (documentation) or provide a schedule for when maintenance procedures would be completed. In some cases, the site visits allowed applicants to obtain additional information to assist them in meeting maintenance requirements. Additionally, GIF technical staff worked with applicants in the fall on maintenance requirements and completion. GIF technical staff continuously track ongoing applicant maintenance efforts. The maintenance program is a key element in the long term success of the GIF program. The continued functionality of green infrastructure projects on

private property will reduce pollution entering the local sewer system and protect the County's investment in the GIF program.”

In the 2015 ACJ Annual Report prepared by WEP, Section 6.2.3 GIF Program Maintenance states the following, “In the spring, completed GIF Project applicants are contacted to schedule routine maintenance follow-up visits. The site visits are conducted by County representatives and applicants are required to provide proof of maintenance on-site (documentation) or provide a schedule for when maintenance procedures would be completed. In some cases, the site visits allow applicants to obtain additional information to assist them in meeting maintenance requirements. County representative work with applicants in the fall on maintenance requirements and completion of annual record keeping. GIF technical staff continuously track ongoing applicant maintenance efforts. The maintenance program is a key element in the long term success of the GIF Program. The continued functionality of green infrastructure projects on private property will reduce pollution entering the local sewer system, reduce CSOs and protect the County's investment in GI.”

In the 2016 ACJ Annual Report prepared by WEP, Section 6.2.3 GIF Program Maintenance includes the same information noted in the 2015 ACJ Annual Report noted above and the following, “If the site visits reveal that the Owner is neglecting maintenance of the green infrastructure elements and that this neglect is affecting intended functionality as it relates to CSO mitigation, the County will complete the appropriate maintenance and reserve the right to bill the Owner for the costs of doing so. The following clause was added to the GIF Application in 2016: *If inspections reveal that the Applicant is neglecting maintenance of the GI elements and affecting intended functionality, the Applicant agrees to allow WEP to complete the appropriate maintenance and bill the Applicant for the costs of doing so.*”

GIF Maintenance Tracking Sheets are attached to the 2014-2016 ACJ Annual Reports, however, not to the 2011-2013 ACJ Annual Reports.

Noted on the Save the Rain website is a Save the Rain Program Green Infrastructure Maintenance Manual dated April 2013 (prepared by CH2M Hill for Onondaga County) with Standard Maintenance Procedures (SMP) for green infrastructure. See Exhibit L for porous pavement and porous paver standard maintenance procedures from this manual.

SECTION II

SCOPE AND METHODOLOGY

SCOPE AND OBJECTIVES

The purpose of this audit is to ascertain GIF Recipients are maintaining green infrastructure and providing proper maintenance documentation upon request as required by Maintenance Agreement/Acknowledgement and Maintenance Phase Agreement/Acknowledgement.

Objective:

- Review GIF Contract Agreement and Maintenance Agreement/Acknowledgement.
- Review Maintenance Phase Agreement/Acknowledgement.
- Review maintenance records received by WEP from Grantees to ascertain compliance with the GIF Program.
- Review documentation to support WEP's oversight of GIF Projects as noted in their Annual Reports.
- Provide WEP and County Management with recommendations related to GIF maintenance.

METHODOLOGY

In order to complete our objectives:

- Requested from WEP maintenance records received from Grantees. However, nothing was provided to us.
- Attempted to set up an audit meeting with WEP to discuss the audit of maintenance records, but received no response.
- In lieu of the above, we contacted 7 grantees who installed porous pavement and asked for maintenance records.
- Finalized recommendations and included them in this report.

SECTION III

FINDINGS AND RECOMMENDATIONS

Findings and recommendations as a means to assist management and staff:

- A. According to the Onondaga County Charter, the County Comptroller is authorized to periodically access and audit the procedures and records of County Departments. The Onondaga County Department of Water Environment Protection (WEP) was non responsive to an Audit request dated November 13, 2015 (Exhibit A) for Green Improvement Fund (GIF) maintenance and monitoring records, and to requests made March 30, 2016 (Exhibit B) and April 14, 2016 (Exhibit C) to set up an entrance meeting to discuss an audit of GIF Maintenance Records. See Appendix for other information as well.

Recommendation

1. *We recommend WEP comply with the County Charter.*
- B. According to the Maintenance Phase Agreement/Acknowledgement long term agreement signed by the GIF recipient, he/she agrees that the “effective term of the Maintenance Phase commences on the date of issuance of the Green Improvement Fund Certificate of Completion and thereafter for a period of ten (10) continuous years. The Grantee also agrees he/she is solely responsible for proper maintenance of the green infrastructure installed and agrees to maintain, preserve, and keep the green infrastructure, or cause the green infrastructure to be maintained, preserved and kept in good repair and working order, provide proper maintenance documentation upon request and make all necessary repairs, replacements and renewals so at all times green infrastructure is operated and maintained properly in a manner consistent with the GIF Program standards and procedures.”

In lieu of WEP’s nonresponse, 7 of 82 completed projects (Source: GIF Tracking Database dated February 10, 2016 from the CH2M Hill SharePoint Website) were chosen for testing. The 7 Grant recipients who installed porous pavement were asked to provide maintenance documentation to include, but not limited to, receipts, invoices, and contracts for vacuum sweeping, logs of maintenance activity, responses to Onondaga County Water Environment Protections inquiries on said maintenance, and reports of annual inspections. We noted the following:

- 1 of 7 grant recipients did not respond or provide maintenance documentation
- 2 of 7 grant recipients responded, but no maintenance documentation provided

- 4 of 7 grant recipients who did respond provided partial maintenance documentation
 - Of the 4, 1 recipient stated, “In regards to the annual inspections and responses to Onondaga County Water Environment Protection, this is the first request I have received since my employment began in December 2013.” However, Internal Audit noted according to the 2015 and 2016 GIF Maintenance Tracking Sheets included in the ACJ Annual Report completed by WEP, this person is the point of contact.
 - For 2 of the 4 asked for additional information, nothing was received.
 - See Compliance Chart (Exhibit D).

Recommendation

2. *We recommend WEP follow up with grant recipients to ascertain they are maintaining green infrastructure and obtaining the proper support documentation in order to achieve and maintain compliance with applicable water pollution control requirements and the terms of the Amended Consent Judgment.*

WEP’s Administration should implement internal controls to ensure the proper documentation is maintained to support its inspection efforts, such as, taking pictures; and upon receipt of the checklist signed by the grantee confirming maintenance and inspection has been done, WEP Staff and Management should review, date and sign it. (We understand a subcontractor of CH2M Hill performs the inspections, gives the checklist to the grantee to sign and then returns it to WEP to keep on file.)

Department Supervisor review maintenance and inspection checklist signed by the grant recipient to ascertain maintenance work has been done and the inspection performed by the subcontractor of CH2M Hill (contracted to provide consulting services in connection with the evaluation of “green” and “gray” infrastructure in meeting the remaining obligations of the Amended Consent Judgment, ACJ).

- C. Projects tested were completed in the years 2010-2012, however maintenance inspections by WEP representatives did not start until 2014 per the 2014 ACJ Annual Report. A review of WEP’s comments in the 2014-2016 GIF Maintenance Tracking Sheets (Exhibits E-K, the project numbers 1-7 on the exhibits refer to the number sequence for testing, not the GIF numbers) attached to the ACJ Reports notes maintenance inspections not completed for 5 of the 7 tested for 2014 and 2 of 7 for 2015. For 2016, maintenance inspections were completed for the 7 tested and all grantees signed the maintenance and inspection checklist except 1.

Since WEP would not provide Internal Audit with maintenance records, we have no actual proof maintenance and inspections were done.

Recommendation

3. *We recommend WEP comply with the County Charter by supplying maintenance and inspection records requested by the Comptroller's Office Internal Audit Division to prove compliance with the Contract terms and Maintenance Phase Agreement/Acknowledgement.*

- D. Currently, once a GIF project is successfully completed, a Certificate of Completion is issued by WEP and then the Grantee submits a claim form with supporting documentation requesting payment. Funding awarded under the GIF program will be disbursed in a one-time, lump sum reimbursement payment to the Grantee (per Project Description and Application).

Recommendation

4. *We recommend WEP consider a new policy of holding 10% from the claim. Once a Grantee proves to WEP proper maintenance has been performed, the remaining 10% will be released. This will provide an incentive to comply with the required maintenance.*

SECTION IV
EXHIBITS



Robert E. Antonacci II, CPA
Comptroller

Exhibit A

COUNTY OF ONONDAGA

Office of the

County Comptroller

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421 Montgomery Street
Syracuse, New York 13202-2998
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James V. Maturio
Deputy Comptroller

November 13, 2015

Water Environment Protection
Attn: Madison M. Quinn
650 Hiawatha Blvd West
Syracuse, New York 13204

Re: *Audit of Green Improvement Fund Maintenance Records*

Dear Ms. Quinn,

Pursuant to the County Charter the County Comptroller is authorized to periodically access and audit the procedures and records of County Departments. As such, we have chosen to conduct a review of records maintained by your office regarding Green Improvement Fund ("GIF") projects records.

GIF grants are provided to privately-owned properties to install green infrastructure technologies. As part of the agreement between the County and the private land owner, your office is entitled to request and maintain records regarding the maintenance of the green infrastructure to ensure their ongoing operation and compliance.

To expedite this review, I am requesting that you provide the following:

- 1) A list of all projects completed with the assistance of a GIF grant;
- 2) Copies of all requests for maintenance records and monitoring data for said completed projects; and
- 3) Responses to all requests for said records.

The requested documents may be provided in an electronic format. If they are only available in a hard-copy format, please contact me so arrangements can be made for their review and/or retrieval. Please provide the requested information by November 30, 2015.

The audit is estimated to take approximately three to five weeks to complete. A draft audit report, including our findings and recommendations, will be sent to you for your response.

Thank you for your time and consideration throughout this matter. Should you have any questions or concerns, please do not hesitate in contacting me directly.

Sincerely,



T.R. Schepp
Deputy Onondaga County Comptroller for Audit

Exhibit B
COUNTY OF ONONDAGA



Robert E. Antonacci II, CPA
Comptroller

*Office of the
County Comptroller*

John H. Mulroy Civic Center, 14th Floor
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James V. Maturio
Deputy Comptroller/Accounting

Thomas R. Schepp II
Deputy Comptroller/Audit

March 30, 2016

Martin Voss, Administrative Director
Water Environment Protection
650 Hiawatha Blvd. West
Syracuse, New York 13204-1194

Dear Mr. Voss:

This letter is to inform you the Comptroller's Office Internal Audit Division will be conducting an audit of Green Improvement Fund (GIF) Maintenance Records. We would like to set up an entrance meeting within the next two weeks to discuss the audit.

Please contact Linda Marnell, Auditor II at extension 2130 to set up the entrance meeting.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Schepp", with a long horizontal flourish extending to the right.

Thomas R. Schepp, Deputy Comptroller/Audit

cc: Robert E. Antonacci II, CPA



Robert E. Antonacci II, CPA
Comptroller

Exhibit C
COUNTY OF ONONDAGA

Office of the
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James V. Maturo
Deputy Comptroller/Accounting

Thomas R. Schepp II
Deputy Comptroller/Audit

April 14, 2016

Martin Voss, Administrative Director
Water Environment Protection
650 Hiawatha Blvd. West
Syracuse, New York 13204-1194

Dear Mr. Voss,

This is in follow up to the attached letter dated March 30, 2016 whereby we asked to set up an entrance meeting with you to discuss an audit of Green Improvement Fund (GIF) Maintenance Records. As of this writing, we have received no response.

Please contact Linda Marnell, Auditor II at extension 2130 by Thursday, April 21, 2016 to set up the entrance meeting.

Sincerely,

Thomas R. Schepp, Deputy Comptroller/Audit

cc: Mary Beth Primo, Deputy County Executive for Physical Services
Tom Rhoads, Commissioner of WEP
Madison Quinn, Project Coordinator-WEP
Robert E. Antonacci II, CPA, Comptroller

Exhibit D

Test Project	Year Project Completed	Contracts for Vacuum Sweeping	Receipts/Invoices with Service Date	Logs of Maintenance Activity	Responses to Inquires by WEP of said Maintenance	Reports of Annual Inspections	In Compliance
1	2010	None received	None received	None received	None received	None received	③
2	2011	②	None received	None received	None received	None received	③
3	2010	None received	None received	None received	None received	None received	③
4	2011	None received	None received	None received	None received	None received	③
5	2010	None received	①	None received	None received	None received	③
6	2011	None received	Yes,2016	None received	None received	None received	③
7	2012	None received	Yes,2015,①	None received	None received	None received	③

Year Project Completed sources: Onondaga County Green Improvement Fund Tracking Database dated 2/10/16 from CH2M Hill SharePoint Website for project #s 1-5 & 2015 GIF Maintenance Tracking Sheet attached to 2015 Annual Report completed by WEP for project #s 6 and 7.

- ① Per an undated letter received by Audit from sweeping vendor it states porous pavement driveways have been swept with a regenerative air sweeper in 2014 and 2015 and scheduled for 2016 in 7 days. No invoices received.
- ① Email dated 5/12/16 from grantee management states parking lot was also maintained/swept on April 4 & May 7, 2016, but no invoice support received. Manager also stated, "In regards to the annual inspections and responses to Onondaga County Water Environment Protection, this is the first request I have received since my employment began in December 2013."
- ② Audit received a copy of a proposal signed by grantee management on 5/23/16 agreeing to have sweeping vendor vacuum brick pavers using a regenerative air vacuum.
- ③ Unable to determine compliance because little or no maintenance documentation was received to prove compliance for all years starting from the project completion date and forward.

Exhibit E

Project 1 Completed 2010

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	TBD	Coordinating maintenance activities with applicant.	Applicant contacted, maintenance to be conducted in Spring 2015.
2015	12/1/15,12/18/15, 2/18/16	2/23/2016	Basic maintenance has been completed for Fall 2015. The owner will be replacing soil medium/dead plants as outlined in the inspection.	Inspection completed for 2015 season. Follow up in the Spring 2016.
2016	Phone call 11/18-20/16.Email 12/8/16	11/21/2016	Fall maintenance completed per plan.	Inspection completed, checklist signed.

Exhibit F

Project 2 Completed 2011

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	TBD	Coordinating maintenance activities with applicant.	Applicant contacted, maintenance to be conducted in Spring 2015.
2015	12/1/15,12/18/15,1/8/16,2/1/16	2/26/2016	*	Applicant contacted, maintenance to be conducted in Spring 2016.
2016	Phone call 11/18-20/16.Email 12/8/16	11/19/2016	Fall maintenance completed per plan.	Inspection completed, checklist signed.

* blank per GIF Maintenance Tracking Sheet

Exhibit G

Project 3 Completed 2010

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	TBD	Coordinating maintenance activities with applicant.	Applicant contacted, maintenance to be conducted in Spring 2015.
2015	12/1/15, 12/19/15	12/19/15,2/1/16	*	Applicant contacted, maintenance to be conducted in Spring 2016.
2016	Phone call 11/18-20/16.Email 12/8/16	11/19/2016	Appears fall maintenance completed per plan.	Inspection completed.Unable to get in touch with applicant for completing checklist.

* blank per GIF Maintenance Tracking Sheet

Exhibit H

Project 4 Completed 2011

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	5/14/2014	Basic rain garden maintenance has been performed by applicant. The applicant is scheduling the sweeping for the porous concrete lot and will forward invoices for GIF records.	Applicant contacted, maintenance to be conducted Spring 2015.
2015	12/1/2015	12/21/2015	Basic maintenance has been completed for Fall 2015. Rain Garden area was weeded, trash/litter was removed, and dead/dying plants were replaced.	Inspection completed for 2015 season.
2016	Phone call 11/18-20/16. Email 12/8/16	11/19/2016	Fall maintenance completed per plan.	Inspection completed, checklist signed.

Exhibit I

Project 5 Completed 2010

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	6/4/2014	Basic maintenance has been completed for the Spring and Fall 2014. Regular weeding has been carried out by the owner. Leak was fixed in 2013 by owner and hasn't noticed an issue to date.	Inspection complete for 2014. Follow up with applicant in Spring 2015.
2015	12/1/15, 12/19/15	12/30/2015	Basic maintenance has been completed for Fall 2015.	Inspection completed for 2015 season.
2016	Phone call 11/18-20/16. Email 12/8/16, Call 12/21	11/19/2016	Fall maintenance completed per plan.	Inspection completed, checklist signed.

Exhibit J

Project 6 Completed 2011

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	6/3/2014	Applicant was not present at maintenance meeting. Basic maintenance has been completed. Follow up with applicant for Fall of 2014 sweeping schedule.	Applicant contacted, maintenance to be conducted in Spring 2015.
2015	12/1/15, 12/18/15	12/28/2015	Basic maintenance has been completed for Fall 2015.	Inspection completed for 2015 season. Follow up in the Spring of 2016.
2016	Phone call 11/18-20/16. Email 12/8/16	11/19/2016	Fall maintenance completed per plan.	Inspection completed, checklist signed.

Exhibit K

Project 7 Completed 2012

The following is from the GIF Maintenance Tracking Sheet attached to the ACJ Annual Report prepared by WEP for each year:

Year	Initial contact with applicant	Site visits	Maintenance Work Completed	Comments
2014	3/7/2014	Bi-Annual maintenance documentation provided by applicant.	Porous pavement maintenance is performed every 6 months. The applicant will reach out to CH2 when next sweeping will take place. Rain garden was cleared of debris and weeds.	Inspection completed for 2014 season. Follow up with applicant in Spring 2015.
2015	12/1/15,12/17/15,12/29/15,1/5/16	1/5/2016	Basic Maintenance has been completed for 2015 maintenance season.	Inspection completed for 2015 season.
2016	Phone call 11/18-20/16.Email 12/8/16	11/21/2016	Fall maintenance completed per plan.	Inspection completed, checklist signed.

Save the Rain: Green Infrastructure Program Standard Maintenance Procedure (SMP)

SMP-01: Porous Pavement Vacuuming

Porous Pavement Vacuuming is done in order to remove sediment that may lead to a clogging of the porous surface, preventing water from infiltrating through the pavement into the stone reservoir.

Porous Pavement Vacuuming applies to several types of porous pavements described below:

- **Porous Pavers:** an alternative to traditional hardscape paving which allows water to infiltrate between the pavers and through permeable layers below ground. When vacuuming porous pavers, the setting should be adjusted to a lower power in order to prevent complete removal of aggregate between voids (unless more intensive vacuuming is required to alleviate clogged areas).
- **Porous Concrete:** a type of concrete that has a high porosity due to an increased void space to facilitate water infiltration through the porous concrete into a stone reservoir and then into the ground.
- **Porous Asphalt:** a type of asphalt that has a high porosity due to an increased void space to facilitate water infiltration through the porous asphalt into a stone reservoir and then into the ground.
- **Flexible Porous Pavement (e.g., Flexipave):** a type of porous pavement that has a high porosity due to an increased void space to facilitate water infiltration through the porous pavement into a stone reservoir and then into the ground. This porous pavement is made from recycled rubber (tires) that is mixed with a bonding agent and aggregate and is somewhat flexible when weighted movement is applied on its surface.

Type of Maintenance: Preventative

Tools and Supplies:

- Porous pavement vacuum
- Water source
- Safety cones, trash bags, gloves, street broom

Frequency: Semi-Annually for Porous Concrete, Porous Asphalt, Flexible Porous Pavement
Annually for Porous Pavers (Spring)

Labor Requirements: 2 people for approximately 2 hours per acre

Maintenance Procedure (numbers correspond with Maximo sequencing):

- 10 **Safety set-up:** Set up safety perimeter. Ensure that no vehicles are parked in the vicinity of the location and that area is closed to the public. Public notice announcing area closing needs to be posted per City/County standards of notification.
- 20 **Inspect:** Visually inspect porous pavement for damage, including holes, cracks, excessive scuffing, settlement, and areas of standing water. Inspect status of aggregate between voids in porous pavers before and after vacuuming to see if additional replacement aggregate is needed. Record observations/damage in the **Maintenance Report Log**, include photos if possible, and report as necessary.
- 30 **Prepare site for vacuuming:** Remove (by hand) bulky debris and waste materials from surface of porous pavement that may be too large to be picked up and/or block/clog the vacuum hose (i.e. litter, tree

Exhibit L (continued)

branches, wire, car parts) prior to using vacuum. Use a rigid street broom to loosen debris as needed. Pay particular attention to pavement edges and heavily loaded areas.

40 **Vacuum:** Vacuum porous pavement per the vacuum manufacturer recommendations.

Note: If vacuuming porous pavers, set vacuum at a lower power in order to prevent complete removal of aggregate between voids (unless more intensive vacuuming is required to alleviate clogged areas). Vacuum machine speed should be adjusted so that the vacuum draws out the first inch or so of stone and dirt in the openings between porous pavers, as this is where most unwanted sediment/debris typically collects.

Follow all steps in the Manufacturer's Operation Checklist for the specified vacuum.

41 Engage the Water Feature/ Water Dust Control Option of the vacuum (or equivalent on specific vacuum model).

42 Drive the vacuum over the porous pavement, operating at a slow speed setting not greater than 5 miles per hour. Overlap the edges of the vacuum runs and make two passes over the entire porous pavement area.

43 Frequently check and empty the filter bag (located above the debris bag) when vacuuming areas with excessive sediment.

50 **Post-vacuuming inspection:** After two passes, visually inspect porous pavement to ensure adequate debris removal. Any areas with visible debris/sediment still present should be vacuumed again until debris is removed. In the event that the surface of the porous pavement becomes clogged with fine dirt or sand, follow maintenance tasks outlined in **SMP-02 Porous Pavement Power Washing**. Record observations in the **Maintenance Report Log**.

60 **Review checklist:** Follow all steps in the post-operation checklist for the specified vacuum.

70 **Measure debris removal prior to disposal:** Remove material/debris from vacuum bag and hopper and put into a labeled trash bag. Label bag with date and project location, and note the weight on the **Maintenance Report Log**.

80 **Clean up:** Clean up work area and vacuum equipment (per Manufacturer's Operation Manual).

90 **Safety completion:** Remove safety perimeter and re-open lot for parking/public access.

Save the Rain: Green Infrastructure Program Standard Maintenance Procedure (SMP)

SMP-02: Porous Pavement Power Washing

Porous Pavement Power Washing applies to several types of porous pavements described below. Power washing should be done if porous pavement surfaces become clogged with fine dirt or sand. Power washing of the pavement surface allows partial restoration of the original void space and therefore permeability and should immediately follow the porous pavement vacuum task (once every three years or more often as necessary). Power washing of porous pavers should never occur as it may damage pavers and/or remove aggregate between pavers.

- **Porous Concrete:** a type of concrete that has a high porosity due to an increased void space to facilitate water infiltration through the porous concrete into a stone reservoir and then into the ground.
- **Porous Asphalt:** a type of asphalt that has a high porosity due to an increased void space to facilitate water infiltration through the porous asphalt into a stone reservoir and then into the ground.
- **Flexible Porous Pavement (e.g., Flexipave):** a type of porous pavement that has a high porosity due to an increased void space to facilitate water infiltration through the porous pavement into a stone reservoir and then into the ground. This porous pavement is made from recycled rubber (tires) that is mixed with a bonding agent and aggregate and is somewhat flexible when weighted movement is applied on its surface.

Type of Maintenance: Preventative

Tools and Supplies

- Power washer
- Water source
- Safety cones, trash bags, gloves, street broom

Frequency: Once every three years (perform immediately after thorough vacuuming) or more frequently if necessary, recommended time is Spring.

Labor Requirements: 2 people for approximately 2 hours per acre

Maintenance Procedure (numbers correspond with Maximo sequencing):

- 10 **Safety set-up:** Set up safety perimeter. Ensure that no vehicles are parked in the vicinity of the location and that area is closed to the public. Public notice announcing area closing needs to be posted per City/County standards of notification.
- 20 **Inspect:** Visually inspect porous pavement for damage, including holes, cracks, settlement, excessive suffing/traveling and areas of standing water. Record observations/damage in the **Maintenance Report Log**, include photos if possible, and report as necessary.
- 30 **Prepare site for power washing:** Remove (by hand) bulky debris and waste materials from surface of porous pavement that may block or impede power washer access to the surface (i.e. litter, tree branches, wire, car parts). Use a rigid street broom to loosen debris as needed. Pay particular attention to pavement edges and heavily loaded areas.
- 40 **Power wash:** Follow manufacturer's recommendations for use of the power washer unit with the clarifications noted below. Ensure that the water inlet valve and pump are both on.

Exhibit L (continued)

- 41 Set the pressure levels to be no greater than 500 PSI.
- 42 Perform two passes over surface of pavement, with wand spraying at a 45 degree angle. Do not keep water flow on one location for longer than 5 seconds.
- 50 *Vacuuming:* Power washing may need to be followed immediately by vacuuming. Refer to SMP-01 Porous Pavement Vacuuming for detailed instructions. If sediment is exposed (brought to the surface) during power washing, this sediment must be immediately removed through vacuuming instead of allowing the sediment to migrate and re-enter the porous pavement.
- 50 *Post-power washing inspection:* Visually inspect porous pavement to ensure adequate sediment/debris removal. Any areas with visible debris/sediment still present should be washed again until debris is removed. Note if water remains ponded in any areas of the porous pavement. Record observations in the Maintenance Report Log.
- 60 *Store equipment:* Shut off pump and return hose and wand to proper storage place.
- 70 *Safety completion:* Remove safety perimeter and re-open lot for parking/public access.

Save the Rain: Green Infrastructure Program Standard Maintenance Procedure (SMP)

SMP-03: Porous Paver Maintenance (Restoring Aggregate)

Porous pavers are an alternative to traditional hardscape paving which allows water to infiltrate between the pavers and through the permeable layers below them. Pavers are laid out on the surface and clean-washed aggregate material (also called screening or gravel) are placed in the spaces (voids) between paver units to provide stability and surface drainage while keeping unwanted debris out of the system. This SMP refers specifically to the task of refilling the voids between pavers with additional aggregate material to replace any material that has been lost by vacuuming and/or due to natural migration, settlement, and erosion.

Type of Maintenance: Preventative

Tools and Supplies

- Safety cones
- Rigid Street Broom
- Shovel
- Manhole Pick
- Wheelbarrow
- Clean-washed small aggregate (gravel) per project specifications

Frequency: As needed when gravel infill is not within ½ inch of the paver surface, immediately following vacuuming

Labor Requirements: 2 people for approximately 3 hours per acre

Maintenance Procedure (numbers correspond with Maximo sequencing):

- 10 *Safety set-up:* Set up safety perimeter. Ensure that no vehicles are parked in the vicinity of the location and that area is closed to the public. Public notice announcing area closing needs to be posted per City/County standards of notification.
- 20 *Inspect:* Visually inspect porous pavers for damage, including broken pavers, cracks, settlement, and any areas of standing water or evidence of standing water. Inspect status of aggregate infill material in the voids between porous pavers to see if additional replacement aggregate is needed. Evaluate if voids (joints) between porous pavers are clogged or not

Inspect to see if pavers themselves are missing from any areas and note need for replacement pavers. Record observations/ damage in the Maintenance Report Log, include photos if possible, and report as necessary.
- 30 *Prepare site:* Remove (by hand) bulky debris and waste materials from surface of pavers.
- 40 *Cleaning Clogged Voids:* If voids (joints) between porous pavers are still clogged even after area has been vacuumed (**SMP-01 Porous Pavement Vacuuming**), use a manhole pick to tool out joint until clean aggregate is found. Follow aggregate replacement instructions below.
- 40 *Add aggregate:* Using a shovel, spread aggregate over the surface of the pavers. Using a broom, sweep aggregate into the voids between porous paves, taking care to fill in any obvious holes. Once the aggregate

Exhibit L (continued)

has been added to the pavers, and the voids have been filled, perform a final sweeping pass with the hand broom to remove any excess gravel from the paver surface.

50 *Clean up:* Clean-up work area.

60 *Safety completion:* Remove safety perimeter and re-open area for parking/public access.

Save the Rain: Green Infrastructure Program Standard Maintenance Procedure (SMP)

SMP-08: Winter Maintenance for Porous Pavements

During the winter, porous pavement surfaces require different maintenance practices from standard pavement surfaces in order to maintain performance and promote infiltration. Specifically, sanding of porous pavement surfaces is prohibited, salting must be minimal, and plow blade heights may need to be set higher in some instances. In addition, plowed snow should not be stockpiled directly on top of porous pavement if possible.

Type of Maintenance - Preventative

Tools and Supplies

- Truck with snow plow
- Salt/Deicers and appropriate machinery as needed
- Hand shovel

Frequency: As necessary following snowfall or icy conditions

Labor Hours: 2 people for approximately 1-2 hours per acre (varies with snow conditions)

Maintenance Procedure (numbers correspond with Maximo sequencing):

- 10 *Safety set-up:* Set up a safety perimeter
- 20 *Inspect:* Visually inspect entire area to be plowed prior to plowing snow and/or salting the porous pavement surface. Refer to project site plan if necessary to identify location of landscape elements and porous pavement surfaces. Note presence of trees, shrubs, landscape features, and wheel stops or bollards so that plow does not hit them during plowing and cause physical damage. Record observations in the Maintenance Report Log and report as necessary. If possible, take photographs to document site conditions.
- 30 *Remove trash/debris:* Remove any large debris and trash from porous pavement surface prior to plowing.
- 40 *Plow:* If plowing on top of porous pavers, raise plow blade to a slightly higher level (1" higher) than for other types of porous pavement (asphalt, concrete, or flexipave) to prevent the plow from catching paver edges and dislodging paver units. If possible, it is recommended that a rubber plow blade be used for plowing porous pavement surfaces.
- 50 *Storage of snow piles:* If possible, do not leave plowed snow piles on top of porous pavement surfaces to melt. This may result in sediment from the plow operations entering the porous pavement which can lead to clogging. Move snow piles to standard/conventional pavement area or to grassy/lawn area nearby. Refer to project site plan if necessary to identify location of landscape elements, porous and non-porous pavement surfaces, and snow stockpiling areas.

Exhibit L (continued)

- 60 *Salting:* Use road salt in moderation on porous pavement surfaces. If possible, use an environmentally-safe road salt/deicer. Use approximately only 25% of the amount of deicing salt that is routinely applied to standard pavement parking lots or as needed to maintain acceptable driving conditions. (This is approximately a 75% reduction in salt use that is recommended).

Recommended Environmentally Safe Road Salts: Calcium magnesium acetate (CMA) and potassium acetate (KA) are highly recommended. A second suggestion is calcium chloride (CaCl₂), which is similar to sodium chloride but can be used in smaller amounts. A mix of sodium chloride or calcium chloride and CMA or KA is better than one of the salts alone. Recommended products include GEOMELT, ECO Salt, and GEOSALT.

- 70 *Record:* Make note of any unrecorded observations in the Maintenance Report Log.
- 80 *Safety completion:* Remove safety perimeter.

SECTION V

APPENDIX

APPENDIX

- In an engagement letter dated 11/13/15 from the Deputy Comptroller/Audit, he requested from the Project Coordinator-WEP (1) a list of all projects completed with assistance of a GIF grant, (2) Copies of all requests for maintenance records and monitoring data for said completed projects, and (3) responses to all requests for said records by 11/30/15 for audit according to the County Charter.
- Follow up email from the Deputy Comptroller/Audit to the Project Coordinator-WEP on 12/1/15 noting documents requested previously were not received by 11/30/15. The Commissioner of WEP was copied on this email.
- Email dated 12/7/15 from the Deputy Comptroller/Audit to the Commissioner of WEP in follow up to the GIF maintenance audit request first made 11/13/15 to WEP; and follow up to a conversation between the Deputy Comptroller/Audit and the Commissioner of WEP that the Deputy County Executive would send the Deputy Comptroller/Audit a note or letter on the matter, but nothing was received to date.
- Email dated 12/10/15 from the Deputy Comptroller/Audit to the Deputy County Executive in follow up to the GIF maintenance audit request for documents made 11/13/15 to WEP and follow up to the conversation between the Deputy Comptroller/Audit and the Commissioner of WEP regarding the Deputy County Executive reaching out to the Comptroller's Office concerning the request for documents.
- Email dated 12/14/15 from the Deputy Comptroller/Audit to the Deputy County Executive Physical Services in follow up to the GIF maintenance audit request for documents made 11/13/15 to WEP.
- A letter dated 12/14/15 from the Commissioner of WEP to the Deputy Comptroller/Audit advised an entire list of completed GIF projects and the 2014 Annual Report discussing GIF Maintenance and Appendix G of the Report containing the GIF maintenance log can be found on the save the rain website. Per a request in this letter from the Commissioner of WEP, the Deputy Comptroller/Audit sent a letter on 3/30/16 to the Administrative Director-WEP notifying him of the audit of Green Improvement Fund (GIF) Maintenance Records and requesting an entrance meeting within the next two weeks to discuss the audit.
- Follow up letter dated 4/14/16 from the Deputy Comptroller/Audit to the Administrative Director-WEP because no response was received to earlier letter. Asked to respond by 4/21/16.
- Email sent on 4/15/16 from the Deputy Comptroller/Audit to Deputy County Executive Physical Services requesting a meeting to begin the process.
- Due to no response from WEP, letters dated 5/10/16 from the Deputy Comptroller/Audit sent to 7 GIF grant recipients who had installed porous pavement asking them to deliver office copies of all maintenance records for porous pavement.

- Follow up letters from the Deputy Comptroller/Audit sent to 5 of the GIF grant recipients on 5/25/16 requesting maintenance documents by 6/10/16.



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August 25, 2017

Hon. Robert E. Antonacci, CPA, Esq.
Onondaga County Comptroller
John H. Mulroy Civic Center, 14th Floor
421 Montgomery Street
Syracuse, NY 13202

Re: Green Improvement Fund (GIF) Maintenance Records – 2016 Audit

Dear Mr. Antonacci:

This will acknowledge receipt of the above subject document. This letter serves as the Department's Management Response for the audit.

Management Response:

Recommendation 1: *"We recommend WEP comply with the County Charter."*

Response: WEP acknowledges the authorizations in, and the compliance responsibilities of, the County Charter. The Green Improvement Fund Maintenance Records of this department are published in the Annual Reports posted on the Save the Rain website. The annual reports to which the Department directed the Comptroller staff to view on the Save the Rain website contain comprehensive project information, including maintenance records. The Department's Management will fully cooperate with requests by audit staff for any and all financial records and accounts of the Department and will answer any questions that audit staff has about such financial records and accounts, as it did with this audit.

Recommendation 2: *"We recommend WEP follow up with grant recipients to ascertain they are maintaining green infrastructure and obtaining the proper support documentation in order to achieve and maintain compliance with applicable water pollution control requirements and the terms of the Amended Consent Judgment."*

WEP's Administration should implement internal controls to ensure the proper documentation is maintained to support its inspection efforts, such as, taking pictures; and upon receipt of the checklist signed by the grantee confirming maintenance and inspection has been done, WEP staff and Management should review, date and sign it. (We understand a subcontractor of CH2M Hill performs the inspections, gives the checklist to the grantee to sign and then returns it to WEP to keep on file.)



Department Supervisor reviews maintenance and inspection checklist signed by the grant recipient to ascertain maintenance work has been done and the inspection performed by the subcontractor of CH2M Hill (contracted to provide consulting services in connection with the evaluation of "green" and "gray" infrastructure in meeting the remaining obligations of the Amended Consent Judgment, ACJ)."

Response: WEP follows up with GIF recipients via its contractor. That contractor maintains (and this Department then publishes) the documentation of said follow-ups. We note that Exhibits E through K of the Audit include documentation of contacts, site visits, observations of maintenance work, and status of the inspection checklist and grant recipients signature of same - all as taken from this published information. This work is performed, reported on, published in detail on an annual basis, and provided under the direction and supervision of a licensed contracted Professional Engineer. There would be no further benefit to additional inspection by the Department. Indeed, it is the overall opinion of this Department that the level of compliance with maintenance necessary for stormwater control is well over 95% for the aggregate of the GIF projects, and therefore, a higher level of inspection would not be cost-effective. While maintenance activity associated with weeding, pruning and similar green practice activities may improve the aesthetics of green practices, they do not impact the efficacy of stormwater capture. Additional inspection would not provide a cost effective return for the sewer rate payer.

Recommendation 3: "We recommend WEP comply with the County Charter by supplying maintenance and inspection records requested by the Comptroller's Office Internal Audit Division to prove compliance with the contract terms and Maintenance Phase Agreement/Acknowledgment."

Response: Please refer to Response #1.

Recommendation 4: "We recommend WEP consider a new policy of holding 10% from the claim. Once a Grantee proves to WEP proper maintenance has been performed, the remaining 10% will be released. This will provide an incentive to comply with the required maintenance."

Response: The Department continues to consider and implement changes in the program documentation to improve contract language with respect to maintenance by the grantee, as noted on Page 4 of the Audit. The Department will weigh this recommendation in its consideration of future program modifications.

If there are any questions in regard to the responses above, please feel free to contact the undersigned directly.

Very truly yours,



Tom Rhoads, P.E.
Commissioner