

Municipality/Organization: City of Fitchburg

EPA NPDES Permit Number: MAR041189

Mass DEP Transmittal Number: W-035345

Annual Report Number

& Reporting Period: Year 12: April 1, 2014 through March 31, 2015

NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2015)

Part I. General Information

Contact Person: Anthony Maressa, PE

Title: Civil Engineer

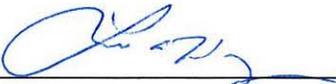
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Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: 

Printed Name: Lisa A. Wong

Title: Mayor

Date: 4/23/15

Part II. Self-Assessment 2014

The City of Fitchburg has completed the required self assessment and has determined that at the end of the eleventh year reporting period the City was in compliance with all provisions of the approved NOI, except for the following provisions.

Part III PC-3: Operation and maintenance agreement to inspect existing stormwater BMP's at post construction sites. Work has proceeded on this requirement during the permit year, by researching and starting the development of a bylaw that requires private owners of permanent stormwater BMPs to maintain their stormwater infrastructure.

In addition to the efforts outlined in Part III of this report, illicit connection detection efforts have resulted in the detection of 21 illicit connections to the stormwater system. During the course of this reporting year, three new illicit connections were detected and mapped in the following locations: 16 York Ave, 31 Townsend Street, and 359 Summer Street. The connection at 31 Townsend Street was removed in December 2014. The connection at 359 Summer Street, discovered as part of the ongoing sewer separation project, will be repaired within April 2015. An illicit connection at 245 Summer Street, reported in the 2012 Annual Report, was corrected in December 2014. Four known illicit connections: 37 Fairbanks Street, 16 York Avenue, Merriam Parkway Extension, and 181 Upham Street have not been corrected. The wastewater division is in the planning process for removing these connections. Merriam Parkway Extension will most likely be targeted first, as this discharge receives flows from approximately four dwellings. As mentioned later in this summary, the City also separated seven combination drain/sewer invert manholes within the last reporting year. The City will be reevaluating its illicit discharge program in the next permit year in an effort to make detection of illicit discharges by the DPW more effective, and to increase public awareness of how residents and business owners can help identify illicit discharges.

Illicit connection detection to the storm water system continues to be an important part of the City's ongoing effort to map and characterize both the wastewater collection system as well as the storm drain system. To that end, as reported in previous years, the City has established a dedicated crew of three individuals that are assigned to the wastewater division. The collection system crew, as part of their duties, has been looking for illicit connections to the stormwater system. In addition, the City has added two Professional Engineers to the DPW staff over the last four years. These two staff members are devoting part of their time to stormwater issues and will continue to be an important part of the City's effort's to administer the illicit connection detection program.

As part of the City's Consent Decree from the US EPA related to its sewerage system, the City has been aggressively tackling its obligations under the decree. Many of these actions have a direct impact on stormwater quality. Within the past reporting year alone, the City has separated approximately 20,000 linear feet of combined sewer, installed approximately 200 new deep sump catch basins, and cleaned sediment from 2,400 linear feet of large diameter drainage outfall pipe. In addition to sewer separation, the City has also lined over 5,200 linear feet of sewer main, which nearly eliminates the possibility of sewerage infiltrating adjacent ground and entering a storm sewer. The City has also separated seven combination drain/sewer invert manholes. These seven manholes were targeted due to evidence of sewerage entering the storm drain invert. By separating these manholes, seven potential sources of illicit discharge have been eliminated. The City is actively making efforts to reduce the number of combination manholes within its system, and is in the early stages of implementing a program to remove up to 20 combination manholes a year from the system.

The City continues to partner with the Nashua River Watershed Association to conduct additional river sampling during the year. The City is also an integral member of the Nashua River Greenway Committee. In part, the Committee's goal is to advocate for the protection, preservation, restoration, and responsible use Fitchburg's water resources, and riverfront land.

Within the past year, the City has entered into a partnership with the Montachusett Opportunity Council (MOC). This partnership stemmed from the MOC receiving a Clearwater Revival Grant from the US EPA. The grant is being used to address stormwater and green infrastructure issues within the City. The kick-off for the grant was in September 2014, with all of the involved parties attending: Nashua River Watershed Association (NRWA), Massachusetts Watershed Coalition (MWC), and the Fitchburg DPW, Conservation/Planning, and Board of Health. Some of the goals of the grant are to provide training to key stakeholders in the City in green stormwater practices, have an expert speaker present to the group, and provide water quality training to members of the group. Other goals of the grant include catch basin stenciling throughout the City, producing two stormwater educational videos to air on local access television, conduct rain garden workshops to educate the public, and develop a stormwater resource booklet for distribution to residents. Two other major aspects of the grant include developing a draft of the City's stormwater bylaw to incorporate green stormwater infrastructure, and building a "green infrastructure" museum on a City owned vacant lot or park. The "green infrastructure" museum will be constructed by the DPW, and will include common stormwater treatment methods that a homeowner could implement, such as permeable pavers, rain gardens, and disconnecting down spouts. Attached to this year's annual report is a list of action items for the grant, the associated timeline for each action item, and a narrative written by the MOC for the Clearwater Revival Grant Proposal. Since the kick-off meeting of the grant in September, a few vacant lots have been identified as potential for development, the type of catch basin markers have been decided upon, and work on the City's stormwater bylaw has begun.

In year six of the program all known outfalls were inspected during dry weather. Samples were collected and analyzed for coliform bacteria, MBAS, and Nitrogen if flow was present. All outfalls were sampled during a rain event; samples were analyzed for Total coliform, E-Coli, MBAS, and Nitrogen. Sample results from five out of forty outfalls were identified as having elevated levels of bacteria. Follow-up sampling on those five discharges was performed and the associated drain system investigated for the possibility of illicit connections. Mapping and digital photos of all outfalls was completed during the sixth reporting period.

The City is acutely aware of the requirements that the anticipated reissuance of a revised and updated MS4 permit will have on the program and the substantial demands it will place on our limited resources. We are actively evaluating every aspect of the current program and we are developing alternatives that will allow us to comply with the increased requirements of the reissued permit within the anticipated deadlines. The City has contracted with ARCADIS, an Engineering Consultant, in an effort to assist the City in developing estimated costs for the anticipated revised MS4 Permit and to make a presentation to City Council. The presentation will include an overview of the City's efforts and costs to meet the current MS4 Permit, an overview of the forthcoming new MS4 Permit, and estimated costs associated with meeting the new permit. The presentation is currently scheduled for January 2016.

CLEARWATER REVIVAL 2014-2016 TIMELINE

MILESTONE	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
TRAININGS/SPEAKERS												
Trainings for stakeholders					2015	Year 1	ongoing					
					2016	Year 2	ongoing					
Speaker Events					ID/invite speaker	2015			X			
					ID/invite speaker	2016			X			
PEER LEADERS												
Presentation- Peers					Year 1	2015						
Water Quality Training- Peers								Year 1	2015			
								Year 2	2016			
Stenciling Workshops and Stenciling of storm drains in key areas											Year 1	2015
											Year 2	2016
Educational Videos					Year 1	Research for video #1			Create Video #1			X 2015
	Year 2	Research for video #2					Create Video #2			X 2016		
RESIDENT EDUCATION & WALKS												
Rain Garden Workshops								2015				
								2016				
Neighborhood walk/workshops									2015			
		2015										
RESOURCE DEVELOPMENT												
RESOURCE BOOKLET -residents					2015	Year 1	Research projects, local sources and cost					
		Design booklet			Print							
LIST OF INCENTIVES					2015	Research incentives						
	2016	Create list of incentives	X									
POLICY												
POLICY/SYSTEM REPORT				2015	ID focus	Conduct Review				Write report		X
MUSEEUM												
FIELD SURVEYS of vacant lots					2015	Develop list				Field surveys		
	ID lot	Year 2										
BUILD MUSEEUM												
	2016	Design museum			source & order supplies			Year 2	Build museum			
SIGNS INSTALLED												
											2016	Year 2

Clearwater Revival Grant Proposal Summary

Written by MOC and submitted to EPA in Grant Application

I. Project Title and Project Purpose Statement

As the designated non-profit Community Action Agency serving the socio-economically disadvantaged in North Central Massachusetts, the Montachusett Opportunity Council (MOC) proposes the *Clearwater Revival* Project to address stormwater (SW) pollution of the Nashua River and improve the health of vulnerable neighborhoods in Fitchburg, MA 01420.

Clearwater Revival has four goals:

- 1) Capacity-building of City stakeholders. The project will allow for training of the partnership to increase expertise about stormwater management (SWM) using green infrastructure (GI).
- 2) Policy, systems and best management review. We will assess the City's systems and policies to see how GI and other low impact development (LID) methods can be integrated into procedures and policies and what barriers may exist.
- 3) Creation of an outdoor "museum" on a vacant lot showcasing green infrastructure design strategies. A city owned vacant lot in a low-income neighborhood will be developed as a *Clearwater Revival* outdoor museum showcasing various GI and LID methods that residents can use on their own property.
- 4) Increasing awareness of residents and community organizations about SW issues through neighborhood walks and building resident knowledge about ways they can prevent water pollution. Water walk/workshops in two targeted low-income neighborhoods will serve multiple purposes: to learn from residents where SW is a problem, to use photos as a teaching tool to draw attention to aspects of the built environment that exacerbate the SW issue and to follow up the walk with a small workshop highlighting things residents can do to protect the water. MOC youth peer leaders will also be educated about SW issues and they will help create videos to educate the community about the problem and solutions.

Clearwater Revival will take place in Fitchburg, MA, and will focus on the Clean Water Act, Section 104(b) in order to move forward on the community's vision for a green and healthy local environment. The project will also integrate elements of the Solid Waste Disposal Act, Section 8001(a) and the Toxic Substances Control Act, Section 10(a) into programming since the disposal of waste, particularly pet waste, pharmaceuticals and toxic compounds into stormwater systems causes both environmental and public health problems.

This project builds on already existing collaborative efforts, particularly the work of the Healthy Zoning workgroup (HZW). Led by MOC, this workgroup has been meeting for the past year and includes key City stakeholders (i.e. the Planning and Housing Departments, Board of Health (BOH), and Department of Public Works) as well as the Massachusetts Regional Planning commission (MRPC), Twin Cities Community Development Corporation (Twin Cities CDC) and Growing Places, a non-profit engaging residents in community gardening. Currently, the HZW's focus is to address the vacant lot issue in Fitchburg and a key part of its strategy is to find ways to integrate green infrastructure (GI) for stormwater management (SWM) into its efforts to turn vacant lots from neighborhood problems to neighborhood assets.

Together with MOC (lead applicant), project partners on the MOAs are: 1) City of Fitchburg; 2) Massachusetts Watershed Coalition, 3) the Nashua River Watershed Association and 4) Twin Cities CDC.

II. Environmental and Public Health Information about the Affected Community

Local environmental and public health issues addressed by *Clearwater Revival* include: the pollution of the Nashua River due to SW runoff and discharges from Combined Sewer Overflows (CSO's) which pose a public health hazard through bacterial, viral and toxic chemical

loads dumped into the River. Bacteria, viruses and parasites that may be present in impaired water can cause various illnesses such as ear and eye discharges, skin rashes and gastrointestinal problems with skin contact or through ingestion. The pollution of the river also impacts aquatic life and the health of the River through nutrient loading, addition of oxygen-depleting substances and increase in water temperature. Drinking water of downstream communities and recreational use of the River is negatively impacted. The SW problem is particularly acute in older high density, low-income neighborhoods near the Nashua River. These neighborhoods make up 34.7% of Fitchburg's population and are the focus of *Clearwater Revival*.

The 2012 Waterbody Report for the two segments of the North Nashua River that flow through or near our targeted neighborhoods indicate that the overall status of this 8.6 mile section of the River is impaired (maps MA81-01 and MA81-02) with waters too polluted or degraded to meet state water quality standards. Primary recreational contact such as swimming and secondary recreational contact such as fishing or wading is not advised. Fish consumption has not been assessed for either segment but for MA81-02, assessment of wildlife, fish and aquatic life shows that it, too, is impaired. For both segments, one cause of impairment is *E. coli* with probable sources being CSO's and non-point sources during wet weather events, urban related runoff, illicit connections/hook-ups to storm sewers and other unknown causes.

In August 2012, Fitchburg was penalized by EPA and Department of Justice for violating the Clean Water Act due to repeated non-compliance with its discharge permit. The primary cause of the violations is the large volume of SW that flows into the wastewater treatment plant via the sanitary sewer system. The combination of SW and wastewater at the plant often exceeds its treatment capacity. When this occurs, some of the treatment process is bypassed, causing partially treated sewage to be discharged into the Nashua River. SW flow into the treatment plant must be reduced so that capacity of the plant is not exceeded. Combined sewer separation projects and plant modifications are underway to accomplish this, but GI can play an important role by keeping SW out of the system in the first place. Conversation with the Commissioner of Public Works in Fitchburg indicates that the problem of CSO's and urban runoff are exacerbated by Fitchburg's steep topography that causes erosion and ground water near the surface that seeps out onto pavement. The public's behavior is also problematic with catch basins in some neighborhoods filled with yard waste and even plastic bags of dog waste. Increasing Fitchburg's capacity to implement GI for SWM is needed. The 2010 draft MS4 General Permit for SW included provisions that would encourage the use of LID and GI. At this time, Fitchburg would not be compliance-ready for this requirement. Implementing GI has been a strategy suggested in a 2009 Report produced for the City by UMASS-Amherst Landscape Sustainability Studio: Green Fitchburg: Opportunities, Strategies and Visions for the Future. Rain gardens were specifically mentioned in several areas to mitigate SW problems along major roadways however no progress has been made in this area.

Affected Community Characteristics: Fitchburg is located in North Central Worcester County, approximately 10 miles south of New Hampshire and 50 miles west of Boston with a population of 40,318 (2010 Census). The Nashua River is the heart of the city. As the oldest city in this area, Fitchburg was once a thriving manufacturing center whose industries attracted immigrants who settled in dense, multi-family housing near factories located along the Nashua River. As the manufacturing base began to erode in the 1960s, Fitchburg's economic prosperity declined and its population demographics began to shift. Today, the population of Fitchburg is disproportionately low-income (19.4% persons below poverty level compared to 10.5% in the state) with more than twice the number of families with children under age 18 living below

poverty than in the state (23.8% Fitchburg/11.5% state). As of March 2013, Fitchburg's unemployment rate is 3.4 percentage points above the state rate (10.2% Fitchburg/6.8% state). 21.6% of Fitchburg residents self-identify as Hispanic or Latino which is more than 2X that of the state (9.6%) and 23.4% speak a language other than English in the home (2008-2012 American Community Survey estimate).

Many of the City's residents suffer disproportionately from chronic diseases and secondary conditions. According to a 2011 Community Health Assessment (CHA) report of North Central MA, Fitchburg evidences heightened rates of the following: Cancer: While cancer mortality rates in Fitchburg (185 per 100,000) are roughly comparable with the state (183), Black non-Hispanics suffer disproportionately in Fitchburg with a mortality rate of 629 per 100,000. Asthma: Asthma hospitalization rates at 190 per 100,000 are greater in Fitchburg than the state (142) with children under 5 years (356) and Hispanics (369) having the highest rates locally. Mortality: Premature mortality at 398.9 per 100,000 in Fitchburg is greater than the state (304.4). Both Hispanics (451) and Black, non-Hispanics (441) suffer disproportionately in Fitchburg. Mental Health: Fitchburg's suicide rate (8.1 per 100,000) is only slightly higher than the state's (7.0), but its self-inflicted injury rate (87.2 per 100,000) is almost double that of the state (44.3). Crime statistics show that Fitchburg's overall violent crime rate per 1,000 residents is dramatically higher (7.71) than the rest of MA (4.28).

A map of EJ regions in Central MA created by the MA Executive Office of Energy and Environmental Affairs shows that a significant proportion of Fitchburg's most vulnerable residents, those at greatest risk of being impacted by poverty, crime and health disparities, live along the Nashua River in what used to be the City's industrial corridor. This same area has been significantly impacted by the release of environmental toxins including a majority of reportable hazardous waste release events per MA DEPs Hazardous Waste Map for Fitchburg. Fitchburg's topography exacerbates the environmental problems experienced by vulnerable populations since the City is built on steep grades and this is particularly true of the residential areas adjoining the industrial corridor. Not only do many of these areas lie in flood zones, during rains the steep topography and large amount of impervious surfaces in these neighborhoods cause trash and other contaminants to flow into the sewer system and if overwhelmed, directly into the Nashua River.

Creating a healthy community is a key goal in Fitchburg. In addition to the water quality benefits from implementing GI, there are additional benefits to the affected community. Focus groups, walk audits and meetings with the affected community over several years has shown that: 1) there is a lack of high quality green space in targeted neighborhoods; 2) residents see vacant lots as neighborhood problems that foster crime and trash accumulation and inhibit safe walking; and 3) there is a lack of places to cool off in the summer. *Clearwater Revival* can help address some of these issues by creating one high quality green space in a vacant lot that can help mitigate the heat island effect and in the long term, making the North Nashua River a safe place for water recreation. An added long-term benefit to the affected community is cost-savings on sewer rates. Because of the cost of implementing grey infrastructure to remediate SW overflow into the Nashua River as well as reduce other pollutant levels, sewer bills in Fitchburg went up 68% in 2012, for an average household sewer bill of \$730. While many people in our affected community are renters, these costs are likely passed down to them from landlords. By increasing City capacity to implement GI, we can not only begin to realize the social and environmental benefits of GI, but also give the City and its residents the economic benefits as well.

III. Organization's Historical Connection to the Affected Community

History: Founded in 1966, MOC is the designated non-profit Community Action Agency serving the socio-economically disadvantaged in North Central MA. MOC's mission is to alleviate poverty and create healthy communities by providing services, coordinating community resources that promote self-sufficiency and advocating for social change. It serves families and individuals across the lifespan through its various divisions and delegate agencies, offering an array of programs including Childhood Lead Poisoning Prevention, Green and Healthy Homes, Housing and Weatherization, Women, Infants and Children (WIC) Nutrition Program and Child Care and Head Start (CCHS).

Work with Affected Community: MOC has established the capacity, linkages and credibility within North Central MA and in particular the targeted community of Fitchburg, to successfully implement *Clearwater Revival*. The Board of Directors is comprised of municipal officials, low-income representatives and community stakeholders committed to the agency's mission and the demographics of MOC staff mirror those of the community. The Executive Director has led the agency for 27 years. Ms. McDermott plays a strong leadership role in the community on health and social issues, including but not limited to founding and co-chairing the Joint Coalition on Health and helping to establish Community Health Connections, a local, federally qualified community health center. Every three years, MOC undertakes a Community Needs Assessment, an extensive process composed of stakeholder interviews, focus groups and hundreds of surveys. The quantitative and qualitative data collected from residents and community stakeholders informs **strategic goal setting** and program development. In addition to MOC's ability to lead, we are known for our vision and ability to create and innovate to address community needs. For example, MOC initiated a Green and Clean program with two years of funding from the Toxics Use Reduction Institute (TURI). The project has educated hundreds of individuals in hands-on workshops, worked with United Hmong of Massachusetts to translate materials and hold workshops for Hmong residents and with our WIC program and Elder Nutrition program, piloted safer chemical and non-chemical sanitizers and disinfectants. MOC also received funding to coordinate a Green and Healthy Homes **multi-stakeholder partnership** composed of City Departments and community-based organizations (CBOs) that worked together to create a common home assessment form and partner referral system enabling low-income residents to receive coordinated, efficient home repair with **leveraged funds**. This forward way of thinking puts MOC in a strategic position within the community that will enable us to successfully implement *Clearwater Revival*.

Residents in Decision-Making: Not only do low-income representatives from North Central MA sit on MOC's Board of Directors, **residents are part of advisory boards** for specific programs allowing for **constructive engagement in program development**. For example, parents are part of CCHS's Health Advisory group, local elders make up the Elder Nutrition Program's Advisory Board, and client's of our CARE AIDS/HIV Case Management program participate on the consumer advisory board. MOC's neighborhood mobilizer and teen peer educators play a key **leadership** role in providing outreach and education to the community for our anti-obesity efforts, teen pregnancy prevention and family planning work. They take part in partnership meetings and present data to key City stakeholders and evaluators to advocate for community awareness on issues. **Resident input is sought after to steer projects impacting their community**. For example, for a current project to design and implement a green space in a low-income housing development, residents were invited to a presentation by the Landscape

Architect so that their input could be incorporated into the design strategy. The HZW workgroup coordinated a **community scoping session** that was part of a Health Impact Assessment focusing on **strategies** to improve vacant lots in the City. Over 50 stakeholders attended to weigh options for turning vacant lots into community assets. Together with a focus group held with a community-based organization, these inputs pointed out the need for more green spaces within targeted communities.

Increase Community Capacity: MOC is recognized for its strong community ties and extensive networking system. We have developed long-lasting relationships with individuals and organizations within and beyond our service territory throughout our 48 year history. One example is the *Fun 'n FITchburg* initiative. Partnering with the City of Fitchburg and over 80 individuals including residents, city councilors, the Mayor, businesses, the local university and environmental groups, MOC is leading a youth obesity prevention campaign funded by the Robert Wood Johnson Foundation (RWJF) and the Massachusetts Department of Public Health. Now in its fifth year, the *Fun 'n FITchburg* Partnership has become a strong voice in advocating for systems, policy and environmental changes to make healthy eating and active living the easy choice for Fitchburg residents. Projects over the years have emerged through dialogue and **iterative community visioning exercises**. Together residents, neighborhood mobilizers and youth peer leaders have conducted park and walk audits resulting in a citizen Adopt-a-Park program, a healthy vending in parks resolution and enthusiasm among municipal officials to adopt a Complete Streets policy. The HZW workgroup formed due to concerns about vacant lots voiced by the Partnership during focus groups and walk audits conducted through the *Fun 'n FITchburg* initiative. The Partnership has also been working for over three years with the Fitchburg Housing Authority (FHA) and an array of partners to convert a large green space in the center of the low-income housing complex into an active living space that integrates natural play spaces into its design. This year, a wet area at the entrance to the field was converted to a bioretention area/butterfly garden that will be used as an environmental education site. Our collaboration with the City on the *Fun 'n FITchburg* initiative has **leveraged additional funding** to spearhead a regional Healthy Weight initiative by local Boards of Health and funding to amplify youth obesity prevention messages to area day cares and schools.

Maintaining Ongoing Relationships: MOC **collaborates** with area non-profits, residents and municipal officials to **leverage funding and expertise** to move projects forward. Our work with the FHA exemplifies this. Because of significant incidents that disrupted the neighborhood at one FHA site, the Executive Directors at MOC and the FHA called together a meeting with community leaders including the Mayor, Chief of Police, Superintendent of Schools and representatives from state agencies and community-based organizations. The result was a charge to all community groups to expand services and resources and find ways to support residents, instill a sense of pride in the neighborhood and make it safer. The MOC Homework Center evolved from this meeting and 42 children are now enrolled with 25 attending daily. *Fun 'n FITchburg's* green space initiative at the FHA (described above) is located on land behind the Homework Center site. To create a **community vision** for this space, we brought together residents and community leaders to help develop a 5 year plan of action to create a high quality active living space for the neighborhood. MOC continues to do a Needs Assessment of the communities we work in and **collaborates with partners and residents** on how to address ongoing and new issues. MOC holds leadership positions on local and regional boards such as the Community Health Center's Board of Directors and the Joint Coalition on Health. MOC also attends Community Health Network Area (CHNA) 9 meetings and local community meetings

including the City’s recycling and open space committees, Elm St. Neighborhood Association meetings and community meetings in the Green Acres neighborhood.

IV. Project Description

i.) Activities the project will undertake

The long-term environmental and public health results *Clearwater Revival* seeks to achieve are a decrease in SW pollution of the Nashua River and increase in resident health by reducing bacterial, viral and chemical loading into the River from runoff. An added short-term outcome of the project is creating one green space in a targeted low-income neighborhood. Green spaces offer multiple social and ecological benefits such as social gathering places, sense of place, environmental education opportunities, a reduction in urban heat island effect, increased biodiversity and decreased stress. It has also been shown that GI creates economic value in a community which would be advantageous to this economically depressed City. The green space we propose would also be an educational “museum” raising awareness of stormwater pollution and the ways residents can help prevent water pollution.

Clearwater Revival has four goals that will allow us to work toward the long-term environmental and public health results we hope to achieve. These goals focus on 1) capacity-building of City, 2) policy, systems and best management review to promote GI in Fitchburg, 3) creation of an outdoor “museum” on a vacant lot showcasing green infrastructure design strategies and 4) increasing residents’ and community-based organizations’ awareness about SW issues through neighborhood walks and, with the help of MOC youth peer leaders, building resident knowledge about ways they can prevent water pollution. Following is a description of how *Clearwater Revival* will achieve its overall aims to decrease SW pollution of the Nashua River and increase public health by reducing bacterial, viral and chemical loading into the River. Please see logic model attached also.

Goal 1: Capacity building of City stakeholders		
Activities	Milestones	Responsible Partner
<ul style="list-style-type: none"> - Introduce new project partners (NRWA and Massachusetts Watershed Coalition) to already-existing HZW group - Convene meetings - Develop QAPP - Identify training needs - Research potential speakers, invite them and promote the event - Research design strategies for small residential GI projects, where to source material locally and costs of elements - Design and print residential booklet - Research GI incentives for residents, businesses and developers - Discuss which incentives are needed and would work in Fitchburg 	<ul style="list-style-type: none"> - QAPP developed by Yr1 Q1 - 4 trainings held (2/yr) - all trainings completed by Yr2 Q4 - Speaker events held (1/yr) - by Q4 of each Yr one speaker event held - Resource booklet for small residential GI projects created by Yr2 Q4 - List of incentives for GI projects generated by Yr2 Q4 	<ul style="list-style-type: none"> - MOC - HZW
Goal 2: Policy, systems and best management review to promote GI in Fitchburg		
Activities	Milestones	Responsible Partner
<ul style="list-style-type: none"> - Collaborative discussions with City stakeholders and NRWA to focus 	<ul style="list-style-type: none"> - Policy/system report distributed to City 	<ul style="list-style-type: none"> - City stakeholders

policy/system review - Conduct review - Write report - Disseminate report to City departments	departments by Yr2Q4	- NWRA Smart Growth Circuit Rider
Goal 3: Creation of an “Outdoor GI Museum” on a vacant lot showcasing GI design strategies		
Activities	Milestones	Responsible Partner
- Create priority list of 10 vacant lots - Conduct field surveys of vacant lots - Design “Outdoor Museum” - Purchase supplies - Coordinate workers - Build the GI museum - Design signage - Install signs	- Field surveys conducted by Yr1 Q4 - GI Museum built by Yr2 Q 4 - Signs installed by Yr2 Q4	- MOC - Twin Cities CDC - City of Fitchburg - Massachusetts Watershed Coalition
Goal 4: Increase awareness of residents and community based organizations about SW issues and ways to prevent water pollution		
Activities	Milestones	Responsible Partner
A. Conduct 2 neighborhood walk/workshops B. Conduct 2 presentations for youth peer leaders Conduct 2 water quality trainings for youth peer leaders Conduct 1-2 storm drain stenciling workshops for youth peer leaders and neighborhood mobilizer C. Storm drain stenciling Create 2 videos D. Conduct 2 rain garden workshops	A. 2 walk/workshops conducted by Yr2 Q4 B. 2 presentations conducted by Yr1 Q4 2 water quality trainings conducted by Yr2 Q4 1-2 storm drain stenciling workshops by Yr2 Q4 C. Storm drains in key areas stenciled by Yr2 Q4 2 videos produced by Yr2 Q4 D. 2 rain garden workshops conducted by Yr2 Q 3	A. MOC and Twin Cities CDC B. NWRA C. Youth peer leaders D. Massachusetts Watershed Coalition

Each goal of the Clearwater Revival project offers many ways to incorporate elements of the collaborative problem-solving model.

1. Issue Identification, Community Vision and Strategic Goal Setting. One example of this element in our proposal is Goal 2 – Policy/Systems Analysis. Before we can propose an action to move forward on, we need to sit down together and talk about where the City is at and what is most needed to move it toward the goal of integrating GI for SWM. We need both the historical knowledge of City stakeholders and the expertise of NRWA’s Smart Growth Circuit Rider who has helped surrounding cities and towns with ordinances and bylaws related to SWM and LID at the table to identify issues of concern and prioritize them. This focused analysis can then key in on the most significant aspects of SWM and GI integration for the City.

2. Community Capacity Building and Leadership Development. By engaging the NRWA and Massachusetts Watershed Coalition in training the HZW stakeholders in issues around GI and SWM, we will help build capacity to integrate these concepts into vacant lot development as well as future City projects. By developing guidelines for residents around GI and creating a list of incentives that could be offered, stakeholders will be better able to lead the whole community on GI initiatives. The guideline for residents builds upon interests the HZW is already engaged in – namely developing a side yard abutter sales program. The GI booklet proposed will add value to these efforts.

Promoting youth as leaders in water pollution prevention efforts is a key part of this project. With the help of NRWA, youth will be able to understand the history of the Nashua River in the context of Fitchburg's development and understand the problem the City faces with SWM. Having the youth peer leaders be part of the solution: stenciling storm drains and learning about water quality analysis – will benefit the City and give the youth new knowledge and skills. We will tap into their knowledge of creating videos (as exemplified by their complete streets video) and have them create 2 videos around SWM, GI and how residents can prevent water pollution that can then be shown on Fitchburg's public access channel.

3. Consensus Building and Dispute Resolution. As an example of this CPS element, we want to work with the City and, with the expertise of the NRWA, find areas for either a focused policy or system analysis that will benefit the City while at the same time moving forward on efforts to protect the Nashua River. Collaboratively, our stakeholders will work together to come up with a focused area of concern that could be reviewed and promoted. This could be working to complete a SW ordinance for the City or working to design an effective tool that gives incentives to projects that integrate GI into their development strategy.

4. Multi-stakeholder Partnerships and Leveraging of Resources. Our logic model and workplan will be the grounding of our project. The various facets of our workplan allow multiple and frequent collaborative spaces for partners to engage with one another and develop a shared vision. For example, the HZW will work together to get a priority list of 10 vacant lots for the possible outdoor museum and then we will conduct field surveys of these sites with the expertise of the Massachusetts Watershed Coalition staff. Our team will engage on a design strategy that works for the space and gain the input of residents in that neighborhood about the project. Once a common vision for the site is developed, we will move toward an implementation plan that is coordinated with partners' time and expertise. We want to recruit residents and other stakeholders who are interested in the process and who can become champions for GI.

We can also leverage the expertise and interests of our partners and the HZW to enhance residents' knowledge about GI and water pollution prevention. For example, the BOH Director is interested in working with us during resident walks/workshops to talk about the medical take-back program in Fitchburg.

5. Constructive Engagement by Relevant Stakeholders. Creating a dialogue with City stakeholders, NRWA and Massachusetts Watershed Coalition can move the City on its way to developing a strong SWM plan that integrates GI. Our project has several places this can happen: training the HZW, engaging City stakeholders in a review of policy or systems, and working together to create the outdoor museum.

6. Sound Management and Implementation. Our MOA partners are at the table because they provide an expertise that was missing from our HZW. The workplan and logic model will provide a guide to our actions but each step requires its own plan and timeline within the larger framework. We will capitalize on the strengths of our team as we move through the various facets of the project and rely on our commitments to move projects forward.

7. Evaluation, Lessons Learned and Best Practices. Our continual evaluation of the partnership at meetings and by assessing progress toward goals on a regular basis will allow us to make sure all stakeholders' voices are heard and creative solutions identified. Neighborhood walk/workshops will let us engage with residents where they live and learn from them where stormwater is an issue. Combined with the workshop portion, we can empower residents to

make their own communities healthier by showing them steps they can take to prevent water pollution.

Building the outdoor museum will allow us to try out GI elements on a small scale and learn what is appropriate in other settings.

ii) How the organization and its partners will work together to address local issues

MOC is the lead applicant on this proposal and there are 4 MOA partners: 1) City of Fitchburg, 2) Nashua River Watershed Association (NRWA), 3) Massachusetts Watershed Coalition and 4) Twin Cities CDC.

As lead applicant, MOC's role is to convene meetings, manage the partnership, coordinate trainings, direct the activities of the peer leaders and neighborhood mobilizer, prepare reports and contract management. The **City's** role in the project is to provide knowledge of current SW issues in Fitchburg, historical knowledge of past initiatives regarding SW and GI and knowledge of city department procedures and systems. They can help guide the project in terms of trainings most needed, where storm drain stenciling would be most effective and what incentives for residential implementation of GI would be likely to succeed. The **NRWA's role** focuses on environmental education, training and policy analysis. They will train youth peer leaders on storm drain stenciling, water quality analysis and other aspects of water pollution and guide the policy/systems analysis. The **Massachusetts Watershed Coalition's** provides the technical knowledge of green infrastructure, training, and field surveys. They will assist with trainings, vacant lot surveys and implementation of GI in one vacant lot. **Twin Cities CDC** will provide their extensive knowledge of neighborhood characteristics to vacant lot prioritization and assist in neighborhood walk/workshops. They will be able to help us promote events and workshops using their resident networks.

The **City of Fitchburg** represents the **government sector**. As a municipal entity it brings the expertise of various departments to the table as well as knowledge of City procedures and systems. The **Department of Public Works (DPW)** has knowledge of City water issues, SW problem areas, data on CSO's, river quality and remediation techniques already tried. They also have staff and equipment that can help design and implement GI techniques for the outdoor museum. The **Planning Department** has knowledge of zoning policies and procedures and can assist with GIS mapping, policy and planning. The **Board of Health** has several programs we can integrate into this project – the medical take-back program and the hazardous waste collection days. The BOH Director is interested in leveraging outreach funds for the medical take-back program during the neighborhood walks/workshops. The **Mayor of Fitchburg** is supportive of the HZW and her office will be critical in advancing environmental and policy changes that reduce barriers to using GI for SWM.

Commitment: The Mayor commits staff time and meeting space, the Planning Department can assist with policy and procedure analysis and GIS mapping and the BOH can assist with sharing data about vacant lots as well as the medical take-back and hazardous waste collection programs. The Commissioner of Public Works enthusiastically supports our work and will commit staff to attend meetings, share data about SW issues, and assist with creating the GI museum.

Partner Quote: *The City of Fitchburg DPW enthusiastically supports your efforts to promote GI to help the City manage its SW in an environmentally responsible cost effective manner. Vacant lots might be ideal for rain gardens and grassed swales. Urbanized areas of Fitchburg were developed a century ago, creating congested neighborhoods with large impervious areas and little room for SWM. Vacant lots are often neighborhood eyesores with*

limited potential for future use. Getting stakeholders involved with developing and maintaining rain gardens would help DPW manage SW, foster pride in the neighborhood, promote community involvement and educate the public about SW. Identifying potential locations for these projects would be a valuable first step in the process. - Lenny Laakso, Commissioner of Public Works.

The **specific activities** the City of Fitchburg will be responsible for are: 1) attend meetings, 2) work with the NRWA to review local bylaws, ordinances or systems that promote or hinder GI for SWM and promote changes based on best practice review, 3) provide input for the GI resource booklet for residents and the list of potential incentives, 4) provide technical labor and assistance in building the outdoor museum

Both the **NRWA and Massachusetts Watershed Coalition** represent the **environmental sector**.

The **mission of the NRWA** is to *work for a healthy ecosystem with clean water and open spaces for human and wildlife communities, where people work together to sustain mutual economic and environmental well-being in the Nashua River watershed.* The NRWA has expertise about the Nashua River, water monitoring, storm drain stenciling, policy analysis, SWM, LID and environmental education. Their staff will help train youth, educate the HZW and conduct a local policy/systems analysis. Staff involved will be the NRWA Water Programs Director, the NRWA Water Monitoring coordinator and the NRWA Smart Growth Circuit Rider. **Commitment:** Training youth (History of the Nashua River, Introduction to Stormwater, Water Quality Sampling and Storm Drain Stenciling), training the HZW and a focused policy or system review.

Partner quote: *Thanks for inviting the NRWA to participate in the “Vacant Lot Group” – our program staff heartily agree that they would like to see NRWA participate. We have three staff people with expertise to contribute: Water Programs Director, Water Monitoring Coordinator and Smart Growth Circuit Rider.* – Elizabeth Ainsley Campbell, Executive Director

The **specific activities** the NRWA will be responsible for are: 1) attend meetings, 2) work with the City of Fitchburg to review local bylaws, ordinances or systems that promote or hinder GI for SWM and promote changes based on best practice review, 3) provide training to the HZW and youth peer leaders

The **mission of the Massachusetts Watershed Coalition** is *the protection and restoration of watershed ecosystems to sustain healthy rivers, streams, lakes, water supplies, terrestrial and aquatic habitats.* The **Massachusetts Watershed Coalition** has expertise in watershed planning, community outreach, LID, rain gardens and other infiltration practices.

Commitment: Staff time to attend meetings, resident workshops on rain gardens and other LID techniques, field survey of vacant lots and technical assistance in building the outdoor museum.

The **specific activities** the Massachusetts Watershed Coalition will be responsible for are: 1) attend meetings, 2) training the HZW, 3) field surveys of 10 vacant lots and assistance choosing the best lot for the outdoor museum 4) technical assistance building the outdoor museum 5) and 2 rain garden/LID workshops for residents.

The **Twin Cities CDC** represents the **local community development corporation**. Its mission and vision are as follows: *The Twin Cities Community Development Corporation (CDC) is a membership organization led by the diverse resident and business communities of Fitchburg and Leominster. We invest in and organize the residents of these cities to help build assets such as quality housing, good jobs, strong businesses and effective leaders. We envision healthy neighborhoods where residents choose to live, work, and invest, thereby forming a*

powerful, unified community.

Commitment: Staff time to attend meetings, assistance with neighborhood walk/workshops, and assistance in field surveys of vacant lots.

The **specific activities** the Twin Cities CDC will be responsible for are: 1) contribute research on vacant lot properties, 2) contribute to HZW meeting discussions, 3) attending and assisting with neighborhood walk audits.

Partnerships are maintained and sustained through shared vision and goals, trust and respect, creative and collaborative problem-solving and effective and timely management. These aspects are built into this project both formally and informally. As project goals are worked through and realized, a **shared vision** develops and partners begin to understand and trust one another. Our **continual evaluation of the partnership** at meetings and by assessing progress toward goals on a regular basis will allow us to make sure all stakeholders voices are heard and creative solutions identified. As the partnership develops, we will be able to find ways to build on the initiatives of one another to integrate SWM into new and existing initiatives as a way of sustaining the work. For example, the City has annual Ward clean-ups in spring and we can integrate storm drain cleaning into volunteers' work. As we learn about policy and system changes that can promote GI in the City, we can integrate these into City functioning so that the changes remain over time. Formal reports to EPA will keep us all accountable to our goals and workplan and give us an opportunity to reflect on elements that are successes as well as barriers we may be facing. This process then can give us a chance to celebrate our successes while problem-solving the barriers we face. As we progress toward our goals our increased expertise and collective knowledge will put us in a position to look for more grant funding to further our long-term goal of addressing SW pollution of the Nashua River and improving the health of vulnerable neighborhoods in Fitchburg.

V. Organizational Capacity and Programmatic Capability

MOC uses a sophisticated accounting system, *The Financial Edge* by Blackbaud, to manage grants and contracts from many types of funders and for multiple programs and services. The software contains all relevant modules necessary to maintain detailed activity (i.e., payables, receivables and general ledger). The system provides a wide range of capabilities that allow data to be reported in unlimited formats permitting MOC's Accounting Department to track and report separately all activity related to *Clearwater Revival*. Finances for our proposed project would be assigned to a Staff Accountant who would oversee all transactions related to the project and run reports for management to monitor, track, and report financial information.

MOC has developed a reputation among its funders, both public and private, of strong fiscal management and effective service delivery. MOC's total funding is currently in excess of \$17 million and comes from a variety of sources including over 50 state, federal, private and local grants and contracts. MOC adheres to a firmly scheduled and extensive annual audit of the agency's financial position, including related statements of activities, functional expenses and cash flow. MOC's last audit, for the period of October 31, 2012 and 2011, found the Agency to be fiscally solvent, in conformity with generally accepted accounting principles and meeting all requirements pertaining to effective internal control over compliance. The agency uses Results-Oriented Management and Accountability (ROMA) to ensure programs meet grant outputs and outcomes. The NWS Director provides ROMA reports to the Executive Director (ED) and Board of Directors monthly. The Board works closely with the ED and ensures adequate fiscal controls are in place and that the Agency is in compliance with all contract and grant

requirements. The ED is responsible for MOC's programs and services and is the direct supervisor to the three Division Directors who, in turn, supervise their Program Managers.

MOC has created a program structure to ensure *Clearwater Revival* will be successfully managed and completed. To accomplish the work-plan objectives, MOC is designating our existing Environmental Manager, Donna Wysokenski, as Project Manager due to her educational background in environmental science and policy along with her experience working with communities on environmental justice projects. She will be responsible for day to day activities and grant deliverables, oversee partner collaboration and coordinate vacant lot assessment activities. She will work with technical advisors to develop the QAPP. Her supervisor, Mary Giannetti, MOC's Director of Nutrition & Wellness (NWS) and Energy and Housing Divisions will participate on the HZW and provide management oversight through biweekly one-on-one meetings so that potential issues are brought to the senior management team for timely resolution. MOC can successfully achieve the goals of the Project. As exemplified in previous examples (*Fun 'n FITchburg*, work with FHA at Green Acres, Green Cleaning TURI project) MOC has the credibility, community networks, capacity and expertise to join with partners to complete *Clearwater Revival's* goals. MOC has experience successfully completing and managing assistance agreements and their reporting requirements. MOC has completed five years of a cooperative agreement with the Office of Family Planning and Office of Population Affairs on a Model-Based Male Family Planning project. Contractual, fiscal and reporting requirements have been successfully met.

VI. Qualifications of the Principal Investigator or Project Manager (PI/PM)

Key personnel will include existing highly qualified staff to timely complete Project.

Project Director (0.01 FTE on project,): Mary Giannetti, Director of the MOC NWS and Energy & Housing Divisions. Ms. Giannetti has 20 years of experience implementing and managing community health and housing programs at MOC demonstrating her ties, commitment and experience working with the affected community. She currently serves as: chair of the local health center, commissioner on the Fitchburg Housing Authority and is a gubernatorial appointee to the MA Nutrition Board. Ms. Giannetti is also a member of MA Department of Public Health Healthy Homes Advisory Committee, MA Public Health Association Act Fresh Steering Committee, Joint Coalition on Health and CHNA 9. Her state and community affiliations on environmental and public health efforts and ties to the local community will be an asset for this project. Role: Oversee development and implementation of the program; supervise PM; coordinate with external partners and internal MOC programs; participate on HZW; monitor project performance and track outputs and outcomes; and provide financial management of the grant.

Project Manager (0.4 FTE on project): Donna Wysokenski, has an: MA in Environmental Science and Policy, MS in Molecular and Cell Biology, and graduate certificate in Ecology and the Human Spirit. As a graduate student, Donna collaborated with professors, community and environmental organizations on a four-year community-based participatory research project funded by the National Institute of Environmental Health Sciences. She researched pediatric asthma in schools, conducted environmental health listening sessions among minority populations and led neighborhood data collection walks with residents to learn about particulate matter. She is currently the Environmental Manager at MOC (4 years) responsible for overseeing the Childhood Lead Poisoning Prevention Program and coordinating a multi-year, multi-stakeholder partnership to convert a large open space in a Fitchburg Housing Authority complex into a natural play space. For two years, she managed grants from the Toxics Use Reduction

Institute to offer green cleaning workshops for hundreds of North Central MA residents focusing on low-income, Spanish and Hmong residents. Donna coordinates the Healthy Zoning Workgroup (HZW) and was a key collaborator for the vacant lot Health Impact Assessment in 2013. Donna participates in the City of Fitchburg's recycling and open space committees and the Montachusett Regional Trail Coalition. Role: Oversee grant activities including: coordinating meetings; facilitating trainings; staffing the HZW; coordinating the neighborhood walks/workshops, managing the partnership and project reporting, preparation of QAPP.

VII. Past performance in Reporting on Outputs and Outcomes

MOC manages over 50 grants from Federal, State and private funders with successful documented progress toward outputs and outcomes. Below is one example from each source.

1. Model-Based Male Family Planning (FPR006010A), \$627,000(5 years) HHS OFP, David Johnson, 240-453-2841, Progress Documentation: Monthly outreach activities, Workplan milestones achieved, quarterly outputs transmitted, midyear grantee presentation, and yearly progress report submitted.

2. Childhood Lead Poisoning Prevention (INTF7900MM3701516139), \$48,550 FY2013 (\$433,542 from 2007-2013), MA DPH, Paul Hunter, 617-624-5585, Progress Documentation: Pre and post tests during community presentations, monthly outreach activities, Quarterly progress reports submitted.

3. Green and Clean in North Central Massachusetts, \$20,000 2012-2013; \$25,000 2011-2012 Toxics Use Reduction Institute, Joy Onasch, 978-934-4343, Progress Documentation: Pre and post tests and follow-up phone calls to workshop participants, Interim progress meeting with funder, interim and final progress reports submitted, poster presentation at Statehouse.

VIII Expenditure of Awarded Grant funds- If successfully awarded funding for this grant, MOC has identified existing staff to direct and manage the grant which will allow for a timely start up and execution of activities. MOC's Finance and Administration Depts. will set up a specific fund account to ensure that money can be received and expenditures monitored. This grant builds upon the work of the existing HZW and Strategy Experts have been identified and are poised to have sub award agreements executed within 30 days upon award. Monthly financial reports will be monitored by the project director and manager to ensure that grant funds are expended in a timely manner and are in line with work plan activities and time frame.

IX Quality Assurance Project Plan (QAPP) Information The project will need a QAPP since we will collect water samples, use existing databases and historical research, implement deed searches, create a new database and use the information to make recommendations on environmental decisions.

Part III Summary of Minimum Control Measures

Public Education and Outreach

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
PE-1	Partnership Program	DPW / BOH	Establish education and outreach program	City established environmental task force. Group activities include streamside clean-up, community policing of environmental issues, outreach to schools and volunteer participation. City is also a member of the Nashua River Greenway Committee	Review and update program as necessary to comply with anticipated new regulations. Install "Green Infrastructure" Museum as part of MOC Grant.
PE-2	Web Site Creation	Planning Dept.	Website for storm water pollution prevention	City website updated in year 12 to include additional information/summary, provided links to EPA's stormwater website and watershed groups	Continue activity, seek input from watershed groups on possible information to incorporate to webpage
PE-3	Brochures and fact sheet	DPW	Door hangers distributed	New storm water mailer distributed via water and sewer bills in year 11	Update mailer and distribute, have watershed groups provide input on mailer
PE-4	Classroom Education	School Dept.	50% of K-12 every 2 yrs.	Storm water education introduced as part of science curriculum grades 4 and 6	Education program to be evaluated as part of overall plan update

Part III Summary of Minimum Control Measures

Public Involvement and Participation

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
PP-1	Watershed Organization	Water Dept. Public Private Partnership	Organize watershed Committee	<p>Watershed land maps updated and overlaid on topographic maps. Sensitive land parcels identified and prioritized for purchase or protection. Work with NRWA to perform storm water sampling to identify illicit connections. Work with North County Land Trust to establish conservation restriction on 1800 acres of watershed land. Purchase CR on 176 acres of private land for watershed protection. Purchase in fee 124 acres of private watershed land. Receive State Watershed land protection grant in year 11 to acquire additional 163 acres of watershed land.</p>	<p>Continue to pursue grant opportunities to protect additional watershed land and open space areas through conservation restrictions and purchase of private land in sensitive and critical watershed and buffer areas. Continue partnership with NRWA and Mass Watershed Coalition to implement programs in City to promote proper stormwater management.</p>
PP-2	Stream cleanings	DPW	Civic Clean up days	<p>Community service work crews from Dept. of Corrections performed stream side clean up. Civic clean up days held each spring in all City wards. Stream clean up part of program.</p>	<p>Continue partnership with NRWA and Mass Watershed Coalition to implement programs in City to promote proper stormwater management and stream clean-ups.</p>
PP-3	Storm drain stenciling	DPW	Civilian stenciling program	<p>Stormwater stenciling by NRWA took place in Cleghorn Neighborhood during initial permit term. Locations of stormwater stenciling and installation of "don't dump" markers researched and discussed with Clearwater Revival Grant group.</p>	<p>Conduct stenciling and installation of markers as part of Clearwater Revival Grant.</p>

Part III Summary of Minimum Control Measures

Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
ID-1	Storm Drain Map	DPW	Update Storm drain map	All known storm drains inspected for dry flow, sampled as necessary. All outfalls CSO's inspected and sampled during rain event. Mapping and digital photos completed. Resample and follow-up on target outfalls. 3 person collection crew and Civil Engineer tasked to allocate some time to storm water activities. Additional PE added to staff for collections system supervision. Will devote time to stormwater mapping and IDDE. GIS Engineer simultaneously locating drainage infrastructure using GPS during sewer mapping work to supplement existing system map.	Develop scope of work for upgrading maps as required by anticipated regulations. Develop alternatives and cost to perform the work. Review existing mapping for accuracy and update as necessary. GIS Engineer to continue to supplement existing map with additional data as collected.
ID-2	Non-storm water discharge ordinance	Planning	Non-storm water ordinance	ordinance in place.	Review and upgrade ordinance to in an effort to make it more effective and applicable
ID-3	Industrial/Business Connections	IDC	Establish monitoring program	Continue survey of industrial and commercial connections as part of combined sewer separation project	Continue program. Wastewater collection crew completes periodic inspections on industrial connections during routine maintenance.
ID-4	Illicit discharge elimination	BOH / DPW/Wastewater	Establish Program	Illicit connection program established. Total of 21 illicit sewer connections to storm system identified, 17 eliminated. Seven combination sewer/drain manholes separated in past year.	Continue with program. Develop estimations of costs to implement IDDE requirements of expected new permit. Continue with separations of combination drain/sewer manholes.
ID-5	Illegal dumping task force	Public private partnership	Form Task Force Quarterly Meetings	City established environmental task force and Greenway Committee. A public and private partnership. Group activities include streamside clean-up, community policing of environmental issues, outreach to schools and volunteer participation. City and Nashua River Watershed Association working on education of public on ID's.	Continue program, consider adjustments as necessary to improve effectiveness.

Part III Summary of Minimum Control Measures

Construction Site Runoff Control

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
RC-1	Site Plan Review	Planning Dept.	Establish standards	Revised standards requiring BMPs for construction sites in accordance with MA Stormwater Standards. Implemented and applied to all new construction regulated under Planning Board. Work conducted by NRWA under the MOC Clearwater Revival Grant to revise current stormwater bylaw to incorporate green infrastructure.	Review existing program as part of the MOC Clearwater Grant. Develop draft update of stormwater bylaw that complies with anticipated new permit.
RC-2	Erosion/Sediment control ordinance	Planning Dept.	Develop Ordinance	Existing ordinance updated	Comprehensive review and update of ordinance and delegation of responsibility for enforcement.
RC-3	Storm water Pollution Prevention Plan	DPW	Require Plan for all projects	Plan required for all sub-division projects and major construction projects	Continue to review construction sites and other applicable projects for compliance. Develop draft update of requirements to comply with anticipated new permit.
RC-4	BMP measures for sediment/erosion	Con-Com	Establish for construction sites	Con-Com reviews and inspects sites for compliance with approved plans and BMPs	Continue practice

Part III Summary of Minimum Control Measures

Post Construction Runoff Control

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
PC-1	Post construction runoff ordinance	Planning Dept.	Develop Ordinance	Existing stormwater bylaw requires developments to meet current MA Stormwater Standards. Draft revised stormwater ordinance completed to meet requirements of new anticipated permit. NRWA work on existing ordinance as part of MOC Clearwater Revival Grant to incorporate more green infrastructure into ordinance.	Continue effort to review and draft an update of the ordinance in conjunction with NRWA as part of Clearwater Revival Grant to incorporate Green Infrastructure and requirements of anticipated new permit.
PC-2	Site plan review for post construction	Planning Dept.	Adopt Standards	Post construction site plan review conducted for all planned sub-divisions and major construction sites	Review existing program. Work on drafting an update to existing stormwater bylaw in conjunction with watershed groups to incorporate green infrastructure and anticipated new permit requirements.
PC-3	Operation and maintenance agreement	DPW	Develop Model	Models/Templates between communities and private BMP owners reviewed for applicability in City.	Develop template and agreement to be used between City and private BMP owners to ensure maintenance of private stormwater BMPs.

Part III Summary of Minimum Control Measures

Municipal Good Housekeeping

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
MH-1	Pet waste collection	BOH	Distribute brochures	Educational material distributed in water bills year 11	Update and distribute mailer
MH-2	Parking lot and street cleaning	DPW	Increase frequency	Street and parking lots sweeping program active nine months per year. All streets swept a minimum of once per year. Main lines swept multiple times per year. Purchased new street sweeper in year 11. Additional sweeping of select streets as necessary.	Continue program
MH-3	Catch basin cleaning	DPW	Implement program to track and increase frequency	Catch basin cleaning program active nine months per year. Second catch basin cleaner added to program in year 11. Additional man hours allocated to program goal is to clean all catch basins a minimum of 1x/yr.	Continue program. Prioritize problem areas in order to devote additional time and effort in those areas. Work towards compliance with new regulations.
MH-4	Spill Response & Prevention	Fire Dept.	Formalize program provide education	Conduct annual review and training at specific sites including wastewater, water and DPW facilities. Purchased new training videos in year 10 for this purpose.	Review current training materials, hold internal training for select DPW Personnel

Part III Summary of Minimum Control Measures

BMP's for Meeting TMDL

BMP ID #	BMP Description	Responsible Det./ Person	Measurable Goal	Progress on Goal Permit years 1 - 12	Planned Activities year 13
TM-1	Parking lot and street cleaning	DPW	Formalize Program	see municipal house keeping	continue activity
TM-2	Catch Basin cleaning	DPW	Formalize Program	see municipal house keeping	continuity activity
TM-3	Install deep sumps	Planning/ Engineering	Require all new development to install	Deep sumps installed in all new and rebuilt catch basins. Approximately 200 new deep sump catch basins installed as part of CSS-4D sewer separation project and 2,400 feet of outfalls cleaned of sediment in past 1.5 years	Continue with deep sump requirement for new catch basins, replace any damaged catch basins with deep sumps
TM-4	Install gas and oil separators	DPW	Establish requirement	All new garage and other potential oil using activity required to install oil water separation	continue activity and inspect established locations for compliance
TM-5	Detention Basins	Planning/ Engineering	Establish design and requirement standards	Design and standards established. Enforce standards for new construction, inspect older construction for function and effectiveness	continue activity