Municipality/Organization: **Manchester by the Sea**

EPA NPDES Permit Number:

MassDEP Transmittal Number:

Annual Report Number & Reporting Period: **Year 14**
April 1, 2016 – March 31, 2017

NPDES PII Small MS4 General Permit Annual Report
(Due: May 1, 2017)

Part I. General Information

Contact Person: Charles Dam P.E. Title: DPW Director

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Mailing Address: 10 Central Street Manchester, MA 01944

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.

*I, Charles Dam, took over as DPW Director as of 4/2/18 have reviewed this document and further certify that all answers are to the best of my knowledge as can be reasonably verified since my start date.

Signature:

Printed Name: Charles Dam P.E.

Title: DPW Director

Date: 4/18/18

Part II. Self-Assessment

The Town of Manchester-by-the-sea's Public Works Department takes the lead for compliance with the Town's Small Municipal Separate Storm Sewer Systems (MS4) Permit, with support of other municipal Departments. In Year 14 progress was continued to implement BMP, especially during construction activities. Additional progress was made to meet the requirements of USEPA's 2003 General Permit for Storm Water Discharges from MS4s.

The Board of Health held their annual hazardous waste collection day and the Police Department hosted a Drug Take-Back day. The Board of Health continued to collect devices containing mercury, along with button batteries and florescent light bulbs. Storm water management activities are conducted by DPW, Conservation Commission, Master Plan Committee, Building Department, Board of Health and Planning Commission.

The volunteer, very active Stream Team, discussed local environmental issues and highlighted projects to maintain and improve water quality in the town and region. They again this year conducted numerous outreach and educational activities, sponsored clean up days and helped conduct Sawmill Brook sampling for the watershed study. Salem Sound Coastwatch coordinated with the Stream Team to conduct water quality sampling. Samples were analyzed for Enterococci which are used to detect human pathogens often found in sewage and assess water quality at saltwater beaches.

During this year, all catch basins in Town were cleaned and the approximately 20 miles of streets in Town were swept at least once. Significant catch basin repair was accomplished which along with the catch basin cleaning activities provided an opportunity to identify illicit discharges.

The Town understands the importance of compliance with the MS4 permit, and will assure that year 15's report is filed by the deadline.

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
1.1 Revised	Water Conservation Practice Brochures	DPW	Brochure distribution (goal of over 1,700)	This goal was completed. In 2016, the Town put the water conservation tip/brochures with the CCR in each water bill as well as on the website.	Continue to provide brochures with water bills as the budget allows.
1.2 Revised	Hold Hazardous Waste Collection	Board of Health	Conduct annual event	Goal met. In March 2016 the Board of Health held its annual household hazardous waste collection day. The Town also provides recycling information on the Town website. Manchester-by-the-Sea used its Town website to host a "FAQ" on hazardous waste disposal, to promote and evaluate household waste recycling programs and encourage residents to utilize services available at the Recycling Center. The Highway Department recycles its used oil and serves as a drop-off location for used oil from residents, with all materials collected and processed regularly by the Recycling Center. Manchester-by-the-Sea participates in all DrugTake-Back programs sponsored nationally by the federal government, and provides notice of these events locally	MBTS will continue holding the annual HHW day event The Town will continue to update and provide recycling information on the Town website. The Town will continue to participate in Drug Take-Back events.

1.3 Revised	Stormwater Brochures at Town Hall	DPW/Conservation/ Stream Team	Make stormwater related brochures available at Town Hall	Manchester-by-the-Sea continued to make stormwater brochures available in Town Hall. Topics included: The Importance of Streamside Buffers" and "Pet Waste and Bathing Beaches – Guidelines for Pet Owners." Manchester-by-the-Sea will post links to stormwater BMPs and other water quality education resources, including EPA and DEP, on its website. The Town will print a summary sheet of available educational information and make it available at Town Hall. Outreach materials continue to be available on the Town's website. The Town streamed the Pennsylvania State University documentary "Liquid Assets" on the local cable access channel.	Continue to provide accessible brochures and posters. Continue to identify and implement alternative information sources for public outreach and evaluate the program. Continue to stream the Pennsylvania State University documentary "Liquid Assets" on the local cable access channel.
1.4 Revised	Animal Control Bylaw (Town's General Bylaws Article X Section 28)	Police/Board of Health	Enforce Animal Control Bylaw	The Animal Control Bylaw prohibits disposal of dog waste on beaches, sidewalks, streets, parks, in town storm drains, and on public beaches. In Year 14, the Police continued to enforce the bylaw by patrolling beaches, parks, recreational areas and cemeteries and monitoring the "dog waste stations." The Board of Health also promotes compliance with the bylaw and educates residents and visitors about this bylaw. Signage on streets entering Manchester-by-the-Sea alerting visitors of the bylaw is maintained by the Town.	The Police force and Board of Health will continue to promote and enforce the bylaw.

Revised					
Revised					

1a. Additions

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities
2.1 Revised	Stream Cleaning and Cleanups	DPW/Conservation Commission/SSCW	Annual Project	The Town continues to support stream cleaning and other cleanup projects over the permit term. Throughout 2016, the DPW supported volunteer cleanup events by removing trash and debris picked up at each event. COASTSWWEP 2016 included a volunteer cleanup of Black Cove (stinky beach) Beach in Town 2016. This was organized by the Town's Brookwood School.	Continue annual stream cleanings and support volunteer cleanup efforts. Continue to hold community clean-ups in the Town, including Earth Day events in Year 15, and evaluate the program.
2.2	Stakeholder Meetings	Manchester Coastal Stream Team/Conservation Commission/Planning Board	Conservation Commission Meetings (Goal – 16 times per year) Stream Team Meetings (Goal – 9 times per year) Planning Board Meetings (Goal – 15 times per year)	The Conservation Commission continues to meet twice a month on the second and fourth Tuesdays. Additional meetings are scheduled as needed. Abutters and general public are invited to consider drainage and stormwater management issues as related to the Wetlands Protection Act and related state and local laws. The Manchester Coastal Stream Team met periodically to discuss	Continue to discuss stormwater at all relevant meetings.

Revised				environmental issues that affect water bodies in Manchester-by-the-Sea and to plan corrective measures to address identified issues. The Planning Board met 1 to 3 times per month to hear applications relating to the use and division of land, including projects that fall under Section 6.15 Stormwater Management Special Permit, of the Zoning Blylaw. Meetings held by the Conservation Commission and the Planning Board complied with state public notice requirements at MGL Chapter 39 Sectoin 23B and the local public notice requirements.	
Revised					
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Revised					

2a. Additions

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities
3.1 Revised	Map of Storm Drains	DPW	Complete by June 30, 2006	GIS map of storm sewer system (outfalls, catch basins, and other drainage structures) in the Urbanized Area is complete. Connectivity, where known, is included on the map. The Town contracts with Applied Geographics, Inc. for mapping services. They provide an online viewer for GIS, including the drainage system map. Town Staff provide revisions and edits to Applied Geographics throughout the year, based on field surveys.	This BMP has been completed and the measurable goal met. The Town will continue to locate new outfalls that are added and update mapping as needed.
3.2 Revised	Illicit Discharge Policy/Regs	DPW/Conservation Commission/Planning Board/Building Inspector	Complete implementation by May 31, 2008	Due to limitations on staff time and budgets, as well as Town Staff turnover, efforts to adopt the Illicit Discharge Detection and Elimination (IDDE) Bylaw have stalled. The Town's Stormwater Management Zoning Bylaw requires projects to meet the MA Stormwater Standards and Handbook, and therefore regulates illicit discharges and connections from projects disturbing one or more acres. The Town's Street and Sidewalks Bylaw regulates illegal dumping on the town streets and sidewalks, as well as public lands and coastal and inland waters.	Continue to work on adopting IDDE Bylaw. Continue enforcing bylaw The Town will develop wet and dry weather outfall inspection Standard Operating Procedures. The staff will receive training on these procedures and they will then be incorporated into the annual inspection process.

Revised					
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Revised					

3a. Additions

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities
4.1	Develop and Implement Construction Runoff Policy/Regulations regulating erosion and sediment control	DPW/Conservation Commission/Planning Board/Building Inspector	Complete by June 30, 2007	The "Stormwater Management Special Permit" was added to the Town's Zoning Bylaw on April 4, 2007. Regulations have been adopted by the Planning Board. This bylaw requires erosion and sediment controls at construction sites that disturb one or more acres (or less than one acre if part of a common plan of development) and includes sanctions to ensure compliance and requirements for inspections. This bylaw references the Massachusetts Stormwater Management Standards and Handbook as performance standards. Planning Board continued to implement Bylaw and regulations	The Town completed the BMP and the measurable goal has been achieved. Continue to implement and evaluate the current Bylaw. Continue to use the tools created by the Bylaw and regulations.
Revised					
Revised					
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Revised					

4a. Additions

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities
5.1	Bylaw: Require post-construction runoff controls	DPW/Conservation Commission/Planning Board/Building Inspector	Complete by June 30, 2007. Implement Bylaws.	The "Stormwater Management Special Permit" was added to the Town's Zoning Bylaw on April 4, 2007. Regulations have been adopted by the Planning Board. This bylaw regulates stormwater runoff from development and redevelopment projects that disturb one or more acres (or less than one acre if the project is part of a larger common plan of development), and includes long term O&M requirements. This bylaw references the Massachusetts Stormwater Management Standards and Handbook as performance standard, and therefore controls that are put in place should prevent or minimize impacts to water quality. The Planning Board continued to implement the bylaw and regulations as needed.	The Town completed the BMP and the measurable goal has been achieved. Continue to implement and evaluate the current bylaw and regulations
Revised					
Revised					
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Revised					
Revised					

5a. Additions

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities
6.1 Revised	Stormwater System and Catch Basin Inspection and Cleaning Program	DPW	Annual Inspections	DPW inspects catch basins and other stormwater system components throughout Town, as needed. In 2016, all catch basins were again cleaned.	The Town will continue annual inspections and as needed cleanings. The Town will review regulations and recommendations from DEP and EPA to develop or update an operations and maintenance plan to include proper disposal of street sweepings, catch basin cleanout, snow disposal, and outside storage of materials.
6.2 Revised	Septic system controls	Board of Health	The Board of Health continued to implement Title 5. Systems are inspected and failing systems are upgraded as required by Title 5. The BOH continued to track the number of pump outs	The Board of Health continued to implement Title 5. Systems are inspected and failing systems are upgraded as required by Title 5. The BOH continued to track the number of pump outs.	The Board of Health will continue to monitor septic systems in accordance with Title 5.
6.3 Revised	Sweep all streets by June 1	DPW	Complete by June 1st each year.	Streets throughout the Town were swept as contracted by DPW	The Town will continue to sweep streets once per year, as budget allows. The Town will review regulations and recommendations from DEP and EPA to develop or update an operations and maintenance plan to include proper disposal of street sweepings.

6.4	Biweekly (minimum) sweeping of main streets from May through September	DPW	Sweep as necessary	The DPW swept main streets, which included those near beaches and in the downtown areas, as needed throughout the summer season (May through September, or later, depending on weather)	Continue to sweep main streets as needed and as budget allows
Revised					
6.5	Employee Training	Conservation Commission/Fire Department/DPW	Train staff annually	Training on stormwater elements is incorporated into other Conservation Commission, Fire Department, and DPW trainings. Town staffs have been trained previously on how to recognize illicit discharges.	The Town will continue stormwater trainings as the budget allows.
Revised					
Revised					

6a. Additions

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) *<<if applicable>>*

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised	Not Applicable	Not Applicable	Not Applicable	The following Manchester-by-the-Sea water bodies are considered impaired per the current Integrated List of Waters (Massachusetts Year [March] 2012). TMDLs are required for several water bodies (Category 5) and will be developed in the future, including: Cat Brook (Fecal Coliform/Low pH); Causeway Brook (Fecal Coliform); Waite Pond (mercury in fish tissue); Manchester Harbor between Gales Point and Chubb Point (Fecal Coliform); and the northern portion of Salem Sound, including waters landward of and within imaginary lines from Chubb Point, Manchester to Gales Point, Manchester to the northwest point of Bakers Island (Fecal Coliform).	Evaluate any TMDLs developed for Manchester-by-the-Sea impaired waters.
Revised					
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Revised					

Revised					

7a. Additions

7b. WLA Assessment

Part IV. Summary of Information Collected and Analyzed

The Town of Manchester-by-the-Sea maintains that it continues to be in compliance with the 2003 Massachusetts Small MS4 Permit. In addition to the information presented in Part III, above, the following information is available:

I. Results from Salem Sound Coastwatch's Clean Beaches and Streams Water Quality Monitoring Program for Summer 2017 are available at their website. http://www.salemsound.org/CB&S.html

II. The Town's Board of Health maintains records of weekly sampling results and beach closings for the Town's beaches at eight sampling locations. The Massachusetts Department of Public Health also presents sampling results on their website: https://ma.healthinspections.us/public_21/

Part V. Program Outputs & Accomplishments (OPTIONAL)

(Since beginning of permit coverage unless specified otherwise by a **, which indicates response is for period covering April 1, 2010 through March 31, 2011)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	
Annual program budget/expenditures **	($)	
Total program expenditures since beginning of permit coverage	($)	
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		General Fund

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	
Stormwater management committee established	(y/n)	
Stream teams established or supported	(# or y/n)	
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	
Shoreline cleaned since beginning of permit coverage	(mi.)	
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	

▪ community participation **	(# or %)	
▪ material collected **	(tons or gal)	
School curricula implemented	(y/n)	

Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	Adopted
Regulatory Mechanism Status (indicate with "**X**")					
▪ Illicit Discharge Detection & Elimination				X	
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X
Accompanying Regulation Status (indicate with "**X**")					
▪ Illicit Discharge Detection & Elimination				X	
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	100
Estimated or actual number of outfalls	(#)	
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	99
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	100
Outfalls inspected/screened **	(# or %)	
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	
Illicit discharges identified **	(#)	
Illicit discharges identified (Since beginning of permit coverage)	(#)	
Illicit connections removed **	(#); and (est. gpd)	
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	
% of population on sewer	(%)	>60
% of population on septic systems	(%)	<40

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	100
Site inspections completed **	(# or %)	
Tickets/Stop work orders issued **	(# or %)	
Fines collected **	(# and $)	
Complaints/concerns received from public **	(#)	

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100
Site inspections (for proper BMP installation & operation) completed **	(# or %)	
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	
Low-impact development (LID) practices permitted and encouraged	(y/n)	

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	1
Qty of structures cleaned **	(#)	~620
Qty. of storm drain cleaned **	(%, LF or mi.)	
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	($)	
• Hourly or per basin contract rate **	($/hr or $ per basin)	
• Disposal cost**	($)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	1-contracted
• Vacuum truck(s) owned/leased	(#)	
• Vacuum trucks specified in contracts	(y/n)	
• % Structures cleaned with clam shells **	(%)	90
• % Structures cleaned with vactor **	(%)	10

	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	>1
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Compost
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	($)	~$10,000
• Hourly or lane mile contract rate **	($/hr. or ln mi.)	
• Disposal cost**	($)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	Yes, contract
• Vacuum street sweepers owned/leased	(#)	0
• Vacuum street sweepers specified in contracts	(y/n)	N
• % Roads swept with rotary brush sweepers **	%	100
• % Roads swept with vacuum sweepers **	%	0

Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	100

▪ Herbicides	(lbs. or %)	100
▪ Pesticides	(lbs. or %)	100
Integrated Pest Management (IPM) Practices Implemented	(y/n)	

	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	Mixture is NaCl and sand, mostly NaCl
Pre-wetting techniques utilized **	(y/n or %)	N
Manual control spreaders used **	(y/n or %)	Y
Zero-velocity spreaders used **	(y/n or %)	
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100
Storage shed(s) in design or under construction	(y/n or #)	N
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	Y

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	0
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	0
Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	0