

City of Worcester
Department of Public Works & Parks
Draft Stormwater Permit
Additional Comments on Monitoring, Land Disturbance
October 10, 2008

Proposed Revised Stormwater Monitoring Program

1) In Stream Dry & Wet Weather monitoring

Objective: In stream monitoring will be used over time to assess the overall effectiveness of the SWMP by tracking trends in receiving water quality. This monitoring will also identify areas impacted by MS4 discharges and other pollutant sources and guide investigations and BMP implementation.

- a) Single grab, in stream sampling at 21 locations including:
 - 3 at Beaver Brook
 - 1 at Middle River
 - 1 at Kettle Brook (between Main Street and James Street)
 - 1 at Tatnuck Brook
 - 1 at Mill Brook
 - 1 tributary inlet to Beaver Brook (outlet of Coes Pond)
 - 1 tributary inlet to Curtis Pond (Kettle Brook)
 - 2 tributary inlets to Indian Lake
 - 2(?) tributary inlets to Kettle Brook
 - 4 tributary inlets to Lake Quinsigamond (Poor Farm, Coal Mine, Fitzgerald, O'Hara)
 - 3 tributary inlets to Tatnuck Brook (Camp Kinneywood, West Tatnuck, Glendale)
 - 1 tributary inlet to Salisbury Pond (Weasel Brook)
- b) 3 wet weather, 1 dry weather sample each year of permit term
- c) Field tested for
 - i) DO
 - ii) pH
 - iii) Temperature
 - iv) Conductivity
- d) Laboratory analysis for
 - i) TSS
 - ii) Total Phosphorous
 - iii) Bacterial indicator (E. coli or Fecal coliform)
- e) Tributary inlets to impaired waters will be field tested as per 3c above but laboratory testing will be limited to total phosphorous and/or bacterial indicators depending on the nature of the impairment.

2) Wet weather outfall monitoring

Objective: Wet weather outfall monitoring will be used to assess the overall quality of wet weather discharges, assess general BMP effectiveness and identify areas in need of further investigation or corrective actions.

- a) Single grab sample from 30 representative outfalls during wet weather two (2) times each year during permit term
- b) Outfalls will be selected so that the following are represented::
 - i) All major subwatersheds
 - ii) All major land uses
 - iii) Areas with higher potential for pollution (e.g., significant twin-inverts)
 - iv) Areas of older infrastructure
 - v) Areas with newer infrastructure
 - vi) Large drainage areas
 - vii) Small drainage areas
 - viii) Drainage areas with significant topographical gradients (steep areas)
 - ix) Drainage areas with minor topographical gradients (flat areas)
 - x) Direct discharges to impaired waters
 - xi) Discharges to recreational waters
- c) Field tested for
 - i) DO
 - ii) pH
 - iii) conductivity
 - iv) temperature
- d) Laboratory analysis for
 - i) bacterial indicator (E. coli or Fecal coliform)
 - ii) Total Phosphorous
- e) When feasible sampling will be watershed coordinated so that all outfalls to a given receiving water (or subwatershed) will be collected at the same approximate time

3) Dry Weather Screening

Objective: Dry weather screening is the primary method of identifying outfalls impacted by illicit discharges. Dry weather screening is a component of the illicit discharge detection program.

- a) All outfalls will be inspected and dry weather screened one (1) time during the permit term. Antecedent conditions and general inspection procedures will be as described in the 1998 permit.
- b) Dry outfalls lacking visual evidence of contaminants will be revisited at least twice and at different days/times of day to determine whether there are illicit discharges. Dry outfalls with evidence of indicative contaminants will be re-screened within 4-24 hours.
- c) Outfall/invert damming will be considered where feasible.
- d) Flowing outfalls will be field tested for
 - i) Turbidity
 - ii) DO
 - iii) Conductivity
 - iv) pH
 - v) chlorine

- vi) temperature
- e) Flowing outfalls will be sampled and laboratory analyzed for bacterial indicators (E. coli or Fecal coliform)

4) Hydrodynamic separator monitoring

Objective: To assess the effectiveness of recently installed structural BMPs relative to removal of contaminants for which they were designed. This monitoring will also include a component to aid in the scheduling of structural BMP maintenance.

- a) Testing of one unit at Salisbury Pond and one unit at Indian Lake.
- b) Each round of testing to include single grabs from the unit influent, effluent and bypass
- c) Wet weather sampling twice per year for permit term with four rounds collected: one round during first flush and one round every 15 minutes thereafter for a total of one hour
- d) Dry weather sampling once per year for permit term with one round collected
- e) Laboratory analysis for
 - i) TSS
 - ii) Oil & Grease
- f) All units (Salisbury Pond, Indian Lake, Belmont Street) will be inspected quarterly during year 1 of the permit term in order to establish a cleaning schedule. The schedule determined in year 1 will be applied in subsequent years of the permit.
- g) All units (Salisbury Pond, Indian Lake, Belmont Street) will be inspected within 7 days of high volume storm events (> 2 inches in 24 hours) to determine storm impacts on sediment capture and assess whether unscheduled cleaning is necessary.

5) Illicit Discharge Detection and Elimination

Objective: To identify, locate and remove illicit discharges to the stormwater collection system and thereby improve the quality of stormwater at outfalls.

- a) A bottom up approach (start at the outfall) will generally be utilized. Investigations will begin at an outfall that is suspected of containing illicit discharges. Upstream manholes will then be checked until the contaminated flow is isolated.
- b) Dry weather screening of each outfall will be used as the primary tool for identifying illicit discharges
- c) In-stream sampling at approximately 50 locations, 6 times per year, with testing for bacterial indicators will be done to identify outfalls with potential for illicit discharges. This monitoring also ensures rapid detection of repeat illicit discharges caused by temporary system issues (blockage, surcharge, etc)
- d) Invert damming, use of optical brighteners and other techniques for identifying intermittent discharges will be applied where feasible and warranted
- e) After correction of an illicit discharge, verification screening at the outfall or junction manhole will be done to determine whether other illicit discharges are present.
- f) Historical dry weather screening results for each outfall will be referenced as a guide. Outfalls that were always found to be not flowing during dry weather and which are now found to be flowing would be suspect.
- g) All stormwater manhole and stormwater system inspections conducted for any reason, such as asset management, complaint investigations and general maintenance will be recorded and incorporated into GIS system assessment mapping. Any indicators of illicit

discharges found through these inspections will be further investigated using IDDP tools. Staff training to recognize indicators of illicit discharges will continue as part of the regular training program.

- h) During this permit term the City will establish a goal of beginning a system-wide visual assessment of its stormwater collection system. The objective of the assessment program is to conduct a systematic visual evaluation of the entire stormwater collection system in order to identify structural failures, evidence of illicit discharges and physical weaknesses that may impact stormwater quality or the ability of the system to convey stormwater runoff.

Land Disturbance

1) On the issue of post-development authorities and enforcement, the draft permit language should be modified to clarify intent. It is now our understanding, based on discussions at the meeting of October 3, that EPA wants the City to ensure that it has the authority to take action against a private development connected to the MS4 only if that development has a negative impact on the MS4 or its receiving waters. EPA is not requiring that the City create a program to monitor and enforce provisions of private development maintenance schedules or activities.

2) On the DCIA matter, the City remains skeptical about the value of the measure regardless of its frequency, derivation or accuracy. We simply cannot imagine that during a permit term or terms there would be any appreciable decrease in DCIA. In addition, it would be impossible to make any valid links between stormwater quality improvements or degradations and changes in impervious area. While we will promote LID techniques and make changes in City rules that allow for LID implementation, it is not realistic to assume that the area of imperviousness in Worcester will change in a measurable way. Even applying a low-tech paper exercise to calculate this value will be manpower and time intensive while failing to produce a benefit.