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RE: Comments on Draft Stormwater Permit-NPDES Permit Number MAS010002-City of Worcester MS4

The City of Worcester Department of Public Works and Parks (the City) has reviewed the above-cited Draft NPDES Permit and Fact Sheet and offers the following comments. The comments generally follow the order in which the issue appears in the draft permit.

1. Worcester's MS4 does not include any outfalls to Leesville Pond. This body of water is not a receiving water and should be removed from the list of receiving waters on page 1 and from Appendix B.
2. The requirements on page 4 (Part I.A.4(a)-(c)) to notify EPA and MassDEP 30 days prior to commencement of new discharges or increased discharges and to post for public inspection related submittals are unnecessary. It is unclear as to the focus of this provision since there are no definitions for increased or new discharges. Regardless, it is understood by the City that all discharges (new, old or increased) are expected to meet the same requirements relative to impacts on receiving waters. The requirement to submit information to both agencies and then wait 30 days for approval accomplishes nothing and may interfere with local approval and permitting timeframes. Both EPA and MassDEP frequently remind us of their lack of staff so it is difficult to understand how this new review and approval task will be accomplished by the agencies. This section should be stricken. An updated outfall list is provided in each Annual Report. There is no demonstrable need to do more.
3. Part I.C.1 (page 5) states that "Pursuant to Clean Water Act Section 402(p)(3)(B)(iii), this permit includes provisions to ensure that discharges from the Permittee's MS4 do not cause or contribute to exceedances of water quality standards...". The cited section of the Clean Water Act makes no mention of water quality standards. Instead, it establishes Maximum Extent Practicable as the standard to which pollutants must be removed from

municipal MS4s. The City disagrees with EPA's interpretation of section 402(p)(3)(B)(iii) of the Federal Water Pollution Control Act. As described in the Fact Sheet (page 6-Section VI Regulatory Basis of Permit Conditions)) EPA interprets this section to mean they can impose water quality based effluent limitations and that this provision over-rides the Maximum Extent Practicable (MEP) standard for municipal stormwater discharges. A reading of this section of the Clean Water Act clearly shows that EPA's interpretation is incorrect. The language in section 402(p)(3)(B)(iii) of the Act is clear that MEP governs pollution control requirements for municipal stormwater discharges. Section 402(p)(3)(B)(iii) of the Act states that controls to reduce the discharge of pollutants to the MEP include management practices, control techniques and systems, design and engineering methods, and such other provisions as the Administrator determines appropriate for the control of pollutants. The "such other provisions" clause is within the broader context of the MEP standard, not separate from it as EPA tries to imply in the Fact Sheet and permit. The proper wording throughout the permit that would be consistent with the Act would be for the permittee to meet water quality standards to the maximum extent practicable. Furthermore, EPA lacks legal authority to render an interpretation of Massachusetts water quality standards.

4. EPA states, in the Fact Sheet (page 6), that "MEP (Maximum Extent Practicable) is the statutory standard that establishes the level of pollution reductions that MS4 operators must achieve". We fully concur and would expect that the MEP standard be applied throughout the permit. That does not appear to be the case when EPA requires us to achieve specific phosphorous reduction levels, WLAs and mandates to "ensure" that discharges do not cause or contribute to exceedances of water quality standards. That language is troubling. The level of certainty that Worcester seeks in this permit could be provided if the language were modified to clearly make MEP the governing standard for the entire permit, including achievement of WLAs and compliance with water quality standards. Further clarification to show that implementation of reasonable BMPs is the desired approach for maintaining compliance would also be useful. EPA clearly has authority under the Clean Water Act to issue a municipal stormwater permit under the MEP standard and using a BMP approach rather than establishing numeric limits. A permit clearly stating that the City of Worcester must reduce pollutants discharging from its stormwater system (MS4), work toward meeting WLAs and strive to achieve applicable water quality standards in receiving waters, by implementing BMPs to the Maximum Extent Practicable, is critical to the city.
5. In the earlier pre-draft version of this stormwater permit the single factor that led the city to conclude compliance would cost in excess of \$1.2 billion was language requiring stormwater discharges to meet water quality standards. This cost estimate was predicated on the assumption that end of pipe treatment would be necessary to achieve the water quality standards for all Worcester stormwater outfalls and water bodies. While the draft permit does not explicitly dictate the requirement for end of pipe treatment during this coming 5-year permit term, neither does it explicitly preclude such treatment. In fact, language in Part I.C.1-3 (pages 5-7) remains unclear and does not provide any level of certainty to the City regarding the potential for costly end of pipe treatment as a Best Management Practice (BMP). To the contrary, the permit gives EPA authority to require additional pollution controlling measures during the permit term or in the next permit term if it "determines more stringent requirements are necessary to support achievement of the WLA (waste load allocation)" (Part I.C.3(b)). Furthermore, the draft permit

requires that if "...the Permittee becomes aware ...that a discharge from its MS4 (municipal separate storm sewer system) causes or contributes to an exceedance of applicable water quality standards, the Permittee shall within sixty (60) days of becoming aware ... submit to EPA and MassDEP a description of best management practices (BMPs) that are currently being implemented and additional or modified BMPs that will be implemented to prevent or reduce pollutants sufficient to ensure that the discharge will no longer cause or contribute to an exceedance of applicable water quality standards". These permit terms fail to provide the city with any certainty as to the potential obligations and costs inherent in this permit. Both agencies have failed to define how one measures whether stormwater discharges cause or contribute to an exceedance of water quality standards. With the excessive level of sampling and monitoring contained in this permit combined with nationwide data on stormwater quality it is virtually assured that the city will be unable to meet water quality standards especially if those standards include suspect WLAs. Despite EPA's assurances, we remain unconvinced that end of pipe treatment, an exorbitantly costly and extreme BMP, will not be mandated by EPA or forced upon us as a result of litigation.

In the Fact Sheet (page 5), it states, "EPA continues to believe that numeric limitations for storm water permits can be very difficult to develop because of ...the intermittent and variable nature of these types of discharges and their effects on receiving waters". In lieu of numeric limitations, "EPA has required a series of Best Management Practices (BMPs) to be incorporated into a comprehensive storm water management program...". The draft permit, however, requires that the Permittee evaluate BMPs needed in addition to those required in the permit to meet the percent Total Phosphorous (TP) reductions called for in WLAs. Specific percent reductions in phosphorous loads and WLAs can certainly be interpreted as numeric limitations and have the same impact. If EPA's approach to stormwater permitting is indeed an iterative BMP approach and one that has been upheld in the courts, then the permit needs to be consistent in its language so that this intent is clear. At present, the draft permit contains conflicting language that first suggests the BMP approach is satisfactory and then requires compliance with water quality standards that may include numeric limitations.

6. EPA has presumed that "typical" BMPs will be sufficient to assure that water quality standards are met. However, the agency seems less than confident in its presumption given the "more stringent requirements" language in Part I.C.3(b) and language in Part I.C.2(d). This latter section is described in the Fact Sheet (page 8) as follows: "These provisions oblige the permittee to consider available information, and add or modify BMPs in its SWMP to abate pollutants sufficiently to meet applicable water quality standards in the event that EPA's presumption proves to be incorrect." Through the immense volume of existing national stormwater data (including Worcester's), EPA/DEP should be aware that urban stormwater is highly unlikely to meet water quality standards. EPA/DEP should also be aware that studies have shown that "typical" BMPs are insufficient to achieve water quality standards. What leads EPA/DEP to expect that Worcester, or any other MS4, can achieve water quality standards by means of such BMPs? Congress clearly understood the enormity of the urban stormwater problem when it opted for MEP as the standard for municipal MS4 discharge control. Through this permit EPA is trying to revoke MEP as the single statutory standard and establish full compliance with water quality standards as a parallel requirement for municipal stormwater discharges. Such a move is outside of EPA's authority and will certainly

result in non-compliance by permittees or expenditures exceeding \$1 billion in cities like Worcester. EPA's effort to require compliance with Massachusetts water quality standards constitutes an *ultra vires* act, and violates the statutory MEP standard. EPA has further violated the statutory MEP standard by failing to adequately consider the inordinate costs associated with the draft permit.

7. Part I.C.3(b)(3) (Page 7) requires that the Permittee evaluate BMPs needed in addition to those required in the permit to meet the percent Total Phosphorous (TP) reductions called for in WLAs. The required WLA TP reductions range from 5-70%. Under any circumstances, achieving these reductions will be daunting if not impossible. Most troubling is that the TMDLs which produced these figures relied on very suspect "science" or used data and studies that are dated and of questionable validity in 2008.

Worcester has final TMDLs for the pollutant Total Phosphorous (TP) for six water bodies. The findings and basis for some of these TMDLs include:

Curtis Pond (North & South)- Curtis Ponds TMDL issued in 2002 (part of Northern Blackstone Lakes TMDL report) was based in part on a 1994 "synoptic survey" by MassDEP during which no samples were tested for TP. The report mentioned that 2 samples with conflicting results were collected and tested in 1985. The Curtis Pond TMDL does not use actual test data but relies entirely on a watershed export model to predict TP loading and a theoretical estimate of what a pond in this area should naturally have for TP concentrations. The modeled loading, using 1985 land use data, indicates the pond contains 26-27 parts per billion (ppb) of TP while the theoretical estimate and target suggests the pond should have (naturally) about 25 ppb. The draft MS4 permit requires us to reduce TP loads to the Curtis Ponds by 5% from residential areas and 7% from commercial/industrial areas by implementing BMPs. This would then help to achieve a 1 ppb reduction in TP concentrations in the ponds. No samples were ever collected to verify the accuracy of the loading model.

Indian Lake-Indian Lake's 2002 TMDL indicates that the Lake receives 383 kg/year of TP from watershed runoff (stormwater) but can only handle 206 kg/year. Thus TP input to the lake from the watershed must be reduced by 46%. These conclusions were based partly on a Diagnostic/Feasibility Study completed in 1989 and earlier studies and partly on modeled TP loading using land use data. Any actual TP testing data considered in this TMDL is 20 or more years old. Any efforts undertaken over the past 20 years that may have reduced TP loading, including paving of private streets, upgrades to sewage pumping stations and improved stormwater BMP implementation like street sweeping and catch basin cleaning and installation of hydrodynamic separator units have not been considered. The TMDL uses 20-year old results and assumes that no stormwater improvements have occurred in the watershed over the past two decades.

Lake Quinsigamond/Flint Pond-Lake Quinsigamond/Flint Pond TMDL issued in 2002 is based almost exclusively on studies and data from 1980 and 1981. This TMDL takes 22 year old data and analysis and transfers it to 2002. The draft permit then takes the same information and transfers it to 2008 along with the requirement that we achieve the 28 year old phosphorous (P) reduction targets (52% reduction in available P). Nowhere in the process does it consider any of the work done by the city in the past 28 years that likely reduced TP loading to the Lake including the Belmont St Vortech unit, rehabilitation of sanitary sewers and sewer pump stations, private street paving and other

projects. The Quinsigamond TMDL is predicated on reducing mean available in-lake P by 4 ppb.

Green Hill Pond- The Green Hill Pond TMDL, like that for Curtis Pond, was part of the 2002 Northern Blackstone Lakes TMDL report. The only investigation of the pond was a 1994 “synoptic survey” by MassDEP during which no samples were tested for TP. This survey noted that aquatic plants were sparse but the pond was very turbid. Using 1985 land use data a model was generated to estimate TP loading to the pond. It was noted that the Green Hill Golf Course is adjacent to the pond and it was assumed that TP loading would be higher than that from typical “open land”. Therefore the model was adjusted to make TP export rates equivalent to that from a pasture. The adjusted model then predicted a TP concentration in the pond that would need to be reduced by 38% to meet the theoretical level of TP “typical” for ponds in the region. The draft permit calls for the city to achieve this level of TP reduction in the stormwater discharge to the pond by implementing practices at the Golf Course. Interestingly, there are no stormwater outfalls to the pond and this requirement should not be included in a stormwater permit. Also of interest, previous studies of Indian Lake and its TMDL implicated carp as a source of TP. Carp tend to stir up phosphorous rich sediments releasing the nutrient into the water while also creating turbidity. Many Worcester residents recognize Green Hill Pond as being famous for one thing: carp. Feeding the carp has been an entertaining activity for Worcester area children for decades. However, the TMDL for Green Hill Pond makes no mention of carp. Rather it places the blame for turbidity entirely on assumed fertilizer runoff from the golf course. The draft permit then determines the solution to this impairment is for the city to control phosphorous use at the golf course so that it does not enter the pond through a non-existent stormwater collection system.

EPA and DEP lack substantial evidence for the TMDL-based permit requirements and for the phosphorous-based permit requirements. If Permittees are expected to embrace TMDLs as a true guide as to the level of effort and cost needed to improve local receiving waters then the TMDLs need to be valid. Current TMDLs for Worcester receiving waters are not and need to be reviewed, reconsidered and made current using up to date science and contemporary data. In the interim, this permit should not be requiring strict compliance with the TMDL TP load reductions.

Science tells us that TP can induce the growth of aquatic plants and algae thereby making a water body less suitable for recreation and possibly having negative impacts on fish and aquatic wildlife. Reducing TP is thus a laudable and valid goal. However, the ability to cost-effectively reduce TP in stormwater and the level of reduction needed are not well defined. The lack of current and valid data used in TMDLs clearly shows that specific percent reduction requirements for TP called for in these reports are highly suspect. We recognize that comments on a draft permit is not the forum for correcting weak or faulty TMDLs. However, given the questionable nature of these studies, the city should not be held to meeting these TP reduction requirements through this permit. Rather, the permit should state that for discharges to impaired waters with approved TMDLs for TP the Permittee should implement reasonable BMPs to reduce TP loading to the maximum extent practicable standard (MEP). The TMDLs lack the specificity and accuracy to be used as absolute target levels for stormwater management decision making.

8. It remains uncertain as to the legal limitations the city may have for requiring inspection and maintenance of private retention basins as stipulated in Part I.E.1.(c) on page 8. This requirement should be limited to those retention basins owned by the city or for which the city holds an easement for maintenance purposes. EPA and DEP have no authority to impose requirements on the City for issues related to privately owned ponds and properties.
9. The requirement, in Part I.E.2.(f) on page 9, to host an annual public information meeting two months after filing each annual report is of little value. The city, through its DPW&P maintains close communication with all watershed/environmental groups as well as ratpayers within Worcester and has every intent to sustain and further encourage these partnerships. Holding a mandatory annual meeting does little to foster these relationships and only creates another administrative burden with little value. Interested citizens can review the stormwater management program (SWMP), which is posted at the public library per current permit requirements. The city could also consider posting the Annual Reports at the library and on the city website.
10. To the best of our knowledge there are no discharges from the MS4 or any drainage system to Green Hill Pond. This pond is correctly not listed as a receiving water on page 1 of the draft permit. Therefore the requirements in Part I.E.3.(d) or elsewhere in the draft permit that address the Green Hill Pond TMDL, reduction of phosphorous loading to Green Hill Pond and management of pesticides, herbicides and fertilizers (PHFs) at the Green Hill Municipal Golf Course as related to Green Hill Pond are beyond the authority of this permit and invalid. Similarly, language in Part I.E.3.(d) that requires limitations on the use of PHFs in public areas and establishment of PHF reduction goals in all city parks, Hope Cemetery and areas managed by the Forestry Department should be limited to those areas that may contribute flow to the MS4.
11. The city does have a waste oil collection facility at its recycling center. However, given the limited times when the recycling center is open and operational issues with waste oil collection, Worcester residents have been directed, as per Massachusetts law, to return waste oil to the place of purchase rather than bringing it to the recycling center. Following Part I.E.3.(a), the city will continue to educate the public about proper waste oil disposal and we will consider reopening the waste oil collection facility if feasible. We cannot make a commitment to actively collect waste oil until a more thorough assessment of this program is conducted.
12. It should be noted that post-storm City vehicle washing is done in the combined sewer area and has no impact on the MS4 or receiving waters. Further, post-storm vehicle washing of contractor vehicles is not the responsibility of the city. These items should be deleted from Part I.E.3.(e) on page 10.
13. The requirement in Part I.E.4 to develop a program to address stormwater management in post-construction development is onerous and unreasonably burdensome. As described, this program would require establishment of an additional bureaucratic layer, including inspection and enforcement, to oversee post development stormwater management on private lands in perpetuity.
14. The requirement in Part I.E.4.(d) on page 13 to calculate then annually update the directly connected impervious area (DCIA) measurement for each of the 330 outfalls in the

Worcester MS4 is unreasonable and of little value. While this effort may be an interesting research project it provides no benefit to the managers of Worcester's stormwater program. We clearly understand the link between impervious area and stormwater quality but also realistically recognize that for large urban areas like Worcester the "impervious area ship" set sail long ago. The DCIA measurement, updated at some regular frequency, may be helpful to developing communities as a way of tracking trends and making the public aware of impervious area impacts. But for a large urban area that is and has been substantially impervious it is an effort that is time and resource consuming while producing trivial benefits. We do not expect that on a year to year basis there will be a measurable decrease in impervious area in the City of Worcester. We also question whether the likely negligible change in impervious area over time will produce measurable water quality benefits in receiving waters or outfall discharges. This requirement should be stricken in its entirety. A more prudent approach for EPA to apply to this question of academic interest would be to provide funding to any of the local colleges and universities to conduct such an assessment.

15. Note that on Page 14, Part I.E.5.d, The CMOM Plan, the Priority Cleaning Plan, and the Preventative Maintenance Plan were all submitted to EPA in early 2006 and await comment / approval, as per the language in the SSO AO. This status is reported to EPA twice yearly since submittal, as required in the SSO AO.
16. On page 14-I.E.5.(e)-EPA and DEP need to understand that implementation schedules for correcting SSOs caused by systemic deficiencies must be realistic and for many that will mean decades, not years. Correcting even a single systemic SSO can cost well over \$1 million. Many of these corrections require significant and complex investigation and engineering, which require appropriate budgeting in themselves. SSO corrections of this nature essentially require reconstruction of major parts of the sewer infrastructure and need to be managed through our long term capital improvements plan.
17. The city agrees with EPA that science generally indicates that catch basins over 50% full are less efficient at capturing sediment. In accordance with Part I.E.6(h)(2), we will commit, in the form of additional staff and equipment, to further increase our catch basin cleaning effort in a manner consistent with the stated goal that no catch basin will be more than 50% full. However, we disagree with Part I.E.6(h)(1) and its contention that more frequent catch basin cleaning will reduce phosphorous loading to TMDL waters. There does not appear to be much evidence to support that catch basins are effective at capturing phosphorous. We therefore disagree with the mandate to *ensure* that no catch basin sump discharging to a TMDL water be over 50% full. This item should be deleted and the *goal* of increasing catch basin cleaning so that no basin is over 50% full should be established citywide. It is impossible to ensure that no catch basin sump will ever be more than 50% full. The language as written affirms that we would be in violation of this permit.
18. In Part I.E.6(i), the requirement to annually inspect retention ponds owned by us or with easements held by us and remove solids if >50% full should include greater flexibility. It is suggested that such retention ponds be annually inspected and sediment be removed in order to assure that the pond functions as designed. The amount of solids to be removed, along with other maintenance activities, should follow specific maintenance procedures

where such information exists or, where specific procedures are lacking, more generic retention pond maintenance plans.

19. Pages 17-23, Part I.F.1 through Part I.F.7: The sheer magnitude of the sampling and monitoring program is staggering. An inordinate amount of resources would be required to fulfill this program with minimal tangible benefit, if any. We estimate that sampling and monitoring alone will exceed \$1.8 million over the term of the permit and entail testing some 8,000 samples. Worcester's existing stormwater data, as well as existing national stormwater data is already voluminous and has proven to be inconclusive for purposes of detailed stormwater management. Requiring the collection of more stormwater samples will only ensure that more inconclusive data is generated which, at best, tell us that stormwater carries pollutants. As stormwater managers the only sampling and monitoring data that serves to guide our decision making is data that might indicate the source of pollution (Dry weather screening and in-stream monitoring)) and data that might establish long term receiving water quality trends (in stream monitoring). As an alternative to the draft permit sampling and monitoring requirements and in keeping with the Fact Sheet page 31-XV("EPA specifically invites comments from permittee and others with respect to inspection, screening and monitoring component"), the city once again offers the monitoring plan previously submitted on May 30, 2008 which is included as Attachment A to this comment letter. A second alternative, which was proffered by EPA just a week before issuance of the draft permit and which focuses on a greater level of in-stream monitoring in lieu of outfall monitoring is also intriguing. The city would recommend further discussion and collaboration with EPA and DEP on this approach.
20. Some of the more burdensome, confusing and unnecessary components in the sampling and monitoring section of the draft permit include:
 - a) page 18-Part I.F.3(d)-wet weather in-stream sampling consists of 4 grabs, 15 minutes apart. While we understand the desire to capture the variations in a storm flow this protocol simply requires too much time per site and is an inefficient use of staff or hired services time.
 - b) page 18-Part I.F.3(a)-It is unclear whether tributary inlet monitoring is to follow the in-stream protocol and parameters in addition to the wet weather impaired waters protocol and parameters found on page 19 & 20 (Part I.F.4.(b) or if only the impaired waters protocol applies.
 - c) page 19-Part I.F.3(f)-the testing parameter list for instream monitoring is excessive. In-stream BOD is unnecessary as field D.O.tests will determine whether an oxygen deficit exists. Chloride is also redundant as conductivity would suffice as a surrogate measure for dissolved solids. Given a wealth of historical data on fecal coliform and the fact that it is a less expensive test we would prefer the option of using fecal coliform or E. coli throughout the permit including dry weather screening page 22-Part I.F.(e)(5). Although fecal coliform is not necessarily always indicative of sewage or human waste, our experience is that higher levels of fecal coliform almost always point to a sewage contamination problem. TPH is a relatively costly test that has limited value for in-stream monitoring. Significant discharges of petroleum to a stream will be apparent in the form of sheens and odors. Low levels of TPH that may be laboratory

detectable are generally not going to be traced back to a source. Surfactants do not seem beneficial for instream monitoring either. This test requires the use of chloroform, which poses hazards for the analyst. Surfactants may help indicate the presence of sewage or washwater but other tests including conductivity and fecal coliform would also serve this purpose without the hazardous reagent.

- d) We remain unconvinced that there is any value to wet weather outfall monitoring across the entire system. Nationwide, there is a substantial database of such monitoring results. This data, along with past data collected in Worcester, simply confirms that stormwater is far too variable in quality for wet weather outfall monitoring, at anything but exorbitant frequencies, to be telling or useful. We have collected wet weather outfall samples in the past and the data generated did not guide our stormwater management in any way. EPA and DEP are well aware of this issue but remain insistent on our gathering data just for the sake of gathering data. It is wasteful of time and resources.
 - e) Please identify priority organics and metals as these are listed a pollutants of concern in Appendix B for certain impaired waters and would need to be monitored.
21. The city rejects EPA's charge to utilize the Illicit Discharge Detection Protocol (IDDP), as described in Part I.F.6 beginning on page 23, as the only means of effective illicit discharge detection and elimination. EPA's contention in the Fact Sheet (page 22) that the IDDP represents the preferred best management practice for illicit discharge control is not supported by others. The city's methodology (bottom up approach) which starts analysis at the outfall and moves upstream in the system to find and remove illicit discharges is endorsed by experts in the stormwater management field and is the most practiced method across the nation. The 2003 Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities, produced, using an EPA grant, by the New England Interstate Water Pollution Control Commission and reviewed prior to release by regulatory agency staff from MADEP, NHDES, RIDEM, VTDEC, CTDEP and USEPA fully supports Worcester's approach. In the EPA funded Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, by Professor Robert Pitt & Center for Watershed Protection, October 2004, there are three alternative methods proposed, all of which are considered effective. This reference does not state any one approach is better than the other but suggests, "the decision to move up, split, or move down the trunk depends on the nature and land use of the contributing drainage area." Further, the report offers guidance for making this decision. Moving up (Worcester's long-standing approach) works best for simple drainage networks and outfalls less than 36". Moving down (the IDDP) works best for large drainage areas of over 1 square mile. In Worcester there is only 1 outfall (0.3% of all outfalls) that barely exceeds 1 square mile drainage area and only 18% of the outfalls are 36" or greater diameter. The guidance from this EPA funded manual would suggest that IDDP is not "best" for Worcester. In the Fact Sheet (page 22) EPA suggests that IDDP is a better tool because it can find illicit discharges that may not reveal themselves at the outfall. They illustrate this point with an example where flow from an illicit discharge exfiltrates the storm sewer before reaching the outfall. This is a peculiar example. Since the point of the stormwater permit is to control pollutants emanating from the stormwater system and protect the quality of the receiving water, why would we be overly concerned

about finding an illicit discharge that never leaves the MS4 outfall and never enters the receiving water? While the “top-down” approach of IDDP does indeed capture any and all problems, it makes systematic progress exceedingly slow and can delay identifying major illicit discharges in favor of spending an inordinate amount of time chasing down minor, insignificant problems. The IDDP approach also lends itself to a paradox: the draft permit schedule requires the entire MS4 to be investigated using IDDP within 5 years but precludes moving to the next downstream reach of an MS4 segment until all upstream illicit discharges have been corrected. Since it is likely that correcting many illicit discharges will entail multi-year capital improvement programs, the investigation of the system will get bogged down and may even grind to a halt as repairs are awaited. The draft permit requirements to follow this protocol and meet a schedule are simply impossible to reconcile. If EPA insists on the IDDP as the BMP of choice it cannot also mandate an implementation schedule. IDDP cannot be implemented following any pre-determined schedule since there are too many unknowns that will dictate the true schedule.

We object to EPA’s prescriptive mandate to implement the IDDP. It is less expedient at eliminating major pollutant sources from the stormwater system within a given time period. Since the purpose of the permit is to bring water resources nearer to water quality standards in as short a time frame as practical, detecting and eliminating pollution nearest the outfall is more effective than detecting and eliminating it in the furthest reach of the sewer. The time requirements are also objectionable as being unrealistic. The permit requires that the city complete investigation of its entire 350 mile storm drainage system within 5 years. Even utilities that have many years of experience using the EPA endorsed method scoff at the schedule mandated by the permit and advise that it would be “impossible” to accomplish. EPA’s mandated requirement to find and remove illicit discharges is logistically burdensome and unreasonably costly. The permit confirms that the IDDP approach can be constrained by the need for the city to fund and make capital repairs before proceeding with further investigations downstream within a given sewer reach or limited by precipitation and snow melt that does not provide the requisite antecedent conditions. Accordingly it directs the city to “provide adequate staffing and equipment resources to perform concurrent investigations in multiple areas as necessary to complete all investigations within 5 years” (Page 28 & 29-Part I.F.6(d)(9). Compliance with the prescriptive IDDP approach is estimated to cost at least \$42 million. We see nothing to believe that the cost of compliance will be less than that amount.

22. In addition to our overall objections to using IDDP, we also point out the following particular issues related to IDDP implementation:
 - a) If we eventually (in 5 years) have to investigate the entire system for illicit discharges why pre-screen at all? Wouldn’t it make more sense to just start the investigation (IDDP) and skip any screening? Screening does not rule out anything, it is just to prioritize and virtually all outfalls are near equal priority as they either discharge to impaired waters or recreational waters.
 - b) The level of detail required (“The following information and features shall be included in the mapping”) in I.F.6.(c) on page 24 and 25 for mapping as part of the IDDP program is onerous and may not be reasonable even with GIS. For instance, we are to include, per I.F.(6).(c)(2), “Seasonal high water table

elevations impacting sanitary sewer alignments”. We do not have such information available and generating it would be a costly venture with little benefit. We would suggest that the last sentence of I.F.(6).(c) be reworded to say: “The following information and features shall, to the extent practical, be included in the mapping.”

23. Figure 1-Flow Chart on page 27, indicates that for samples that test negative for surfactants (or Boron) a chlorine test should be performed. For purposes of identifying illicit discharges the chlorine test seems superfluous. Both results of this test, chlorine present or chlorine absent, only point to allowable discharges such as natural waters (no chlorine) or tap/irrigation waters (chlorine present). Based on this flowchart, if surfactants (or Boron) are not detected then it can be concluded that no illicit discharges are present.
24. The sampling and qualitative analysis now required for all of Worcester’s stormwater treatment units (Part I.F.7-pages 29-30) has risen to the level of a research project, and is now unreasonable and onerous. If EPA / DEP desire this type of research and analysis, they should fund and collaborate with academia (or the manufacturers of the various devices) to accomplish this noble goal. This level of monitoring has not provided us with any data useful for purposes of managing Worcester’s stormwater system.
25. The purpose for sampling and monitoring stormwater treatment units seems inconsistent. Is the monitoring related to a determination of removal efficiencies for contaminants which cause impairment of various receiving waters or for contaminants which the unit was designed and installed to remove? For instance, (page 29-Part I.F.7(a)(1) the Belmont Street Vortechinics unit was designed and installed for TSS and Oil/Grease removal and that, along with TP, is what is monitored for even though Lake Quinsigamond/Flint Pond is only impaired for aquatic plants by total phosphorous. On the other hand, page 29-Part I.F.7(a)(2) requires Salisbury Pond’s units, also designed and installed for TSS and O&G removal, to be monitored for TSS, E. coli and TP for a pond with only a TP related impairment. Then, page 29-Part I.F.7(a)(3)- requires Indian Lake’s unit to be monitored for TSS, TP and E. coli, even though the design and installation were for TSS and O&G and the Lake is impaired for aquatic plants and low DO related to TP. The rationale should be consistent: monitor units for removal of contaminants for which they were designed and installed. To require other monitoring just supports our contention that this is not a Worcester stormwater management tool but a general research effort that should be left to others.
26. Part I.F.7.1 (page 29) requires continued monitoring of the Belmont Street Vortechinics unit. Worcester has now been sampling the Belmont Street Vortechinics unit for almost 10 years and the information gathered to date has not proven useful. The only measurement of value relative to this treatment unit is the total tonnage of sediment captured and removed from the stormwater system. We will continue to measure the sediment collected but object to further monitoring. Insight into removal efficiency for various other parameters can be obtained from the manufacturer. What additional insights / data does EPA hope to glean from sampling this unit for another 5 years? This requirement provides no benefit to the management of the City’s MS4 or receiving waters and will not produce any data of value while wasting time, effort and money.

27. While the city does not agree with the sampling and monitoring protocol mandated in the draft permit for stormwater treatment units we do not dismiss the need for appropriate sampling and monitoring for these devices or other structural BMPs that may be installed. It is recommended that rather than detailing the monitoring regimen for these units in the permit, the city instead present a monitoring plan, for EPA/DEP approval, within the Stormwater Management Program (SWMP) to be submitted under Part I.D.
28. The Implementation Schedule on page 32 appears to miss, under in-stream monitoring, the sampling of tributary inlets as per Part I.F.3(a).
29. The attempted imposition by EPA and DEP of inordinately expensive, inefficient, and ambiguous permit requirements is arbitrary, capricious, and not in accordance with law.
30. EPA and DEP repeatedly reference guidance documents, policies and studies that are not legally enforceable because they have not been subjected to rulemaking.
31. To the extent that EPA relies on water quality certification of the draft permit by the Department of Environmental Protection, it is obligated to respect the City's rights under the Massachusetts Administrative Procedure Act, G.L. c. 30A, to challenge that certification decision.
32. EPA's attempts to force the City to implement federal enforcement programs constitute a violation of the Tenth Amendment.
33. The arbitrary attempt by EPA and DEP to force the City to needlessly expend millions of dollars violates the doctrine of separation of powers and the City's home rule powers.
34. EPA and DEP are attempting to impose on the City permit conditions for which no statutory or regulatory authority exists; the attempted imposition of such permit conditions constitutes an impermissible exercise of unfettered and unlimited discretionary authority to engage in lawmaking.
35. The actions taken by EPA and DEP in connection with the permit conditions to which the City objects constitute *ultra vires* acts.
36. The attempt by EPA and DEP to impose permit conditions that arbitrarily would force the City to spend millions of dollars against its will constitutes an illegal effort to impose a tax or financial burden on the City. It is an unfunded mandate.
37. The actions taken by EPA and DEP employees to cause the issuance of those permit conditions to which the City objects constitute impermissible subdelegations of authority.
38. The issuance of the permit conditions to which the City objects under the circumstances here violates procedural due process requirements.
39. The issuance of the draft permit as a final permit would violate statutory and regulatory procedure under state and federal administrative procedure acts.
40. The issuance of the permit conditions to which the City objects is not supported by substantial evidence upon consideration of the entire record.

41. EPA and DEP, in the issuance of the permit conditions to which the City objects, relied on evidence lacking indicia of reliability and probative value.
42. EPA and DEP have articulated no intelligible principles to explain how it arrived at the decision to include those permit conditions to which the City objects.
43. The Fact Sheet page 16 number 4, mentions an ACOP issued to the City by MassDEP relative to a heating oil spill from a municipal building. It goes on to state that "...and correct drains and illicit connections from all municipal buildings to the City's storm drain system. These activities will take place during the term of the draft permit and are required to be integrated into the Permittee's Illicit Discharge Detection and Elimination Program described in Part I.E.5 of the draft permit." In fact, all actions relative to this ACOP were completed and a letter from MassDEP, dated March 6, 2008, was received stating that the City was in full compliance with the ACOP and no further actions were needed. If the draft permit actually requires integration of these activities as mentioned in the Fact Sheet it is not apparent but should be deleted.
44. The Fact Sheet page 21. E. "...requires permittee to supplement its existing illicit connection program...". The mandated IDDP supplants, not supplements, our program.
45. Fact Sheet page 27, number 5 indicates that Salisbury Pond is impaired by pathogen indicators. This conflicts with the table in Attachment B which indicates this pond is impaired for noxious aquatic plants, turbidity, and taste, odor and color.
46. Fact Sheet page 30.C: last sentence, "... discharge a mix of wastewater and stormwater...". The CSO facility treats combined sewage before it is discharged. It does not just discharge combined sewage (a.k.a., a mix of wastewater and stormwater)
47. Fact Sheet page 35, XVII-States Annual reports due by December 31 of each year. Not consistent with permit which states reports due by September 30 of each year.

This letter includes the totality of the City of Worcester's comments and views relative to the draft stormwater permit. The issues raised are serious and significant and speak to a permit that for legal, practical and technical reasons, is not acceptable to the City. We strongly urge EPA and DEP to give utmost consideration to these comments.

Sincerely,



Robert L. Moylan, Jr., P.E.
Commissioner of Public Works & Parks

cc: Michael V. O'Brien, City Manager
David M. Moore, Esq., City Solicitor
Donald L. Anglehart, Esq., Law Office of Donald L. Anglehart, LLC

DRAFT 5/30/08

Stormwater Permit Monitoring Plan (not including screening for illicit discharges)

The goals of the monitoring program would be:

1. Assess the effectiveness of BMPs;
2. Establish baseline water quality of receiving waters;
3. Focus data collection on impaired waters with final TMDLs and Waste Load Allocations.

Assess the Effectiveness of BMPs

For general BMPs such as street sweeping, catch basin cleaning and public education, monitoring would be based on representative outfall sampling. We would select outfalls representative of different land uses where general BMPs are implemented and monitor these outfalls four (4) times annually.

For site-specific BMPs that have been or will be implemented during the permit term, we will develop a specific monitoring plan designed to provide insight on the effectiveness of the BMP. We would select the BMP to be implemented to address a specific stormwater problem and then tailor a monitoring plan for that BMP. Site specific BMPs already in place include hydrodynamic separator units at Belmont Street, Indian Lake and Salisbury Pond.

Receiving Water Monitoring

To establish a general baseline of receiving water quality, the City will monitor eight (8) receiving water locations (as identified by USEPA in most recent pre-draft permit) a total of four (4) times (seasonally) during the first year of the permit term. This same monitoring would be done during the first year of each subsequent permit term or every five (5) years, whichever is more frequent. This would provide an overview of receiving water quality at the beginning of each permit term and potentially, over time, allow for determination of water quality trends.

Special Monitoring and Analysis for Impaired Waters With Approved TMDLs / WLAs

TMDLs and Waste Load Allocations have been established for phosphorous in a number of Worcester receiving waters. To better quantify phosphorous control through BMPs, GIS-based data analysis will be conducted. This analysis will rely on existing research data generated by others on phosphorous removal efficiencies of various BMPs like those employed by Worcester DPW&P in the MS4. This data will be coupled with information on material actually collected and removed through Worcester's BMP

implementation (e.g., tons of catch basin cleanings, tons of street sweepings, etc.) to estimate the amount of phosphorous removed from the MS4. Limited laboratory analysis may be included where necessary to fill in data gaps. Where possible, the estimate of phosphorous removed will be applied on a sub-watershed basis so that it can be compared with TMDL WLAs for individual receiving waters.

To assess the accuracy of TMDLs, evaluate actual phosphorous loading to Worcester receiving waters, and trend short term phosphorous loads a pilot program will be initiated focusing on an intensive sampling and testing program in one sub-watershed within the MS4. The program will involve sample collection at each major outfall and major tributary inlet to a phosphorous-impaired surface water for which there is an approved TMDL and WLA. Samples will be laboratory analyzed for total phosphorous. Samples will be collected at least bi-monthly over the entire permit term. In addition to sample collection and analysis, current land use data in the selected sub-watershed will be evaluated and mapped using GIS. Test results and land use which may contribute to a given outfall or tributary will then be linked and assessed to determine any correlation. This data set will then be compared with TMDL assumptions and data to determine whether the TMDL is reasonably accurate in terms of stormwater-related phosphorous loading. Phosphorous loading trends over the 5-year permit term for the sub-watershed will also be reviewed and any association between BMP implementation and phosphorous trends will be noted.