

**Draft Croton Watershed Phase II Phosphorus Total Maximum Daily Load ("TMDL")
Nonpoint Source Implementation Plan ("TMDL Implementation Plan")
Response to Comments: January 15, 2009**

The New York State Department of Environmental Conservation (DEC) received written public comments from six entities on the draft Croton Watershed Phase II Phosphorus Total Maximum Daily Load Nonpoint Source Implementation Plan ("TMDL Implementation Plan"). This document was released for public comment on September 21, 2008 with a public comment period ending October 27, 2008. The comments are reproduced verbatim below with a number at the end of each comment that corresponds to a list of commenters at the end of this document.

A note on nomenclature: Non-point source (NPS) pollution typically refers to non-wastewater treatment plant phosphorus pollution, and in the TMDL calculations and report, NPS referred to phosphorus pollution caused by any source other than WWTPs. Since the issuance of the MS4 permit, it has been argued that stormwater discharge from discreet conveyances also could be considered point source pollution. To avoid confusion, the term “non-point source” has been removed from the title of this implementation plan as the focus of the plan is primarily on non-wastewater treatment plant phosphorus sources, both “point” and “non-point source”.

Comment #1: The cover sheet states “Prepared in accordance with the New York City Watershed Memorandum of Agreement (January 1997). This historic agreement was intended to balance water quality protection of the NYC Reservoir Watershed with the economic vitality of the local communities. To date local municipalities have not experienced any “balancing”, with the sole focus being on protecting New York City’s drinking water supply. This Plan continues that direction by placing the full cost of TMDL compliance with the watershed municipalities and agencies. When do the East of Hudson watershed communities see a plan that promotes the economic vitality of the region? (1) *Response: This TMDL Implementation Plan does not purport to address all the issues contained in the New York City Watershed Memorandum of Agreement; it is a plan for achieving TMDL compliance by reducing phosphorus pollution in the Croton Reservoir system. Additionally, New York City DEP has offered \$4.5 million dollars in funding that is slated for TMDL compliance, and other grant funds are available through DEC and NYS Department of State.*

Comment #2: By focusing initially on High Density areas, the Plan promotes a sense that structural retrofits targeting phosphorous reduction for other areas may not be required. (1) *Response: The TMDL Implementation Plan has been revised to more clearly state that retrofitting in high density developed areas is one component of compliance with the stormwater permit and that other areas will need to be addressed as well, including non-structural measures that will be necessary until the TMDL limits have been met for all the water-quality limited reservoirs in the Croton watershed.*

Comment #3: Table 1 shows that the remaining phosphorus reduction needed from nonpoint sources for the Amawalk watershed is 122 kg/yr. How can NYS DEC promote a phosphorus reduction which exceeds what is required by the TMDL Report for the Amawalk Reservoir Watershed. (1) *Response: The phosphorus reduction from retrofit projects that DEC is requiring*

to be constructed in the Croton watershed is 120 kg/yr for each of the next five years. It is not expected that all the retrofits would be constructed in a single (e.g. Amawalk) watershed.

Comment #4: The Implementation Plan does not fairly distribute the burden of TMDL compliance with all parties benefited. As acknowledged in the plan (Page 7, 1st paragraph) “The City of New York has a vested interest in NPS phosphorus reduction because *their water resource use is the primary impairment...*” [emphasis added]. (1) *Response: Although the City of New York has a vested interest in phosphorus reduction, the City is not a regulated MS4 in the Croton watershed and so is not subject to the terms of the MS4 General Permit.*

Comment #5: Task 2.3a states Each East of Hudson (County, Town, City and Village) will evaluate the cost and effect of attaining lower phosphorus effluent concentrations for each point source within their jurisdiction, or that they discharge to, which is assigned a waste load allocation and determines whether or not the municipality shall financially or otherwise support such an effort.” WWTPs can be classified as either “publicly owned” or privately owned”. Municipalities have no jurisdiction over “privately owned WWTPs and therefore this task should be limited to only “publicly owned” WWTPs. (1) *Response: This text has been revised to indicate that as SPDES permits are reviewed by DEC (the Department), reduced permit limits will be considered.*

Comment #6: The specific high density development areas evaluated by AVGWLf (Page 10) should be provided (or at least a better description) so that MS4's can understand the areas that should be initially targeted for retrofits. In addition, the parameters used in developing the AVGWLf model should be provided to the MS4's. (1) *Response: The parameter used in the AVGWLf model utilizes satellite imagery to distinguish land use. The intent of the Department was to allocate responsibility for retrofits based on relative development density because of the higher phosphorus loads in more developed areas.*

Comment #7: Section 2.4C lists six measures that will aid in reducing phosphorus and achieving compliance with TMDL values. The reduction in phosphorus from some of the measures such as “further point source reductions” can be easily quantified. The reduction in phosphorus from other measures, such as “septic inspection and repair programs” need further guidance from NYS DEC to quantify the anticipated reductions. Providing this additional guidance is of critical importance to MS4s in conducting a cost/benefit analysis to determine how best to adjust their stormwater management programs. (1) *Response: The TMDL Implementation Plan phosphorus reduction values that are articulated in the document apply only to retrofits. Reductions from septic system repair are not quantified because the reduction values depend on variables such as elapsed time that a system is in failure before it is repaired. The septic program is a requirement and therefore would not be part of a cost/benefit analysis.*

Comment #8: Page 11 - The Implementation Plan allocates a portion of the High Intensity Development phosphorus load to the NYS DOT and Counties. In doing so the NYS DEC limits the overall reduction that must be achieved by these agencies or municipalities, and passes all future reductions on the Towns and Villages. (1) *Response: The TMDL Implementation Plan indicates that the reductions required of NYSDOT and the Counties are all annual reductions, and that these annual reductions combined with those required by the Towns/Villages add up to*

the annual 120 kg/yr reduction. Future reductions are required by all MS4s that are part of the Croton Watershed, including NYSDOT, until such time as the TMDLs are achieved.

Comment #9: Page 16 provides phosphorus reductions for the NYSDOT and the three Counties. The estimates provided are lump sum estimates which are not allocated between the various reservoir watersheds. This would allow these agencies to complete all of the phosphorus reductions on one or more reservoir watersheds, ignoring other reservoir watersheds where phosphorus reductions might be more difficult to achieve. Similar to dividing the phosphorus load reductions between subbasins for the Towns, the phosphorus reductions for the NYSDOT and Counties should be allocated between the appropriate watersheds. Further, the Plan should acknowledge that the phosphorus reduction for NYSDOT and Counties should occur in each watershed subbasin commensurate with the amount of phosphorus generated from that basin. (1) *Response: The TMDL Implementation Plan does not allocate basin-specific phosphorus reduction priorities for NYSDOT and the Counties. DEC believes that these highway agencies should partner with Town/Village priorities in the context of an RSE. DEP has offered up to 4.5 million dollars for phosphorus reduction planning efforts as well as retrofits that are slated for the EOH FAD basins: Croton Falls, Cross River, West Branch and Boyds Corners. If NYSDOT and the Counties, who together account for over 25% of the required reductions, are restricted to priority basins, much of the DEP grant funds may not be available. Additionally, DEC has no objection to MS4s completing phosphorus reductions in basins other than those “where reductions might be more difficult to achieve”, because eventually all basins must be brought into TMDL compliance.*

Comment #10: No phosphorus reductions have been allocated to non-traditional MS4's. Non-traditional MS4's also generate phosphorus and should be required to adjust their stormwater plans to reduce phosphorus reductions also. (1) *Response: Not all non-traditional MS4s have been identified as of this writing and the Department wishes to address this issue only once this has occurred.*

Comment #11: Page 17, Task 2.5.A (a) states that “DEC shall promote phosphorus source control on three fronts: 3. Domestic animal access to waterbodies”. How is “domestic animal” defined? Animal manure can be a significant contributor of phosphorus, especially when animals are penned in inappropriate locations, such as within wetlands or stream corridors. Implementing this policy would be a significant step in arresting phosphorus loading to the watershed from animal wastes. However, there are significant inconsistencies in the policy, and implementation. In the past six months in Patterson we have discovered one property owner that has cleared State-regulated wetlands and a stream corridor to allow better access for farm animals (Green Chimneys School), a second property owner who has extended horse paddocks into a State-regulated wetland (East Branch Road), and one property owner which fenced in a State-regulated wetland and a stream corridor, and is using only this wetland area to pen cattle (Pfister’s along Route 22). In each of these three instances staff from NYS DEC has been notified and has permitted the practice to continue, unrestrained. (1) *Response: The three (3) instances cited in the comment are exempted from NYSDEC wetlands regulations, as are all agricultural activities. Please refer to <http://www.dec.ny.gov/regs/4613.html> for an explanation of this exemption. NYSDEC does not have regulations to prohibit animal access to waterbodies, and so continues to rely on public education by the regulated MS4s to curb this activity.*

Comment #12: Section 3, Page 25 provides funding sources to help support the costs associated with the Implementation Plan. Without understanding the cost to local municipalities and agencies, and the full cost of providing sufficient phosphorus reductions needed to address the TMDLs for phosphorus, it can not be determined whether the funding sources provided will be adequate, or are woefully inadequate. (1) *Response: Determination of cost of compliance with the MS4 permit requirements is an MS4 responsibility. Regardless of any potential funding opportunities, it remains the responsibility of the regulated MS4s to comply with the terms of the MS4 General Permit and NYS Environmental Conservation Law.*

Comment #13: The plan should more clearly acknowledge that proposed phosphorus reduction of 1,200 kg/y is only 18% of the total needed to meet the TMDLs, and additional phosphorus reductions will be required of municipalities in the future. (1) *Response: The TMDL Implementation Plan acknowledges that the estimated phosphorus reductions available from retrofits in the high intensity development areas (1200 kg) represent approximately 18% of the total required reductions. The TMDL Implementation Plan also acknowledges that non-quantifiable/non-structural measures that are required as part of compliance with the terms of the General Permit will reduce phosphorus pollution of the Croton Watershed.*

Comment #14: Table I - For acceptance of this program by the regulated community, there is a need to clearly explain the meaning of this table, including the significance of the table in this document and how it relates to subsequent sections of the document. Based on conversations had with NYSDEC staff, including yourself, it seems that this table is included as background information, and has no substantive connection to the remainder of the document. Also, there are superscripts in the table that should be explained. (2) *Response: The table was extracted from the June 2000 TMDL document issued by NYSDEC and is included to assist MS4s in ordering priorities for retrofitting, and to document the remaining reductions that will be required over the long term to gain TMDL compliance. The elements of the table have been further clarified in a note below the Table. The superscripts have been removed.*

Comment #15: Lake “Glenida” should be spelled “Gleneida”. (2) *Response: The spelling has been corrected.*

Comment #16: Page 6 - Include NYSDOT in first paragraph as a State government agency. (2) *Response: NYSDOT has been added to the list of State agencies.*

Comment #17: Page 11, section 2.4E – This section should explain what an RSE is in greater detail and how these entities are designated. (2) *Response: The minimum requirements of the proposed RSE are discussed in detail in the TMDL Implementation Plan.*

Comment #18: Table 3 - The tables included within Table 3 should be reconfigured to highlight the information important to the readers. The Total High Intensity Development Phosphorus Load should be moved out of a position of prominence to the bottom of the individual municipal loads to show it as a total. The five year and annual load reductions should be highlighted better, as these figures are apparently the information that would be important to the regulated MS4s. (2) *Response: The table has been reconstructed to provide more clarity.*

Comment #19: Page 27, item 5 – The word “respectively” should be moved in the sentence to follow the word “Reservoirs”. (2) *Response: Change made as requested.*

Comment #20: Appendix A – The URL should be provided for the MS4 general permit in addition to the link. Readers looking at a paper copy may want to know the URL for this site for future reference. (2) *Response: Change made as requested.*

Comment #21: Appendix B – The URL should be provided for the Proposed Steps for a Retrofit Program in addition to the link. Readers looking at a paper copy may want to know the URL for this site for future reference. (2) *Response: Change made as requested.*

Comment #22: DEC should consider whether it is prudent to include Appendix B in this document. The Department found it very confusing and thought that the intended reader was the regulated community, but during a meeting held on October 14, 2008, it was learned that this document was intended for the authors of the larger document. If this report is left in the document there should be careful explanation as to the purpose of this report, and who is the intended audience. (2) *Response: Appendix B has been retained but has been renamed to more accurately describe its purpose as a supporting technical document. The document has been revised to provide additional clarity.*

Comment #23: Regardless of whether this report remains in the document, guidance should be included as to how the regulated MS4s can meet the requirements, including specificity on the pollutant removal efficiencies that can be applied for various management practices, both structural and non-structural. (2) *Response: MS4s will be able to determine the removal efficiencies of proposed management practices by utilizing the WTM and WINSLAMM watershed modeling tools as specified in the TMDL Implementation Plan. It is not required that the phosphorus reductions that may be obtained from non-structural practices be quantified.*

Comment #24: Appendix F does not appear to be explained in the document. There should be an explanation as to why the "DEP Database form" is in the document, what relevance it has to the remainder of the document, and what, if any, steps are to be taken by the regulated MS4s. (2) *Response: Appendix F was erroneously included in the draft document but has been deleted from the revised document.*

Comment #25: We believe it is appropriate to understand that the fundamental motivation of the revised Regs, to eliminate/reduce the leaching of phosphorous from urbanized/developed areas into watershed areas and drinking water supplies, has limited practical application to the Town. While the Town fully embraces this goal, and has historically demonstrated its heightened concern for the environment, the Town is not a significant source of potential contamination given its hydrology, rural character and lack of significant development. (3) *Response: All MS4s that contribute phosphorus loading from high density development, as modeled by the Department, are required to provide reduction in phosphorus via retrofitting stormwater conveyances, e.g. culverts, catch basins, ditches and swales. The requirements are apportioned according to the relative amount of high intensity development in each MS4. MS4s that have less high intensity development are required to do less retrofitting, and vice versa.*

Comment #26: The Revised Regs and related permit contemplate significant municipal ownership of New York City Watershed Lands. However, the Town does not own any improved land in DEP Watershed areas, nor does the Pawling Central School District. The Town does own a modest nine-hole, approximately 32.5 acre, municipal golf course within the NYC watershed, the oldest municipal golf course in New York, but employs golf course management practices designed to protect the watershed. The only other significant properties owned by the Town are roads. The Town owns 18.38 miles of improved roadway and 6.88 miles of unpaved, country roads. These roads represent less than one half of one percent of all lands located within the NYC watershed. In contrast, significant roads within the Watershed are owned by New York State, Route 22 & Route 55. We believe these NYS-owned roads do not conform to the Revised Regs. The portion of NYS Route 22 not only lacks stormwater conveyance systems, the intersection of NYS Route 22 and NYS Route 55 contains a large area of impervious surface that is not needed and is prohibited from being used. NYS Route 55 also lacks any stormwater conveyance systems. We raise these issues not to criticize the State but rather as confirmation of the reality that the Town, and the roadways located therein (both State and municipal), are not significant potential sources of phosphorous contamination. Further, the permit requirements by DEC's definition are designed to reduce phosphorus in highly urbanized areas. Land use patterns in the Town's land within the NYC Watershed are predominantly rural. While there are highly urbanized areas within the Village of Pawling (a distinct and separate legal entity), these areas are controlled by a separate MS4 permit held by the Village of Pawling. (3) *Response: DEC is requiring approximately 15 times as much phosphorus reduction from NYSDOT than it is requiring from the Town and Village of Pawling combined. The NYSDOT phosphorus contribution has been extracted from all Town loads wherever NYSDOT roadways are present in a given Town. For instance, the modeled phosphorus loading reduction required by the Town and Village of Pawling combined was calculated to be 12.6 kg/yr before this load was apportioned into Town, County and State requirements. NYSDOT has 16%, DCDPW has 22% and the Town of Pawling has 62% of the roadway miles in this Township. Therefore, the five year reduction required of the Town of Pawling is $12.6 * 62\% = 7.8$ kg/yr.*

Comment #27: The Town of Pawling respectfully requests to be formally exempt from DEC's retrofit requirements. The Town supports the goal of phosphorous reduction in the NYC Watershed and the goal of providing clean water to nine million New Yorkers. The Town has been an exemplary environmental steward for well over a century and will continue to protect the water supply for the benefit of all New York residents. However, the Town's resources are limited. The Town is a very small municipality with a limited tax base. Therefore, it lacks the requisite fiscal ability to finance significant retrofit projects. We believe such projects will not meaningfully reduce the already *de minimis* phosphorous load generated by the Town and will represent an inefficient use of taxpayer funds that can be used in a more cost effective manner to enhance the environment. We can and will continue to steward our land wisely. The Town believes it has complied with the Revised Regs and will use its best efforts to continue to do so. However, without financial assistance, the Town will have grave difficulty with the future implementation of the current permit requirements. (3) *Response: DEC is requiring all MS4s in the East of Hudson watershed to reduce phosphorus pollution in the NYC watershed through compliance in the MS4 General Permit, and instituting measures such as constructing stormwater system retrofitting projects. The extent of these projects will depend on the modeled*

phosphorus loading completed by DEC and, for the Town of Pawling, is determined to be less than 2 kilograms/year of required reduction. The reason this reduction value is so low is because the modeled land use in the Town of Pawling does not indicate much high intensity development.

Comment #28: The Town has repeatedly requested without success a meeting with the DEC to (1) discuss the foregoing issues, (2) seek clarification of what the Town believes are significant areas of ambiguity in the Revised Regs, (3) ascertain the cost - which we believe will be astronomical - for literal compliance with the retrofit and related Revised Regs, and (4) seek guidance from the DEC on compliance issues. To date, the Town's request has not been granted. However, we continue to request and look forward to same. (3) *Response: DEC has met with the EOH MS4 regulated communities several times in the course of the development of the permit and also since the issuance of the same. The purpose of those meetings has been to provide clarification of the issues that are of concern to the MS4s. This responsiveness summary is another attempt on the part of DEC to provide clarification of lingering issues of concern as articulated in the submitted comments. Additionally, issues of concern articulated in the public comments received on the draft MS4 permit have been organized by topic and are being addressed on a monthly basis at DEC in Albany at day-long public seminars. DEC has continued to reach out to the regulated MS4 communities as deemed appropriate whenever we believe that such outreach will be helpful to the improvement of water quality of the waters of New York State.*

Comment #29: (paraphrased) The TMDL Implementation Plan achieves only 20% of the TMDL NPS required reduction and does not specify the remaining actions DEC anticipates will be needed to provide for compliance with the TMDLs. (1, 4) *Response: The TMDL Implementation Plan was drafted with the intent to provide direction to MS4s to initiate pollution reduction measures in the short term, while specifying the additional tasks needed to bring the affected waterbodies into TMDL compliance. Phosphorus reduction targets were included for retrofits to provide assistance in defining what would be an "approvable plan". It should be understood that the implementation of these other measures (i.e. those listed on page 11 of the TMDL Implementation Plan) is important, and are included therefore in this TMDL Implementation Plan. DEC believes that the TMDL Implementation Plan provides the impetus for progress, and has stated that the plan will be updated as required and as new information becomes available.*

Comment #30: (paraphrased) The TMDL Implementation Plan doesn't explain how the required reductions will be attained including estimates for reductions from sources other than retrofits, and does not include a breakdown showing the total phosphorus reduction that will be required from each MS4 from all sources, not just retrofits, divided by reservoir basin. These additional reductions must be fully disclosed. (4) *Response: It is agreed that retrofitting MS4 conveyances alone will not bring the EOH water-quality limited reservoirs into TMDL compliance. However, DEC is not assigning values to those other actions enumerated in the TMDL Implementation Plan. Total phosphorus reduction that is required by reservoir basin is shown (Table 1).*

Comment #31: The TMDL Implementation Plan does not discuss nor fully meet the eight implementation plan components laid out in the EPA Phase II TMDL approval letter (dated October 16, 2000) for TMDL implementation. The eight components are: 1) for each upstream

waterbody, quantification of additional load reductions above those required to meet the TMDL for that waterbody, that will result in achieving standards in downstream reservoirs; 2) identification of management practices specific to the land use areas within each basin that may be implemented to meet the more stringent of either the TMDL for that waterbody or the reduced load necessary to achieve downstream standards; 3) a list of municipalities, and other storm sewer systems, by basin, that should be designated under the Phase II Stormwater Rule; 4) for each reservoir, management practices that will be implemented to achieve standards in that waterbody and achieve standards in downstream reservoirs; 5) a description of the implementation mechanism and institutional framework; 6) the time frame for implementing the actions; 7) funding sources for implementation; and 8) a plan for evaluating/monitoring the effectiveness of the management practices. While some of these components have been addressed since EPA's 2000 letter, such as item #3, many are only partially addressed in the current plan. The TAC report in 2004 recommended actions to meet these requirements and we encourage DEC to reconsider these items. (4) *Response: The EPA letter provides the above stated recommendations for TMDL implementation and further suggests that "Each step in the development and implementation of this strategy....should provide greater and greater detail." DEC is not prepared to provide all aspects of the recommended level of detail at this time. However, the TMDL Implementation Plan does provide several of the recommended components such as a description of the mechanism, time frame and funding sources for implementation.*

Comment #32: DEC should, at a minimum, acknowledge the past calculations in this new draft and explain why a new methodology is being proposed now. The document needs to fully describe the methodology employed and the input data utilized so that stakeholders can properly review its merits. (4) *Response: The DEC methodology as stated in the TMDL Implementation Plan is AVGWLF modeling, which utilizes satellite data and shape file recognition software to distinguish land use. The modeled loads do not purport to describe total phosphorus reductions required but rather HID phosphorus loading.*

Comment #33: (paraphrased) When the Phase II TMDLs were first developed, it was recognized that the phosphorus load reductions, initially calculated by reservoir basin, would need to be allocated to individual municipalities for implementation. The first TMDL Implementation Report discussed some of the issues involved and presented potential methods for allocating the reductions. It was also noted early on in the Phase II TMDL process that, due to the complex, interrelated nature of the Croton system, the reductions need to be approached from a regional perspective. In 2003, the TAC members negotiated a set of proposed guidelines for allocating the necessary reductions in phosphorus loads to municipalities that took into account the regional nature of the problem, used a more sophisticated analysis of reductions achieved by upstream compliance and addressed feasibility concerns. DEC was an active participant in this effort. The resulting TAC report presented two scenarios for the allocations - the difference being whether revisions to SPDES permits are incorporated. Both scenarios fully account for the reductions required for the Phase II TMDLs. The draft TMDL Implementation Plan does not discuss these TAC allocations nor explain why they are not utilized; reductions appear to be allocated based on land use only (e.g. high intensity development) which does not recognize that each reservoir has a separate TMDL with separate reduction requirements. Each municipality in the watershed extends over more than one reservoir basin and the reductions therefore should not be uniformly applied. (4) *Response: The TMDL Implementation Plan does recognize that "each reservoir*

has a separate TMDL with separate reduction requirements” as evidenced by the inclusion of each Town’s phosphorus loading to each reservoir basin, as well as by the inclusion of the TMDL Table (Table 1) which shows the variation in required remaining reductions from each reservoir. From this information each Town can prioritize its reduction efforts. The TAC allocations were not used because DEC thought it more beneficial to narrow the focus area to develop plans in high intensity development areas. Furthermore, requiring “further reductions”, as the TAC Report did, in less-developed areas in order to compensate for phosphorus pollution that is generated in more-developed areas may be more difficult and more costly, and should be the subject of future efforts, informed by additional monitoring and modeling.

Comment #34: (paraphrased) It is unclear if the entire Croton watershed has been modeled and, if so, how these results compare to previous model results for the watershed. The input data for the model are not described and as number of septic systems or wastewater treatment plants, are not disclosed. The source of the new land use data is not described (e.g. satellite, aerial, tax maps) how the land use data is classified (e.g. how many categories are used and what is included in each category). The model results haven’t been calibrated or verified or undergone any significant peer review process. (4) *Response: The High Intensity and Low Intensity Developed areas within the EOH watershed were modeled. The results correspond generally with the relative allocation responsibilities accorded to the MS4s in the TAC report, that is, although there was a quantitative difference in the absolute numbers between the two model results, relative values among MS4s remained fairly consistent.*

Comment #35: (paraphrased) In the Phase II TMDL analysis, the total phosphorus load from urban areas within the thirteen East-of-Hudson ("EOH") watershed basins is 10,773 kg/yr. The new model indicates that the total phosphorus load from urban areas is 3,311 kg/yr. While some of this discrepancy may be due to the new land use data utilized - which underscores the need for those data to be described in the Plan (or in supporting documentation) - it is extremely unlikely that the total urban nonpoint source loading dropped by nearly 70% since 2000. This comparison suggests that the new allocations to municipalities are entirely too low. (4) *Response: The comparison suggests that the modeling parameters are different. The Phase II TMDL analysis modeled phosphorus loading from an equation that multiplied (urban) land use times an export coefficient. The AVGWLF model used to develop modeled phosphorus loads for the TMDL Implementation Plan utilized satellite data and image processing software using statistical analysis and pattern recognition to distinguish between various land uses. The export coefficient utilized by the Department is lower than that used for the TMDL analysis and, therefore, it is predictable that the phosphorus values are lower for the TMDL Implementation Plan. The TMDL Implementation Plan emphasizes that the MS4s are still required to implement phosphorus reductions until the TMDLs are met.*

Comment #36: (paraphrased) Apart from the retrofits, the Plan does not provide technical guidance to local governments as to what areas – or even what watersheds - to specifically target for phosphorus reductions. The discussion of existing and past programs in the last half of the document does not address this need. (4) *Response: The TMDL Implementation Plan includes Phase II TMDL data in Table 1 that shows values for the remaining phosphorus loads in the*

reservoir. From this table it can be seen that, for instance, the Muscoot Reservoir requires the most reduction and this basin could be considered the highest priority.

Comment #37: There are sections of the document that only deal with the Croton basins and other sections that include the Kensico reservoir. (4) *Response: The modeling results that are shown in the Appendix B document included the entire East of Hudson watershed, including the Kensico reservoir watershed. However, the Kensico watershed is not part of the Croton watershed, and the TMDL Implementation Plan deals with phosphorus reduction in the Croton watershed.*

Comment #38: Table 1 contains footnotes in the column title line that are not included at the end of the table, and is difficult to relate to the rest of the TMDL Implementation Plan. (4) *Response: An explanation of the significance of the data in Table 1 has been provided. The footnote symbols have been removed.*

Comment #39: Table 2 includes formatting that makes it somewhat difficult to read. Additionally, it reveals the total annual phosphorus loading from high-intensity development but does not include the Kensico watershed. As a result, this total annual phosphorus loading differs from the total loading from high-intensity development listed in Table 2 of the Proposed Steps for a Retrofit Program; EOH MS4 heightened Criteria (Appendix B). While we recognize that this plan is for the Croton system, which does not include the Kensico basin, the document needs to explain this discrepancy in a footnote. (4) *Response: A footnote has been included to explain the source and the discrepancy between this table and the Table 2 values in Appendix B. Formatting has been adjusted for better readability.*

Comment #40: Figures 1 and 2 do not have any source citations but they both appear to be from the DEP Croton Watershed Strategy reports. Without a source citation, the reader might mistakenly assume that they are original DEC products. (4) *Response: The source for these two maps has been properly cited.*

Comment #41: Section 2.3, which discusses additional point source reductions from SPDES permit modifications, is very good. However, the TAC analysis showed that a voluntary effort by the municipalities may not be wholly effective since the impact from the SPDES modification is often felt most in upstream basins and municipalities. For example, reductions in the wasteload allocations in the Croton Falls basin will reduce the amount of the overall phosphorus reduction that must be obtained upstream in the Middle Branch basin. Therefore, a regional approach is necessary. (4) *Response: DEC agrees that a regional approach is necessary and continues to encourage the same from the MS4 community.*

Comment #42: The plan does not specifically state in what year the MS4 is required to have successfully achieved the required load reduction. The TMDL Implementation Plan states that the MS4 Stormwater Management Plan ("SWMP") must be fully implemented no later than January 8, 2013. Further, it is indicated that the allocation assumptions of the draft TMDL Implementation Plan will be adjusted in 2013 based on a review of ambient monitoring data and further modeling. This would suggest that MS4s are required to successfully achieve their five-year reduction by 2013. However, given that approvable retrofit plans are not required to be

submitted until December 31, 2009, MS4s are unlikely to start the full construction of retrofits until 2010 or later. In the final plan, it would be useful to clarify whether the entire 5-year loading reduction must be successfully achieved by 2013. (4) *Response: The TMDL Implementation Plan has been corrected to indicate that the SWMP was due on January 8, 2008, as per the general permit language. Regarding retrofitting, DEC will consider the implementation schedule submitted by MS4s as part of determination of approval of the retrofit plan.*

Comment #43: The reduction allocations to MS4s specified in Table 3 should be compared to the reduction requirements from the TMDLs. (4) *Response: The reduction requirements from the TMDLs will be achieved through a combination of measures as specified in the general MS4 permit. Table 3 in the TMDL Implementation Plan specifies phosphorus reductions to be achieved by the MS4s through retrofits only.*

Comment #44: Phosphorus reduction estimates for municipal, State and DEP programs for the purposes of evaluating TMDL compliance should be calculated by DEC (or possibly a new TAC), but in any event not by DEP. Given DEC's responsibility to assess and determine TMDL compliance based on the concentration of phosphorus in the impacted reservoirs, this may be more productive than by evaluating the various phosphorus source reductions accomplished on a site-by-site or program-by-program basis. It is also unlikely that these site-specific estimates will be comparable with each other or with the watershed-specific estimates. DEP continues to be willing to coordinate with DEC and provide technical support on such an effort. (4) *Response: DEC appreciates the willingness of DEP to provide technical support. This task has been deleted.*

Comment #45: Task 2.6 - While the data obtained by DEP in the course of its extensive, multiobjective monitoring program is certainly available for use in the TMDL program and future assessments, compliance with the TMDLs is DEC's not DEP's responsibility. It is therefore inappropriate for DEC to "require" DEP to "continue to conduct water quality monitoring and modeling in accordance with its ongoing program." (4) *Response: This verbiage has been revised according to the comment.*

Comment #46: Please note that DEP's EOH NPS Program is found in Section 4.9 of the 2007 FAD rather than Section 4.7 and that the details of this FAD requirement are provided in Appendix E rather than Appendix D. (4) *Response: These typographical errors have been corrected.*

Comment #47: Item 7 - This item should be deleted. There is no basis for the assertion that changes in reservoir operations will reduce phosphorus loads. (4) *Response: This task has been deleted as per the comment.*

Comment #48: Item 9 states that a law passed in 2005 requires DEC to develop rules and regulations for the reuse of reclaimed wastewater. It is further stated that this may reduce phosphorus loadings to streams from wastewater. The final report should update this item to include the current status of the implementing regulations and the estimated impact on

phosphorus loads. (4) *Response: The report that is a precursor to the regulations is under review by the DEC Executive branch.*

Note: Comments #49 through #68 below refer to Appendix B of the TMDL Implementation Plan.

Comment #49: Overall, the appendix is difficult to follow and the main points are not clear. It would greatly benefit from careful revision. (4) *Response: This document has been revised with the intent to improve clarity. The original document was prepared to address the following questions:*

- *What is the urban load estimate from each MS4 in the EOH watershed?*
- *What is a reasonable reduction that could be expected from this load?*
- *What kind of practices are acceptable as retrofit options?*
- *How will DEC measure progress?*

Comment #50: For consistency, it would be preferable to use a single system for units of measurement rather than mixing both English and Metric. Using multiple systems of measurement may lead to confusion among the regulated community. (4) *Response: Consistent units have been used where appropriate.*

Comment #51: p. 1 - (5th bullet) Since MS4 implementation is not optional, the term "cost benefit analysis" should be replaced with "cost effectiveness analysis." (4) *Response: This text has been revised as suggested.*

Comment #52: p. 3 - (Final paragraph) The model is based on the primary assumption that a 30% load reduction can be attained. DEC bases this assumed reduction on the conversion of road ditch retrofits to open channel/grass swales. However, as shown in Table 7, it is entirely unclear that grass swales provide any reduction in phosphorus loads. It appears that the model depends on 35% impervious surface and high removal rates from grass swales in order to get to a 30% reduction in load. In reality, the net load reduction would likely be much less than this. (4) *Response: The intent of the table is to show the variability of the load and reduction estimates based upon the site specific conditions and rain year. The values only show a range. The improvement in reduction efficiency with higher imperviousness (35%) provided the basis for emphasis on retrofit of HID areas. The WTM model uses 34% reduction for enhanced swales which is slightly less than the value accepted in the NYS standards (40%).*

Comment #53: p. 4 - Table 1 is modeled pollutant loading reductions rather than actual loading reductions. It would be useful to know what percent reduction was used in the grass swales model and how this reduction compares with literature values based on actual water quality monitoring. (4) *Response: Phosphorus load reduction in non-retrofitted grass swales is generally low. The WinSLAMM, which actually utilizes empirical data, shows variable results. This model uses hydrologic source control through infiltration. NYSDEC assumes no reduction level greater than 30%.*

Comment #54: p. 6 - The final version of the document should include a greater discussion of how High Intensity Development ("HID") and Low Intensity Development ("LID") were calculated in the watershed and what export coefficients were used for each. A comparison with the TMDLs reveals significant disparity in loading and total urban area. For West Branch, the total urban land area in the

TMDL (196 ha) is less than the modeled urban area by DEC (345 ha) and yet the load in the TMDL (176 kg/yr) is more than the load in urban area by DEC (93 kg/yr). This apparently assumes that urban areas classified as LID areas are not really "urban" and therefore merit a very low export coefficient. If this is the approach, the entire EOH watershed should be remodeled in this fashion to make sure that the predicted model results compare with actual water quality values in the reservoirs. (4) *Response: The values for West Branch were examined. The AVGWLF calculated load for West branch includes a total of 1522 kg/yr (848.6 kg for groundwater, 8.1 kg for stream bank and 345.7 kg/yr contribution of septic system). The calculated values indicated an average of 0.1 kg/ha/yr for LID and 0.77 kg/ha/yr for HID land uses. In comparison these results are within 10-15% of DEP's calculated average load (0.89 kg/ha/yr) in the TMDL.*

Comment #55: p. 6 - Table 3 includes both a percentage load and quantified load given as kg/yr. Given that these numbers are not directly correlated, there may be confusion among the MS4s. For example, New Castle's load to Croton is listed as 131 kg/yr which is listed as 6% of the total EOH load. Yet, Bedford has a higher load to Muscoto (143 kg/yr) but this higher total load is identified as only 5% of the total EOH load. The final report should provide clarification as to how these numbers were derived and how they are related. (4) *Response: The percentages in question were incorrectly rounded in the draft document and have been corrected. The percentages were determined by dividing the modeled HID load for the MS4 by the total EOH modeled HID load.*

Comment #56: p. 8 - In paragraph 1, please note that the export coefficients are shown in Table 4 rather than Table 3. (4) *Response: This typo has been corrected.*

Comment #57: p.8 - The purpose of Tables 5 and 6 is unclear and it should be noted that the values do not correspond fully with the comparable values in the main body of the report. (4) *Response: The tables were included to indicate potential priority basins; this information is provided in the body of the TMDL Implementation Plan and so has been omitted from Appendix B.*

Comment #58: p.9 - The retrofit options included in the 'Menu of BMPs' section should be categorized by type and presented in a table format. For instance, upgrades of existing stormwater conveyance systems might be an appropriate, broad category of retrofits that includes activities such as road ditch improvement, incorporation of deep sump catch basins, conversion of closed pipe systems to open channel systems, and conversion of paved ditches to vegetated swales. (4) *Response: The menu is provided to describe various options available to the MS4s in complying with permit requirements. The menu is converted to a table to address this concern.*

Comment #59: p. 9 - DEC lists a number of BMPs for which it may be difficult to calculate a loading reduction or percentage removal (e.g. replacement of old sewer pipes, site design modifications, local laws). The final version should include the numeric removal efficiency associated with each option. (4) *Response: It is the responsibility of the MS4s to demonstrate the phosphorus reduction associated with a chosen retrofit practice. DEC has indicated models that are acceptable for this purpose and will make an effort to enhance the existing tools and support more powerful tools as technology emerges. It is suggested that MS4s start with retrofit practices that are easier to implement and for which removal efficiencies are readily available.. Please note that the list of available retrofits has been narrowed to encourage a smoother design and approval process. A range of acceptable removal efficiencies or set of acceptable models with verified BMPs will be identified by the Department to maintain consistency among MS4 reduction calculations and the Department's review criteria.*

Comment #60: p. 10 - The plan routinely suggests "disconnection of rooftops" as a means of reducing phosphorus loadings in stormwater runoff. In particular, the 'Proposed Short Term Goals' section (page 12) includes rooftop disconnection as a recommended practice for immediate implementation. However, studies indicate that runoff from residential roofs is not a significant source of phosphorus. In fact, Massachusetts DEP stormwater guidance materials suggest that "rooftop runoff, except for metal roofs (which have higher potential pollutant loads), generally should be considered uncontaminated for the purposes of these Standards and therefore can be infiltrated directly without treatment. This suggests that rooftop disconnection may not prove worthwhile when subjected to DEC's own cost-effectiveness analysis. (4) *Response: Rooftop disconnection is an accepted practice for source control which associates generating less runoff with less pollutant wash off. Roof runoff is found to have less TSS load than that from other impervious surfaces. Although rooftop runoff phosphorus concentration is not as elevated as some other sources, depending on the height of the roof and the tree canopy, nutrient concentration may vary. In fact, recent research indicates that asphalt shingles were a greater source of phosphorus than other roofing material. According to the JOURNAL OF IRRIGATION AND DRAINAGE ENGINEERING © ASCE (Clark, 2008 - open discussion) laboratory "leach" testing of commercially available roofing materials indicated that the potential for release of primarily nutrients, lighter hydrocarbons, pesticides and metals is substantial. The two years of runoff data from a pilot-scale testing of the tested materials indicated substantial concerns regarding zinc and copper, plus the potential for long-term nutrient releases in the runoff from several roofing types.*

Comment #61: p. 11 - The suggested 'Reduction Values' that may be applied to retrofit projects are based on published BMP removal efficiencies as presented in National Pollutant Removal Performance Database ("Database"). It is not clear whether the efficiencies included in the Database represent the performance of BMPs installed in accordance with established stormwater standards on new development sites or if the efficiencies correspond to the performance of retrofit BMPs. Given the site constraints associated with previously developed areas, BMPs applied as retrofits typically do not meet basic stormwater standards, such as minimum treatment volumes, minimum detention times, length to width ratios and forebay sizing requirements. As such, pollutant removal efficiencies may be significantly lower for retrofit BMPs than those of BMPs constructed on new development sites. (4) *Response: The efficiency of a particular retrofit is subject to the design of the practice. Existing or new development should not make a difference in the performance. Existing development, however, does dictate additional physical constraints of the site. The limitations arise in sizing and construction of the practice which need to be addressed on a site by site basis. Although theoretical efficiency versus actual reduction should be a consideration in retrofit siting, actual mass load reduction is the key factor in selection of practices. Although the above argument is valid, it does not justify the underdesign of practices in a retrofit condition. Proposal of practices such as road ditch conversion to enhanced swale or roof top disconnection are primarily based on the fact that such practices utilize existing footprint and conveyance systems.*

Comment #62: p. 11 - The proposed use of pollutant removal efficiencies in the TMDL retrofit program seems in at least some instances to be inconsistent with DEC's current approach to stormwater management for construction activity. The use in this Plan of assumed BMP removal efficiencies may create confusion amongst the regulated community given DEC's 2001 shift from the

pollutant loading based model of stormwater management regulations previously represented in GP-93-06 and the accompanying publication "Reducing the Impacts of Stormwater Runoff from New Development." Furthermore, there appear to be discrepancies between the performance of the accepted practices listed in Chapter 5 of the NYS Stormwater Design Manual (all of which are assumed to achieve 40% removal of total phosphorus), and the performance levels assumed in this Plan. In some cases, Tables 7 and 8 suggest total phosphorus removal efficiencies somewhat less than 40% for certain 'accepted' practices, e.g. wetlands and swales. (4) *Response: NYSDEC Stormwater management design standards are based on the best available technology rather than load reduction. Retrofits are specifically intended for load reduction with more flexibility for planning around maximum load and feasibility of the reduction.*

Comment #63: p. 11 - Given the typical site constraints associated with retrofit sites, proprietary stormwater practices may be the most suitable in terms of space requirements, incorporation into existing collection systems and ease of maintenance. Unfortunately, the use of assumed BMP removal efficiencies as a criterion for determining the value of a retrofit will likely exclude proprietary practices from any list of viable options. Assumed removal efficiencies for proprietary practices, such as Vortech, Stormceptor and StormFilter, are typically derived from manufacturer-sponsored field testing. Because agencies are skeptical of manufacturer performance claims, proprietary practices are not accepted as primary treatment practices for new development by either DEC or DEP and thus no reliable removal efficiency has been identified. We suggest that, at least for retrofit projects, DEC reconsider this position. (4) *Response: Most proprietary practices commonly do not provide any nutrient removal, particularly hydrodynamic practices. DEC's position is formulated as a part of the Redevelopment Chapter in the Stormwater Manual, which is in agreement with this comment.*

Comment #64: p. 12 - (1st paragraph) The final version should include the anticipated number of road ditches and a numeric removal efficiency associated with converting road ditches to grass swales. (4) *Response: This document is not intended to assess the extent of retrofit options, but rather to provide a technical background for the TMDL Implementation Plan.*

Comment #65: p. 12 - (2nd paragraph) The first step would be to clarify the total amount of phosphorus each MS4 is required to remove rather than just to note the expected reduction from HID areas alone. This will assist the MS4 in planning future activities and the need to assess other reduction options in order to meet their overall TMDL reduction obligation. The additional quantification needed in the final Plan would include an estimated loading reduction for sources listed in the Plan such as septic repairs, illicit discharge detection and elimination, lower SPDES effluent limits and retrofits located outside of high-intensity development areas. (4) *Response: DEC is not prepared to provide loading reductions from all phosphorus loading sources at this time. The TMDL Implementation Plan addresses the MS4 load reduction requirements for the next five years. This is considered to be a reasonable starting point. The TMDL Implementation Plan will be reformulated as the need arises based on monitoring data that becomes available in the next permit cycle.*

Comment #66: p. 12 - (4th paragraph) It may be difficult to expect each MS4 to have a detailed understanding of hydrology, hydraulics and loading as indicated in the Plan. The final version should specify requirements for each MS4. (4) *Response: MS4s have the option to extend the implementation of their retrofit plan to a comprehensive plan that addresses multiple objectives and results in a watershed wide reduction.*

Comment #67: p. 13 - (5th paragraph) A watershed model will be useful to assess the entire East-of-Hudson. It is not clear if the model will be managed by MS4s or DEC. (4) *Response: DEC intends to support the modeling efforts although we have not set a goal of managing a watershed wide model for the MS4s.*

Comment #68: p. 13 - This appendix needs a summary or conclusion section. (4) *Response: This comment has been duly noted.*

Comment #69: As noted in Appendix 3 of the SPDES permit for stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) (Permit Number GP-0-08-002), the EOH Watershed includes the entire New York City Watershed located east of the Hudson River. The Designated MS4 list in the Draft TMDL Plan does not include all of the municipalities that are subject to the MS4 requirements under GP-0-08-002 and this needs to be further explained. (4) *Response: The Appendix title has been revised to indicate that these MS4s are contributors to the Croton watershed.*

Comment #70: EOH WQIP funds were not used for the Ossi Lane project in the Town of Carmel. Nearly \$15 million in EOH Water Quality Investment Program Funds have been allocated for projects in Westchester County. Several of these projects may support the phosphorus reduction goals of the TMDL Implementation Plan. (4) *Response: The Ossi Lane project has been removed from the list in Appendix D.*

Comment #71: This Appendix (Appendix F) is not referenced in the document. The form should either be deleted or edited to remove DEP from the title. (4) *Response: Appendix F has been deleted.*

Comment #72: Although the TMDL program requires reductions in phosphorus loading from point sources (wastewater treatment plants (WWTPs) and nonpoint sources (stormwater), DEC has elected to implement a plan that ignores point source contamination of the Croton Watershed's surface waters. However, of 68 East-of-Hudson WWTPs, 48 have not yet been upgraded to tertiary treatment (as required by the MOA and the Watershed Rules & Regulations), and 36 of those have not even begun construction. Of the 20 that have been completed, only 3 were completed in 2008. Upgrading accounts for 66% of the discharged flow (3.55 mgd), which means 2.35 mgd continues to discharge to Croton Watershed streams having undergone only secondary treatment. In the MOA, New York City agreed to pay for the costs of these upgrades. The abysmal noncompliance record of 48 Croton Watershed WWTP operators who failed to complete upgrades six years ago (as required by the MOA) - and the 2.35 mgd of wastewater effluent that continues to pollute Croton surface waters - warrants the inclusion of point source implementation practices and schedules in the latest Draft Plan. (5) *Response: DEC is working with DEP to aggressively pursue the upgrades of the EOH WWTPs. DEP purportedly is in contract with New York State Environmental Facilities Corporation's (EFC) for \$53 million to fund the WWTP Upgrade Program. However, this figure is less than half the projected total required to complete all the remaining WWTPs. DEP is strongly encouraged to provide the necessary funds, including O&M costs, to ensure that the upgrades are completed as soon as possible.*

Comment #73: The MOA requires that for each reservoir which exceeds its approved TMDL, DEC (in cooperation with New York City DEP), will review all surface water permits in that reservoir's drainage basin for consistency with phosphorus effluent limits, and propose permit modifications to implement the phosphorus effluent limits. The very purpose of the Draft Plan is to "provide goals to reduce phosphorus concentration levels in the eight (8) water-quality impaired East of Hudson (EOH) reservoirs ... as identified in [DEC's 2000 Phase II TMDL Report]. Certainly, point source phosphorus reductions should be part of this Draft Plan. (5)

Response: It is agreed that phosphorous reductions from WWTPs are an important component to reduce phosphorous levels in the EOH Reservoirs. The Department is currently discussing the status of the remaining upgrades to the EOH wastewater treatment facilities with NYCDEP to expedite their completion. The existing upgrades have been successful and discharges of phosphorous from these facilities are well below the permitted value. The Department will undertake an evaluation of the existing phosphorous discharge levels from WWTPs and provide this information in future updates to the TMDL Implementation Plan.

Comment #74: The Draft Plan claims that "retrofit responsibilities allocated to DOT and Westchester, Putnam and Dutchess Counties were calculated by apportioning the total high intensity development phosphorus load in urbanized areas, according to relative Town, County and DOT road miles in each MS4 municipality. However, if retrofit responsibilities were calculated based on ownership of road miles within geographic boundaries, then it follows that the Town of Southeast, which requires an annual phosphorus reduction of 6.2 kg, owns as many road miles as all of Putnam County, which also requires an annual phosphorus reduction of 6.2 kg. In addition, the Town of Kent apparently owns more road miles than all of Putnam County, because Kent requires an annual phosphorus reduction of 6.7 kg. Is this accurate, and how did DEC arrive at these apportionments? (5) *Response: The apportioning of phosphorus reduction responsibilities was determined based on watershed modeling which is based on high intensity development (HID) land use. County, state and town values were determined in each town by apportioning the modeled HID loads according to relative amount of town, county and state road miles in each town.*

Comment #75: The Draft Plan reports that in 2003 DEC and DEP entered into a DEC-DEP Coordinated Stormwater Enforcement Protocol (Enforcement Protocol) in order to better utilize their resources "by coordinating enforcement of violations." The Protocol "confirms that both agencies will share in the investigation and identification of stormwater discharge violations and establishes the enforcement activities of the respective agencies. "The Enforcement Protocol, updated in 2008, covers three activities: (i) construction without a SPDES permit and without a stormwater pollution prevention plan (SWPPP); (ii) Violations of a SWPPP; and (iii) water quality violations of ECL § 17-0501 due to contravention of the New York State Water Quality Standards (6 NYCRR Parts 700-706).

While violations of this third category would seem to include violations of DEC's SPDES General Permit for MS4's (General Permit # GP-0-08-002), the Protocol is silent as to this permit. Given that DEC now proposes to implement its nonpoint phosphorus TMDL program through the MS4 General Permit, we find it troubling that the Enforcement Protocol fails to mention the MS4 General Permit. DEC should clarify its intentions with respect to enforcing the TMDL program. (5) *Response: The TMDL program is enforceable through the requirement that*

approvable plans be submitted to the DEC for retrofits as specified in the MS4 General Permit (Part IX.A.5.b). This provision will remain a component of the MS4 General Permit until such time as the TMDLs have been met for the Croton reservoir waterbodies.

Comment #76: Pursuant to ECL § 17-0501, "It shall be unlawful for any person, directly or indirectly, to throw, drain, run or otherwise discharge into such waters organic or inorganic matter that shall cause or contribute to a condition in contravention of the [water quality standards adopted by the department. The definition of "person" includes government agency and municipality. Under the provisions of the New York City Watershed Rules & Regulations, the water in all drinking water reservoirs shall meet standards applicable to Class AA waters. The best usages of Class AA waters include drinking water supplies. The narrative water quality standards for phosphorus in Class AA waters is "none in amounts that will result in growths of algae, weeds and slimes that will impair the waters for their best usages.

Since the inception of DEC's TMDL program, eight EOH reservoirs have not achieved the water standards required by the above 6 NYCRR § 703.2 provision and therefore have been designated as phosphorus-impaired for their best usage. This phosphorus impairment has been, and is currently, the result of chronic point source (WWTPs) and nonpoint source (runoff from state, county and town roads) loadings of phosphorus, in violation of New York State regulations. Despite these flagrant and continuing violations, we are unaware of any enforcement action DEC has ever brought against EOH WWTP operators for contributing to the contravention of the narrative water quality standards for phosphorus in EOH NYC drinking water reservoirs by failing to upgrade 48 WWTPs and causing the discharge of 2.35 mgd of secondary treated wastewater into Croton Watershed streams. We are further unaware of any enforcement action by DEC or DEP, individually or jointly, brought against any town, county, or NYSDOT for its failure to treat stormwater runoff from its roads before discharging it into a Croton Watershed stream or drinking water reservoir. (5) *Response: The requirement to upgrade WWTPs is a DEP requirement; public health law is administered and enforced by NYSDOH. DEC does not have the authority to initiate enforcement actions against WWTP operators for failing to upgrade their treatment plants as agreed.*

Comment #77: Although the Draft Plan appears to rely on the Enforcement Protocol to achieve compliance with water quality standards, it is evident that neither DEC nor DEP have demonstrated compliance with their Enforcement Protocol by coordinating enforcement of violations against the offending counties, towns, and NYSDOT for contravention of water quality standards. Any continued agency inaction, lack of accountability, and/or lack of an enforcement mandate by DEC renders the Draft Plan unenforceable and precludes its meaningful implementation. (5) *Response: DEC and DEP coordinate enforcement activities and meet semi-annually to discuss and improve coordination wherever necessary. The new General Permit contains enforceable provisions including the retrofit program, plans for which will be reviewed by DEC personnel for approval. Additionally, the Department intends to continue its MS4 audit program with special emphasis on MS4s in impaired watersheds such as the NYC Croton Watershed.*

Comment #78: Section 3 of the Draft Plan lists various funding sources and dollar amounts available through their programs. In addition, "DEP will develop comments in order that

Westchester County may finalize and implement their Westchester Croton Plan.” How much funding will be required to implement the Croton Plan and which funding sources will be utilized? In addition, "New York State will continue to provide funding to encourage the implementation of nonpoint source management practices.” Again, how much funding will be applied from which sources and to whom will it be distributed? (5) *Response: Funding is dependent on State budget considerations that are beyond the control of DEC, and therefore, the MS4s should look to obtain DEC, DEP and DOS grants wherever they become available and should consider their own budgets when these monies are not available.*

Comment #79: The Draft Plan lists a total of approximately \$106.5 million available for water quality improvement projects. Even if all of this funding could be secured, is that amount adequate to retrofit the entire Croton Watershed? If not, what measures will DEC take to fully implement the proposed TMDL Plan? Although the Draft Plan claims that better cost information will be known when MS4 SWMPs are fully developed and implemented, the EOH MS4s have been developing their SWMPs for five years. These issues therefore require clarification and a more concrete analysis of projected costs for implementation. (5) *Response: It is the responsibility of the regulated MS4s to implement the phosphorus reductions required to obtain TMDL compliance. DEC will continue to assist, advise and support all MS4 water quality improvement efforts toward this end. Grant money to assist the MS4s is available for use by a regional stormwater entity. This money can be spent to assess costs as well as for shared compliance activities.*

Comment #80: The Draft Plan recognizes the complexity involved in controlling nonpoint sources of phosphorus. Admirably, DEC structured the Draft Plan to utilize the MS4 permitting program to achieve many of the reductions. The Draft Plan identifies distinct institutions to help with this complex plan, and mentions briefly that a regional MS4 stormwater entity would enable sharing of resources and increased funding opportunities among participating municipalities. The Draft Plan also mentions "non-traditional" entities and expresses DEC's support of coordination among individual MS4s. However, the Draft Plan fails to address how it would use a regional MS4 stormwater entity to help achieve the goals of the program. (5) *Response: A regional MS4 stormwater entity (RSE) is encouraged because it is believed that the participating MS4s will benefit in terms of reduced overhead and implementation costs, better phosphorus reductions and greater alternatives locating retrofit opportunities. The “bubble compliance” concept for an RSE is explained in the TMDL Implementation Plan.*

Comment #81: Formation of a regional MS4 stormwater entity is a requirement of the 2007 Filtration Avoidance Determination (FAD). Discussions have been underway for a regional MS4 entity or public benefit corporation to assist municipalities with technical, financial, implementation, and coordination issues of the MS4 program. This entity would be akin to the Catskill Watershed Corporation, but focused solely on EOH MS4 programs. Riverkeeper supports formation of this entity and encourages DEC to design the implementation plan to work in conjunction with such an entity. (5) *Response: The TMDL Implementation Plan is designed to encourage a regional stormwater entity (RSE), and has been revised to emphasize this point. For instance, if several MS4s organize into an RSE, they may submit a single plan and obtain compliance for each of the participating MS4s, as long as the plan shows the phosphorus*

reduction total equals the combined requirement of all the participating MS4s, and their other permit requirements are collectively met.

Comment #82: Although the New York City Watershed Memorandum of Agreement calls for the development of a Croton Watershed Phase II Phosphorus TMDL Nonpoint Source Implementation Plan, the phrase 'nonpoint source' is misleading. This document includes both point and nonpoint sources, which should be reflected in the title. (6) *Response: The title of the TMDL Implementation Plan has been revised as suggested.*

Comment #83: Throughout the document, the phosphorus reductions are referred to as proposed reductions. We expect that once the document is finalized, the reductions will be established rather than proposed. (6) *Response: The requested language change has been adopted.*

Comment #84: The plan provides both annual and five year targets for phosphorus reduction through the retrofit program. It is unclear whether the retrofit schedule submitted by an MS4 will be expected to show yearly reductions or whether a schedule indicating the five year reduction will be met would be acceptable. If annual reductions will not be required, NYSDEC should ensure that a firm construction completion date is established for the projects needed to achieve the five year reduction requirement. (6) *Response: It is required that MS4s submit approvable plans on an annual basis, although only the five year reduction must be met. For instance, if an MS4 has a five year reduction requirement of 50 kg, and submits an 8 kg reduction for year one and a 12 year proposed reduction for year 2, this could be accepted by DEC as an approvable plan. DEC recognizes that allowing for some flexibility in scheduling may allow for greater overall compliance. DEC will require construction completion schedules as part of the approvable plans that will be submitted each year.*

Comment #85: Several activities included in the Implementation Plan are expected to result in phosphorus reductions. Information from MS4 Permit Annual Reports and from the NYC Watershed Agriculture Program are specifically identified as items to be reported on and used in the assessment of the plan. There are several other activities that do not have specific tasks for reporting associated with them. The information on the status of these projects and an estimate of the phosphorus reductions achieved is needed to fully assess the success of the plan. Please provide additional detail in the plan about how NYSDEC, perhaps with assistance from the Technical Advisory Committee (TAC), will assess phosphorus reductions from programs such as:

- NYCDEP Stormwater Infrastructure Remediation
- Westchester County Croton Plan
- Putnam County Croton Plan
- Water Quality Investment Program Projects
- Turf and Pest Management
- CWA Section 319 Funded Projects
- WRDA Funded Projects

(6) *Response: At this time, the Implementation Plan includes details on the phosphorous reductions from implementing retrofit projects within high intensity development areas within the EOH watershed. It was necessary to provide this information so that the EOH MS4's*

understood the necessary reductions required to submit an approvable retrofit plan in 2009 to the Department as required by the MS4 General Permit. It is agreed that estimates for phosphorous reduction are ultimately needed for the variety of other MS4 permit activities, as well as the programs listed. It is the intention of the Department to begin to develop phosphorous reduction values for these additional activities and it is agreed that the TAC would provide excellent assistance in this effort.

Comments were received from the following MS4s:

1. Rich Williams, Planner; Town of Patterson
2. Dave Graves, Senior Environmental Specialist; DOT
3. Beth Coursen, Supervisor; Town of Pawling
4. David S. Warne, Assistant Commissioner; DEP
5. James L. Simpson, Staff Attorney and William Wegner, Staff Scientist; Riverkeeper
6. Barbara A. Finazzo, Director of the Division of Environmental Planning and Protection; EPA