April 4, 2014

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

We write on behalf of the Ecology Team of the Bronx River Alliance. The Bronx River Alliance serves as a coordinated voice for the river and works in harmonious partnership to protect, improve and restore the Bronx River corridor so that it can be a healthy ecological, recreational, educational and economic resource for the communities through which the river flows. As an Alliance, we work with partners to protect and improve the quality of the Bronx River, which consistently appears on the New York State Department of Environmental Conservation (NYS DEC) list of impaired waterbodies. The river receives high nutrient, pathogen, and sediment loads from untreated stormwater runoff, flashy flood flows, and leaks and overflows from an aging infrastructure, which is typical for a highly developed urban system. The river supports flora and fauna that are pollution and disturbance tolerant; frequently, these pollution tolerant plants and wildlife are in fact invasive species that can cause harm to native species populations.

We understand that this permit is long overdue (more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. To this end we have the following concerns.

Construction site size requirement
We believe most residents of New York City will attest to the fact that a great majority of construction projects in the city are small. Therefore, requiring regulation only of projects larger than one acre is unlikely to be a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas. A more appropriate size threshold will ensure that green infrastructure practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

Stronger requirements for water quality improvement
The draft permit is based on the premise that stormwater discharges impair water quality and must be properly managed to prevent pollutants from entering our waterways. However, the draft permit does not include any specific pollutant load reductions that would ensure the city's waterways meet state standards to protect uses like fishing, boating, and swimming. The permit should clearly prohibit discharges that are known to cause or contribute to water quality impairments, and should establish binding deadlines for the city to eliminate existing violations.

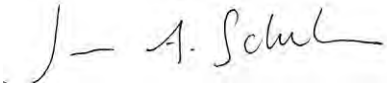
More meaningful public participation and involvement
We find the requirement for public participation and involvement to be inadequate. All reports and notices resulting from the permit (e.g., annual reports) should be publicly noticed and available for comment at *both* public meetings and on the City's web site. Such notices should also be disseminated via the City's social media (e.g., Twitter, Facebook).

For illicit discharge plans, construction site stormwater control, post-construction stormwater control, and industrial and commercial stormwater source management, the permit should require the City to develop a public-reporting system for complaints. This system (accessible telephonically and electronically) should allow members of the public to file complaints as well as track their complaints online or through a point of contact through to resolution by the City.

We would also like the opportunity to formally share our comments on the Stormwater Management Program, to be developed by the City, with the DEC through a public comment and public hearing processes. While the permit requires that the City involve the public in the development and implementation of the SWMP, we believe it is important for the DEC, as the regulatory agency issuing the permit, to hear our comments on the SWMP, so that the DEC will be in a better position to modify the permit if necessary. Without such a stipulation, this will result in an ineffective public participation process.

Coordination with other ongoing programs
We are confused by the myriad of water quality related programs underway in the City. We understand that for some waterbodies, the Combined Sewer Overflow Long Term Control Plans are in development by the City. There are also the floatables control program and the Green Infrastructure Plan. In yet other places, there are brownfields cleanup efforts and superfund remediation. We believe it is critical that these related or overlapping programs must be coordinated well for the efficient use of public resources as well as for better understanding by the public of the City's efforts. We know that interagency coordination is challenging and requires an investment of resources. It would be beneficial to explicitly require the City to create a mechanism for coordinating its MS4 program with these other efforts.

Sincerely,



Jessica A. Schuler
Director of the Thain Family Forest
The New York Botanical Garden
Bronx River Alliance Ecology Team Co-Chair

Annette Williams

Annette Williams
Deputy Director
Sustainable South Bronx
Bronx River Alliance Ecology Team Co-Chair

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RISA WALLBERG

April 1st, 2014

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

I am writing on behalf of the Empire Dragon Boat Team – New York City's only cancer survivor dragon boat team. We practice in Flushing Bay, and because of the deplorable water quality conditions in the Bay, we are working to ensure that all waterways are safe for recreational boating. We participate in an oyster gardening project in the Bay, and are also involved in a Citizens Water Quality Testing Program that measures bacteria in the water.

We understand that this permit is long overdue (more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. To this end we have the following concerns.

Construction site size requirement

We believe most residents of New York City will attest to the fact that a great majority of construction projects in the city are small. Requiring regulation of only projects larger than one acre does not seem like a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas. A more appropriate size threshold will ensure that green infrastructure practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

Stronger requirements for water quality improvement

The draft permit is based on the premise that stormwater discharges impair water quality and must be properly managed to prevent pollutants from entering our waterways. However, the draft permit does not include any specific pollutant load

reductions that would ensure the city's waterways meet state standards to protect uses like fishing, boating, and swimming. The permit should clearly prohibit discharges that are known to cause or contribute to existing water quality impairments, and should establish binding deadlines for the city eliminate existing violations.

More meaningful public participation and involvement
We find the requirement for public participation and involvement to be inadequate. All reports and notices resulting from the permit (e.g., annual reports) should be publicly noticed and available for comment at both public meetings and on the City's web site (not one or the other). Such notices should also be disseminated via the City's social media (e.g., Twitter, Facebook).

For illicit discharge plans, construction site stormwater control, post-construction stormwater control, and industrial and commercial stormwater source management, the permit should require the City to develop a public-reporting system for complaints (accessible telephonically and electronically) that not only allows the members of the public to file complaints but also allows them to track their complaints through to resolution by the City, either online or through a point of contact in the City.

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Coordination with other ongoing programs
We are confused by the myriad of water quality related programs underway in the City. We understand that for some waterbodies, the Combined Sewer Overflow Long Term Control Plans are in development by the City. There are also the floatables control program and the Green Infrastructure Plan. In yet other places, there are brownfields cleanup efforts and superfund remediation. We believe it is critical that these related or overlapping programs must be coordinated well for the efficient use of public resources as well as for better understanding by the public of the City's efforts. We know that interagency coordination is not necessarily the City's strongest suit. It would be beneficial to explicitly require the City to create a mechanism for coordinating its MS4 program with these other efforts.

Sincerely,
Donna Wilson, RN

Donna Wilson, RN
Chair

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APR - 8 2014
DIVISION OF
ENVIRONMENTAL PERMITS

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407
via email: **r2dep@gw.dec.state.ny.us**

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

Since 1999 we have canoed and kayaked most of the waters in NYC, leading public excursions from Pelham Bay Lagoon to Governor's Island

We understand that this permit is long overdue (more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. So far it is not. To this end we have the following concerns.

Construction site size requirement
ANY CONSTRUCTION SHOULD BE INCLUDED.

We believe most residents of New York City will attest to the fact that a great majority of construction projects in the city are small. Requiring regulation of only projects larger than one acre does not seem like a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas. A more appropriate size threshold will ensure that green infrastructure practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

Stronger requirements for water quality improvement
Prohibit ALL discharges that are known to cause or contribute to existing water quality impairments
The draft permit is based on the premise that stormwater discharges impair water quality and must be properly managed to prevent pollutants from entering our waterways. However, the draft permit does not include any specific pollutant load reductions that would ensure the city's waterways meet state standards to protect uses like fishing, boating, and swimming. The permit should clearly prohibit discharges that are known to cause or contribute to existing water quality impairments, and should establish binding deadlines for the city eliminate existing violations.

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other). Such notices should also be disseminated via the City's social media (e.g., Twitter, Facebook).

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Coordination with other ongoing programs

We are disappointed by the myriad of water quality related programs underway in the City. We understand that for some waterbodies, the Combined Sewer Overflow Long Term Control Plans are in development by the City. There are also the floatables control program and the Green Infrastructure Plan. In yet other places, there are brownfields cleanup efforts and superfund remediation. We believe it is critical that these related or overlapping programs must be coordinated well for the efficient use of public resources as well as for better understanding by the public of the City's efforts. We know that interagency coordination is not necessarily the City's strongest suit. It would be beneficial to explicitly require the City to create a mechanism for coordinating its MS4 program with these other efforts.

Sincerely,

—

Harry J. Bubbins
Director
646-648-4362
www.friendsofbrookpark.org

Sign up for our Email list here:
http://oi.vresp.com/?fid=4e9ccd7269

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

The Jamaica Bay Ecowatchers have been the leading environmental advocacy organization for Jamaica Bay for over the last 18 years. One of our primary concerns has been the water quality issues facing Jamaica Bay and one of ,if not the greatest, impact to that water quality derives from the Municipal Separate Storm Sewer System of the city of New York. When you look at the map of Jamaica Bay and the surrounding water shed and then super impose that area which is served by this MS4 it is immediately apparent that this bay is surrounded by a storm sewer system that does great harm to the water quality of this bay. We have for years noticed this impact during our patrols of the bay in the immediate aftermath of a major rain event. Floatables and oil slicks that show up directly after a storm and then linger in the bay due to the lack of a agency that addresses this as well as the small bottleneck opening to the bay that does not allow its leaving into the ocean, not that that is a much better alternative.

We understand that this permit is long overdue (more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. To this end we have the following concerns.

Construction site size requirement
We believe most residents of New York City will attest to the fact that a great majority of construction projects in the city are small. Requiring regulation of only projects larger than one acre does not seem like a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas. A more appropriate size threshold will ensure that green infrastructure practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

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a public-reporting system for complaints (accessible telephonically and electronically) that not only allows the members of the public to file complaints but also allows them to track their complaints through to resolution by the City, either online or through a point of contact in the City.

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Sincerely,
Daniel T Mundy
Vice President --Jamaica Bay Ecowatchers

Natural Resources Defense Council
Riverkeeper
NY/NJ Baykeeper

April 7, 2014

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407
via email: **r2dep@gw.dec.state.ny.us**

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

On behalf of Natural Resources Defense Council, Riverkeeper, and NY/NJ Baykeeper, please accept the following comments on the above-referenced draft State Pollutant Discharge Elimination System (SPDES) Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) of New York City (the "Draft Permit"). The Draft Permit would regulate discharges to surface waters, from both public and private property, via MS4 outfalls owned or operated by the City, as well as discharges to surface waters from municipal operations and facilities that drain via overland flow.

We wish to thank DEC for releasing the Draft Permit, which addresses polluted stormwater runoff from about half of the City's land area, for public comment. We note that, under federal regulations, DEC was required to issue an MS4 permit to New York City to comprehensively regulate these discharges in 1993 – more than two decades ago.[1] Especially against this backdrop of extreme delay, it is essential that DEC issue a strong permit with terms that ensure the City will develop and implement of an effective stormwater pollution control program as quickly as possible.

Overall, although the Draft Permit recognizes that MS4 discharges contribute to water quality standards violations in many waters throughout New York City, it does not hold the City accountable for achieving pollutant load reductions sufficient to ensure that MS4 discharges cease to cause or contribute to such impairments, as required by law. Nor does it ensure that New York City will adopt specific practices that reduce pollution system-wide to the "maximum extent practicable," as also required by law. Additionally, while the permit provides several avenues for public participation in the City's stormwater management efforts, it omits some of the most essential public participation rights and is too vague with respect to others.

To address these shortcomings, we urge DEC to improve the Draft Permit as follows:

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[1] *See* 40 C.F.R. § 122.26(e)(7)(ii).

1. apply robust post-construction stormwater management requirements – including an "on-site retention" (or "runoff reduction") standard – to all new development and redevelopment projects that disturb 5,000 or more square feet of land;

2. clearly and unequivocally prohibit discharges that cause or contribute to water quality standards violations, and provide for a specific compliance schedule (including a retrofit program) for eliminating discharges that cause or contribute to *existing* water quality impairments;

3. ensure that planning under this permit is specifically integrated with other water pollution control programs currently under development by the City and State (e.g., CSO Long Term Control Plans, Superfund remediation);

4. strengthen various elements of the Stormwater Management Program (SWMP) requirements to ensure their effectiveness and accountability for water quality results;

5. mandate more robust public processes for the City's development of its SWMP and DEC approval of the SWMP; and

6. address certain "drafting" issues, to avoid unnecessary ambiguity.

The National Research Council, an arm of the National Academies of Science, has stated that, of all the challenges facing stormwater management in this country, "[p]erhaps most problematic is that the requirements governing stormwater dischargers leave a great deal of discretion to the dischargers themselves in developing stormwater pollution prevention plans and self-monitoring to ensure compliance."[2] DEC must avoid repeating this pattern, by ensuring that this permit includes clear, precise, and strong provisions that hold New York City accountable for achieving stormwater pollution reduction and water quality mandates.

Please accept the detailed comments below, which elaborate on each of our main areas of concern.

1. In order to comply with the "maximum extent practicable" standard, the Draft Permit must require more stringent post-construction controls, including a lower size threshold for triggering the applicability of post-construction stormwater management requirements at new development and redevelopment sites.

Under state and federal law, SPDES permits for MS4s "shall require controls to reduce the discharge of pollutants to the maximum extent practicable."[3] Courts interpreting the phrase "maximum extent practicable" have found it to be clear and unambiguous: it means to the fullest degree technologically feasible, except where costs are wholly disproportionate to the potential

[2] National Research Council, *Urban Stormwater Management in the United States* at 3 (2009), *available at* http://www.nap.edu/catalog.php?record_id=12465.

[3] 33 U.S.C. § 1342(p)(3)(B)(iii); ECL § 17-0808(3)(c); *see also* 40 C.F.R. § 122.26(d)(2)(iv), 6 N.Y.C.R.R. § 750-1.11(a)(9) (requiring SPDES permits to comply with the enumerated federal regulations).

benefits.[4] DEC is responsible not merely to instruct an MS4 permittee to develop measures that reduce stormwater pollution to the maximum extent practicable, but to issue permit terms that "ensure that the measures that any given…[MS4] undertake[s] will *in fact* reduce discharges to the maximum extent practicable."[5] The Draft Permit, as written, does not meet this obligation.

a. <u>The Draft Permit should be modified to reduce the 1 acre "land disturbance" threshold to 5,000 square feet.</u>

The Draft Permit's one acre threshold for application of post-construction stormwater management requirements (Section IV.F) excludes far too much of the MS4 service area from coverage, without any valid reason. This size threshold would not satisfy the "maximum extent practicable" legal standard. Broader application of these requirements, to all new development and redevelopment with at least 5,000 square feet of land disturbance, is indeed practicable, and is therefore mandatory. New York City recently adopted new stormwater management rules – requiring on-site management of a significant volume of stormwater – that apply to sites at least as small as 5,000 square feet.[6] There is no reason why the same threshold cannot be applied in the MS4 portions of the city. Likewise, thresholds as low as 5,000 square feet are already in effect in other large cities around the nation, demonstrating its practicability;[7] indeed, EPA has itself stated that "[t]his approach [as reflected in the Washington, DC MS4 permit] has been demonstrated to be 'practicable.'"[8]

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[4] *See, e.g., Haeuser v. Dep't of Law, Gov't of Guam*, 97 F.3d 1152, 1159 (9th Cir. 1996) (finding that "practicable" means "capable of being done: feasible"); *Rybachek v. EPA*, 904 F.2d 1276, 1289 (9th Cir. 1990) (holding that, to meet the "practicable" standard, EPA must select best level of technology unless costs are "wholly disproportionate" to benefits); *Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 131 (D.D.C. 2001) ("[T]he phrase 'to the maximum extent practicable' does not permit an agency unbridled discretion. It imposes a clear duty on the agency to fulfill the statutory command to the extent that it is feasible or possible." (internal quotation omitted)); *see also Friends of Boundary Waters Wilderness v. Thomas*, 53 F.3d 881, 885 (8th Cir. 1995) (holding that "feasible" means physically possible).

[5] *Environmental Defense Center v. EPA*, 344 F.3d 832, 855 (9th Cir. 2003).

[6] *See* New York City Record, Jan. 4, 2015, pp. 15-18; NYC DEP, Guidelines for the Design and Construction of Stormwater Management Systems (2012), at Table 3-1; Environmental Assessment Short Form (#08DEP031Y), Attachment, p. 2. All of these documents are available at http://www.nyc.gov/html/dep/html/environmental_reviews/stormwater_release_rates.shtml.

[7] For example, Washington D.C.'s MS4 permit applies post-construction requirements to new development and redevelopment that disturbs over 5,000 square feet of soil, as well as to substantial renovations to large buildings. 21 D.C. Regs. §§ 516, 599. The state of Maryland's post-construction stormwater management regulations apply to developments disturbing over 5,000 square feet of land area as well. Code Md. Regs. 26.17.02.05(B)(2). Philadelphia's regulations currently apply to development that results in an area of earth disturbance of 15,000 square feet or more, PWD Stormwater Management Regulations § 600.2(a), although the city will be reducing this threshold to 5,000 square feet, pursuant to a directive from the state Department of Environmental Protection. In San Diego, post-construction requirements apply to projects creating and/or replacing at least 2,500, 5,000, or 10,000 square feet of impervious surface area, depending on the type of project. California Regional Water Quality Control Board, San Diego Region, Order No. R9-2013-0001/NPDES No. CAS0109266 at 85.

[8] EPA Office of Water, Best Practices and End of Year Performance Report, Fiscal Year 2012 (April 2013), pp. 41-42, available at http://water.epa.gov/resource_performance/performance/upload/OW_End_of_Year_BPFY2012_Report.pdf. EPA regulations for large MS4 permits set neither a ceiling nor a floor on the size threshold for new development and redevelopment to which post-development requirements must be applied. 40 C.F.R. § 122.26(d)(2)(iv)(A)(2). The regulations require, as per § 402(p) of the Clean Water Act, that large MS4 permits must ensure that permittees "reduce the discharge of pollutants [from these sources] to the maximum extent practicable." *Id*. § 122.26(d)(2)(iv).

As demonstrated by the attached analysis of New York City lot-level data (see Exhibit 1 to this letter), a one-acre threshold would cover only a small minority of the land area within the City's MS4 system, whereas a 5,000 square foot threshold would capture a significantly larger percentage of the City's land area. Specifically, in non-combined drainage areas of the city (excluding "open space"), a 5,000 square foot threshold would include nearly two fifths more area than a 1-acre threshold.[9] Almost all of that increase in coverage would be on private property, since there are few small public lots. When looking at data on sites built or altered in the last 5-10 years (which are suggestive of the types of property that may be developed during the lifetime of this permit), a very similar trend emerges – about 40-50% more acreage would have been subject to regulation with a 5,000 s.f. threshold, as compared to a 1-acre threshold, and virtually all of that difference is on private property. In sum, for post-construction stormwater management over the past decade, having a 5,000 square foot regulatory threshold would have generated significantly more water quality protection. Given land use patterns in New York City – in which, as demonstrated by Exhibit 1, a relatively small number of parcels exceed 1 acre – there is every reason to expect that the same would be true during the term of the Draft Permit.

Additionally, application of post-construction stormwater management requirements to as many sites as possible – including existing developed sites when they are subject to redevelopment – is essential to remedying existing water quality impairments. Therefore, in other MS4s that cause or contribute to water quality impairments in receiving waters, low size thresholds for post-construction requirements not only serve to implement the "maximum extent practicable" requirement, but also contribute cost-effectively towards the MS4's obligations to reduce pollutant loadings sufficiently to meet water quality standards. In New York City, a low size threshold would serve the same dual function (see comment #2 below, regarding the requirement for the Draft Permit to ensure compliance with water quality standards).

For all of these reasons, DEC should revise Section IV.F. to apply to all new development and redevelopment projects that disturb at least 5,000 square feet of land. Likewise, Section IV.M.4.f.iii. should be revised to change "1 acre" to "5,000 s.f." for reporting purposes, and should not be limited to sites reflected in DEC permit data since sites smaller than 1 acre will not have obtained coverage under DEC's construction general permit.

b. <u>The Draft Permit should be modified to expressly incorporate the performance standards of the New York State Stormwater Management Design Manual.</u>

The Draft Permit does not expressly define a performance standard for post-construction pollution control measures. Rather, Section IV.F.1.a provides that a minimum requirement for the City's post-construction stormwater management program is to provide protection equivalent to the SPDES General Permit for Stormwater Discharges from Construction Activity. In turn, that statewide general permit (at Section III.B.2.) states that development and redevelopment projects that are subject to post-construction stormwater management requirements "shall

[9] The 5,000 s.f. threshold would include approximately 15,103 acres of "private" land and 8,800 acres of "public" land (totaling 23,903, or 68% of the acreage on lots of all sizes), whereas a 1-acre threshold would include approximately 8,806 acres of "private" and 8,507 acres of "public" land (totaling 17,313, or 49% of the acreage on lots of all sizes). 23,903 acres is nearly two-fifths more than 17,313.

prepare a SWPPP [stormwater pollution prevention plan] that includes practices designed in conformance with the . . . technical standard, New York State Stormwater Management Design Manual . . . ." The general permit further authorizes (at Section III.B.2.d.) "elements of [a] design that are not in conformance with the Design Manual, [if the SWPPP includes a] . . . demonstrat[ion] that the deviation or alternative design is equivalent to the technical standards." Yet, the general permit provides no guidance as to what it means for a design to be "equivalent" to the standards in the Manual.[10]

The effect of this is that the City would be authorized to determine - for itself - that some alternative approach deviating from the performance standards in DEC's Design Manual is as effective as DEC's approach, and to follow that approach instead of the DEC's performance standards. DEC cannot delegate the crucial task of setting standards to the permittee. The General Permit's absence of specific and objective standards makes it impossible for it to ensure that MS4s reduce the discharge of pollutants to the maximum extent practicable. DEC's Design Manual includes critically important performance standards intended to effectuate the "maximum extent practicable" standard, including a "runoff reduction" standard that prevents the discharge of pollution in most rain events – and drives the use of green infrastructure – by requiring on-site retention of the 90th percentile storm.

This problem with the Draft Permit can be easily fixed – and it is critical the DEC revise the draft permit to fix it. In defense of a similar provision in the Small MS4 General Permit, DEC has argued that this "equivalence" provision is not problematic because it allows deviation only from the Design Manual's recommended <u>technical design standards</u> for stormwater pollution control practices, but not deviation from the Design Manual's <u>numeric performance standards</u> for such controls.[11] But neither the New York City MS4 Draft Permit, nor the construction general permit, actually includes that limitation, improperly leaving the door open to abuses of vital water quality protections. DEC should fix this problem in the Draft Permit by adding a provision to Section IV.F.1.d requiring the City to ensure that all SWPPPs subject to post-construction requirements comply with the Design Manual's numeric performance standards.[12]

c. <u>Additional comments relating to post-construction requirements</u>

- All references to the SPDES General Permit for Stormwater Discharges from Construction Activity and to the New York State Stormwater Management Design Manual should be to

[10] Another provision of the draft New York City MS4 is to the same effect. Section IV.F.1.d.iv requires the City to: "Develop, implement, and enforce a program that: . . . describes procedures for … reviews [of covered development projects] …[which] shall require that: …if a stormwater management practice is designed and installed in accordance with the New York State Stormwater Management Design Manual (2010) or has been demonstrated to be equivalent and is properly operated and maintained, then [the Clean Water Act's "maximum extent practicable" standard] will be assumed to be met." The draft permit does not explain what is mean by "equivalent."

[11] *NRDC, et. al. v. DEC*, Supreme Court of the State of New York, Appellate Division, Second Dept., Nos. 2012-02913 & 2012-06330, Brief for Respondent Department of Environmental Conservation (Aug. 22, 2012) , p. 46 n.61 (excerpt attached as Exhibit 2).

[12] These performance standards -- *e.g.*, RRv, WQv, CPv – are found at p. 4-1 of the Design Manual (available at http://www.dec.ny.gov/chemical/29072.html).

the "then-current" version of these documents, rather than the 2010 version specifically, since both documents are likely to be modified over the lifetime of this permit.

- The Permittee should be required to determine whether the technical designs (as distinct from the performance standards and "sizing criteria") in the New York State Stormwater Design Manual are generally appropriate for the range of site conditions encountered in New York City and, if they are not, to develop a City-specific design manual, which identifies alternative technical designs that may be used to meet the performance standards and sizing criteria of the State Manual. Any such City-specific design manual must be include as part of the Permittee's SWMP and subject to all public participation and DEC approval requirements to which the SWMP is subject.

- Section IV.F.1.c.i. -- The requirement to adopt an ordinance equivalent to the 2006 version of DEC's Sample Local Law is inadequate.[13] The Draft Permit (section IV.F.1.a) requires protections equivalent to the requirements of the 2010 General Permit for Stormwater Discharges for Construction Activities, but the 2006 Sample Local Law falls short of those requirements in many respects. NRDC has previously provided DEC with a detailed memo identifying these discrepancies and explaining how DEC could modify the Sample Local Law to resolve them; we attach that memo here as Exhibit 3.[14] DEC should update the Sample Local Law to conform to the requirements of the Construction General Permit, as modified further to reflect more stringent requirements of the final NYC MS4 permit (*e.g.*, the 5,000 s.f. size threshold discussed in comment #1.a above), and should modify the Draft Permit to require adoption of an ordinance equivalent to such modified version of the Sample Local Law.

- Section IV.F.1.f. -- This provision merely requires evaluation of impacts of, and opportunities to reduce, water quality impacts of flood management projects. This provision should be amended to require actual implementation of post-construction stormwater management practices in connection with flood management projects.

- Section IV.F.1.g. -- This provision states that the SWMP must "require[] adequate long-term operation and maintenance of [post-construction] stormwater management practices by trained staff, including inspections to ensure that practices are performing properly." This is ambiguous regarding whether, in the case of privately-owned facilities, such "staff" would be public agency staff or staff of the private property owner. The provision should be expanded to require the City to ensure operations and maintenance of post-construction practices at private facilities in a manner consistent with the requirements of the DEC Construction General Permit, including a requirement to develop an inspection and enforcement program

[13] The Draft Permit actually refers to "one of the versions of the" March 2006 Sample Local Law. It is not clear what multiple "versions" this refers to. We are aware of only one such version, available here: http://www.dec.ny.gov/docs/water_pdf/localaw06.pdf.

[14] See also this updated version posted on the website of the Columbia Land Conservancy, which includes revisions to the 2006 version intended to conform to the requirements of the current MS4 permit: http://clctrust.org/pdf/down%20the%20drain/Sample_Local_Law_NYS_SW_Mngmt_Eroslon_Sed_Control_10_29_10.doc.

similar to the one which the Draft Permit (Part IV.H.) describes for industrial and commercial sites.

- Section IV.F.h.: This provision must be revised to state that any "offsite alternative stormwater management" receiving credit under a "banking and credit" system must be associated with retrofit projects that are not otherwise required by law. For example, as currently drafted, this provision seems to allow retrofits within CSO drainage areas that are undertaken in compliance with the City's CSO Consent Order to generate "credits" towards meeting the Draft Permit's "no net increase" requirement; allowing such retrofits to generate credit would unlawfully grant the City carte blanche to allow increased MS4 discharges that cancel out pollution reductions achieved in CSO areas.

- Section IV.F.h.v.: This provision requires that "[a] banking and credit system must at minimum ensure that...mitigation is applied for retrofit or redevelopment.") The term retrofit is undefined here; the provision also gives no indication of what is meant by "mitigation is applied". DEC should clarify this provision.

- Section IV.M.4.f.iii. -- This section should require reporting not only of the "number of post-construction management practices," but also the amount of impervious area managed by such practices and the types of practices utilized (including the number of each type, and the total acreage managed by each type).[15] Such data on impervious area managed, and types of practices used, is essential to understanding the degree of pollution reduction being achieved, cumulatively, by post-construction stormwater management practices. We note that the City's CSO Consent Order with DEC relies on tracking of impervious area managed as a key metric for calculating pollutant load reduction; that approach should be replicated here, and the two programs should be more clearly integrated.

- Section IV.F.1.e.: This provision requires the permittee to determine which existing post-construction stormwater management practices, other than those owned by the City or authorized by DEC since 2003, "cause or contribute to water quality standard violations." By definition, every existing post-construction stormwater management practice that discharges a pollutant through the MS4 to a water body impaired by that pollutant falls within this category. The permit language should explicitly state as much. (Importantly, identifying these facilities will also assist in the development of a retrofit plan, as required to achieve compliance with water quality standards. *See* comment #2 below.)

2. DEC must revise the draft permit to clearly and unequivocally prohibit discharges that cause or contribute to water quality standards, and provide for a compliance schedule to eliminate any existing contributions to water quality impairments that are attributable to MS4 discharges.

Under state and federal law, in addition to meeting the "maximum extent practicable" standard, SPDES permits must also include any further pollution control measures that are

[15] We note that Sections IV.M.4.f.iv.-v.already require reporting of the "number and type" of practices inspected and maintained; Section IV.M.4.f.iii, as currently drafted, omits the reference to "type".

needed to ensure compliance with state water quality standards.[16] EPA's Environmental Appeals Board has made clear that these requirements apply no less to MS4 permits than to any other type of Clean Water Act permit.[17] DEC has expressly affirmed this principle, explaining recently to a state appellate court that "[a] stormwater discharge permit must include conditions to bring the discharging municipality into compliance with water quality standards within a reasonable period of time."[18] A state court in Maryland recently invalidated an MS4 permit for failing to comply with this very requirement.[19]

Further, with respect to any discharge that is not in compliance with permit limitations, water quality standards, or other applicable requirements, state law provides that DEC "shall establish *specific* steps in a compliance schedule designed to attain compliance within the shortest reasonable time."[20] Where the time frame in which compliance must be attained exceeds nine months, "a schedule of compliance shall be *specified* in the [SPDES] permit."[21]

As the Draft Permit makes clear (Section II.B.1 and Appendix 2), discharges from New York City's MS4 currently contribute to water quality impairments in many waterbodies. Yet, rather than clearly and unequivocally prohibiting discharges and establishing a compliance schedule for achieving the pollutant reductions necessary to achieve water quality standards, the draft permit merely requires that the City ensure "no net increase" in pollution discharges to these impaired waters. This is plainly unlawful. Rather than holding the City accountable for meeting water quality standards and setting a specific schedule of steps to achieve that Clean Water Act goal, it holds the City accountable only for maintaining the status quo – *i.e.*, it permits continuing violations of water quality standards.[22]

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[16] ECL § 17-0811(5); 6 N.Y.C.R.R. § 750-1.11(a)(5)(i); 40 C.F.R. §§ 122.4(d), 122.44(d); *see also* 40 C.F.R. § 123.25(a)(1), (15).

[17] *In re Government of the District of Columbia Municipal Separate Storm Sewer System*, 10 E.A.D. 323, 329, 335-43 (EAB 2002) (requiring "imposition of conditions [that] ensure compliance with the applicable water quality requirements of all affected states").

[18] *NRDC, et. al. v. DEC*, Supreme Court of the State of New York, Appellate Division, Second Dept., Nos. 2012-02913 & 2012-06330, Reply and Opposition Brief for Appellant-Cross-Respondent Department of Environmental Conservation (Oct. 25, 2012) , pp. 21-22 (attached as Exhibit 4).

[19] *Anacostia Riverkeeper v. Maryland Department of the Environment*, No. 339466-V, Opinion and Order (Circ. Ct., Montgomery Cty., Md. Dec. 3, 2013), ¶¶ 3-4, 6-7 (attached as Exhibit 5).

[20] 6 N.Y.C.R.R. § 750-1.14(a) (emphasis added); *see also* 40 C.F.R. § 122.47(a)(1) (compliance schedules must be designed to achieve compliance "as soon as possible, but not later than the applicable statutory deadline under the CWA").

[21] 6 N.Y.C.R.R. § 750-1.14(b) (emphasis added).

[22] At least one other provision of the Draft Permit may establish a prohibition on discharges that cause or contribute to water quality standards violations; however, the "no net increase" clause creates uncertainty as to the meaning of that provision when the Draft Permit is read as a whole. *See* Section VI (definition of "SWMP," which states that the SWMP must "satisfy appropriate water quality requirements of the ECL and CWA"). (We further note that Section I.C.3. provides that discharges the permitting of which is prohibited under state and federal regulations – which include discharges causing or contributing to water quality standards violations – are "not authorized by this permit." However, an exclusion of certain discharges from coverage under a permit is not the same as a provision stating that the occurrence of such discharges would be a violation of the permit; nor does such an exclusion represent a "schedule of compliance" to eliminate such discharges.)

For waters currently identified as impaired, only after a TMDL is developed does the Draft Permit (Section II.B.2) require the permittee to "ensure that the reduction of the [pollutant of concern] specified in the TMDL is achieved." But DEC is legally obliged to include water quality-based requirements in this permit, as in all SPDES permits, regardless of whether or not the agency has already developed a TMDL for the receiving waterbody. "[T]here are strict guidelines that must be followed in the… [SPDES] permitting process…, and … there is no regulatory authority that allows for the inclusion of multiple exemptions from effluent limitations and state water quality standards in a … [SPDES] permit."[23] EPA guidance under the Clean Water Act confirms that a permitting authority may not allow a permittee to defer compliance with water quality standards until the agency develops a TMDL.[24] As a practical matter, would entail decades of delay in light of DEC's track record for delay in TMDL development. Indeed, for most New York City waterways, despite DEC's recognition – and often the City's recognition as well[25] – that MS4 discharges contribute to impairments, DEC has removed those waterways from the 303(d) list of waters for which the agency considers a TMDL to be needed.[26] Waiting for a TMDL for these waters would be a complete exercise in futility.

Additionally, Section II of the Draft Permit is arbitrary and capricious insofar as it creates stricter requirements to address water quality standards violations that are identified in the future, as compared to those that have already been identified. Section II.A, In contrast to the "no net increase" requirement of Section II.B.1, provides that "[w]here a discharge…is later determined to…have the reasonable potential to cause or contribute to the violation of an applicable water quality standard, the Department will notify the Permittee of such violation(s)…[and] [t]he Permittee must take all necessary actions to ensure future discharges do not directly or indirectly cause or contribute to the violation of a water quality standard…" Thus, under the Draft Permit, the City would actually be required to eliminate discharges that cause or contribute to a water quality standard violation if the MS4's contribution to the impairment is identified in the future – but would be required only to maintain the status quo where the contribution to the impairment <u>has already been identified</u>. This distinction is entirely arbitrary and in violation of the law.

To comply with state and federal law, DEC must revise Section II to expressly prohibit discharges that cause or contribute to water quality standards violations and to establish a *specific* compliance schedule consistent with the requirements of 6 NYCRR § 750-1.14.[27] The

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[23] *Catskill Mountains Chapter of Trout Unlimited, Inc. v. Sheehan*, 71 A.D.3d 235, 239-40 (3d Dep't 2010).

[24] *See* Memorandum from James Hanlon, Director, Office of Wastewater Mgmt., EPA, to Alexis Strauss, Director, Water Div., EPA Region 9, *Compliance Schedules for Water Quality Based Effluent Limitations in NPDES Permits* (dated May 10, 2007), available at

http://www.epa.gov/owow/wetlands/guidance/pdf/signed-hanlon-memo.pdf ("A compliance schedule based solely on the time needed to develop a [TMDL] is not appropriate . . . .").

[25] *See infra* note 32 and accompanying text.

[26] *See* DEC, Final New York State Section 2012 303(d) List (July 2012), p. 36 (identifying many New York City waters, which are also identified in Appendix 2 of the Draft Permit as impaired for pathogens, as having been "delisted" for pathogens "due to NYC CSO Consent Order to meet pathogen standards") (excerpt attached as Exhibit 6).

[27] In the case of one waterbody, for which DEC has quantified the MS4 pollutant load reductions necessary to achieve water quality standards, the Draft Permit should also be modified to specify a numeric pollution reduction requirement. In the Long Island Sound nitrogen TMDL, DEC determined that, to achieve water quality standards for dissolved oxygen in Long Island Sound, a 10 percent reduction (from the annual level in 2000) in aggregate

compliance schedule provision of the permit could be structured to require the Permittee to develop and submit for DEC review – subject to public notice, comment, and an opportunity for a public hearing before DEC – a proposed remedial action plan that includes all of the necessary elements of a compliance schedule pursuant to 6 NYCRR § 750-1.14(a)-(b) & 40 C.F.R. § 122.47(a)(3), including meeting the elements of the definition of a "schedule of compliance" as per 6 NYCRR § 1.2(a)(74); 40 C.F.R. § 122.2; & 33 U.S.C. § 1362(17).[28]

Other sections of the Draft Permit that relate to the objectives of the SWMP and monitoring also must be revised to address water quality standards compliance goals. Specifically, in Section IV, 1st para. and Sections IV.J.3. & IV.M.4.j.i., the language must be revised to state that the purpose of SWMP, and of monitoring, assessment, and reporting on progress towards goals, must be not only to achieve compliance with the "maximum extent practicable" standard, but also water quality standards compliance. Further, the last sentence of Section IV.M.4.j.i. should be revised to require, unconditionally (*i.e.*, not "to the extent practicable"), that the permittee "identify and use measureable goals, assessment indicators, and assessment methods" to determine progress towards achieving compliance with water quality standards.

In addition, we offer the following comments on the inadequacy of the "no net increase" provision, as currently drafted, even to maintain the status quo regarding MS4 contributions to water quality impairments. These comments apply only if DEC does not replace the "no net increase" requirement in its entirety (which, as explained above, is required by law):

- Last line of Sec. II.B.1 -- The provision that "no net increase" is to be evaluated "after considering impact of [controls on non-MS4s]" renders the no net increase requirement virtually meaningless as a means for protecting water quality. It allows for increases over current MS4 pollution levels if there are reduced pollutant loads from CSO discharges or other sources; in effect, this allows the City's separate storm sewer system to cancel out any gains achieved by the City's CSO program or other pollution reduction efforts. In practice, for waterbodies impaired both by CSO discharges and MS4 discharges, for which the CSO Order requires reductions in CSO discharges, this provision will allow substantial <u>increases</u> in MS4 discharges, even when those increases inhibit the ability to

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nitrogen loading from urban and agricultural stormwater runoff is required by 2014, and that such reductions are achievable through "an aggressive . . . runoff control program" utilizing existing legal authority, including, specifically, stormwater permitting. Thus, for discharges of nitrogen to Long Island Sound, the Draft Permit should not only include a narrative requirement to reduce discharges sufficiently to ensure the MS4 dos not cause or contribute to water quality standards violations, but should also include a numeric requirement to achieving the 10% reduction specified by the Long Island Sound TMDL.

[28] The final permit should explicitly state the following requirements: To satisfy the requirements of a compliance schedule, the remedial action plan must contain "specific steps…designed to attain compliance within the shortest reasonable time" (6 NYCRR 750-1.14(a)). The specific steps, or interim requirements, of the schedule must be no more than 9 months apart (6 NYCRR 750-1.14(b)). Those interim requirements, upon DEC approval, must be enforceable against the Permittee (40 CFR 122.2, 6 NYCRR 750-1.2(a)(74)). The interim requirements should include milestones expressed in numeric terms, *i.e.*, as a volume reduction, pollutant load, specific implementation action or set of actions, or other objective metric. Finally, proposed remedial action plan must provide sufficiency analysis to demonstrate that proposed deadline for meeting water quality standards is, in fact, "the shortest reasonable time," and that the interim milestones will be sufficient to ensure the Permittee meets that deadline.

achieve water quality standards compliance in the receiving waters. DEC must revise the Draft Permit to prohibit non-MS4 offsets of increased MS4 discharges, except where the net result is compliance with water quality standards.

- The Draft Permit should be revised to clarify that land disturbances that are cumulatively equal to or greater than one acre throughout an impaired watershed constitute "non-negligible land use changes." The cumulative effects of many projects over the years can be massive: A recent, peer reviewed study by researchers at the U.S. Forest Service and SUNY-ESF concluded that, from 2004-2009, New York City actually lost 5.5% of its tree and shrub cover (equal to 1.2% of the city's total area), and increased impervious cover by 2.3% (equal to 1.4% of the city's total area).[29]
- Section II.B.1.b.i. -- Compliance with the DEC Design Manual should not be deemed compliance with the "no net increase" requirement for floatables, since the Manual makes no absolutely reference to designing for floatables control.
- Section II.B.1.b.iii – This provision states that the Permittee need not "incorporate a pollutant load analysis in the SWPPP review process" if "the Permittee determines that the project is not likely to significantly increase pollutant loads to the waterbody." This clause should be eliminated. How is the Permittee supposed to determine that a project is not likely to significantly increase pollutant loads unless a "pollutant load analysis" is conducted?
- Section II.B.c. – The phrase "levels of pollutant control equivalent to the New York State Stormwater Management Design Manual (2010) applicable to control of the relevant POCs" does not have any clear meaning in this context. It must be revised to state an objective pollution control standard, such as a numeric performance standard for runoff reduction (see comment 1.b above). The Design Manual (sec. 3.3) only defines pollutant removal performance for TSS (80%) and TP (40%). But, as per Appendix 2 of the Draft Permit, these are not the relevant POCs causing impairment in New York City.

Finally, Section II.B.2, which concerns compliance with any future TMDLs, should be revised to state that any SWMP modifications designed to implement a TMDL must be subject to DEC review, public notice and comment and an opportunity for a hearing, and DEC approval (see comment # 5 below); and must include all necessary elements of compliance schedules under 6 NYCRR § 750-1.14.[30]

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[29] *See* Nowak, D. and E. Greenfield, "Tree and impervious cover change in U.S. cities," *Urban Forestry & Urban Greening*, 11 (2012) 21-30. A copy of this study is enclosed as Exhibit 7.

[30] New York State Supreme Court has ruled that MS4 permits must include compliance schedules, within the meaning of 6 NYCRR § 750-1.14, to implement any applicable TMDL waste load allocation that has an implementation timeline greater than nine months; DEC has not challenged that ruling on appeal. *See NRDC, et. al. v. DEC*, Supreme Court of the State of New York, Appellate Division, Second Dept., Nos. 2012-02913 & 2012-06330, Affirmation in Response to Motion for Reargument (Jan. 16, 2014) (attached as Exhibit 8).

3. DEC should revise the Draft Permit to ensure coordination among the City's MS4 pollution reduction efforts and the numerous complementary and often overlapping regulatory requirements and processes that the City of New York is currently subject to or otherwise involved in.

The Draft Permit makes several vague references to the idea of developing a "comprehensive integrated planning approach,"[31] but the operative language, as currently drafted, neither defines this concept nor imposes clear obligations on the City to develop or implement such an approach. In light of the many overlapping water pollution challenges the City faces, it is essential that the permit specifically require the City to coordinate development and implementation of its SWMP with other pollution control efforts.

The waterbodies polluted by the City's MS4 discharges are polluted by many other sources for which the City bears full or partial responsibility. The City is subject to, or involved in, various other legal requirements and planning process intended to address these other pollution sources. This includes, for example the development of Combined Sewer Overflow Long Term Control Plans (LTCPs), Newtown Creek and Gowanus Canal Superfund remediation, and remediation of brownfield and State Inactive Hazardous Waste site cleanups. The permit should identify these and any other efforts aimed at improving water quality in waters adversely affected by MS4 discharges, and should require that the SWMP describe how the City will integrate its MS4 pollution control efforts with these other initiatives in order to ensure that all of the efforts, cumulatively, achieve compliance with water quality standards.

Without a coordinated approach, it will be impossible to achieve compliance with existing water quality standards or to achieve the Clean Water Act's "fishable, swimmable" goals. For example, in technical reports to DEC, the City specifically cites MS4 discharges as one reason that complete elimination of CSOs, in at least some water bodies, would not achieve existing water quality standards and/or fishable/swimmable water quality. Based on this claim, the City asserts that further investment in CSO reduction would not be useful.[32] As the City develops additional LTCPs over the next several years, we may say the same claim asserted for other waterbodies. It is obviously insufficient for the City to avoid further reductions in one pollution source on the basis that other pollution sources – especially sources under its own control – must also be reduced in order to meet existing water quality standards or support higher uses of a water body. This situation underscores why coordination between the LTCP process and the City's MS4 obligations is essential.

4. In order to comply with the "maximum extent practicable" standard, DEC should strengthen various elements of the SWMP requirements to ensure their effectiveness and provide a basis to hold the City accountable for achieving water quality results.

DEC should strengthen various other provisions relating to the SWMP, as described below, to ensure that the permit will result in controls that reduce stormwater pollution "to the maximum extent practicable."

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[31] *See*Draft Permit, Section I.A, Section IV (first para.).

[32] *See, e.g.*, NYC DEP, Alley Creek Long Term Control Plan (2013); NYC DEP, Coney Island Creek Waterbody/Watershed Facility Plan Report (2008).

a. General requirements regarding the SWMP

- Three years to develop a SWMP is excessive, particularly since this permit is now 20 years overdue and the City has likely been discussing the contents of the permit with DEC for years already. We further note that EPA's Phase I rule for large MS4 permits required submission of a proposed stormwater management program within two years of the date on which that rule was promulgated.[33] The timeline in the Draft Permit should be reduced to two years.
- We support the Draft Permit provisions (Sections III.B., III.C., III.D, and IV (3rd para)) intended to ensure the Permittee has the requisite legal authority, financial resources, and inter-agency coordination protocols to implement its obligations under the permit, except that the various deadlines for submissions to DEC should be moved up consistent with the shortening of the SWMP deadline proposed above.
- Section I.B.: The provisions exempting certain non-stormwater discharges that are discharged through the MS4 system are over-broad:
    - Several of the listed categories that relate to runoff from lawn and other landscape watering or irrigation (Sections I.B.2, 10, and 14) are well-known as significant sources of nutrient contamination in urban watersheds. Lawns "contribute greater concentrations of Total N, Total P and dissolved phosphorus than other urban source areas … source research suggests that nutrient concentrations in lawn runoff can be as much as four times greater than other urban sources such as streets, rooftops or driveways."[34] Accordingly, these categories should be deleted from the list of exempt non-stormwater discharges.[35]
    - Sections IV.D.1 & IV.D.9 provides that the SWMP must address otherwise-exempt non-stormwater discharges listed in Section I.B. if they "are identified by the Permittee as a substantial contributor of pollutants to waters of the State." The permit should require the SWMP to include a quantitative analysis of whether these sources are substantial contributors of pollutants.
- Section IV:
    - 1st para. – The SWMP Plan should be required to address activities for a longer period of time than "the duration of the permit." Under the deadlines in the Draft Permit, there would only be 2 years left of the permit term after the City submits the SWMP plan, to say nothing of additional time it will take for DEC to review and approve the plan after submission. Moreover, based on DEC's Environmental Benefits Permit Strategy, it seems likely that the permit will be "administratively renewed" beyond the end of its initial 5-year term. Thus, it is essential that the initial SWMP provide a roadmap for activities beyond the end of

[33] 40 C.F.R. § 122.26(e)(3)(iii).

[34] Center for Watershed Protection (March 2003) *Impacts of Impervious Cover on Aquatic Systems* at 69; *see also* H.S. Garn (2002) *Effects of lawn fertilizer on nutrient concentration in runoff from lakeshore lawns, Lauderdale Lakes, Wisconsin*. U.S. Geological Survey Water-Resources Investigations Report 02-4130 (In an investigation of runoff from lawns in Wisconsin, runoff from fertilized lawns contained elevated concentrations of phosphorous and dissolved phosphorous).

[35] Several of the impaired waters listed in Appendix 2 of the Draft Permit are impaired for nitrogen or phosphorus; at a minimum, the exemption should be deleted for those watersheds.

the permit's first term. To ensure the plan remains relevant as circumstances change, the Draft Permit should require that, once every 3 years after approval of the SWMP, or upon submission of a permit renewal application (whichever is sooner), the Permittee's annual report shall include a thorough analysis of whether each major SWMP provision need to be updated and, if updates are needed, propose such updates.[36]

- 5th para. – The requirement to make "steady progress toward implementation" if far too subjective. The SWMP should be required to have specific milestones with associated deadlines, and the Draft Permit should hold the Permittee accountable for meeting all milestones and deadlines in the approved SWMP.
- Last para. before section A. – The phrasing of this sentence makes it unclear whether the SWMP plan must actually meet the requirements of IV.A through IV.O., or merely "describe priorities for implementing" those requirements subsequent to development of the SWMP plan. This language should be revised to make clear that the plan itself must include, in full, all of the SWMP elements defined in IV.A. through IV.O. Thus, for example, where a provision in one of those sections requires the permittee to "develop," "identify," "select," describe," or "conduct" some action, the permit should state unambiguously that these actions must be completed by the time the SWMP plan is due to DEC. The only sorts of actions described in IV.A. through IV.O. that should be taken after completion of the SWMP plan are those related to "implementing" or "enforcing" elements of the SWMP plan.

b. Mapping

In Sections IV.C.1.a. and d., mapping should not be limited to "known" outfalls and "known" SPDES-permitted discharges to the MS4. The Permittee should have an obligation to identify all such outfalls and discharges, whether known or unknown at the time of permit issuance.

c. Pollution Prevention/Good Housekeeping for Municipal Operations

- IV.G.1.a. – All of the types of operations and facilities listed in the second sentence "contribute or potentially contribute POCs." Therefore, the second sentence should be revised to state: "The operations and facilities shall include…" (rather than "may include").
- IV.G.1.c. – The self-assessment of municipal operations should be required not only once every five years, but an initial assessment also should be required in connection with development of the SWMP.
- IV.G.1.d. – This provision states that the SWMP plan must "determine management practices, policies, and procedures that will be developed and implemented…" Development of these practices, etc., should be part of the process of developing the SWMP. This should be revised to state that the SWMP itself must identify these

[36] We note that other provisions of the Draft Permit include similar update requirements that extend beyond the first 5-year permit term. *See* Section IV.C.3 (requiring updated drainage maps every 5 years).

practices, policies and procedures, not merely present a plan for subsequently developing them.

- IV.G.1.e. -- This section should delete the reference to "Permittee's capabilities." The Permittee's existing capacity should not be a limiting factor on the implementation of pollution procvention and good housekeeping practices; rather, where needed to meet the permit's pollution control requirements, the Permittee should be required to develop additional capacity and capabilities.
- IV.G.2. -- The requirement for "new development or redevelopment of municipal properties" to use "runoff reduction techniques" (which include green infrastructure), should not be limited by the term "cost-effective" or by an undefined "maximum extent practicable." Rather, municipal properties must be subject to numeric runoff reduction performance standards set forth in the DEC Stormwater Design Manual, just as all other sites should be (see comment #1 above).[37] The permit should make clear that development and redevelopment within the public right of way, not only on municipally-owned lots, are also subject to this requirement. Further, the permit should provide, similar to the MS4 General Permit (Section VII.A.6.b.), that the city must "consider and incorporate runoff reduction techniques and green infrastructure in the routine upgrade of the existing stormwater conveyance systems," regardless of whether such projects would otherwise trigger application of the post-construction requirements under Section IV.F.

d. <u>Industrial and Commercial Sources</u>

- IV.H.2.a.vi. -- The requirement for "new development or redevelopment of industrial and commercial facilities" to use "runoff reduction techniques" (which include green infrastructure), should not be limited by the undefined term "maximum extent practicable." Rather, such facilities must be subject to numeric runoff reduction performance standards set forth in the DEC Stormwater Design Manual, as per Section IV.F., just as all other development and redevelopment exceeding the threshold size should be (see comment #1 above).[38]
- IV.H.2.d. -- DEC must delete the words "cost effective," since the legal requirement to meet water quality standards is not limited by a "cost-effectiveness" criterion. Moreover, the permit must apply water quality-based effluent limitations to all discharges from the MS4, to ensure that discharges do not cause or contribute to water quality standards violations, regardless of whether a TMDL has been developed. (See comment #2 above.)

e. <u>Floatables and Settleable Solids</u>

- IV.I.3. -- The floatable control section establishes deadlines only for the "commenc[ing]" a study to "determine the loading rate of floatables from the MS4...." The Draft Permit must be revised to also set a deadline for completion of that study, and for submission of

[37] If DEC does not lower the size threshold for general application of the post-construction performance standards, as proposed in this letter, then IV.G.2 should provide for application of those standards to municipal sites, regardless of project size.

[38] DEC should also fix various grammatical errors in this provision, which obscure the intended meaning of the second half of the sentence.

a proposed cleanup plan,[39] based on the results of the study, to reduce loadings sufficiently to eliminate discharges of floatables and other trash, as required to meet water quality standards, [40] by a date certain specified in the permit. For example, the Municipal Regional Stormwater NPDES Permit for the San Francisco Bay Region, issued in 2009, regulates 76 municipalities and specifically requires all permittees to implement measures to reduce trash loads from storm sewer systems by 40 percent by July 1, 2014, 70 percent by 2017, and 100 percent by 2022.[41] DEC and the Permittee can look to several "trash TMDLs" in California as a model for estimating current loadings and developing implementation plans to eliminate discharges of floatable and other trash.[42]

- The permit terms related to floatables should be expanded to apply not only to floating objects, but to all "garbage…and other refuse," as per state water quality standards.[43] Plastic is the solid waste of greatest concern to the health of the aquatic and marine environment, yet many types of plastic do not float. A large amount of plastic sinks to the ocean floor and remains out of sight.[44] Recent studies have begun to illustrate how pervasive plastic pollution on the seafloor is. Plastic debris, including fishing gear, has been found in the deepest (abyssal) depths of the ocean.[45] The "floatables" term is therefore not sufficient to control marine plastic pollution.

f. Monitoring

- IV.J.2.a.iii.– This provision requires monitoring to "characterize and assess the quality of stormwater discharges at representative MS4 outfalls." DEC should add more specific language to comply with applicable EPA regulations, which require a large MS4 permittee to "describe[] the location of outfalls or field screening points to be sampled (or the location of instream stations), why the location is representative, the frequency of sampling, parameters to be sampled, and a description of sampling equipment."[46]

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[39] The proposed cleanup plan should be due at the same time as the SWMP. As currently drafted, a final work plan, just for the loadings study, is not due until three years after the effective date of the permit, and commencement of the study is not required until three years after DEC approval of the work plan -- i.e., the deadline to commence the study would be more than five years from permit issuance. There is no justification for such a long timeline dedicated simply to initiating a study. The permit must require the city to begin implementing significant new floatables reduction measures within the term of the permit and must establish deadlines for ultimate compliance with applicable water quality standards.

[40] The applicable WQS for "garbage…and other refuse" is "None in any amounts." 6 NYCRR § 703.2.

[41] Municipal Regional Stormwater Permit (Order No. R2-2009-00074) "Specific C.10 Requirements", *available at* http://www.swrcb.ca.gov/rwqcb2/board_decisions/adopted_orders/2009/R2-2009-0074.pdf

[42] California's trash TMDLs are available here: http://www.swrcb.ca.gov/losangeles/water_issues/programs/tmdl/tmdl_list.shtml.

[43] 6 NYCRR § 603.2.

[44] California Ocean Protection Council, Plastic Debris in the California Marine Ecosystem A Summary of the Current Research, Solution Efforts and Data Gaps (Sept. 2011) *available at*: http://calost.org/pdf/science-initiatives/marine%20debris/Plastic%20Report_10-4-11.pdf

[45] UNEP, UNEP Year Book 2011: Emerging Issues in Our Global Environment. United Nations Environment Program. 2011: 20-33.

[46] 40 C.F.R. § 122.26(d)(2)(iii)(D).

g. Recordkeeping

Section IV.L should require the city to retain records for more than 5 years after they are generated. Five years represents only a single permit term; retention of records for such a short duration will not allow for detailed review of performance over successive permit terms, in order to identify improvements necessary for future iterations of the permit. Moreover, given DEC's Environmental Benefits Permit Strategy, it is likely that this permit will be extended beyond its expiration date, potentially for many years, before the next permit renewal. A five year recordkeeping requirement would not even ensure that records from the entire period covered by this permit are retained until a renewal permit takes effect.

5. DEC should revise the permit to ensure robust public involvement in the development, approval, and implementation of the Stormwater Management Program Plan.

Under the Draft Permit, the City is required to submit a SWMP for DEC review and approval within three years of the effective date of the permit (*Permit, at III.A.1*). As written, there are many areas for significant improvement of public participation.

Most importantly, DEC must provide opportunity for public participation – including an opportunity for comment to DEC and a public hearing before DEC – in connection with the agency's review and approval of the SWMP in three years' time. The Draft Permit does not contain all of the substantive requirements with which the Permittee must comply. Rather, it binds the City to a plan that the City itself will develop – after the permit is issued. As a result, DEC's ultimate approval of a SWMP will, therefore, amount to a SPDES permit modification and must be treated as such with regard to public participation.

Such opportunities for public participation are required by law. Under the Clean Water Act, federal court rulings have established that "storm water management programs that are designed by regulated parties must, in every instance, [be] subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable."[47] Furthermore, permittee-developed documents "that contain the substantive information about how the operator of [an] MS4 will reduce discharges to the maximum extent practicable" must be not only subject to review and approval by the permitting agency, as the draft permit provides, but also must be "subject to the public availability and public hearings requirements of the Clean Water Act" in connection with such review and approval.[48] EPA has deemed this caselaw to be binding nationwide, and has advised the states as such.[49] While the case cited here, and the associated EPA memorandum, addressed MS4 general permits, the same legal principles apply to an individual MS4 permit such as this

[47] *Environmental Defense Center v. EPA*, 344 F.3d 832, 856 (9th Cir. 2003).

[48] *Id.*at 857. The Second Circuit also has held that the public must be able to comment to the permitting agency, and request a hearing before the permitting agency, on the terms of pollution management plans drafted by Clean Water Act permittees.

[49] *See* Memorandum from James A. Hanlon, Director, EPA Office of Wastewater Management, to Water Management Division Directors, Regions I-IX (Apr. 16, 2004), *available at* http://www.epa.gov/npdes/pubs/hanlonphase2apr14signed.pdf.

one. Indeed, under EPA regulations, the draft SWMP will effectively constitute "Part 2" of the City's MS4 permit application;[50] therefore, DEC's approval of the SWMP will constitute a permit modification and its review of the draft SWMP must be treated as an application for a permit modification.

Despite these clear legal requirements, the Draft Permit fails to ensure an opportunity for public comment to the DEC or the opportunity for a hearing in front of DEC about the adequacy of the City's to-be-developed SWMP plan. DEC must remedy this shortcoming in the final permit. Additionally, if DEC issues a permit that requires submission of other significant plans for approval – *e.g.*, compliance schedules and implementation plans for achieving water quality standards (see comment #2 above) – the same public participation requirements must be applied to such plans.

DEC should also improve the public participation requirements in the permit in the following ways:

- Availability of Draft Annual Report: All draft annual reports should be presented and made available for public questions and comments at both open meetings and on a Permittee website – not one or the other (Permit, at IV.B.4.a). Likewise, notice of such presentations and availability should be provided both at open meetings and online, with notice also sent directly to interested stakeholders (Permit, at IV.B.4.b). The City should be required – not merely "recommended" – to send announcements concerning the draft annual report "directly to individuals (public and private) known to have a specific interest in the Permittee's SWMP." (Permit, at IV.B.4.b, footnote 2); this should include, among others, all commenters on the Draft Permit, all entities that engaged in development of the SWMP plan, and all other entities that are part of DEP's existing outreach efforts for CSOs and other water quality issues. Additionally, the Permittee should be required to ensure that all submitted comments (not just summaries) are made available for public inspection with the final annual report and SWMP plan (Permit, at IV.B.4.d).

- Availability of SWMP: Section IV., 2nd para., should specify that public availability of SWMP plan must include online availability.

- Public reporting and tracking of complaints: For developing illicit discharge plans (Permit, at IV.D), post-construction stormwater control (Permit, at IV.F), and industrial and commercial stormwater source management (Permit, at IV.H), the

[50] *See* 40 C.F.R. § 122.26(d)(2)(iv) ("application requirements," providing that large MS4s must submit with their application a "proposed [stormwater] management program"); *see also id.* § 122.26(e)(7)(ii) (requiring issuance of MS4 permits following submission of a "complete permit application"). We further note that DEC's arguments for why Notices of Intent under the Phase II MS4 General Permit need not be subject to public comment and an opportunity for a hearing – which are incorrect, in any case – cannot be applied to this individual MS4 permit. Whereas DEC argues that a NOI is not functionally equivalent to a permit application, the draft SWMP literally is a permit application, as made clear by EPA regulations. Moreover, DEC's concerns about the workload that could result if it had to accept comments, and potentially hold hearings, on hundreds of small MS4 NOIs, simply do not apply to New York City's single permit. (Indeed, as far as we know, this permit is the only individual MS4 permit in the state.)

Permittee should be required to develop a public-reporting system for complaints (accessible telephonically and electronically) that also allows members of the public to track their reports through to ultimate Permittee resolution online or through a Permittee point of contact in the City. Additionally, for construction site stormwater control (Permit, at IV.E), the draft permit requires that the Permittee describe "procedures for receipt and follow up on complaints or other information submitted by the public regarding construction site storm water runoff"; this section (IV.E.h) should be expanded to require a robust electronic and telephonic system for reporting complaints that allows any member of the public to track complaints from submission to resolution.

6. DEC should address certain "drafting" issues in the permit, to avoid unnecessary ambiguity.

DEC should clarify the language in the following provisions, to ensure it is clear and enforceable:

- Section IV., 2nd para. – The reference to "timelines for development" contained within the SWMP Plan is unclear. What would be "developed" <u>after</u> completion of the SWMP Plan?

- Section IV.F.1.f. – There appear to be some words missing before "that proposed structural flood control devices have been evaluated…."

- Section IV.F.h. – The reference to "watershed improvement strategies" and "watershed plan reduction goals," which appears to be borrowed from the MS4 General Permit, seems to be inapplicable to this permit as currently drafted. However, since the permit must be amended to include requirements to develop compliance plans to achieve water quality standards in impaired waters (see comment #2 above), this section could be amended to refer to such plans instead.

- Section M.4.a.ii. – (1) This provision refers to "education and outreach activities required by this permit (listed below)," but it is not apparent what list this refers to; (2) this provision says that the Permittee "may report on" activities pursuant to Section IV.A., but since those activities are mandatory, reporting should be mandatory as well; and "may provide" certain information related to its program, but if the actions are mandatory under the permit then the reporting should be mandatory as well; (3) the last line of this provision refers to "the following information applicable to their [sic] program:", but there is no text following the colon to indicate what this information is.

Section M.4.b.ii. – This provision requires the annual report to explain "as appropriate, how the MS4 will respond to comments [on the annual report] and modify the program in response to comments." This should be revised to make clear that the permittee must provide response to comments as part of the final annual report, and that the phrase "as appropriate" applies only to "modify[ing] the program."

* * *

Thank you for this opportunity to comment on the Draft Permit. We would welcome the opportunity to discuss these issues with both DEC and DEP. We look forward to receiving DEC's response.

Sincerely,

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cc: Venetia Lannon, Regional Director, NYS DEC Region 2
Jim Tierney, NYS DEC Assistant Commissioner for Water Resources
Emily Lloyd, Commissioner, NYC DEP
Angela Licata, Deputy Commissioner, NYC DEP
Joan Matthews, US EPA Region 2
Jeff Gratz, US EPA Region 2

Exhibit 1

Scenario 1:

Total non-combined drainage area:* 35,149 Acres

"Private" and "public" lots as defined below**

Lots > 1 Acre

	Cumulative Area (acres)		Cumulative Area, as % of Total Non-Combined Drainage Area		Number of Lots	
	Private	Public	Private	Public	Private	Public
Direct Drainage	4,137	2,990	11.8%	8.5%	1,217	478
Separate	4,126	5,304	11.7%	15.1%	1,493	457
Other	543	213	1.5%	0.6%	146	55
TOTAL	8,806	8,507	25.1%	24.2%	2,856	990

Lots < 1 Acre

	Cumulative Area (acres)		Cumulative Area, as % of Total Non-Combined Drainage Area		Number of Lots		
	Private	Public	Private	Public	Private	Public	
Direct Drainage	1,658	148	4.7%	0.4%	15,165	927	
Separate	15,631	193	44.5%	0.5%	189,575	1,380	
Other	192	14	0.5%	0.0%	2,418	52	Total lots:
TOTAL	17,481	355	49.7%	1.0%	207,158	2,359	213,363

Built or Altered Within Last 5-10 years, Lots > 1 Acre

	Cumulative Area (acres)				Number of Lots			
	Private		Public		Private		Public	
	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years
Direct Drainage	156	387	112	290	44	117	13	27
Separate	142	421	47	105	58	120	19	38
Other	6	49	11	15	3	14	2	5
TOTAL	304	857	170	410	105	251	34	70

Built or Altered Within Last 5-10 years, Lots < 1 Acre

	Cumulative Area (acres)				Number of Lots			
	Private		Public		Private		Public	
	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years
Direct Drainage	38	196	1	2	367	1950	3	6
Separate	305	1185	6	10	2956	12840	15	25
Other	3	13	0	0	25	126	0	0
TOTAL	346	1394	7	12	3348	14916	18	31

*Total non-combined drainage area = everything in from MapPluto (which excludes right-of-way), except areas designated "open area," clipped to the boundaries of non-combined drainage areas as per ArcGIS layer provided by NYC DEP to Newtown Creek Alliance.

**NYC property data (from MapPluto) divides lots into 6 ownership categories. We treated two of those categories as "public" (Public (state/federal); City Ownership), and the other 4 as "private" (Private; Unknown (Private); Tax Exempt Other; Mixed City and Private).

Total Geographical Surface Area of NYC (i.e., combined total of all drainage areas, including all property and land use types) = 192,637 Acres

Scenario 2:

Total non-combined drainage area:* 35,167 Acres

"Private" and "public" lots as defined below**

5,000 ft^2 = 0.115 acre

	Lots > 5,000 ft^2						Lots < 5,000 ft^2						
	Cumulative Area (acres)		Cumulative Area, as % of Total Non-Combined Drainage Area		Number of Lots		Cumulative Area (acres)		Cumulative Area, as % of Total Non-Combined Drainage Area		Number of Lots		
	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	
Direct Drainage	5,126	3,114	14.6%	8.9%	5,569	857	687	24	15.8%	2.4%	10,924	548	
Separate	9,336	5,460	26.5%	15.5%	31,306	970	10,421	37	89.0%	2.8%	159,754	867	
Other	641	226	1.8%	0.6%	637	91	94	1	1.8%	0.0%	1,927	16	Total lots:
TOTAL	15,103	8,800	42.9%	25.0%	37,512	1,918	11,202	62	31.9%	0.3%	172,605	1,431	213,466

	Built or Altered Within Last 5-10 years, Lots > 5,000 ft^2								Built or Altered Within Last 5-10 years, Lots < 5,000 ft^2							
	Cumulative Area (acres)				Number of Lots				Cumulative Area (acres)				Number of Lots			
	Private		Public		Private		Public		Private		Public		Private		Public	
	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years
Direct Drainage	177	488	113	292	140	554	15	32	17	95	1	1	274	1514	1	1
Separate	297	911	53	115	881	2854	34	62	150	695	0	0	2129	10100	0	1
Other	8	58	11	15	16	62	2	5	1	5	0	0	12	78	0	0
TOTAL	482	1457	177	422	1037	3470	51	99	168	795	1	1	2415	11692	1	2

*Total non-combined drainage area = everything in from MapPluto (which excludes right-of-way), except areas designated "open area," clipped to the boundaries of non-combined drainage areas as per ArcGIS layer provided by NYC DEP to Newtown Creek Alliance.

**NYC property data (from MapPluto) divides lots into 6 ownership catogorics. We treated two of those catogorics as "public" (Public (state/federal), City Ownership), and the other 4 as "private" (Private, Unknown (Private), Tax Exempt Other, Mixed City and Private).

Total Geographical Surface Area of NYC (i.e., combined total of all drainage areas, including all property and land use types) = 192,637 Acres

Exhibit 2

To be argued by:
BRIAN A. SUTHERLAND
15 minutes requested

Supreme Court, Westchester County – Index No. 16132/2010

Supreme Court of the State of New York
Appellate Division – Second Department

In the Matter of the Application of

NATURAL RESOURCES DEFENSE COUNCIL, INC.; RIVERKEEPER, INC.; WATERKEEPER ALLIANCE, INC.; SOUNDKEEPER, INC.; SAVE THE SOUND; PECONIC BAYKEEPER, INC.; RARITAN BAYKEEPER, INC. (d/b/a NY/NJ BAYKEEPER); HACKENSACK RIVERKEEPER, INC.,

Petitioners–Respondents-Cross Appellants,

For a Judgment Pursuant to Article 78 of
the Civil Practice Law & Rules

-against-

Docket Nos.
2012-02913
2012-06330

THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,

Respondent–Appellant-Cross-Respondent.

BRIEF FOR RESPONDENT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Dated: August 22, 2012

749).[60] The General Permit is valid for five years (J.A. 254), and during that time a less costly but equally effective practice or a better practice may emerge. The General Permit enables municipal and construction site operators to adopt best practices.[61] Providing that flexibility, however, is not the same as abdicating

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[60] *See* 40 C.F.R. § 122.34(b)(5)(iii) ("Storm water technologies are constantly being improved, and EPA recommends that your requirements be responsive to these changes, developments or improvements in control technologies.").

[61] Petitioners asserted below that the General Permit excuses compliance with the "maximum extent practicable" standard because, for new development and redevelopment projects, a construction site operator may utilize stormwater management practices in accordance with the Design Manual or practice that "has been demonstrated to be equivalent" (J.A. 295; *see* J.A. 57 [Petition ¶ 67]). The trial court did not discuss this allegation, and it lacks merit. A qualified professional must make or supervise the determination of equivalence against technical standards, and deviation from the technical standards is allowed only where performance and sizing criteria are met (J.A. 295, 346, 750). Any variations that might arise because of a qualified professional's good faith opinion that a practice is "equivalent" are, by definition, insubstantial. If DEC should determine that the practice is not equivalent, or not certified in good faith, it can require necessary changes or take other enforcement action as warranted. In any event, DEC's data show that the vast majority of construction activities regulated by DEC follow the Design Manual (J.A. 161-162).

Exhibit 3

MEMORANDUM

TO: Larry Levine; Reed Super

FROM: Leslie Coleman

RE: Comparison of Sample Local Law to Construction and MS4 Permits

DATE: April 25, 2012

I. Question Presented

Is the Department of Environmental Conservation's Sample Local Law for Stormwater Management and Erosion & Sediment Control ("Local Law") consistent with the SPDES General Permit for Stormwater Discharges from Construction Activities ("Construction Permit") and the SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems ("MS4 Permit")?

II. Short Answer

The Local Law, which DEC last updated in 2006, is no longer consistent with many of the requirements contained in the Construction and MS4 Permits. (Note that the MS4 Permit requires that, with respect to booth construction and post-construction runoff, municipalities must "provide equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities, unless more stringent requirements are contained within [the MS4 Permit]."[1])

First, the Local Law does not match the Construction and MS4 Permits' size thresholds for land development activities that require Stormwater Pollution Prevention Plans (SWPPPs) and post-construction stormwater runoff controls. Second, the Local Law lacks many of the components that the Construction Permit requires developers to include in SWPPPs. Third, the Construction Permit prohibits violations of all water quality standards, while the Local Law only references turbidity. Fourth, the Local Law's provisions for inspection, maintenance, and enforcement are much less detailed and stringent than those contained in the Construction and MS4 Permits. The three documents contain several important contradictions that DEC should clarify. DEC should issue a revised Local Law and require its adoption in order to ensure that MS4s possess the legal authority to carry out the Permits' conditions.

III. Size Thresholds

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[1] MS4 General Permit at §§ VII.A.4.a.i, , VII.A.5.a.i, § VIII.A.4.a.i., § VIII.A.5.a.i.

The Construction and MS4 Permits include various requirements that apply only to projects exceeding certain size thresholds. In general, construction activities that disturb one or more acres of land are required to implement SWPPPs for erosion and sediment control during construction.[2] However, land development activities in the New York City East of Hudson Watershed Improvement Strategy (WIS) Area must implement SWPPPs for projects that disturb 5,000 square feet or more.[3] The MS4 Permit requires covered MS4s to adopt an ordinance or other regulatory mechanism that "requires erosion and sediment controls designed in accordance with the most current version of the technical standard New York State Standards and Specifications for Erosion and Sediment Control for all construction activities that disturb *between five thousand (5000) square feet and one acre of land*" by December 31, 2009.[4] The Local Law, which most municipalities have adopted, only regulates land development activities that disturb at least one acre.[5] Unlike Parts VII and VIII (which describe requirements for all MS4s), Part IX of the MS4 Permit does not imply that adoption of the Local Law is sufficient to meet its special mandates. Still, MS4s may mistakenly believe that the Local Law includes *all* size thresholds contained in the MS4 Permit, which presents the question whether New York City East of Hudson WIS Area MS4s possess adequate authority to regulate land development activities under one acre. DEC's standardized Annual Report form for the MS4 Permit asks whether the MS4 has "developed a program" that provides equivalent protection to the 2008 Construction Stormwater Permit's requirement to reduce pollutants from activities that disturb 5,000 square feet,[6] but it does not explicitly ask about the MS4's legal authority to do so.

The Local Law's size thresholds also do not match the Construction and MS4 Permits' criteria governing when SWPPPs must include post-construction stormwater controls. The Local Law requires post-construction runoff controls for three types of land development activities: (A) activities that discharge a pollutant of concern to an impaired water on DEC's 303(d) list of impaired waters or a TMDL-designated watershed for which stormwater pollutants have been

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[2] N.Y. State Dep't of Envtl. Conservation, SPDES General Permit for Stormwater Discharges from Construction Activities, No. GP-0-10-001 (2010), § I.A.1 [hereinafter "Construction Permit"].
[3] Construction Permit at § I.A.3; .Y. State Dep't of Envtl. Conservation, SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s), No. GP-0-10-002 (2010), § IX.A.4.a.i [hereinafter "MS4 Permit"].
[4] *Id* at § IX.A.4.a.i (emphasis added).
[5] Sample Local Law for Stormwater Management and Erosion & Sediment Control 5 (2006), *available at* http://www.dec.ny.gov/docs/water_pdf/localaw06.pdf [hereinafter "Local Law"].
[6] N.Y. State Dep't of Envtl. Conservation, MS4 Annual Report Form (2010), 38, *available at* http://www.dec.ny.gov/docs/water_pdf/ms4anrpt.pdf

identified as a source of impairment; (B) activities that disturb five or more acres; and (C) activities that disturb between one and five acres, except construction of single family homes and construction activities on "agricultural properties."[7] The Construction Permit, on the other hand, lists 26 categories of construction activities disturbing one or more acres that must include post-construction stormwater management practices (SMPs) in their SWPPPs. Most of these also fit within the Local Law's three conditions; for example, the Construction Permit requires single family homes located in the New York City East of Hudson Watershed—or that discharge to a list of 303(d) segments[8]—to implement post-construction SMPs, which appears to match the Local Law's Condition A. However, the Construction Permit also includes several categories not present in the Local Law, such as single family residential subdivisions that disturb between one and five acres of land with more than 25% impervious cover, as well as single family residential subdivisions that are part of a larger common plan that will ultimately disturb five or more acres.[9] Furthermore, the Construction Permit includes a residual clause not contained in the Local Law: "all other construction activities that include the construction or reconstruction of *impervious area* <u>and</u> *alter the hydrology from pre to post development* conditions, <u>and</u> are not listed in [the table of activities that only require erosion and sediment controls]".[10] While developers must follow the terms of the Construction Permit regardless of the Local Law, these discrepancies are troublesome because developers should nonetheless be able to look to local regulations to determine whether their projects are subject to post-construction controls. Furthermore, as with the WIS Area requirements, municipalities may be under the impression that the Local Law provides all the authority they need to regulate in accordance with the size thresholds contained in the Construction Permit.

Additionally, the MS4 Permit omits the exceptions contained in the Construction Permit, instead requiring municipalities to "address[] stormwater runoff from new development and redevelopment projects to the small MS4 from projects that result in a land disturbance of greater than or equal to one acre,"[11] which suggests that, under the MS4 permit, *all* projects that disturb one acre or more must control post-construction runoff. (As noted above, the MS4 Permit provides that a municipality's post-construction program must "provid[e] equivalent protection"

[7] Local Law at Art. 2, § 2.2.2.
[8] Construction Permit at Appendix B, Table 2.
[9] *Id.*
[10] *Id.* (emphasis in original).

to the Construction Permit—but then adds the qualifying language "unless more stringent requirements are contained within this SPDES general permit."[12]) Some of the provisions in the Local Law are inconsistent because they fail to require post-construction controls for certain projects equal to or greater than an acre in size.

IV. SWPPP Contents

Both the Construction Permit and the Local Law list several items that developers must include in all SWPPPs. The Construction Permit contains the following elements not included in the Local Law:

- Site map depicting the locations and boundaries of different soil types[13]
- Requirements that soil stabilization measures and maintenance inspection schedules meet the most current technical standards contained in the New York State Standards and Specifications for Erosion and Sediment Control[14]
- Description of operation and maintenance (O&M) requirements for all erosion and sediment control practices[15]
- Description and location of stormwater discharges from industrial activity not associated with construction, such as discharges from asphalt and concrete plants located at the site[16]
- Identification of and rationale for any design elements that do not conform with the NYS Standards and Specifications for Erosion and Sediment Control[17]
- Documentation related to the Construction Permit's section on historic places and archaeological resources[18]
- O&M plan that includes inspection/maintenance schedules and actions, and identifies the entities responsible for each practice (*for SWPPPs that require post-construction controls*)[19]

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[12] *Id.* at § VII.A.5.a.i.
[13] Construction Permit at § III.B.1.b.
[14] *Id.* at § III.B.1.e, i.
[15] *Id.* at § III.B.1.h.
[16] *Id.* at § III.B.1.k. However, depending on interpretation, this requirement could possibly be encompassed by the Local Law's requirement to include "[a]ny existing data that describes the stormwater runoff at the site." Local Law at Art. 2, § 2.2.1 (16).
[17] Construction Permit at §§ III.B.1.l., III.B.2.d.
[18] *Id.* at § III.A.8.
[19] *Id.* at § III.B.2.g. The Local Law requires a "maintenance schedule to ensure continuous and effective operation." Local Law at Art. 2 § 2.2.2 (7).

- Requirement that developers begin using the new version of the Design Manual within six months of its revision (*for SWPPPs that require post-construction controls*)[20]
- Detailed summary of the sizing criteria (which includes runoff reduction volume, or "RRv") used to design post-construction practices (*for SWPPPs that require post-construction controls*)[21]

Similarly, the Local Law includes some requirements not contained in the Construction Permit:

- Description of construction and waste materials to be stored on site; identification of controls to reduce pollution and prevent/respond to spills[22]
- Identification of temporary measures that will be converted to permanent practices[23]
- Name of receiving waters[24]

These discrepancies could be significant if MS4s, in practice, primarily rely on the Local Law (as opposed to the Permits) during SWPPP review and enforcement.

Furthermore, the Construction and MS4 Permits require that SWPPPs for land development activities in the New York City East of Hudson, Onondaga Lake, Oscawana Lake, and Greenwood Lake WIS Areas employ the Design Manual's "Enhanced Phosphorous Removal Design Standards."[25] Part IX of the MS4 Permit further states that covered entities must have a "law or other mechanism" to implement this provision.[26] However, the Local Law does not reference these standards, which raises questions of how MS4s are implementing these requirements and whether they possess the legal authority do so.

Finally, the Construction Permit and the Local Law differ in their rules for contractor certification. Both require the owner's contractors and subcontractors to sign certification statements before beginning construction activity, but each prescribes different language for those statements.[27] Notably, the Construction Permit's statement requires the contractor to agree to implement any corrective actions identified during site inspections and to comply with the terms of the Construction Permit.[28] In addition, the Construction Permit requires the

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[20] Construction Permit at § III.B.2.
[21] *Id.* at § III.B.2.f.
[22] Local Law at Art. 2, § 2.2.1 (6).
[23] *Id.* at Art. 2, § 2.2.1 (10).
[24] *Id.* at Art. 2, § 2.2.1 (13).
[25] Construction Permit at § III.B.3; MS4 Permit at §§ IX.A.5.a.i, IX.B.5.a.
[26] MS4 Permit at § IX.A.5.a.i.
[27] *See* Construction Permit at § III.A.6; Local Law at Art. 2, § 2.4.1.
[28] Construction Permit at § III.A.6.

owner/operator to identify, on its certification page, the specific elements of the SWPPP that each contractor or subcontractor will implement.[29]

V. Water Quality Standards (WQS)

The Construction Permit states that "[i]t shall be a violation of this permit and the ECL for any discharge to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of the [Code]."[30] The Permit lists turbidity, solids, and oil and grease residues as examples.[31] The Local Law, however, provides only that "[a]ny land development activity shall not cause an increase in turbidity that will result in substantial visible contrast to natural conditions . . . ."[32] It does not reference any other WQS or state that exceedances of WQS amount to violations of the Construction Permit and the Environmental Conservation Law.

VI. Inspection Requirements and Enforcement

The Construction and MS4 Permits include inspection requirements that are more stringent than those contained in the Local Law. This discrepancy could be significant if the MS4 depends on the Local Law to support its inspection program and has not updated its laws to reflect the new permit requirements.

The Construction and MS4 Permits' inspection requirements apply to all land development activities that require a SWPPP, with a few exceptions.[33] The Construction Permit lists several conditions that owner/operators must follow when ordering inspections: a "qualified inspector" must conduct all site inspections according to a detailed timetable;[34] inspections must comply with the New York State Standards and Specifications for Erosion and Sediment Control;[35] and inspection reports must contain several minimum elements.[36] The Local Law, however, does not include timetables or list contents for inspection reports, nor does it require a

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[29] *Id.*
[30] *Id.* at § I.B.
[31] *Id.* at § I.B.1-3 (the use of the words "such as" indicates that the three examples are not exhaustive).
[32] Local Law at Art. 2 § 3.3.
[33] *See* Construction Permit at § IV.C.1 (excepting certain residential projects and construction on agricultural property that disturbs between one and five acres of land, among other projects); MS4 Permit at § VII.A.4.a.ix (stating that all sites that disturb one or more acre must be inspected by an inspector who has received DEC training).
[34] Construction Permit at § IV.C.2.
[35] *Id.* at § IV.C.1.
[36] *Id.* at § IV.C.4.

"qualified inspector" to conduct inspections.[37] Furthermore, while the Construction Permit requires inspections once every seven days during all ongoing soil-disturbing activities (and increases the frequency to twice every seven days for projects larger than five acres),[38] the Local Law imposes this condition only on projects subject to post-construction runoff controls.[39] Finally, the Construction Permit—but not the Local Law—states that the inspector must notify the owner/operator of necessary corrective actions within one business day of the inspection and that the owner/operator must begin implementing those actions within one business day of notification.[40]

Article 6 of the Local Law ("Administration and Enforcement") includes more detailed inspection provisions, but it is an optional component and some municipalities may not have adopted it.[41] Article 6 provides that the municipality's Stormwater Management Officer (SMO) "may require such inspections as necessary to determine compliance with this law."[42] It further states that the developer, upon receiving notification of violations, must stop work until it corrects them; however, unlike the Construction Permit, Article 6 does not establish a specific timeframe for notification and implementation of corrective actions.[43] Article 6 also lacks the detailed timetable and list of inspection report elements contained in the Construction Permit.

In terms of post-construction SMP inspections, the Local Law provides that a program "shall be established on any reasonable basis," followed by a list of examples. [44] Neither the Local Law nor the Construction Permit describes detailed requirements or schedules for inspection of post-construction SMPs. The MS4 Permit states only that the municipality should

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[37] The Local Law instead states that a "qualified professional" must conduct the inspections, but does not define this term; furthermore, the requirement applies only to projects that must implement post-construction SMPs. Local Law at Art. 2 § 4.1.2. The Construction Permit defines "qualified inspector" as "a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s)." Construction Permit at Appendix A. It is more difficult to meet the criteria for a "qualified inspector" than a "qualified professional." *See id.* (stating that "qualified inspector" may include "a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.").
[38] Construction Permit at § IV.C.2.a-b.
[39] Local Law at Art. 2, § 4.1.2 . This requirement also applies after any storm event producing .5 inches of precipitation.
[40] Construction Permit at § 4.C.5.
[41] *See* Local Law at Art. 6 ("The following provisions for construction inspection . . . are important to include in a stormwater control program, but may already exist in local law. Therefore the municipality and its counsel should review their existing provisions for these activities, compare them with the following provisions, and consider whether revisions or amendments are necessary to achieve the purposes of this local law.").
[42] *Id.* at Art. 6, § 1.1.
[43] *Id.*
[44] *Id.* at Art. 6, § 1.3.

develop and enforce a program that "ensures adequate long-term operation and maintenance . . . by trained staff, including inspection to ensure that practices are performing properly."[45] To be certain that the Local Law provides sufficient authority for municipalities to meet their obligations under the MS4 Permit, DEC should strengthen the Local Law by adding a clause such as "to determine compliance with applicable State permits" to its list of examples of reasonable bases.

Finally, while Article 6 of the Local Law provides for enforcement and penalties for violations related to "land development activities,"[46] it does not confer similar authority to municipalities to enforce post-construction stormwater runoff control requirements. DEC should revise Article 6 to include explicit authority for municipalities to enforce the post-construction requirements contained in the MS4 and Construction Permits.

VII. Maintenance Requirements

The Local Law's maintenance provisions more closely track—and, in many cases, are more detailed than—those contained in the Construction and MS4 Permits. Both the Construction Permit and the Local Law include boilerplate language stating that the owner/operator must maintain erosion and sediment control practices and post-construction SMPs at all times.[47] Both also require developers to include maintenance schedules in their SWPPPs, although the Construction Permit explicitly states that the schedule must be consistent with the NYS Standards and Specifications for Erosion & Sediment Control.[48]

Although the MS4 Permit imposes a generalized requirement for MS4s to "implement a program" that "ensures adequate long-term operation and maintenance" of post-construction SMPs by "trained staff,"[49] the Construction Permit provides additional details for projects that require post-construction controls.[50] As discussed in the section on SWPPP Contents, it requires

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[45] MS4 Permit at § VII.A.5.vii.

[46] *Id.* at Art. 6, § 3.1–3.4. "Land development activity" is defined as "construction activity including clearing, grading, excavating, soil disturbance or placement of fill that results in land disturbance of equal to or greater than one acre," which does not include the post-construction component of projects. *Id.* at Art. 2, § 1.

[47] *See* Construction Permit at § IV.A.1; Local Law at Art. 2 § 4.1.1, 4.3.1 (imposing maintenance obligations during construction and after project completion).

[48] Construction Permit at § III.B.1 (i); Local Law at Art. 2 § 2.2.1 (12) (requiring maintenance schedule to "ensure continuous and effective operation" of the practice).

[49] MS4 Permit at § VII.A.5.a.vii.

[50] For projects under construction, the Construction Permit essentially folds maintenance requirements in with the "maintenance inspection" provisions, discussed in the preceding section of this memo. *See* Construction Permit at § IV.B.

developers to submit O&M plans that identify responsible parties and include schedules and actions,[51] while the Local Law prescribes only a "maintenance schedule."

In addition, the Construction Permit states that prior to submitting a Notice of Termination for projects that require post-construction controls, the owner/operator must ensure one of the following: (1) SMPs and rights-of-way needed to maintain the SMPs have been deeded to the municipality, (2) a maintenance agreement with the municipality that will maintain the SMPs has been executed, (3) privately-owned SMPs have deed covenants that require O&M in accordance with the O&M plan, or (4) SMPs owned by institutions or governments have policies and procedures to ensure O&M in accordance with the O&M plan.[52] The Local Law does not provide this menu of options; rather, it requires developers to execute maintenance easements and agreements binding on all subsequent landowners.[53] It includes a sample maintenance agreement and states that the municipality's approved agreement must be "consistent with its terms and conditions."[54] In addition, the sample maintenance agreement includes several provisions not explicitly referenced in the Construction or MS4 Permits, including:

- Statement that the agreement binds the owner's successors and assigns[55]
- Assignment of maintenance expenses to the facility owner[56]
- Requirement that the owner receive the municipality's approval before modifying or discontinuing SMPs[57]
- Obligation for owner to provide financial assurance (bond, escrow account, letter of credit) for maintenance[58]

As these conditions demonstrate, the Local Law's sample maintenance agreement places the bulk of the maintenance obligations on the facility owner.[59] The Construction Permit, however, indicates that, where a "maintenance agreement" is used, the agreement will provide for the

[51] Construction Permit at § III.B.2.g; Local Law at Art. 2 § 2.2.3 (7).
[52] Construction Permit at § V.A.5.
[53] Local Law at Art. 2 § 2.2.3(9).
[54] Local Law at Art. 2 § 4.4.
[55] *Id.* at Schedule B § 1.
[56] *Id.* at Schedule B § 3.
[57] *Id.* at Schedule B § 5.
[58] *Id.* at Schedule B § 7.
[59] *See* Local Law, Schedule B § 2.

municipality to maintain SMPs.[60] For projects where the property owner will assume maintenance responsibilities, the Construction Permit requires a "deed covenant," not merely a contractual "maintenance agreement." DEC should revise the Local Law to resolve this inconsistency, as well as add the other maintenance options referenced in the Construction Permit.

[60] *See* Construction Permit at § V.A.5 ("[A]n executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).").

Exhibit 4

To be argued by:
BRIAN A. SUTHERLAND
15 minutes requested

Supreme Court, Westchester County – Index No. 16132/2010

Supreme Court of the State of New York
Appellate Division – Second Department

In the Matter of the Application of

NATURAL RESOURCES DEFENSE COUNCIL, INC.; RIVERKEEPER, INC.; WATERKEEPER ALLIANCE, INC.; SOUNDKEEPER, INC.; SAVE THE SOUND; PECONIC BAYKEEPER, INC.; RARITAN BAYKEEPER, INC. (d/b/a NY/NJ BAYKEEPER); HACKENSACK RIVERKEEPER, INC.,

Petitioners–Respondents–Cross-Appellants,

For a Judgment Pursuant to Article 78 of
the Civil Practice Law & Rules

-against-

Docket Nos.
2012-02913
2012-06330

THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,

Respondent–Appellant–Cross-Respondent.

REPLY AND OPPOSITION BRIEF FOR APPELLANT–CROSS-RESPONDENT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Dated: October 25, 2012

POINT II

PETITIONERS' CROSS-APPEAL LACKS MERIT

A. The General Permit's Interim Approach for Complying With Water Quality Standards Is Reasonable and Conforms with EPA Guidance.

The Clean Water Act requires each State to establish water quality standards, which consist of designated uses for identified bodies of water and "'water quality criteria for such waters based upon such uses.'"[33] The States must also identify those waters that do not meet the water quality criteria for designated uses. Such waters are "impaired" and for those waters, DEC must calculate the total maximum daily load of pollutants (*i.e.*, the TMDL) that the impaired water may receive from all sources consistent with water quality standards.[34] A stormwater discharge

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[33] *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 704 (1994) (quoting 33 U.S.C. § 1313(c)(2)(A)).

[34] *See* 33 U.S.C. § 1313(d). This provision was enacted in its original form as Section 303(d) of the Clean Water Act of 1972 and waters designated under this section are sometimes called "Section 303(d) waters." EPA defines "total maximum daily load"

(*continued on next page*)

permit must include conditions to bring the discharging municipality into compliance with water quality standards within a reasonable period of time.[35]

Like most States, New York has not developed TMDLs for all of its impaired waters.[36] The process is time-consuming and difficult and, in accordance with federal law, DEC has given priority to major bodies of water that serve important designated uses.[37] The agency has published its EPA-approved TMDL

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to mean the total amount of matter or thermal energy from all sources that a body of water may receive without violating water quality standards. *See* 40 C.F.R. § 130.2(e)-(i).

[35] *See* ECL § 17-0811(5); 6 N.Y.C.R.R. § 750-1.11(a)(5); 40 C.F.R. § 122.44; *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1165-66 (9th Cir. 1999).

[36] *See* 64 Fed. Reg. at 68,752 ("In most States, water quality assessments have traditionally been conducted for principal mainstream rivers and their major tributaries, not all surface waters."). As the trial court noted, petitioners do not "claim that DEC has been lax in its ongoing efforts to establish TMDLs for each of the hundreds of waters which are in violation of water quality standards" (J.A. 29 [n.14]).

[37] *See* 33 U.S.C. § 1313(d)(1).

Exhibit 5

IN THE CIRCUIT COURT FOR MONTGOMERY COUNTY
MARYLAND

ANACOSTIA RIVERKEEPER, *et al.*	*	
Petitioners,	*	
	*	
v.	*	Case No. 339466-V
	*	
MARYLAND DEPARTMENT OF THE	*	
ENVIRONMENT, *et al.*, and	*	
MONTGOMERY COUNTY, MARYLAND	*	
Respondents.	*	

* * * * * * * * * * * * *

OPINION AND ORDER

This case is before the Court on remand from the Court of Special Appeals, to address the merits of a final determination by the Maryland Department of the Environment (MDE) concerning its issuance of the "National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Discharge Permit No. 06-DP-3320 MD0068349." The permit states that its purpose is to regulate discharges to and from the storm drain systems owned and operated by Montgomery County and other municipalities named in the permit.

The Court conducted a hearing under Rule 7-208 on November 20, 2013. The following disposition is entered under Rule 7-209.

Standard of Review

1. The scope of judicial review of an administrative agency's action is narrow, and the agency's action is entitled to a presumption of validity. When the matter is within the expertise of the agency, the agency's interpretation and application of its own rules are given considerable deference. However, when the agency's decision is predicated on an error of law, deference is not appropriate.

Merits

2. For the reasons stated below, the Court concludes that the permit does not comport with Maryland law, the federal Clean Water Act, and federal regulations implementing the Clean Water Act.

3. MDE issued the permit pursuant to its authority under Maryland Code, Environment Article §§ 9-323 and 9-324, which provide MDE with the authority to issue a water pollution discharge permit when it determines that the terms of the permit comply with all applicable state and federal water quality standards and effluent limitations. While the authority to issue permits was delegated to the state of Maryland by the federal government, the Clean Water Act and federal regulations also continue to apply to permits issued by MDE.

ENTERED

DEC 04 2013

Clerk of the Circuit Court
Montgomery County, Md.

4. The Court concludes that the permit must include requirements needed to meet water quality standards, under Environment Article § 9-324, Clean Water Act §§ 301 and 402, and federal regulations, 40 C.F.R. § 122.44(d).

5. Under Environment Article § 9-324, the terms of the permit are crucial because the Court must look to those to determine whether the permit comports with applicable laws. Specific, enforceable standards, benchmarks, and deadlines for meeting applicable requirements must be stated in the permit. Permit requirements that are developed or modified outside of the permit process frustrate the public participation and judicial review requirements adopted by the General Assembly.

6. After reviewing the permit and the administrative record, the Court is unable to understand why MDE adopted the terms in the permit, or how those terms meet the requirements of the law. The permit does not state with clarity what the permittees will do, how they are to do it, what standards apply, or how one will measure compliance or noncompliance. The permit lacks ascertainable metrics for meeting water quality standards that can either be met or not met.

7. The Court finds that it is not sufficient for the permit to require that permittees engage in best management practices and file annual reports on their activities. Manuals and policies that exist outside of the permit change frequently, and do not inform the public or the Court of what the permit specifically requires. While it is allowable for the permit to require best management practices, specific requirements for meeting water quality standards must be stated in the permit.

8. The Court finds that the permit's requirement to restore 20% of impervious surface is simply too general to show how the permittees will meet water quality standards. It does not explain what the permittee is to do or how its performance is to be measured.

9. Federal regulations require that the permit include a monitoring program for representative data collection for the term of the permit, including a program to monitor and control pollutants in storm water discharges from sites that are contributing a substantial pollutant loading. 40 C.F.R. § 122.26(d). The permit requires monitoring in one tributary, and requires the permittees to submit an annual report to MDE regarding all activities under the permit. The Court finds that these requirements are not sufficient to meet the applicable requirements for monitoring.

Timeliness of the Petition

10. The Court finds that the petition was timely filed on July 24, 2009, by delivery to a court clerk. The later payment of appearance fees did not affect timeliness. Because the petition specifically identified the matter under judicial review, it complied, or at least substantially complied, with applicable procedural requirements.

ENTERED

DEC 04 2013

Clerk of the Circuit Court
Montgomery County, Md.

Conclusion

11. The Court hereby remands this matter to MDE for further proceedings to allow the agency to comply with Maryland law, the Clean Water Act, and federal regulations consistent with the above discussion.

JUDGE RONALD B. RUBIN
CIRCUIT COURT FOR MONTGOMERY COUNTY

12-3-13

ENTERED

DEC 04 2013

Clerk of the Circuit Court
Montgomery County, Md.

Exhibit 6

The Final New York State **July 2012**

2012 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy

Presented here is the Final New York State 2012 Section 303(d) List of Impaired/ TMDL Waters. The list identifies those waters that do not support appropriate uses and that require development of a Total Maximum Daily Load (TMDL) or other restoration strategy. A Response Summary addressing public comments received regarding the previously issued Draft List is also available.

The Federal Clean Water Act requires states to periodically assess and report on the quality of waters in their state. Section 303(d) of the Act also requires states to identify *Impaired Waters*, where specific designated uses are not fully supported. For these Impaired Waters, states must consider the development of a *Total Maximum Daily Load (TMDL)* or other strategy to reduce the input of the specific pollutant(s) that restrict waterbody uses, in order to restore and protect such uses. An outline of the process used to monitor and assess the quality of New York State waters is contained in the New York State *Consolidated Assessment and Listing Methodology (CALM)*. The CALM describes the water quality assessment and Section 303(d) listing process in order to improve the consistency of assessment and listing decisions.

The waterbody listings in the New York State Section 303(d) List are grouped into a number of categories. The various categories, or Parts, of the list are outlined below.

The 2012 Section 303(d) List of Impaired Waters Requiring a TMDL

Part 1 Individual Waterbody Segments with Impairments Requiring TMDL Development
These are waters with verified impairments that are expected to be addressed by a segment/pollutant-specific TMDL.

Part 2 Multiple Segment/Categorical Waterbody Impairments Requiring TMDL Development
These are groups of waters affected by similar causes/sources where a single TMDL may be able to address multiple waters with the same issue. Part 2 is subdivided into:

a) Waters Impaired by Atmospheric Deposition (acid rain)
b) Waters Impaired by Fish Consumption Advisories
c) Waters Impaired by Shellfishing Restrictions

Part 3 Waterbodies Requiring Verification of Impairment or Cause/Pollutant
These are waters where scheduling of TMDL development may be deferred pending verification of either the suspected impairment or the cause/pollutant related to the impairment. Part 3 is subdivided into:

a) Waterbody Impairments Requiring Verification
b) Verified Waterbody Impairments Requiring Verification of Cause/Pollutants
c) Waterbody Segments Being Address Through Other Restoration Measures

Appendix A - Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain)
Appendix B - Listed Waterbodies Not Meeting Dissolved Oxygen Standards

Impaired/Delisted Waters NOT Included on the NYS 2012 Section 303(d) List
Not all impaired waters of the state are included on the Section 303(d) List. By definition, the List is to be comprised of impaired waters *that require development of a Total Maximum Daily Load (TMDL) plan.* Although separate from the NYS 2012 Section 303(d) List, a compilation of waterbody/pollutants representing those impairments that are not included on the List provides additional information toward understanding listing decisions and clarifies how impairments are considered.

Waterbody Segments Not Listed Because TMDL is Not Necessary (separate list)
A list of *Other Impaired Waterbody Segments Not Listed (on 303(d) List) Because Development of a TMDL is Not Necessary* is available to facilitate the review of Section 303(d) List. The purpose of this supplement is to provide a more comprehensive inventory of waters of the state that do not fully support designated uses and that are considered to be impaired.

Section 303(d) of the Clean Water Act stipulates that impaired waters that do not require a TMDL are not to be included on the Section 303(d) List. There are three (3) justifications for not including an impaired water on the Section 303(d) List:

> Category 4a Waters - TMDL development is not necessary because a TMDL has already been established for the segment/pollutant.
> Category 4b Waters - TMDL is not necessary because other required control measures are expected to result in restoration in a reasonable period of time.
> Category 4c Waters - TMDL is not appropriate because the impairment is the result of pollution, rather than a pollutant that can be allocated through a TMDL.

2012 Waterbody/Pollutant Delistings (separate list)
A separate list of water/pollutant combinations that were included on the previous (2010) Section 303(d) List, but that are NOT included on the 2012 List is also available. This listing provides some linkage and continuity between the previous and proposed new Lists. The specific reason why a waterbody/pollutant no longer appears on the List (i.e., delisting action, reassessment, re-segmentation, etc.) is included in this document. Some of these waters (those that have been delisted but that remain *Impaired*) also appear on the list of *Other Impaired Waterbody Segments Not Listed Because Development of a TMDL is Not Necessary.*

> The Proposed Final 2012 NYS Section 303(d) List of Impaired/TMDL Waters is presented here as a "mark up" version in order to better highlight the changes from the 2010 List and to facilitate public review of the document.
>
> Additions to the 2012 List are shown in **Blue**.
> Deletions proposed for the 2012 List are shown as ~~strike out~~.
> Explanations regarding deletions and other changes to the List are shown in Red.
> Text in Red or as ~~strike out~~ will be removed from the Final 2012 List.

Part 3c - Waterbodies for which TMDL Development May be Deferred (Pending Implementation/Evaluation of Other Restoration Measures)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Upper Hudson River Basin						
H (portion 1)	Hudson River, Main Stem (1101-0002) [80]	Saratoga	River	A	PCBs	Contaminated Sed.	1998
H (portion 2)	Hudson River, Main Stem (1101-0042) [80]	Saratoga	River	C	PCBs	Contaminated Sed.	1998
H (portion 3)	Hudson River, Main Stem (1101-0043) [80]	Saratoga	River	B	PCBs	Contaminated Sed.	1998
H (portion 4)	Hudson River, Main Stem (1101-0044) [80]	Saratoga	River	C	PCBs	Contaminated Sed.	1998
H (portion 5)	Hudson River, Main Stem (1101-0005) [80]	Saratoga	River	B	PCBs	Contaminated Sed.	1998
	~~Atlantic Ocean/Long Island Sound Drainage Basin~~						
~~(MW1.1) LB/GB-253~~	~~Coney Island Creek (1701-0008)~~	~~Kings~~	~~Estuary~~	~~I~~	~~D.O./Oxygen Demand~~	~~Urban/CSO, OWTS~~	~~1998~~
					~~Pathogens~~	~~Urban/CSO, OWTS~~	~~2002~~
~~(MW1.3) UB-EB-1~~	~~Gowanus Canal (1701-0011)~~ [446]	~~Kings~~	~~Estuary~~	~~SD~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~1998~~
~~(MW2.1) ER-LI-4~~	~~Newtown Creek and tidal tribs (1702-0002)~~ [446]	~~Queens~~	~~Estuary~~	~~SD~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2004~~
~~(MW2.4) ER-3~~	~~Bronx River, Lower (1702-0006)~~ [446]	~~Bronx~~	~~Estuary~~	~~I~~	~~Pathogens~~	~~Urban/Storm/CSO~~	~~1998~~
					~~Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2004~~
~~(MW2.4) ER-3~~	~~Bronx River, Middle, and tribs (1702-0106)~~ [446]	~~Bronx~~	~~River~~	~~B~~	~~Pathogens~~	~~Urban/Storm/CSO~~	~~2002~~
~~(MW2.4) ER-4~~	~~Westchester Creek (1702-0012)~~ [446]	~~Bronx~~	~~Estuary~~	~~I~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2004~~
~~(MW2.5) ER-LI-12~~	~~Flushing Creek/Bay (1702-0005)~~ [446]	~~Queens~~	~~Estuary~~	~~I~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2004~~
~~(MW2.5) ER/LIS-LNB-19 thru 20~~	~~Alley Creek/Little Neck Bay Trib (1702-0009)~~ [446]	~~Queens~~	~~Estuary~~	~~I-SC~~	~~Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2004~~
~~(MW3.2) LIS-2~~	~~Hutchinson River, Lower, and tribs (1702-0003)~~ [446]	~~Bronx~~	~~Estuary~~	~~SB~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2004~~
~~(MW8.5b) JB~~	~~Jamaica Bay, Eastern, and tribs, Queens (1701-0005)~~ [446]	~~Queens~~	~~Estuary~~	~~SB~~	~~Pathogens~~	~~Urban/CSO,Municipl~~	~~1998~~
~~(MW8.5b) JB-241a~~	~~Thurston Basin (1701-0152)~~ [446]	~~Queens~~	~~Estuary~~	~~I~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2002~~
~~(MW8.5b) JB-247~~	~~Bergen Basin (1701-0009)~~ [446]	~~Queens~~	~~Estuary~~	~~I~~	~~Pathogens~~	~~Urban/CSO,Municipl~~	~~1998~~
~~(MW8.5b) JB-248a~~	~~Shellbank Basin (1701-0001)~~ [446]	~~Queens~~	~~Estuary~~	~~I~~	~~Nitrogen~~	~~Urban/Storm/CSO~~	~~1998~~
					~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~2002~~
~~(MW8.5b) JB-249~~	~~Spring Creek (1701-0361)~~ [446]	~~Queens~~	~~Estuary~~	~~I~~	~~D.O./Oxygen Demand~~	~~Urban/CSO,Municipl~~	~~2002~~
					~~Pathogens~~	~~Urban/CSO,Municipl~~	~~2002~~
~~(MW8.6) JB-249a~~	~~Hendrix Creek (1701-0006)~~ [446]	~~Kings~~	~~Estuary~~	~~I~~	~~Pathogens~~	~~Urban/Storm/CSO~~	~~2002~~
~~(MW8.6) JB-250a~~	~~Paerdegat Basin (1701-0363)~~ [446]	~~Kings~~	~~Estuary~~	~~I~~	~~D.O./Oxygen Demand~~	~~Urban/Storm/CSO~~	~~1998~~
~~(MW8.6) JB-250b~~	~~Mill Basin and tidal tribs (1701-0178)~~ [446]	~~Kings~~	~~Estuary~~	~~SB~~	~~D.O./Oxygen Demand~~	~~Urb/Storm Runoff~~	~~1998~~
	DELIST as Category 4b due to NYC CSO Consent Order to meet pathogen standards and the second NYC Nitrogen Consent Judgment, which includes upgrades NYC WWTPs as identified in the Jamaica Bay Comprehensive Plan to meet water quality standards.						

~~81 Impairments to these waters are being addressed by a 2005 Order on Consent with NYC directing the city to develop and implement watershed and facility plans to address CSO discharges and bring New York City waters into compliance with the Clean Water Act. This may include a revision of water quality standards based on a Use Attainability Analysis if fishable/swimmable goals of the CWA are not attainable. NYSDEC remains committed to the development of harbor-wide TMDLs for nutrients, pathogens and toxics. However, it is appropriate to defer development of separate TMDLs for these individual CSO-impacted waterbodies in light of the enforceable requirements of the NYC CSO Consent Order.~~

80 Impairments to these waters are being addressed by a Record of Decision and the on-going remediation of the River.

Exhibit 7

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Tree and impervious cover change in U.S. cities

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ABSTRACT

Paired aerial photographs were interpreted to assess recent changes in tree, impervious and other cover types in 20 U.S. cities as well as urban land within the conterminous United States. National results indicate that tree cover in urban areas of the United States is on the decline at a rate of about 7900 ha/yr or 4.0 million trees per year. Tree cover in 17 of the 20 analyzed cities had statistically significant declines in tree cover, while 16 cities had statistically significant increases in impervious cover. Only one city (Syracuse, NY) had a statistically significant increase in tree cover. City tree cover was reduced, on average, by about 0.27 percent/yr, while impervious surfaces increased at an average rate of about 0.31 percent/yr. As tree cover provides a simple means to assess the magnitude of the overall urban forest resource, monitoring of tree cover changes is important to understand how tree cover and various environmental benefits derived from the trees may be changing. Photo-interpretation of digital aerial images can provide a simple and timely means to assess urban tree cover change to help cities monitor progress in sustaining desired urban tree cover levels.

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Introduction

Tree cover in cities is constantly changing due to various natural and anthropogenic forces. Natural forces for change include natural regeneration, tree growth and tree mortality from insects and diseases or old age. Anthropogenic factors that influence tree cover include tree planting and tree mortality or removal from either direct or indirect human actions such as development and air pollution (Nowak, 1993). The combination of these factors through time determines existing and future tree cover levels.

An important question for city managers is how their local tree cover is currently changing as present-day benefits derived from urban forests are related to the amount of tree cover in cities. As many urban forest ecosystem services are directly related to the amount of healthy and functioning leaves, tree cover becomes a simple measure of the extent of the urban forest and consequently the magnitude of services provided by the forest. To help sustain tree cover in cities, various city programs are planting large numbers of trees (e.g., City of New York, 2011; City of Los Angeles, 2011), protecting existing trees (e.g., Town of Chapel Hill, 2011; City of Pasadena, 2011) and developing tree canopy goals (e.g., City of Seattle, 2011; Maryland Department of Natural Resources, 2011).

Though tree cover in cities is constantly changing, limited studies have investigated how overall tree cover in cities has or is changing. Nowak (1993) illustrated through an analysis of historical imagery and documents that the tree cover in Oakland, CA, has increased from a presettlement tree cover of approximately 2 percent in 1850s to 19 percent in 1991. Land cover maps have been used to quantify how various cover classes have changed through time, but assessments of tree cover change within cities are limited (e.g., Zhou et al., 2008). In Seattle, tree cover was estimated to change from 22.5 percent in 2002 to 22.9 percent in 2007 by comparing digital land cover maps developed from 0.6 m resolution imagery (Parlin, 2009). However, the accuracy of the map classification is unknown and comparing cover maps to estimate change can lead to false changes due to misclassification of cover types on either map.

Various land cover change analyses have been conducted using satellite-based approaches. Moderate Resolution Imaging Spectroradiometer (MODIS) data (250-m) and Landsat data (30-m) have and are being used to estimate changes in land cover and impervious surface cover (e.g., Yang et al., 2003; Lunetta et al., 2006; U.S. EPA, 2011). MODIS data (500-m) also has the ability to estimate change in percent tree cover across the globe (Hansen et al., 2003; Schwarz et al., 2006). These satellite-based approaches have limitations based on image resolution and inaccuracies of image classifications. Photo-interpretation of high resolution images to detect cover changes has the ability to overcome these limitations, but lacks the ability to develop detailed comprehensive cover change maps.

Trees and impervious surfaces provide numerous ecosystem services and values to a community, but also have various economic or environmental costs. Trees provide various benefits associated

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with air and water quality, building energy conservation, cooler air temperatures, reductions in ultraviolet radiation, and many other environmental and social benefits (e.g., Dwyer et al., 1992; Kuo and Sullivan, 2001; Westphal, 2003; Wolf, 2003; Nowak and Dwyer, 2007). Costs associated with trees are both economic (e.g., planting and maintenance and increased building energy costs) and environmental (e.g., pollen and volatile organic compound emissions) (Nowak and Dwyer, 2007).

Likewise, impervious cover plays an important role in the landscape, particularly in urban areas. These surfaces, such as roads, buildings, sidewalks, and parking lots, facilitate transportation and provide shelter, but also can negatively impact the environment. Increased impervious surfaces enhance local temperatures and heat islands (Oke, 1989; Heisler and Brazel, 2010), which consequently affects building energy use, human comfort and health, ozone production, and pollutant emissions in cities. In addition, impervious surfaces significantly affect urban hydrology (e.g., stream flow and water quality) (e.g., U.S. EPA, 1983; National Research Council, 2008).

As development occurs in forests, tree cover will decrease to make space for buildings and other impervious surfaces. In non-forest regions, tree cover can increase due to urbanization (unpublished data). Thus, urbanization as a process will alter regional tree cover. As tree cover changes in cities, so will the associated ecosystem services and their effects on environmental quality and human health. Unfortunately, within existing cities, rates and direction of change in tree and impervious cover are largely unknown. This paper investigates tree and impervious cover change in urban areas and select cities across the United States using a simple and repeatable measure that can be used worldwide where paired multi-year digital aerial imagery exists. The objective of this paper is to determine the current direction and rate of tree and impervious cover change in U.S. cities to help guide cities in sustaining desired tree cover levels and associated ecosystem services.

Methods

To determine the percent tree/shrub cover (hereafter referred to as tree cover or canopy) and impervious cover change in cities in the United States, 20 cities from across the nation were selected (Table 1). Some cities were selected based on existing projects (Syracuse, NY; Baltimore, MD; Spokane, WA). Other cities were selected by picking major cities scattered throughout the conterminous United States where paired imagery could be obtained. Two cities were specifically selected to determine the effect of recent suspected tree cover change: (1) New Orleans, LA (effect of 2005 Hurricane Katrina), and (2) Detroit, MI (effect of recent infestation of emerald ash borer (*Agrilus planipennis*)). For each city, paired digital aerial photographs were obtained for the most recent date possible and imagery as close to 5 yr prior to the most current date as possible.

In 18 of the 20 cities, 1000 random points were laid and interpreted across the city to provide a maximum standard error of 1.6 percent if all points are classified (Lindgren and McElrath, 1969). In two cities, more points were laid and interpreted (Baltimore: 2500 points; Spokane, WA: 2000 points). City geographic boundaries were determined using census incorporated or designated places boundaries (U.S. Census Bureau, 2007). Each point was laid in the same geographic position on both sets of temporal images in the city, and paired image interpretation was conducted (i.e., interpreter classified each point pair by contrasting and classifying the image points in sequence). In cases of misregistration of the image or point, the interpreter corrected the point location to ensure the exact same location was interpreted. For example, sometimes the points would shift position slightly between images due to issues of image misregistration. In these cases, the interpreter moved the point on the most recent image back to the position on the oldest image to make the interpretation of change at the same point on both images.

In some cases, not all of the points could be classified. Non-classification occurred when one of the images were missing part of the city area (incomplete imagery) or had cloud cover. All cities had greater than 97.2 percent of the points interpreted. As some cities have substantial amounts of water within their city boundary (Table 1), cover estimates were only based on points that were not classified as water in both years. That is, permanent water points were deleted from the sample so that cover estimates were based on city land area, not city total area.

For the photo-interpretation, trained photo interpreters with experience interpreting leaf-off and leaf-on imagery classified each point as to either: trees/shrubs (woody vegetation), grass

Table 1
Resolution and year of imagery for 20 analyzed cities. Percent of city area classified as water in both years (%Water) was removed from analysis so that cover estimates could be based on land area. Human population density change (#/ha) between year 1 and year 2 is based on U.S. Census estimates (1).

City	Year 1	Res.[a] (m)	Leaf on/off	Year 2	Res.[a] (m)	Leaf on/off	%interp[b]	%Water	*n*	Change (#/ha)
Albuquerque, NM	2006	0.15	Off	2009	1	On	100	0.2	998	0.6
Atlanta, GA	2005	2	On	2009	1	On	99.5	0.4	991	1.7
Baltimore, MD	2001	1	On	2005	1	On	99.9	12.6	2184	−0.2
Boston, MA	2003	1	On	2008	1	On	99.9	13.6	863	2.3
Chicago, IL	2005	2	On	2009	1	On	100	0.8	992	0.5
Denver, CO	2005	1	On	2009	1	On	100	1.6	984	1.2
Detroit, MI	2005	1	On	2009	1	On	99.9	0.3	996	−0.3
Houston, TX	2004	1	On	2009	1	On	99.5	1.6	979	1.4
Kansas City, MO	2003	1	On	2009	1	On	100	1.5	985	0.4
Los Angeles, CA	2005	1	On	2009	1	On	100	0.2	998	0.3
Miami, FL	2003	1	On	2009	0.3	On	100	9.3	907	6.3
Minneapolis, MN	2003	1	On	2008	1	On	98.9	7.1	919	0.3
Nashville, TN	2003	0.15	Off	2008	0.15	Off	100	0.7	993	0.3
New Orleans, LA	2005	2	On	2009	1	On	97.2	38.4	563	−2.1
New York, NY	2004	0.15	On	2009	1	On	98.1	2.9	953	2.8
Pittsburgh, PA	2004	1	On	2008	1	On	99.5	4.8	947	−0.6
Portland, OR	2005	1	On	2009	1	On	100	1.6	984	1.0
Spokane, WA	2002	0.15	On	2007	0.15	On	100	1.0	1980	0.3
Syracuse, NY	2003	0.3	Off	2009	0.3	Off	99.6	2.0	976	−0.7
Tacoma, WA	2001	0.15	On	2005	0.15	On	100	8.6	914	−0.1

[a] Image (pixel) resolution.
[b] Percent of original points (land and water) that were able to be classified on both images. *n* – sample size – number of points not classified as permanent water points (classified as water in both years).

or herbaceous cover, bare soil, water, impervious (buildings), impervious (roads), or impervious (other). For the analysis of Albuquerque, NM, only, an eighth class of scrub/shrub was added due to the different vegetation cover morphology of that region. This class was included in the tree/shrub cover classification, but the scrub/shrub class results were also reported separately. Within Syracuse, which was one of the first cities analyzed, impervious other and impervious road categories were combined by the interpreter as was the grass/herbaceous and soil categories. In subsequent city analyses these categories were separated.

In interpreting change from aerial imagery, image parallax (tall objects appearing to lean on the image) and seasonal changes can appear to cause changes, but in fact are not actual changes. In these cases the interpreter could use judgment to determine if actual change did occur. In cases of tall object parallax, the interpreter's classification was based on the oldest image and if there was no change, both dates of imagery were classified the same. For example, tall objects (e.g., buildings and trees) may lean to the left in the first image, but lean to the right in the second image and a point may land on the object in the first image, but miss the object in the second image. The point classification would appear to change class, but no actual change would have occurred. Also agricultural fields can change cover class depending on time of year (herbaceous cover vs. bare soil depending upon time of imagery). These types of seasonal changes were classified as no change and classified as herbaceous cover. By conducting paired-point image analysis, the interpreter can correct these false changes to no change in the analysis. A five-percent random sample of points was reinterpreted by another photo-interpreter to check for classification accuracy. Overall, the two interpreters were in agreement on 97 percent of the classifications.

Within each city, the percentage of each cover class (p) was calculated as the number of sample points (x) hitting the cover attribute divided by the total number of interpretable sample points (n) within the area of analysis ($p = x/n$). The standard error of the estimate (SE) was calculated as $SE = \sqrt{p \times (1-p)/n}$ (Lindgren and McElrath, 1969). This method has been used to assess canopy cover in many cities (e.g., Nowak et al., 1996).

If changes in cover classes were observed at any point on the image then it is known that cover classes are changing within the city (i.e., no statistical test is needed to determine if change is greater than zero). However, as a cover class can both gain and lose cover through time and space, the McNemar test (Sokal and Rohlf, 2003) was used to determine if the net change in cover was different from zero (alpha levels 0.90 and 0.95). Pearson product moment correlation was used to test for a relationship between change in percent tree cover and change in population density among the 18 cities.

As the overall time frame of change in cover varied among cities from between 3 and 6 yr, change results were annualized for comparative purposes among cities. Results were combined with city area and population data from the year of the oldest photo date (U.S. Census Bureau, 2011) to determine actual tree and impervious cover change (ha) and cover change per capita in each city. Results of percent change were reported as absolute change (percent of city area that changed = cover change/city area) and relative change (percent of existing cover class that changed = cover change/original cover area). For example, a city with 30 percent tree cover that changed to 20 percent tree cover would have a 10 percent absolute change, but a 33 percent relative change.

As the 20 analyzed cities are not a truly random sample, an analysis of change in tree and impervious cover in urban areas across the conterminous United States was conducted using Google Earth® (Google, 2011) imagery to determine the relative magnitude of net change in urban tree and impervious cover. Urban land was defined based on population density as delimited using the U.S. Census Bureau's (2007) definition: all territory, population, and housing units located within urbanized areas or urban clusters. Urbanized area and urban cluster boundaries encompass densely settled territories, which are described by one of the following:

- one or more block groups or census blocks with a population density of at least 386.1 people/km^2 (1000 people/mile^2),
- surrounding census blocks with a minimum population density of 193.1 people/km^2 (500 people/mile^2), or
- less densely settled blocks that form enclaves or indentations, or are used to connect discontinuous areas.

In the conterminous United States, 1000 points randomly located within urban land were interpreted based on paired imagery from Google using the images with the most recent date and the next oldest interpretable imagery with the goal of trying to get the second set of imagery about 5 yr apart from the first set. Imagery date along with cover class was recorded for each point. This type of analysis of change with Google imagery has varying date issues that were not encountered with the paired city imagery, but does give a general indication of direction and magnitude of change nationally. Analysis of Google imagery was similar to the city imagery in terms of non-interpretable images and adjusting for misregistered images. However, Google imagery could also not be interpreted in some locations due to poor image resolution. Overall, 97 percent of the points could be interpreted using Google imagery.

Results

Of the 20 cities analyzed, tree cover ranged from 53.9 percent in Atlanta to 9.6 percent in Denver; building impervious cover ranged from 27.1 percent in Chicago to 4.8 percent in Kansas City; road and other impervious cover ranged from 36.2 percent in Miami to 12.3 percent in Nashville; and total impervious cover varied from 61.1 percent in New York City to 17.7 percent in Nashville (Table 2). Two cover classes – tree/shrub and bare soil generally exhibited a reduction in percent cover, while the other land classes generally exhibited an increase in cover.

Change in tree cover during the varying periods of analysis ranged from reduction in percent tree cover of −9.6 in New Orleans to an increase in percent tree cover of 1.0 in Syracuse (Table 3). Nineteen of the 20 cities analyzed showed a reduction in tree cover, 17 of those cities had a statistically significant net reduction. Average change was calculated for all 20 cities and for 18 cities – excluding the two cities (New Orleans and Detroit) that were targeted due to an expected loss in tree cover. Percent tree cover dropped on average by 1.1 percent during the varying periods of analysis (1.5 percent for 20 city average) with the greatest decreases in percent tree cover in New Orleans (−9.6 percent), Houston (−3.0 percent) and Albuquerque (−2.7 percent). The relative reduction in tree cover was as high as −29.2 percent in New Orleans, but averaged −3.8 percent (−5.0 percent for 20 city average).

Cities with the greatest annual loss in tree cover were New Orleans (average of −1120 ha/yr), Houston (−890 ha/yr) and Albuquerque (−420 ha/yr) (Table 3). Tree cover losses per capita were greatest in New Orleans (−24.6 m^2/person/yr), Albuquerque (−8.3 m^2/person/yr) and Nashville (−5.3 m^2/person/yr) with an average loss of −1.9 m^2/person/yr (−3.0 m^2/person/yr for 20 city average). Average annual loss in percent tree cover was −0.27 percent/yr (−0.37 percent/yr for 20 city average). Relative annual loss in tree cover was −0.90 percent/yr (−1.29 percent/yr for 20 city average). Loss of tree cover was slightly correlated to increased population density in the 18 cities (Pearson product moment correlation coefficient (r) = −0.31).

Table 2
Change of percent of city land area occupied by various cover classes in 20 U.S. cities.

City	1st year cover class	2nd year cover class							1st year	
		Grass/herb[a]	Tree/shrub	Imp. bldg[b]	Imp. road[c]	Imp. other[d]	Water	Soil	Total	SE
Albuquerque, NM (2006–2009)[e]	Grass/herb	8.8	0.1	0.1	0.0	0.1	0.0	0.0	9.1	0.9
	Tree/shrub	0.4	38.0	0.0	0.0	0.4	0.0	2.0	40.8	1.6
	Imp. bldg	0.1	0.0	11.9	0.0	0.0	0.0	0.0	12.0	1.0
	Imp. road	0.0	0.0	0.0	9.4	0.0	0.0	0.0	9.4	0.9
	Imp. other	0.0	0.0	0.0	0.0	13.9	0.0	0.0	13.9	1.1
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.4	0.0	0.5	0.3	0.5	0.0	13.0	14.7	1.1
	2nd year total	9.7	38.1	12.5	9.7	14.9	0.0	15.0		
	2nd year SE	0.9	1.5	1.0	0.9	1.1	0.0	1.1		
	Net (2006–2009)	0.6	−2.7	0.5	0.3	1.0	0.0	0.3		
Atlanta, GA (2005–2009)	Grass/herb	15.1	0.4	0.1	0.0	0.3	0.0	0.6	16.5	1.2
	Tree/shrub	1.0	51.6	0.4	0.1	0.3	0.0	0.5	53.9	1.6
	Imp. bldg	0.0	0.0	9.6	0.0	0.1	0.0	0.1	9.8	0.9
	Imp. road	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.4	0.8
	Imp. other	0.0	0.0	0.1	0.0	9.2	0.0	0.0	9.3	0.9
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	1.3	0.1	0.2	0.2	0.2	0.0	1.1	3.1	0.6
	2nd year total	17.5	52.1	10.4	7.7	10.1	0.0	2.3		
	2nd year SE	1.2	1.6	1.0	0.8	1.0	0.0	0.5		
	Net (2005–2009)	0.9	−1.8	0.6	0.3	0.8	0.0	−0.8		
Baltimore, MD (2001–2005)	Grass/herb	22.2	0.1	0.2	0.0	0.7	0.0	0.3	23.5	0.9
	Tree/shrub	0.9	28.4	0.4	0.1	0.5	0.0	0.1	30.4	1.0
	Imp. bldg	0.0	0.0	15.3	0.0	0.0	0.0	0.3	15.6	0.8
	Imp. road	0.0	0.0	0.0	10.9	0.0	0.0	0.0	11.0	0.7
	Imp. other	0.0	0.0	0.0	0.0	16.8	0.0	0.2	17.1	0.8
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.1	0.0	0.3	0.0	0.3	0.0	1.6	2.3	0.3
	2nd year total	23.2	28.5	16.3	11.0	18.5	0.0	2.5		
	2nd year SE	0.9	1.0	0.8	0.7	0.8	0.0	0.3		
	Net (2001–2005)	−0.4	−1.9	0.7	0.0	1.3	0.0	0.2		
Boston, MA (2003–2008)	Grass/herb	17.8	0.5	0.1	0.0	0.6	0.0	0.1	19.1	1.3
	Tree/shrub	0.6	27.1	0.6	0.2	0.1	0.0	0.2	28.9	1.5
	Imp. bldg	0.1	0.0	16.5	0.0	0.1	0.0	0.0	16.7	1.3
	Imp. road	0.0	0.0	0.0	12.5	0.0	0.0	0.0	12.5	1.1
	Imp. other	0.2	0.2	0.0	0.1	18.4	0.0	0.0	19.0	1.3
	Water	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.8	0.3
	Soil	0.5	0.1	0.1	0.1	0.5	0.0	1.7	3.0	0.6
	2nd year total	19.4	27.9	17.3	13.0	19.7	0.0	2.8		
	2nd year SE	1.3	1.5	1.3	1.1	1.4	0.0	0.6		
	Net (2003–2008)	0.2	−0.9	0.6	0.5	0.7	−0.8	−0.2		
Chicago, IL (2005–2009)	Grass/herb	20.0	0.0	0.0	0.0	0.3	0.1	0.4	20.8	1.3
	Tree/shrub	0.3	18.0	0.1	0.0	0.0	0.0	0.1	18.5	1.2
	Imp. bldg	0.4	0.0	26.5	0.0	0.1	0.0	0.1	27.1	1.4
	Imp. road	0.0	0.0	0.0	12.1	0.0	0.0	0.0	12.1	1.0
	Imp. other	0.0	0.0	0.2	0.0	19.1	0.0	0.0	19.3	1.3
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.0	0.0	0.0	0.0	0.1	0.1	2.0	2.2	0.5
	2nd year total	20.7	18.0	26.8	12.1	19.6	0.2	2.6		
	2nd year SE	1.3	1.2	1.4	1.0	1.3	0.1	0.5		
	Net (2005–2009)	−0.1	−0.5	−0.3	0.0	0.3	0.2	0.4		
Denver, CO (2005–2009)	Grass/herb	41.1	0.0	0.1	0.0	0.3	0.0	0.9	42.4	1.6
	Tree/shrub	0.1	9.6	0.1	0.0	0.1	0.0	0.0	9.9	1.0
	Imp. bldg	0.0	0.0	12.8	0.0	0.0	0.0	0.1	12.9	1.1
	Imp. road	0.0	0.0	0.1	12.5	0.0	0.0	0.0	12.6	1.1
	Imp. other	0.2	0.0	0.2	0.1	13.9	0.0	0.1	14.5	1.1
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.8	0.0	0.1	0.1	1.0	0.2	5.5	7.7	0.9
	2nd year total	42.2	9.6	13.4	12.7	15.3	0.2	6.6		
	2nd year SE	1.6	0.9	1.1	1.1	1.1	0.1	0.8		
	Net (2005–2009)	−0.2	−0.3	0.5	0.1	0.8	0.2	−1.1		
Detroit, MI (2005–2009)	Grass/herb	27.9	0.1	0.0	0.0	0.2	0.0	0.3	28.5	1.4
	Tree/shrub	0.1	22.3	0.1	0.2	0.4	0.0	0.1	23.2	1.3
	Imp. bldg	0.1	0.0	17.1	0.0	0.0	0.0	0.0	17.2	1.2
	Imp. road	0.0	0.0	0.0	14.7	0.0	0.0	0.0	14.7	1.1

Table 2 (*Continued*)

City	1st year cover class	2nd year cover class							1st year	
		Grass/herb[a]	Tree/shrub	Imp. bldg[b]	Imp. road[c]	Imp. other[d]	Water	Soil	Total	SE
	Imp. other	0.0	0.0	0.1	0.0	14.5	0.0	0.0	14.6	1.1
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.2	0.1	0.1	0.0	0.3	0.0	1.2	1.9	0.4
	2nd year total	28.3	22.5	17.4	14.9	15.4	0.0	1.6		
	2nd year SE	1.4	1.3	1.2	1.1	1.1	0.0	0.4		
	Net (2005–2009)	−0.2	−0.7	0.2	0.2	0.8	0.0	−0.3		
Houston, TX (2004–2009)	Grass/herb	28.7	0.0	0.5	0.0	0.5	0.2	0.2	30.1	1.5
	Tree/shrub	1.4	27.4	0.3	0.1	0.2	0.1	0.8	30.3	1.5
	Imp. bldg	0.0	0.0	13.5	0.0	0.0	0.0	0.2	13.7	1.1
	Imp. road	0.0	0.0	0.0	12.0	0.0	0.0	0.0	12.0	1.0
	Imp. other	0.1	0.0	0.1	0.0	11.8	0.0	0.1	12.2	1.0
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.4	0.0	0.0	0.0	0.1	0.0	1.2	1.7	0.4
	2nd year total	30.6	27.4	14.4	12.1	12.7	0.3	2.6		
	2nd year SE	1.5	1.4	1.1	1.0	1.1	0.2	0.5		
	Net (2004–2009)	0.5	−3.0	0.7	0.1	0.5	0.3	0.8		
Kansas City, MO (2003–2009)	Grass/herb	48.5	0.5	0.2	0.3	0.7	0.1	0.3	50.7	1.6
	Tree/shrub	1.1	27.5	0.0	0.1	0.0	0.0	0.5	29.2	1.4
	Imp. bldg	0.0	0.0	4.6	0.0	0.2	0.0	0.0	4.8	0.7
	Imp. road	0.0	0.0	0.0	6.3	0.0	0.0	0.0	6.3	0.8
	Imp. other	0.0	0.0	0.2	0.1	6.8	0.0	0.0	7.1	0.8
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.2	0.0	0.0	0.0	0.7	0.0	1.0	1.9	0.4
	2nd year total	49.8	28.0	5.0	6.8	8.4	0.1	1.8		
	2nd year SE	1.6	1.4	0.7	0.8	0.9	0.1	0.4		
	Net (2003–2009)	−0.8	−1.2	0.2	0.5	1.3	0.1	−0.1		
Los Angeles, CA (2005–2009)	Grass/herb	21.0	0.0	0.3	0.0	0.2	0.0	0.3	21.8	1.3
	Tree/shrub	0.4	20.6	0.2	0.0	0.3	0.0	0.0	21.5	1.3
	Imp. bldg	0.0	0.0	21.0	0.0	0.2	0.0	0.0	21.2	1.3
	Imp. road	0.0	0.0	0.0	14.7	0.0	0.0	0.0	14.7	1.1
	Imp. other	0.0	0.0	0.4	0.0	15.8	0.0	0.1	16.3	1.2
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.3	0.0	0.5	0.2	0.2	0.0	3.1	4.3	0.6
	2nd year total	21.7	20.6	22.4	14.9	16.7	0.0	3.5		
	2nd year SE	1.3	1.3	1.3	1.1	1.2	0.0	0.6		
	Net (2005–2009)	−0.1	−0.9	1.2	0.2	0.4	0.0	−0.8		
Miami, FL (2003–2009)	Grass/herb	14.2	0.2	0.1	0.1	0.6	0.0	0.1	15.3	1.2
	Tree/shrub	1.1	21.2	0.4	0.2	0.1	0.1	0.1	23.3	1.4
	Imp. bldg	0.3	0.0	23.5	0.0	0.0	0.0	0.1	23.9	1.4
	Imp. road	0.0	0.0	0.0	18.0	0.0	0.0	0.0	18.0	1.3
	Imp. other	0.2	0.2	0.6	0.0	17.0	0.0	0.1	18.1	1.3
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.0	0.0	0.2	0.0	0.2	0.0	1.0	1.4	0.4
	2nd year total	15.9	21.6	24.8	18.3	17.9	0.1	1.4		
	2nd year SE	1.2	1.4	1.4	1.3	1.3	0.1	0.4		
	Net (2003–2009)	0.6	−1.7	0.9	0.3	−0.2	0.1	0.0		
Minneapolis, MN (2003–2008)	Grass/herb	18.6	0.2	0.0	0.0	0.3	0.0	0.4	19.6	1.3
	Tree/shrub	1.0	33.7	0.1	0.2	0.1	0.0	0.0	35.1	1.6
	Imp. bldg	0.0	0.0	14.4	0.0	0.1	0.0	0.1	14.6	1.2
	Imp. road	0.0	0.1	0.0	12.3	0.0	0.0	0.0	12.4	1.1
	Imp. other	0.0	0.0	0.3	0.0	15.6	0.0	0.0	15.9	1.2
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.2	0.0	0.1	0.0	0.1	0.2	1.7	2.4	0.5
	2nd year total	19.8	34.1	14.9	12.5	16.2	0.2	2.3		
	2nd year SE	1.3	1.6	1.2	1.1	1.2	0.2	0.5		
	Net (2003–2008)	0.2	−1.1	0.3	0.1	0.3	0.2	−0.1		
Nashville, TN (2003–2008)	Grass/herb	28.3	0.4	0.1	0.1	0.0	0.0	0.3	29.2	1.4
	Tree/shrub	0.7	49.4	0.1	0.2	0.1	0.0	0.5	51.1	1.6
	Imp. bldg	0.0	0.0	5.4	0.0	0.0	0.0	0.0	5.4	0.7
	Imp. road	0.0	0.0	0.0	5.6	0.0	0.0	0.0	5.6	0.7
	Imp. other	0.0	0.0	0.0	0.0	6.7	0.0	0.0	6.7	0.8
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.4	0.0	0.2	0.0	0.3	0.1	0.9	1.9	0.4
	2nd year total	29.4	49.8	5.8	5.9	7.2	0.1	1.7		

Table 2 (*Continued*)

City	1st year cover class	2nd year cover class							1st year	
		Grass/herb[a]	Tree/shrub	Imp. bldg[b]	Imp. road[c]	Imp. other[d]	Water	Soil	Total	SE
	2nd year SE	1.4	1.6	0.7	0.8	0.8	0.1	0.4		
	Net (2003–2008)	0.2	−1.2	0.4	0.3	0.4	0.1	−0.2		
New Orleans, LA (2005–2009)	Grass/herb	22.7	0.0	0.0	0.0	0.2	0.4	0.7	24.0	1.8
	Tree/shrub	6.6	23.3	0.0	0.9	1.1	0.4	0.7	32.9	2.0
	Imp. bldg	1.4	0.0	14.6	0.0	0.4	0.0	0.4	16.7	1.6
	Imp. road	0.0	0.0	0.0	15.5	0.0	0.0	0.0	15.5	1.5
	Imp. other	0.2	0.0	0.0	0.0	9.1	0.0	0.0	9.2	1.2
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.2	0.0	0.0	0.0	0.2	0.0	1.4	1.8	0.6
	2nd year total	31.1	23.3	14.6	16.3	10.8	0.7	3.2		
	2nd year SE	2.0	1.8	1.5	1.6	1.3	0.4	0.7		
	Net (2005–2009)	7.1	−9.6	−2.1	0.9	1.6	0.7	1.4		
New York, NY (2004–2009)	Grass/herb	14.9	0.1	0.2	0.0	0.6	0.1	0.6	16.6	1.2
	Tree/shrub	1.2	19.3	0.0	0.2	0.2	0.0	0.0	20.9	1.3
	Imp. bldg	0.0	0.0	24.4	0.0	0.1	0.0	0.0	24.6	1.4
	Imp. road	0.0	0.0	0.0	16.1	0.0	0.0	0.0	16.1	1.2
	Imp. other	0.0	0.3	0.2	0.1	18.5	0.0	0.0	19.1	1.3
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
	Soil	0.5	0.0	0.3	0.0	0.1	0.0	1.8	2.7	0.5
	2nd year total	16.6	19.7	25.2	16.4	19.5	0.1	2.5		
	2nd year SE	1.2	1.3	1.4	1.2	1.3	0.1	0.5		
	Net (2004–2009)	0.0	−1.2	0.6	0.3	0.4	0.0	−0.2		
Pittsburgh, PA (2004–2008)	Grass/herb	16.9	0.0	0.0	0.0	0.1	0.0	0.1	17.1	1.2
	Tree/sbrub	0.2	41.6	0.1	0.0	0.0	0.0	0.0	41.9	1.6
	Imp. bldg	0.0	0.0	14.7	0.0	0.1	0.0	0.1	14.9	1.2
	Imp. road	0.0	0.0	0.0	13.3	0.0	0.0	0.1	13.4	1.1
	Imp. other	0.0	0.0	0.1	0.0	11.6	0.0	0.0	11.7	1.0
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.1	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.3
	2nd year total	17.2	41.6	14.9	13.3	11.8	0.0	1.2		
	2nd year SE	1.2	1.6	1.2	1.1	1.0	0.0	0.3		
	Net (2004–2008)	0.1	−0.3	0.0	−0.1	0.1	0.0	0.2		
Portland, OR (2005–2009)	Grass/herb	21.4	0.3	0.3	0.1	0.3	0.0	0.2	22.7	1.3
	Tree/shrub	0.7	30.4	0.1	0.0	0.3	0.0	0.0	31.5	1.5
	Imp. bldg	0.2	0.1	14.4	0.0	0.0	0.0	0.0	14.7	1.1
	Imp. road	0.0	0.0	0.0	12.5	0.0	0.0	0.0	12.5	1.1
	Imp. other	0.0	0.1	0.1	0.0	15.8	0.0	0.0	16.0	1.2
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	0.6	0.0	0.2	0.1	0.5	0.0	1.2	2.6	0.5
	2nd year total	23.0	30.9	15.1	12.7	16.9	0.0	1.4		
	2nd year SE	1.3	1.5	1.1	1.1	1.2	0.0	0.4		
	Net (2005–2009)	0.3	−0.6	0.4	0.2	0.9	0.0	−1.2		
Spokane, WA (2002–2007)	Grass/herb	24.0	0.7	0.2	0.1	0.4	0.0	1.7	27.1	1.0
	Tree/shrub	0.5	20.6	0.2	0.0	0.1	0.0	1.1	22.4	0.9
	Imp. bldg	0.0	0.0	12.0	0.0	0.1	0.0	0.0	12.1	0.7
	Imp. road	0.0	0.0	0.0	11.1	0.0	0.0	0.1	11.1	0.7
	Imp. other	0.1	0.0	0.0	0.0	10.5	0.0	0.1	10.6	0.7
	Water	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
	Soil	1.3	0.5	0.5	0.2	0.7	0.0	13.6	16.7	0.8
	2nd year total	25.9	21.8	12.8	11.4	11.6	0.0	16.5		
	2nd year SE	1.0	0.9	0.8	0.7	0.7	0.0	0.8		
	Net (2002–2007)	−1.2	−0.6	0.8	0.3	1.0	−0.1	−0.2		
Syracuse, NY (2003–2009)[f]	Grass/herb	21.7	1.6	0.1	0.6	na	0.0	na	24.1	1.4
	Tree/shrub	0.5	25.0	0.1	0.3	na	0.0	na	25.9	1.4
	Imp. bldg	0.7	0.0	18.9	0.1	na	0.0	na	19.7	1.3
	Imp. road	0.6	0.3	0.2	29.2	na	0.0	na	30.3	1.5
	Imp. other	na	na	na	na	na	0.0	na	na	na
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	na	na	na	na	na	0.0	na	na	na
	2nd year total	23.6	26.9	19.3	30.2	na	0.0	na		
	2nd year SE	1.4	1.4	1.3	1.5	na	0.0	na		
	Net (2003–2009)	−0.5	1.0	−0.4	−0.1	na	0.0	na		
Tacoma, WA (2001–2005)	Grass/herb	24.8	1.2	0.1	0.1	0.8	0.0	0.1	27.1	1.5
	Tree/shrub	1.8	21.3	0.1	0.0	0.8	0.0	0.4	24.4	1.4

Table 2 (*Continued*)

City	1st year cover class	2nd year cover class							1st year	
		Grass/herb[a]	Tree/shrub	Imp. bldg[b]	Imp. road[c]	Imp. other[d]	Water	Soil	Total	SE
	Imp. bldg	0.2	0.0	13.2	0.0	0.3	0.0	0.2	14.0	1.1
	Imp. road	0.0	0.0	0.0	12.5	0.0	0.0	0.0	12.5	1.1
	Imp. other	0.0	0.1	0.1	0.1	13.8	0.0	0.1	14.2	1.2
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soil	1.3	0.3	0.3	0.1	2.0	0.3	3.4	7.8	0.9
	2nd year total	28.1	23.0	13.9	12.8	17.6	0.3	4.3		
	2nd year SE	1.5	1.4	1.1	1.1	1.3	0.2	0.7		
	Net (2001–2005)	1.0	−1.4	−0.1	0.3	3.4	0.3	−3.5		
Average 20 cities[g]	Grass/herb	23.0	0.3	0.1	0.0	0.4	0.0	0.4	24.3	na
	Tree/shrub	1.1	27.8	0.2	0.1	0.3	0.0	0.4	29.9	na
	Imp. bldg	0.2	0.0	15.2	0.0	0.1	0.0	0.1	15.6	na
	Imp. road	0.0	0.0	0.0	12.1	0.0	0.0	0.0	12.1	na
	Imp. other	0.1	0.1	0.1	0.0	13.6	0.0	0.0	13.9	na
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	na
	Soil	0.5	0.1	0.2	0.1	0.4	0.1	3.0	4.3	na
	2nd year total	24.7	28.2	15.9	12.3	14.8	0.1	4.0		
	2nd year SE	na	na	na	na	na	na	na		
	Average net	0.5	−1.5	0.3	0.3	0.8	0.1	−0.3		
Average 18 cities[h]	Grass/herb	22.7	0.3	0.2	0.0	0.4	0.0	0.4	24.0	na
	Tree/shrub	0.8	28.4	0.2	0.1	0.2	0.0	0.4	30.0	na
	Imp. bldg	0.1	0.0	15.1	0.0	0.1	0.0	0.1	15.4	na
	Imp. road	0.0	0.0	0.0	11.7	0.0	0.0	0.0	11.7	na
	Imp. other	0.1	0.1	0.2	0.0	13.8	0.0	0.0	14.2	na
	Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	na
	Soil	0.5	0.1	0.2	0.1	0.4	0.1	3.2	4.6	na
	2nd year total	24.2	28.8	15.9	12.0	15.0	0.1	4.2		
	2nd year SE	na	na	na	na	na	na	na		
	Average net	0.1	−1.1	0.4	0.2	0.8	0.0	−0.4		

SE – standard error. Net – net difference between the years (2nd year – 1st year).

[a] Grass and other herbaceous ground cover.

[b] Impervious cover occupied by buildings.

[c] Impervious cover occupied by roads.

[d] Other impervious cover (e.g., sidewalks, driveways, and parking lots).

[e] Scrub/shrub/chaparral was a cover class only measured in Albuquerque, NM, and is included in tree/shrub cover. This cover class occupied 31.6 percent of the city area in 2006 and dropped to 29.4 percent in 2009, a loss of 2.2 percent of the city area.

[f] Soil cover is included in grass and herbaceous cover; impervious other is included in impervious road.

[g] Results from Syracuse are not included in average of grass/herbaceous, impervious road, impervious other or soil (see table footnote f).

[h] Average result not including New Orleans or Detroit as these cities were specifically selected due to expected losses from hurricane and emerald ash borer damage respectively. Results from Syracuse are not included in average of grass/herbaceous, impervious road, impervious other or soil (see table footnote f).

Most of the loss of tree cover converted to grass/herbaceous cover (47 percent), followed by conversions to impervious cover (29 percent) and bare soil (23 percent) (Table 2). Likewise, new cover most often converted from grass/herbaceous cover (68 percent), followed by impervious cover (17 percent) and bare soil (14 percent). Only one city (Syracuse) exhibited an overall increase in tree cover, with most of this increase coming from grass/herbaceous cover.

Change in percent impervious cover during the varying periods of analysis ranged from an increase of 3.6 percent in Tacoma to a decrease in percent impervious cover of −0.5 in Syracuse (Table 3). Seventeen of the 20 cities analyzed showed an increase in net impervious cover, 16 of those cities had a statistically significant increase. Four cities exhibited small changes in net impervious cover that were not statistically significant from zero (Syracuse, Chicago, Pittsburgh, New Orleans). Percent impervious cover increased on average by 1.4 percent during the varying periods of analysis (1.3 percent for 20 city average) with the greatest increases in percent impervious cover in Tacoma (3.6 percent), Baltimore (2.1 percent) and Kansas City and Spokane (2.0 percent each). The relative increase in impervious cover was as high as 11.2 percent in Kansas City, but averaged 3.9 percent (3.7 percent for 20 city average).

Cities with the greatest annual increase in impervious cover were Los Angeles (average of 550 ha/yr), Houston (400 ha/yr) and Albuquerque (280 ha/yr) (Table 3). Impervious cover increases per capita were greatest in Tacoma (6.0 m^2/person/yr), Kansas City (5.9 m^2/person/yr) and Albuquerque (5.5 m^2/person/yr) with an average increase of 2.2 m^2/person/yr (2.1 m^2/person/yr for 20 city average). Average annual increase in percent impervious cover was 0.31 percent/yr (0.30 percent/yr for 20 city average). Relative annual increase in impervious cover was 0.87 percent/yr (0.82 percent/yr for 20 city average).

The analysis of the 20 cities shows a general loss in tree cover and increase in impervious cover in the mid to late 2000s. This overall trend of change was also exhibited in the results of national urban land cover change using Google Earth imagery. Of the 1000 random paired-points laid throughout the conterminous urban United States, 970 points were interpretable, with average length of time between points of 6.4 yr. The most recent imagery had an average year of 2009, but ranged between 2004 and 2011. The older paired image year averaged 2002 with a range of 1990–2006. Tree cover increases between images averaged 2.1 percent (SE = 0.5 percent) with average losses of −2.3 percent (SE = 0.5 percent) for an average net change in tree cover of −0.2 percent. Impervious cover increases between images averaged 3.2 percent (SE = 0.6 percent)

Table 3
Percent net and annualized net absolute and relative tree and impervious cover change in 20 U.S. cities. Absolute percent change is based on city land area between the years (percent of city land in year 1 minus percent of city land in year 2). Relative percent change is based on amount of cover in year 1 (percent of city in year 1 minus percent of city in year 2 divided by percent of city in year 1). Annualized change is percent change during time period on an annual basis. Per capita change estimates are based on population in the first year of analysis.

City	Net				Tree cover change		Impervious cover change		Annualized net			
	Absolute change		Relative change		ha/yr[c]	m²/cap/yr[d]	ha/yr[c]	m²/cap/yr[d]	Absolute change		Relative change	
	Tree[a]	Imp.[b]	Tree[a]	Imp.[b]					Tree[a]	Imp.[b]	Tree[a]	Imp.[b]
New Orleans, LA (2005–2009)	−9.6**	0.4	−29.2**	0.9	−1120	−24.6	40	0.9	−2.49	0.09	−8.27	0.21
Houston, TX (2004–2009)	−3.0**	1.3**	−9.8**	3.5**	−890	−4.3	400	1.9	−0.60	0.26	−2.03	0.69
Albuquerque, NM (2006–2009)	−2.7**	1.8**	−6.6**	5.1**	−420	−8.3	280	5.5	−0.91	0.60	−2.26	1.67
Baltimore, MD (2001–2005)	−1.9**	2.1**	−6.3**	4.7**	−100	−1.5	110	1.7	−0.48	0.51	−1.62	1.16
Atlanta, GA (2005–2009)	−1.8**	1.7**	−3.4**	6.5**	−150	−3.1	150	3.1	−0.46	0.43	−0.85	1.58
Miami, FL (2003–2009)	−1.7**	1.0*	−7.1**	1.7*	−30	−0.8	20	0.5	−0.28	0.16	−1.22	0.27
Tacoma, WA (2001–2005)	−1.4**	3.6**	−5.8**	8.9**	−50	−2.6	117	6.0	−0.36	0.89	−1.49	2.15
Kansas City, MO (2003–2009)	−1.2**	2.0**	−4.2**	11.2**	−160	−3.5	270	5.9	−0.20	0.34	−0.71	1.78
Nashville, TN (2003–2008)	−1.2**	1.1**	−2.4**	6.2**	−300	−5.3	270	4.8	−0.24	0.22	−0.48	1.21
New York, NY (2004–2009)	−1.2**	1.4**	−5.5**	2.3**	−180	−0.2	210	0.3	−0.23	0.27	−1.13	0.45
Minneapolis, MN (2003–2008)	−1.1**	0.8**	−3.1**	1.8**	−30	−0.8	20	0.5	−0.22	0.15	−0.63	0.35
Boston, MA (2003–2008)	−0.9*	1.7**	−3.2*	3.6**	−20	−0.3	40	0.7	−0.19	0.35	−0.65	0.71
Los Angeles, CA (2005–2009)	−0.9**	1.8**	−4.2**	3.4**	−270	−0.7	550	1.4	−0.23	0.45	−1.06	0.85
Detroit, MI (2005–2009)	−0.7**	1.2**	−3.0**	2.6**	−60	−0.7	110	1.2	−0.18	0.30	−0.77	0.64
Portland, OR (2005–2009)	−0.6	1.5**	−1.9	3.5**	−50	−0.9	130	2.4	−0.15	0.38	−0.49	0.87
Spokane, WA (2002–2007)	−0.6	2.0**	−2.5	5.8**	−20	−1.0	60	3.0	−0.11	0.39	−0.50	1.14
Chicago, IL (2005–2009)	−0.5**	0.0	−2.7**	0.0	−70	−0.2	0	0.0	−0.13	0.00	−0.69	0.00
Pittsburgh, PA (2004–2008)	−0.3*	0.0	−0.8*	0.0	−10	−0.3	0	0.0	−0.08	0.00	−0.19	0.00
Denver, CO (2005–2009)	−0.3*	1.4**	−3.1*	3.6**	−30	−0.5	140	2.5	−0.08	0.35	−0.78	0.88
Syracuse, NY (2003–2009)	1.0*	−0.5	4.0*	−1.0	10	0.7	−6	−0.4	0.17	−0.09	0.65	−0.17
20 city average	−1.5	1.3	−5.0	3.7		−3.0		2.1	−0.37	0.30	−1.29	0.82
18 city average[e]	−1.1	1.4	−3.8	3.9		−1.9		2.2	−0.27	0.31	−0.90	0.87

[a] Percent tree and shrub cover (including shrub/scrub/chaparral cover in Albuquerque, NM).
[b] Percent impervious surfaces (building, roads and other combined).
[c] Average annual change in hectares per year.
[d] Average annual change in square meters per capita per year.
[e] Average result not including New Orleans or Detroit as these cities were specifically selected due to expected losses from hurricane and emerald ash borer damage respectively.
* Change significantly different from zero at alpha = 0.90.
** Change significantly different from zero at alpha = 0.95.

with average losses of −0.4 percent (SE = 0.2 percent) for an average net change in impervious cover of +2.8 percent.

Discussion

While cities expend resources to plant millions of new trees, land development, storms, old age and other factors are reducing the number of older, established trees in cities. Though current planting campaigns may increase tree cover now and in the future, recent trends indicate that tree cover is decreasing in many U.S. cities. Tree cover is decreasing at a rate of about 0.27 percent of the city land area per year, which is equivalent to about 0.9 percent of the existing tree cover being lost annually.

The tree cover loss in the analyzed cities was higher than the average tree cover loss for urban land in the conterminous United States by a factor of about 6 (1.1 vs. 0.2 percent over the varying time frames). This difference is likely because these analyzed cities do not represent the entire urban area. The selected cities are relatively major cities with increased population densities and likely increased development pressures when compared with the average urban landscape, which includes many smaller, less densely populated areas. These city boundaries, which are often in forested regions, can also include non-urban lands that may have a high likelihood for development and therefore loss of tree cover and increased impervious cover. The change effects in these cities are likely more representative of change in major cities than the national urban change estimates.

Using the national tree cover loss estimate of 0.2 percent of urban land over about a 6 yr period, which equates to about 1/30 of a percent per year, a first order approximation of tree cover loss in urban areas of the conterminous United States is a loss rate of about 7900 ha of urban tree cover per year. Given an average tree density per unit of urban tree cover of approximately 508 trees/ha (average from Cumming et al., 2007; Nowak et al., 2007, in press-a, in press-b; Nowak and Greenfield, 2008; unpublished data), this loss equates to an annual net loss of about 4.0 million trees per year in urban areas of the conterminous United States. This estimate of number of trees lost may be excessive as much of canopy loss may be due to loss of mature trees that would have a lower tree density per unit canopy than the average urban forest, but further research is needed to understand the composition and size class distribution of the canopy loss. Although tree planting and natural regeneration are occurring in urban areas, net tree cover is on a general decline in urban areas of the United States. Tree canopy loss of mature trees, for whatever reason (storms, insects, development, old age), can create relatively large gaps in the canopy cover that will require new tree plantings or regeneration and time to fill.

It is apparent that tree planting and natural regeneration are insufficient to offset the current losses of established urban tree canopies. However, without various tree planting efforts in cities, tree cover loss would be higher. Efforts to facilitate more natural regeneration in cities (e.g., limits on mowing) may also be needed to sustain tree cover. Natural regeneration may not work in all locations (e.g., water limited areas) or produce desired tree species, but it can provide for relatively low cost tree/shrub establishment. Similarly, tree planting may not be appropriate in all cities (e.g., water limited areas) due to the resource costs of maintaining vegetation (e.g., water). Sustaining tree cover not only includes establishing new trees, but also limiting the loss of existing canopy, particularly

large trees that provide substantial amounts of canopy per tree. Sustaining tree health and protection of healthy tree canopies from human removal (e.g., development) or natural mortality forces (e.g., insects and diseases) can also help sustain existing tree cover and associated environmental services.

Though the current trend is a decline in canopy cover, not all cities are losing tree cover. One of the 20 cities analyzed (Syracuse, NY) had an absolute increase in canopy cover of one percent, or 0.2 percent increase per year, with most of the tree cover increase occurring in grass/herbaceous areas. This increase in tree cover matches field data estimates of urban forest change in Syracuse (U.S. Forest Service, unpublished data) that shows that the number of trees (woody plants with stem diameter at 1.37 m greater than 2.54 cm) are increasing. This increase is dominated by European buckthorn (*Rhamnus cathartica* L.), an invasive small tree/shrub from Europe. Thus, the cover increase in Syracuse is most likely due to natural regeneration in concert with limited development or activities that would tend to reduce regeneration.

New Orleans, as expected, had a significant reduction in tree cover (−9.6 percent absolute reduction or −29.2 percent relative reduction), which is most likely due to the devastation of Hurricane Katrina in 2005 (e.g., Chapman et al., 2008). In contrast, the loss in tree cover due to the emerald ash borer in Detroit was lower than expected. Since 2002, this beetle has killed more than 30 million ash trees in Southeastern Michigan (US Forest Service et al., 2011). However, the loss of tree cover in Detroit (−0.18 percent absolute annual reduction or −0.77 percent relative annual reduction) was less than the average loss from the sampled cities (−0.27 percent absolute annual reduction or −0.90 percent relative annual reduction). This difference could be due to ash trees not comprising a major component of overall tree cover in Detroit and/or new trees being established through tree planting programs or natural regeneration that help offset the loss of ash and other trees.

Overall, most of the tree losses converted to grass/herbaceous cover (47 percent) or impervious cover (29 percent), while most of the gain of new tree cover also came from grass/herbaceous cover (68 percent) or impervious cover (17 percent). Some of the conversions from tree to impervious cover are due to development, but are also due to impervious cover being beneath trees. When trees are removed, the ground surface beneath the trees switches to the new cover class. Likewise, as trees cover ground surfaces, additional tree cover can tend to reduce impervious cover estimates when trees grow over the impervious surfaces.

Of the overall average increase in impervious cover, about 29 percent of that change was due to changes with loss of tree cover. That 29 percent of newly classified impervious cover is a combination of new development and exposure of existing impervious cover beneath trees. However, at least 71 percent of the impervious cover increase was due to new development. Some cities (i.e., Chicago, Pittsburgh) exhibited no net change in impervious cover during the analysis period, but did exhibit increases and decreases in impervious cover that offset each other. Syracuse exhibited a decrease in impervious cover, which may be, in part, due to the overall increase in tree cover. However, most of the changes in impervious cover in Syracuse occurred with grass/herbaceous cover. New Orleans also lost a substantial amount of building cover (2.1 percent absolute reduction), most likely due to damage from Hurricane Katrina (e.g., Kates et al., 2006).

A better understanding of how tree cover and tree populations are changing can aid managers in developing regeneration or canopy protection plans to sustain adequate tree cover through time and space. Photo-interpretation of paired digital images offers a relatively easy, quick and low-cost means to statistically assess changes among various cover types. To help in quantifying the cover types within an area, a free tool (i-Tree Canopy) is available (www.itreetools.org) that allows users to photo-interpret a city using Google images. This program automatically quantifies the percent cover and associated standard error for each cover class based on user interpretations. Cover data on a city can provide a baseline for developing management plans, setting tree cover goals, and for monitoring change through time. Future analyses on cover distribution or change by land use type or geographic region are needed to investigate patterns and causes of tree and impervious cover changes between and within cities.

The paired digital image analysis offers a relatively quick, easy and cost-effective means to assess cover change, but it does have some limitations. Though Google offers high-resolution imagery in many parts of the world, paired image analysis with Google images is limited by the varying dates among images and varying image resolution. In urban areas, many of the Google images are of sufficient resolution for accurate photo-interpretation and images are continually updated. Obtaining local digital images with known and consistent dates across an area of analysis can overcome the problems associated with varying dates across a study area. Sometimes paired city data also had different image resolution between years, but most images were 1 m or less. As image interpretation was paired, information from the higher resolution image could aid in interpreting the lower resolution image. Another limitation of the paired image approach is the ability of the interpreter to correctly classify sample points. Interpreter error can lead to inaccurate results, but proper training and testing can produce accurate results. Satellite cover maps also have inherent inaccuracies due to classification errors and can cost tens of thousands of dollars to produce a cover map for a city. The paired photo-interpretation method offers a more cost effective means to assess change, but does not produce a detailed map of cover attributes or cover change across a city.

The results of this study illustrate recent changes in tree and impervious cover in cities and urban areas that can be used to inform planners and policy makers. To determine whether similar trends occurred in the 1990s or early 2000s, and whether these trends will continue in the future, more paired image analyses can be conducted using older paired imagery or by comparing future imagery with contemporary images. More paired image analyses can help better determine both spatial and temporal patterns and rates of landscape cover change. Photo-interpreted data on cover in urban areas and elsewhere can provide an accurate means of assessing cover types and changes in cover through time to help managers and planners make informed decisions on how to better improve local landscapes and the environment.

Conclusion

Tree cover provides a simple means to assess the magnitude of the overall urban forest and its environmental effects. Despite various and likely limited tree planting and protection campaigns, tree cover tends to be on the decline in U.S. cities while impervious cover is on the increase. While these individual campaigns are helping to increase or reduce the loss of urban tree cover, more widespread, comprehensive and integrated programs that focus on sustaining overall tree canopy may be needed to help reverse the trend of declining tree cover in cities. Net tree cover change is the result of the combined influences of tree planting and natural regeneration, tree growth and tree mortality. Developing coordinated healthy tree canopy programs across various land ownerships can help sustain desired tree cover levels and better manage cover change. Monitoring of tree cover changes is essential to determine current trends and whether desired canopy levels or program effects are being attained. Photo-interpretation of digital aerial images can provide a simple and timely means to assess urban tree cover and how it is changing.

Acknowledgments

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Exhibit 8

SUPREME COURT OF THE STATE OF NEW YORK
APPELLATE DIVISION: SECOND DEPARTMENT

In the Matter of the Application of NATURAL RESOURCES DEFENSE COUNCIL, INC., et al.,	Docket Nos. 2012-02913 2012-06330
Petitioners-Respondents-Cross-Appellants,	Westchester County Index No. 16132/2010
For a Judgment Pursuant to Article 78 of the Civil Practice Law & Rules	**AFFIRMATION IN RESPONSE TO MOTION FOR REARGUMENT**
– against –	
THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,	
Respondent-Appellant-Cross-Respondent.	

Brian A. Sutherland, an attorney duly admitted to the bar of this State, affirms the truth of the following under penalty of perjury:

1. I am an Assistant Solicitor General in the Office of Eric T. Schneiderman, Attorney General of the State of New York. This Office represents respondent-appellant-cross-respondent the New York State Department of Environmental Conservation (DEC). I am fully familiar with the matters set forth in this affirmation.

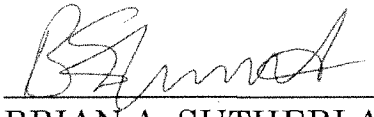
2. In this case, petitioners-respondents-cross-appellants ("petitioners") challenged a general permit to discharge stormwater from municipal storm sewer systems on a variety of grounds. This Court ruled in favor of DEC and against petitioners in a decision and order entered on November 13, 2013. *See Matter of NRDC v. DEC*, 111 A.D.3d 737 (2d Dep't 2013). Petitioners thereafter filed the instant motion for reargument dated December 23, 2013, which seeks leave to "reargue one issue in this appeal." Petitioners' Mem. of Law in Support of Mot. for Reargument, at 1. Specifically, petitioners contend that this Court should not have ruled on the question whether "the general permit failed to specify compliance schedules with respect to effluent limitations and water quality standards, as required by 6 NYCRR 750-1.14." *Matter of NRDC*, 111 A.D.3d at 747; *see* Petitioners' Mem. at 3-4. Petitioners do not raise any other issue in their motion for reargument.

3. DEC acknowledges that its brief on appeal did not argue that the trial court had erred in ruling (J.A. 31) that the compliance schedules set out in its general permit did not comply with 6 N.Y.C.R.R. § 750-1.14. Instead, the agency stated that it did "not challenge [that] aspect of the

trial court's ruling on appeal," Opening Br. for DEC, at 27 n.38 (Aug. 22, 2012), and stated that it "will implement that aspect of the ruling on remand," Reply & Opp'n Br. for DEC, at 25 n.42 (Oct. 25, 2012). Accordingly, DEC does not oppose the specific relief sought in petitioners' motion for reargument, *i.e.*, that this Court "dismiss as abandoned the branch of DEC's appeal that relates to the compliance schedules required by 6 N.Y.C.R.R. § 750-1.14." Petitioners' Mem. at 4.

4. By acknowledging that it did not contest an issue on appeal, DEC does not concede that the trial court's ruling on that issue was correct, nor waive the agency's discretion in selecting the appropriate method for implementing the court's ruling. Because there are many reasons why a party may elect not to contest a ruling on appeal in the Appellate Division, if the Court grants the motion to reargue, DEC respectfully requests that the Court limit its ruling to refrain from entering any decision on the compliance schedule issue, other than to dismiss that branch of the appeal as abandoned.

Dated: January 16, 2014
New York, New York



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N.Y.S.D.E.C. - REGION 2
APR 7 2014
DIVISION OF
ENVIRONMENTAL PERMITS

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407

4 April 2014

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts:

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City. New York City Audubon is a grassroots organization whose mission is the protection of wild birds and their habitat throughout the five boroughs, thereby improving the quality of life for all New Yorkers. We are voicing our opinion on the draft MS4 permit because good water quality is critical for wildlife, especially for birds and the habitat in New York City on which they depend. Of particular concern is Jamaica Bay, whose watershed will be affected by the MS4 permit. Jamaica Bay provides critical habitat for a wide range of resident and migratory bird species, some of which are classified as species of greatest conservation need. In addition to adverse effects of pollution on habitat/birds/wildlife, polluted waterways directly affect the ability to use and enjoy Jamaica Bay and other affected waterbodies not only for New York City Audubon's 10,000 members, but for all New Yorkers and visitors to our City. It is imperative that NYSDEC take the necessary steps to see that the final MS4 permit affords Jamaica Bay and the waterways of New York City the level of protection needed to sustain habitat, wildlife, and people within the City.

This permit is long overdue (by more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. To this end we have the following concerns.

Construction site size requirement

A great majority of construction projects in the city are small. Requiring regulation of only projects larger than one acre does not seem like a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas. A more appropriate size threshold will ensure that green infrastructure practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

Stronger requirements for water quality improvement

The draft permit is based on the premise that stormwater discharges impair water quality and must be properly managed to prevent pollutants from entering our

waterways. However, the draft permit does not include any specific pollutant load reductions that would ensure the city's waterways meet state standards to protect uses like fishing, boating, and swimming. The permit should clearly prohibit discharges that are known to cause or contribute to existing water quality impairments, and should establish binding deadlines for the city eliminate existing violations.

More meaningful public participation and involvement

We find the requirement for public participation and involvement to be inadequate. All reports and notices resulting from the permit (e.g., annual reports) should be publicly noticed and available for comment at both public meetings and on the City's web site (not one or the other). Such notices should also be disseminated via the City's social media (e.g., Twitter, Facebook).

For illicit discharge plans, construction site stormwater control, post-construction stormwater control, and industrial and commercial stormwater source management, the permit should require the City to develop a public-reporting system for complaints (accessible telephonically and electronically) that not only allows the members of the public to file complaints but also allows them to track their complaints through to resolution by the City, either online or through a point of contact in the City.

We would also like the opportunity to formally share our comments on the Stormwater Management Program, to be developed by the City, with the DEC through a public comment and public hearing processes. While the permit requires that the City involve the public in the development and implementation of the SWMP, we believe it is important for the DEC, as the regulatory agency issuing the permit, to hear our comments on the SWMP, so that the DEC will be in a better position to modify the permit if necessary. Without such a stipulation, this feels a little like the fox guarding the hen house.

Coordination with other ongoing programs

We are confused by the myriad of water quality related programs underway in the City. We understand that for some water bodies, the Combined Sewer Overflow Long Term Control Plans are in development by the City. There are also the floatables control program and the Green Infrastructure Plan. In yet other places, there are brownfields cleanup efforts and superfund remediation. We believe it is critical that these related or overlapping programs must be coordinated well for the efficient use of public resources as well as for better understanding by the public of the City's efforts. It would be beneficial to explicitly require the City to create a mechanism for coordinating its MS4 program with these other efforts.

Sincerely,

Glenn Phillips

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Executive Director

THE CITY OF NEW YORK
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April 7, 2014

Via Email and Regular Mail
Steve A. Watts
New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, NY 11101-5407

Re: Draft State Pollutant Discharge Elimination System Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems owned or operated by the City of New York.

Dear Mr. Watts:

The City of New York ("City") submits the following comments on the Draft State Pollutant Discharge Elimination System ("SPDES") Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems ("MS4") owned or operated by the City ("Draft Permit"). The City appreciates the Department of Environmental Conservation's ("DEC") concerted effort to coordinate with the New York City Department of Environmental Protection ("DEP") to develop this Draft Permit. As reflected in our comments below, the City is committed to developing and implementing the extensive requirements of this permit in order to address stormwater discharges from the City's separately sewered areas.

The City has also had the opportunity to consider the comments raised at the public information session on March 5, 2014 made by a number of interested parties and takes this opportunity to provide its view on some of the issues presented. The City looks forward to discussing any further comments offered, and to working closely with DEC on its implementation of its MS4 program.

A. The City's Investment in Water Quality

The City is currently in the midst of an unprecedented period of investment to improve water quality in New York Harbor; since 2002, DEP alone has spent approximately $10 billion on projects which have been completed or are underway including wet weather expansion at the City's wastewater treatment plants, aggressive nutrient removal, billions of gallons of

combined sewer overflow ("CSO") green and grey infrastructure projects, marshland restoration in Jamaica Bay, and numerous other projects. These projects—which have been nearly 100% funded by New York City residents through rate payer funds—have resulted in significant reductions in combined sewer overflows and in nitrogen discharges from our wastewater treatment plants, and have moved the City toward the goals in PlaNYC, which serves as the blueprint for a sustainable New York City. As a result of this work, New York Harbor is healthier than it has been at any time in the last 100 years. One benefit of this success is that more of New York Harbor than ever before is available for recreation and the other use goals set out in the Clean Water Act.

Our recent successes are significant milestones in the effort to continuously improve water quality, but they have come at a very substantial cost to New Yorkers. Since January 2002 alone, water rates have increased by 164%, in large part to fund federally and state mandated projects, and also due to a steep decline in federal and state funding to support such projects. In implmenting federal and state mandates, we need to be sensitive to the additional costs imposed on our ratepayers and make sure scarce dollars are invested wisely.

B. The City Supports the Programs Set Forth in the Draft Permit as a Next Step to Further Improve Water Quality

The Draft Permit applies to the approximately 40% of the City's land area that is served by the MS4 or by direct drainage, with the rest of the City served by the combined sewer system. The City's sewer system includes over 7,500 miles of sewer pipes of varying size (consisting of combined, sanitary and separate storm sewers) and approximately 148,000 catch basins. Every year, New York City has approximately 45 inches of precipitation, generating an average of 165 billion gallons of stormwater runoff. Approximately half that rainfall/snowmelt makes its way into the City's combined sewer system, with much of the balance flowing directly into surrounding waterways through the City's MS4. Currently, DEP's separate sewer outfalls are incorporated into the SPDES permits for the 14 wastewater treatment plants. The Draft Permit, for the first time, implements City-wide MS4 system requirements to manage urban sources of stormwater runoff into the MS4.

The City recognizes that the Draft Permit reflects a next step toward improving water quality in New York Harbor. At this early stage, it is premature to judge which permit elements may prove to be most beneficial. Given the fact that the implementation of this permit will require a significant commitment of time and resources by a large array of City agencies and departments, the City requires the maximum flexibility to expand its current efforts and believes that the current Draft Permit takes a reasonable approach to affording the City such flexibility while ensuring the City moves forward expeditiously with its terms.

Broadly, the Draft Permit includes the required minimum control measures to address sources of pollutants and their means of entry into the MS4. It requires the City to develop a detailed Stormwater Management Program Plan ("SWMP") that addresses the requirements for public education and participation, illicit discharges, construction sites and municipal facilities and operations. In addition, the Draft Permit requires an industrial user and industrial source control program and a floatables control program. The Draft Permit contains an aggressive, but achievable, schedule requiring the City, after the effective date of the permit

("EDP"), among other things, to: submit a complete SWMP plan within three years; complete a preliminary map of the MS4 drainage area within three years and a final map within five years; establish and maintain an inventory of post-construction stormwater management practices within three years; prepare an inventory of industrial and commercial facilities that that are possible pollutant sources and develop an inspection plan to assess these facilities within three years; develop an inspection program for SPDES Multi Sector General Permit ("MSGP") facilities within three years; submit a draft workplan for determining the amount of floatables discharged from the MS4 to floatables-impaired waterbodies within two years and a final work plan within three; certify the development of a Consolidated Information Tracking System and develop a monitoring and assessment program within three years and implement the program within five years. *See* Draft Permit § IV.O (listing the time-frame for all deliverables under the Draft Permit).

Complying with these requirements will require detailed, resource-intensive, and sustained efforts from numerous City agencies and departments. Recognizing the need for extensive coordination, New York City Executive Order No. 429 of 2013, "Coordination and Implementation of Matters Pertaining to Stormwater Controls and Municipal Separate Storm Sewer System Permit Requirements," directs DEP to coordinate the efforts of City agencies with respect to all matters related to the City's stormwater SPDES permit requirements and requires all relevant City agencies and entities to facilitate compliance with SPDES permit requirements. The interagency coordination required by Executive Order No. 429 is already well underway with regular interagency task force meetings to plan for implementation of the Draft Permit's requirements. DEP has also already started the lengthy and complex process of mapping the MS4 drainage area, which is a vast undertaking with major implications for the regulated community, and includes both the City's own municipal operations and the owners and operators of construction sites and industrial facilities that come within the regulatory scope of the MS4 program. *See* Draft Permit § IV.C. To more accurately delineate the MS4 boundary, the City will have to do refined analyses to ensure accurate compliance with the permit requirements.

C. Detailed Comments

(a) Public Participation

The Draft Permit requires the SWMP to include a robust public education and outreach component through development and implementation of a public involvement/public participation program. *See* Draft Permit § IV.A, B. As part of this requirement, the City has to, and is committed to providing, the opportunity for the public to meaningfully participate in the development, implementation, review and major revision of the SWMP. *Id.* § IV.B(2)(d). The Draft Permit, appropriately, does not prescribe the exact form of public outreach and participation, but rather requires the City to propose a public outreach plan in the draft SWMP, subject to DEC review and approval.

The City intends to build on the public outreach and participation successes and lessons learned from the many other DEP water quality public outreach and participation efforts. The flexibility to develop a meaningful, effective and iterative public participation process is essential to ensuring that this input ultimately benefits the public and the City. The City already plans to convene a steering committee modeled on the success of the Green Infrastructure

Steering Committee; this steering committee will focus on, among other things, MS4 and SWMP development. However, the City believes the Draft Permit takes the correct approach in affodaing the City the flexibility to design the most effective outreach program rather than mandating a specific outreach or coordination strategy.

To the extent that commenters on the Draft Permit suggest that pursuant to 33 U.S.C. § 1342(a), DEC must solicit formal public comment through an additional public notice process before approving the final SWMP because the final SWMP is functionally equivalent to a permit, this suggestion lacks merit. As decided in *Natural Resources Defense Council, Inc. v. New York State Department of Environmental Conservation* the requirement of 33 U.S.C. § 1342(a) is satisfied by public comment and the opportunity for a hearing on the Draft Permit itself. 111 A.D.3d 737, 747 (2d Dep't 2013). While public participation in the development of the SWMP is important, and the City will encourage robust participation, formal public comment and the opportunity for a hearing before DEC is not legally required and should not be mandated in the permit.

(b) Impaired Waters

The Draft Permit's approach to discharges to impaired water is appropriately in line with the requirements in the *SPDES General Permit for Stormwater Discharges from MS4s*. Under the Draft Permit, if a discharge authorized under the permit is later determined to cause, or have the reasonable potential to cause or contribute to, the violation of an applicable water quality standard, the City must take all necessary action to ensure future discharges do not directly or indirectly cause or contribute to the violation of a water quality standard and must document these actions in the SWMP. Draft Permit § II.A. The City must ensure no net increase of pollutants of concern causing the impairment from non-negligible land use changes or changes to stormwater management practices within the MS4 area draining into the impaired water. *Id.* § II.B.1. The Draft Permit also contains provisions requiring the City to take appropriate actions to insure specific pollutant reductions are achieved if a TMDL is approved for any waterbody or watershed. *Id.* § II.B.2.

To the extent any commenters on the Draft Permit suggest that the final permit should impose a stricter requirement than a no net increase standard for discharges to impaired waters, meeting such a requirement is not feasible at this time. The Draft Permit includes a host of requirements, such as public education, illicit discharge detection and elimination, post-construction stormwater management, and pollution prevention and good housekeeping of municipal operations, which are intended to reduce the discharge of pollutants of concern into impaired waters. Achieving these requirements in the time-frame set forth in the Draft Permit will require significant City resources, and stricter requirements are unwarranted, particularly since neither the City nor DEC has had a chance to evaluate the effectiveness of the programs that will be implemented under the Draft Permit. Moreover, the monitoring and assessment required by the Draft Permit will provide the necessary baseline to determine whether additional controls may be warranted to comply with Clean Water Act requirements in the future.

(c) Industrial and Commercial Stormwater Sources

The Draft Permit includes a provision requiring the development of a plan to require certain industrial and commercial facilities, which are not subject to the requirements of the SPDES Multi Sector General Permit or an individual SPDES permit but which generate significant contributions of pollutants of concern to impaired waters, to select, install, implement and maintain cost-effective stormwater control measures. *See* Draft Permit § IV.H.2. Thus, the City will be required to develop a regulatory program for these facilities even though they are not subject to any existing SPDES requirements under state law.

This provision goes beyond the legal requirements for MS4 permits and creates an unnecessary additional burden on the City in carrying out the MS4 program, and it should be deleted from the Draft Permit. Unlike the Draft Permit prepared for the City, DEC's MS4 General Permit (Permit No. GP-0-10-002) exempts from that permit's requirements stormwater associated with industrial activity that is effectively addressed by and in compliance with a different SPDES general permit or an individual SPDES permit. *See* MS4 General Permit Part I.C.1. Thus, the MS4 General Permit recognizes that DEC's existing SPDES permitting programs for industrial stormwater sources provide an appropriate level of control for these facilities. By contrast, the Draft Permit requires the City to go further, and begin regulating a class of industrial and commercial facilities that have never before been subject to SPDES stormwater requirements. This requirement is in addition to Section IV.H.3 of the Draft Permit, which requires the City to develop an inspection program for facilities that are subject to the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity. Presumably, in issuing the Multi-Sector General Permit and individual SPDES permits to various industrial facilities, DEC has already determined that the industrial stormwater sources covered by those permits are significant contributors of stormwater pollution, and should be subject to regulations. However, DEC has made no such determination for industrial and commercial facilities that are not subject to those permits' requirements. Requiring the City to create a new class of regulated facilities under the auspices of the MS4 program will substantially add to the overall burden of developing an effective and successful SWMP. Therefore, the City recommends deleting Section IV.H.2 from the Draft Permit in its entirety.

(d) Size Threshold for Construction and Post-Construction Stormwater Controls

The Draft Permit requires the City to develop, implement and enforce a program for controlling runoff to the MS4 from construction activities that result in a land disturbance of one acre or greater, or construction activity disturbing less than one acre if the construction activity is part of a larger common plan of development or sale that would disturb one acre or more. Draft Permit § IV.E. The Draft Permit also requires the City to develop, implement and enforce a program that requires post-construction run-off controls for each applicable land disturbing activity to reduce pollutants of concern to the maximum extent practicable, and to establish and maintain an inventory of post-construction stormwater management practices within the MS4. *Id.* § IV.F. The City's permitting programs are required to provide protection equivalent to the NYS General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001). *Id.* §§ IV.E(1)(a), IV.F(1)(a).

Developing, implementing and enforcing these programs require a new and ongoing commitment of City resources. Some commenters, however, have suggested that the one acre threshold for construction activity is too high and that the size threshold should be reduced to as little as 5,000 square feet. In response to these comments, DEP conducted a preliminary analysis comparing the number of lots that would be subject to the provisions of §§ IV.E and F for the current one acre size threshold and for three smaller sizes: a half an acre (20,000 square feet), 15,000 square feet and 5,000 square feet. In order to develop these estimates, DEP analyzed building permit applications submitted for the period January 1, 2009 to December 31, 2013; this period includes several years of lower than average real estate development, meaning the analysis likely underestimates the actual permit applications that will be subject to the new requirements as the City's program is implemented in coming years. The results of the analysis are annexed to this letter as Appendix A. Based on DEP's analysis, and for the additional reasons set forth below, the City opposes any reduction of the one acre threshold as unnecessary and unwarranted.

DEP's analysis demonstrates that a reduction of the size threshold to even a half an acre would nearly double the number of lots that would require coverage under the construction stormwater program, from an estimated 175 lots using the one-acre size threshold to 347 using a half an acres size threshold in any given year. Such an increase would also correspondingly increase the number of sites requiring post-construction monitoring in the following years. Moreover, the analysis indicates than the number of lots subject to the current one acre threshold is much higher than projected by the Natural Resources Defense Council (175 as opposed to 77). *See* Appendix A. As a technical matter, the water quality improvements related to reduced acre thresholds are not well documented and thus do not warrant the additional public/private investments that a reduced threshold would require.

Next, even using the existing one acre threshold, the development of a compliance framework for these MS4 requirements will be a complicated and resource intensive task. Not only must the City develop the review and compliance framework, but it must also provide guidance to the regulated community on how to achieve the new standards, provide resources and standards for the review of permit applications, set up a procedures for receipt, response, and resolution of complaints and other inquiries from the public, develop procedures for site inspection by trained inspectors, and establish an inventory of active construction sites that trigger the stormwater requirements. *Id.* § IV. Moreover, various existing site constraints in New York City, such as existing sewer and gas pipes and other underground infrastructure, and areas with a high groundwater table, urban fill, and shallow bedrock, can considerably limit the number of feasible locations for installing post-construction controls, particularly for roadway projects, while the City's costly development context can also make implementation of such controls challenging. The City must ensure that any program requiring implementation of controls on a site-by-site basis can prescribe practices that are effective in improving the quality of discharge and feasible to construct. The Draft Permit allows the City to develop a banking or credit system to accommodate site conditions (*see* § IV.F(h)); the City will need to develop a flexible framework for implementation of post-construction controls in the SWMP. Ensuring that practices are cost effective and that they achieve the desired water quality results are critical first steps before considering imposing additional requirements on sites less than one acre in size.

A reduction of the one-acre size threshold would also impose additional burdens on the regulated community, affecting both private construction and City agency projects. It is improper to impose an additional requirement on the regulated community without notice and the opportunity to comment on such a significant requirement. Public comment on this topic from the private sector would be especially important for DEC to understand the potential economic impacts of any reduction, and such comments have not been sought in connection with the current Draft Permit.

Some commenters have suggested that the lower size threshold for construction activities currently used in other cities such as Philadelphia and Washington, DC should also apply to New York City. However, as we understand these programs, these smaller cities did not start out regulating at the lower size threshold for construction activities, but rather developed them as their MS4 programs developed and matured over time. In addition, development in these cities occurs under different geographic and economic conditions as compared to New York City.

Finally, a reduction in the size threshold in this permit would create inconsistent regulations and permitting between sites/lots located in direct drainage areas and those in the rest of the City because lots in direct drainage areas would still be regulated under the State General Permit where the one acre rule applies. For these reasons, DEC should retain the current one acre threshold in the Draft Permit.

(e) Integrated Management

As stated in the Draft Permit, the intent of the Permit is to "manage urban sources of stormwater runoff to protect overall water quality and improve water quality in impaired waters as part of a comprehensive integrated planning approach that considers non-MS4 sources and planned controls for those sources." Draft Permit § 1.A. Under the Draft Permit the SWMP must include "a comprehensive integrated planning approach" and the measureable goals of the SWMP should be chosen using this integrated approach. *Id.* § IV, VI.B. The baseline data and analysis of current loading conditions required by the Draft Permit will provide an essential first step toward further integrated planning. By recognizing that an integrated planning approach is appropriate for the SWMP and allowing the City to develop that approach during the first three years of the permit, the Draft Permit provides this critical flexibility. A final permit that explicitly mandated other water quality efforts and required the City to achieve the complex task of integrating such efforts before a final SWMP is adopted—as some might urge—would unnecessarily mire the development of the SWMP in the resolution of other Clean Water Act compliance matters, particularly since those matters are generally managed primarily by DEP, whereas the Draft Permit requires a citywide strategy with input and participation from numerous City agencies.

(f) Accommodating Emergency Situations

Although the Draft Permit does not explicitly address the provision of emergency services, the City anticipates that the SWMP will include provisions recognizing the need for flexible implementation of stormwater BMPs during emergency situations and asks, therefore, that DEC reasonably accommodate the need to balance stormwater controls with safe and effective emergency response during its review of the City's SWMP.

D. Conclusion

The City urges DEC to issue as final the Draft Permit in its current form with the proposed deletion of Section IV.H.2 set forth above. We look forward to working with DEC, the regulated community and other stakeholders to further improve water quality through implementation of the permit conditions.

Sincerely,

/s/
Sarah Kogel-Smucker
Senior Counsel
Environmental Law Division

cc: Susan Amron, Chief, Environmental Law Division, New York City Law Department
Julian Bazel, Counsel to the Department, New York City Fire Department
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Andrew Schwartz, First Deputy Commissioner, Department of Small Business Services
David Varoli, General Counsel, New York City Department of Design and Construction

APPENDIX A

New York City Department of Environment Protection ("DEP")
Bureau of Environmental Planning and Analysis ("BEPA")

Analysis of Lots Covered by Draft MS4 Permit §§ IV.E & F Size Thresholds
4/7/2014

The following is a preliminary analysis of the number of lots that would be covered by the Draft State Pollutant Discharge Elimination System ("SPDES") Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems ("MS4") owned or operated by the City ("Draft MS4 Permit") §§ IV.E & F (Construction Site Stormwater Runoff Control and Post-Construction Stormwater Management) for four different size thresholds. The tables compare the City of New York ("City")'s analysis with the results of the analysis provided by NRDC on March 17, 2014. As noted below, the City's analysis results in a greater number of sites being subject to the construction and post-construction controls under the Draft MS4 Permit at the lower thresholds than the NRDC analysis. It is also important to note that while some of the same data sources may have been used for both analyses, it is evident that different methodologies were employed to calculate figures corresponding to different size thresholds. Thus further information would be needed from NRDC to explain significant variation in the results. Notwithstanding, based on the City's analysis, and for the reasons stated in the City's comments on the draft permit dated April 7, 2014, the City believes retaining the one acre size threshold in the Draft MS4 Permit is appropriate, whereas reducing the threshold below one acre would be unduly burdensome and would create inconsistent obligations for construction sites located in the direct drainage areas versus the MS4.

Methodology

A. Lots Analysis (Pluto Data)

1. Removed LandUse code "9" (Open Space)
2. Methodology for Property ownership same as NRDC's methodology as outlined in "*lot sizes by drainage area – 2-15-14*". C and O used for "Public" ownership, M, X, P, and Blank used for "Private" ownership.
3. The definition of "Other" for drainage type is anything that the City is not responsible for or has not yet defined and includes cemeteries, federal lands, airports, etc.

B. NYC Department of Building (DOB) Permit Analysis

1. 5 year totals comprised years 2013-2009. Each year consists of Jan-Dec.
2. Current Issued permit was used for date, not First permit issued.
3. Removed LandUse code "9" (Open Space)
4. Methodology for Property ownership same as NRDC. C and O used for "Public" ownership, M, X, P, and Blank used for "Private" ownership.

Scenario 1: Lots >1 acre

A. In any given year projected lots that could be affected by the Draft MS4 Permit §§ IV.E & F based on Pluto Data (i.e., total number of lots in the MS4 area that meet the size threshold of >1 acre):

	Cumulative Area (acres)				Number of Lots			
	CITY		NRDC		CITY		NRDC	
Drainage Type	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**
Direct Drainage	3,671	2,760	4,137	2,990	942	431	1,217	478
Separate	6,542	3,269	4,126	5,304	1,898	682	1,493	457
Other	3,138	2,782	543	213	495	167	146	55
TOTAL	13,352	8,811	8,806	8,507	3,335	1,280	2,856	990

B. Existing DOB Permit Analysis, predicted number of sites that would be built or have a major alteration within MS4 drainage area:

	Cumulative Area (acres)				Number of Lots			
	CITY		NRDC		CITY		NRDC	
Drainage Type	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**
Direct Drainage	993	259	156	112	89	16	44	13
Separate	825	137	142	47	154	21	58	19
Other	294	18	6	11	28	3	3	2
TOTAL	2,112	414	304	170	271	40	105	34

Scenario 2 (~0.5 acre) : Lots > 20,000 ft^2 [1]

A. In any given year projected lots that could be affected by the Draft MS4 Permit §§ IV.E& F based on Pluto data (i.e., total number of lots in the MS4 area that meet the size threshold >20,000 ft^2):

	Cumulative Area (acres)		Number of Lots	
	CITY		CITY	
Drainage Type	**Private**	**Public**	**Private**	**Public**
Direct Drainage	4,031	2,403	1,578	561
Separate	8,065	3,436	4,421	945
Other	3,306	2,799	821	214
TOTAL	15,402	8,638	6,820	1,720

[1] Threshold size data analysis not provided from NRDC

B. Existing DOB Permit Analysis, predicted number of sites that would be built or have a major alteration within MS4 drainage area:

	Cumulative Area (acres)		Number of Lots	
	CITY		CITY	
Drainage Type	**Private**	**Public**	**Private**	**Public**
Direct Drainage	1,013	261	128	19
Separate	927	139	323	24
Other	302	18	46	3
TOTAL	2,242	418	497	46

Scenario 3: Lots > 15,000 ft^2

A. In any given year projected lots that could be affected by the Draft MS4 Permit §§ IV.E & F based on Pluto data (i.e., total number of lots in the MS4 area that meet the size threshold >15,000 ft^2):

	Cumulative Area (acres)				Number of Lots			
	CITY		NRDC		CITY		NRDC	
Drainage Type	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**
Direct Drainage	4,123	2,818	4,609	3,083	1,844	607	2268	668
Separate	8,736	3,473	5,409	5,409	6,219	1,046	4246	695
Other	3,369	2,807	587	224	1,049	231	245	77
TOTAL	16,228	9,098	10,605	8,716	9,112	1,884	6,759	1,440

B. Existing DOB Permit Analysis, predicted number of sites that would be built or have a major alteration within MS4 drainage area:

	Cumulative Area (acres)				Number of Lots			
	CITY		NRDC		CITY		NRDC	
Drainage Type	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**
Direct Drainage	1,016	261	167	113	138	20	68	15
Separate	970	140	189	51	434	26	160	25
Other	304	18	7	11	55	3	5	2
TOTAL	2,291	419	363	175	627	49	233	42

Scenario 4: Lots > 5,000 ft^2

A. In any given year projected lots that could be affected by the Draft MS4 Permit §§ IV.E & F based on Pluto data (i.e., total number of lots in the MS4 area that meet the size threshold >5,000 ft^2):

	Cumulative Area (acres)				Number of Lots			
	CITY		NRDC		CITY		NRDC	
Drainage Type	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**
Direct Drainage	4,655	2,900	5,126	3,114	5,163	777	5,569	857
Separate	16,511	3,587	9,336	5,460	55,359	1,631	31,306	970
Other	3,660	2,818	641	226	3,100	313	637	91
TOTAL	24,826	9,304	15,103	8,800	63,622	2,721	37,512	1,918

B. Existing DOB Permit Analysis, predicted number of sites that would be built or have a major alteration within MS4 drainage area:

	Cumulative Area (acres)				Number of Lots			
	CITY		NRDC		CITY		NRDC	
Drainage Type	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**
Direct Drainage	1,035	261	177	113	249	21	140	15
Separate	1,287	140	297	53	2,279	29	881	34
Other	317	18	8	11	145	3	16	2
TOTAL	2,640	419	482	177	2,673	53	1037	51

NEW YORK CITY SOIL AND WATER CONSERVATION DISTRICT

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14 March 2014

Steve Watts
NYSDEC
47-40 21st Street, Long Island City, NY, 11101-5407

RE: Draft SPDES Permit to New York City (SPDES# NY-0287890)

Dear Mr. Watts:

We are submitting the below comments on the draft State Pollutant Discharge Elimination System Discharge Permit for the City of New York (NYS MS4 Permit). The New York City Soil & Water Conservation District is a political subdivision of the State government charged with assisting New Yorkers and local decision makers in making wise use of soil, water and related resources in the City of New York.

First and foremost, we are unclear as to how this permit, which covers multiple 303(d) listed NYC waterbodies, some with CSOs, will be coordinated with various efforts underway, including but not limited to the Long Term Control Plan for CSOs, the Floatables Reduction Program and the Total Maximum Daily Load program. Some of the water segments listed in the Appendix 2 of the draft permit already have a TMDL (i.e., western portion of the Long Island Sound [MW2.6, LIS portion 1] for nitrogen) or are slated for TMDL development (e.g., Grassmere, Arbutus and Wolfes Lakes [MW1.2, SI P1039, P1051, & P1053] for phosphorus and Raritan Bay [MW1.2, portion 1] for pathogens) according to the Draft 2014 Section 303(d) List. Yet the draft permit does not explicitly explain how these ongoing programs will be integrated into the permit or coordinated in terms of enforcement.

We are also concerned that the permit focuses on activities or best management practices without framing how they relate to water quality improvement. While the permit requires the SWMP plan to include measurable goals for each of the best management practices (page 12), there are no explicit requirements that these goals be framed in terms of water quality improvements. Without guidance on how the goals relate to water quality, the City can satisfy the requirements of the permit with actions which may or may not lead to reduction in pollutant loads. For example, the Annual Report requirements under Construction Site Stormwater Runoff Control (page 28) lists outcomes of activities, such as the number of SWPPPs reviewed; number and types of enforcement actions; percent of active construction sites inspected once, etc. While these activities are necessary and reporting on them useful, how they impact water quality is unclear.

We agree with the DEC's approach in not being prescriptive with the permit and allowing the City to develop how it manages the stormwater. Nonetheless, we would like to see more explicit encouragement and perhaps incentives for the use of green infrastructure beyond referencing the New York State Stormwater Management Design

Manual. With the new Mayor and the new Commissioner, we are not clear on the level of their commitment to green infrastructure. While we are confident that the City's green infrastructure programs will move forward, we would like to ensure that the City will actually expand and enhance the programs. A stronger language on green infrastructure will help send the message that the State is firmly behind the City's commitment to green infrastructure.

Some parts of the draft permit seem inadequate for the ultra urban environment of New York City. Under Industrial and Commercial Stormwater Sources (page 21), the City is to inventory all industrial and commercial sites that could discharge POCs. We would like to know whether the aggregated effects of smaller establishments should also be considered. While each establishment may not contribute a significant pollutant load, if multiple commercial entities are concentrated in a relatively small area, they may collectively constitute a pollutant source. For instance, there are neighborhoods with many small scale automotive repair shops.

Likewise, the minimum acreage of one acre for construction site does not seem adequate for the City, where many construction sites are far below one acre. Before applying the statewide threshold of one acre, we would like to see evidence that such a threshold is adequate in New York City. There are also neighborhoods with several small construction projects concentrated in a relatively small area. We would like to know whether the aggregate effects of multiple construction projects warrants consideration.

Finally we have some questions and comments on specific language in the draft permit.

Section H.1.1.iii.(2) Industrial and Commercial Stormwater Sources (on page 21)
What is the definition of "significant POC"?

Section IV.A. Public Education and Outreach (on page 12)
The goal of public education should be changed behavior. While it is difficult to measure, behavior change is the only truly meaningful outcome. The more conventional and common goals, such as the number of posters distributed, number of students taught, do not necessarily tell us whether the water quality is improving.

Section IV.A.5. "… disposal of used oil and toxic materials." (on page 13)
The educational and public information activities should not be limited to used oil and toxic materials. Such activities should also include proper management and disposal of pet wastes, pharmaceuticals, household cleaners, and other substances of concern.

IV.B.4.a.i & ii "…for stormwater or if requested by the public, ***or*** *presentation of the draft annual report may be done on the internet." (on pages 13-14)*
The draft annual report should be presented both at a meeting **AND** on the internet.

IV.B.4.b. "…the draft annual report at an open meeting **or** on a web site …" (on page 14)
The public notice on the annual report presentation should be given at an open meeting **AND** on a web site.

Section M.4.a. Annual Reporting/Public Education and Outreach

There are many organizations – community based organizations, environmental groups, educational institutions, etc. – that are engaged in public education on stormwater and water quality. The permit should require the DEP to develop a database of the educational organizations with relevant programs and include their program delivery as part of the annual report. DEP can develop materials, particularly for professional development, and assist these organizations in content development. However, for the education program to be effective, partnerships with those who are educating on the ground are the key.

Thank you again for the opportunity to submit our comments. We look forward to meaningful involvement in this process as we move ahead.

Sincerely,

Shino Tanikawa
District Manager

cc: Emily Lloyd, Commissioner, NYC DEP
Venetia Lannon, Regional Director, NYS DEC Region 2
Angela Licata, Deputy Commissioner, NYC DEP
Joan Leary Matthews, US EPA Region 2
Jeff Gratz, US EPA Region 2

CITIZENS ADVISORY COMMITTEE

of the New York – New Jersey
Harbor & Estuary Program

To: Steve Watts, NYSDEC

Cc: Management Committee and Policy Committee of the NY-NJ Harbor & Estuary Program.
Emily Lloyd, Commissioner, NYC DEP
Venetia Lannon, Regional Director, NYS DEC Region 2
Angela Licata, Deputy Commissioner, NYC DEP
Joan Leary Matthews, US EPA Region
Jeff Gratz, US EPA Region

From: Co-Chairs of the Citizens Advisory Committee of the New York-New Jersey Harbor & Estuary Program

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Date: April 7, 2014

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

The Citizens Advisory Committee (CAC) of the New York-New Jersey Harbor & Estuary Program (HEP) is an advisory committee established to support and advocate for the HEP, a national estuary program. The CAC is an official committee of the Management Committee first convened by the US Environmental Protection Agency, Region II; NY State Department of Environmental Conservation; and NJ Department of Environmental Protection for the HEP and Bight Restoration Programs.

The purpose of the CAC is to: 1) provide guidance and advice to the Management Committee on Program decision-making on behalf of the diverse stakeholders in the NY-NJ Harbor Estuary and NY Bight; 2) promote public awareness and understanding of the Program's issues, goals, and recommendations; 3) assist the Management Committee in developing and implementing the Comprehensive Conservation and Management Plan (CCMP) as required by Section 320 of the Water Quality Act of 1987.

We understand that this permit is long overdue (more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. To this end we have the following concerns.

Construction site size requirement
We believe most residents of New York City will attest to the fact that a great majority of construction projects in the city are small. Requiring regulation of only projects larger than one acre does not seem like a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas. A more appropriate size threshold will ensure that green infrastructure

Citizens Advisory Committee Co-Chairs
Meredith Comi, NY/NJ Baykeeper ✧ meredith@nynjbaykeeper.org ✧ 732-888-9870
Rob Buchanan, Village Community Boathouse ✧ avironvoile@gmail.com ✧ 917-656-7285

practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

Stronger requirements for water quality improvement
The draft permit is based on the premise that stormwater discharges impair water quality and must be properly managed to prevent pollutants from entering our waterways. However, the draft permit does not include any specific pollutant load reductions that would ensure the city's waterways meet state standards to protect uses like fishing, boating, and swimming. The permit should clearly prohibit discharges that are known to cause or contribute to existing water quality impairments, and should establish binding deadlines for the city to eliminate existing violations.

Permits could also include a requirement to make a study of the site's water and sediment quality. This would allow gathering baseline data that could be used to compare future changes at the site. If the site doesn't meet standards, a plan to upgrade the site to standards would be required.

More meaningful public participation and involvement
We find the requirement for public participation and involvement to be inadequate. All reports and notices resulting from the permit (e.g., annual reports) should be publicly noticed and available for comment at both public meetings and on the City's web site (not one or the other). Such notices should also be disseminated via the City's social media (e.g., Twitter, Facebook).

For illicit discharge plans, construction site stormwater control, post-construction stormwater control, and industrial and commercial stormwater source management, the permit should require the City to develop a public-reporting system for complaints (accessible telephonically and electronically) that facilitates clear identification of the responsible parties and that not only allows the members of the public to file complaints but also allows them to track their complaints through to resolution by the City, either online or through a point of contact in the City.

We would also like the opportunity to formally share our comments on the Stormwater Management Program, to be developed by the City, with the DEC through a public comment and public hearing processes. While the permit requires that the City involve the public in the development and implementation of the SWMP, we believe it is important for the DEC, as the regulatory agency issuing the permit, to hear our comments on the SWMP, so that the DEC will be in a better position to modify the permit if necessary.

In the long run, the City may consider reviving the Citizens Advisory Committee on Water Quality for continued public involvement, while greater availability of hard copies of official documents at repositories and by mail (for a reasonable fee, if necessary) would also improve public involvement.

Coordination with other ongoing programs
We are confused by the myriad of water quality related programs underway in the City. We understand that for some waterbodies, the Combined Sewer Overflow Long Term Control Plans are in development by the City. There are also the floatables control program and the Green Infrastructure Plan. In yet other places, there are brownfields cleanup efforts and superfund remediation. We believe it is critical that these related or overlapping programs must be coordinated well for the efficient use of public resources as well as for better understanding by the public of the City's efforts. It would be beneficial to explicitly require the City to create a mechanism for coordinating its MS4 program with these other efforts.

Sincerely,

The Citizens Advisory Committee, New York-New Jersey Harbor & Estuary Program.

This letter has been adopted by the HEP CAC following procedures established in its bylaws (http://www.harborestuary.org/pdf/CAC%20Bylaws-Revision-Jun-03-11-F.pdf). CAC members who have voted in support of this letter include (but not limited to):

Meredith Comi, NY/NJ Baykeeper, NJ co-chair, Citizens Advisory Committee of the NY-NJ Harbor & Estuary Program

Rob Buchanan, Village Community Boathouse, NY co-chair, Citizens Advisory Committee of the NY-NJ Harbor & Estuary Program

Shino Tanikawa, New York City Soil and Water Conservation District, NY alternate co-chair, Citizens Advisory Committee of the NY-NJ Harbor & Estuary Program

Nellie Tsipoura, New Jersey Audubon, NJ alternate co-chair, Citizens Advisory Committee of the NY-NJ Harbor & Estuary Program

Manuel L. Russ, Concerned Citizens of Bensonhurst

In addition, this letter has been endorsed by the following non-voting CAC members and non members:

Nancy Brous, New York City Water Trail Association

Dr. Aline Euler, Ed.D., Alley Pond Environmental Center

NOTE: The New York-New Jersey Harbor & Estuary Program is a partner program and its members occasionally have conflicting positions on regulatory and management issues. One of the Program's roles is to facilitate the exchange of ideas and to work towards resolution of these issues. The opinions of individual agencies or committees do not necessarily reflect the opinion of the Program as a whole.

The Citizens Advisory Committee provides guidance and advice to the New York-New Jersey Harbor & Estuary Program Management Committee on Program decision making on behalf of the diverse stakeholders in the region. Its membership and meetings are open to all interested parties in the region that use, or have concerns about, the New York-New Jersey Harbor Estuary and New York Bight. The Citizens Advisory Committee is the only body in the New York-New Jersey Harbor & Estuary Program that can adopt official positions on issues and topics. These official Citizens Advisory Committee positions are adopted by a majority vote of Citizens Advisory Committee members. Citizens Advisory Committee positions do not necessarily reflect the opinion of the New York-New Jersey Harbor & Estuary Program or its members and partners.

NSWC

The North Shore Waterfront Conservancy of Staten Island, Inc.
P.O. Box 140502
Staten Island, New York 10314

RECEIVED
N.Y.S.D.E.C. - REGION 2
MAR 28 2014
DIVISION OF
ENVIRONMENTAL PERMITS

March 23, 2014

Mr. Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

The existence of Separate Sewer Direct Discharge on Staten Island's North Shore is definitely what would be called a leap of faith, only because God only knows what has been discharged into the Kill Van Kull, Narrows and Lower Newark Bay throughout these many years.

Because Staten Island has not been carefully monitored for decades, if ever. It is a lawless place where convenience has over shadowed sustainability and good sense. The one and only sewer treatment plant located on Staten Island's North Shore Industrial waterfront known as the New York City Department of Environmental Protection's Port Richmond Sewer Treatment Plant (Combine Sewer Over Flow, CSO) was probably over capacity by the day of its completion and has never been able to properly to treat the flow that has been coming into it from day one. It has plagued the neighboring residential environmental justice communities with a stench that is legendary.

The sewer treatment plant's inability to treat everything that is being sent to it along with direct discharges are probably one of many reasons why the Kill Van Kull River, Lower Newark Bay and the Arthur Kill have been designated as being Impaired Waterways for decades and a very good reason why New York City is in violation of the U.S. Environmental Protection Agency's Clean Water Act.

In order for the SPEDES Permit No. NY -0287890 to truly be effective it would have deal with how the discharges from Staten Island's Industrial sites, residential communities, commercial properties and NJ DEP from the industrial sites are receiving and treating those discharges/chemicals and whether or not it is appropriate by the time they are released into Staten Island and New Jersey's shared rivers are still presenting hazards to the environment and the people who use these rivers as a food source.

There are many people living on Staten Island that come from an Ingenious way of life, or have adopted this life style and that harvest the fish and shellfish from it's surrounding waterways to feed their families. This fact is something that all of our officials and government agencies are aware of. But have not effectively addressed the environmental conditions that make the harvesting of marine life possible. If the M4 Permit allows for the improvement of the Narrows, Kill Van Kull, Lower Newark Bay and the Arthur Kill then NSWC would support such an initiative. It is well overdue that the City of New York strives to meet the environmental expectations of its people and the laws of nature which have proven to be far more sustainable than anything man has ever built.

In addition being that Staten Island sits directly across from New Jersey's industrial waterfront. There would also have to be an environmental agreement with New Jersey's Department of Environmental Protection Agency (NJ DEP) on what they are allowing to be released into the Staten Island's and New Jersey's shared waterways. And a transparency agreement regarding the releases from the industrial, commercial and residential sites to reduce pollutants into the shared water bodies. With the ultimate goal to eliminate all hazardous discharges into the shared water bodies between the 2 states.

Being that Staten Island is an Island and we will live or die based on what is on our waterfront and waterways we cannot take lightly the activities that transpire on our waterfront and how those actions will impact our residential communities. And due to the recklessness and lawlessness that has existed more stringent measures may need to be taken in order to protect the vulnerable environmental justice people and communities of Staten Island's North Shore.

Surveillance, enforcement and frequent testing will have to become a requirement in locations that have not been secured, or watched in order to prevent the continuance of illegal dumping or leaching from the respective shore lines into the combined rivers. *Examples: Richmond Terrace street ends Bard Avenue, Port Richmond Avenue, Nicholas Avenue and Van Name and Van Pelt Avenues.*

The New York State and New York City legislatures should consider resiliency measures in the form of creating laws to protect (as of this date) existing North Shore residential communities and properties on the shorelines, or in flood prone areas. And recognize that due to Climate Change it may become necessary to re evaluate certain situations where industrial and commercial properties with a legacy or reputation of being in violation of polluting and where violations have failed to conform their ways may need to be confiscated.

Or properties that would do better to serve the public good (such as wetlands under 10 acres) should be closely monitored and whatever arrangements including, the purchasing of said properties, enforcement and/or (eminent domain) of these properties due to Climate Change Conditions, where their use for drainage would make more sense in the protection of public health and the welfare of existing residential communities.

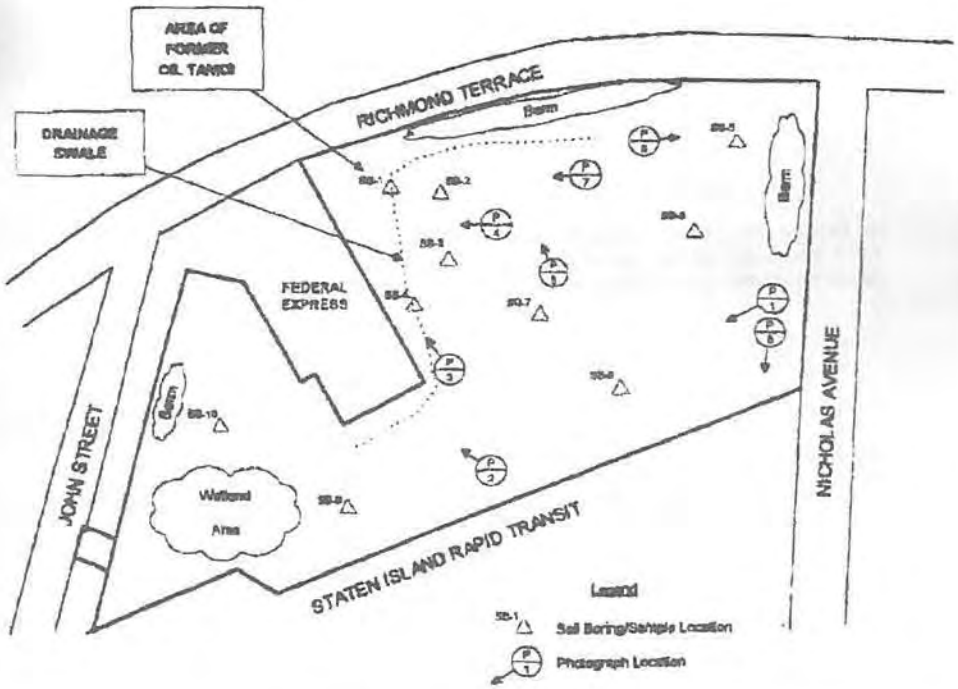
The MS4 Permit should allow for the mitigation and the redevelopment of smaller wetlands as natural drainage and filtering locations especially in already existing densely populated areas.

Because of Staten Island's topography and the piece meal way that it was allowed to develop, we fear that reviewing and correcting storm water activity by acres will not be sufficient. Therefore we are requesting that the scope be widen to include areas that are less than acre to deal with down hill rain run off and storm water activity. If in doing this it will keep smaller yet vital wetlands from being filled and housing being built on them, we feel this would be more beneficial to the existing surrounding environmental justice residential communities in flood prone areas. *Example: Fresh water wetlands of Nicholas Avenue 9.5 acres currently known as Nicholas Estates, Staten Island, NY. (see attached map)*
http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Staten%20Island/13RHAZ041R/2013-04-17.13RHAZ041R.letter.FactSheet.pdf

In terms of down hill rain runoff how will MS4 address runoff that during heavy rains can access low line Open Industrial sites that are used for storage or salvage yards with possible soil contamination issues? *Example: Edkins Salvage Yard 2239 Richmond Terrace and (former Truscanti Boat Company) Perfetto Construction 2319 Richmond Terrace, (former Archer Daniels Midland Company/Staten Island Manhattan Project Storage site) Dolan Transportation, 2393 Richmond Terrace.*

New York State Department of Environmental Conservation and New York City Department of Environmental Protection may want to consider an amnesty and grant program to allow existing smaller businesses C6- C8 property owners to become a part of this program to mitigate any sewer and drainage issues that they may be having. *Example: 33 or so Autobody Shops on Staten Island's North Shore in a 5.2 mile radius of each other in flood prone areas that are not monitored by any particular environmental agency. One such example are businesses located on the (former Bodine Pond) now Castleton Avenue and Rector Street. Rector Street has been experiencing down hill flooding way before Hurricane Sandy ever hit Staten Island. (see attached NYC Planning North Shore Brownfield Opportunities Area Hurricane Sandy Inundation Analysis Map showing Rector Street.) Bodine Pond is being feed by Clove Lakes and Palmers Run*

The other alternative would be to consider relocating these businesses to areas of the island that are less flood prone, where their businesses could be considered as new businesses and better monitored and where clustering is not permitted.



TEM ASSOCIATES ELEVEN TINDALL ROAD MIDDLETOWN, NEW JERSEY 07748 PHONE:(732) 671-6400 FAX (732) 671-7365	SITE SKETCH		
	BLOCK 1118, LOTS 40, 75 & 105 AND BLOCK 1121, LOT 101 BOROUGH OF STATEN ISLAND - RICHMOND COUNTY - NEW YORK		
0 2000 4000	SOURCE: TEM ASSOCIATES, INC.		
SCALE IN FEET	AUGUST 7, 1998	SISB-00120	FIGURE 2

Nicholas Avenue 9 1/2 acres

This map was created using the Open Accessible Space Information System (OASIS) website, licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 United States License. Visit www.oasisnyc.net for the latest information about data sources and notes about how the maps were developed. Contact oasisnyc@gc.cuny.edu with questions or comments. OASIS is developed and maintained by the Center for Urban Research, CUNY Graduate Center.

Legend

Transit, Roads, Reference Features

Roads, ferries, commuter rail, neighborhood names

n Flood Zone North Shore Brownfield Opportunit

Hurricane Sandy Inundation Analysis

NYCPLANNING
DEPARTMENT OF CITY PLANNING CITY OF NEW YORK

This map was prepared for t
Department of State with fu
the Brownfield Opportunitie

ion Area

In terms of the North Shore of Staten Island since these are densely populated older communities some kind of restitution may also be necessary for property damage claims in the course of construction and upgrades with the sewer system.

In closing we believe that the Port Richmond NYC DEP Sewer Treatment Plant should be allowed to expand in order to provide residents and businesses on Staten Island's North Shore with the kind of service that they expect. The people of Staten Island's North Shore deserve a state of the art waste treatment plant that can not only handle the waste of today, but the waste and its treatment of tomorrow's waste and be sustainable for whatever may come.

Update: NYC worker treated after vomiting at Staten Island sewage treatment plant

By Ken Paulsen/Staten Island Advance
http://www.silive.com/news/index.ssf/2013/03/worker_overcome_by_fumes_at_ny.html

Thank you for your time and consideration and we look forward to hearing from you regarding this draft SPDES Permit.

Sincerely,

Beryl A. Thurman

Beryl A. Thurman, Executive Director/President
NSWC

S.W.I.M. Coalition
Stormwater Infrastructure Matters: utilizing stormwater as a resource, not a waste!

March 18, 2014

Steve Watts
NYSDEC
47-40 21st Street
Long Island City, NY 11101-5407

Re: Draft SPDES Permit No. NY-0287890 (NYC MS4 Permit)

Dear Mr. Watts,

On February 5, 2014, the New York State Department of Environmental Conservation (DEC) issued a public notice for a draft State Pollutant Discharge Elimination System (SPDES) Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) owned or operated by the City of New York. According to the notice and accompanying fact sheet, discharges to surface waters, from both public and private property, via MS4 outfalls owned or operated by the City, as well as discharges to surface waters from municipal operations and facilities that drain via overland flow, would be authorized under the terms of the permit (draft SPDES Permit No. NY-0287890).

We wish to thank DEC for releasing this draft permit, which addresses polluted stormwater runoff from about half of the City's land area, for public comment. The Stormwater Infrastructure Matters (S.W.I.M.) Coalition is a coalition with more than 60 member organizations dedicated to ensuring swimmable waters around New York City through natural, sustainable storm water management practices (a.k.a. green infrastructure) in our neighborhoods.

We note that, under federal regulations, DEC was required to issue an MS4 permit to New York City to comprehensively regulate these discharges in *1993* [See 40 C.F.R. § 122.26(e)(7)(ii)]. Especially as the permit is now twenty years overdue, it is essential that DEC issue a strong permit with terms that ensure the City will develop and implement an effective stormwater pollution control program as quickly as possible.

Although the draft permit recognizes that MS4 discharges contribute to water quality standards violations in many waters throughout New York City, overall it does not hold the City accountable for achieving pollutant load reductions sufficient to ensure that MS4 discharges cease to contribute to such impairments, as required by law. Nor does it ensure that New York City will adopt specific practices that reduce pollution system-wide to the "maximum extent practicable," as also required by law. Additionally, while the permit provides several avenues for public participation in the City's stormwater management efforts, it omits some of the most essential public participation rights and is too vague with respect to others.

On behalf of our member organizations, we urge DEC to improve the draft permit as follows:

1. Mandate more robust public processes for the City's development of its Stormwater Management Program (SWMP) and DEC approval of said plan;
2. Clearly and unequivocally prohibit discharges that cause or contribute to water quality standards, and provide for a specific compliance schedule to eliminate discharges that cause or contribute to existing water quality impairments; and

3. Demand that planning under this permit be specifically integrated with other water pollution control programs currently under development by the City and State;
4. Reduce the size of the construction and post-construction trigger from 1 acre to 5,000 square feet, to ensure that stormwater management requirements cover a substantial portion of lots in a city as densely developed as New York.

The National Research Council, an arm of the National Academies of Science, has stated that, of all the challenges facing stormwater management in this country, "Perhaps most problematic is that the requirements governing stormwater dischargers leave a great deal of discretion to the dischargers themselves in developing stormwater pollution prevention plans and self-monitoring to ensure compliance."[1] As such, DEC must ensure that this permit includes clear and strong provisions that hold New York City accountable for achieving stormwater pollution reduction and water quality mandates.

Please accept the detailed comments below, which elaborate on each of our four main concerns.

First, there must be more robust public involvement in the development and approval of the Stormwater Management Program Plan. Under the draft Permit, the City is required to submit a SWMP for DEC review and approval within three years of the effective date of the permit (*Permit, at III.A.1*). As written, there are many areas for significant improvement of public participation:

- All draft annual reports should be presented and made available for public questions and comments at <u>both</u> open meetings and on a Permittee website – not one <u>or</u> the other (Permit, at IV.B.4.a); likewise, notice of such presentations and availability should be provided both at open meetings and online, with notice also sent directly to interested stakeholders (Permit, at IV.B.4.b);
- The Permittee should ensure that all submitted comments (not just summaries) are made available for public inspection with the final annual report and SWMP plan (Permit, at IV.B.4.d);
- For developing illicit discharge plans (Permit, at IV.D), post-construction stormwater control (Permit, at IV.F), and industrial and commercial stormwater source management (Permit, at IV.H), the Permittee should be required to develop a public-reporting system for complaints (accessible telephonically and electronically) that also allows members of the public to track their reports through to ultimate Permittee resolution online or through a Permittee point of contact in the City; and
- For construction site stormwater control (Permit, at IV.E), the draft permit requires that the Permittee describe "procedures for receipt and follow up on complaints or other information submitted by the public regarding construction site storm water runoff" – this section (IV.E.h) should be expanded to require a robust electronic and telephonic system for reporting complaints that allows any member of the public to track complaints from submission to resolution.

Perhaps most importantly, DEC must provide opportunity for public participation in the agency's final review and consideration of the SWMP in three years' time. The draft Permit does not contain all of the substantive requirements with which the Permittee must comply. Rather, it binds the City to a plan that the City itself will develop – after the permit is granted. As a result, DEC's ultimate approval of a SWMP will amount to a SPDES permit modification, and must be treated as such with regard to public participation.

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[1] National Research Council, *Urban Stormwater Management in the United States* at 3 (2009), *available at* http://www.nap.edu/catalog.php?record_id=12465.

According to the 9th Circuit Court of Appeals, "storm water management programs that are designed by regulated parties must, in every instance, [be] subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable."[2] Furthermore, permittee-developed documents "that contain the substantive information about how the operator of [an] MS4 will reduce discharges to the maximum extent practicable" must be not only subject to review and approval by the permitting agency, as the draft permit provides, but also "subject to the public availability and public hearings requirements of the Clean Water Act" in connection with such review and approval.[3] The Second Circuit also has held that the public must be able to comment to the permitting agency, and request a hearing before the permitting agency, on the terms of pollution management plans drafted by Clean Water Act permittees.[4]

Despite these clear legal requirements, the draft permit fails to ensure an opportunity for public comment to the DEC or the opportunity for a hearing in front of DEC about the adequacy of the City's to-be-developed stormwater management program. DEC must remedy this shortcoming in the final permit.

Second, the permit must clearly and unequivocally prohibit discharges that cause or contribute to water quality standards, and provide for a compliance schedule to eliminate any existing contributions to water quality impairments that are attributable to MS4 discharges. DEC is obliged to include such requirements in this permit, as in all SPDES permits, regardless of whether or not DEC has already developed a TMDL for the receiving water body. Waiting for a TMDL is both unlawful and, as a practical matter, would entail decades of delay in light of DEC's track record for delay in TMDL development. (We further note that, for many waterways, despite DEC's recognition – and often the City's recognition as well – that MS4 discharges contribute to impairments, DEC has removed those waterways from the 303(d) list of waters for which a TMDL is deemed necessary. Waiting for a TMDL for these waters would be a complete exercise in futility).

Third, the permit also fails to account for the numerous complementary and often overlapping regulatory requirements and processes that the City of New York is currently subject to or otherwise involved in. This includes the development of Combined Sewer Overflow Long Term Control Plans, Newtown Creek and Gowanus Canal Superfund remediation, and remediation of brownfield and State Inactive Hazardous Waste site cleanups. The permit should identify these and any other efforts aimed at improving water quality in waters adversely affected by MS4 discharges, and should require that the SWMP describe how the City will integrate its MS4 pollution control efforts with these other initiatives in order to achieve compliance with water quality standards.

Finally, a one acre threshold is far too large for triggering the application of construction and post-construction runoff controls. As demonstrated by analyses described by the public at a DEC information session on this permit (March 5, 2014) – which have separately been provided in writing to DEC – a one-acre threshold would cover only a small minority of the land area within the City's MS4 system, whereas a lower threshold, such as 5,000 square feet, would capture a significantly larger percentage of the City's land area. Moreover, a 5,000 square foot threshold is entirely "practicable," as it is already in effect in other large cities around the nation.

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[2] *Environmental Defense Center v. EPA*, 344 F.3d 832, 856 (9th Cir. 2003).
[3] *Environmental Defense Center v. EPA*, 344 F.3d 832, 857 (9th Cir. 2003).
[4] *Waterkeeper Alliance v. EPA*, 399 F.3d 486, 503-04 (2d Cir. 2005).

Thank you for this opportunity to comment on the draft permit. We look forward to receiving DEC's response.

Sincerely,

Robert Crauderueff
S.W.I.M. Coalition Coordinator on behalf of:

S.W.I.M. Coalition Steering Committee
Sean Dixon, Riverkeeper
Robin Kriesberg, Bronx River Alliance
Larry Levine, Natural Resources Defense Council
Paul Mankiewicz, the Gaia Institute
Sam Marquand, Rocking the Boat
Tatiana Morin, New York City Soil & Water Conservation District
Phillip Musegaas, Riverkeeper
Jaime Stein, Pratt Institute
Shino Tanikawa, New York City Soil & Water Conservation District

cc: Emily Lloyd, Commissioner, NYC DEP
Venetia Lannon, Regional Director, NYS DEC Region 2
Angela Licata, Deputy Commissioner, NYC DEP
Joan Leary Matthews, US EPA Region 2
Jeff Gratz, US EPA Region 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

APR -7 2014

Mr. Steve A. Watts
NYSDEC Region 2 Headquarters
47-40 21st Street
Long Island City, New York 11101

Re: Comments on New York State Department of Environmental Conservation Draft SPDES Individual Permit for the Municipal Separate Storm Sewer Systems of New York City (SPDES Number NY-0287890)

Dear Mr. Watts:

Addressing stormwater pollution through effective Clean Water Act permits is a critical element to maintaining and improving the quality of our nation's water bodies. The U.S. Environmental Protection Agency has reviewed the New York State Department of Environmental Conservation's (NYSDEC) draft SPDES individual permit for the Municipal Separate Storm Sewer Systems (MS4) of New York City (SPDES Number NY-0287890). Our specific comments on this permit are enclosed.

We appreciate your work on developing this permit to better address pollution from New York City's MS4s. In our comments, we have outlined opportunities for strengthening the permit, clarifying requirements, and enhancing the enforceability of the permit. We would also like to highlight the importance of controlling and eliminating floatables and other debris as a key component of storm water management plans in large, Phase 1 municipalities, such as New York City.

As you know, EPA is encouraging states and municipalities to work together to identify efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs. Integrated planning can facilitate the use of sustainable and comprehensive solutions, including green infrastructure, that protect human health, improve water quality, manage stormwater as a resource, and provide other economic and quality of life benefits that enhance the livability of our communities. EPA developed the *Integrated Municipal Stormwater and Wastewater Planning Approach Framework* to assist with these discussions. Given New York City's work on developing and implementing CSO Long-term Control Plans, in addition to implementing MS4 controls, integrated planning discussions may be particularly useful.

Consistent with EPA's oversight responsibilities for state NPDES permits, as described in the April 28, 1975 Memorandum of Agreement between EPA and NYSDEC and in 40 CFR 123.44,

we do ask that NYSDEC provide us with a proposed permit prior to finalizing and issuing this permit. The procedures highlighted above specify that the EPA Regional Administrator shall be provided a period of up to 90 days from receipt of proposed permits "to make general comments upon, objection to, or recommendations with respect to proposed permits" (40 CFR 123.44(a)(1)). The terms "proposed permit" and "draft permit" are defined at 40 CFR 122.2.

If you have any questions please feel free to contact me at (212) 637-3754 or have your staff contact Stephen Venezia (212) 637-3856.

Sincerely yours,

Kate Anderson

Kate Anderson, Chief
Clean Water Regulatory Branch

Enclosure

cc: Koon Tang, NYSDEC w/encl.
Carol Lamb-Lafay, NYSDEC w/encl.

U.S. Environmental Protection Agency Region 2
Comments on the Draft NYCDEP MS4 Permit
Contact: Stephen Venezia, 212-637-3856
4/7/2014

1. Page 1 - Permittee Name and Address: Because the permit applies to municipal agencies other than the NYCDEP, NYSDEC should issue the permit to the "City of New York" instead of the "City of New York, acting through the New York City Department of Environmental Protection" and to the "Attention" of the mayor and not to the NYCDEP chief operating officer. (Also please note that Kathryn Garcia is no longer the chief operating officer.)

2. Page 4 – I.A. Table 1: The "NYC owned or operated separate storm sewers that ultimately discharge to waters of New York State through MS4 outfalls owned by NYC" must include any and all connections to a CSO outfall pipe that is downstream from the regulator (e.g., the weirs located throughout the CSOs). Connections to the combined sewer system upstream are clearly exempt from the MS4 permit but regulated outfalls downstream would essentially act as an MS4. Please specify this in the table.

   The permit seems to exclude non-traditional MS4s. EPA suggests adding language similar to the state's MS4 permit that would include linear projects, such as those operated by the NYSDOT, which fall within an area of NYC that is regulated by the permit as an MS4.

3. Page 5 – I.B.5 &6: The term "ground water" should be replaced with "uncontaminated ground water" in both items.

4. Page 6 – I.E.: NYSDEC should consider specifying that NYCDEP maintain a database of outfalls which are not owned by NYC. This would be helpful to the overall program. NYCDEP will identify those outfalls during mapping of its MS4 and CSO systems.

5. Page 7 – II.A.: The section on Discharge Compliance with Water Quality Standards should be written such that requirements are clear, quantitative, and enforceable. This portion of the permit needs to be more explicit as to what the permittee is required to do upon determination that a discharge directly or indirectly causes or has the reasonable potential to cause or contribute to the violation of a water quality standard. As written, it is only triggered by the Department's notification to the permittee. What is the mechanism for ensuring that future discharges do not directly or indirectly cause or contribute to a violation of a water quality standard? The permit says the actions taken by NYC must be documented in the SWMP; however, the current permit provides several years to develop the SWMP. A clearer, more tangible requirement should be written into this section.

6. Page 7 – II.B.1: The stated intent of this permit is "...to manage urban sources of stormwater runoff ...and **improve water quality** in impaired waters as part of a comprehensive integrated planning approach that considers non-MS4 sources and planned controls for those sources," (emphasis added). However, the "no net increase" requirement in Section II.B.b. will maintain water quality rather than strive to improve it consistent with the intent of the permit. For areas that do not have CSO

discharges (non-MS4 sources), and where a cause of impairment is urban runoff, the permit must require, at a minimum, controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the state determines appropriate for the control of such pollutants (33 U.S.C. § 1342(p)(3)(B)(iii)). The requirement to reduce pollutants to the maximum extent practicable is a technology-based standard establishing a minimum level of pollution control for all municipal dischargers.

We note that New York State law at ECL §750-1.11(a)(5)(i) further requires that "the provisions of each issued SPDES permit shall ensure compliance with... any more stringent limitations, including those necessary to meet water quality standards, guidance values, effluent limitations or schedules of compliance, established pursuant to any state law or regulation consistent with Section 510 of the Act, or the requirements of 40 CFR Part 132." There is no exception for stormwater permits to this state requirement.

7. Page 11 – III.C.3: In this section, NYSDEC has not defined "chronic violator" or the process for how the permittee will identify chronic violators. Please include a definition of "chronic violator" in Part VI.B (Definitions) of the permit.

8. Page 11 –III.D.2: Please change the requirements for a fiscal analysis be completed "within three years of EDP" to "each fiscal year" as is required in the federal regulations found at 40 C.F.R. 122.26(d)(2)(iv).

9. Page 12 – IV.A.2: Region 2 recommends adding a requirement in this section to mark/stencil all MS4 storm drains in order to inform the public that these outfalls drain directly to water bodies or possibly beaches of NYC. A requirement to periodically re-inspect and restore markings/stencilings is also suggested.

10. Page 14 – IV.C: The permit should require NYC to submit its current MS4 map within 6 months of the effective date of the permit (EDP) in addition to the preliminary map specified in C.1, which is required in 3 years.

11. Page 15 – IV.D: Region 2 recommends that NYSDEC add language for requiring public reporting of illicit discharges and indicate what information should be included as part of a public reporting program.

    Region 2 recommends that NYSDEC include training requirements specifically for public employees assigned to Illicit Discharge Detection and Elimination (IDDE) operations.

12. Page 15 – IV.D.1: Please change "The program shall also address the categories of non-storm water..." to "The program shall also address the categories of ***exempt*** non-storm water..." to maintain consistency with Part I.B.

13. Page 15 – IV.D.2: Region 2 suggests that "Water Pollution Control Plants" be substituted for "wastewater treatment plants" to be consistent with terminology used in NYCDEP's other SPDES

permits. Alternatively, a definition could be added for "wastewater treatment plants" to explain that it refers to NYC's "Water Pollution Control Plants."

Region 2 recommends that as part of NYCDEP's outfall reconnaissance inventory (ORI) activities, NYC shall identify and maintain a database of all outfalls not owned by NYC that are discharging non-exempt non-stormwater, which would be available to NYSDEC and EPA Region 2 on an annual basis to help identify illicit discharges that should be abated by the non-NYC entities that have control over them.

14. Page 15 – IV.D.4: Waterbodies that are shown through sampling activities required in IV.D.4 to have fecal coliform levels over 200 colonies/100ml should be prioritized for ORIs as per the "Sentinel Monitoring Program" required under NYCDEP's Water Pollution Control Plants' individual SPDES permits.

    The permit should require NYCDEP to prepare a report of the locations and ownership of illicit discharges to the MS4 (whether NYC owned or not) where the MS4 discharges to waterbodies are shown to have over 200 colonies/100ml of fecal coliform through its Sentinel Monitoring Program. This report should be submitted to NYSDEC and available to EPA within two years of EDP. Also, outfalls identified as discharging non-exempt non-stormwater that are not owned by NYC should be reported in the straight pipe discharge database described above and those non-exempt non-stormwater discharges to NYC's MS4 or CSO outfalls downstream of the regulator should be included in a separate report.

    NYSDEC should add ammonia as an indicator parameter along with surfactants, fecal coliform, etc. as listed in IV.D.4.

15. Page 16 – IV.E.1.a: Region 2 recommends that NYSDEC add "or subsequent SPDES Construction General Permits (CGP) as applicable" to ensure that NYC is consistent with a current CGP.

16. Page 16-18 – IV.E and F: For construction and redevelopment projects, Region 2 recommends post-construction requirements for projects that disturb 5,000 square feet or more. We offer the following examples in other jurisdictions (which are also large cities) where there are requirements for sites with size thresholds under 1 acre for post-construction stormwater:
    - The DC MS4 permit, issued by EPA Region 3, requires projects over 5,000 s.f. to retain 1.2" of runoff. See http://www.epa.gov/reg3wapd/npdes/dcpermits.htm.

    - San Francisco Regional permit -- Projects that create and/or replace at least 10,000 s.f. of impervious area are required to use green infrastructure (GI) to manage a specified amount of runoff (e.g., 85th percentile storm). For certain land use categories (parking lots, auto service, gas stations, restaurants), the threshold is 5,000 s.f.

    NYSDEC should set 5,000 s.f. as the cut-off in this permit, but should also include a requirement for the City to perform an evaluation of the size and frequency of construction activity. The assessment would help to inform the state as to the most prevalent size of construction in the city so that the cut-off is appropriately set and the requirement is most effective and yields actual benefits. If the cut-off is too high and too few projects are captured, the requirement will be of little benefit.

17. Page 17 – IV.E.1.g.ii: Region 2 recommends expanding Stormwater Pollution Prevention Plan review to include those projects that disturb less than an acre but are part of a common plan of development, such as the language found at Part IV.F.1.b of this draft permit.

18. Page 17 – IV.E.1.g.iii: Please include language that allows for updates to the SWPPP acceptance forms in subsequent NYSDEC Construction General Permits.

19. Page 18 – IV.F: The accompanying fact sheet states "Develop and maintain an inventory of post-construction stormwater management practices within their jurisdiction;" but it is not clear where in the permit this is required. In NYSDEC's response to this comment, please explain where the requirement is or modify the permit as needed.

20. Page 19 – IV.F.1.g: Section IV.F.1.g refers to "trained staff;" therefore, the MS4 should be required to develop a program for training staff in operations and maintenance of post construction controls or for the inspection of these practices.

21. Page 19 – IV.G.1.a: The "catch basin cleaning program" should specifically require the same method of handling catch basins as the individual SPDES permits do for CSOs and include retrofitting, where needed, every 3 years.

22. Page 20 – IV.G.1.b, d, &h, G.2 and G.3: Within these sections, the permit uses the phrase "maximum extent practicable" (MEP). How will NYSDEC determine if cost effective runoff reduction techniques and green infrastructure were considered to the MEP during new development of redevelopment of municipal properties?

23. Page 21 – IV.H.1.ii: Region 2 recommends requiring Standard Industrial Classification (SIC) codes in addition to requiring North American Industry Classification System (NAICS) codes to assist determinations of whether there is a need to obtain coverage under the NYSDEC MSGP.

24. Page 22 – IV.H.2.a.vi: The permit should require NYCDEP to include a description of how NYCDEP will assess if the facility has, to the MEP, considered runoff reduction techniques and green infrastructure during new development or redevelopment of industrial and commercial facilities.

25. Page 25 – IV.I.3: Please include a date by which the floatables study is to be completed as well as a date for implementing a Control of Floatables and Settleable Solids Program. Does the NYSDEC intend to review the draft workplan cited in this section and when would that review be completed? Is the "final proposed workplan" in paragraph 2 the same as the approved final workplan? Region 2 recommends that in the fourth paragraph of this section "final workplan" should be used consistently for clarity.

    Two years to plan for the start of an approved study is too long. Since NYC conducts floatables monitoring for its annual CSO Floatables Monitoring Program Report, the timeline for developing a workplan to determine the amount of floatables discharged should be significantly shortened from two

years. As an example, the San Francisco Municipal Regional Stormwater Permit (NPDES No. CAS612008) includes a requirement to complete a baseline trash load assessment in two years and 3 months.

We also recommend that NYSDEC state that the objective of the floatables control program is to eliminate trash and debris from the receiving water. We recommend modifying the last sentence in this section (on page 25) to say: "The permittee must continue to implement existing or improved controls to reduce floatables and settleable solids from the MS4 areas to waterbodies **with the goal of achieving elimination of trash, debris, and floatables in the receiving waters."**

General Comment: Land-based sources cause 80% of the marine debris found on our beaches and waters. Reducing marine debris means reducing the amount of waste generated on land and disposing of it properly. EPA urges NYSDEC to address this issue in the permit. Below is language of an explicit prohibition, as excerpted from the San Francisco Municipal Regional Stormwater Permit:

"It shall be prohibited to discharge rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas."

This prohibition should also be accompanied with implementation requirements. The San Francisco permit example includes this subsequent permit requirement, which lays out specific, numeric targets for reducing and ultimately eliminating trash:

"The Permittees shall demonstrate compliance with Discharge Prohibition A.2 and trash-related Receiving Water Limitations through the timely implementation of control measures and other actions to reduce trash loads from municipal separate storm sewer systems (MS4s) by 40% by 2014, 70% by 2017, and 100% by 2022 as further specified..."

Implementation requirements could include short-term and long-term trash-loading reduction plans, trash "hot spot" selection and cleanup, and reporting requirements. The baseline assessment program already outlined in the draft NYC MS4 permit would form the basis of this program, and the additional requirements would build upon that information.

26. Page 25 – IV.J.2: The monitoring and assessment program that NYC is required to develop within three years of EDP has no requirements for submittal and review by NYSDEC. Please include a submittal date. This could possibly be done in conjunction with the Long Term Control Plans that are being developed for NYC's waterbodies. This could allow work to be completed more quickly and comprehensively and would include CSO outfalls.

27. Page 27 – IV.M: If training requirements for Illicit Discharge Detection and Elimination and post-construction are added, reporting for these two activities should be included in the annual reporting. This section should include requirements to report a list/summary of enforcement actions taken under the MS4 permit as well as penalties issued. Also, a database for illicit discharges identified that are not part of the NYC MS4 should be included in the annual reporting.

28. Page 27 – IV.M.4.a: If NYSDEC adds requirements elsewhere in the permit for marking/stenciling stormwater drains which are regulated under the MS4 permit, then reporting activities should be included in this section.

29. Page 27 – IV.M.a. iv & v: These two subsections should be reported under IDDE (M.d) and construction (M.e) respectively.

30. Page 28 – IV.M.d: NYSDEC should add reporting enforcement actions related to illicit discharges (number and type) to this section.

31. Page 28 – IV.M.e: The permittee should also require a list of construction site enforcement actions taken by NYC with the name, contact info, NYSDEC permit numbers (if permitted) for non-compliant construction sites for potential follow up by other agencies.

32. Page 29 – IV.M.g: The permit should also require NYC to report the miles of storm sewers inspected and miles of storm sewers cleaned.

33. Page 29 – IV.M.g.vi: Does NYCDEP have the authority to inspect/audit municipal operations for other NYC departments? If so, please provide the authority (regulatory/statutory) with which NYCDEP will carry out inspections/audits for other NYC departments.

34. Page 29 – IV.M.h: This section should include the name, address, contact information, for non-compliant MSGP facilities for potential follow up by NYSDEC and this information should be made available to EPA.

35. Page 31 – IV.O: This section should include a schedule of measurable goals for eliminating illicit discharges once they are identified. Also, the outfall inventory should be updated every year, not every five years.

36. Page 34 – Standard Permit Conditions: Please add the standard permit conditions regarding continuation of expired SPDES permits and retention of records (found in the NYSDEC MS4 General Permit) to the NYCDEP draft MS4 permit.

37. General Comment - Snow Removal: The permit should be explicit that the MS4 is not authorized to dispose of snow directly to the waters of the United States/State or directly to the MS4. Discharges from permittee-owned snow disposal sites and discharges associated with the permittee's snow management practices could be authorized under the permit when these sites/practices are operated using best management practices (BMPs) designed to prevent pollutants in the runoff and prevent excursions of any NYS water quality standard. Examples of these practices include locating snow piles in upland areas; designating different disposal requirements for "clean" or "dirty" snow; and providing a storage area with vegetated buffers or filtration through vegetated swales to settle out and recover solid materials, (such as traction material, pet waste, trash, etc.) for disposal.

At the MS4 Informational Meeting, I focused on these issues:
- public participation;
- groundwater;
- interagency coordination.
For details, see below.

In addition, there's a more technical issue which I didn't raise that badly needs attention: reform of the City's system of official maps (including Drainage Plans). On this, I'm sending in a separate e-mail a memo on Four Policy-Making Priorities for a Two-City New York: the fourth priority relates to official maps (I have back-up fact sheets and Charter changes that date from my stint as Deputy Counsel to the Ravitch and Swartz Charter Revisions (1987-1989)).

Regarding a public hearing on the permit, my preference is for a hearing by the City Council's Environment Committee. Politically, a DEC hearing won't be nearly as potent.

Public Participation

On public participation, these are critical reforms…and not only for the MS4 Permit Process:

- standing advisory committees - Need for a long-term Citywide Citizens Advisory Committee working with long-term watershed/sewershed CACs. Learn from the experience of the 208 and Long-Term Control Plan processes.

- availability of permits, plans and reports - Need for more than on-line text of lengthy permits, plans and reports, draft and final: hard copies at repositories or by mail (for a reasonable fee, if necessary).

- timelines for context – Need for timelines that cover all related policy processes. On Citywide stormwater management, for example: relevant dates for all relevant SPDES permits, long-term control plans, and TMDLs.

Groundwater

On groundwater, reforms are needed in New York City, the Long Island Groundwater System, and New York State:

- in New York City: there's need to extend SPDES permit coverage to groundwater protection, especially in the recharge area of the Jamaica Supply in Brooklyn and Queens;

- in the Long Island groundwater system: there's need for integrated permitting, modeling and management encompassing the entire system, in Brooklyn/Queens, Nassau and Suffolk;

- In New York State: there's need to revive the NYS Water Resources Strategies and the NYS Water Resources Management Council (see Att. A).

Interagency Coordination.

On interagency coordination, effective stormwater management requires the NYC Department of Environmental Protection to coordinate with both planning and operating agencies:

- planning agencies – the Department of City Planning, the Office of Long-Term Planning and Sustainability or its successor and the Office of Management & Budget, and
- operating agencies - especially Buildings, Sanitation, Transportation, Parks and Police.

Important tools for coordination at the borough and community board levels are the Borough and District Service Cabinets. The Borough Service Cabinets include line-responsible officials of agencies serving the borough and are chaired by the Borough President (Charter Sec. 2706(b)). The District Service Cabinets include line-responsible officials of agencies serving a community district and are chaired by the Community Board's District Manager (Charter Sec. 2705)).

Bob Alpern

Robert Alpern
[redacted]

ATT. A
FACT SHEET
NYS WATER RESOURCES MANAGEMENT STRATEGY

The NYS Water Resources Planning Council was created by the State Legislature in 1984 to approve and supervise a NYS Water Resources Management Strategy.

Title 29 of the NYS Environmental Conservation Law, the enabling legislation, was one of a package of 3 laws: the others authorized local financing for water resources, including creation of the NYC Water Finance Authority.

Title 29 is still on the books and is still State law.

The Council At Work.

Members of the Council were duly appointed: 15 members, including 8 heads of State agencies and 7 “public members,” serving 4-year terms. The agencies represented include: Environmental Conservation, Health, the Public Service Commission, Agriculture & Markets, the Energy Research & Development Authority, Transportation, and State.*

In 1988, the Council approved a Statewide Water Resources Strategy and 13 Substate Strategies, following hearings throughout the State. The Strategies focused on water supply and gave special attention to the Downstate Region, both in the Statewide strategy and in Substate Strategies for the Delaware/Lower Hudson Region and Long Island. As required by Title 29, the Strategies were formally adopted by the departments of Environmental Conservation and Health: that makes them a required reference point for reviews under the State Environmental Quality Review Act.

In the run-up to approval of the Strategies, reports were prepared, as required by Title 29, on water supply deficiencies and local capacities (ECL 15-2905).

And, following approval of the Strategies, in 1989, the Council requested and received a report from the state’s Water Resources Institute at Cornell on research needs.

The Council -- and the State -- Asleep

Under Title 29, at least once every two years the Departments of Environmental Conservation and Health must review the Strategy and propose necessary amendments (15-2913). Proposed amendments may be submitted to NYS-DEC by “any interested person." Determinations that no amendments are necessary must be submitted to the Council for approval, and amendments are adopted in the same manner as the Strategy itself.

But for two decades, the Council hasn’t met, and the Statewide and Substate Strategies haven’t been amended. Even in the years immediately following adoption of the strategies, when there were Council meetings, the departments of Environmental Conservation and Health never submitted the required biennial reports.

* The 7 public members are appointed by the Governor, 2 on the recommendation of the majority leader of the State Senate, 2 on the recommendation of the speaker of the State Assembly.

Dear Mr. Watts,

Thank you for the opportunity to comment on the Draft MS4 Permit to New York City.

I am a concerned citizen who would like to reap the benefits of cleaner water within my lifetime. These benefits include the ability to swim in the water on any day at any time for the duration that I wish. It also includes recreational fishing and eating local fish and shellfish from our harbor.

I would like the new SWMP to include experimentation with market based solutions. There are many opportunities to create a market in clean water run-off. Innovators and entrepreneurs need a framework to achieve scale in green roofs, rain barrels, and other green infrastructure.

Regards,
Philip Jonat
[redacted]

SWIMMABLE NYC provided the additional comments below. I support their work.

We understand that this permit is long overdue (more than two decades). Given the delay, we want to ensure the final permit is as strong and meaningful as it can be. To this end we have the following concerns.

Construction site size requirement
We believe most residents of New York City will attest to the fact that a great majority of construction projects in the city are small. Requiring regulation of only projects larger than one acre does not seem like a meaningful approach to managing runoff from new development and redevelopment projects in the City. We urge the DEC to evaluate data on construction projects and patterns closely to determine the best size, in line with best practices in other major U.S. cities and metropolitan areas.A more appropriate size threshold will ensure that green infrastructure practices become widespread throughout our neighborhoods, not only at a small number of large development sites in select areas of the city.

Stronger requirements for water quality improvement
The draft permit is based on the premise that stormwater discharges impair water quality and must be properly managed to prevent pollutants from entering our waterways. However, the draft permit does not include any specific pollutant load reductions that would ensurethe city's waterways meet state standards to protect uses like fishing, boating, and swimming. The permit should clearly prohibit discharges that are known to cause or contribute to existing water quality impairments, and should establish binding deadlines for the city eliminate existing violations.

More meaningful public participation and involvement
We find the requirement for public participation and involvement to be inadequate. All reports and notices resulting from the permit (e.g., annual reports) should be publicly noticed and

available for comment at both public meetings and on the City's web site (not one or the other). Such notices should also be disseminated via the City's social media (e.g., Twitter, Facebook).

For illicit discharge plans, construction site stormwater control, post-construction stormwater control, and industrial and commercial stormwater source management, the permit should require the City to develop a public-reporting system for complaints (accessible telephonically and electronically) that not only allows the members of the public to file complaints but also allows them to track their complaints through to resolution by the City, either online or through a point of contact in the City.

We would also like the opportunity to formally share our comments on the Stormwater Management Program, to be developed by the City, with the DEC through a public comment and public hearing processes. While the permit requires that the City involve the public in the development and implementation of the SWMP, we believe it is important for the DEC, as the regulatory agency issuing the permit, to hear our comments on the SWMP, so that the DEC will be in a better position to modify the permit if necessary. Without such a stipulation, this feels a little like the fox guarding the hen house.

Coordination with other ongoing programs

We are confused by the myriad of water quality related programs underway in the City. We understand that for some waterbodies, the Combined Sewer Overflow Long Term Control Plans are in development by the City. There are also the floatables control program and the Green Infrastructure Plan. In yet other places, there are brownfields cleanup efforts and superfund remediation. We believe it is critical that these related or overlapping programs must be coordinated well for the efficient use of public resources as well as for better understanding by the public of the City's efforts. We know that interagency coordination is not necessarily the City's strongest suit. It would be beneficial to explicitly require the City to create a mechanism for coordinating its MS4 program with these other efforts.

Dear Members of the DEC

As an architect working in Manhattan, I am aware of the problem of combined sewer and storm water problem in the city.
It appears that effort is being made to correct this situation.

Please make every effort to address all parcels of land being developed. A one acre minimum is too large. The permit for building can include this on each unit to be built—otherwise we are just kicking the can down the road---to be cleaned up another time.

Also, I believe it would be better to provide a framework and even specifications of requirements rather than leave it to “best management practices”.
Thank you for permitting comment. I am hopeful if wording of the intended constraints are clear from the beginning, that this will be an smaller problem to handle in the future.

Respectfully submitted:
Michele Lewis, AIA
Principal
Lewis and Gould Architects
[redacted]