NEW YORK CITY BAR

COMMITTEE ON ENVIRONMENTAL LAW

January 5, 2011

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Mr. David Bragdon
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Attention: Ibrahim Abdul-Matin, Policy Advisor

PlaNYC 2030 Update: 2011
Proposed Initiatives for Consideration
Prepared by the New York City Bar Committee on Environmental Law

Dear Mr. Bragdon:

The New York City Bar Committee on Environmental Law submits these comments[1] and proposed initiatives on PlaNYC 2030 Update 2011. Here is a summary table of the proposed initiatives, followed by the comments.

[1] The views expressed in these comments are those of the New York City Bar Committee on Environmental Law as a whole and do not necessarily represent the views of its individual members. The Committee gratefully acknowledges the time and effort of the comment subcommittee chair, Adam Cherson, and subcommittee members Phillip T. Simpson and Christopher Saporita, in preparing these comments.

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PlaNYC Governance	Expand Performance Metrics to Include Embedded Impacts of Products Imported into and Consumed in New York City (p.3)	Creation of embedded impacts database and data acquisition for database; summary of data in annual progress reports
Housing	Incorporate Assorted Low Cost Energy Efficiency Practices into Building Codes (p.15)	Introduce and Support Building Code Legislation
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Water Quality	Package of Incentives Aimed at Reducing CSO Inputs from the Private Sector (p.17)	Introduction of CSO incentive package to City Council
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SUBJECT AREA	PROPOSED INITIATIVES TO CONSIDER (page #)	IMPLEMENTATION MILESTONE
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Energy	Promote Investment Stimulating Mechanisms for Renewable Energy (p.2)	Creation of Entity with Requisite Authority
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Energy	Launch Program to Expand Use of Geothermal Ground Source Heat in Single and Multi-Family Dwellings (p.7)	Operation of a neighborhood pilot program to install the technology in 100 residential homes
Energy	Accelerate Energy Efficiency Innovation (p.7)	Create the Energy Efficiency Research, Development, and Demonstration Program and begin to accept applications for product research, development, and demonstration start-up financing

SUBJECT AREA	PROPOSED INITIATIVES TO CONSIDER (page #)	IMPLEMENTATION MILESTONE
Energy	Advanced Thermostat Controls For Residential Building Sub-Spaces (p.10)	Commission a feasibility study for various heating and cooling technologies in place in City buildings, define best practices, and design an implementation plan
Energy	Launch GreenRoads Program to Lessen Energy Footprint of Roadway and Sidewalk Engineering and Materials (p.11)	Publication of PlaNYC Best Practices and Materials for NYC Roadways and Sidewalks
Energy	Begin implementation of real-time pricing (RTP) across the City (p.13)	Ten percent (10%) of eligible buildings converted to RTP
Energy	Incorporate Assorted Low Cost Energy Efficiency Practices into Energy Code (p.15)	Introduce and Support Energy Code Legislation
Air Quality	Ramp up biofuel use in the City's truck and vehicle fleets, beginning with the conversion of all City school buses to 100% biofuels (p.6)	Set specific targets for biofuel conversion
Air Quality	Create new programs to expand electric vehicle and hybrid electric vehicle deployment in the New York City taxi and limousine fleet (p.6)	50% of the New York City taxi fleet consists of at least hybrid electric vehicles
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Waste Management	New Scope of Action Category (p.19)	Inclusion of Waste Management as Major Impact and Initiative Category in all PlaNYC Planning and Reports
Waste Management	Create a Solid Waste Reduction Intergovernmental Task Force for NewYork City (p.19)	Commission a comprehensive study of solid waste reduction strategies available to New York City
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SUBJECT AREA	PROPOSED INITIATIVES TO CONSIDER (page #)	IMPLEMENTATION MILESTONE
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GreeNYC	Expand Public Involvement in Ideating and Monitoring of PlaNYC Policies, Goals, Initiatives, and Milestones (p.8)	Re-design PlaNYC website to include individual subject area pages where public participation is an essential part of PlaNYC implementation; Development of PlaNYC-Tech Center concept

BACKGROUND

The City is required by law (Local Law 17 of 2008) to update PlaNYC 2030 every four years. The first quadrennial update is due April 22, 2011. The Mayor's Office of Long-Term Planning and Sustainability is leading the effort to update the plan, and as part of this effort, the City has created several ways for New Yorkers to take part in a citywide conversation on PlaNYC 2030. The New York City Bar's Environmental Law Committee offers the following comments in the spirit of community involvement. While we have not necessarily analyzed the ramifications of all the recommendations that follow, we believe they merit consideration by the Mayor's Office of Long-Term Planning and Sustainability. The recommendations are organized according to the following headings: energy related (p.2), built environment related (p.13), water related (p.17), and waste related (p. 19) aspects of the Plan. In cases where an entry echoes an initiative from a more recently proposed NYC plan (such as the new NYC Green Infrastructure Plan[2]), the recommendation is to formally incorporate the relevant portions of the plan into the updated PlaNYC slate of initiatives.

ENERGY RELATED RECOMMENDATIONS

1. Renewable Energy

The New York State Renewable Energy Assessment of December 2009 concludes that New York's renewable energy technical potential is approximately 90 percent of the 2018 forecasted electricity generation requirement.[3] New York State also possesses considerable biomass resources that could be used to produce bio-oils.[4] In New York City, energy prices have stayed 40% higher than the national average for the past 5 years.[5] Since most energy analysts expect the prices of fossil fuels to continue to increase even more during the coming years, if only from the perspective of reducing energy costs[6], the State and New York City stand to benefit from an expansion of renewable energy use. Furthermore, the New York State Renewable Portfolio Standard targets 30% of the State's electricity to come from renewable sources by 2015 and has recently instituted a program aimed at encouraging geographic balance (very few, if any, RPS projects are located in or around New York City). We recommend consideration of the following measures, the main thrust of which is to bridge the gap between New York City's current renewable energy portfolio, including non-electricity fuels, and the New York State RPS

[2] http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_plan.shtml
[3] New York State Energy Planning Board, New York State Energy Plan 2009, Climate Change Issue Brief, p.24, http://www.nysenergyplan.com/final/Climate_Change_IB.pdf
[4] Bioenergy Feedstock Information Network, Biomass Resources, Oak Ridge National Laboratory, http://bioenergy.ornl.gov/main.aspx
[5] U.S. Department of Labor, Bureau of Labor Statistics, Average Energy Prices in New York-Northern New Jersey, October 2010, http://www.bls.gov/ro2/avgengny.pdf
[6] New York State Energy Planning Board, Renewable Energy Assessment, 2009: "Renewable electricity resources reduce the net retail price of electricity paid by all ratepayers...", p. 2, http://www.nysenergyplan.com/final/Renewable_Energy_Assessment.pdf

program. Gains in renewable energy consumption by New York City are likely to have beneficial effects in other PlaNYC areas such as transportation, air quality, and climate change.

A. Governance and Finance

i) New York State is currently operating under the 2002 Renewable Portfolio Standard for electricity generation, as updated periodically. New York City currently has no similar renewable energy target. The New York City Energy Planning Board should develop a Renewable Energy Development Plan specifically tailored for New York City, including mechanisms for financing projects in furtherance of the plan (see recommendations 1.A.ii and 1.A.iii, below). This plan should devise a reasonable target for renewable energy consumption in New York City, either produced locally or imported, should not increase the RPS cost burden to utility customers, and should include technologies appropriate for New York City (such as municipal waste biomass, small scale geothermal, biomass to liquids, and hydrokinetic production-- in addition to the renewable sources defined in the State RPS). The Plan may also consider the creation of an EnergyShed program (see recommendation 1.B.i, below).

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #11.v– Launch a Renewable Energy Development Plan for New York City
c) New Implementation Milestone: Definition of Renewable Energy Target for New York City

ii) In the area of long-term city-wide renewable energy supply, there is a growing consensus that an effective long-term renewable energy policy requires the creation of an institutional mechanism capable of stimulating additional, high-risk investments into that particular type of energy infrastructure. Worldwide, the value of fossil fuel subsidies exceeds those for renewable energy by about 12 to1,[7] creating a large global gap in renewable energy financing. Clean Renewable Energy Bonds (CREBS), loan guarantees, and power purchase agreements are but three examples of policy instruments that could be stimulated to overcome the large risks taken by renewable energy investors. The principle has been recognized not only in the original PlaNYC document, but also by the ad-hoc NYC Energy Planning Board, and in the 2010 PlaNYC Progress Report. The ELC recommends that an appropriate mechanism be instituted whereby the City of New York may provide sufficient incentives to expand renewable energy supply to New York City.

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #11.w– Promote Investment Stimulating Mechanisms for Renewable Energy

[7] http://politicalecology.xyvy.info/fossil-fuel-subsidies-are-12-times-support-for-renewables/

c) New Implementation Milestone: Creation of an entity with authority to initiate and guarantee long-term clean power supply and infrastructure contracts and to facilitate renewable energy bond formation.

iii) In the area of financing for renewable energies, it is apparent that New York City will require its fair share of State RPS funding as well as the use of creative policy instruments to bridge the gap between market-based strategies and the goals of PlaNYC. The ELC recommend that the New York City Energy Planning Board be authorized to advocate before all appropriate bodies for an equitable distribution of RPS funding in addition to those funds already obtained (based on prior PlaNYC documents there appears to be a $145 Million shortfall in RPS funding incentives for the City) and that the appropriate city agencies be authorized to expand the use of additional measures such as Property Assessed Clean Energy (PACE)[8] financing and energy aligned leases[9] in New York City.

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #11.x– Develop Additional Financing Resources for Renewable Energy Installation
c) New Implementation Milestones: Agreement on additional RPS funding; Implementation of Renewable Energy Financing Instruments

iv) PlaNYC is a game-plan for sustainability composed of numerous initiatives and programs. As with all policy directives, there is always the possibility that written concepts fail to materialize upon implementation. One example of this occurs when 'green' criteria contained in requests for proposals do not survive into the contracting phase.[10] Another example could be where clean electricity generation fees paid by ratepayers are not applied to the generation of new, clean electricity (in other words, making sure that each dollar paid for clean energy is actually being used to generate an additional unit of clean energy). The ECL recommends the creation of a PlaNYC Oversight Officer within the Office of Long-Term Planning and Sustainability to oversee the proper execution on the ground of PlaNYC initiatives.

a) Current PlaNYC Initiative On Point: None
b) Updated PlaNYC Initiative: #1– Create PlaNYC Implementation Oversight Office
c) New Implementation Milestones: Establishment of post of PlaNYC Oversight Officer and commencement of oversight functions

[8] U.S. Department of Energy, Property-Assessed Clean Energy (PACE) Programs, http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/pace.html

[9] In an energy aligned lease a landlord is permitted to amortize the costs of making energy efficiency upgrades and to pass those costs through to the tenant to the extent of the tenant's new energy savings.

[10] Palmujoki, et al. Green Public Procurement: Environmental Criteria Found in RFP Often Lacking in Subsequent Contracts. RECIEL, October 6, 2010. http://dx.doi.org/10.1111/j.1467-9388.2010.00681.x

v) An expansion of PlaNYC metrics and progress statistics would produce even stronger and more accurate results in many of the broad categories. The most obvious of these is the renewable energy utilization metric. Another very important metric that is lacking in the current version of PlaNYC concerns the environmental impacts of products imported from outside the City for use or consumption within the City. To give but just one example, a food item, such as a box of cereal, contains a certain amount of embedded energy, represents a certain amount of water use, of pesticide use, carbon emissions, and so on. A true representation of New York City's environmental impact must include the impacts of imported products (this includes comestibles, construction materials, discretionary items, etc). PlaNYC should expand its air quality, energy, climate change, and water metrics to include the impacts within these categories of products produced elsewhere but consumed within New York City (see also recommendation 2.F.i, below).

a) Current PlaNYC Initiative On Point: None
b) Updated PlaNYC Initiative: #2– Expand PlaNYC Performance Metrics to Include Embedded Impacts of Products Imported into and Consumed in New York City
c) New Implementation Milestones: Creation of embedded impacts database and data acquisition for database; summary of data in annual progress reports

B. Base Load Generation

i) Finding suitable sources of renewable energy strictly within the geographical (including offshore) boundaries of New York City may prove difficult. Borrowing from the successful New York City Watershed supply and protection system, the proposed New York City Renewable Energy Development Plan (see recommendation 1, above) could include consideration of a New York City EnergyShed system.[11] The basic contours of such a system could include the creation of a supply network of renewable energy crops and resources in the downstate area, the installation of a production infrastructure for these resources, the installation of a transmission and delivery system from these areas to New York City (possibly using current aqueduct routes), and the conversion of these energies into commodities for distribution to New York City consumers. Among the many benefits of an EnergyShed system would be the development of a biocrop economy for New York State's farmers and landowners, the replacement of residual heating oils with bio-oils, and the substitution of biodiesel in school buses, waste collection trucks, and other city-operated diesel vehicles and equipment.

[11] Hacatoglu, K, McLellan, PJ, and Layzell, DB. Feasibility study of Great Lakes bioenergy system, Bioresource Technology, Volume 102, Issue 2, January 2011, Pages 1087-1094, ISSN 0960-8524, http://dx.doi.org/10.1016/j.biortech.2010.08.063.

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #15– Explore EnergyShed Program
c) New Implementation Milestones: Publication of a technical-economic study of EnergyShed Concept

ii) The ability to sponsor smaller scale pilot demonstrations of new technologies is one of New York City's surest paths to energy innovation. The current PlaNYC includes an initiative to pilot non-incinerating waste-to-energy technologies that should receive continued and expanded support, including an exploration of energy waste collection and sorting modalities and processing sites (including offshore processing) . In addition to the anaerobic digester and waste-chip boiler highlighted in the 2010 Progress Report, the City should encourage pilot plants able to convert municipal wastes, sewage solids, Parks Department waste, and other forms of waste into energy, ranging from electricity to district heat to synthetic gas to hydrogen to liquid fuels (see footnote for partial list of non-incinerating technologies).[12]

a) Current Energy Initiative On Point: #11.6– Pilot one or more technologies for producing energy from solid waste
b) Updated Energy Initiative: #11.6– Pilot more non-incinerating technologies for producing waste-to-energy, including liquid fuels, gas, and heat producing technologies
c) New Implementation Milestones: Request for small scale pilot proposals in a variety of waste-to-energy technologies.

iii) One of New York City's untapped and plentiful renewable energy resources is offshore hydrokinetic. Various technologies such as wave energy converters and current converters are being piloted throughout the world. Some are being co-located with wind turbines. The first step towards harnessing this energy source is to assess it potential. For this purpose, the City should commission a technical-economic study of offshore hydrokinetic technologies as a preliminary step towards possible further application of these technologies.

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #11.y– Commission a Technical-Economic Study of Offshore Hydrokinetic Energy Potentials for New York City
c) New Implementation Milestones: Publication of a technical-economic study of Hydrokinetic energy

[12] Biodiesel from Sewage Sludge: http://dx.doi.org/10.1021/ef1001106; ; Non-recyclable Plastics and Rubbers: http://dx.doi.org/10.1039/b908135f ; Plasma Vitrification: http://dx.doi.org/10.1021/es101244u; Liquid Fuels: http://dx.doi.org/10.1016/j.energy.2010.04.048; Microbial Fuel Cells: http://dx.doi.org/10.1021/es100125h; Anaerobic Digestion: http://dx.doi.org/10.1016/j.scitotenv.2009.10.072; Biofuels and District Heat: http://dx.doi.org/10.1016/j.enpol.2009.07.071; Hydrogen: ttp://dx.doi.org/10.1021/ie100620e; Biogas: http://dx.doi.org/10.1016/j.wasman.2010.04.011; Dimethyl Ether: http://dx.doi.org/10.1007/s11708-010-0121-y

C. On-Site and Mobile Combustion

i) Quite a few alternative fuel vehicles are now available on the market, both from domestic and foreign sources. An initial obstacle to the wider adoption of these vehicles is the availability of an alternative fueling infrastructure. The US Department of Energy has made available a database of alternative fueling stations that makes evident the lack of publicly accessible facilities in and around New York City.[13] A coherent strategy for this infrastructure should be initiated under the auspices of PlaNYC. Among the options for consideration are availability of EV and HEV charging stations in parking garages, the availability of ethanol, biodiesel, and other biofuels at more fueling stations, and the integration of biofuel supply with a program such as EnergyShed (see recommendation 1.B.i, above).

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #11.z– Facilitate Expansion of Alternative Fueling Infrastructure for Private Vehicles
c) New Implementation Milestones: Pilot program for alternative fueling availability in key metropolitan areas.

ii) Some recent studies have shown that diesel emissions from school buses are especially harmful to children riding inside the buses.[14] Particulate filters are a good starting remedy, but an even more effective way of reducing harmful emissions from school buses would be to substitute more biofuels (such as biodiesel, bio-butanol, bio-methanol, and dimethyl ether) for their existing engines. Such a measure would serve a dual purpose of addressing potential children's health issues and increasing the use of renewable fuels in the City. Other city vehicles that are still using large fractions of conventional petroleum based fuels, such as waste collection trucks and fire engines, as well as City generators and equipment engines, should be shifted to an ever-increasing biofuel fraction as well. Vehicles and equipment owned by private companies that perform the same functions should be held to the same fuel substitution standards. This initiative may be productively integrated with a program such as EnergyShed (see recommendation 1.B.i, above).

a) Current Air Quality Initiative On Point: #4.1– Introduce biodiesel into the City's truck fleet, go beyond compliance with local laws, and further reduce emissions
b) Updated Air Quality Initiative: #4.1– Ramp up biofuel use in the City's truck and vehicle fleets, beginning with the conversion of all City school buses to 100% biofuels
c) New Implementation Milestones: Set specific targets for biofuel conversion

[13] U.S. Department of Energy, Alternative Fueling Stations, http://www.afdc.energy.gov/afdc/fuels/stations.html
[14] US Environmental Protection Agency, Diesel School Buses, http://cfpub.epa.gov/schools/top_sub.cfm?t_id=37&s_id=38

iii) The 2010 Progress Report shows that 25% of City taxicabs are now electric hybrid vehicles. PlaNYC should continue to explore ways of increasing the percentage of electricity-driven taxis and limousines. Two possible options include a program and incentives for converting conventional vehicles to hybrid electric ones, and initiating a pilot battery-swap program for electric taxis and limousines for further evaluation.

a) Current Air Quality Initiative On Point: None
b) Updated Air Quality Initiative: #3.x– Create new programs to expand electric vehicle and hybrid electric vehicle deployment in the New York City taxi and limousine fleet.
c) New Implementation Milestones: 50% of the New York City taxi fleet consists of at least hybrid electric vehicles.

iv) For New York City's large stock of single and multi-family dwellings, the option of closed-loop geothermal ground source heat for both heating and cooling represents a vast untapped reservoir of renewable energy. PlaNYC could help to unleash this potential by promoting an economic development program around this technology. Economic incentives for property owners, job training and certification for installers, and best practices advice for all parties, would lead the way towards geothermal energy use.

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #16– Launch Program to Expand Use of Geothermal Ground Source Heat in Single and Multi-Family Dwellings
c) New Implementation Milestones: Operation of a neighborhood pilot program to install the technology in 100 residential homes.

2. Reduced Energy Consumption

A. Governance and Finance

i) Since continuing progress in reduced energy consumption depends largely on innovative efficiency strategies, technologies, and materials, then it well behooves the Plan to devise a strategy for stimulating these innovations for particular application to New York City. A key to achieving this goal may be found in the City's policy for biotechnology innovation which has been a combination of providing low-cost research facilities plus a mechanism for recognizing worthy ideas and financing early start-ups seeking to commercialize these ideas. A similar model could be applied to create an 'Energy Efficiency Research, Development, and Demonstration Program'. This program could be integrated into the PlaNYC Tech Center initiative (see recommendation 2.A.ii, below)

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #17– Accelerate Energy Efficiency Innovation
c) New Implementation Milestones: Create the Energy Efficiency Research, Development, and Demonstration Program and begin to accept applications for product research, development, and demonstration start-up financing.

ii) According to the latest research, public participation is an essential component of successful environmental assessment and decision making[15], and policy execution[16]. Many of the goals of PlaNYC would benefit from increased public engagement. The public commenting events and systems created in conjunction with the 2011 update are good examples of public participation programs. The GreeNYC initiative is well suited to foster public involvement with PlaNYC and the ELC recommends an expansion of GreeNYC initiatives aimed at public participation throughout the inter-update period to guarantee continued positive support and results for plan initiatives. New or expanded GreeNYC programs may include monitored, public blogs on the PlaNYC website covering each of the PlaNYC areas; crowd-sourcing of ideas for new initiatives; development of online voting for crowd-sourcing ideas; and utilization of a portion of Governor's Island for a PlaNYC-Tech Center where new technology is showcased, new products are developed by professional researchers and/or citizens with prize winning ideas, and a citizen-science monitoring center are all housed.

a) Current GreeNYC Initiative On Point: None
b) Updated GreeNYC Initiative: #1– Expand Public Involvement in Ideating and Monitoring of PlaNYC Policies, Goals, Initiatives, and Milestones
c) Implementation Milestone: Re-design PlaNYC website to include individual subject area pages where public participation is an essential part of PlaNYC implementation; Development of PlaNYC-Tech Center concept

B. Increased Use of Public Transportation

i.1) New York City is already benefiting from significant subway use as shown by the 2010 Progress Report. A tough question is how to achieve even more impressive results without altogether banning vehicles from certain areas. In this vein, there are two recommendations that could produce incremental improvements. The first is to make subway stations more climate comfortable by using the renewable resource of geothermal ground source heat to both heat and cool subway platforms in the major stations. Geothermal heating and cooling systems would prevent the sauna and ice cube effects that make platforms unsupportable during

[15] Public Participation in Environmental Assessment and Decision Making: National Research Council: http://www.nap.edu/catalog.php?record_id=12434
[16] http://dx.doi.org/10.1111/j.1365-2664.2010.01874.x

exceptionally hot and cold days, while also serving to enhance our use and knowledge of this source of energy.

a) Current Transportation Initiative On Point: None
b) Updated Transportation Initiative: #17– Improve Subway Station Climate Comfort
c) New Implementation Milestones: Select first station for demonstration project and install geothermal heating and cooling in the station.

i.2) The second recommendation to encourage subway and bus use is to make subway and bus riding more bicycle accessible by developing a program for bicycle pathways to select stations and bus pick-up points and providing bicycle parking at these select locations. While bicycles are permitted in the subways and on buses, they are not practical means of commuting during busy hours of operation. A well planned and executed system of making certain stations and pickup locations especially convenient for cyclists would help to overcome this limitation. These locations, not necessarily the busiest or largest ones, would be specially geared towards bicycle commuters by providing adjacent areas of well lit and guarded parking where a large number of riders could park their equipment safely and indefinitely. A carefully designed network of subway and bus access bicycle lanes could assure access to these stations from areas underserved by the subway and bus systems as well by means of the main system of bicycle paths already well underway. These special stations could also be the locations for a system of bicycle rentals throughout the City. If necessary, a small annual parking fee could help defray program expenses.

a) Current Transportation Initiative On Point: #9– Promote Cycling
b) Updated Transportation Initiative: #9.1– Create Network of Bicycle Friendly Subway Stations and Bus Pick-up Points
c) New Implementation Milestones: Plan system and build first pilot station

ii) The early PlaNYC experience with congestion pricing illustrates the difficult gauntlet that this type of policy must run. In spite of the brouhaha already encountered and the application of certain very good measures, the situation is still quite bad, especially for cross-town travel. There are alternative congestion strategies to consider that could alleviate delays in the central business district by either encouraging greater use of public transportation or managing the roads more efficiently. The first of these is to increase the fees for on-street parking meters and for parking meter violations, both of which need no further explanation. The second is to increase the parking tax for garages within the Central Business District, which also needs no further explanation. The third is to further incentivize and make permanent an off-hours delivery program that limits the hours of freight and construction deliveries in the Central Business District to the hours between 7pm and 6am. Each of these strategies will be further enhanced by a continuing effort to calm traffic using physical street

improvements and the strict enforcement of traffic laws— while carefully balancing benefits and burdens to pedestrians, bicyclists, and motorists.

a) Current Transportation Initiative On Point: #10– Pilot Congestion Pricing
b) Updated Energy Initiative: #10– Implement Alternate Forms of Congestion Reducing Incentives
c) New Implementation Milestones: Implement congestion measures and monitor improvements.

C. Energy Efficiency

i) As shown in the 2010 Inventory of City Greenhouse Emissions, energy use in buildings is highly driven by exterior temperature. There are many buildings in the City where one temperature setting affects multiple levels and rooms within the building. This inefficiency can often require residents to open windows in the height of winter to prevent overheating. Therefore one fundamental peg of building efficiency is a high degree of individual responsiveness to temperature shifts, from room to room, using advanced thermostat-controlled heating and cooling. A city-wide program to convert all separately heated and cooled residential building spaces to individualized thermostat control will equate to significant gains in energy consumption, not to mention other salubrious quality of life effects.

a) Current Energy Initiative On Point: None
b) Updated Energy Initiative: #4.1– Advanced Thermostat Controls For Residential Building Sub-Spaces
c) New Implementation Milestones: Commission a feasibility study for various heating and cooling technologies in place in City buildings, define best practices, and design an implementation plan.

ii) The widespread adoption of Global Positioning System (GPS) technology in passenger vehicles opens up a new avenue for increasing fuels efficiency in congested areas. Integrating vehicle GPS systems with real time Central Business District congestion information could be the foundation of an effective congestion management and communication network with on-screen delay advisories and alternate route suggestions made on the spot. Further integration of priority signaling[17] for surface transit vehicles into this system, particularly for Select Bus Service (SBS) and Bus Rapid Transit (BRT) routes, would promote the increased use of public transportation, discussed generally under item 2.B, by reducing travel time for transit riders along streets and roads shared with low occupancy vehicles. Furthermore, computerized traffic signals could also be programmed to respond to congestion information feeds coming via GPS. In addition to requesting proposals from traffic engineering firms, a concerted effort should be

[17] http://www.fta.dot.gov/assistance/technology/research_4359.html

made to coordinate and annex the resources and advancements possessed by computer technology firms and university research centers. For example, the providing of GPS-generated information to vehicles could be combined with temporary alterations to traffic signal priorities for traffic-smoothing during non-typical situations. Greater unification of the research and development talent already available will speed implementation of the newest technologies

a) Current Transportation Initiative On Point: #11.2– Create an integrated traffic management system
a) Updated Transportation Initiative: #11.2– Use GPS Feeds to Provide Real Time Congestion Information to Drivers and to Make Traffic Signals Responsive to Congestion
b) New Implementation Milestones: Request for proposals from traffic engineering firms.

D. Lower Energy Materials

i) One of the major management tasks for New York City is the constant upkeep and replacement of road and sidewalk surfaces. These areas constitute a significant proportion of the City's spacial extent. Advancing the engineering practices and materials used for roads and sidewalks offers the potential of addressing a variety of PlaNYC goals such as air quality (reduced VOC and particulate emissions[18]), energy reduction (lower embedded energies, reduced maintenance[19]), vehicle efficiency (surface dynamics[20]), water quality (higher permeability[21], lower toxic run-off[22]), and climate change (higher reflectivity[23]). Due to the numerous environmental impacts of roads and sidewalks, PlaNYC should consider implementing an advanced surfacing program to assist in the development and implementation of lower impact technologies and materials.[24]

a) Current Transportation Initiative On Point: None
b) Updated Transportation Initiative: #17– Launch GreenRoads Program to Lessen Environmental Impacts of Roadway and Sidewalk Engineering and Materials
c) New Implementation Milestones: Publication of PlaNYC Best Practices and Materials for NYC Roadways and Sidewalks

[18] http://dx.doi.org/10.1021/es802119h
[19] http://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CTG020&respos=1&q=asphalt&o=Rank&od=asc&pn=0&ps=10
[20] http://www.www.eapa.org/usr_img/position_paper/fuel_efficiency_report.pdf, p.15.
[21] http://www.nytimes.com/2007/11/26/us/26chicago.html?_r=1
[22] http://dx.doi.org/10.1021/es802119h
[23] http://dx.doi.org/10.1088/1748-9326/5/1/014005
[24] http://www.greenroads.us and http://www.rmrc.unh.edu

E. Waste Related Energy Reductions

i) Waste reduction has long been recognized as one of the shortest routes to environmental sustainability. However, in New York City there is no economic incentive favoring waste reduction because waste disposal pricing is not based on rate of use of the service. Persons discarding zero waste pay the same for waste disposal as heavy users. To align the economics of the waste disposal system with the policy ideals, serious consideration should be given to a variable pricing mechanism based on rates. This is obviously a difficult challenge and yet one that is well within the horizon of the year 2030. In order to address the development of appropriate pricing mechanisms, PlaNYC should commission a techno-economic study that examines alternatives for assessing use-based waste disposal fees to New York City's citizens and businesses.

a) Current Waste Management Initiative On Point: None
b) Updated Waste Management Initiative: #18– Develop Mechanism for Variable Waste Pricing
c) New Implementation Milestones: Commission Preliminary Feasibility Study of Solid Waste Reduction via Alternative Pricing Mechanisms and Collection Technologies

ii) About 17% of municipal waste consists of food scraps.[25] The avoidance of this portion of the waste stream could reduce the City's annual waste stream, thereby improving energy, climate change, air quality, and cost impacts. Food scrap composting programs have been operational in Seattle and San Francisco since 2009.[26] PlaNYC should consider the design and implementation of a feasible plan for food scrap composting together with a compost collection and utilization system using these other programs as a point of departure.

a) Current OpenSpace Initiative On Point: None
b) Updated OpenSpace Initiative: #7.x– Create a feasible food scrap composting program, including collection and utilization of compost for City green spaces.
c) New Implementation Milestones: Introduction of food scrap composting law to City Council for consideration

F. Consumer Choices

i) Consumer choice is an under-utilized pathway for lowering New York City's environmental impacts. In order for consumers to make purchasing choices that include environmental impact considerations, these impacts must be readily accessible. Few consumers have the time to conduct independent research on each of the products they buy so a product labeling system would be necessary to convey this information and allow direct comparison at the point of purchase. An

[25] http://www.nyc.gov/html/nycwasteless/downloads/pdf/wp-reports/wprr06.pdf
[26] http://www.npr.org/templates/story/story.php?storyId=113969321

eco-labeling system for products sold in New York City could include a standardized metric for impacts such as water intensity, energy intensity, carbon intensity, and possibly others. Such information is usually already known to manufacturers and producers and we believe it could be added to existing labels without much additional cost. The eco-labeling program could be developed in conjunction with the adoption of product metrics into PlaNYC progress assessments (see Governance recommendation (v), above).

a) Current Climate Change Initiative On Point: None
b) Updated Climate Change Initiative: #4– Launch an Eco-Labeling Program for Products Sold in New York City
c) New Implementation Milestones: Commission techno-feasibility study of eco-labeling for products sold in New York City

ii) In the realm of consumer choice and citizen involvement, the establishment of variable electricity pricing could be the most cost-effective means for managing the City's power load. Furthermore, electricity consumers need to be made aware of pricing options available to them under new programs. Several initiatives are being pursued by current PlaNYC initiatives and the ELC recommends aggressive implementation of these initiatives.

a) Current Energy Initiative On Point: #6.1– Support expansion of real-time pricing (RTP) across the City.
b) Updated Energy Initiative: #6.1– Begin implementation of real-time pricing (RTP) across the City.
c) New Implementation Milestones: Ten percent (10%) of eligible buildings converted to RTP.

BUILT ENVIRONMENT RELATED RECOMMENDATIONS

One theme running through the PlaNYC Progress Report 2010 is that fiscal constraints, whether lack of funding or lack of ability to borrow money for capital projects, have stalled some of PlaNYC's initiatives. Yet, there are a number of low-cost actions that can be taken with regard to the impact that New York City's built environment has on the natural environment, which would advance the goals of PlaNYC. The NYC Green Codes Task Force identified 111 actions that would "green" the City's building and construction codes. Many of these actions, according to the Green Codes Task Force Report[27], would have low or no cost, and still others would be of moderate cost. It is recommended that, in this time of reduced tax revenues and reduced lending, PlaNYC focus on those actions identified by the Green Codes Task Force that can be implemented without significant public fiscal impact or need for the private sector to borrow money. The following are specific recommendations from the Green Codes Task Force identified as having low or no cost, which we believe would advance the positive impact that the built environment can have on PlaNYC's goals. The recommendations are grouped by the

[27] Urban Green Council, Cost of Green in NYC, October 1, 2009, http://www.urbangreencouncil.org/advocacy/coststudy/

categories in the PlaNYC Progress Report 2010 and identified by the Green Codes Task Force designation. Please refer to the Green Codes Report for additional explanations.

1. Water Quality

Managing stormwater is identified in the PlaNYC Progress Report 2010 as the "biggest remaining challenge" (*id.* p. 30) pertaining to water quality. Most of the following actions would directly ameliorate the management of stormwater. The last is a water treatment strategy.

- SW 1 – reduce excessive site paving (low cost)
- SW 2 – require increased detention systems for new development (low to moderate cost)
- SW 3 – regulate stormwater runoff on constructions sites smaller than one acre (moderate cost)
- SW 4 – send rainwater directly to waterways (moderate cost)
- SW 5 – revise stormwater regulations to account for landscape-based strategies (no cost)
- SW 6 – require property owners to maintain stormwater detention systems (low cost)
- HT 13 – require treatment of washwater from concrete trucks (moderate cost)

a) Current Water Quality Initiative On Point: #9– Pilot Promising Best Management Practices (BMPs)
b) Updated Water Quality Initiative: #9.x– Implement Assorted Low Cost Stormwater Reduction Practices
c) New Implementation Milestone: Create pilot programs in furtherance of stormwater reduction practices

2. Water Network

Reduction in the unnecessary use of potable water reduces demand on the City's water supply network and frees up the watershed's output for other environmental and economic uses. In October 2010, the City Council passed four local laws designed to increase water efficiency and access to potable water. Three of these laws – Int. 263/LL 54, Int. 268/LL56, and Int. 271/LL57 – implement recommendations made by the Green Codes Task Force (WE 6 – discontinue use of potable water in "once-through" cooling systems; WE 3 – submetering of water use to detect leaks quickly; and WE 1 – enhanced water efficiency standards. There are still other low and moderate cost recommendations from the Green Codes Task Force that should further reduce demand for potable water.

- WE 2 – require upgrade of bathroom fixtures when bathrooms are renovated (low cost)
- WE 4 – expand use of recycled water (low cost)
- WE 5 – reduce use of potable water for washing sidewalks (low cost)
- WE 7 – require reuse of ConEd steam condensate (moderate cost)
- EE 18 – require maximization of recovery of heat from steam condensate (moderate cost)

a) Current Water Network Initiative On Point: #4 –Launch a Major New Water Conservation Effort

b) Updated Water Network Initiative: #4.x– Implement Assorted Low Cost Water Efficiency and Reduction Practices
c) New Implementation Milestone: Create pilot programs in furtherance of water efficiency and reduction practices

3 .Transportation

Please see section 2-D-i, Lower Energy Materials, in the Energy Recommendations section, above.

4. Energy

The package of four local laws passed in 2010 (47, 48, 51, and 52) that modify lighting standards to take daylight into consideration, require installation of occupancy-based and photo-sensing lighting controls in commercial buildings, and permit use of occupancy-based and photo-sensing lighting controls in public areas of residential buildings is significant progress. (*Cf.* EF 10 and EE 15 – reduce artificial lighting in sunlight spaces, EE 7 – lighting efficiency in residential buildings, and EE 13 – manual on, auto off lighting) The City's relevant agencies, including DOB and HPD, should undertake outreach to assure that the people who are on the ground making decisions about lighting are aware of what is now required and/or allowed. Organizations such as the Rent Stabilization Association, Local 32 B&J, New York Council on Coops, Federation of Coops, Association of Riverdale Coops, and BOMA are logical targets for such outreach.

The Progress Report states that the City is working to develop and pilot "energy aligned leases." (p. 57) The existence of "misaligned incentives" for efficiency upgrades in commercial buildings (*id.*) has been recognized by the private sector and model "green leases" have been developed. It is recommended that, rather than inject itself unnecessarily into contract drafting between private entities, the City, in conjunction with Con Ed, devise incentives for landlords and tenants to incorporate "energy aligned" provisions into their leases.

The following are specific actions recommended by the Green Codes Task Force that should further energy conservation at low to moderate cost.

- EF 1 – make ASHRAE 90.1 the sole energy code for commercial buildings (low cost)
- EF 2 – require all new residential buildings three stories or less to meet ENERGY STAR home standards (as set forth by NYSERDA in the New York ENERGY STAR Homes Technical Specifications) (low cost)
- EF 4 – promote super-insulated exterior walls by excluding a significant amount of wall thickness from Floor Area calculations, thereby not penalizing a building's FAR when it uses a super-insulated exterior wall (no cost)
- EF 5 – promote external insulation on existing buildings by allowing it to extend into building setbacks (no cost)
- EF 6 – increase allowable size of exterior window shades (no cost)

- EF 9 – DOB to require proof that residential windows open to the required minimum (low cost)
- EF 11 – require cool roof coatings (low cost)
- EF 12 – require cool and/or shaded building lots (low cost)
- EF 13 – DOB to develop clear standards for placement of solar panels on roof tops (low cost)
- EF 14 – Exempt solar panels from being counted as another "floor" of a building (low cost)
- EF 15 – amend Zoning Resolution to permit alternative energy equipment on roofs (low cost)
- EF 16 – amend Landmarks Law to treat alternative energy equipment the same as other mechanical equipment on roofs (low cost)
- EE 3 – require developers of new large buildings to analyze possibility of cogeneration (low cost)
- EE 8 – require ENERGY STAR ® appliances in newly renovated buildings and apartments (low cost)
- EE 9 – require public dryers in coops, condos, and apartments to sell time in 15 minute increments (low cost)
- EE 14 – limit after-hours lighting in retail spaces (low cost)
- EE 20 – establish clear criteria for "sidewall venting" of boilers (low cost)
- EE 21 – update boiler regulations (low cost)
- EE 22 – reduce lighting power capacity requirements for offices (low cost)
- EE 25 – require commissioning of new energy systems (moderate cost)
- EE 26 – require testing of new lighting systems (moderate cost)
- EE 28 – require boiler testing, cleaning, tuning and repairs in large buildings (low cost)
- EO 3 – train building operators in energy efficiency (low cost)
- EO 5 – require inspection and maintenance of commercial HVAC systems (low cost)
- EO 6 – set upper limits for heating and lower limits for cooling (low cost)

a) Current Energy Initiative On Point: #3 –Strengthen Energy and Building Codes in New York City
b) Updated Energy Initiative: #3.x– Incorporate Assorted Low Cost Energy Efficiency Practices into Energy and Building Codes
c) New Implementation Milestone: Introduce and Support Building and Energy Code Legislation

5. Air Quality

The biggest outstanding concern noted in the Progress Report is small particle pollution caused by the approximately 9,900 private buildings that burn #4 and/or #6 fuel oil. The City itself, through the Department of Education, is making progress in more efficient and cleaner operation of its boilers. It is recommended that the City work with the relevant groups, including the Rent Stabilization Association, the coop groups mentioned, and the New York Oil Heating Association, to create incentives to switch to cleaner fuels and to upgrade boilers for cleaner and

more efficient burning. The Green Codes Task Force addresses this in HT 9. In addition, there are specific building material measures that would have a beneficial impact on indoor air quality.

- HT 1 – require use of low-VOC carpets, backing, and cushioning (low cost)
- HT 2 – require use of low-VOC paints and glues (low cost)
- HT 3 – restrict use of building materials containing formaldehyde (low cost)
- HT 4 – require new buildings to install entrance mats that capture particulates (low cost)
- HT 14 – remove unnecessary requirements for removal of encased asbestos products (low cost)

a) Current Air Quality Initiative On Point: None
b) Updated Air Quality Initiative: #15– Decrease Toxic Emissions from Building Materials
c) New Implementation Milestone: Introduce and Support Building Code Legislation Requiring the Use of Low Toxic Emissions Materials

WATER RELATED RECOMMENDATIONS

1. Combined Sewer Overflows (CSO)

The PlaNYC Water Quality provisions, which incorporate the City's subsequent Sustainable Stormwater Management Plan of 2008, establish a laudable goal of reducing CSOs sufficiently to allow the opening of 90% of our waterways to recreation. Substantial steps towards this goal have already been completed, including stormwater capture facilities and increased green/vegetated surfaces. However, the City's data demonstrate that those steps are falling drastically short. The storage capacity and diversion measures already implemented, plus projected projects, amount to a fraction of the tens of billions of gallons of reduced inputs that must be achieved. Certain key water quality indicators, in particular harbor-wide dissolved oxygen levels, have recently moved in the wrong direction.[28] The PlaNYC annual report attributes the slow progress to the unproven feasibility of alternative strategies, and a lack of funding for implementing more proven strategies. To those, we would add the lack of sufficiently focused metrics with which to set goals and evaluate achievement. Secondly, the current program focuses almost exclusively on public property, while private property in the City accounts for nearly 50% of the total land area responsible for runoff.[29]

[28] http://www.nyc.gov/html/dep/pdf/hwqs_centennial.pdf

[29] During the preparation of this report by the New York City Bar Environmental Law Committee, the City released a new NYC Green Infrastructure Plan, a document that reiterates or expands upon some of the recommendations made herein. In these cases, the recommendation is to formally incorporate the relevant portions of the Infrastructure Plan into the updated PlaNYC slate of initiatives. The NYC Green Infrastructure Plan may be downloaded from here: http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_plan.shtml

A. Data and Coverage

The CSO plan would benefit from a greater focus on quantifying the needed flow reductions, connecting them to their sources, and evaluating the reductions achieved. In order to develop a comprehensive and effective approach to eliminating CSOs, the PlaNYC policy should be to first quantify the various input elements of the sewer system then calculate the necessary reductions for each sector. The process would begin with an evaluation of overall system capacity, an accounting of sanitary water inputs by sector (residential, commercial and public), followed by an accounting of stormwater impacts by sector. These new data would be used to set targeted, sector-by-sector, sewer use budgets.

a) Current Water Quality Initiative On Point: None
b) Updated Water Quality Initiative: #11– Design a CSO Reduction Plan Driven by Sector-by-Sector Data
c) New Implementation Milestone: Completion of CSO reduction plan for New York City

B. Package of Private Sector Incentives

Once the data and budgets are developed, the City would be in a position to establish a system of private sector fees, incentives, regulations, and subsidies targeted to achieving the necessary reductions. The incentive system is complementary to the specific pilot programs mentioned in the Built Environment: Water Network and Water Quality sections above. The system should include both the stormwater absorption and retention (the focus of current initiatives) and sanitary water inputs (ignored by current initiatives). There are approximately 1 billion gallons of sanitary water inputs to the sewer system per day in New York City (equal to twice the average daily volume of CSO event discharges). The City should consider the following:

i) In the stormwater context, establishing runoff fees, based on actual impervious area (roofs, pavement, etc.) of a given property. Such a regulatory-incentive system should offer sufficient credits to drive investment in absorption (vegetation, pervious pavement, etc.) and retention (blue roofs, rain barrels, etc.) technologies, with the fee proceeds being reinvested into subsidies and/or low interest loans for such improvements. Over time, the levy and reinvestment of these fees should be increased incrementally to drive further reductions and innovation.
ii) In the sanitary water context, establishing progressive fees that encourage use reduction (efficiency and conservation) and reuse (gray water). As with the stormwater fees, fees collected for excess sanitary water use should be reinvested into programs stimulating greater reductions and reuse.

a) Current Water Quality Initiative On Point: #9 – Provide Incentives for Green Roofs
b) Updated Water Quality Initiative: #9.x – Package of Incentives Aimed at Reducing CSO Inputs from the Private Sector

c) New Implementation Milestone: Introduction of CSO incentive package to City Council

C. Clean Water Action Days

The City should consider establishing "Clean Water Action Days," corresponding to weather driven CSO events, and designed to achieve greater short-term, temporary reductions in peak sanitary water usage. These could involve a combination of heightened public education, including media alerts, imposed flow restrictions on major users, and heightened fees for sanitary water usage above a temporary reduced budget (expressed as a percentage of the normal budget).

a) Current Water Quality Initiative On Point: None
b) Updated Water Quality Initiative: #11.x – Create Clean Water Action Days Program
c) New Implementation Milestone: Implementation of Clean Water Action Days Program

WASTE RELATED RECOMMENDATIONS

1. Solid Waste

A. Governance

The production of solid waste, both residential and commercial, is a major source of City-created environmental impacts affecting air, soil, and water quality across a broad geography. Despite the large economic, environmental, and social impacts of municipal solid waste disposition, waste management is not codified as a major area of interest in the PlaNYC model. Neither are there any specific initiatives under other category areas aimed at waste management activities, apart from a general initiative to increase biodiesel blending in the City's truck fleet. The ELC recommends that the new PlaNYC be expanded to include a separate impact category for Waste Management and that cost and impact reduction initiatives based on comprehensive measurement indicators be designed and implemented in the coming years.

a) Current Waste Management Initiative On Point: None
b) Updated Waste Management Initiative: New Scope of Action Category
c) New Implementation Milestone: Inclusion of Waste Management as Major Impact and Initiative Category in all PlaNYC Planning and Reports

B. Waste Reduction

At least 2/3 of New York City's solid waste must be disposed of in landfills located mostly outside New York State. This in turn requires an elaborate network of waste hauling, barging, and landfilling operations stretching as far as Ohio and South Carolina. The cost to the City of this service is approximately $76 per ton for the 10,500 tons per day requiring landfilling (about

$300 million per year), and is likely to increase over time due to rising fuel costs.[30] Therefore, initiatives aimed at reducing the stream of solid waste emanating from all sectors would benefit both the City's budget and the quality of life of its citizens. Therefore, the ELC recommends that a program of solid waste reduction be incorporated into PlaNYC, which could include such points of action as increases in the recycling rate, implementation of organic waste recycling, MetroCard recycling, variable rate pricing (see Waste Related Energy Reductions in the Energy Recommendations, above), consumer product labeling, and other innovative measures to lessen the City's solid waste footprint.

a) Current Waste Management Initiative On Point: None
b) Updated Waste Management Initiative: #1 – Create a Solid Waste Reduction Intergovernmental Task Force for New York City
c) New Implementation Milestone: Commission a comprehensive study of solid waste reduction strategies available to New York City

2. Sewage Waste

An emerging list of wastewater contaminants not being treated by existing treatment facilities is becoming the object of environmental concern around the world.[31] Substances such as personal care product chemicals, pharmaceuticals, nanomaterials, illicit drugs, caffeine, and disinfectant by-products are entering adjacent water bodies and causing metabolic changes in wildlife populations.[32] These contaminants may also enter into biosolids produced by water treatment facilities and then later applied as agricultural amendments.[33] This is an area that requires scrutiny and action by PlaNYC. The first step is to identify and quantify the contaminants being left untreated in the City's wastewater using the latest testing protocols.[34] This study should be followed by a plan of treatment using the latest best practices.[35]

a) Current Water Quality Initiative On Point: #7 – Pilot Promising Best Management Practices (BMP)

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[30] Rosenthal, Elisabeth, "Europe Finds Clean Energy in Trash, but U.S. Lags", NewYork Times, April 12, 2010.
[31] Yan, S. et al., Emerging Contaminants of Environmental Concern: Source, Transport, Fate, and Treatment. Pract. Periodical of Haz., Toxic, and Radioactive Waste Mgmt. Volume 14, Issue 1, pp. 2-20 (January 2010). DOI: 10.1061/(ASCE)HZ.1944-8376.0000015
[32] Brooks, B. et al. Determination of select antidepressants in fish from an effluent-dominated stream. Environmental Toxicology and Chemistry, 24: 464–469 (2005). DOI: 10.1897/04-081R.1; Ramirez, AJ, et al. Occurrence of pharmaceuticals and personal care products in fish: Results of a national pilot study in the united states. Environmental Toxicology and Chemistry, 28: 2587–2597 (2009). DOI: 10.1897/08-561.1; Kumar, A. and Xagoraraki, I. Pharmaceuticals, personal care products and endocrine-disrupting chemicals in U.S. surface and finished drinking waters: A proposed ranking system. Science of The Total Environment Volume 408, Issue 23, 1 November 2010, Pages 5972-5989. DOI: 10.1016/j.scitotenv.2010.08.048
[33] Sabourin, L. et al. Runoff of pharmaceuticals and personal care products following application of dewatered municipal biosolids to an agricultural field. Science of The Total Environment Volume 407, Issue 16, 1 August 2009, Pages 4596-4604. DOI:10.1016/j.scitotenv.2009.04.027
[34] Ort, Christopher, et al. Sampling for Pharmaceuticals and Personal Care Products (PPCPs) and Illicit Drugs in Wastewater Systems: Are Your Conclusions Valid? A Critical Review. Environ. Sci. Technol., 2010, 44 (16), pp 6024–6035. DOI: 10.1021/es100779n
[35] Perez, G. et al. Electro-oxidation of reverse osmosis concentrates generated in tertiary water treatment. Water Research Volume 44, Issue 9, May 2010, Pages 2763-2772. DOI: 10.1016/j.watres.2010.02.017

b) Updated Waste Management Initiative: #7.x – Commission Testing Study of Emerging Pollutants in Treated Wastewater; Define Treatment Priorities and Options
c) New Implementation Milestone: Publication of emerging pollutants study

The New York City Bar Committee on Environmental Law thanks you for the opportunity to submit these comments.

Respectfully submitted,
New York City Bar
Committee on Environmental Law