Appendix 8H

Description of New York City's PlaNYC and Other Initiatives that Will Improve Air Quality

(Provided by NYDEC, February 2008)

PlaNYC

In December of 2006, New York City announced the intent to develop a strategy to deal with growth, infrastructure, sustainability and the need for environmental improvement. The resulting plan, known as PlaNYC, contains measures that New York City has, or will, institute or promote to address these issues between now and 2030. Many of these will become effective in the near term, however. From the environmental perspective, PlaNYC deals with land issues, water and air quality, energy, transportation and climate change. Though some of the initiatives it includes will not take place for some time, PlaNYC will effect a continuous improvement in all environmental media over more than the next two decades..

The portion of PlaNYC that concerns air quality encompasses a comprehensive program for addressing pollution that originates from residential units, motor vehicles, buses, truck and other diesel equipment, as well as utility operations throughout New York City, which is the core of the nonattainment area. Many of these program elements will result in a reduction of particulate matter and its precursors. These elements include:

- Improving the benefits derive from the area transportation plan by implementing congestion pricing. This would assess Manhattan drivers an $8 charge between 6am and 6pm in designated zones. The imposition of such a fee would result in a 6.3% reduction of vehicles miles traveled in the area, which could yield a 3.7% reduction in VOC, a 2.8% reduction in NOX, and a 2.8% reduction in carbon monoxide emissions across the city.

- Improving the fuel efficiency of private cars by promoting the use of new technologies, cleaner cars and hybrid vehicles, reducing the emissions of both criteria pollutants and CO2. Actions under PlaNYC would encourage the purchase of the cleanest, most efficient cars through measures such as waiving New York City's sales tax on the cleanest, most efficient vehicles in a five-year pilot program. If the city's gas vehicles were comprised of 10% fuel efficient hybrids, citywide CO2 emissions would be reduced by 1%, and, by 2030, could result in more than a 3% PM 2.5 emissions reduction. New York City itself has begun utilizing hybrid technologies where possible. Over 1,700 hybrids have been added to the City's vehicle fleet in the past five years and, by 2006, hybrids represented nearly 7% of the City's total fleet, compared with less than 1% of the private vehicles registered in the City. The development of plug-in hybrids is also being tracked. A hydrogen fueling station and pilot six hydrogen vehicles, which emit little more than water vapor upon combustion and are essentially zero-emission vehicles, are planned starting in 2008.

- Reducing emissions from taxis, black cars, and for-hire vehicles by reducing idling and increasing fleet fuel efficiency. PlaNYC notes that taxis account for

4% of all ground transportation CO2 emissions and 1% of all city CO2 emissions. The City's efforts will reduce citywide CO2 emissions by 0.5% while also improving air quality. Many of the city's yellow taxis and black cars spend significant time idling in order to maintain access to their air conditioning and heating. In 2007, the City planned to complete an evaluation of different anti-idling technologies with the black and yellow car industries and select the best option. Implementation of the $6 million program is planned between 2008 and 2010. The City's efforts are also expected to result in the entire fleet being converted to more fuel-efficient vehicles within eight to 10 years. By 2010, the City will require that new cars achieve double the fuel efficiency of today's non-hybrid vehicles. The results of the City's commitment would result in the entire black car fleet being converted to cleaner vehicles within five years. This should yield a 50% decrease in CO2 emissions from this sector and reduce the emissions of other pollutants.

- Replacement, retrofit, and refuel diesel trucks. According to PlaNYC, a 2002 study concluded that 25% to 50% of the city's local overall criteria pollutant emissions can be traced to heavy duty diesel-trucks. With the new Federal diesel regulations that went into effect in 2007, all new trucks will release 90% fewer emissions. However, existing diesel vehicles will operate for many years into the future. New York City's strategies for reducing these emissions include retrofitting trucks with diesel oxidation catalysts (DOC) or diesel particulate filters (DPF), upgrading engines, using cleaner fuels such as ultra low sulfur diesel fuel, and reducing idling. Emission reductions of 85 to 90% are possible. Biodiesel will also be adopted as fuel in its heavy duty fleet, and many vehicles are being purchased by city agencies that are fueled by compressed natural gas (CNG). Altogether, the City will work with the State and other parties to create a fund to support costs for retrofits and anti-idling technologies for at least 1,200 more vehicles in the City over five years.

- Decreasing school bus emissions through earlier retirements and retrofits. New York City Local Law 42 mandates the use of ULSD and Best Available Technologies (BATs) in school bus transportation in approximately 3,800 buses, and the City is currently working with private companies to retrofit all full-size school buses. Buses will install DPFs, DOCs, and other filtration systems to meet these requirements. Several thousand smaller school buses, the majority of which (approximately 2,700 of over 3,000 buses) are diesels, were not subject to this local law. New York State DOT and the City will provide the funding. The City will also require that all buses operated by private owners retire earlier than the present 19 year time frame.

- Retrofitting ferries and promoting the use of cleaner fuels, retrofits and engine replacements. Staten Island ferries operate diesel-fueled boats each contain two or three engines that emit significant quantities of PM2.5, NOx, VOCs, and sulfur. The Port Authority is presently providing funding for the

replacement or retrofits of engines. This will reduce the eight-boat fleet's total NOx emissions by an estimated 40%, or 570 tons per year. Though the replacement/retrofit program will also have a positive effect on PM2.5, the City will also install DOCs on each engine, at a cost of $75,000 to $90,000 per engine. Beyond this, the use of ultra low sulfur fuel will reduce emissions even more. The city also plans on working with private ferries to reduce their emissions. With funding from a federal program, each of the 41 private ferry boats that serve New York City have agreed to install DOCs in 2007. The City will propose a conversion of these ferries to ultra low sulfur fuel that will reduce PM2.5 by 5% to 10% beyond those reductions expected from the 2007 installation of DOCs.

- Seeking to work with the Port Authority to reduce emissions from Port vehicles, vessels and facilities. Airports and port-related equipment contribute significantly to the emissions, including 11% of particulate matter and 23% of our locally-generated NOx, according to PlaNYC. These facilities and the associated equipment are largely under the control of the Port Authority. The City plans to work with the Port Authority to develop a comprehensive air quality and greenhouse gas emissions plan. Possible improvements at airports may include the use of electric plug-ins at gate ports, clean auxiliary power units, or towing to move planes to and from the gate.

- Reducing emissions from construction vehicles through the use of add-on controls. The City plans to implement measures to reduce construction-related emissions. Construction equipment contributes significantly to emissions, accounting for as much as 13% of NOx and 30% of PM from off-road vehicles. Enacted in 2003, Local Law 77 requires that City construction projects use the best available technologies on-site to reduce emissions, such as DPFs, DOCs, and emerging plug-in technologies that allow vehicles to run on electricity instead of burning fuel. Approximately 800 City-owned vehicles and 115 pieces of leased equipment are subject to the law. Emissions are also reduced when upgraded equipment is used on private projects. Additionally, City contracts will require certain on-road vehicles involved with City projects, such as trucks that remove debris, to meet the same standards. These requirements can be met either through retrofits or through new vehicle purchases.

- Reduce emissions improving energy efficiency in buildings by decreasing fuel consumption, promoting the use of cleaner burning heating fuels, expanding on-site generation, and facilitating the repowering, replacement, and retirement of the out-of-date equipment at older power plants,

- PlaNYC indicates that buildings and industry are responsible for roughly 55% of the city's PM2.5 emissions. Emission reductions are planned in the City's energy and carbon goals will result in a 15% decrease in PM2.5 for this

sector, for a reduction of approximately 6% of overall city PM2.5 emissions. This will be done by reduce fuel sulfur limits for No.2 heating oil to 500 ppm, which is projected to result in 85% reductions of SO2 and roughly 50% reductions in PM 2.5. This alone will reduce overall PM 2.5 emissions in the city by 5%. In addition, reductions will be enabled by the switch to natural gas-fired power plants or biodiesel blends along with the clean fuel efforts that will result in an additional 17% reduction in PM2.5.

- PlaNYC's goal is to see that every New York street is fully lined with trees by 2030. This will be implemented by revising the zoning code to require new construction and major redevelopment projects to plant one street tree for every 25 feet of street frontage. The City will also plant an additional 12,500 per year, prioritizing plantings in neighborhoods with the greatest air quality concerns.

- The City will expand efforts to reforest approximately 2,000 acres of parkland by 2017.

- PlaNYC will strive to reduce the heating effect of asphalt parking lots. Many would be required to provide perimeter plantings and lots over 12,000 square feet would be required to provide a specified number of canopy trees in planting islands within each lot. This effort not only promotes clean air, but also mitigates the visual impact of large asphalt lots and more effectively managing storm water runoff.

- Launching a collaborative local air quality study in 2008 to monitor, model, map, and track local pollution and local adverse impacts across New York City, and to assess the impact of possible mitigation measures. The City will begin to study, monitor, model, map, and track local pollution and local adverse impact across New York City, with an emphasis on traffic-related emissions. The effort would involve:

    - Measuring the variation in air quality across all neighborhoods over time,
    - Assessing the impact of development, infrastructure changes, traffic variations, and traffic mitigation measures, and
    - Providing guidance for future efforts to improve neighborhood air quality

  This study's findings will help to identify priority neighborhoods for improvement and will provide baseline data to track the impact of development, policy, and transit changes.

  With the exception of the federally-mandated diesel emission reductions mentioned under the discussion of PlaNYC, none of the initiatives mentioned above were considered in the attainment modeling in this document. As

such, there will be improvements in the level of PM2.5 beyond those predicted that will help to ensure compliance with the annual standard by 2010 as a result of air quality improvement efforts under PlaNYC.

Summary of PlaNYC Effort

Initiative	Brief Description	Emissions	Reductions Expected Prior to Jan 1, 2010?
1. Implement Congestion Pricing	Assess Manhattan drivers $8 between 6am and 6pm resulting in a 6.3% reduction in VMT, plus providing for a 66% discount for new diesel trucks that meet 2007 emission standards (i.e. $7 not $21)	6.3% reduction in VMT, which could yield a 3.7% reduction in VOC, a 2.8% reduction in NOx, and a 2.8% reduction in CO emissions across the city.	If the legislature approves, will have to be in place by 3/31/09
2. Improve the fuel efficiency of private cars	Promote the use of new technologies, cleaner cars and hybrid vehicles, and sales tax waiver on hybrids.	If the city's gas vehicles were comprised of 10% fuel efficient hybrids, citywide CO2 emissions would be reduced by 1%, and, by 2030, could result in more than a 3% PM 2.5 emissions reduction.	Ongoing through and beyond 2010
3. Reduce emissions from taxis, black cars, and for-hire vehicles	Reduce idling and increasing fleet fuel efficiency. By 2010, the City will require that new cars achieve double the fuel efficiency of today's non-hybrid vehicles.	PlaNYC notes that taxis account for 4% of all ground transportation CO2 emissions and 1% of all city CO2 emissions. The City's efforts will reduce citywide CO2 emissions by 0.5% while also improving air quality for other pollutants	New yellow cars will have to be 25 mpg by 10/08, 30 by 10/09. Black cars to be on a schedule that is a little later Anti-idling expected by 12/2009 at the latest
4. Replace, retrofit, and refuel diesel trucks	Aside from the federal requirement, retrofitting of trucks with diesel oxidation catalysts (DOC) or diesel particulate filters (DPF), upgrading engines, using cleaner fuels such as ultra low sulfur diesel fuel, and reducing idling.	Emission reductions of 85 to 90% are possible.	CMAQ grants are issued every year, are implemented on a rolling basis. Biodiesel in city heavy truck fleet – nearly all use B5 now, some have started B20
5. Reduce school bus emissions	New York City Local Law 42 mandates the use of ULSD and Best Available Technologies (BATs) in school bus transportation in approximately 3,800 buses. Also, work with private companies to retrofit all full-size school buses	ULSD and Best Available Technologies (BATs) in approximately 3,800 buses, and the City is currently working with private companies to retrofit all full-size school buses. Buses will install DPFs, DOCs, and other filtration systems to meet these requirements.	The City has complied with this law, may go beyond

Initiative	Brief Description	Emissions	Reductions Expected Prior to Jan 1, 2010?
6. Retrofitting ferries, promote the use of cleaner fuels, and engine replacements.	The Port Authority is presently providing funding for the replacement or retrofits of engines. Though the replacement/retrofit program will also have a positive effect on PM2.5, the City will also install DOCs on each engine, at a cost of $75,000 to $90,000 per engine. Beyond this, the use of ultra low sulfur fuel will reduce emissions as well. The City also plans on working with private ferries to reduce their emissions. With funding from a federal program, each of the 41 private ferry boats that serve New York City have agreed to install DOCs in 2007.	The eight-boat fleet's total NOx emissions by an estimated 40%, or 570 tons per year. Also, each of the 41 private ferry boats that serve New York City have agreed to install DOCs in 2007. The City will propose a conversion of these ferries to ultra low sulfur fuel that will reduce PM2.5 by 5% to 10% beyond those reductions expected from the 2007 installation of DOCs.	Retrofits will be partially installed on public ferries before 2010, and private ferries will be an ongoing effort Before 2010, ferries are going to be using ULSD plus 5% biodiesel
7. Work with the Port Authority to reduce emissions from vehicles, vessels and facilities.	The City plans to work with the Port Authority to develop a comprehensive air quality and greenhouse gas emissions plan. Possible improvements at airports may include the use of electric plug-ins at gate ports, clean auxiliary power units, or towing to move planes to and from the gate.	To be determined	Ongoing, long term project
8. Reduce emissions from construction vehicles through the use of add-on controls.	Enacted in 2003, Local Law 77 requires that City construction projects use the best available technologies on-site to reduce emissions, such as DPFs, DOCs, and emerging plug-in technologies that allow vehicles to run on electricity instead of burning fuel.	Construction equipment accounts for as much as 13% of NOx and 30% of PM from off-road vehicles. Equipment used in city construction projects must have the best available technologies on-site to reduce emissions. Approximately 800 City-owned vehicles and 115 pieces of leased equipment are subject to the law.	Yes
9 Reduce fuel consumption in buildings, promote cleaner heating fuels, retirement of equipment at older power plants	Reduce emissions by improving energy efficiency in buildings and decreasing fuel consumption, promoting the use of cleaner burning heating fuels, expanding on-site generation, and facilitating the repowering, replacement, and retirement of the out-of-date equipment at older power plants.	To be determined	Yes

Initiative	Brief Description	Emissions	Reductions Expected Prior to Jan 1, 2010?
10. Reduce fuel sulfur limits for No.2 heating oil to 500 ppm, switch to natural gas-fired power plants or biodiesel blends	Reduce fuel sulfur limits for No.2 heating oil to 500 ppm. In addition, reductions will be enabled by the switch to natural gas-fired power plants or biodiesel blends, bill to put in place schedule for increasing biodiesel blends of heating oil, may phase out No. 4 and 6 oil, convert 100+ school boilers from No. 4/6 to natural gas or No. 2	This effort will result in a 15% decrease in PM2.5 for this sector, for a reduction of approximately 6% of overall city PM2.5 emissions. Fuel sulfur limits for No.2 heating oil to 500 ppm are projected to result in 85% reductions of SO2 and roughly 50% reductions in PM 2.5. This alone will reduce overall PM 2.5 emissions in the city by 5%. Reductions will also be enabled by the switch to natural gas-fired power plants or biodiesel blends along with the clean fuel efforts that will result in an additional 17% reduction in PM2.5.	NYC is relying on the state for reduced sulfur requirements. In the meantime, the City is promoting biofuel

11. PlaNYC proposes that every New York street is fully lined with trees by 2030 through the implementation of building code revisions, and an additional 12,500 plantings per year, prioritizing in neighborhoods with the greatest air quality concerns.
12. The City will expand efforts to reforest approximately 2,000 acres of parkland by 2017.
13. The heating effect of asphalt parking lots will be reduced through perimeter plantings and requiring the provisions of canopy trees in planting islands.
14. Institute a local air quality study in 2008 to monitor, model, map, and track local pollution and local adverse impacts across New York City, and to assess the impact of possible mitigation measures.

Canadian Emission Reductions

Some of the particulate matter present in the air in the northern United States originates in Canada. The source of this contamination are the industrial and commercial operation, fossil fuel and wood burning and especially the emissions of particulate matter and its precursors from coal-fired power plants A number of initiatives have been put in place in Canada that will reduce emissions and have a positive effect in the air quality in the northeast United States.

The first of these are the Canada-Wide Standards for Mercury Emissions from Coal-Fired Electric Power Generation Plants. Under these provisions, a reduction of approximately 52% to 58% in mercury emissions are expected nationally by 2010. The Ontario Power Authority (OPA) has been directed to replace Ontario's coal-fired generation facilities by cleaner sources "in the earliest practical time frame that ensures adequate generating capacity and electricity system reliability in Ontario." The reduction in mercury emissions is expected to have the co-benefit of the reduction of the emission of other pollutants as well, including particulate and its precursors (SO2 and NOx), organics, metals and greenhouse gases. The replacement of coal-fired units in Ontario, which are most likely to affect New York's air quality, will have a significant effect on ambient particulate concentrations and haze.

The second initiative in Canada that will affect New York's air quality is the promulgation of air quality standards for PM2.5 and ozone at a level of 30ug/m3 on a 24-hour basis and 65 ppb on and 8-hour basis, respectively. The intention is to meet these standards by 2010, and the result of which will have a positive effect on New York's air quality as well. Quebec's five year report on their reduction efforts to date discuss the measures taken from 2001 to 2005[1]. The control measures instituted by Canada are aimed at reducing industrial emissions. Specifically, regulations like Quebec's "Regulation respecting the quality of the atmosphere"[2] contain control measures for new and existing sources of VOC's similar to those in New York and other states, and set ambient air quality standards. VOC controls address surface coating processes, automotive painting operations, printing, dry cleaning, formaldehyde from panelboard mills, pulp and paper operations, styrene from composite material manufacturing (fiberglass and resins), and transportation. Particulate emissions measures include the control of fugitive emissions from mining and sandblasting, granaries, mills, distilleries, breweries, powder milk plants, fertilizer mixing plants, concrete plants, vitreous enamel operations, earthenware and ceramic products plant, polyvinyl chloride production or processing plant, wood processing plants, and aluminum manufacturing. Programs also control particulate and NOx emissions from combustion operations (boilers, turbines, and internal combustion), as well as fuel sulfur content (2.0% by weight for "heavy oil," 1.0%

[1]http://www.menv.gouv.qc.ca/air/particules_ozone/rapport_quin-en.pdf
[2]http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R20_A.htm

by weight for "intermediate oil," 0.5% by weight for "light oil," and 2.0% in weight for coal). Many other categories are covered as well woodburning, smelting, charcoal kilns, incinerators, refineries, storage tanks, metallic processing plants, as well as other industrial processes.

Additional measures are planned in the next five years to achieve their goals by 2010, including reducing emissions from residential wood heating, establishing and inspection and maintenance program for light vehicles, and implementing "other measures in the transportation, energy and climate change sectors."

The above measures are efforts by the Canadian or Provincial governments to improve air quality. They were not included in the present attainment demonstration and will not be enforceable by New York or the federal government. However, give the proximity to New York State, air quality improvements in Canada will certainly impact New York and the northeastern United States.

New York State's "15 by 15" Program

New York Governor Spitzer has initiated a clean energy plan with the goal of reducing New York's energy demand by 15% by 2015. The plan, known as "15 by 15," focuses on energy efficiency, conservation, and investment in renewable energy sources as the keys to achieving economic and environmental goals. The specific goals and highlights of the plan include:

- Reduce electricity use by 15 percent from forecasted levels by the year 2015 through new energy efficiency programs in industry and government;
- Eliminate incentives in the marketplace that discourages utilities from conserving energy by requiring annual adjustments to rates to make utilities whole for lost revenues caused by energy efficiency programs.
- The approval of 21 contract awards by state agencies for clean, renewable power plants upstate that will replace older plants.
- Establish new appliance efficiency standards and set more rigorous energy building codes;
- Invest $295 million for renewable energy projects throughout the state; and
- Propose power plant siting legislation that creates an expedited review process for new wind power projects, re-powering projects that reduce emissions, and other power plants that have very low levels of carbon dioxide emissions.

The benefits of this plan for New York and for the environment include a reduction in the electricity that must be purchased, the creation of new jobs, and a reduction in emissions as a result of the need to produce less power and the substitution of clean power sources for those already in operation. The emission reductions for the "15 by 15" plan are also estimated to result in an annual carbon dioxide reduction of about 12.8 million tons, which is the equivalent of removing 2.5 million cars from the road.

The Department is not committing to the inclusion of any of these measures as part of the SIP at this time, The Department will evaluate each measure resulting from this initiative individually to determine if it is appropriate to be included in the SIP. The Department will need to consider among other things whether the measure is quantifiable, enforceable, and include emissions reductions that are additional to other adopted SIP measures.