NYC Environmental Protection

Bill de Blasio, Mayor
Vincent Sapienza, P.E., Acting Commissioner

WEEKLY PIPELINE

CLIMATE WEEK

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# Special Guest Commissioner's Corner

***Angela Licata**, DEP's Deputy Commissioner for Sustainability, is a guest commentator this week.*

Protecting the waterways, environment and public health of New York City are central to the Department of Environmental Protection's mission. Today, water quality in New York Harbor is better than it has been in over 100 years. Crucial to bringing the Harbor to its current state has been nearly $10 billion in projects DEP has completed or begun since 2002. These projects include combined sewer overflow abatement, marshland restoration, nutrient removal from wastewater and hundreds of other projects.

To provide further water quality improvements, DEP is implementing an ambitious green infrastructure and stormwater management program that diverts stormwater from combined sanitary sewers and wastewater treatment plants, and reduces pollution and litter via passive and natural methods. DEP's $1.5 billion Green Infrastructure Program, the largest and most ambitious green infrastructure plan in the country, has been delivering water quality, environmental and community co-benefits since 2011. To further improve water quality in New York City and to meet the City's regulatory requirements, DEP is working with the City's regulated agencies to develop a similarly ambitious stormwater management program in the municipal separate storm sewer system (MS4) area of the City.

To develop and create the most effective stormwater management program possible, DEP looked to its peers in other municipalities to understand which methods have been successful in implementing stormwater management programs and meeting regulatory requirements. The resulting Innovative and Integrated Stormwater Management report provides DEP with baseline knowledge to make informed and effective decisions for our community as we continue to develop and implement our stormwater management program. Of particular importance, this report identifies multi-purpose non-structural stormwater co-management efficiencies and solutions, such as encouraging green infrastructure in private development, and structural efficiencies such as creating retention facilities in parks as temporary stormwater storage areas.

DEP hopes that other service providers and municipalities find this report as helpful as DEP does, and use it to cost-effectively improve the quality of their surrounding waterbodies and deliver co-benefits to their communities. This report would not be possible without the generous time that our peers at utilities and municipalities across the country and abroad committed to developing the following case studies. The Water Research Foundation, led by CEO **Robert Renner**, provided critical support in distributing this report.

I'd also like to acknowledge and thank **Pinar Balci**, Assistant Commissioner of the Bureau of Environmental Planning and Analysis (BEPA) and **Floren Poliseo**, BEPA's Managing Director, Watershed Planning and Modeling, for their vital contributions to compiling and analyzing this important data as we seek to use innovative stormwater planning as a means of successfully approaching the challenges posed by climate change, population growth and other driving factors.

# Spotlight on Safety

## Climate Change and Vector-Borne Diseases

Impacts of climate change such as more variable weather can contribute to new and increased negative health effects, including increased air pollution, heat and cold related illnesses, and a more recent threat of increased vector-borne diseases.

Vector-borne diseases are spread from insects such as ticks and mosquitoes. In North America, these diseases include Lyme disease, dengue fever, West Nile virus, Rocky Mountain spotted fever, and others. According to the Environmental Protection Agency (EPA), cases of Lyme disease in the U.S. have approximately doubled from the years 1991 to 2014. 2017 was reportedly the worst tick season yet, with the threat of more cases of serious tick-borne illnesses.

Warming temperatures due to climate change can have the following effects:

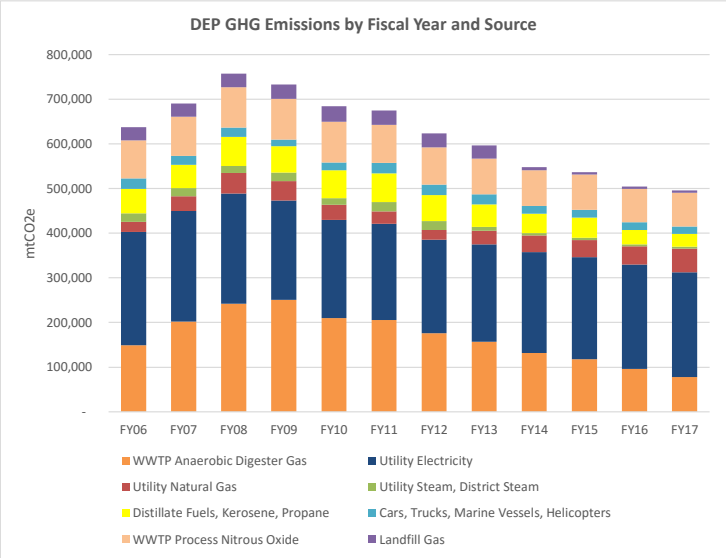
- longer life cycle of ticks and mosquitos
- allowing ticks and mosquitos to survive in new areas of the U.S.
- increased time frame that humans could be exposed to diseases
- introduction of more serious diseases

Because of the many factors affecting tick and mosquito populations and reporting of vector-borne diseases, there is not sufficient information to determine what proportion of the observed changes are directly driven by climate change. The EPA and Centers for Disease Control (CDC) continue to study this and other ways in which climate change is affecting public health.

For more information, visit the EPA and CDC websites.

**At DEP, everyone is responsible for safety. If you or anyone on your team is concerned about your working conditions, it's okay to ask your supervisor or your bureau's EHS liaison how they can help. If you've still got questions, you can call the EHS Employee Concerns Hotline. It's DEP's responsibility to acknowledge and fix unsafe situations, procedures, and practices. With your help, we'll not only get the job done, we'll make it safer for ourselves, our coworkers, our families, and our city. CALL (800) 897-9677 OR SEND A MESSAGE THROUGH PIPELINE. HELP IS ON THE WAY.**

# Reducing Greenhouse Gas Emissions




Despite the addition of several energy-intensive facilities and processes—such as the Catskill-Delaware Ultraviolet Disinfection Facility, the Croton Water Filtration Plant, Combined Sewer Overflow facilities, and Biological Nutrient Removal—as mandated by federal and state authorities, DEP has reduced its greenhouse gas emissions by more than 20% since fiscal year 2006, with a goal of an 80% reduction by 2050, by pursuing a four-pronged strategy:

1. **Demand-Side Solutions**, including on-site energy conservation and efficiency, on-site equipment and operational improvements, and citywide water demand management;
2. **Supply-Side Solutions**, including on-site clean energy generation using anaerobic digester gas ("biogas"), as well as other on-site beneficial uses of biogas;
3. **Traditional Renewable Energy Solutions**, including non-biogas renewable energies such as hydropower, solar photovoltaic systems, geothermal, and more; and
4. **Energy and Carbon Offsets**, including off-site beneficial use of biosolids and biogas, as well as carbon sequestration by green infrastructure, restored wetlands, and DEP-acquired forested lands.

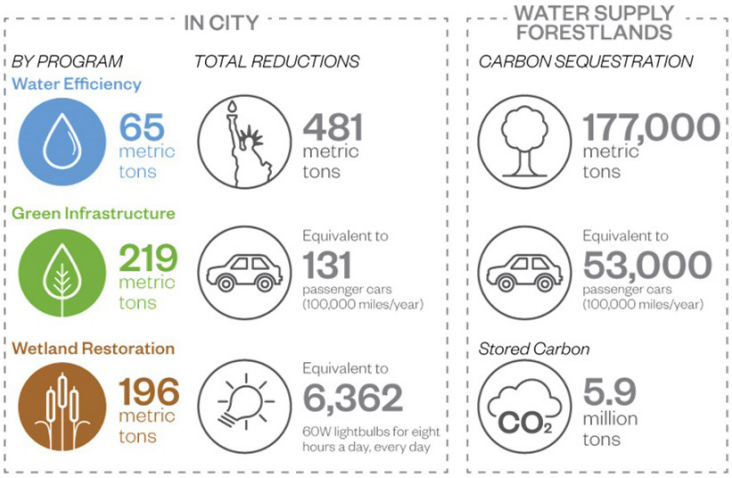
# Studying How to Manage Cloudbursts

As recently demonstrated in Houston, coastal flooding is not the only danger posed to cities like New York—heavy rainfall can also cause severe damage. Recognizing this potential risk, in September 2015, DEP and the City of Copenhagen signed a Memorandum of Cooperation to develop innovative solutions to prepare for more frequent and heavier downpours ("cloudbursts") brought about by climate change. The goal of the three-year partnership is to exchange knowledge on the development and management of solutions that address shared climate challenges by learning from Copenhagen's response to their 2011 cloudburst event, in which they received almost six inches of rain in two hours. In 2016, the Bureau of Environmental Planning & Analysis in coordination with the Bureau of Water & Sewer Operations initiated the first phase of a "Cloudburst Resiliency Planning Study" to assess risks, prioritize response, develop neighborhood-based solutions, and assign costs and benefits for managing cloudbursts. The study used the approach developed for the 2012 Copenhagen Cloudburst Management Plan and applied it to Southeast Queens. The first two pilot projects emerging from the study are currently being developed in coordination with NYC Housing Authority and NYC Department of Transportation.

# Agency Hosts Climate Change Workshop

DEP's Education staff, under the direction of Deputy Director **Robin Sanchez**, **LaToya Anderson**, and interns **Isabel Avina** and **Carolyn Balk**, conducted a three-day professional development workshop for New York City middle and high school teachers held at Stuyvesant High School as part of the NYC Department of Education's Summer STEM Institute. The workshop, *New York City's Water Resources and Climate Change*, brought together DEP scientists, engineers, city planners, and other experts. Discussions focused on the New York City water supply system, wastewater treatment, harbor water quality, green infrastructure, climate and New York City today, climate change and New York City in the future, sea level rise, and stewardship opportunities. Some highlights of the program were a field trip to view a green roof and an in-house wastewater treatment system at a nearby residential building, monitoring water quality on the Hudson River, building a model to represent wastewater treatment processes, and testing drinking water samples. Special guest speakers also included a scientist from the Center for Climate Systems Research at Columbia University and staff from the Mayor's Office of Climate Policy and Programs, Poets House, Trees New York, Gowanus Canal Conservancy, Trout in the Classroom, Solar 1, and Center for Urban Pedagogy.

# Benefits of the Water-Energy Nexus Tool




For the first time, DEP has quantified the greenhouse gas impacts of its sustainability programs, including water conservation, green infrastructure, and wetland restoration, with the Water-Energy Nexus Tool, developed by the Bureau of Environmental Planning & Analysis in coordination with the Bureau of Wastewater Treatment. At the sewershed level, the tool considers the energy saved as a result of reduced water consumption from leak detection and repair and fixture replacement programs. It also considers the decrease in energy requirements for maintaining and operating our wastewater treatment system because of rain gardens, green roofs and other strategies that capture stormwater before it enters the sewer system. Carbon sequestration is also quantified from vegetation in green infrastructure and wetlands, as well as methane emissions from some wetlands. Baseline data demonstrates that these programs help reduce approximately 480 metric tons of carbon dioxide emissions annually, a number that will continue to grow as these programs are expanded.

**We welcome your feedback! To submit an announcement or suggestion, please email us at: newsletter@dep.nyc.gov.**