[Hospital Name]
Climate Action Plan

Produced by [Name of Lead Author, Department]

[Submission Date, Year]

NYC MAYOR'S CO_2 CHALLENGE

PLANYC

Produced with assistance from the Mayor's Office of Long-Term Planning and Sustainability

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Instructions:

To fill out this Climate Action Plan (CAP) template, please follow the instructions, designated in blue text, at the beginning of each section. Please be sure to delete the instructions before submitting your final Plan. Black text can remain in the CAP, bolded text needs to be replaced with your hospital-specific information, and gray text is example language that should be replaced with your own information. Please note: City Hall Hospital is not a real hospital. All information is intended to serve as sample text only.

To replace bolded text, you can use Word's "Find and Replace" function (Ctrl F) to update to update the following throughout the document:

- **[Hospital Name] – Replace with your hospital's name**
- **[Base Year] – Replace with your base year**
- **[Start Year] – Replace with your start year**
- **[End Year] – Replace with your end year**
- **[Most Recent Year] – Replace with the year of your most recent inventory**

Executive Summary

[Hospital Name]'s Commitment to the Mayor's Carbon Challenge

The NYC Mayor's Carbon Challenge is a voluntary program for prominent universities, hospitals, and commercial offices in New York City to reduce their building-based greenhouse gas (GHG) emissions by 30% or more in ten years. City Hall Hospital accepted the NYC Mayor's Carbon Challenge to Hospitals in 2009, committing to reduce emissions from its New York City buildings by 30% from 2006 levels by 2019. This Climate Action Plan lays out City Hall Hospital's strategy to meet this goal.

Current Reductions in Emissions

Since accepting the Mayor's Carbon Challenge, City Hall Hospital has reduced both its carbon emissions intensity per square foot by 24.0% and its energy consumption by 19.6% from its 2006 base year levels. The reduction came from a combination of electricity reductions, fuel switching from No. 6 oil to No. 2 oil and natural gas, and fleet upgrades. Overall, City Hall Hospital's Main Campus in Manhattan contributes the greatest absolute energy use and carbon emissions, but the Flushing Campus has the greater energy and carbon intensity.

Reductions in Carbon and Energy Use Intensity

	Carbon Intensity (lbs CO2e / Sq Ft)	**Energy Use Intensity** (kBtu / Sq Ft)
2006 (Base)	24.25	168
2012 (Current)	18.43	134.68
Reduction	**-24.00%**	**-19.62%**

Please fill out Table 1 in your Climate Action Plan Tool Kit and insert it here.

Current and Completed Projects

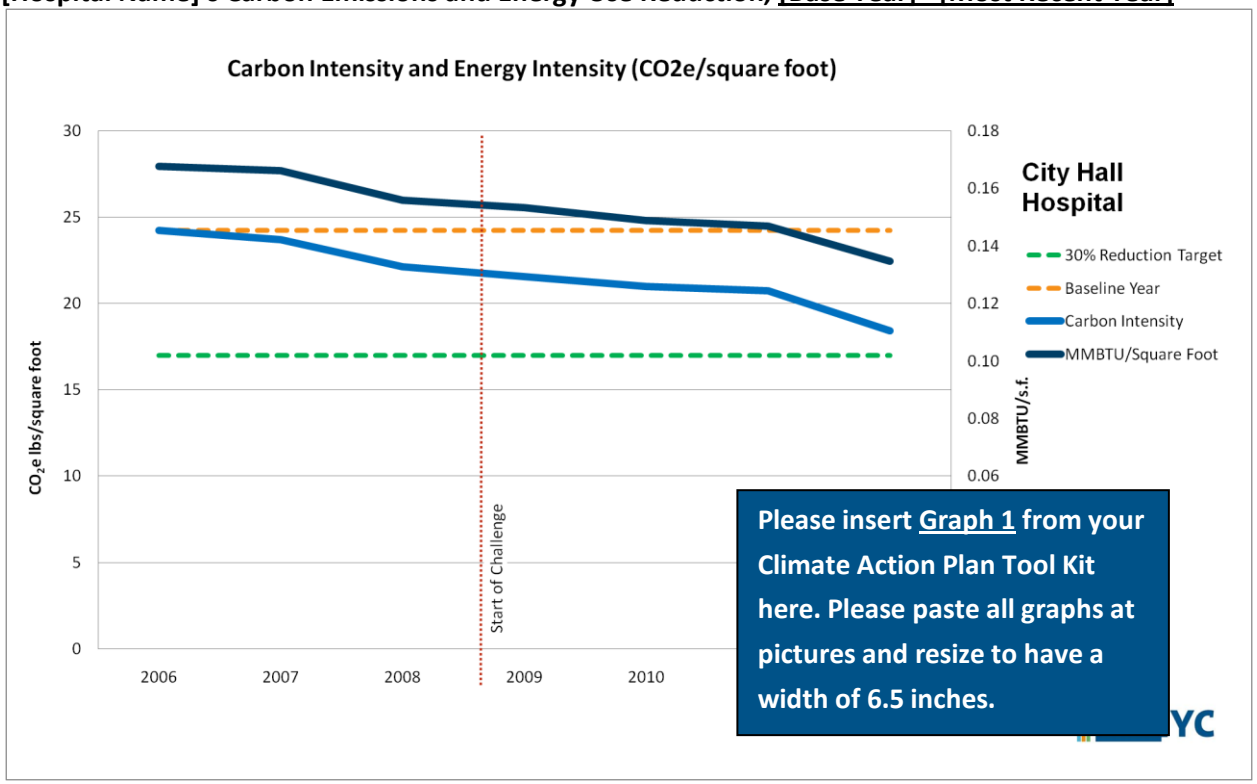
City Hall Hospital has completed several projects to reduce carbon emissions, increase building efficiency, and decrease operational costs. These include lighting upgrades on City Hall Hospital's Main Campus, heating oil conversions to eliminate the burning of No. 6 oil, and the upgrading of the hospital's ambulance fleet to new vehicles that run on compressed natural gas. As a result, in 2012 the hospital system saved an estimated 104,644 MMBtus, 7,673 metric tons of carbon dioxide equivalent, and a total of $645,000 in reduced energy costs.

Planned Projects and Next Steps

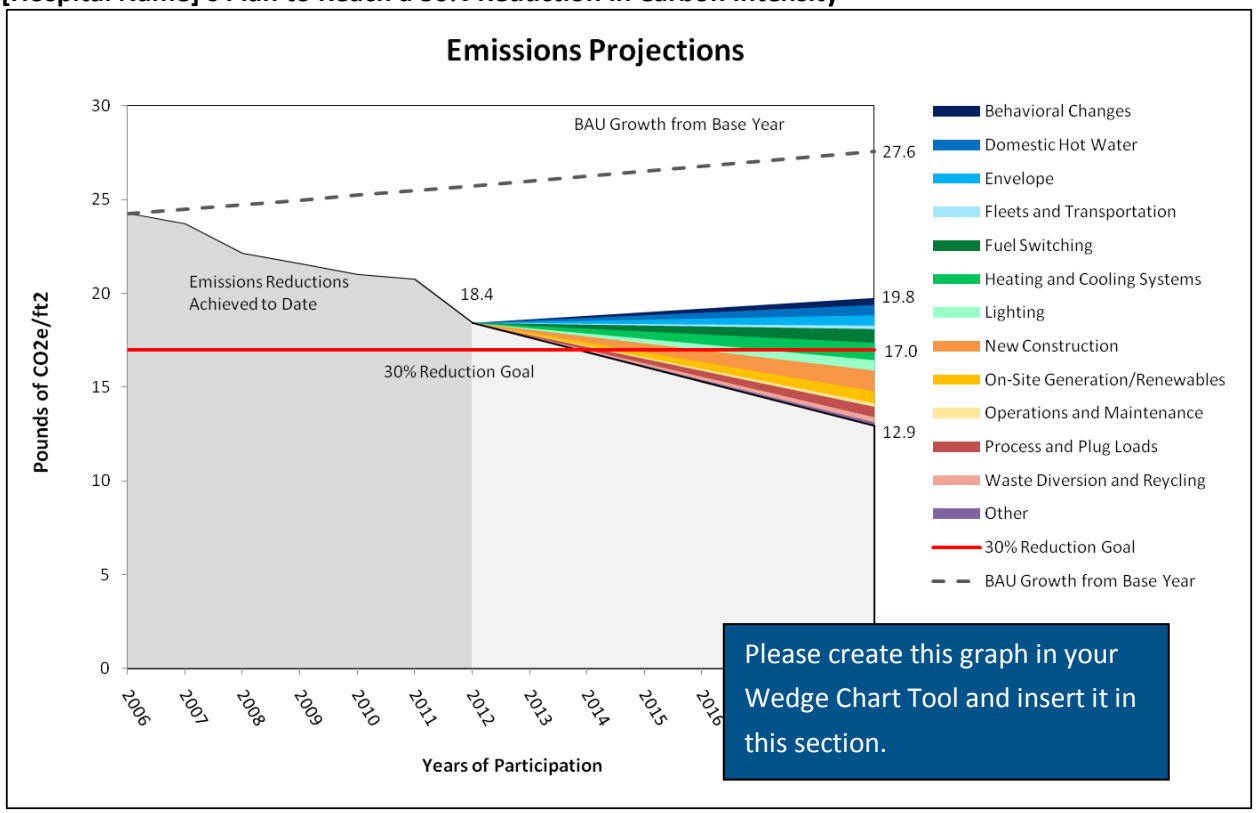
Building on its progress thus far in the Challenge, City Hall Hospital has developed a road map to meet the Mayor's Carbon Challenge goal. The hospital has identified projects and strategies across the areas of lighting, operations and maintenance training, behavioral changes, retro-commissioning, and LEED Silver standards for new buildings. Projects have already been identified that are projected to reduce annual GHG emissions by 782 metric tons of carbon dioxide equivalent and will save the hospital $111,000 in annual energy costs based on current electricity prices.

Over the next five years, City Hall Hospital will continue to evaluate projects and monitor progress toward the Mayor's Carbon Challenge goal. By committing to this goal, the hospital is demonstrating its dedication to environmental sustainability and helping New York City reduce its emissions 30% by 2030.

[Hospital Name]'s Carbon Emissions and Energy Use Reduction, [Base Year] - [Most Recent Year]



[Hospital Name]'s Plan to Reach a 30% Reduction in Carbon Intensity



About the Challenge

In this section, please provide an introduction that summarizes:

- **The need for action**
- **Background on PlaNYC, the Greener, Greater Buildings Plan and the Mayor's Carbon Challenge**
- **Your institution's commitment to the Mayor's Carbon Challenge**
- **Scope of the Climate Action Plan**
- **An explanation of standard units**

Please take what is useful from the following text.

Background

Tackling global climate change is one of the most significant challenges we face today. Projected impacts of climate change include rising sea levels and storm surges, increased heat and heat waves, and more frequent droughts and floods, all of which pose serious threats to public health, safety, and continued economic development. Given the over-whelming proof that anthropogenic or "man-made" greenhouse gas emissions are the cause of global climate change, bold action is needed to reduce our energy consumption and mitigate these emissions.

PlaNYC

Although climate change is a global problem, its effects are often felt locally. Recognizing the need for action, in 2007 New York City released PlaNYC, a comprehensive sustainability plan that set out the ambitious goal to reduce the city's greenhouse gas emissions by 30% from 2005 levels by 2030.

Green Buildings and Energy Efficiency

Because roughly three-quarters of New York City's emissions come from the energy used in buildings, almost double the proportion within the U.S. as a whole, the City has focused on reducing energy use from its buildings to meet the PlaNYC goal. A key component of this effort is a package of legislation called the Greener, Greater Buildings Plan (GGBP), which updates the city's energy codes and requires owners of large buildings to measure their energy performance annually, conduct energy audits and undergo retro-commissioning of building systems every ten years, upgrade to more energy efficient lighting, and provide all large commercial tenants with energy sub-meters by 2025. Together, these laws are projected to reduce citywide GHG emissions by roughly 5%.[1]

The NYC Mayor's Carbon Challenge

The New York City Mayor's Carbon Challenge builds on these initiatives by engaging leaders in the private and institutional sectors to achieve accelerated GHG reductions in their buildings. Following City government's pledge to cut its own emissions by 30% in just ten years (30x17), New York City Mayor Michael R. Bloomberg issued a "challenge" to leaders in the private and institutional sectors to match this goal. Since then, 17 of New York City's leading universities, the 11 largest hospital systems, and 10 global companies with office space in the city have accepted the challenge to reduce their GHG emissions per person or per square

[1] Information from the NYC Mayor's Office of Long-Term Planning and Sustainability.

foot by at least 30 percent in ten years. Together, these participants make up more than 140 million square feet of space and contribute roughly 4 percent of New York City's total emissions—meaning that their efforts are expected to reduce citywide emissions by more than 1 percent by the end of the Challenge.[2]

[Hospital Name]'s Commitment to the Mayor's Carbon Challenge

[Hospital Name] accepted the Mayor's Carbon Challenge in **[Start Year]** and committed to reduce its greenhouse gas emissions[3] by 30% from **[Base Year]** levels by **[End Year].** This Climate Action Plan lays out **[Hospital Name]'s** strategy to meet this goal and the progress it has made through **[Most Recent Year]**. **[Hospital Name]**'s participation in the NYC Mayor's Carbon Challenge will help cut citywide GHG emissions and allow the hospital to continue its commitment to reducing its energy use and increasing environmental sustainability.

What Is a Climate Action Plan?

The Climate Action Plan is **[Hospital Name]**'s roadmap for achieving a 30% reduction in greenhouse gas emissions by **[End Year].** This Plan puts forward a framework to develop and implement strategies to meet this goal and allows the hospital to track its progress as it moves forward with the Mayor's Carbon Challenge.

Scope

This Plan includes:

- Background information about **[Hospital Name]** and its facilities;
- A description of **[Hospital Name]**'s additional commitments to environmental sustainability;
- Energy use benchmarking information for all **[Hospital Name]**'s New York City-based properties over 50,000 square feet, as required by Local Law 84 of 2009;
- An inventory of annual greenhouse gas emissions from **[Hospital Name]**'s New York City properties using the NYC Mayor's Carbon Challenge reporting methodology;
- A description of completed projects and strategies the hospital has undertaken to reduce its energy use and emissions;
- Highlights of **[Hospital Name]**'s innovative projects;
- An explanation of the strategy moving forward that will enable **[Hospital Name]** to meet its 30% emissions reduction goal by **[End Year].**

Feel free to add a description of anything else you have included in the Plan.

[2] Information from the Mayor's Office of Long-Term Planning and Sustainability. Based on 2005 levels.

[3] Note: For purposes of the Mayor's Carbon Challenge, greenhouse gas emissions are measured in terms of carbon dioxide equivalent (CO_2e) per square foot. Please see the explanation of standard units on the next page for more information.

Standard Units

The Mayor's Carbon Challenge and the U.S. Environmental Protection Agency's Portfolio Manager Tool, which is used to complete benchmarking, require energy reporting to be completed in standard units. Below is a list and explanation of these standard units, which will be used throughout this Climate Action Plan.

Standard Units for the Mayor's Carbon Challenge

Measure	Units	Abbreviation	Description
Greenhouse Gas Emissions	Carbon dioxide equivalent	CO_2e	The level of carbon dioxide (CO_2) that would have the same climate impact as a given concentration and type of greenhouse gas.
Energy Use	Million British thermal units	MMBtu	A standardized measure of total energy use to compare energy use across different fuel types. For purposes of the Challenge, energy use is measured in terms of *source energy* , or energy use that takes into account weather fluctuations or transmission, delivery, and production losses of an energy source.
Floor Area	Gross square feet	Sq. Ft.	Includes the total number of square feet measured between the *exterior* surfaces of the enclosing fixed walls. This includes spaces such as vent shafts, stairs, basements, etc.
Carbon or Emissions Intensity	Pounds of carbon dioxide equivalent per square foot	Lbs. CO_2e/Sq. Ft.	A measure of the intensity of carbon emitted per person or square foot, which standardizes emissions levels for companies of different sizes.
Energy Use Intensity	One thousand British thermal units per square foot	kBtu/Sq. Ft.	A measure of the intensity of energy used per sqaure foot, which standardizes energy use for companies of different sizes.

Standard Units for EPA's Portfolio Manager

Measure	Units	Abbreviation	Description
Site Energy Use Intensity (Site EUI)	One thousand British thermal units per gross square foot	kBtu/Sq. Ft.	A measure of the on-site energy use per square foot in a building (does not take into account weather flucutations or source energy losses).
Weather-Normalized Source Energy Use Intensity (Source EUI)	One thousand British thermal units per gross square foot	kBtu/Sq. Ft.	A measure of energy use per square foot that takes into account weather fluctuations and all transmission, delivery, and production losses of the energy source.

About [Hospital Name]

Please provide a narrative description of your institution's facilities that includes, at a minimum:

- **A brief description of your hospital system**
- **A brief description of each hospital/campus in your system and a general description of the activities that each one supports.**
- **A brief description of which of your hospital's properties are owned, occupied, and leased, the square footage of each property, and the square footage of any owned space that is leased to a third party**
- **A map of each campus that makes up your hospital system**
- **Tables 2 and 3 from your Climate Action Plan Tool Kit.**
- **A description of any planned or recently completed expansions of your institution and the projected impact on your institution's energy use and carbon emissions**

Please also include:

- **Number of licensed beds**
- **Number of operational beds**
- **Number of full-time employees**
- **Number of MRI machines**
- **Square footage of non-hospital space**

The following is sample text—please remove and insert your own text in its place.

Background

City Hall Hospital was founded in 1898 and is now one of New York City's leading hospitals specializing in cardiovascular services. Across two campuses, City Hall Hospital has 504 full-time equivalent employees and support staff.

Campuses and Buildings

City Hall Hospital has a Main Campus in Manhattan and a satellite campus in Queens (see map below). City Hall Hospital's Main Campus is located in the Civic Center neighborhood of lower Manhattan. It includes hospital (general medical), inpatient healthcare, outpatient healthcare, and clinic/other outpatient healthcare spaces. The hospital's satellite campus is located in Flushing, Queens, and consists of medical offices and senior/long-term care facilities.

Across its two campuses, City Hall Hospital owns and operates four buildings with a gross area of 1,709,000 square feet. It also leases 500,000 square feet of space at 253 Broadway on its Main Campus for a system-wide total of five buildings and a gross area of 2,209,000 square feet. Following the methodology of the Mayor's Carbon Challenge, only 50 percent of the leased property's square footage is counted in City Hall Hospital's carbon emissions inventory to account for the base building system energy use, but the full square footage of all properties are listed in the table below.

The Main Campus contains four of the five buildings and constitutes the majority of the hospital system. It is staffed by 404 full-time employees, and the facilities house 250 licensed beds, 20 operating beds, and 10 MRI machines. City Hall Hospital's Flushing Campus consists of one building dedicated primarily to office space and staffed by 100 full-time employees.

City Hall Hospital is in the process of expanding a number of its facilities. Since 2005, City Hall Hospital added an energy-intensive senior/long-term care to its Flushing Campus and is now in the preliminary stages of expanding into one additional 500,000 square foot building located in the Tribeca neighborhood of Manhattan. The hospital is expected to break ground on the new building in 2014.

If you plan to include emissions from fleets and waste into the Challenge, please provide information about these sources.

The following is sample text—please remove and insert your own text in its place.

City Hall Hospital also owns a fleet of 20 vehicles used as ambulances and private transportation vehicles. These include 7 diesel-powered vans and 3 hybrid sedans. In 2010, the hospital replaced its fleet of ambulances with 10 new ambulances that operate on compressed natural gas.

Across its two campuses, City Hall Hospital disposes of 100,000 pounds of waste annually, of which approximately 25,000 pounds is diverted for recycling and composting. The hospital plans to conduct a physical waste audit in 2013 to gain a better understanding of the composition of its waste stream and implement a waste-reduction strategy.

Please include a map of your institution and Data Tables 2 and 3 from your Climate Action Plan Tool Kit. If you have multiple campuses, please provide separate maps and data tables for each campus. A labeled campus map is preferable, but if one is not available, you may also create a map using an online mapping tool such as Google Maps.

Campus Map

City Hall Hospital – Main Campus

Please remove this map and replace with a map of your own campus.

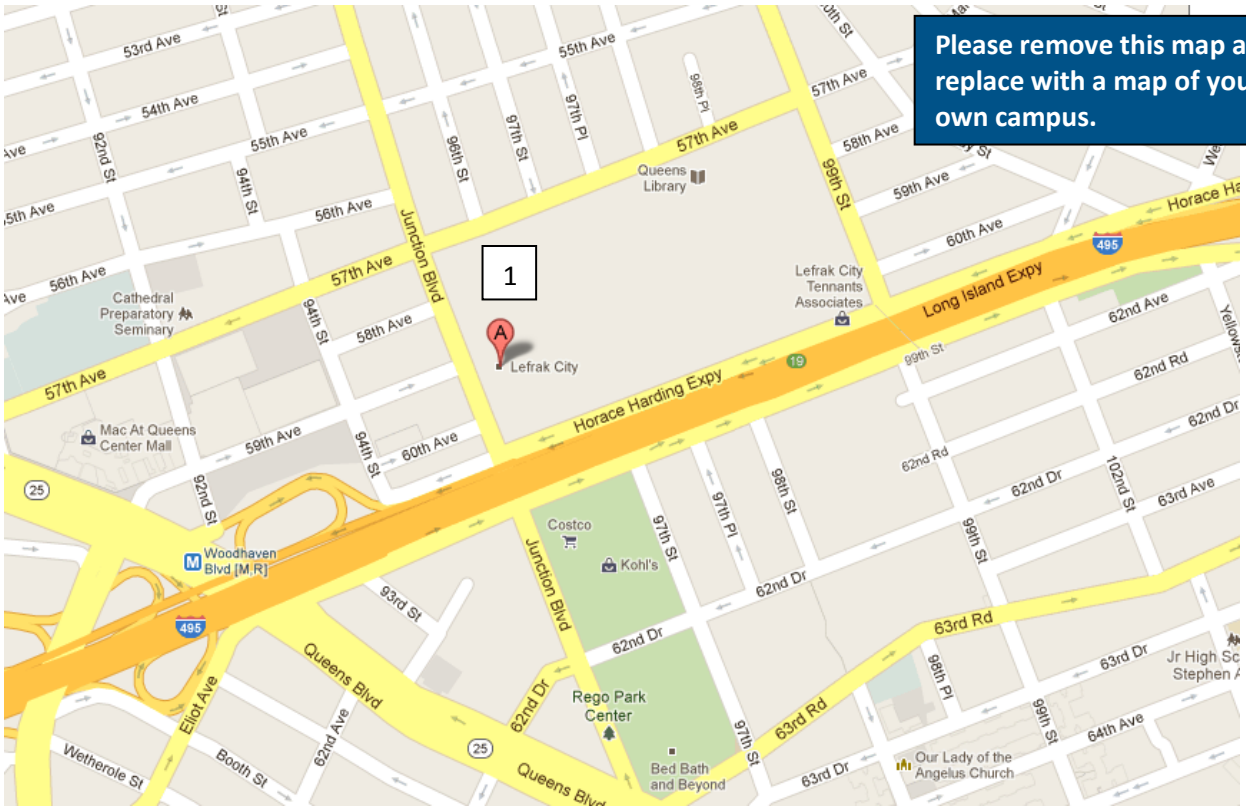
Building Area Breakdown for City Hall Hospital – Main Campus

Bldg #	Property Name	Address	Owned vs. Leased	Floor Area (Gross SF)	Property Type (Primary Function)
1	City Hall Building	260 Broadway	Owned	24,000	Hospital (General Medical & Surgical)
2	Manhattan Municipal Building	1 Centre Street	Owned	1,000,000	Medical Office
3	250 Broadway Building	250 Broadway	Owned	585,000	Inpatient Healthcare
4	253 Broadway Building	253 Broadway			

Total Buildings	4
Total Area	2,109,000

Please fill out Tables 2 and 3 in your Climate Action Plan Tool Kit and insert them in this section. Note: Total square footage in this list may not be equal to the square footage in the Inventory. Square footage for some leased properties may be discounted by 50% to account for the base building system energy use.

City Hall Hospital – Flushing Campus



Building Area Breakdown for City Hall Hospital – Flushing Campus

Bldg #	Property Name	Address	Owned vs. Leased	Floor Area (Gross SF)	Property Type (Primary Function)
1	Flushing Building	59-17 Junction Blvd.	Owned	100,000	Medical Office

Flushing Campus Subtotals

Total Buildings	1
Total Area	100,000

Please fill out Tables 2 and 3 in your Climate Action Plan Tool Kit and insert them in this section. Note: Total square footage in this list may not be equal to the square footage in the Inventory. Square footage for some leased properties may be discounted by 50% to account for the base building system energy use.

Additional Commitments

Please include a description of any additional commitments to environmental sustainability that your institution has made. Feel free to include photos showing your initiatives.

The following is sample text—please remove and insert your own text in its place.

[Hospital Name]'s Additional Commitments to Sustainability

In addition to its commitment to the NYC Mayor's Carbon Challenge, City Hall Hospital has made other internal and external commitments to reduce its global environmental footprint and increase the sustainability of its operations.

Commitments to Sustainability

City Hall Hospital's other sustainability goals include commitments to offer sustainably grown food in cafeterias and to review the environmental impact of chemical and supply purchases. Additionally, the hospital has implemented a system of electronic medical records and aims to achieve a 100% waste diversion rate from its office space by 2030. By reducing the hospital's operating costs along with its environmental footprint, these initiatives are good for both the hospital and the planet.

Benchmarking Information

For your institution's buildings subject to New York City Local Law 84, please provide information from the benchmarking you completed in Portfolio Manager, as required by New York City Local Law 84.

At a minimum, please include:

- **Background information on benchmarking under LL84**
- **The total number of buildings your institution was required to benchmark in the year of your last inventory**
- **Table 4 from your Climate Action Plan Tool Kit with all benchmarking results from the most recent year**
- **OPTIONAL: The total number of buildings your hospital benchmarked in its base year and data Table 4 from your Climate Action Plan Tool Kit with benchmarking results from the most recent year**

Please take what is useful from the following text.

Background

New York City's Local Law 84 of 2009 is the first in a package of four local laws collectively called the Greener, Greater Buildings Plan (GGBP). Local Law 84 requires owners of all buildings over 50,000 square feet in gross floor area and in lots with more than 100,000 square feet of built floor area to report their buildings' annual energy use through a process called benchmarking. Benchmarking measures a building's total energy use by fuel type and adjusts for other factors, which allows owners to compare building energy performance to other similar buildings and help determines whether systems are operating efficiently.

[Hospital Name] benchmarked its properties for **[Most Recent Year]** using an online tool developed by the U.S. Environmental Protection Agency called Portfolio Manager. Using **[Hospital Name]'s** energy use information, Portfolio Manager produces a measure of energy use intensity (EUI), or energy use per square foot per year, and an ENERGY STAR score for each benchmarked building.

A building's EUI can be expressed in several ways. Portfolio Manager generates site EUI and the weather-normalized source EUI for each benchmarked building. The site EUI provides the on-site energy use per unit of gross building area, while the weather-normalized source EUI incorporates weather fluctuations and losses from production, transmission, and delivery of the energy source into the final number.

The ENERGY STAR score is a number on a scale of 1-100 assigned to each eligible building that compares the efficiency of energy use across similar facilities. For example, an ENERGY STAR score of 75 indicates that a building performs better than 75% of all comparable buildings nation-wide. The score is based on the Commercial Building Energy Consumption Survey (CBECS), which is conducted every four years by the U.S. Department of Energy's Energy Information Administration. ENERGY STAR scores are only available for certain building types and at least 50% of the gross floor area must be one of these eligible building

type to receive a score, so the lack of an ENERGY STAR score for a building does not indicate poor energy performance in a building.

[Hospital Name]'s Benchmarking Information

[Hospital Name] has submitted benchmarking information for its owned buildings to comply with NYC Local Law 84 since 2011. In **[Most Recent Year]**, **[Hospital Name]** was required to benchmark **[Number of Benchmarked Buildings]** buildings. Below is a table that includes the benchmarking results for these buildings in **[Most Recent Year].**

OPTIONAL: Benchmarked energy use for these **[Number of Benchmarked Buildings]** buildings for the base year of **[Base Year]** is also included below for purposes of comparison.

The following is sample text—please remove and insert your own text in its place.

Site EUI: City Hall Hospital's average site EUI for benchmarked buildings in 2012 was 131.25 kBtu/ft^2, with a high of 175 and a low of 75 kBtu/ft^2

Source EUI: The average weather-normalized source EUI for 2012 was143.75 kBtu/ft^2, with a high of 200 and a low of 100 kBtu/ft^2.

Water Use: City Hall Hospital's average water use in 2012 was 14.25 gallons/ft^2, with a high of 17 and a low of 12 gallons/ft^2.

ENERGY STAR Scores: In 2012, City Hall Hospital's ENERGY STAR scores from benchmarked buildings ranged from a low of 37 in the 250 Broadway Building to a high of 74 in the Manhattan Municipal Building.

[Hospital Name] Benchmarking Results – [Base Year]

Building Name	Address	BIN	BBL	Site EUI (kBtu/ft2)	Source EUI (kBtu/ft2)	ENERGY STAR Score	Reported Gross SF	Notes:
City Hall Building	260 Broadway	1001473	1-00135-7501	150	125	61	30,000	
Manhattan Municipal Building	1 Centre Street	1001394	1-00121-0001	100	75	74	1,000,000	
250 Broadway Building	250 Broadway	1001408	1-00124-0024	200	175	37	600,000	
253 Broadway Building	253 Broadway	1082757	1-00134-7501	175				
Flushing Building	59-17 Junction Boulevard	4047310	4-01918-0001	125				

Please fill out Table 4 in your Climate Action Plan Tool Kit and insert it here. Note that it is optional to report benchmarking information for your hospital's base year.

[Hospital Name] Benchmarking Results – [Most Recent Ye

Building Name	Address	BIN	BBL	Site EUI (kBtu/ft2)	Sou (kBt			
City Hall Building	260 Broadway	1001473	1-00135-7501	140	115	60	30,000	
Manhattan Municipal Building	1 Centre Street	1001394	1-00121-0001	102	76	74	1,000,000	
250 Broadway Building	250 Broadway	1001408	1-00124-0024	180	165	39	600,000	
253 Broadway Building	253 Broadway	1082757	1-00134-7501	175	150	48	500,000	
Flushing Building	59-17 Junction Boulevard	4047310	4-01918-0001	130	105	70	1,500,000	

Carbon Emissions Inventory

In this section, please include information from your Carbon Emissions Inventory, including:

- **Background information on the emissions sources, GHG accounting methodology, and carbon coefficients used for the Mayor's Carbon Challenge**
- **Your hospital's reported energy use, emissions, and square footage for the base year**
- **Your hospital's reported energy use, carbon emissions, and square footage for the most recent year**
- **The reduction in carbon intensity achieved in the most recent year**
- **Any major changes in fuel sources since the base year**
- **Tables 5 and 6 from your Climate Action Plan Tool Kit**
- **Graphs 1-5 from your Climate Action Plan Tool Kit**
- **<u>OPTIONAL:</u> A description of your emissions by campus and Graphs 6 and 7 from your Climate Action Plan Tool Kit**

Please take what is useful from the following text.

Background

All Mayor's Carbon Challenge participants complete a portfolio-wide carbon emissions inventory to calculate their energy use and associated carbon emissions for New York City-based properties for each year of the Challenge, beginning with a selected base year and ending with the last year of the Challenge. The GHG emissions calculated in the participant's base year are the level from which Mayor's Carbon Challenge reduction goal is measured. **[Hospital Name]** accepted the Mayor's Carbon Challenge in **[Start Year]** and pledged reduce its carbon emissions in **[Base Year]** by 30% by **[End Year].**

Emissions Sources

The Mayor's Carbon Challenge covers all building-based emissions from the energy use over which participants have direct operational control. These include emissions that are attributable to on-site energy use on participants' properties as well as emissions that result from offsite generation of the energy sources. It is important to note, however, that emissions reported for the Mayor's Carbon Challenge do not include the full profile of each participant's emissions. For one, the Mayor's Carbon Challenge only includes emissions from properties that are located in New York City, and some participants operate properties outside the city limits that are not counted in the Challenge. In addition, emissions include only what the World Resources Institute (WRI) labels "Scope 1" and "Scope 2" emissions.

According to the WRI's Greenhouse Gas Protocol, an organization's full profile of emissions consists of: Scope 1 emissions, which include emissions that are physically produced on an organization's property (for example, fossil fuels used in boilers); Scope 2 emissions, which are indirect emissions from the offsite generation of energy sources that are used on-site (for example, electricity or district steam); and Scope 3 emissions, which are emissions that are not produced on-site or from offsite generation but are nonetheless attributable to

the organization's activities (for example, from air travel or solid waste disposal). The Mayor's Carbon Challenge includes Scope 1 and Scope 2 emissions but does not necessarily include Scope 3 emissions because they are not always produced within city boundaries and lack general agreement on proper accounting methodologies.

The Mayor's Carbon Challenge requires that **[Hospital Name]** measure emissions from all buildings and properties that it owns and operates and from rental properties greater than 10,000 square feet where **[Hospital Name]** pays the entire utility bill. In rental properties greater than 10,000 square feet where **[Hospital Name]** does not pay the entire bill, the gross square footage of the property is discounted by 50%. Rental properties of less than 10,000 square feet are optional under the Challenge. **[Hospital Name] [has/has not]** decided to count these properties.

The majority of carbon emissions from hospitals come from the energy used in their buildings. For this reason, the participants in the Mayor's Carbon Challenge are focused primarily on reducing carbon emissions from these sources. Reducing and reporting carbon emissions from vehicle fleets and solid waste are optional under the Challenge. **[Hospital Name] [has / has not]** chosen to include carbon emissions from its vehicle fleet beginning in its **[year fleets incorporated]** inventory. The hospital **[has / has also / has also not / has not]** chosen to include carbon emissions from its waste stream beginning in its **[year fleets incorporated]** inventory.

GHG Accounting Methodology

As a Mayor's Carbon Challenge participant, **[Hospital Name]** agrees to track its carbon emissions according to the methodology of the Mayor's Carbon Challenge. Under this methodology, participants report their non-weather normalized source energy use for all covered properties by fuel type and aggregate it annually for every year of the Challenge, beginning in the base year and ending in the end year. Participants enter this energy use into a carbon emissions inventory calculator tool, provided by the NYC Mayor's Office of Long-Term Planning and Sustainability, which multiplies energy consumption by a "carbon coefficient" to find the associated level of carbon dioxide equivalent (CO_2e).

All carbon coefficients for the Mayor's Carbon Challenge were developed by the NYC Mayor's Office of Long-Term Planning and Sustainability and are in compliance with the 2012 United States Community Protocol for Accounting and Reporting Greenhouse Gas Emissions (USCP). The Mayor's Carbon Challenge uses New York City-specific carbon coefficients for electricity and steam, which are calculated by the Mayor's Office of Long-Term Planning and Sustainability based on power plant data. All coefficients for natural gas and heating fuel oils No. 2, 4, and 6 were developed by the U.S. EPA.

For purposes of the Challenge, the carbon coefficients for electricity and steam are fixed at 2005 base year levels because the coefficients for these fuel types can vary significantly between years. Improvements in New York City's electricity supply, for example, would provide an advantage to Challenge participants who depend primarily on electricity, regardless of their energy efficiency investments. Fixing the carbon coefficients at 2005 levels therefore standardizes the competition across all the Challenge participants. Please see below for the

complete list of the Mayor's Carbon Challenge carbon coefficients.

Optional: If you are including emissions from fleets and/or waste, please keep this methodology here. If you are not including these emissions, you may remove the methodologies below.

The Mayor's Carbon Challenge gives hospitals the option to include carbon emissions associated with vehicle fleets and solid waste, but it is not required. Under the methodology of the Challenge, fleets are vehicles owned and operated by an institution. This includes maintenance vehicles, ambulances, buses, shuttles, and security vehicles, but does not include personal commuting or employer-owned vehicles that are leased to individuals. The minimum reporting requirement for fleets are the total annual gallons of fuel consumed, aggregated by fuel type (gasoline, diesel, biodiesel). The electricity used to fuel hybrid, plug-ins, and electric vehicles are assumed be reported in an institution's electricity bill, which would be reported in the 'Energy' section of the Carbon Emissions Inventory. All carbon coefficients for fleets were calculated according to New York City's methodology for greenhouse gas inventories, which are based on EPA and/or ICLEI protocols.

For institutions like **[Hospital Name]** that elect to include emissions from solid waste, the Mayor's Carbon Challenge requires a minimum reporting of annual mixed/unsorted MSW (general municipal solid waste sent to a landfill), recycled waste (sent to a recycling facility), and composted waste (if there is an institutional composting program). Waste inventories are recorded in short tons. Institutions have the option to complete a physical waste audit to determine waste characterization percentages, which would break down the mixed/unsorted MSW category into mixed recyclables, mixed organics, and sorted MSW. Breaking down the waste stream provides more accurate emission levels.

The emission factors for mixed/unsorted MSW, mixed recycling, and mixed organics were derived from the EPA WARM model, Exhibit 6 and material definitions list. They were modified according to the methodology New York City accounts for greenhouse gas emissions. Transportation to landfills is not included in the equation, as it is counted separately for the city and would have a minor effect on the coefficients. For simplicity of accounting, all waste is assumed to be taken to a landfill. According to New York City data, 95% of commercial waste is landfilled, and only 5% is incinerated. The Mayor's Carbon Challenge assigns a carbon coefficient of zero to recycling and composting, although it recognizes that the EPA WARM model provides a negative coefficient for these diversions because of attributed carbon sequestration. This methodology was meant for influencing waste management practices, not greenhouse gas accounting. A zero coefficient acknowledges that recycling and composting reduces emissions, but there is no current research to accurately quantify it.

Mayor's Carbon Challenge Emissions Coefficients

Emissions Coefficients for Buildings

	Electricity (kWh)*	Natural Gas (therms)*	#2 Fuel Oil (gal)	#4 Fuel Oil (gal)	#6 Fuel Oil (gal)	Diesel For Back-up Generation (gal)	Steam (Mlbs)
MT CO_2e per unit energy	0.000422704	0.005315600	0.010264026	0.011016722	0.011327550	0.010264026	0.086629611
MMBtu per unit energy	0.009546	0.1	0.138	0.146	0.15	0.138	1.33015

*Fixed at 2005 Levels

Emissions Coefficients for Fleets

	Gasoline (gal)	Diesel (gal)	Biodiesel B20 (gal)	Biodiesel B5 (gal)
MT CO_2e per unit energy	0.008477	0.01021	0.008672	0.008526

Emissions Coefficients for Waste

	Mixed MSW - Sorted & Unsorted (tons)	Mixed Organics (tons)	Mixed Recyclables (tons)	Composted Waste (tons)	Recycled Waste (tons)
MT CO_2e per unit weight	0.819	0.282128	0.416475	0	0

[Hospital Name]'s Goal

To measure progress toward the Mayor's Carbon Challenge goal, participants perform a baseline carbon emissions inventory to measure emissions levels in their base year. Based on this inventory, **[Hospital Name]** will need to reduce its **[Base Year]** carbon intensity of **[Carbon Intensity in Base Year]** pounds per foot by 30% to **[Carbon Intensity for Challenge Goal]** by **[End Year].**

[Hospital Name]'s Carbon Emissions Inventory

[Hospital Name] completed its most recent carbon emissions inventory for the Mayor's Carbon Challenge for **[Most Recent Year]**. Based on this inventory, **[Hospital Name]** has reduced its carbon intensity by **[Reduction in Carbon Intensity]** and reduced its energy use intensity by **[Reduction in Energy Use Intensity].** See below for a summary of **[Hospital Name]**'s progress.

Changes in Energy Sources

In addition to reducing energy use, switching to cleaner energy sources can also significantly lower carbon emissions.

Please describe any major changes in your hospital's energy sources here.

[Hospital Name]'s Carbon Emissions Reduction, [Base Year] – [Most Recent Year]

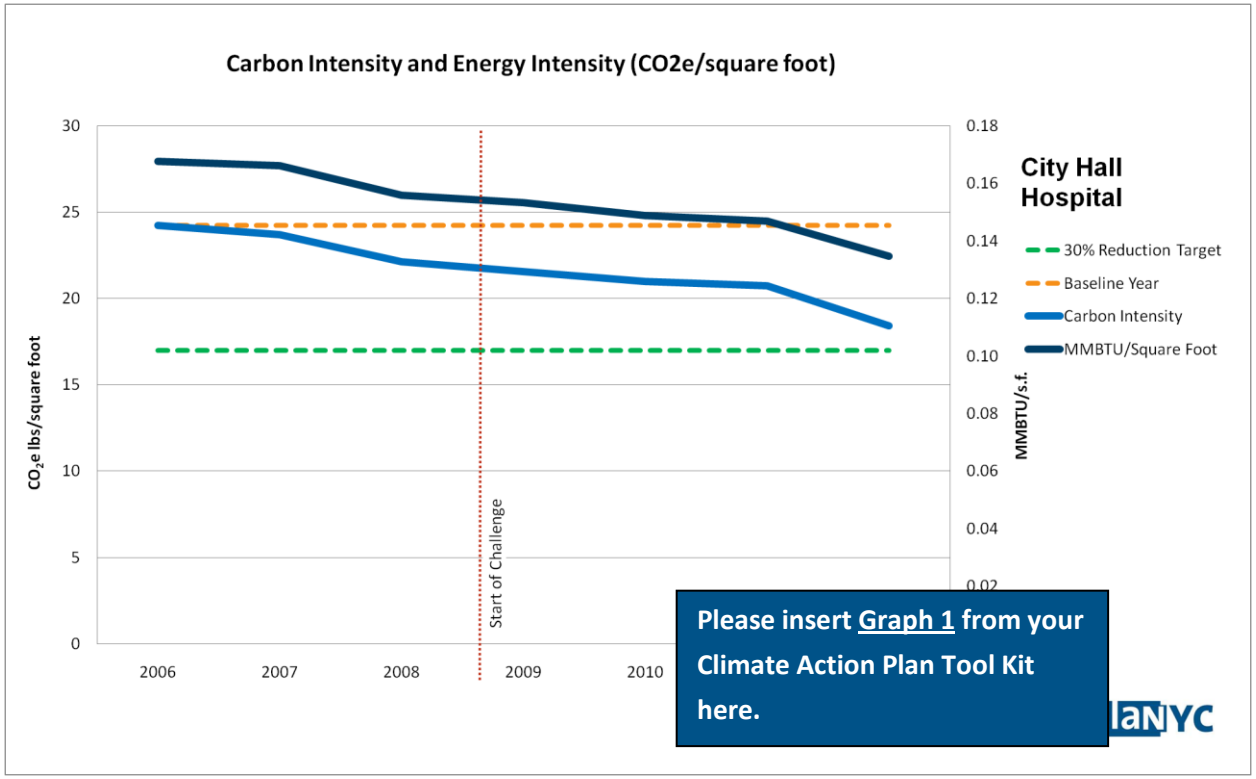
	Base Year (2006)	Current Year (2012)	Percentage Change
Total Emissions (MT CO2e)	54,986	45,967	-16.40%
Gross Floor Area (Sq Ft)	5,000,000	5,500,000	10.00%
Emissions Intensity (lbs CO2e / Sq Ft)	24.25	18.43	**-24.00%**

Please fill out Tables 5 and 6 in your Climate Action Plan Tool Kit and insert it here.

[Hospital Name]'s Energy Use Reductions, [Base Year] – [Mos

	Base Year (2006)	Current Year (2012)	Percentage Change
Total Energy Use (MMBtu)	837,805	740,733	-11.59%
Gross Floor Area (Sq Ft)	5,000,000	5,500,000	10.00%
Energy Use Intensity (MMBtu / Sq Ft)	167.56	134.68	**-19.62%**

[Hospital Name]'s Carbon and Energy Use Intensity Reduction, [Base Year] – [Most Recent Year]



Factors Affecting [Most Recent Year] Inventory

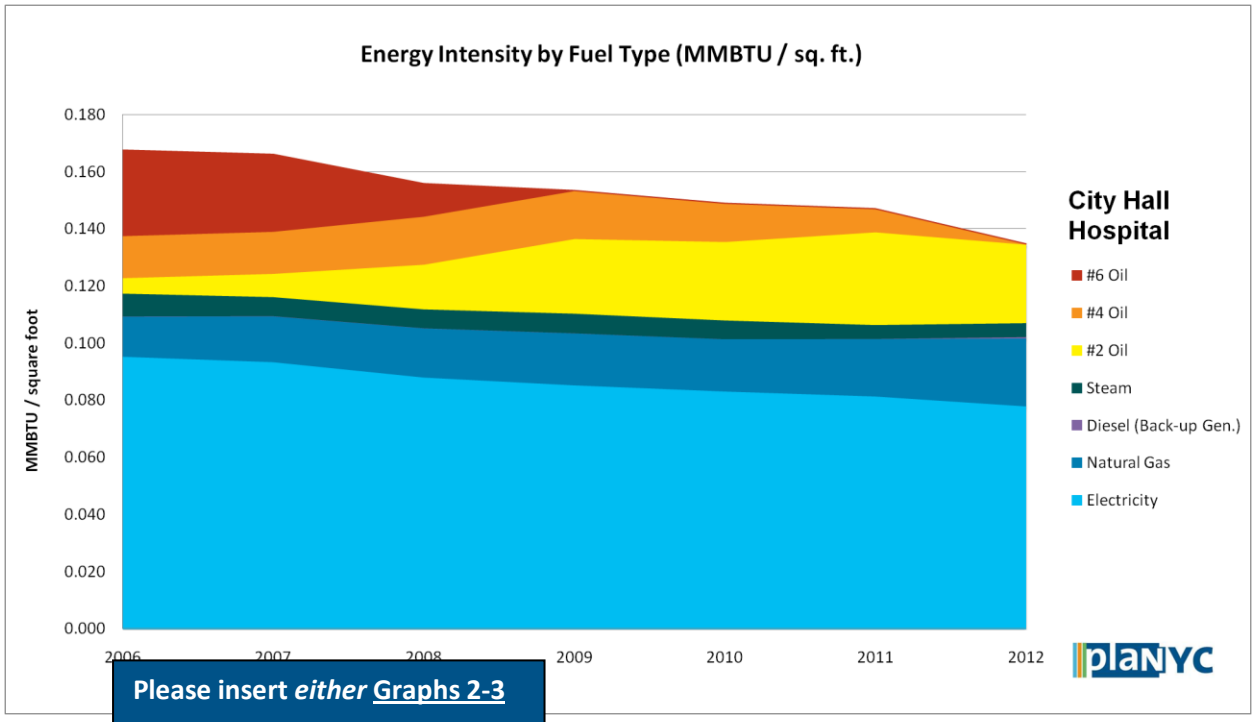
If applicable, please explain which fuel sources contributed most to your emissions and/or energy use reductions.

If weather or other exogenous variables affected your current emissions, please also describe these factors here.

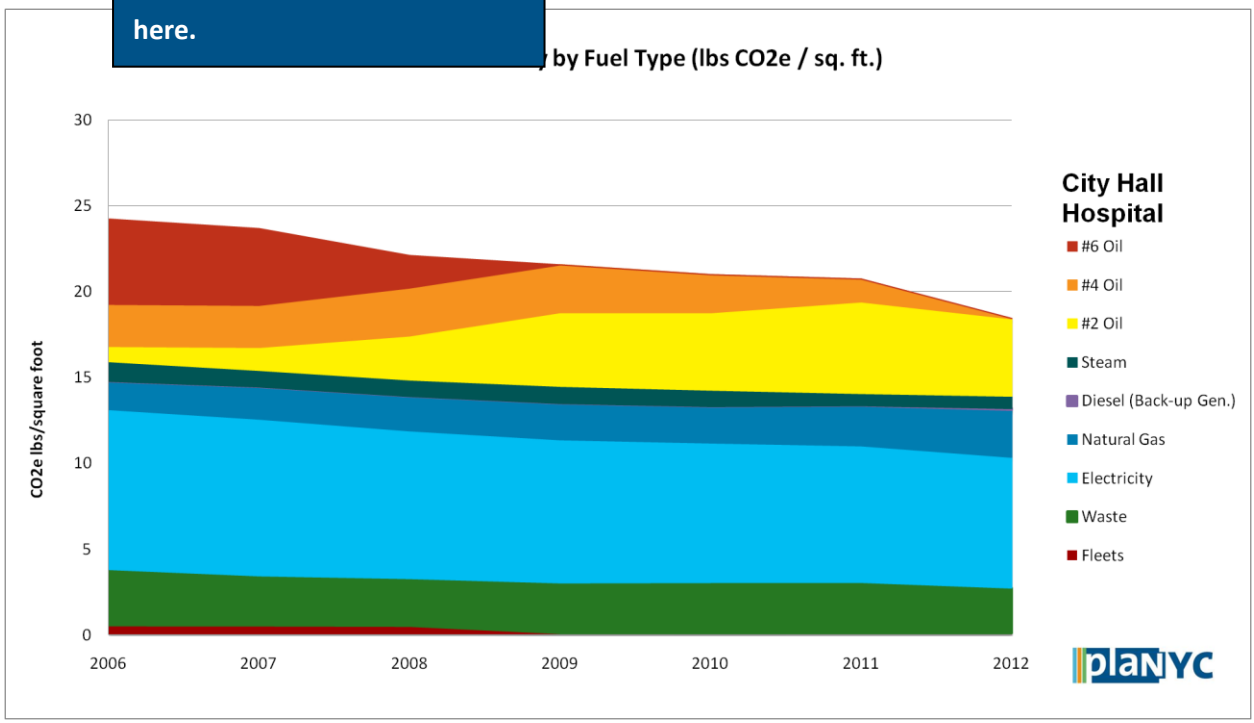
If your institution was directly affected by Hurricane Sandy, include a paragraph describing the impact. Please describe any emergency back-up generation that was required and how this affected your current fuel-use and emissions profiles.

Please feel free to add more information about the impact of your reduction. EPA's GHG Equivalencies Calculator may be useful: http://www.epa.gov/cleanenergy/energy-resources/calculator.html

[Hospital Name]'s Carbon and Energy Use Intensity by Fuel Types, [Base Year] – [Most Recent Year]



Please insert *either* Graphs 2-3 or Graphs 4-5 from your Climate Action Plan Tool Kit here.



Carbon Emissions by Campus

OPTIONAL: If you have energy use data broken down by campus, please:

- **Describe the contribution of each campus to your carbon emissions in the base year and most recent year**
- **Include the campus graphs in your Climate Action Plan Tool Kit**

The following is sample text—please remove and insert your own text in its place.

Breaking down City Hall Hospital's carbon emissions and carbon intensity by campus offers insight into opportunities for further reductions in emissions from each campus.

Because City Hall Hospital's 2,109,000 square foot Main Campus is significantly larger than its Flushing Campus, the absolute emissions from this campus unsurprisingly make up the greatest share of the hospital's overall emissions profile in 2012. Approximately one-third of City Hall Hospital's emissions come from its property in the Manhattan Municipal Building, meaning that energy efficiency investments in this property will have a significant impact overall. City Hall Hospital's buildings at 250 Broadway and 253 Broadway make up the next largest contributions to the hospital's total emissions, respectively, while the City Hall Building accounts for the smallest portion. By comparison, the Flushing Campus only accounts for 3,916 MT CO_2e, which is roughly one ninth of the Main Campus's total emissions.

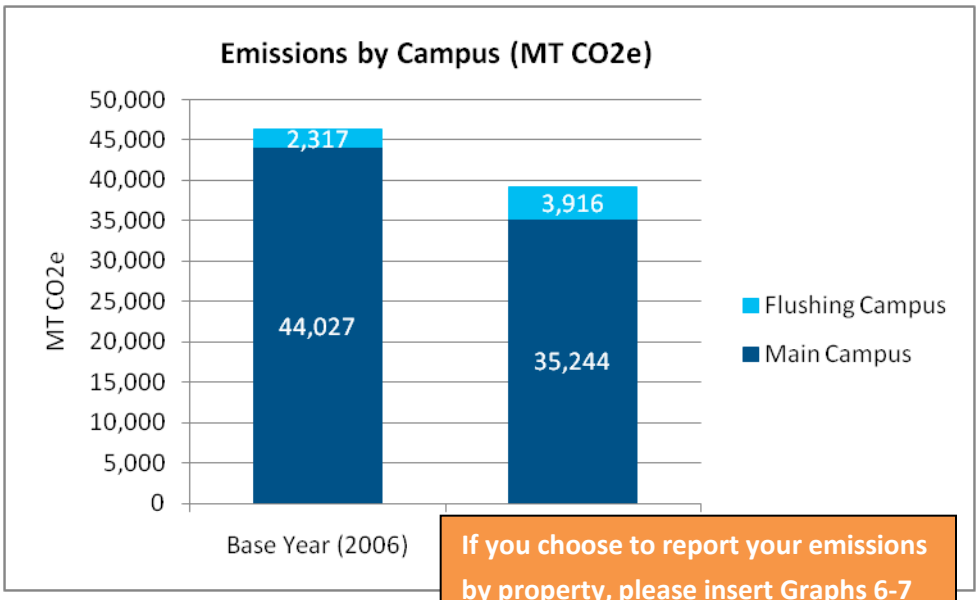
Separating City Hall Hospital's carbon *intensity* by campus shows that the Flushing Campus contributes the largest proportion of carbon emissions per square foot. This is likely due in part to City Hall Hospital's recent installation of new, energy-intensive senior/long-term care facilities on this campus. Thus, making energy efficiency investments at the Flushing property will also be an important opportunity for reducing City Hall Hospital's carbon intensity.

[Hospital Name]'s Carbon Emissions by Property, [Base Year] – [Most Recent Year]

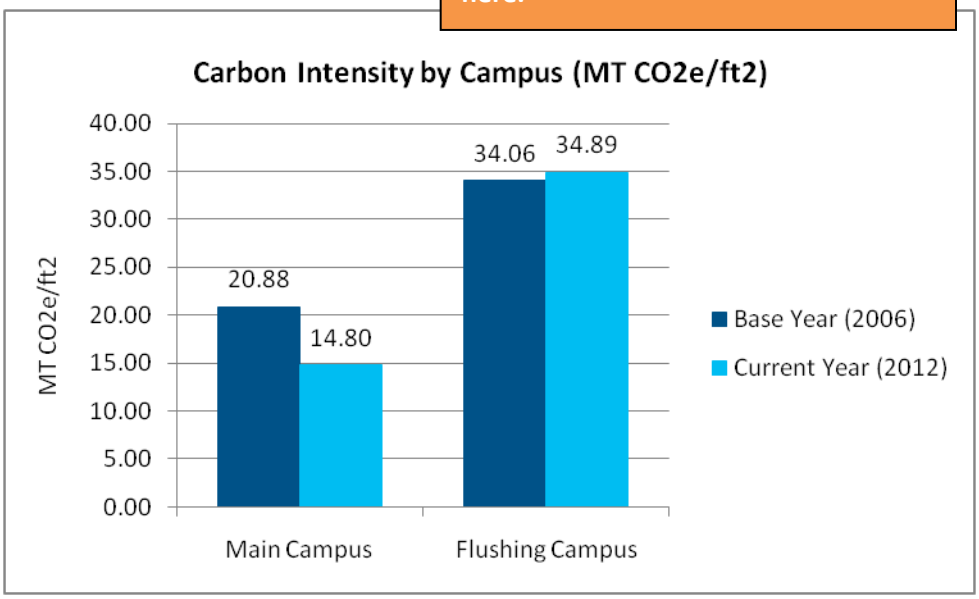
Campus	Base Year (2006)		Current Year (2012)	
	Carbon Emissions (MT CO2e)	Carbon Intensity (MT CO2e/sq.ft.)	Carbon Emissions (MT CO2e)	Carbon Intensity (MT CO2e/sq.ft.)
Main Campus	44,027	20.88	35,244	14.80
Flushing Campus	2,317	34.06	3,916	34.89

If you choose to report your emissions by property, please insert Table 7 from your Climate Action Plan Tool Kit here.

City Hall Hospital's Carbon Emissions and Carbon Intensity by Property, [Base Year] – [Most Recent Year]



If you choose to report your emissions by property, please insert Graphs 6-7 from your Climate Action Plan Tool Kit here.



Completed Projects

In this section, please include information about the projects and strategies you've completed that have contributed to your emissions reduction so far. Please include:

- **A description of the projects and strategies your hospital has completed to date and their estimated energy reductions, carbon reductions, financial savings, and payback times**
- **<u>OPTIONAL:</u> Any operational improvements and/or additional benefits from your projects and strategies**
- **A description of any exogenous variables that may have reduced your energy use**
- **Any adjustments you have made to your emissions projections**
- **A description of your measurement and verification process for estimates of energy savings**
- **Table 8 from your Climate Action Plan Tool Kit**

You are encouraged to include photos of your selected projects interspersed within the text.

Please take what is useful from the following text.

Overview

Participants in the Mayor's Carbon Challenge may achieve reductions in carbon emissions through both energy efficiency projects and conversions to cleaner energy sources. Energy efficiency projects include the installation of equipment or implementation of processes that are more efficient than currently required by relevant standards and achieve a permanent reduction in energy consumption. Fuel conversions include the replacement of one energy source for a building system with another source, which can result in emissions reductions even while using the same level of energy.

Please state whether your hospital has completed fuel conversions.

Methodology of Estimating Energy and Carbon Reductions

Please describe how your hospital measures and verifies energy savings. Please take what is useful from the following text.

To quantify the energy and carbon reductions of completed projects and strategies, **[Hospital Name]** uses a measurement and verification process that adheres to the **[Your Hospital's M&V Protocol]**. Measurement and verification includes data collection, measurements, monitoring, and analysis to determine the energy and demand savings from completed energy efficiency and fuel conversion projects. Using a tool provided by the Mayor's Office, **[Hospital Name]** applied carbon coefficients to the energy savings to find the resulting carbon emissions reduction of each project. It is important to note, however, that even with a robust measurement and verification process, there is always some degree of uncertainty in the energy reduction estimates that may be the result of end use or demand changes, exogenous factors such as the weather, and inherent uncertainties with modeled data.

The following is sample text—please remove and insert your own text in its place.

Completed Projects and Estimated Impacts

In the past four years, City Hall Hospital has implemented several projects have enabled the hospital to achieve a 24 percent reduction in its carbon per square foot since its 2006 base year.

Completed Projects and Estimated Impacts

Heating Oil Conversion: In 2008, City Hall Hospital began replacing boilers and burners to eliminate the use of all No. 4 and No. 6 heating oil on its Main Campus. The hospital completed this conversion in December 2011, installing cleaner-burning natural gas boilers that use No. 2 oil as a backup fuel. This project is estimated to have reduced City Hall Hospital's carbon emissions per square foot by roughly 21% compared to baseline levels.

Lighting Upgrades: In addition to eliminating heavy heating oil on its Main Campus, City Hall Hospital began investing in lighting upgrades for both the Main Campus and the Flushing Campus in 2009. So far, 50% of existing lights in City Hall Hospital have been replaced with energy efficient LED lights. This change has resulted in savings of more than 15% in annual energy use for lighting, translating to a 3% reduction in City Hall Hospital's baseline carbon intensity.

Fuel-efficient Ambulances: In 2009, City Hall Hospital upgraded its ambulances to a fleet of vehicles that run on compressed natural gas, which has fewer carbon emissions than gasoline. This reduced gasoline consumption for the hospital's overall fleet by 119,000 gallons from the previous year. This reduced carbon emissions by roughly 1,000 MT CO_2e, translating to a 2% reduction in City Hall Hospital's baseline carbon intensity.

Financial Impacts

Not only have these strategies reduced City Hall Hospital's carbon emissions, they have also translated to significant financial savings. Based on an analysis by City Hall Hospital's Department of Finance, the completed fuel conversion will provide the hospital an annual savings of about $500,000, primarily due to lower rates for natural gas, with a payback time of 3 years. In addition, City Hall Hospital's lighting upgrades are expected to save $45,000 annually, with a payback time of 2 years, and the fuel-efficient ambulances will save an estimated $100,000 annually, with a payback time of 12 years. In total, City Hall Hospital expects to save $645,000 per year as a result of these three energy conservation strategies.

Exogenous Impacts

Exogenous factors can significantly impact building-level energy use and therefore affect City Hall Hospital's progress in the Mayor's Carbon Challenge. In 2012, Hurricane Sandy caused a two-week power outage in the City Hall Building, 250 Broadway, 253 Broadway, and the Manhattan Municipal Building, reducing annual electricity consumption in these properties. City Hall Hospital brought in diesel generators to power these buildings for one week of the power outage, which partly, but not completely, offset the decrease in energy use and emissions.

Measurement and Verification

Based on the projects that City Hall Hospital has completed, the hospital has updated its strategy and adjusted its original projections for energy savings and emissions reductions.

The organization originally predicted that its fuel conversion would reduce total emissions by 18% and save $450,000 annually, but this was revised upwards to a 21% reduction in emissions and $500,000 in cost savings because of greater than anticipated boiler efficiencies and the falling price of natural gas. City Hall Hospital will continue its originally planned projects, but these additional reductions give City Hall Hospital a greater cushion to realize its 30% reduction goal.

The emissions, energy use, and cost reductions realized from lighting upgrades are generally consistent with City Hall Hospital's original projections. This means that completing the upgrades should realize a total of 6% emissions reductions and $45,000 in cost savings.

City Hall Hospital's fuel-efficient ambulances exceeded initial projections. The cost of compressed natural gas to fuel these vehicles is significantly less than the cost of gasoline, and the investment should continue to realize at least 2-3% in energy savings and associated emissions reductions for each additional year of the Challenge. Given the positive results of this project, City Hall Hospital has decided to pursue converting the rest of its fleet to low-emission vehicles.

[Hospital Name]'s Completed Projects and Strategies

Completed Project Information			Energy Savings	Cost Savings			GHG Reductions
Energy Conservation Measure (ECM) Category	Measure Name	Project Description	Est. Electricity and Fuel Savings (MMBTU/yr)	Dollars Saved Annually ($/yr)	Installation Cost ($)	Simple Payback (Years)	Est. Emissions Reduction (MT CO2e/yr)
Fuel_Switching	#6 oil or #4 oil to #2 oil	Replaced all burners and boilers using No. 4 and No. 6 heating oil to more efficient natural gas boilers, with No. 2 heating oil as a backup fuel	85,000	$500,000	$1,500,000	3.0	6,572
Lighting	Upgrade to LED	Replaced 50% of hospital's lights with energy efficient LED lights	13,364	$45,000	$90,000	2.0	592
Other_Measures	Transportation and Fleets	Upgraded ambulance fleet to new vehicles that run on compressed natural gas					510

Please fill out Tables 8-9 in your Climate Action Plan Tool Kit and insert it in this section.

Total Savings from [Hospital Name]'s Projects and Strategies

Total Energy Savings (MMBTU/yr)	Total Dollars Saved Annually ($/yr)	Total Cost of ECMs ($)	Simple Payback (Years)	Est. Carbon Reduction (MT CO2e/yr)	Reduction in Carbon Intensity (lbs CO2e/Sq Ft)
104,644	$645,000	$2,840,000	4.4	7,673	3.08

Highlights

In this section, please highlight at least one project of particular interest. The following is sample text—please remove and insert your own text in its place.

Flushing Building Competition

In 2013, City Hall Hospital. plans to launch a pilot energy use competition among the five floors of office space in the Flushing Building on its Flushing Campus. Using energy sub-meters installed on each floor, the floors will compete against each other for the lowest energy use for the month of April in honor of Earth Day.

The energy savings and emissions reductions resulting from the Flushing Building competition are expected to impact the hospital's progress toward the Challenge goal by engaging a specific subset of employees in energy reductions in the short-term, which will lead to longer-term savings. City Hall Hospital specifically targeted the Flushing Building for this competition after a study of plug load energy use across its properties showed that plug loads are disproportionately higher in this building, which is primarily office space. Further study found that this is because employees in the Flushing Building tend to fit into a younger demographic and have more personal devices, such as smart phones or personal music players, plugged in at their desks. Addressing the issue through a competition will both appeal to the younger demographic and lower plug loads in this property.

To implement this pilot competition, City Hall Hospital will set up energy use dashboards that employees will use to monitor their daily energy performance. City Hall Hospital will also use employee engagement tools provided by the Mayor's Office, including an animation featuring the GreeNYC mascot Birdie who dispenses energy saving tips to employees. The goal for the month of April is to reduce energy use in this property by 2.5%, with a goal of sustaining energy reductions of 0.5% for the remainder of the Challenge through continued employee engagement.

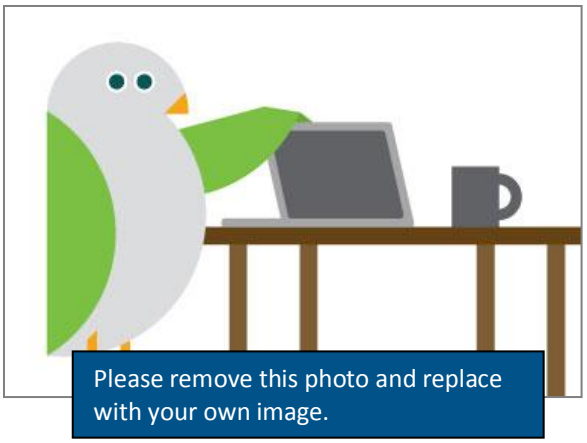


Image: Birdie will dispense energy-saving tips to City Hall Hospital's employees.

Next Steps

In this section, please detail your plan to reach your 30% emissions reduction goal. Please include:

- **An overview of the section**
- **A description of Business as Usual Growth**
- **An estimate of remaining reductions needed to meet the 30% goal, taking into account both achieved reductions and business as usual growth**
- **A brief description of your hospital's project identification process**
- **A brief description of each planned project and/or strategy and the estimated energy reductions, carbon reductions, financial savings, and payback times**
- **A general plan for achieving the remaining reductions, broken down by broad strategy**
- **A brief description of your hospital's measurement and verification process**
- **Tables 11 and 12 from your Climate Action Plan Tool Kit**
- **A Wedge Chart illustrating a combination of your planned projects and additional opportunities for reductions by broad strategy**

Please take what is useful from the following text.

Overview

To achieve the Mayor's Carbon Challenge goal, **[Hospital Name]** must identify and assess the estimated energy and carbon reductions from a range of potential projects. This section includes a list of **[Hospital Name]**'s planned projects in the short term for which the hospital has completed comprehensive analysis of energy projections, as well as a broader strategy to meet the goal based on potential opportunities that have not yet been fully assessed. Taken together, **[Hospital Name]**'s planned projects and strategies provide a road map for meeting the Challenge goal.

"Business as Usual" Projected Growth

If you have used an alternate calculation of business as usual growth, please remove the text below and describe your own calculation here. If you assume no business as usual growth, please explain why.

To map out the strategy for meeting the Mayor's Carbon Challenge goal, participants must understand both their base year level of emissions and, to a certain degree, their "Business as Usual" projected growth if no further action is taken to reduce energy use or carbon emissions. Based on the available historical data, the Mayor's Office assumes citywide "Business as Usual" growth to be roughly a 1% increase in emissions per year. The Mayor's Office is currently revising this projection, but because this analysis is not yet complete. For planning purposes, **[Hospital Name]** will assume 1% annual growth under its "Business as Usual" scenario to account for expected increases in emissions as a result of greater intensity of energy use from IT equipment and other sources. This means that the hospital will plan to reduce emissions by *more than* 30% in order to offset this projected growth in emissions and meet the Challenge goal.

The following is sample text—please remove and insert your own text in its place.

Remaining Reduction

In the four years since it joined the Mayor's Carbon Challenge, City Hall Hospital has reduced its carbon intensity by 24%. To reach the 30% goal, City Hall Hospital must reduce its carbon intensity per square foot by an additional 6% by 2019. This corresponds to a drop in emission intensity from 18.43 Lbs. CO_2e/Sq. Ft. in 2012 to 16.97 Lbs. CO_2e/Sq. Ft. by the end of the Challenge.

However, assuming a "Business as Usual" projection of 1% growth in carbon intensity per year, City Hall Hospital would expect emissions to increase by 7% if the hospital took no additional action. To offset this potential future growth, City Hall Hospital plans to achieve an additional 18-20% reduction in carbon intensity from its base year levels.

Project Identification Process

To identify additional projects to meet this goal, City Hall Hospital engaged a private contractor to model the energy use of its properties to more fully understand the contribution of various equipment and design features of each building to the hospital's total energy use. After developing a baseline model, the contractor is in the process of modeling separate energy conservation measures to understand the impact of each on total energy use, both separately and taken together. Based on this assessment, City Hall Hospital will select a portfolio of projects that will reduce energy consumption and allow it to meet the Challenge goal.

City Hall Hospital began its project identification process in January of 2013 and will complete the process by the end of the year. Based on the initial energy modeling, several specific projects have already been selected based their energy reduction potential.

Planned Projects and Strategies

To help achieve this remaining goal, City Hall Hospital has identified five projects and completed an assessment of potential energy reductions.

Strategy 1 – Complete Lighting Upgrades: City Hall Hospital has already replaced 50% of its existing lights with energy efficient LED lights. This has resulted in savings of more than 20% in annual energy use for lighting, translating to a 3% reduction in City Hall Hospital's carbon emissions per square foot. Over the next two years, City Hall Hospital will complete the remaining lighting upgrades, realizing an additional 3% reduction in carbon intensity from baseline levels, bringing the total reduction to 6%. This corresponds to annual savings of 700,000 kWh of electricity annually, which translates to a GHG reduction of 296 metric tons of carbon dioxide equivalent. The payback time of this project is expected to be 2 years.

Strategy 2 – Improve Operations and Maintenance of Equipment through Training: City Hall Hospital will hold annual trainings for all building managers and operators, which will focus on training for advanced control systems and active monitoring of building equipment. Based on the experience of similarly sized hospital, City Hall Hospital expects to realize a 5% reduction in energy use and associated carbon emissions per square foot as a result. These reductions in energy consumption will save an estimated $51,000 in electricity costs annually, with a payback time of 2 years.

Strategy 3 – Build all new buildings to LEED Silver Standards: City Hall Hospital has committed to build its new facilities in the TriBeCa neighborhood to a high-performance LEED Silver standard. As City Hall Hospital continues to expand, these building standards are expected to reduce the carbon intensity of its facilities facilities by a total of 5%.

Strategy 4 –Retro-Commissioning: Beginning in 2014, City Hall Hospital will begin retro-commissioning its facilities to optimize energy performance and comply with New York City's Local Law 87. This includes auditing of its existing buildings and identifying low-cost improvements to equipment controls to optimize system performance. This will reduce City Hall Hospital's electricity consumption by an estimated 100,000 kWh, which translates to about 43 metric tons of carbon dioxide equivalent. The strategy will reduce energy costs by $20,000 per year and is expected cost only $50,000 to implement, implying a payback period of 2.5 years. The hospital expects this strategy to make a significant contribution to its goals by reducing its carbon emissions per square foot by an additional 4%.

Strategy 5 – Behavioral Changes through Competitions: The final component of City Hall Hospital's strategy focuses on behavioral changes it can sustain through the expansion of energy-saving competitions. The first year of the competition in the Flushing Building realized an 8% energy savings in the office space, translating to a 2% reduction in overall carbon intensity. City Hall Hospital will continue the energy-saving competition and create a new, inter-departmental competition to achieve an additional 2% reduction in carbon intensity. The strategy will reduce energy costs by $17,000 per year but is expected cost only $10,000 to implement, so the payback is just 0.6 years.

These five projects represent relatively simple strategies to reduce City Hall Hospital's energy use and carbon emissions. Taken together, the strategies are projected to reduce City Hall Hospital's total energy use by about 17,660 MMBtu and cut GHG emissions by roughly 780 metric tons of carbon dioxide equivalent. Based on current electricity prices, this will save the hospital $111,000 in energy costs annually with a payback time of 1.95 years overall.

Additional Opportunities and General Strategy to Meet the Challenge Goal

Based on the initial results of City Hall Hospital's energy model, the hospital estimates that it will achieve the remaining carbon reductions to meet the 30% reduction goal through three main strategies: additional lighting projects; plug load reductions through a combination of energy efficient purchasing standards, software controls, and employee engagement; and on-site generation. The contribution of each strategy is demonstrated by the wedge chart below, which assumed a 1% annual growth in "business as usual" emissions for planning purposes.

Measurement and Verification

Because there is a degree of uncertainty in all projections, City Hall Hospital will continue to update energy use projections over the next five years to reflect additional evaluation, measurement, and verification of its projects using the 2010 International Performance Measurement and Verification Protocol.

[Hospital Name]'s Planned Projects and Strategies

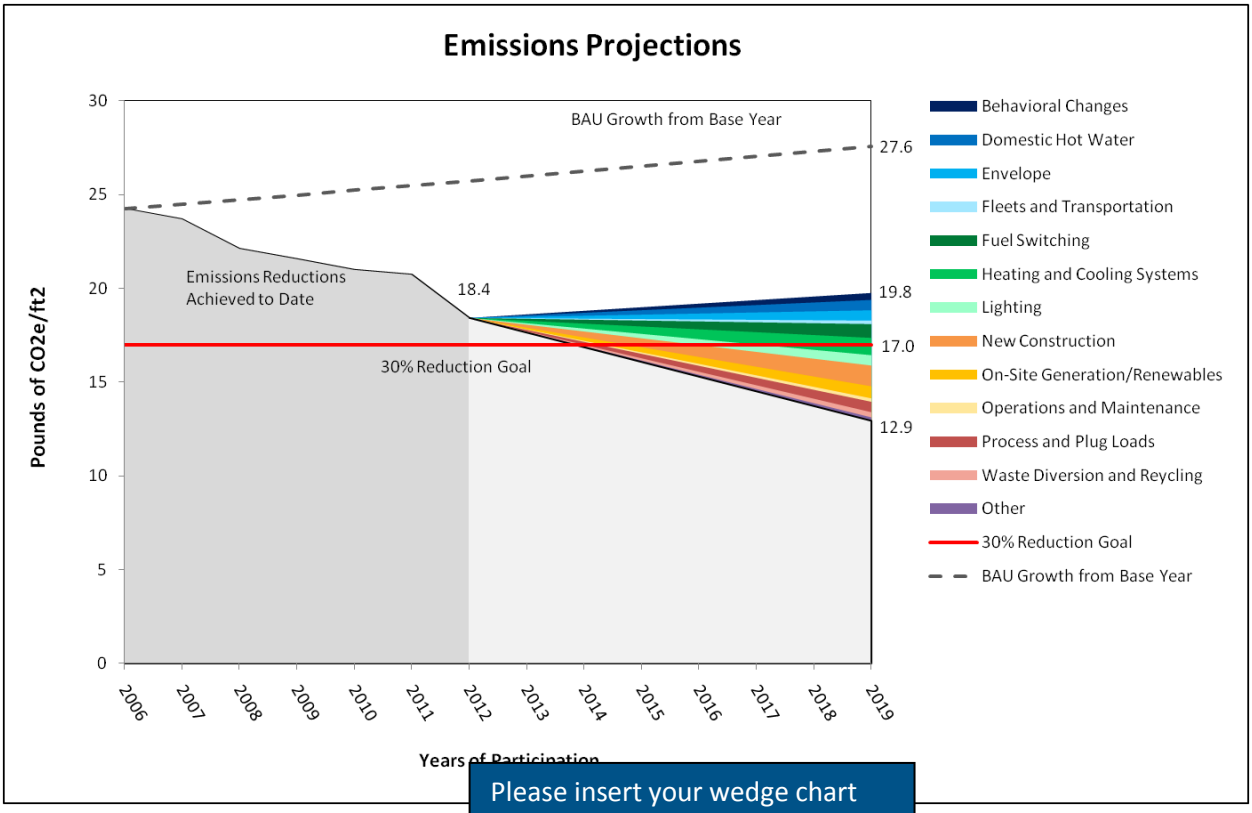
Completed Project Information			Energy Savings	Cost Savings			GHG Reductions
Energy Conservation Measure (ECM) Category	Measure Name	Project Description	Est. Electricity and Fuel Savings (MMBTU/yr)	Dollars Saved Annually ($/yr)	Installation Cost ($)	Simple Payback (Years)	Est. Emissions Reduction (MT CO2e/yr)
Lighting	Upgrade to LED	Complete upgrades on remaining 50% of hospital system lights to LEDs, primarily in the Flushing Building	6,682	$30,000	$60,000	2.0	296
Operations_and_Maintenance	Facilities Staff Training	Hold annual trainings for all building managers and operators, which will focus on training for advanced control systems and active monitoring of building equipment	9,546	$51,000	$102,000	2.0	423
Operations_and_Maintenance	Retro-Commissioning	Comply with New York City's Local Law 87, including auditing of existing buildings and identifying low-cost improvements to equipment controls to optimize system performance	955	$20,000	$50,000	2.5	42
Behavior_Change	Employee Engagement	Continue existing energy-saving competition and create a new, inter-departmental competition	477	$10,000	$5,000	0.5	21
Other_Measures	New Buildings	Build new facilities in the Tribeca ne high-perfo standard			00,000	10.0	3,430

Please fill out Tables 10-11 in your Climate Action Plan Tool Kit and insert it in this section.

Total Energy Savings (MMBTU/yr)	Total Dollars Saved Annually ($/yr)	Total Cost of ECMs ($)	Simple Payback (Years)	Est. Carbon Reduction (Mg CO2e/yr)	Reduction in Carbon Intensity* (lbs CO2e/Sq Ft)
74,352	$1,111,000	$10,217,000	9.2	4212	1.69

*Estimated reduction in carbon intensity is based on current square footage, which is expected to change over the timeline of the Challenge.

[Hospital Name]'s Plan



Please insert your wedge chart and projected reductions table from your Climate Action Plan Tool Kit in this section.

Energy Conservation Measure (ECM)	Reduction Target (% of current emissions)
Behavioral Changes	*-2.0%*
Domestic Hot Water	*-3.0%*
Envelope	*-3.0%*
Fleets and Transportation	*-1.0%*
Fuel Switching	*-4.0%*
Heating and Cooling Systems	*-5.0%*
Lighting	*-3.0%*
New Construction	*-6.0%*
On-Site Generation/Renewables	*-3.5%*
Operations and Maintenance	*-1.0%*
Process and Plug Loads	*-3.0%*
Waste Diversion and Reycling	*-1.5%*
Other	*-1.0%*
Total Projected Reductions from 2012	-37.0%
Carbon Intensity in 2012	18.43
Projected Carbon Intensity in 2019	11.61
Total Projected Reduction from 2006	**-52.1%**