Village of **Croton-on-Hudson** New York

Greenhouse Gas Emissions Baseline Inventory

of

Municipal Facilities and Activities

in the Village of Croton-on-Hudson, New York

for calendar year 2007

Final Draft (version 2007.1)
December, 2009

This report uses the Clean Air and Climate Protection 2009 Software published by ICLEI Local Governments for Sustainability.

ICLEI Local Governments for Sustainability USA

CACP 2009 Clean Air & Climate Protection Software

www.crotononhudson-ny.gov

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Village of **Croton-on-Hudson** New York

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December 21, 2009

An open letter to the Croton community

Dear friends and neighbors,

We face an unprecedented challenge that will have an extremely strong impact on the health, safety, and welfare of our children and children's children. The issue is human-driven climate disruption. More warming from the human release of greenhouse gases to the atmosphere alters the jet streams, which leads to more violent swings in weather patterns. Translation: the prospect of more severe storms, on a scale of a Hurricane Floyd, as more frequent events is very real. New York State has already warmed up by 2 degrees Fahrenheit since 1970.

The good news is that all around us government has become engaging in solving climate disruption with both action plans and dollar resources for those plans. At the national level, the new administration increased funding for energy efficiency, conservation, and renewables on a massive scale as both a jobs program and a vastly improved promotion of promising technologies and polices. At the state level, Governor Paterson started the Climate Smart Communities initiative and established a goal for New York State of reducing greenhouse gas emissions by 80 percent from 1990 levels by the year 2050 with a significant renewable energy and efficiency impact by 2015.

At the local level, Croton joined the Governor's initiative the first week it was launched. We were the first municipality in New York to purchase electricity from wind power. We joined an international consortium of municipalities to tap into the best practices for sustainability and signed onto the US Conference of Mayors Climate Pledge. We are a founding member of a Westchester-based consortium of towns and villages collaborating on innovative, cost-effective energy initiatives using off the shelf technology. We are a little village that can set an early example and will make a difference!

Pushing the "reset" button on the economy gives us a great opportunity. We need to rethink "business as usual"–such as our reliance of fossil fuel. As a people of great creativity and collaboration, we will learn what's good for the environment and our children's future is best for the economy too. As part of the Northern Westchester Energy Action Consortium, we will have good company on this journey toward a more sustainable village, region, and nation.

In closing, I ask that you get involved. Educate yourself. Reduce your carbon footprint. Most importantly, share your ideas. Join with us–your friends and neighbors–on this journey to a place just around the corner where we take only what we can replace and we leave ample resources for those who will come after us. Our coastline and our economy depend on how much we get done in the next few years. We can do this together!

If the Earth were an apple, all life would take place within a layer as thin as the apple's skin. We only have one Earth. It's thin skin provides us the essential materials of life: air, water, and soil. One Earth–one health.

Thank you for your attention. Don't hesitate to drop us a note with any ideas you think we should consider.

Sincerely,

Leo A. W. Wiegman, Mayor

lwiegman@crotononhudson-ny.gov

Executive Summary: Croton's governmental emissions for 2007

What we have done so far

- In 2003, Croton took climate disruption seriously by buying wind power and joining Energy $mart Communities, signing the U.S. Conference of Mayors Climate Protection Agreement in 2009, & joining the Climate Smart Community initiative in 2009.
- In 2008, Croton joined ICLEI, a widely respected non-governmental organization that helps local governments address climate impacts.
- In 2008-9, Croton started an energy audit of the Municipal Building, purchased some higher mileage vehicles, and installed photovoltaic panels on Grand Street Firehouse.
- In 2009, Croton used ICLEI procedures and other methods to calculate village government's climate impact, a.k.a "carbon footprint" or "greenhouse gas inventory."

Why?

- To determine how and at what expense Village could reduce or eliminate any climate impacts resulting from its own governmental operations.
- Can the Village become a zero carbon emissions municipality?
- Should our government operations become carbon neutral?

What we found out

- Building operations, vehicle transportation, and drinking water delivery produce the greatest emission impacts.
- Electricity use is largest contributor to overall greenhouse gases indirectly through emissions at power plants that serve the Village's needs.
- Gas & diesel burned in Village vehicles is single largest local air pollution source among government operations.

By the numbers

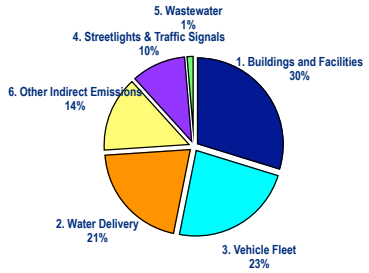
- In 2007, the Village spent over a half million dollars on energy,
- bought almost 17.8 billion Btus of energy of all kinds, which
- caused over 1,770 tonnes of greenhouse gas emissions.

What does this mean?

The Village will find ways to reduce its direct and indirect emissions by

- seeking more efficient use of energy,
- generating or purchasing more renewable energy, and
- switching to cleaner fuels, and many other means.

Croton's CO_2e tonnes emissions



Next steps! Develop Croton's climate action goals and plans

1. Analyze the energy, cost and emission reduction options (efficiency measures, renewables sources, fuel switching, etc).
2. Determine the lowest cost way to achieve them.
3. Demonstrate Village's commitment to a climate action plan, while safeguarding taxpayers.
4. Invite home & business owners to participate in community wide greenhouse gas inventory to include private sector buildings & operations.

Executive Summary Table by Sector: 2007 Village government emissions, energy, and cost*

Summary by Sector	Emissions (tonnes of CO_2e)	(%)	Energy (MMBtu)	(%)	Cost ($)	(%)
1. Buildings and Facilities	528	29.8%	6,525	37%	$149,262	28%
2. Water Delivery Facilities	369	20.8%	3,583	20%	$149,560	29%
3. Vehicle Fleet	415	23.4%	5,701	32%	$126,894	24%
4. Streetlights & Traffic Signals	184	10.4%	1,699	10%	$88,791	17%
5. Wastewater Facilities	24	1.4%	252	1%	$9,269	2%
6. Indirect Emissions: Commuting, solvents, etc.	254	14.3%	0	0%	$8,430	0%
Totals	**1,774**	**100%**	**17,760**	**100%**	**$532,206**	**100%**

* For the Detailed Report, skip ahead to **Section 2.2. Croton's Greenhouse Gas Emissions: the Detailed Inventory (page 15)**

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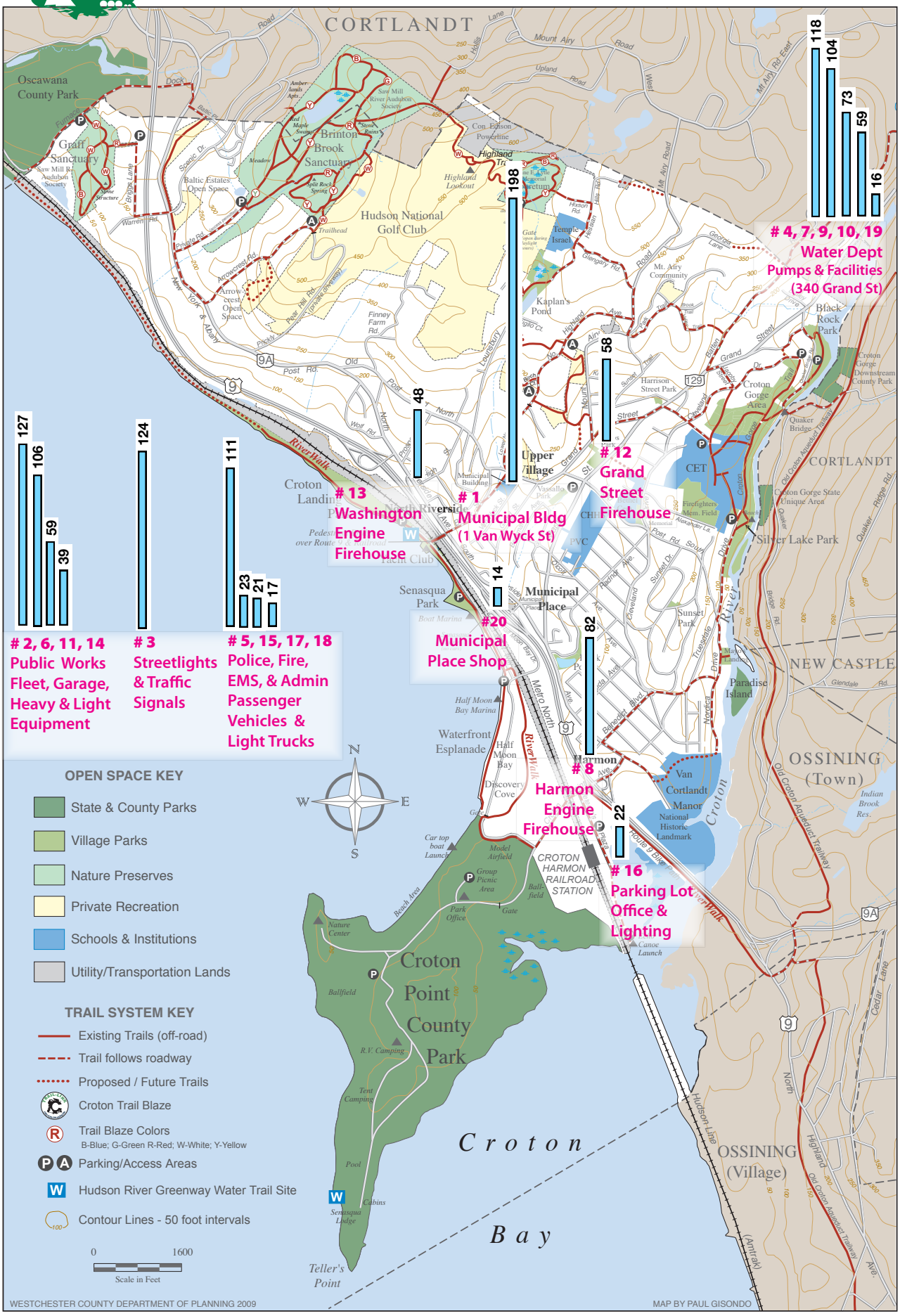
Top 20 Government Emission Sources (2007)

metric tonnes of carbon dioxide equivalent (tCO_2e)



A Holiday Example: 40% saved!

In 2001, then Village clerk Peggy Keesler generously donated a 30 foot fir tree to the Village to be replanted from her yard to the parkway on Benedict Boulevard at South Riverside Drive. Every year our Village staff decorates this tree with seasonal holiday lights. The string of incandescent bulbs took a beating from the elements and required repair and numerous replacement bulbs. In fall 2009, Croton's public works foreman, Thomas Giglio, set out to find better looking lights to replace the old strings. Mr Giglio discovered the village could purchase 1,800 light emitting diode (LED) lights for $1,700. Of the total, 1,600 are used on the tree with 200 as spare light in reserve. Mr. Giglio ordered a special mix of colored bulbs that added white lights to the traditional red, green, and blue. These LED lights have more durable housings, do not use fragile bulbs, and consume a tiny fraction of the electricity of the incandescent bulbs. The parkway has two power outlets. Due to LED efficiency, all the new light strings could be plugged into a single outlet, leaving the second one open for a menorah. Mr Giglio notes, "A typical C7 incandescent lamp uses 5 watts for a total of 8000 watts of power as opposed to the new L.E.D. lights, which only use 1.4 watts per bulb for a total of 2100 watts of power." Therefore, in 2009, the village staff was able to decorate the tree with more lights and include a menorah, all while cutting costs for this one activity by over 40% since last year.

photo courtesy of C. Romedenne

Outdoor Lighting (Holiday Lights Benedict Blvd.)	
2007 (energy cost from line 4.11 on Table 2)	$491
2008 (estimated cost of electricity)	**$500**
Cost of new LED lights	$1700
Annualized cost of LED light (10 year lifespan)	$170
2009 (estimated electric bill of 1,600 new LED lights)	$125
New annual cost	**$295**
Savings (each year)	$205
	41%