



January 2012



# **Local Climate Action Plan**

*“Our shared vision for Lombard is a community of excellence exemplified by its government working together with residents and businesses to create a distinctive sense of spirit and an outstanding quality of life.”*



# Local Climate Action Plan

**Purpose:** Greenhouse gas emissions are causing a trend of global warming and environmental consequences. The Village of Lombard's President and Board of Trustees signed the US Mayors Climate Protection Agreement on October 15, 2009 to pledge to reduce greenhouse gases, measured as the carbon footprint of all properties in the Village, by 7% below 1990 levels by 2012. This amounts to a reduction of 56,000 Tons. This goal is to be seen as a benchmark along a trend of actively improving emissions.

**Greenhouse Gases:** Carbon Dioxide occurs from burning and other chemical reactions and it is removed by plants. Methane occurs from the production and transport of fossil fuels and the decay of organic waste. Nitrous Oxide occurs from agricultural and industrial activities and burning. Fluorinated gases are from industrial processes.

**Partners:** The Village's Environmental Concerns Committee is engaging with ComEd, other public organizations, local businesses and residents on energy-saving initiatives and other strategies in this plan. Target strategies will save energy as well as operating costs.



***Energy Consumption in Lombard: An Energy and Emission Profile*** was completed for the Village by the Center for Neighborhood Technology (CNT) in 2009. The Profile provides the baseline of energy demands and emission sources by sector. As the carbon footprint was not indexed in 1990, 2005 values will be used. Values are in MMT, million metric tons, of CO<sub>2</sub>e (carbon dioxide emissions):

<b><u>SECTOR</u></b>	<b><u>MMT CO<sub>2</sub>e</u></b>	<b><u>% of TOTAL</u></b>
Electricity	0.336	45
Natural Gas	0.143	20
Transportation	0.204	28
Product Use	0.023	3
Solid Waste	0.019	3
Waste Water	0.005	1
<b>TOTAL</b>	<b>0.729 (800,000 Tons)</b>	<b>100</b>



**(1 MT = 1.1 Ton)**

Thus, the 7% reduction in CO<sub>2</sub>e to achieve by 2012 is 0.051 MMT, which is 51,000 MT (**56,000 Tons**). This is the equivalent to removing 10,000 passenger vehicles from the roads (5.10 MT CO<sub>2</sub>e per vehicle), or 17,770 tons of recycling instead of landfilling (2.87 MT/ton recycled), or 71,000 kWh of electrical use (6.8956 x10<sup>-4</sup> MT/kWh). While the Village will quantify the reductions achieved through specific strategies, a future Energy and Emission Profile will show the degree of our success.



**Strategies:** *The Village's Environmental Concerns Committee has identified the following strategies that will be quantified and tallied toward the annual reduction goal of 56,000 Tons of CO<sub>2</sub>e.*

- 1) Reduce the electrical consumption of Village operations by installing LED streetlights, using variable-speed pump drives and purchasing Energy Star equipment.** *In 2010, the Village replaced 119 high-pressure sodium luminaires with LED luminaires. An additional 19 mercury vapor luminaires were replaced with LEDs on Main Street in 2010. This amounts to an annual CO<sub>2</sub>e reduction of 65 MT (72 Tons) of CO<sub>2</sub>e. The Village Board has approved LEDs as the preferred luminaire type for all block-long future replacements.*
- 2) Reduce the electrical consumption of Village facilities.** *The Village contracted for a Sustainable Energy Plan in 2009. The Plan focused on the Village Hall but the following recommendations were also extrapolated to include the other facilities: establish an energy mandate, benchmark against comparable communities, conduct energy audits of all facilities, identify one Energy Coordinator & an Energy Implementation Team, create energy conservation reward/recognition programs, include energy use in operating procedures, reduce facility energy use during off hours, implement preventative/predictive maintenance, install motion sensors, replace remaining metal halide and halogen bulbs, reduce hallway & wall lighting, replace the HVAC automation and evaluate progress & update goals annually. These actions for the Village Hall would reduce the carbon footprint by 679 metric tons, or 55% of the baseline tonnage for the Village Hall.*





**3) Partner with ComEd to promote energy efficiency/savings programs.**

***The Village is promoting ComEd's Residential Real-Time Pricing Program and Air Conditioning Cycling Program in the resident newsletter and TV-6 ([www.thewattspot.com](http://www.thewattspot.com)).***

**4) Partner with the Citizens Utility Board (CUB) to promote residential energy reductions.**

***The Village entered into a partnership with CUB on 10/7/10 to promote their Energy Saver program. This program is particularly useful since it tracks energy savings of participants. The data can be extrapolated to some extent to show trends toward efficiencies realized through updated appliances and increased conservation. As of 9/1/11, there were 181 members that have reduced electric use by 66 MW through the program. This is a reduction of 46 MT (50 Tons) of CO<sub>2</sub>e. Assuming that just a quarter of Lombard's 18,000 households have realized similar reductions, this would correspond to a reduction of 1,640 MT (1,800 Tons).***

**5) Facilitate sustainable building practices and energy efficiency.**

***The Village's Green Building Handbook was created in 2010 to help permit applicants understand, comply and appreciate the energy saving measures inherent in the State's 2009 Energy Efficient Building Act. In addition, the Village created the Sustainability Award in 2011 to highlight above-and-beyond practices that property owners should emulate. Lastly, the Village's partnership with Go2Green has resulted in about 50 incandescent exit signs being replaced with LED signs. This corresponds to an annual saving of 6.82 MT (7.5 Tons) CO<sub>2</sub>e.***





**6) Promote emission-free transportation options.** *The Village installed bike racks at the Metra station to accommodate 36 additional bikes. Assuming that the average bike commuter travels two miles round trip for half the year and using a rate of 8.92 kg of CO<sub>2</sub>e/gal and a 25 mpg vehicle, this amounts to a CO<sub>2</sub>e reduction of 3.34 MT (3.67 Tons). Also, the Downtown Plan is enhancing walkability by adding a crosswalk on St. Charles and a sidewalk tunnel under the railroad.*

**7) Reduce waste hauling and landfilling.** *The Village's Compost Bin Grant Program reimburses residents \$80 per compost bin. It is estimated that the average amount of biodegradable food scraps that are composted rather than hauled to a landfill are 1 cubic yard per year. To date, there have been 75 grants awarded so the total annual waste diversion is 75 cy. A reliable conversion factor has not been found so the CO<sub>2</sub>e reduction is unquantifiable. Also, a monthly e-waste recycling collection is planned for 2012.*

**8) Enact land-use policies that preserve open space and promote smart growth.** *The Village's Comprehensive Plan, Zoning Code and Open Space Plan set clear and consistent policy for open space preservation and community planning. The Zoning Code maintains a minimum open space of 50% for single-family residential, 15%-40% for multiple family residential, 35% for office, 10% for most business, and 10% for industrial properties.*

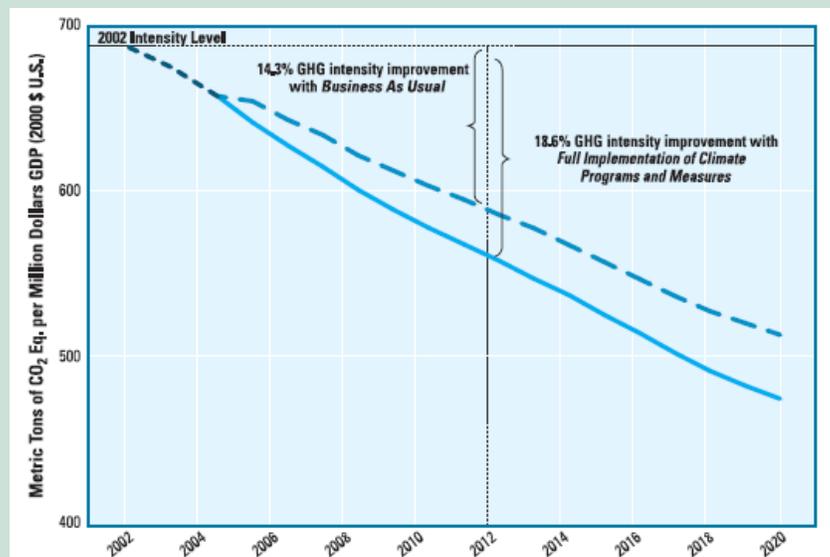




**9) Maintain the urban forest. The Village has been an active Tree City USA community since 1990 through maintenance of its inventory of 18,000 public trees, valued at \$39 Million. Additional landscaping is also being planned through the Downtown Plan. These trees offset 70 MT of CO<sub>2</sub>e annually.**

**10) Educate the community about greenhouse gas emissions. Starting in the Fall of 2010, the Village partnered with School Districts 44, 45 and 88 to promote participation in the Citizens Utility Board's Energy Saver Program ([www.cubenergysaver.com](http://www.cubenergysaver.com)). The program suggests, verifies and tracks energy savings and corresponding CO<sub>2</sub>e reductions. The program will also be promoted at the Building Division Counter, on TV-6, through the Chamber of Commerce and in the resident newsletter.**

**11) Increase Fleet Fuel Economy by reducing idling and purchasing more fuel-efficient vehicles. The Village implemented an anti-idling policy in 2008 for Village-owned vehicles. In addition, three hybrid vehicles were purchased. These actions contributed to a fuel savings of 15%, as measured by increased miles per gallon for the fleet. The annual savings equates to 20,000 gallons, which is a CO<sub>2</sub>e reduction of 178 MT (196 Tons) kg.**





**12) Switch to Renewable Energy Sources: Energy sources such as wind, solar, geothermal, and hydroelectric produce no CO<sub>2</sub>e emissions. The total electricity demand for the Village is 336 MT (370,000 tons). Therefore, a community-wide switch to renewable electricity sources would result in CO<sub>2</sub>e reductions of the following magnitudes: 5% = 18,500 Tons, 10% = 37,000 Tons, 15%= 55,500 tons. Such an action would in the hands of voters since it would require approval by a majority of residents via a referendum and, thus, it would likely need to demonstrate that it would still return a sizable economic benefit for property owners in addition to environmental aspects.**





## **TALLY OF REDUCTIONS FOR #1-#12:**

<b>1) 72</b>	<b>Village Operations</b>
<b>2) In Process</b>	<b>Village Facilities</b>
<b>3) Unquantifiable</b>	<b>ComEd Programs</b>
<b>4) 1,800 Tons</b>	<b>CUB Programs</b>
<b>5) 8 Tons</b>	<b>Building Practices and Efficiencies</b>
<b>6) 4 Tons</b>	<b>Emission-Free Transportation</b>
<b>7) Unquantifiable</b>	<b>Waste Hauling/Landfilling</b>
<b>8) Unquantifiable</b>	<b>Land-Use Policies</b>
<b>9) No change</b>	<b>Urban Forest</b>
<b>10) Unquantifiable</b>	<b>Public Education</b>
<b>11) 196 Tons</b>	<b>Fleet Fuel Economy</b>
<b>12) TBD</b>	<b>Switch to Renewable Electricity</b>
<b><u>TOTAL = 2,073 Tons</u></b>	<b>(7% Goal = 56,000 Tons)</b>

**Thus, the actions to date have reduced CO<sub>2</sub>e emissions by 0.26%, falling short of the 7% goal by 53,927 tons.**





## **CO2e Conversion Factors and Sources:**

**5.1 MT per passenger vehicle annually**

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

**2.87 MT per ton of materials recycled instead of landfilled**

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

**Streetlights changed from HPS to LED annually**

Project calculation by Sternberg Lighting using 2.095 lbs/kWH

**0.68956 MT per MW electricity conserved**

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

**300 lbs per exit sign changed from incandescent to LED**

[www.gotogreenprojects.com](http://www.gotogreenprojects.com)

**8.92 kg per gallon of gasoline combusted**

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

**0.039 MT per tree planted over 10 years**

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>





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