



City of Chicago
Department of Environment

LADCO
Regional Air Quality Workshop
November 17 2005

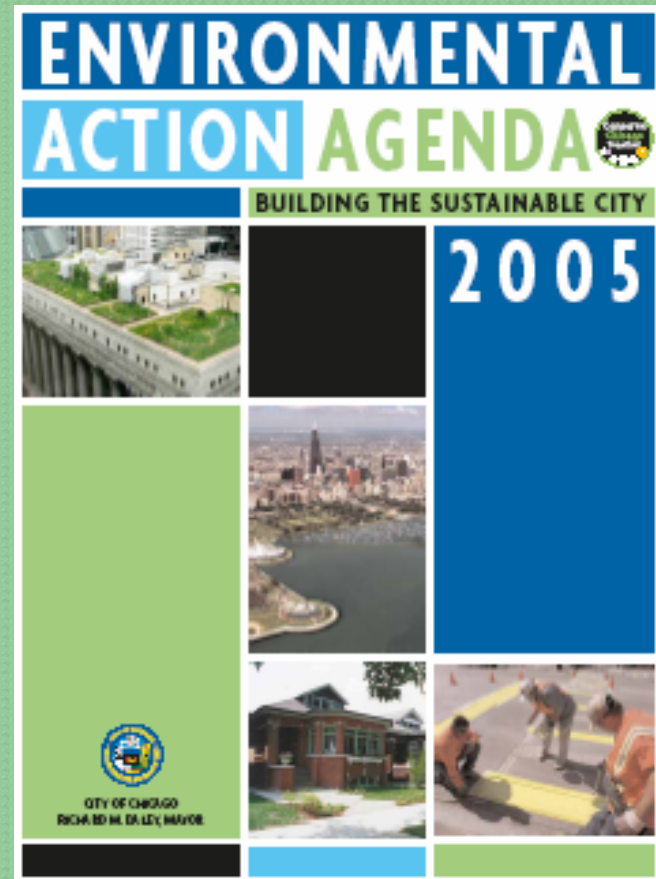
Richard M. Daley,
Mayor

Sadhu A. Johnston,
Commissioner

THE CHICAGO ENVIRONMENTAL ACTION AGENDA

Cross departmental efforts to:

- Conserve, protect and restore natural resources
 - Encourage healthy environmental practices
 - Leading by example
-
- 16 Sub-committees
 - 10 months of collaborative work



Chicago Air Quality



Richard M. Daley, Mayor

THE CHICAGO STANDARD

- Requirements
 - ▶ LEED® Certified rating.
 - ▶ Higher rating levels are encouraged.
- Applicability
 - ▶ All new City facilities.
 - ▶ City renovation projects that exceed 50% of facility replacement cost.
- Credits
 - ▶ Highlights LEED® credits most achievable and appropriate for Chicago buildings.



Chicago Center for Green Technology

2004 GREEN PROCUREMENT

- Green Cleaning Policy adopted in July 2004 requires the procurement and use of low-impact environmental cleaning and maintenance products.
- Other green procurement practices:
 - ▶ Purchase paints and other products with low or no volatile organic compounds (VOC).
 - ▶ Use low VOC-emitting carpet systems, composite wood products and laminates.
 - ▶ Purchase and use household products that are Green Seal certified.



CHICAGO IDLING MANAGEMENT POLICY

- The Problem:

FUEL CONSUMPTION AND EMISSIONS WHEN IDLING		
	Typical Medium to Heavy Truck (per hour)	Total for City's 2,400 Trucks (per year)
Fuel Consumption	1 gallon	\$1,116,000
Air Emissions		
NO _x	140 grams	87 metric tons
CO ₂	8,200 grams	5,100 metric tons

- The Solution:

- ▶ 6-month pilot program to test proposed Chicago Idling Management Policy.
- ▶ Limits idling of vehicles to 5 minutes per hour when outside temperature is less than 40 °F or more than 80 °F.



FLEET MANAGEMENT

- 23 alternative fueling stations are being installed in the Chicago metropolitan area through a regional infrastructure program administered by the City.
- Five CNG fueling stations are currently operational in the City, including one at O'Hare International Airport.
- Three E-85 fueling stations have been installed to service the City's fleet of 163 flexible fuel vehicles.
- Low-sulfur diesel fuel is dispensed to all City-owned diesel vehicles and equipment.
- The City consumes 4.8 million gallons low-sulfur diesel fuel annually.



FLEET MANAGEMENT

- The City uses alternative fuel & clean-fuel vehicles to improve air quality and increase energy security.
 - ▶ 100 compressed natural gas (CNG) vehicles, including 22 at CTA
 - ▶ 199 ethanol (E-85) vehicles, including 36 at CTA
 - ▶ 45 hybrids sedans (13 on order)
 - ▶ 18 hybrid SUVs (33 on order)
 - ▶ 2 hybrid pick up trucks



CHICAGO REFUSE TRUCK RETROFITS

- The City received a \$200,000 grant from U.S. EPA's Great Cities Initiative to install emission reduction technology on refuse trucks.
- 75 garbage trucks retrofitted with oxidation catalysts, which reduce PM by 20%, HC by 50%, and CO by 40%.



PILOTING RETROFIT TECHNOLOGIES

- Through grants from the Metropolitan Mayors Caucus, the City performed the following retrofits:
 - ▶ Installed diesel particulate filters on four street sweepers.
 - ▶ Installed diesel particulate filters on four refuse trucks.
 - ▶ Rebuilt three fire truck engines for reduced emissions.
 - ▶ Retrofitted twenty nine front-end loaders with oxidation catalysts
 - ▶ Retrofitted 7 locomotive switch engines with emission control devices



Fire truck with rebuilt engine

PARTNERING WITH SISTER AGENCIES

- City received grants from U.S. EPA and IEPA to retrofit school buses with diesel oxidation catalysts and diesel particulate filters.
- Approximately 800 school buses that serve Chicago public schools will be retrofitted in 2005.



O'HARE MODERNIZATION PLAN (OMP)

- O'Hare's future airport layout will minimize aircraft flight delays and reduce jet engine emissions.
- The reconfiguration of O'Hare's surrounding roadway system will reduce congestion, thereby reducing vehicle emissions.
- The OMP will extend the electric-powered train system to new facilities, reducing the need for emissions-heavy shuttle buses.



OMP CONSTRUCTION REQUIREMENTS

- Requires the use of ultra low sulfur diesel fuel in 2,300 pieces of construction equipment.
- Requires that older equipment be retrofitted with oxidation catalysts and particulate filters to reduce emissions.



GAS CAN REPLACEMENT

- DOE began hosting Gas Can Replacement events in 2001. Residents exchange old, polluting gas cans for new, environmentally friendly cans.
- Since the first event, DOE has collected and retired more than 1,000 gas cans.



LAWNMOWER BUY-BACKS

- DOE hosted the first Lawnmower Buy-Back event in 2000 to encourage residents to retire gas-powered lawn mowers.
- In exchange, participants receive a rebate toward the purchase of an electric, battery-powered, or non-motorized mower.
- To date, DOE has collected and retired over 1,000 gas-powered lawnmowers, reducing VOC emissions by more than 7 tons per mowing season.



RENEWABLE ENERGY

- Solar PV:
 - ▶ Over 1.4 MW installed in Chicago, more than any U.S. city.
- Solar Thermal:
 - ▶ Manufacturing plant opened March 2004.
 - ▶ The City has committed to purchase solar thermal, installing infrastructure on City and sister agency facilities.



Solar PV installation



Solar thermal installation

RENEWABLE ENERGY (cont.)

- Wind Power:
 - ▶ City is mapping wind resources and identifying opportunities for using urban turbines.
- Ground Source Heat Pumps:
 - ▶ Currently in use at Chicago Center for Green Technology, Chicago Police Marine Unit, and Green Homes for Chicago; other projects in development.



URBAN HEAT ISLAND MITIGATION

- Planted more than 400,000 trees since 1989, removing airborne particulate matter of 31,000 vehicles.
- 70 linear miles of medians constructed and planted.
- 480 vegetated elements installed.
- 31 miles of historic boulevards, containing 9,322 trees, landscaped and maintained.



URBAN HEAT ISLAND MITIGATION (cont.)

- Vaulted sidewalks replaced with trees and parkways.
- Green roofs installed and promoted city-wide.
- New landscape ordinance calling for private sector-sponsored landscapes for new construction.
- Reflective roof requirements on low and median sloped roofs



LED STREET LIGHTS & SIGNALS

- Light emitting diodes (LEDs) use 85% less energy, reduce O&M costs, and enhance safety through better visibility.
- The City has installed LED traffic lights at approximately 450 intersections and plans to retrofit all 2800 intersections by 2007.



RETROFITS OF MUNICIPAL BUILDINGS

- Mayor Daley pledged to retrofit 15 million square feet of City of Chicago, CHA, CTA, and City Colleges of Chicago facilities.
- This program has been completed, showing budget savings of over \$5 million annually.



ENERGY EFFICIENT BUILDING CODE

- The City adopted the International Energy Conservation Code in 2003, revised for Chicago weather.
- Implementation will reduce energy consumption by about 15% in newly constructed buildings and buildings undergoing major rehabs.





QUESTIONS?