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The City of Philadelphia – The Government and Community Work Together to Reduce Greenhouse Gas Emissions

Judith Samans-Dunn*

Historical Background

The City of Philadelphia has a very long history of attention to the local environment and how it affects the health and welfare of the public. Going back to the founding of Philadelphia by William Penn, one can see that the original City plans included open spaces, which survive to this day in Washington Square, Rittenhouse Square, Franklin Square and Logan Circle. Today, Philadelphia boasts one of the largest municipal park systems, if not the largest in the world. With 8,900 acres,¹ the park system becomes relevant in the area of CO₂ sequestration. As early as 1904, Philadelphia passed its first ordinance to control the emission of smoke, and by 1949 the City had established its own Division of Air Pollution Control.²

Philadelphia continues to build on this history of environmental innovation with a program to address both the causes and effects of climate change. In many respects, Philadelphia's program can serve as a model for other cities and local government units considering implementation of a climate change program.

In 1997, the City's Managing Director's Office brought together a cross section of employees to work on "White Papers" that covered a number of cross functional environmental issues. Teams worked on papers that included Brownfields, Vector Control, Recycling, Street Tree Maintenance, Green Industry Promotion, Illegal Dumping, and Dust, to name a few. The cooperative environment created by these interdepartmental teams formed the groundwork for the current ongoing

* MSIA, Philadelphia Department of Public Health Air Management Services.

1. Art Carey, *The Park is His Turf*, PHILA. INQUIRER, March 21, 2002, at D1.

2. CITY OF PHILA., HISTORY OF AIR POLLUTION CONTROL IN PHILADELPHIA, available at <http://www.phila.gov/health/units/ams/pdf/History.pdf> (last visited Oct. 29, 2003).

efforts that encourage reductions in greenhouse gas emissions.

Former Mayor Edward G. Rendell, by proclamation on June 23, 1999, signed the City of Philadelphia on to be a City for Climate Protection,³ a program sponsored by the International Council for Local Environmental Initiatives (ICLEI).⁴ This provided a framework for the various Departments and Agencies of the City to work together, with coordination from the Managing Director's Office, to reduce greenhouse gas emissions both within City Government and in the City at large. The effort has continued under Mayor John Street, including his personal introduction of the Green Communities/Sustainable Lifestyles Campaign in 2000. The Kyoto Protocol set forth a global target of 5% reduction in annual greenhouse gas emissions from the 1990 level by 2010.⁵ The City of Philadelphia intends to meet this 5% reduction and further will strive for a total of 10% reduction in greenhouse gas emissions by both the City government and the community at large.

Philadelphia's Climate Change Program

Philadelphia does not have a single department that has the unified responsibility for environmental policy and operational control. The City Managing Director's Office is tasked to coordinate environmental policy and program considerations, while major operating departments and agencies execute day to day operations. Although there are many agencies that can have an effect on reducing greenhouse gas emissions, not all share the same level of commitment or available time for the effort. This is an add-on task for each assignee. Not all of the agencies report to a common manager, however, all of these agencies do eventually report to the Mayor.⁶ The core work group includes representatives from the Managing Director's Office, the Municipal Energy Office, the Capitol Program Office, the Mayor's Office of Transportation, and the Health Department's Air Management Services, with input and assistance from other Departments, government agencies, community organizations, etc., as appropriate.

3. Edward G. Rendell, Mayoral Proclamation, City of Philadelphia, Jun. 23, 1999.

4. ICLEI/EPA Local Government/Industrial Partnership Program Climate Wise, available at <http://www.iclei.org/us/climatewise.html>. (last visited Oct 20, 2003).

5. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Conference of the Parties, 3rd Sess., U.N. Doc. FCCC/CP/1997/L.7/Add.1 at art. 3.1 (1997).

6. City of Philadelphia Home Rule Charter, 351 PA. CODE § 1.1-100 et seq. (1951), available at <http://municipalcodes.lexisnexis.com/codes/philadelphia/> (last visited Oct. 29, 2003).

Impacts of Global Warming in Philadelphia

An in-depth study of the impacts of global warming in Philadelphia has not been undertaken. Philadelphia is not coastal and will not be directly impacted by rising water levels. However, continued increases in temperature will increase the efforts needed to reduce heat related mortality. Philadelphia currently has a heat emergency program in place to respond to requests for assistance from senior citizens during heat crises.⁷ Additionally, there is concern that the rising temperatures could increase mosquito and tick populations in Pennsylvania, thus increasing the risk of transmission of diseases such as Lyme disease and encephalitis.⁸ The Health Department's Division of Disease Control tracks reportable disease morbidity, and the Vector Control Unit monitors and abates vector avenues of transmission.

Getting the Public Involved

The Climate Wise program for private sector business will be described later. However, a presentation on the program was held for the Steering Committee of the Greater Philadelphia Clean Cities Program on February 10, 2000. This resulted in the recruitment of PECO Energy Company as the first company to take the ClimateWise Pledge to voluntarily reduce greenhouse gas emissions. On March 16, 2000, the Climate Wise contractor⁹ made a presentation to the Philadelphia Local Emergency Planning Committee, which resulted in a follow-up article in their member newsletter. Participation in the City's Earth Day celebration enabled additional information to get to the general public through several informational display booths. Philadelphia's presence was reinforced after a Mayoral proclamation¹⁰ announced Philadelphia's participation in the Cities for Climate Protection Program.

Reality Check: Force Field

There are a number of forces involved in overcoming inertia. These forces do not remain static, and can encourage tremendous spurts of activity or can inhibit further motion. In any government setting, it is appropriate to keep in mind these forces, and work with them, not against their flow.

7. PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH, INJURY PREVENTION PROGRAM, at <http://www.phila.gov/health/healthfaq/ehsprevent.html> (list visited Oct. 30, 2003).

8. U.S. Env't'l Prot. Agency, Climate Change and Pennsylvania, EPA 230-F-97-008LL (1997).

9. CLEAN AIR COUNCIL OF PHILADELPHIA, PRESENTATION TO THE PHILADELPHIA LOCAL EMERGENCY PLANNING COMMITTEE (Mar. 16, 2000).

10. Rendell, *supra* note 3.

Forces that favor action include the following:

- Cost savings from reductions in energy usage,
- The availability of funding,
- Activities that fit with goals of established programs,
- Political support at the national, state and local level,
- Positive Press/Global Warming Press
- Existing public and private coalitions for addressing climate change, and
- Dedicated individuals.

On the other hand, a variety of other forces inhibit action, many of which may simply be the lack of the forces favoring change.

Factors which inhibit local action in addressing climate change include the following:

- Loss of funding,
- Lack of political support,
- Disagreement among participants on how to proceed,
- Lack of staff,
- Projects that extend beyond the rigid boundaries of existing programs,
- Changing targets,
- Other priorities for core participants, and
- An excessive payback period.

Cities for Climate Protection Program

In 1999, the City of Philadelphia began to participate in the Cities for Climate Protection program, sponsored by the International Council for Local Environmental Initiatives (ICLEI). The program has two components: Citywide actions and City government actions. One of the initial steps required to establish a local strategy was to create a carbon dioxide equivalent (greenhouse gas) emissions inventory.¹¹ An inventory is necessary to identify opportunities for emissions reductions, to quantify goals, and to establish benchmarks. Simultaneously, with a grant from ICLEI, the City hired a consultant to recruit business partners to create voluntary emissions reductions through a program called "Climate Wise."¹²

Where does Philadelphia Greenhouse Gas Come From?

Information collected from the various City Departments was used

11. Judith Samans-Dunn, *City of Philadelphia, Emissions Inventory Rep.* (Dec. 5, 2000) (report to the Cities for Climate Protection Project).

12. *Climate Wise*, *supra* note 4.

to create baseline and interim greenhouse gas emissions estimates for 1990 and 1997. Existing emissions inventory and other community data were also entered to estimate citywide baseline and interim emissions. These sets of information were put together into an initial green house gas emissions inventory report for the City of Philadelphia.¹³ The analysis estimated that electricity generation and natural gas usage each account for greater than 35% of Philadelphia's emissions, with an additional 19% of emissions coming from gasoline and diesel emissions. Further evaluation showed that the greatest room for reductions was in energy efficiency efforts.

Climate Wise

Philadelphia contracted with the Clean Air Council to provide outreach and solicit industry in Philadelphia to create voluntary greenhouse gas emissions reductions plans. The effort also included the support of the Commonwealth of Pennsylvania Department of Environmental Protection through the part-time loan of an engineer to provide voluntary pollution prevention and energy efficiency audits to the Climate Wise partner industries. Through this effort, six Climate Wise Agreements were signed and filed; five Climate Wise Action Plans were filed; and five Letters of Support were filed. The Climate Wise Program has now been merged into the Energy Star Program, which continues emission reductions efforts, but does not continue the formal submission of voluntary, quantifiable emission reduction plans.¹⁴

Clean Cities Program

The City of Philadelphia is also a participant in the Greater Philadelphia Clean Cities Program, which was formed under the auspices of the U.S. Department of Energy and works to promote alternate fuel vehicle programs.¹⁵ In 2001, the local program together with the DOE sponsored the 7th National Clean Cities Conference and Expo.¹⁶ As of 2001, there was a total of 894 light duty and 261 heavy duty Alternative Fuel Vehicles (AFV's) recorded in the Philadelphia area.

Major successes have included the following:

- Philadelphia International Airport has acquired a ground fleet of natural gas vehicles.

13. Samans-Dunn, *supra* note 10.

14. The City of Philadelphia is a government partner of the Energy Star Program of the U.S. EPA and Department of Energy, *available at* <http://www.energystar.gov/> (last visited October 20, 2003).

15. Michelle Knapick, City of Philadelphia, Municipal Energy Office.

16. U.S. Dep't of Energy Conference for Nat'l Clean Cities (2001).

- A number of public events have displayed alternative fuel vehicles.
- The City has worked with local advocates for alternative fuel vehicles to encourage wider use of these vehicles.
- The City of Philadelphia awarded a bid for the construction of a public access natural gas station at Philadelphia International Airport, with construction expected to be complete by the end of 2002.
- Clean Fueled Fleets Rebate Program – provides grants to help offset up to 72% of the incremental cost of purchasing AFV's.

The City's future plans include establishing a task force to look at AFV school buses, to collect outcome data on the AFV's in use in the region, and to continue to work with the community to implement projects such as car sharing, expansion of AFV fleets to airport transportation providers, and increased AFV use and visibility within City Government. The City's air pollution control agency, Air Management Services, is looking forward to imminent delivery of the City's first two hybrid (Prius) vehicles.

Urban Heat Island (UHI) Peer Exchange

Six cities, including Philadelphia, participate in ICLEI's UHI Peer Exchange.¹⁷ Participating cities explore ways to decrease heat build-up in the urban setting. Philadelphia has high-density housing, with mostly black roofs. The Philadelphia Water Department estimates that 47% of the City's land area is impervious surface, such as paved roads and parking lots.¹⁸ These serve to capture solar heat and increase individual building temperatures and raise the ambient temperature an average of five degrees above outlying suburban areas. This in turn, increases energy consumption and cooling costs, while exhaust from air conditioners further increases the heat. The Peer Exchange involves policy development and projects such as reflective roof and parking lot coatings, green space improvements and possible building code changes that encourage reduction of the urban heat build-up.¹⁹ Through its Capital Programs Office, the City has piloted the use of white roof coatings on several government owned facilities and is currently building a new "green" Police Department Forensic Laboratory.²⁰

17. ICLEI Urban Heat Island Peer Exchange *available at* <http://www.hotcities.org/documents.htm> (*last visited* on October 20, 2003).

18. Drew Brown, Philadelphia Water Department, Public Education Section.

19. Global Warming Actions, *available at* <http://yosemite.epa.gov/oar/globalwarming.nsf/content/index.html>.

20. Nicole Westerman, Architectural Project Coordinator, City of Philadelphia,

Philadelphia Sustainable Lifestyles Campaign

In 1999, the City of Philadelphia, US EPA, and PA Department of Economic Development, with encouragement from local elected officials, Mayor John Street, and State Senator Shirley Kitchen, funded Global Action Plan, Inc²¹ to adapt their Sustainable Lifestyles campaign to Philadelphia. Global Action Plan took their Household EcoTeam Program and tailored it to include information specific to Philadelphia. Neighborhood EcoTeams of Philadelphia residents began forming in October 1999, with trained resident “Initiators” inviting their neighbors to participate. The program teaches team members to reduce personal household energy use, auto emissions, water use, and garbage production. Members from teams who complete the program are then encouraged to become coordinators of future teams, thus spreading the word. Since its inception, 60 EcoTeams were formed in 26 Philadelphia neighborhoods and have documentable household reductions in resource usage. The program is being phased out, in favor of the Philadelphia Livable Neighborhood Program, a block based more encompassing program, which helps neighborhoods translate their priorities into effective action in the areas of health and safety, beautification and greening, resource sharing, energy use and neighborhood building.²² Current funding comes from the City of Philadelphia, the PA DEP, and the US EPA. Philadelphia is taking the lead in implementing teams in low-income neighborhoods.

Mobility Alternatives Program

The City works with businesses and the public in Philadelphia to encourage alternative transportation usage. The Mobility Alternatives Program (“MAP”) encourages businesses to take advantage of the Compass program, through which employers can provide on site public transportation passes at a discounted price to employees and TransitCheck program, which provides up to \$780 each year in tax-free subsidies from employers toward transit expenses.²³ As of June 2001, 529 companies in the Philadelphia area were participating in TransitCheck.²⁴ City government is in the process of determining how best to implement a trial program for its employees. MAP also

Capital Program Office.

21. Global Action Plan is now part of Empowerment Institute - P.O. Box 428 - Woodstock, New York 12498.

22. The Livable Neighborhood Program, *available at* http://www.globalactionplan.org/Files/EL_Frameset3.htm.

23. Interview with Bob Ravelli, Assistant Deputy Mayor, City of Philadelphia.

24. Delaware Valley Regional Planning Commission, 2nd Quarter FY02 Report on Transit Check, *available at* <http://www.dvrpc.org/transportation/transitchek.htm>.

encourages ride sharing, by matching drivers and riders, and coordinating carpool and vanpool alternatives.²⁵ It also provides information to the public on transit, biking and walking routes. Projects currently include encouraging Telecommuting and Flextime/Compressed Work Weeks.

Open Space Coalition

Recently convened, the Open Space Coalition includes a cross-section of City agencies, working cooperatively to improve upon the City's open space, through information sharing, program complementation, joint grant proposals, and idea sharing. Increases in green space in the City can lead to additions in greenhouse gas sequestration. Possible initiatives for the group will include ways to encourage private ownership of newly minted open spaces under the Mayor's Neighborhood Transformation Initiative through streamlining red tape or acquiring grant funding, to encourage cooperative approaches to major brownfields redevelopment, and other relevant projects. Through a recently signed Memorandum of Understanding among the City, the United States Forest Service and the Pennsylvania Department of Conservation of Natural Resources, the City will receive concentrated support and technical assistance from these federal and state partners on greening, land stabilization techniques, and other areas of open space planning, some of which will have implications on air quality and greenhouse gas reduction.

MAFPE

Thirteen federal partners through a Memorandum of Understanding formed the Mid-Atlantic Federal Partners for the Environment ("MAFPE").²⁶ MAFPE's goal is to restore and protect the Mid-Atlantic natural environment. The City has begun to explore how to take best advantage and capitalize on the resources that might be available from this coalition. The City Managing Director recently sent to the Regional EPA Administrator a listing of approximately 30 projects that the City has requested MAFPE's technical assistance on. One of these is for the continued development of the carbon reduction plan for the City. To help coordinate the MAFPE response to the City, EPA has detailed a senior career official to the Managing Director's Office for a two year time frame under an Intergovernmental Personnel Act assignment.

25. Mobility Alternatives Program Website, at <http://www.phila.gov/mot> (last visited October 30, 2003).

26. Interview with John Hadalski, Management Services Adm'r., Managing Director's Office, City of Philadelphia.

Street Lighting

The Philadelphia Department of Streets reduced its energy use by replacing incandescent traffic lights with LED signals, and timing the traffic signals along busy roadways to reduce idling time.²⁷ The impetus for this was obviously to reduce energy costs. The co-benefit, of course, was reduced energy use and reductions in greenhouse gas emissions.

Energy Efficiency in City Buildings

The City's Capital Programs Office has a consultant looking at buildings with the highest energy usage, to sleuth out cost effective changes and wasteful practices.²⁸ Again, the impetus for this effort is to save money, but the side benefits include GHG emissions reductions. Several of the City's largest office buildings, including City Hall utilize gas fired or steam driven cooling, which has much greater energy efficiency rating than traditional electric air conditioning. Many City office buildings have also undergone lighting retrofits to replace less efficient incandescent bulbs with compact fluorescent lamps, motion sensor or zoned lighting switches that reduce lighting of unoccupied areas. Since lighting retrofits have one of the shortest payback periods for the investment, it is a favorite "low hanging fruit" in energy efficiency activities.

City Fleet Reductions

The City's Office of Fleet Management has proposed a reduction of the City's motor vehicle fleet by one percent per year over the next five years.²⁹ This will come to a total of at least 265 fewer vehicles. They hope to increase usage of remaining fleet vehicles through additional pool car usage, better coordination of vehicle access between units and departments and reductions in vehicles, which are underutilized. Additionally, the intent is to encourage additional use of alternate transportation, such as the extensive local public transportation. While the added use of some City vehicles will negate some of the fuel energy savings, there will be an overall net decrease in emissions.

Recycling Program

Landfills generate both carbon dioxide and methane, which has approximately twenty times the greenhouse gas potential of carbon

27. Interview with Jack Siderer, Engineer, Streets Dep't, City of Philadelphia.

28. Interview with Terrence Falvey, Consultant, Capital Programs Office, City of Philadelphia.

29. City of Philadelphia, FY 2002 Five Year Budget Plan (February 2002).

dioxide.³⁰ Because recycling reduces the amount of waste hauled to the landfill, it also serves to reduce the quantity of GHG emissions generated by landfills. The City of Philadelphia has an extensive, but underutilized recycling program. It includes standard residential pick up of mixed papers, cans, and glass jars, as well as seasonal pick up of leaves and Christmas trees.³¹ The City has been promoting recycling by a massive advertising campaign to remind residents that it not only helps save our environment to recycle, but it is the law. The campaign includes mailings in the monthly water and sewer invoice and television commercials.

Drafting a Plan to Make a 10% Reduction in Greenhouse Gas Emissions a Reality

The core City workgroup on climate change now has to create a comprehensive plan to meet the targeted 10% reduction in greenhouse gas emissions. Any plan will include the before mentioned projects, as a major component. Additional ideas on the table that need to be fleshed out, approved or rejected, and possibly funded include, but are not limited to the following options:

- Create a revolving fund within the City budget, to be used for energy saving projects, with the cost savings to be returned to the Department and the fund. This might include the transfer of utility charges to the responsible Departments to provide added incentive to reduce energy use.
- Find a responsible government official or funding for continued contracting for outreach efforts to continue the former Climate Wise efforts and submission of voluntary, quantifiable emissions reduction plans.
- Find a means to continue to provide voluntary pollution prevention/energy efficiency audits for local business and industry through asking PA DEP to recommit an engineer's time to this effort, by asking the EPA to commit an engineer's time through the MAFPE initiative, or find funding to contract for this service.
- Determine if there is a way to quantify energy reductions from the energy star program, and whether Philadelphia should take the route of California and Chicago with the creation of a voluntary emissions reduction inventory.
- Increase avenues of dialogue within City government, the

30. Samans-Dunn, *supra* note 10.

31. City of Philadelphia Streets Dep't, Remember to Recycle.

public and local business and industry.

- Increase visibility through additional “events,” presence on the Philadelphia web site, publicizing successes, etc.
- Look into ways in which additional partnerships might prove of value. Local governments elsewhere have made some headway by creating consortia beyond their boundaries.
- Find ways to encourage public transportation to use more alternative fueled vehicles.
- Find ways to capitalize on the MAFPE initiative.

Conclusion

Philadelphia’s climate change program is still a work in progress. Other localities considering the program can, however, draw upon the program for lessons in establishing programs themselves. Urban governments must now begin to plan now how to handle the impacts that climate change will have. Local government programs can be established to mitigate the causes of climate change, while assisting in other goals, such as, reduction of energy demand and reduction of other air pollutants. A local government may build upon a variety of other local programs to achieve multiple aims and can call upon a variety of funding sources and sources of local expertise. It is critical to establish a commitment by elected officials, to organize existing departments and programs, and to engage both the public and local industry. With that commitment and the engagement, significant progress can be achieved in greenhouse gas mitigation, while advancing other priorities and without significant public expenditures.

