

Planning Information Sheet: Addressing Climate Change with Comprehensive Planning and Ordinances



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Version 1.0

DESIGN FOR HEALTH is a collaboration between the University of Minnesota and Blue Cross and Blue Shield of Minnesota that serves to bridge the gap between the emerging research base on community design and healthy living with the every-day realities of local government planning.

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Overview

Design for Health’s Planning Information Sheets series provides planners with useful information about opportunities to address important health issues through the comprehensive planning process and plan implementation. The series addresses a range of health issues that are relevant to many communities and can be efficiently and effectively integrated into local plans and policies. This information sheet discusses a number of opportunities that planners have to address climate change through planning and policy approaches.

Key Points

- Addressing climate change involves a range of public and private actors. Many adaptation and mitigation approaches are managed at the local level since land use decisions and air pollution levels associated with transportation decisions affect the level of greenhouse gases in the atmosphere.
- Conclusive evidence demonstrates the negative environmental outcomes related to climate change. However, research is mixed about the direct influence of climate change on human health issues. Yet, climate change is not an isolated issue; rather, it is tied to several health topics covered in the DFH materials. For more information, see the table on the next page.

- Special populations such as children, older people, and low-income households are particularly susceptible to health impacts related to climate change concerns, such as flooding and sea level rise, extreme heat, drought, increases in tropical diseases, and changes in food production capabilities.
- Practical approaches that communities can use to address these issues through their comprehensive plans and ordinances include separate climate action plans, energy reduction plan elements, energy audits, incorporating climate change issues into environmental reviews, and promoting land use and transportation strategies that focus on increasing accessibility, supporting a mix of housing types, and increasing transit and non-motorized opportunities.

Understanding the Relationship between Climate Change and Planning

Scientific evidence supports the consensual view that the earth’s climate is changing (CDC 2007; EPA 2007; Ewing et al. 2007; APA 2008). Over the last 50 years, human activities, particularly the burning of fossil fuels, have released vast quantities of carbon dioxide and other greenhouse gases to affect the global climate (Ewing et al. 2007). The warming of the earth largely results from an accumulation of carbon dioxide and other greenhouse gases into the atmosphere, due to human activities including fossil fuel burning for industrial processes and transportation, energy consumptive development practices, and deforestation (APA 2008). According to the U.S. Environmental Protection Agency (EPA), the largest source of greenhouse gases is electricity generation, followed by transportation, industrial activities, residential uses, and commercial activities (2008). The atmospheric concentration of carbon dioxide has increased by more than 80 percent since pre-industrial times (IPCC 2007). The Intergovernmental Panel on Climate Change (IPCC 2007) argues that the global average surface temperature will rise by between 1.4 degrees and 5.8 degrees Celsius in the next



Providing opportunities for cycling can help to reduce vehicle miles traveled.

century, with the greatest warming occurring over land masses and at high latitudes. However, climate patterns are complex and the same is due of likely effects of global warming.

The consensus in the academic community is that the rate of change in climate conditions is the primary issue (APA 2008). For example, the five warmest years since the late 1880s according to NASA Scientists are 2005, 1998, 2002, 2003 and 2006 (NASA 2007).

The American Planning Association (APA 2008) point out some of the outcomes associated with increased climate change include (APA 2008):

- More violent hurricane systems due to warmer ocean temperatures;
- Ocean ice packs melting at high rates;
- Rising sea levels due to the rapid melting of the ice fields over land in places such as Greenland, South America and Antarctica;
- Changes in seasonal climate affecting the growing season;
- Extended drought and resultant brush and forest fires;
- Increased frequency of flooding and strong storms;
- Increased evidence of the role of human activity in earth warming.

The United States is the largest emitter worldwide of the greenhouse gases that cause global warming, with transportation accounting for a third of these emissions (Condon 2008; Ewing et al. 2007). Limiting the temperature increase to 2°C to 3°C by cutting greenhouse gas emissions by 60 to 80 percent below 1990 levels by the year 2050 is the overall international consensus and goal needed to minimize or prevent the impacts noted above (Ewing et al. 2007). Climate change is a global issue and thus it can be challenging to for individual cities, regions, states, and nations to determine how they can contribute to monitoring, regulating, or mitigating climate change impacts. However, many jurisdictions are taking efforts to address climate change locally.

Research is mixed about the time lag between intervention measures and climate response. As such, most work focuses on mediation and

adaptation strategies rather than on stopping climate change (APA 2008). The American Planning Association (APA, 2008) recommends decreasing the amount of greenhouse gases in the atmosphere and identifying ways to sequester carbon using biomass. In this context, planners play an important role in affecting development patterns, transportation systems, and regulations in ways to reduce greenhouse gases emissions and protect carbon sinks, such as forests, wetlands, and agricultural lands.

While much of the research on climate change is focused on environmental health outcomes, human health outcomes also are apparent. In general, climate change, itself, does not cause health problems; however, human health is affected indirectly through the relationship of climate change to air pollution, water pollution, weather patterns, and the spreading of disease (CDC 2007). For example, the environment plays a large role in some diseases carried by insects. Warming could make tick-borne Lyme disease more prevalent and could expand the range of mosquito-borne diseases such as West Nile virus. In addition, higher temperatures and associated increased ozone levels contribute to respiratory problems. Also, the assumption is the severity of climate change can also lead to increases in mortality and chronic health problems. These negative health outcomes occur through the following ways:

- Increasing extreme temperature events lead to increasing frequency and intensity of storms;
- Changing long-term precipitation patterns threaten agricultural and increase the chances for famine;
- Growing incidence of food and waterborne diseases threaten food and water supplies;
- Increasing vector, tick and rodent borne diseases affect humans and animals; and
- Changing weather patterns increase levels and concentrations of some air pollutants contribute to respiratory other problems (CDC 2007).

Sensitive populations such as children, the elderly, and low income populations are particularly vulnerable to the health outcomes related to climate change issues. Since the

United States has well developed infrastructure and disaster planning and response, the health effects from climate change are expected to be less significant than in the developing world. Nevertheless, many North Americans will likely experience difficulties and challenges. For example, as urban areas experience increasingly frequent and severe heat waves, certain groups are expected to be more affected, such as the home-bound, elderly, poor, ethnic minorities, and immigrant populations. Populations living in areas with less green space and with fewer air-conditioned buildings are particularly vulnerable to heat stress (CDC 2007). The effects of the extreme weather events range from loss of life and acute trauma, to other effects such as loss of home, disruption of food production, increases in food prices, population displacement, contaminated drinking water, failed sewage systems, and damage to the health-care infrastructure. Carefully planned mitigation policies and assessments that are specifically directed toward vulnerable populations can reduce the negative health effects of climate change (CDC 2007).

The role of planning in dealing with climate change is complicated due to scale issues, which requires a multi-governmental approach. APA (2008) recommends that the field of planning follow four ideas:

- Responses to climate change need to be based on the best possible science;
- Specific impacts of climate change are highly regional and even local in nature, which require contextual responses;
- Adapting to climate change is just as important as mitigating it;
- New communication tools are needed to explain climate change issues and maintain the focus on long-term adaptation and mitigation responses.

APA (2008) argues that planners need to do more than just encourage higher density development patterns, reduce vehicle miles traveled (VMT), and use of green building techniques. Effective public transportation systems and more coordinated land use-transportation planning can also serve to reduce greenhouse gas

emissions and possibly local and regional air pollution. The three areas related to lowering CO₂ transportation-related emissions include: increasing vehicle fuel economy, reducing the carbon content of the fuel, and decreasing vehicle miles traveled (VMT) (Ewing et al. 2007). It is VMT that local communities have the ability to address through land use planning and development decisions.

Due to the extent of predicated climate change issues, planners will need to not only mitigate but also adapt planning efforts such as address greater drought conditions and new flooding circumstances (APA 2008). APA (2008) recommends a balanced approach including a mix of education (providing more complete information so decision-makers make better choices), incentives (whether through funding or other means) and regulation (at federal, state and local levels).

Communities employ a variety of approaches to address climate change issues including encouraging denser land use development, building transit-oriented development, reducing vehicle miles traveled, designing more open space, and planning more pedestrian and bicycle-friendly environments. In this context, climate change and sustainability issues are often grouped together. As shown in table 1, many of the topics are featured in other Design for Health information sheets and key questions. In addition to these resources, the next section focuses on plans and implementation tools that specifically focus on climate change.



Effective public transportation systems and more coordinated land use-transportation planning can serve to reduce greenhouse gas emissions and possibly local and regional air pollution.

DFH Planning Information Sheet:	Topics covered related to climate change:	Link:
Promoting Accessibility with Comprehensive Planning and Ordinances	<ul style="list-style-type: none"> ▪ Multimodal transportation systems ▪ Transit planning ▪ Specialized populations 	http://www.designforhealth.net/techassistance/Accessibility.htm
Supporting Physical Activity through Comprehensive Planning and Ordinances	<ul style="list-style-type: none"> ▪ Pedestrian and bicycle plans ▪ Community design 	http://www.designforhealth.net/techassistance/physicalactivityissue.html
Considering Safety through Comprehensive Planning and Ordinances	<ul style="list-style-type: none"> ▪ Streetscape-design guidelines ▪ Pedestrian plans 	http://www.designforhealth.net/techassistance/safetyissue.html
Building Social Capital with Comprehensive Planning and Plan Implementation	<ul style="list-style-type: none"> ▪ Mixed-use development ▪ Density ▪ Transit-oriented environments ▪ Pedestrian-oriented environments 	http://www.designforhealth.net/techassistance/socialcapitalissue.html
Influencing Air Quality with Comprehensive Planning and Ordinances	<ul style="list-style-type: none"> ▪ Mobile, stationary and area sources of air pollution ▪ Specialized populations ▪ Buffering and landscape standards 	http://www.designforhealth.net/techassistance/airqualityissue.html
Influencing Water Quality with Comprehensive Planning and Ordinances	<ul style="list-style-type: none"> ▪ Landscape standards ▪ Buffers ▪ Polluted run-off ▪ Decentralized wastewater treatment systems ▪ Toxic waste 	http://www.designforhealth.net/techassistance/waterqualityissue.html

Planning for Climate Change

A wide variety of policies and instruments exist that can help mitigate or adapt to climate change. Climate change action plans, plan implementation tools, and other planning-related initiatives are being undertaken in communities across the U.S. Their applicability depends on a number of circumstances, including the regional context (APA 2008).

Climate Action Plans

Thirty-five states have climate-action plans and seventeen of these states set emissions targets for greenhouse gases; however, very few states have set regulatory standards, instead focusing on

these reduction targets (State of Maryland 2007). Many cities and regions are also developing their own climate action plans either independently or in response to state-level leadership.

The State of California is leading the movement in the US to address climate change head on via a series of executive orders and state legislation that require cities to reduce emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050 (State of California, EPA 2008a; 2008b). The California Global Warming Solutions Act of 2006 established the first ever comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of

GHG (State of California 2008). Under this program an intergovernmental body of public, private, a nonprofit actors, including Local Governments for Sustainability (ICLEI), is responsible for developing local government protocols for GHG assessment. These protocols include ways to inventory emissions from: 1) government buildings, facilities, and vehicles, 2) wastewater treatment, and 3) landfill and composting facilities. The team will also address community-wide emissions from transportation and residential, commercial and industrial use of energy (State of California EPA 2008a).

Local communities in California are responding to state level mandates in a variety of ways. The City of San Francisco created a Climate Action Plan and has developed plan implementation efforts, which will be discussed later. The plan, developed by the city's Department of Environment (DoE), focuses on reducing greenhouse gas emissions. The plan breaks down the sources of greenhouse gas emissions, which largely come from automobiles and from energy used in commercial, residential, municipal, and industrial buildings. The policy recommendations rely heavily on increasing transit and recycling, decreasing the energy costs associated with development, and using more renewable energy sources. Because of the close relationship that exists between sustainability and climate change efforts, the City of San Francisco is working with Livable City, a local non-profit focused on transportation and land use issues, to help merge the 1996 Sustainability Plan goals with its climate action plan goals (Livable City 2008).

In 2008, New York City released a progress update on its sustainability plan, PlaNYC, that includes chapters on housing, open space, brownfields, water quality, water network, transportation, energy, air, and climate change. Initiatives related to climate change include: creating an intergovernmental task force to protect the city's vital infrastructure; working with vulnerable neighborhoods; and launching a citywide strategic planning process for climate change adaptation (New York City 2008). Strategies to reduce greenhouse gas emissions through more efficient buildings, a cleaner power supply, and more sustainable transportation. Examples include expanding the City's hybrid-

electric taxi fleet, improving energy efficiency of existing buildings and requiring new construction to be more energy efficient, "greening" the City's energy and building codes, replacing inefficient power plants with state-of-the-art technology, and reducing vehicle use by improving mass transit. In November 2007, the City Council passed Local Law 55, codifying PlaNYC's goal of reducing citywide greenhouse gas emissions by 30 percent below 2005 levels by 2030, and it requires municipal operations to reduce 30% by 2017. (New York City 2008). The plan also encompasses Mayor Bloomberg's controversial and currently stalled plan for implementing congestion charges for much of Manhattan.

King County, Washington, home of Seattle and many of its suburbs has also been active on the issue of climate change. King County is also one of the Design for Health featured case studies of a plan that integrates health and planning issues. In 2008 the county issued an Executive Order on Global Warming Preparedness (PUT 7-5, 7-7 and 7-8), which directed King County to reduce greenhouse gas emissions (King County 2007, 2008). The executive order includes a list of goals and actions to be undertaken, as well as noting existing accomplishments in three areas: land use, environmental management, renewable energy and related economic development, and global warming preparedness relative to transportation (King County 2008). For example, specific goals, accomplishments, and actions related to land use include:

Goals:

- Reduce fossil fuel consumption resulting from regional vehicle miles traveled.
- Protect agricultural land, forestry and open space as ecological buffers against global warming impacts.
- Be a successful laboratory / national model of land use & transportation strategies to prepare for and mitigate global warming.

Accomplishments:

- Implemented nationally recognized smart growth plans that have created a "wall against sprawl" and have focused growth in urban areas while protecting natural resources and rural lands.

- King County’s nationally recognized Land Use, Transportation, Air Quality and Health (LUTAQH) study found that higher-density residential neighborhoods with mixed land uses and a connected street network are associated with: less automobile use, less air pollution, fewer greenhouse gas emissions and less energy consumption.
- Over the past ten years King County has protected over 125,000 acres of forestland via acquisition, purchase of development rights, conservation easements and other means.
- Protected 340,000 acres of forestry lands in the Forest Production District through land use regulations and policies, and promoting healthy forests in rural areas through the King County Forestry Program and Rural Economic Strategies .
- Protected approximately 12,800 acres of farmland through the purchase of development rights in accordance with the Farmland Preservation Program.

Actions:

- Preservation of 100,000 acres of forest.
- Design and fund more land use & transportation strategies.
- Measurement program to determine progress.
- Update Comp Plan with global warming lens.
- Public education.
- Business-government outreach.

Source: King County 2008

The order also requires that county departments take climate change actions with regard to land use, transportation, environmental management and clean energy use. Further, it requires the different county departments to collaborate on a Global Warming Mitigation and Preparedness Plan (the “Climate Plan”) (King County 2007).

King County has broad authority to take the actions necessary to combat climate change because of its numerous operational responsibilities, planning and regulatory powers, and opportunities for investment. The county can influence and motivate both climate change emissions reduction and climate change adaptation since it has a significant authority over land use, growth management, transportation,

and parks and recreation. For example, King County operates Cedar Hills Landfill, the region’s largest transit fleet, several major wastewater treatment plants, and numerous buildings and facilities that provide the opportunity for the county to reduce its operational greenhouse gas emissions and produce clean energy from waste gases (King County 2007).

Another example comes from Austin, Texas, where its 2007 Climate Protection Plan is organized around separate municipal, utility, homes and buildings, and community plans. It also includes a “Go Neutral” plan, which is intended to help individuals and organizations work toward carbon neutrality (City of Austin 2008; U. S. Conference of Mayors 2007).

Highlights of each of these include the following:

Municipal Plan: All City facilities, fleets, and operations totally carbon-neutral by 2020:

- 100 percent of City facilities powered with renewable energy by 2012 – perhaps two to three years earlier;
- City fleet carbon-neutral by 2020 through use of electric power, non-petroleum fuels and offsets;
- Departmental climate protection plans which include policies, targets, and reporting for maximum cost-effective reduction of energy use.

Homes and Buildings Plan: Most energy-efficient building codes in the nation:

- All new single-family homes zero energy capable by 2015;
- Energy efficiency in all other new construction increased by 75 percent by 2015;
- Energy efficiency requirements for existing homes/buildings at point of sale.

Community Plan: Development of targets/ strategies and implementation of plans for GHG reductions community-wide:

- Work with stakeholders, technical advisors on plans for transportation, land use, waste management, water conservation, natural areas, etc.

“Go Neutral” Plan: Reduction of carbon footprint to zero by all businesses and individuals:

- Develop online carbon footprint calculator and provide menu of local GHG reduction strategies that citizens, businesses, organizations, and visitors can fund through offset credits

(City of Austin 2008; U.S. Conference of Mayors 2007)

Plan Implementation Tools to Address Climate Change

In addition to state, county, and local planning efforts, communities are using a range of plan implementation tools to address climate change. For example, in 2008 the City of San Francisco developed an ordinance that adopts greenhouse gas reduction targets for San Francisco: 25% below 1990 levels by 2017, 40% below 1990 levels by 2025, and 80% below 1990 levels by 2050. The City will then adopt specific reduction targets for each year, and every city department will create a departmental action plan to achieve its goals. The Department of the Environment (DoE) will monitor greenhouse gas emissions and set the goals for each year will conduct annual performance testing. To address climate issues in a systematic fashion, each city department is required to develop a plan for its internal use as well as the external activities that they oversee. The following examples show the role that various departments will play in this process (Livable City 2008):

- The Planning Department will review San Francisco’s General Plan to integrate climate action into its policies, review its guidelines for environmental review to consider greenhouse gas emissions, and review transportation policies to encourage a shift to sustainable transportation modes.
- The Department of Building Inspection will review the building code and other codes to improve energy efficiency and reduce emissions.
- The Department of Public Works will review city standards to improve energy efficiency and reduce emissions.
- The City Administrator will review standards for city owned and leased buildings, and

review city purchasing requirements, to improve their environmental performance and reduce emissions.

- The DoE coordinates the climate action plans for all city departments, releasing a yearly report on greenhouse gas emissions, and compiling yearly progress reports onto a single report card and web site, starting with a report on the 2008-2009 budget year.
- The DoE will work with other city and county governments and the State of California to adopt a common baseline approach and coordinate greenhouse gas reduction targets and policies.
- The DoE will identify and coordinate projects in the city that will qualify for funding under the state-mandated cap-and-trade schemes.

The ordinance calls for the San Francisco Public Utilities Commission to create an energy plan that will eventually eliminate the city’s dependence on fossil fuels by 2030 through increasing its usage of renewable energy resources and creating better efficiency standards for the current electrical grid system (Livable City 2008).

San Francisco has also imposed new green building requirements on newly constructed residential and commercial buildings, and renovations to existing buildings. The ordinance specifically requires newly constructed commercial buildings over 5,000 sq ft, residential buildings over 75 feet in height, and renovations on buildings over 25,000 sq ft to be subject to Leadership in Energy and Environmental Design (LEED) green building certifications (City of San Francisco 2007). It is important to note that LEED programs have not been evaluated as a strategy for dealing with climate change issues.

Also addressing green buildings, Rohnert Park, California, in Sonoma County near San Francisco, has developed a green building ordinance. It requires all new single-family dwellings, multi-family dwellings, commercial development, and City-sponsored construction projects to green building standards (City of Rohnert Park 2007). The ordinance has three tiers for all construction based upon type of construction and relative environmental impact of the project. These tiers

are used to determine the applicable compliance threshold for a project. For example, the new home construction green building guidelines include (City of Rohnert Park 2007, 2):

- Minimize construction waste;
- Keep pollutants from landscape maintenance out of waterways and reducing landscaping water use;
- Construct the building for energy and resource efficiency;
- Design the plumbing system to reduce hot-water runs, insulating hot water pipes, and installing water-efficient toilets;
- Install heating and air conditioning for energy efficiency and better indoor environmental quality; and
- Incorporate solar hot water systems and photovoltaic systems that generate electricity from sunlight.

California, Massachusetts, and King County, Washington have specifically incorporated climate-change analysis into the state environmental-review process as it applies to land development (Reid et al. 2007). For example, the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) has developed a greenhouse gas emission policy that requires certain projects undergoing review by the Massachusetts Environment Protection Agency (MEPA) to quantify the project's greenhouse gas emissions and identify measures to avoid, minimize, or mitigate such emissions (Commonwealth of Massachusetts 2007). In addition to quantifying emissions, the policy requires that the impact of proposed mitigation in terms of emissions and energy savings be quantified. A project is required to follow the review process if it is included in one of these categories (Commonwealth of Massachusetts 2007):

- Where MEPA has full scope jurisdiction over the project;
- The project is privately funded, but requires an Air Quality Permit from the Department of Environmental Protection; or
- The project is privately funded, but requires a Vehicular Access Permit from the Massachusetts Highway Department.

Other Planning-Related Initiatives

Beyond planning and plan implementation efforts, communities are engaged in other activities focus on climate change mitigation and adaptation. For example, in May 2008, the City of Los Angeles introduced "Green LA," an initiative that also focuses on reducing greenhouse gas emissions. It is similar to the previous strategies employed by San Francisco in terms of increasing renewable energy use and improving energy efficiency, but it also adds the strategy of reducing its water usage by 20 percent. The initiative also includes transit expansion and transit oriented development. To complement the water-related goals, the city plans to create more parks and redesign those with large amounts of impervious surface. The initiative also calls for restoring of the Los Angeles River. From a political and institutional perspective, the mayor has also tried to move environmental concerns more into the mainstream organization of the city by adding experts to the Port and Planning Commissions (Livable City 2008).

The City of Colorado Springs, Colorado, in conjunction with Colorado Springs Utilities has launched several initiatives aimed at reducing energy consumption of energy and associated greenhouse gases. In addition to a renewable energy rebate program and a peak-demand rebate program, the city also facilitates energy audits that are available to commercial and industrial businesses. The audits are designed to raise awareness of energy consumption and offer suggestions for reducing use of gas, electricity, and water, all of which are provided by Colorado State University (Colorado Springs Utility 2008a; Colorado Spring Utility 2008b; Colorado Springs Utility 2008c).

In an energy conservation initiative, the Honolulu Solar Roofs Initiative Loan Program provides low interest loans (zero percent and two percent) to low and moderate income homeowners in the city and county of Honolulu to enable them to install solar water heating systems and reduce their energy costs (U.S. Conference of Mayors 2007; Hawaiian Electric Company 2008). It also provides these loans to landlords who rent the majority of their rental units to low and moderate

income tenants. Community Development Block Grant funds are used to finance the Program.

The Town of Brookline, Massachusetts, participates in the Cities for Climate Protection (CCP) Campaign that seeks to reduce the emissions of greenhouse gases. The city completed a greenhouse gas emission inventory and projected emissions starting in 2000. After the period of data collection, the City set a greenhouse gas emissions reduction target to reduce emissions in 2010 to 20% below 1995 levels (U.S. Conference of Mayors 2007).

Other Resources

The examples provided here represent just a sample of state and local efforts to address climate change issues. This information sheet focuses on plans, plan implementation tools, and other efforts that address reductions in greenhouse gases and related efforts focused on land use, transportation, housing, and air and water quality issues. In addition to these efforts, there are many other approaches that jurisdictions can use to address climate change including, but not limited to, purchasing fuel efficient fleet vehicles and other products, encouraging local food production to reduce transportation impacts, promoting emergency preparedness planning to address extreme weather events, and auditing local energy consumption. Strategies to facilitate these and other efforts are available as described below.

The EPA has a web site listing all state and local action plans on climate change: http://epa.gov/climatechange/wycd/stateandlocalgov/state_action.html. The EPA also has a helpful matrix of cities with local climate change plans explaining which planning topics they deal with: <http://yosemite.epa.gov/gw/StatePolicyActions.nsf/matrices/local>

ICLEI, Local Governments for Sustainability, is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development. ICLEI works with hundreds of other local governments through international performance-based, results-oriented

campaigns and programs. ICLEI serves as an information clearinghouse on local sustainable development, producing annual newsletters, regional updates on activities, case studies, training guides, and fact sheets. Information is available at <http://www.iclei.org/index.php?id=global-about-iclei>.

The CDC has a wealth of online information dealing with climate issues. For the Policy on Climate Change and Public Health Scientific Framework, see <http://www.cdc.gov/nceh/climatechange/>.

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