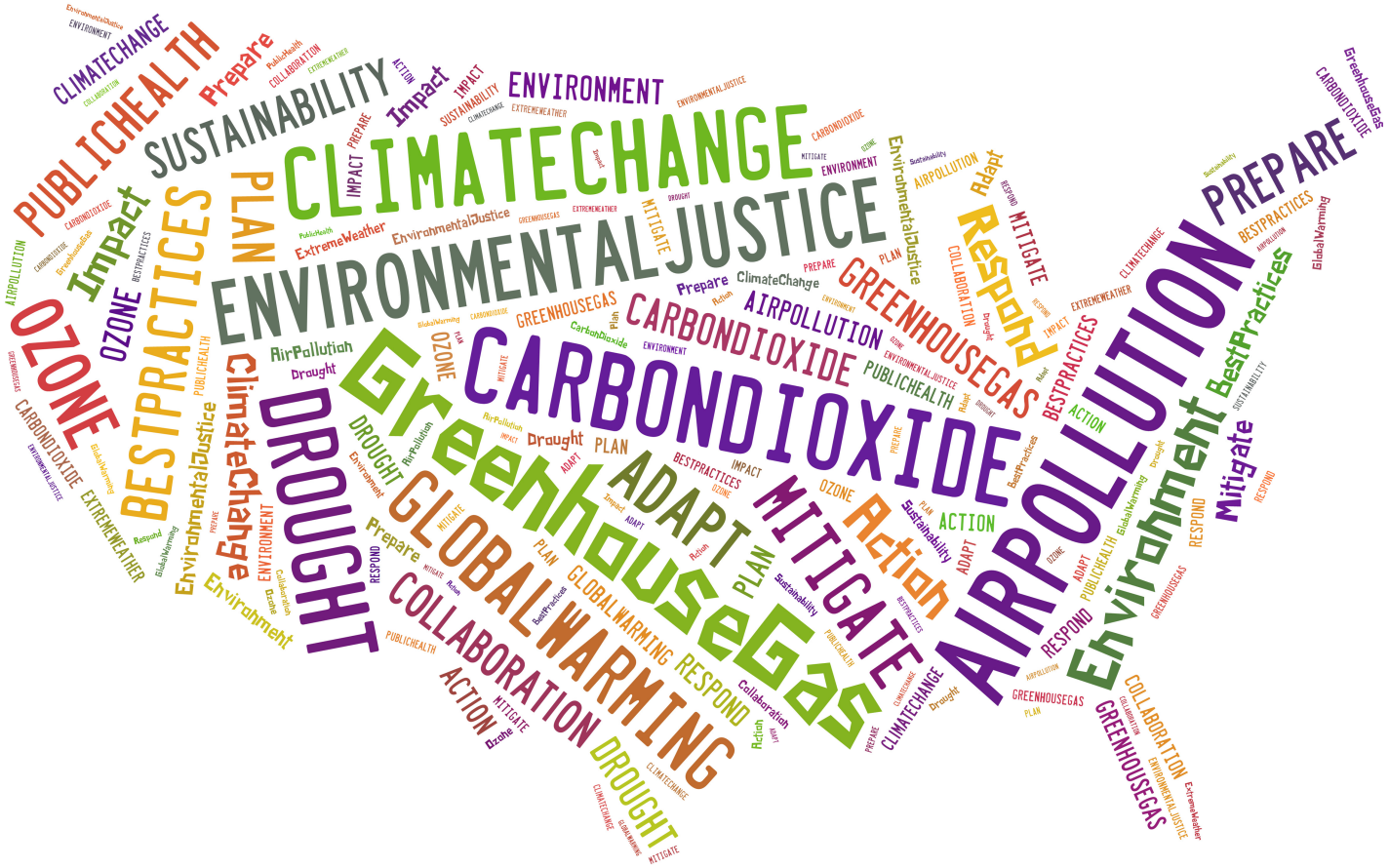
CLIMATE AND HEALTH SERIES - REPORT 2

Framework for Addressing Climate Change in Los Angeles County



Los Angeles County Department of Public Health
Division of Environmental Health | August 2014

County of Los Angeles Public Health

Introduction to This Report

This report was developed for use by other local government agencies in Los Angeles County as well as for other local health departments and their collaborating agencies around the country. It begins by outlining how climate change relates to the mission of different local agencies, and continues by providing guidance on how to develop a plan for addressing climate change at your agency. Intended for agencies that are preparing to develop their own climate action plan, this report contains the following:

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Message from the Health Officer

Local agencies wishing to take action on climate change face a complex issue. It can be difficult to know where to begin, or even how climate change pertains to an agency's scope of work. Yet the operations and goals of almost every public agency will be affected by climate change, and likewise nearly every agency can *prepare* for climate change. Climate change is a challenge that supersedes sectoral boundaries, with agencies such as public works, regional planning, parks and recreation, beaches and harbors, and fire all having parts to play.

Careful planning on the part of local agencies is needed in order to meet the myriad challenges that climate change presents. However, the prospect of taking action need not be too daunting. Activities crucial to climate change mitigation and adaptation are often exactly those already being undertaken by local jurisdictions to improve efficiency, cut costs, increase safety, and promote healthy, sustainable communities. Climate change mitigation and adaptation activities frequently align with projects that jurisdictions are already doing or hoping to do—projects that can be further improved by increased collaboration to achieve the shared goal of addressing climate change.

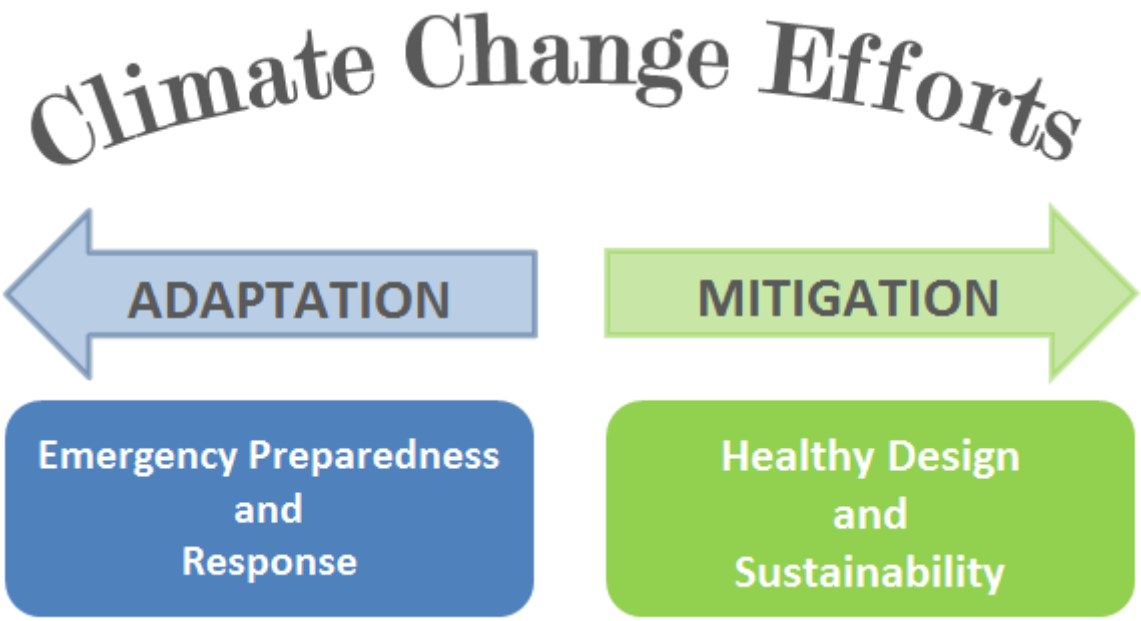
The Los Angeles County Department of Public Health is pleased to provide you with the second report in our *Climate and Health* series. This *Framework for Addressing Climate Change in Los Angeles County* gives an overview of how different local agencies' missions relate to climate change and provides guidance on how agencies can tackle this complex issue. We present Public Health's *Five-Point Plan to Reduce the Health Impacts of Climate Change* as a model for local agencies and jurisdictions preparing to take action on what is arguably the biggest health threat of this century: climate change. The *Five-Point Plan* demonstrates how climate change work can be assimilated into the daily functions of local agencies, while recognizing that activities must have co-benefits central to the mission of local agencies. (For an overview of the health impacts of climate change in our local region, refer to the first report in this series: *Your Health and Climate Change in Los Angeles County.*)

Comprehensive, collaborative efforts—situated within existing missions and using existing resources—will make great strides toward reducing the health impacts of climate change in local communities.

Comprehensive, collaborative efforts...will make great strides towards reducing the health impacts of climate change in local communities.

Jonathan E. Fielding

Jonathan E. Fielding, MD, MPH
Director and Health Officer



Climate change efforts span the spectrum of emergency preparedness and response and healthy design and sustainability. Climate change adaptation strategies often require emergency preparedness and response measures, while mitigation strategies fall in the purview of healthy design and sustainability efforts.

Climate Change: A Challenge for Local Agencies

As outlined in our first report in the series, *Your Health and Climate Change in Los Angeles County,* climate change will impose multiple challenges on public agencies, including increasing average temperatures, more heat waves and extreme heat days, more extreme weather, rising sea levels, worse air pollution, and more vector-borne disease. However, far from being helpless in the face of these impacts, many agencies may already be engaged in projects that could be considered "climate change work."

For instance, consider the following activities:

- Beaches and Harbors constructs coastal defense measures.
- The Fire Department tracks the relationship between ambient outdoor temperatures and the moisture level in trees and plants.
- Parks and Recreation plants more trees in their parks.
- Public Works develops a groundwater banking system.
- Regional Planning enacts an ordinance to increase the width of sidewalks to encourage more pedestrian activity and less reliance on vehicles.

The obvious commonality between all of these activities is that they further the goals of each respective agency. Another is that they are all steps that address climate change.

Climate change mitigation and adaptation cannot be undertaken by one department alone. From promoting alternative modes of transit to preparing for the impacts of sea level rise, addressing climate change requires the foresight, commitment, and creativity of a host of agencies. It is to agencies' benefit that they undertake this work—without appropriate planning, agencies will find their operations stretched by changing conditions.

Establishing a Common Language

In order for interdepartmental collaboration to succeed, a common language must be established. In particular, the term *mitigation*, so frequently used in the context of climate change, can have different meanings in different fields. Because the terms *climate change adaptation* and *climate change mitigation* are crucial to the understanding of this document, their definitions are given below. (For definitions of other terms related to climate change, refer to the Glossary on pages 17-18.)

Adaptation

Adaptation activities are those that lessen society's vulnerability to the inevitable negative impacts of climate change. This is sometimes referred to as *managing the unavoidable impacts of climate change*. Examples of adaptation activities include creating plans for cooling centers where residents can go during extreme heat events, or reinforcing coastlines to withstand storm surges due to sea level rise.

Mitigation

Mitigation activities are those that reduce our contribution to climate change, with the aim of lessening the magnitude of climate change. This is sometimes referred to as *avoiding the unmanageable impacts of climate change*. Examples of mitigation activities include reducing indoor energy usage or reducing vehicle miles traveled.

Climate change mitigation and adaptation are both vital to protecting health in the long term. While greenhouse gas emissions up to this point have put the earth on a trajectory for some inevitable warming, humanity still has the opportunity to influence *how much* warming takes place. By drastically reducing greenhouse gas emissions starting right now—that is, by enacting aggressive climate mitigation strategies—it is possible to define a future with less severe climate impacts. In this way, mitigation strategies are health protective in the long term; reducing the severity of climate change reduces the severity of health impacts associated with climate change.

Many mitigation strategies fall under the purview of healthy design and sustainability. These include reducing greenhouse gas (GHG) emissions due to vehicle miles traveled by making neighborhoods more walkable and bikeable and improving public transit.

The health protective qualities of climate change adaptation activities is more immediately clear: appropriate preparation can reduce illness and death resulting from climate impacts such as increased air pollution, heat waves, wildfires, and flooding. Thus, climate change adaptation strategies fall under the purview of emergency preparedness and response; for example, preparing to respond to the health impacts of a severe heat wave, wildfire, or flood.

Climate Change As an Inter-Agency Issue

As a challenge requiring both planning for sustainability and preparing for emergencies, climate change cross-cuts a wide variety of sectors. The first report in this series explored the various health implications of climate change, such as respiratory disease, heat-related illness, water-related illness, and vector-borne disease, establishing that climate change is an issue of serious public health concern. However, many other local agencies have roles to play in climate mitigation and adaptation. For example, the Los Angeles County Internal Services Department Office of Sustainability coordinates energy efficiency and conservation activities in order to reduce greenhouse gas emissions. Some additional examples are briefly discussed here:

Beaches and Harbors

Climate Change Adaptation	Climate Change Mitigation
• Protect coastal buildings and infrastructure	• Reduce greenhouse gas emissions associated with facilities and operations

Climate change presents a potential concern to recreational sites, property, and infrastructure along the coast as these areas could be vulnerable to sea level rise and increased storm surge. In the Los Angeles coastal region, where climate scientists have predicted sea level will rise 5 to 24 inches between 2000 and 2050 (as detailed in the first report of the *Climate and Health Series*, *Your Health and Climate Change in Los Angeles County*), the Los Angeles County Department of Beaches and Harbors is tasked with evaluating projections for the coastal impacts of climate change and has partnered with academic institutions and numerous coastal cities to study coastal erosion and impacts to the shoreline. These studies will help determine appropriate locations and strategies for protecting coastal communities and critical infrastructure.

Fire

Climate Change Adaptation	Climate Change Mitigation
• Plan for changes in the frequency and severity of wildfires	• Reduce greenhouse gas emissions associated with facilities and operations

The warmer, drier conditions ushered in by climate change will create ideal conditions for wildfires in Southern California. Rising temperatures and prolonged periods of drought increase fire ignition potential, along with the frequency and duration of wildfires, while shorter and warmer winters have lengthened the traditional fire season. To protect communities and natural resources, fire departments must track conditions associated with climate change and plan accordingly. For example, the Los Angeles County Fire Department's Forestry Division is in the process of instituting strategic changes to several wildland fire prevention programs—such as vegetation management, fire plan, brush clearance, and fuel modification—to adapt to climate change.

The department's Fire Prevention Division and the Department of Public Works also enforce fire and building codes related to development in Fire Hazard Severity Zones (FHSZ). Updating the FHSZ requirements has created additional protection for homeowners and communities.

To further evaluate changes to the natural environment, the Forestry Division is also working with National Aeronautics and Space Administration (NASA) and Jet Propulsion Laboratory (JPL) scientists, along with key federal, state, and local agencies, to study the effects of climate change on fire danger using remote sensing satellite data. These data measure patterns and relationships between temperature, precipitation, soil moisture, geology, and moisture levels in trees and plants. The data will be utilized to advance Fire Department personnel tactical training, and will be integrated into the Department's public education campaigns.

Parks and Recreation

Climate Change Adaptation	Climate Change Mitigation
• Reduce the urban heat island effect by providing drought-tolerant green space • Provide safe places to go during heat waves	• Increase carbon sequestration by planting drought-tolerant trees and other vegetation • Reduce greenhouse gas emissions associated with facilities and operations

Parks are important for both climate change mitigation and adaptation. First, parks provide beneficial environmental services. Trees in parks intake and store carbon dioxide (a prime greenhouse gas). This process, known as carbon sequestration, helps offset the carbon emissions from human activity that are causing climate change, making parks important to climate change mitigation. Second, vegetation in parks makes them cooler than surrounding urban areas, reducing the urban heat island effect wherein cities suffer from higher ambient temperatures than surrounding rural, vegetated areas. Well-designed green space can also aid in the absorption of rainwater to recharge groundwater supplies. Finally, parks provide an escape from the heat during heat waves.

Conscious of the important environmental and public health services that parks provide, the Los Angeles County Department of Parks and Recreation (DPR) is a leader in transforming parks to be even more climate-friendly. In addition to releasing *Park Design Guidelines and Standards*, a manual that provides guidance on such topics as landscaping for water conservation and drought-tolerant plants, DPR is currently undertaking a pilot project that seeks to redesign an 11-acre park in East Los Angeles with a focus on reducing the park's carbon footprint and promoting sustainable environmental practices in the surrounding community. In additional conservation efforts, "smart controllers" at 7 County parks have yielded a 23% reduction in water usage over a one-year period.

Public Works

Climate Change Adaptation	Climate Change Mitigation
• Implement flood control measures • Prevent drinking water contamination • Promote water recycling and other water conservation measures	• Implement intelligent transportation systems • Implement transit-oriented districts • Reduce greenhouse gas emissions associated with facilities and operations

With a wide variety of responsibilities ranging from roads and transportation systems, flood control and water resources, to public buildings, waste management, sewers, development services, and emergency management, the mission of public works departments covers many areas of climate change mitigation and adaptation.

Because public works departments may have considerable involvement in the construction of transportation infrastructure for transit-oriented districts, these agencies might influence the implementation of active transportation and other public transit features that reduce greenhouse gas emissions due to vehicle miles traveled. Other projects such as intelligent transportation systems reduce fuel consumption and greenhouse gas emissions by moving vehicles more efficiently. Many climate change adaptation activities also fall under the purview of public works operations, including flood protection, sustainable water supplies and infrastructure, resource-efficient building systems, support for healthy community development, and resiliency and recovery from emergencies.

The Los Angeles County Department of Public Works has been active in many aspects of climate change adaptation, including implementing *Envision*™, an infrastructure sustainability rating tool. Similarly, Public Works requires all new developments to comply with Los Angeles County's Low-Impact Development Ordinance (LID), which aims to prevent contaminated runoff as well as preserve surface and groundwater quality through small-scale, cost-effective, and functional landscaping. Public Works is also in the process of implementing a groundwater banking project in the Antelope Valley Groundwater Basin. Other efforts include water recycling in the cities of Lancaster and Palmdale, through the Recycled Water Backbone System.

Regional Planning

Climate Change Adaptation	Climate Change Mitigation
• Increase access to cooling centers and other extreme weather shelters • Maintain existing drought-tolerant green spaces and improve access to such areas	• Minimize hazards to walkers and cyclists to promote alternative transportation • Promote mixed-use design • Preserve and increase drought-tolerant green spaces • Adopt ordinances to improve access to farmers' markets and urban agriculture • Reduce greenhouse gas emissions associated with facilities and operations

By zoning for mixed-use design, protecting green space, promoting farmers' markets and urban agriculture, and encouraging forms of transportation other than cars, planning departments can play an important role in climate change mitigation by reducing greenhouse gas emissions associated with transportation and other sectors. Los Angeles County's draft *Unincorporated Los Angeles County Community Climate Action Plan 2020*, developed by the County Department of Regional Planning, outlines strategies for reducing greenhouse gas emissions. One example of such work is Los Angeles County's Healthy Design Ordinance, effective March 2013, which aims to improve public health by "minimizing hazards, increasing accessibility [of fresh food, opportunities for walking and biking], and overall enhancing the look and feel of the built environment."

Specific changes include increasing the width of sidewalks, requiring bicycle parking for new structures exceeding a certain size, and reducing barriers to establishing urban agriculture. The health benefits of promoting walking, biking, and consumption of fresh produce are well-established. Additionally, such improvements are important steps in addressing climate change.

Changes that promote health through increased physical activity and improved dietary choices also function to mitigate climate change by reducing greenhouse gas emissions. In encouraging walking and biking rather than driving, the Healthy Design Ordinance reduces greenhouse gas emissions from vehicle miles traveled. In encouraging increased access to locally-sourced foods, the ordinance reduces greenhouse gas emissions associated with food transport and storage.

Using a Plan to Direct Climate Change Work

With so many ways to undertake climate change work, it is essential to situate such work within a guiding framework that identifies priorities and opportunities for a specific agency. We first present the Los Angeles County Department of Public Health's *Five-Point Plan to Reduce the Health Impacts of Climate Change*, a framework specific to public health. Then, in *A Template for Local Action*, we adapt the *Five-Point Plan* into a template for use by any agency. The strategic priorities of the plan are below:

Inform
and engage the general public about the nature of climate change and the health co-benefits associated with taking action to reduce carbon emissions.

Promote
local planning, land use, transportation, water, and energy policies that reduce carbon emissions and support the design of healthy and sustainable communities.

Provide
guidance on climate preparedness to local government and community partners to reduce health risks and create more resilient communities.

Build
the capacity of Departmental staff and programs to monitor health impacts, integrate climate preparedness, and improve climate response.

Adopt
best management practices to reduce carbon emissions associated with Departmental facilities and internal operations.

The *Five-Point Plan* emphasizes using existing resources and integrating efforts into existing program activities, public education, and advocacy efforts. It also underscores the importance of engagement with other local agencies and stakeholders.

The advantages of this approach are threefold:

- New strategies and efforts can be embedded into existing pathways of health protection and education, requiring minimal additional resources
- The entire workforce can be leveraged to address climate change
- Existing initiatives can be enhanced and better coordinated to maximize co-benefits in both health and climate change.

The Los Angeles County Department of Public Health's Five-Point Plan to Reduce the Health Impacts of Climate Change

Strategic Priority 1: INFORM

Inform and engage the general public about the nature of climate change and the health co-benefits associated with taking action to reduce carbon emissions.

One essential function of public health is providing the general public with credible information that allows for informed decision-making. Public Health must engage with numerous and diverse communities to promote a functional understanding of how climate in Los Angeles County is changing and what those changes mean for every person who lives, works, or plays in the county.

Informing and engaging the public includes:

- Developing messaging strategies to reach targeted communities. Relevant stakeholders include local governments, community-based organizations, business, and the general public and well-defined sub-populations.

- Collecting data to better understand beliefs, attitudes, and behavior around climate change. Public Health has revised the Los Angeles County Health Survey, administered every other year, to include questions related to climate change. These questions will track the knowledge, attitudes, perceptions, and behaviors related to climate change among county residents to establish baseline measures of familiarity with, associations with, and beliefs about climate change, including whether participants associate climate change with health risks.

- Reaching wide audiences. Public Health participated in the *Years of Living Dangerously* documentary series on climate change, created by the Showtime Network. The documentary graphically shows the human health consequences of climate change, and highlights actions that city governments and local health departments must take to protect residents.

- Connecting with neighborhoods. Public Health participates in health fairs in low-income communities to build and maintain a network of community partners and engage with communities on climate issues. These fairs are important not just to disseminate information but also to receive feedback from community members and learn about issues that are salient to them.

Strategic Priority 2: PROMOTE

Promote local planning, land use, transportation, water, and energy policies that reduce carbon emissions and support the design of healthy and sustainable communities.

The surroundings in which people live, work, and play shape their behaviors and attitudes. While climate change is a global problem, many solutions are to be found at the local level and therefore are not the sole responsibility of any single organization or government. Achieving the goal of reducing the health impacts of climate change requires working with the many government agencies, businesses, and other sectors that are positioned to make changes in their policies and practices. Healthy and environmentally friendly habits are more likely to be adopted if they are easy, convenient, and affordable. Redesigning the environment to create an atmosphere that encourages pedestrian activity, bicycling, use of public transit, water conservation, and use of alternative energy will promote a new norm.

Promoting healthy design includes:

- Coordinating countywide efforts. Public Health convened an interdepartmental workgroup comprising the following Los Angeles County departments: the Arts Commission, Beaches and Harbors, the Chief Information Office, the Community Development Coalition, the Fire Department, the Internal Services Department Office of Sustainability, Parks and Recreation, Public Health, Public Works, and Regional Planning. The Healthy Design Workgroup (HDW) provides a forum to share information, foster partnerships, and develop strategies for implementing healthy design throughout the county. The HDW also works to resolve conflicting goals; one such example is promoting drought-tolerant green space that is sensitive to California's ongoing water crisis.

- Seeking funding. A collaborative approach has facilitated progress toward stated goals, and been pivotal to achieving funding through joint applications that create efficiency, reduce redundancy, and maximize the amount of awards. For example, the Healthy Design Ordinance discussed earlier in this report was developed by the Department of Regional Planning with funding from Public Health via a federal American Recovery and Reinvestment Act (ARRA) grant.

Strategic Priority 3: PROVIDE

Provide guidance on climate preparedness to local government and community partners to reduce health risks and create more resilient communities.

Because climate change has the potential to increase the frequency and magnitude of weather events and hazards, all aspects of a community (volunteers, faith- and community-based organizations, the private sector, and the public) are needed to prepare for, protect against, respond to, and recover from these disasters. Preparing for and protecting against changing conditions will require a combination of strengthening preparedness and modifying the built environment to reduce vulnerabilities.

Providing guidance includes:

- The *Climate and Health* series, including the first report, Y*our Health and Climate Change in Los Angeles County*, and this second report, *Framework for Addressing Climate Change in Los Angeles County.* The reports comprise an important effort to provide recommendations to other local agencies on the health impacts of climate change and the health co-benefits of climate change mitigation and adaptation.

- Building community resilience. Public Health has partnered with the Centers for Disease Control and Prevention (CDC) and the National Institute of Mental Health on the Los Angeles County Community Disaster Resilience project, an effort to build community resilience by linking community agencies that work with Public Health and the Emergency Network of Los Angeles. The project aims to improve disaster preparedness by strengthening resilience and researching approaches to building resilience.

Los Angeles County Community Disaster Resilience

Strategic Priority 4: BUILD

Build the capacity of Departmental staff and programs to monitor health impacts, integrate climate preparedness, and improve climate response.

Public health departments must continue to evolve and adapt to changing demands on their services. Public Health's approach is to integrate climate change strategies into existing programs, public education, and advocacy efforts. This strategy requires enhancing all of its programs to prepare for emerging climate-related threats. Training, tools, and detailed plans help prepare Public Health's workforce to meet the challenges presented by a changing climate.

Building internal capacity includes:

- Convening an intradepartmental workgroup. With members from Acute Communicable Disease Control, Chronic Disease and Injury Prevention, Community Health Services, Emergency Preparedness and Response, Environmental Health, Health Assessment and Epidemiology, Toxics Epidemiology, and Veterinary Public Health, the workgroup meets monthly to share knowledge, learn how existing activities contribute to mitigation and adaptation efforts, and solidify working relationships across program areas.

- Creating a participatory workshop series. Knowledge sharing is facilitated by the *Climate and Health* workshop series created in collaboration with the UCLA Fielding School of Public Health. The 16-session series, which began in the fall of 2013, teaches staff about climate change as it relates to the mission of local health departments. Each two-hour workshop focuses on an issue affected by climate change, and encourages participants to draw on their existing knowledge. Topics have included local climate projections, adaptive management, climate change communication, and the impacts of climate change on air pollution, water availability, coastal ecosystems, and vector management. By focusing on the human health impacts of climate change, public health programs can better incorporate climate change education, readiness, and response into ongoing professional responsibilities.

- Expanding current monitoring and surveillance systems to include health indicators associated with climate change. For example, heat-related illness data markers are now included in the Syndromic Surveillance System to determine health impacts from heat waves and provide targeted interventions. Public Health has also compiled information on flea, tick, and bedbug infestations within the City of Los Angeles to effectively monitor changes in these vectors over the coming years.

Strategic Priority 5: ADOPT

Adopt best management practices to reduce carbon emissions associated with Departmental facilities and internal operations.

The Los Angeles County Department of Public Health is an influential leader in establishing environmental initiatives that protect, conserve, and sustain natural resources. As the employer of nearly 4,000 staff over 30 locations, Departmental policies have a broad impact on the environment. Within the county, Public Health has many initiatives that demonstrate its own commitment to sustainability and reduction of greenhouse gas emissions.

These include:

- Promoting ridesharing, use of public transit, telecommunication, and alternative work schedules as ways to reduce vehicle miles traveled to work, thus reducing greenhouse gas emissions, air pollution, traffic congestion, and commuter costs.

- Installing videoconferencing equipment. As many of its facilities are spread out across Los Angeles County's 4,300 square miles, Public Health installed videoconferencing equipment in 23 locations to further reduce vehicle miles traveled by employees.

- Purchasing hybrid vehicles. Public Health replaces outdated fleet vehicles with hybrid fuel vehicles, when possible, to use less fossil fuel.

- Purchasing environmentally preferred office supplies and other products to promote practices that reduce pollution and conserve natural resources.

- Implementing paperless processes for health inspections and administrative processes for timekeeping, mileage reimbursement, and procurement.

A Template for Local Action

While the *Five-Point Plan to Reduce the Health Impacts of Climate Change* was created to be specific to public health departments, its five strategic priority areas can be generalized to apply outside of the public health field. All local agencies can adopt the five main concept areas of:

1. Informing and engaging with the community
2. Mitigation at the community level
3. Adaptation at the community level
4. Internal preparedness
5. Mitigation at the internal level through the adoption of best management practices.

Through these goals, agencies can work toward building resilient communities and prepared workforces while reducing the human contribution to climate change. The table below provides a template with sector-specific examples for adapting the *Five-Point Plan* to your agency.

	Five-Point Plan	Template for Local Action	Sector-Specific Example
INFORM	Inform and engage the general public about the nature of climate change and the health co-benefits associated with taking action to reduce carbon emissions.	Inform and engage the general public about climate change and sector-specific co-benefits associated with taking action to reduce carbon emissions.	*Public Works:* educate the public on intelligent transportation systems. Promote the benefits of reducing trip times and traffic congestion (sector-specific co-benefit), and reducing GHG emissions (climate change co-benefit).
PROMOTE	Promote local planning, land use, transportation, water, and energy policies that reduce carbon emissions and support the design of healthy and sustainable communities.	Promote and adopt sector-specific planning, land use, transportation, water, and energy policies that reduce carbon emissions and support the design of healthy and sustainable communities.	*Regional Planning:* adopt a healthy design ordinance that reduces GHGs by encouraging walking, biking, use of public transit, and access to locally grown foods.
PROVIDE	Provide guidance on climate preparedness to local government and community partners to reduce health risks and create more resilient communities.	Provide guidance on issues of sector-specific climate preparedness to local government and community partners to reduce sector-specific risks and create more resilient communities.	*Beaches and Harbors:* gain a better understanding of potential impacts of sea level rise; guide implementation of coastal reinforcement to reduce the risk of flooding.
BUILD	Build the capacity of Departmental staff and programs to monitor health impacts, integrate climate preparedness, and improve climate response.	Build internal capacity to monitor issues related to climate change; integrate climate change considerations into risk management to improve preparedness and response.	*Fire Department:* track the relationship between changing average temperatures and soil moisture to reduce fire danger and improve response.
ADOPT	Adopt best management practices to reduce carbon emissions associated with Departmental facilities and internal operations.	Adopt best management practices to reduce carbon emissions associated with internal facilities and operations.	Other sectors are encouraged to review their own practices and implement environmentally sustainable policies.

Glossary of Terms and Acronyms

Adaptation (climate change)	Efforts to reduce the vulnerability of human and natural systems to the negative effects of climate change; e.g., by making changes to infrastructure or implementing policies and programs. Because some amount of climate change will inevitably occur and is already occurring, climate change adaptation is sometimes referred to as "managing the unavoidable."
Air pollution	Chemicals, particles, or biological substances in the air that are detrimental to human health. One component of air pollution in Los Angeles County is ground-level ozone (see definition), which worsens when temperatures warm.
Carbon dioxide (CO_2)	A greenhouse gas that, although naturally occurring, is also produced by the combustion of fossil fuels like coal, oil, and natural gas. Activities such as driving gas-powered motor vehicles and electricity generation through fossil-fuel-fired power plants cause increases in CO_2, contributing to global warming (see definition).
Carbon sequestration	The natural process by which carbon dioxide is captured from the atmosphere and stored over a long period of time. Places that remove a lot of carbon dioxide from the atmosphere are called "carbon sinks." Forests and wetlands are important carbon sinks, which is why the preservation of these natural habitats is important in the fight against climate change.
Climate change	Changes to the earth's climate caused by an overall warming of the earth's atmosphere. These changes are already occurring and are predicted to continue. Different global regions and even local areas will experience different changes related to how climate change affects relevant processes in the atmosphere and the ocean. Effects of climate change include increased, decreased, or more variable precipitation patterns, hotter temperatures, more extreme weather (such as heat waves, cold snaps, and intense storms), and sea level rise.
Drought	While there are many definitions of drought, it can generally be thought of as a period of unusually dry weather. Because different regions have different patterns of rainfall and other hydrological processes, what is considered "unusually dry" varies by place.
Extreme weather	Unusual or severe weather such as extreme heat, intense storms, and drought. Extreme weather is one result of climate change.
Global warming	The warming of the earth's climate system, which began in the 1800s, sped up starting in the 1970s, and continues today. The overwhelming majority of climate scientists (97%) believe that human activities are causing global warming. Global warming does not mean all regions will experience warmer temperatures all the time; instead it refers to the warming trend of the earth's climate system.
Greenhouse gas (GHG)	Any of the several gases (e.g., carbon dioxide and methane) that influence the earth's temperature through what is known as the "greenhouse effect." Greenhouse gases are important to maintaining a comfortable temperature on earth. But human activities, such as the burning of fossil fuels, have led to an excess of greenhouse gases in the atmosphere, causing the earth to warm.

Glossary of Terms and Acronyms

Ground-level ozone	Known as "bad" ozone, ground-level ozone is created by chemical reactions involving pollution from vehicles, industrial facilities, and other sources. These chemical reactions speed up in warm weather, making ground-level ozone worse in warmer weather. Ground-level ozone can cause impaired lung function, among other health effects, and is especially concerning for people with asthma or other respiratory conditions.
Healthy design	Designing communities that promote and protect health. Healthy design creates places where it is easy for people to choose healthy options. Often, this means making it easy and safe to walk and bike within a community, as well as providing ample access to fresh foods and green spaces like parks.
Heat-related illness	Includes heat exhaustion (a precursor to heat stroke) and heat stroke (a life-threatening emergency). Heat-related illness occurs when the body stops being able to regulate its core temperature, such as during episodes of extreme heat.
LARC (Los Angeles Regional Collaborative for Climate Action and Sustainability)	Housed at the UCLA Institute of the Environment and Sustainability, LARC is a network of leaders in "government, the business community, academia, labor, environmental and community groups" created to "share information, foster partnerships, and develop system-wide strategies to address climate change and promote a green economy through sustainable communities."
Mitigation (climate change)	Efforts to reduce the human contribution to climate change; for example, by reducing greenhouse gas emissions. Mitigation is focused on preventing drastic climate change to the best extent possible, and is therefore sometimes referred to as "avoiding the unmanageable."
NOAA (National Oceanic and Atmospheric Administration)	A federal agency whose mission is, in part, "to understand and predict changes in weather, oceans, and coasts."
Ozone	A gas that occurs in different places in the earth's atmosphere. "Good" ozone is located between 6 and 30 miles above the earth's surface and shields the earth from harmful UV rays. "Bad" ozone, or ground-level ozone (see above), is the main component of smog, and is detrimental to both human health and plant life.
United States Department of Agriculture (USDA)	A federal department with responsibilities related to farming, agriculture, forestry, and food.
Vector (epidemiological term)	Any living thing that transmits diseases. Vectors include people, animals, and microbes. In the case of Dengue fever, the vector responsible is a type of mosquito.

Appendix

***Five-Point Plan to Reduce the Health Impacts of Climate Change*, 2014-2015**

The Los Angeles County Department of Public Health's framework for addressing climate change from a public health perspective.

Strategic Priority 1: INFORM **Inform and engage the general public about the nature of climate change and the health-related co-benefits associated with taking action to reduce carbon pollution**	
Goal 1.1	Develop an educational campaign to increase public awareness of the health impacts of climate change.
Goal 1.2	Prepare community outreach materials for use in raising public awareness.
Goal 1.3	Track knowledge, attitudes, perceptions, and behaviors related to climate change to evaluate the impact of future activities and determine obstacles to mitigation and adaptation actions.
Goal 1.4	Deliver presentations and outreach material to the general public.

Strategic Priority 2: PROMOTE **Promote local planning, land use, transportation, water, and energy policies that reduce greenhouse gas emissions and support the design of healthy and sustainable communities**	
Goal 2.1	Influence local governments and sectors to reduce greenhouse gas emissions and incorporate health considerations into their planning and policy development.
Goal 2.2	Incorporate healthy community design and sustainability strategies into land use decisions and projects.
Goal 2.3	Integrate public health considerations into the climate change planning of other sectors; i.e., transportation, residential energy, and urban greening.
Goal 2.4	Prepare guidance documents to promote greater use of alternative water.
Goal 2.5	Support the development of active transportation networks such as bicycle, pedestrian, and transit-supportive infrastructure to reduce vehicle miles traveled.
Goal 2.6	Convene an interdepartmental committee to implement the County Climate Action Plan by coordinating the efforts of County departments working on climate change mitigation and adaptation, and by seeking grant funding for specific activities.

Strategic Priority 3: PROVIDE **Provide guidance on climate preparedness to local government and community partners to reduce health risks and create more resilient communities**	
Goal 3.1	Provide local officials, service agencies, and community groups with community-based health status information to reduce impacts of climate change.
Goal 3.2	Collaborate with LARC, the California Public Health Working Group for the Climate Action Team, and Los Angeles County Regional Environmental and Sustainability Programs to optimize Public Health efforts.
Goal 3.3	Publish a report on the health effects of climate change on the Los Angeles region.
Goal 3.4	Convene an interdepartmental workgroup to incorporate public health considerations in climate change planning.

Strategic Priority 4: BUILD **Build the capacity of Departmental staff and programs to monitor health impacts, integrate climate preparedness, and improve climate response**	
Goal 4.1	Expand monitoring and surveillance programs to include key climate-related indicators.
Goal 4.2	Track data on environmental conditions and associated diseases related to climate change.
Goal 4.3	Develop preparedness and response plans to identify vulnerable populations in Los Angeles County.
Goal 4.4	Improve the Department's response to adverse weather events and other climate-related impacts.
Goal 4.5	Educate staff on the public health impacts of climate change.

Strategic Priority 5: ADOPT **Adopt best management practices to reduce carbon emissions associated with Departmental facilities and internal operations**	
Goal 5.1	Review and revise Public Health's policies and practices to encourage "smart travel" and reduce vehicle miles traveled through use of telecommuting, office carpools and alternative work schedules.
Goal 5.2	Implement the use of energy-efficient technologies (e.g., paperless administrative processes, paperless inspection systems, use of energy-saving equipment).
Goal 5.3	Implement green purchasing practices within Public Health and require the same from contractors and suppliers.
Goal 5.4	Prepare a template based on Public Health model practices and promote its use by other local public health organizations.

Notes

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