

# CLIMATE CHANGE ADAPTATION IN ACTION

## *The City of Berkeley Builds Resilience by Addressing Climate Change Mitigation and Adaptation in its Climate Action Plan*

### Synopsis

In 2005, prior to California's adoption of the Global Warming Solutions Act of 2006 (Assembly Bill 32), the City of Berkeley conducted a greenhouse gas (GHG) emissions inventory to provide its residents with a snapshot of yearly outputs. This effort sparked a local climate protection campaign, and 81 percent of voters endorsed a 2006 ballot measure to reduce the City's GHG emissions to 80 percent below year 2000 levels by 2050. Mayor Tom Bates, who embraced this call to action, initiated a planning process to address the city's contribution to climate

change and to improve its resilience to projected climate change impacts such as sea level rise and water shortages. Through a two-year collaborative planning effort, city staff and community members developed a Climate Action Plan that integrates adaptation and mitigation to work towards a comprehensive strategy for achieving climate resilience. Adaptation components of the plan provide a road-map to prepare the City for the impacts of climate change and to leverage the resources and social capital of Berkeley's community members.



Source: San Francisco Bay Conservation and Development Commission, 2011.

### THE LAY OF THE LAND

The City of Berkeley, a 10.5-square mile community of diverse residents lies on the shoreline of San Francisco Bay in California. It is home to 112,580 of the Bay Area's approximately 7.2 million residents. The City faces local implications of global climate change that include:

- Threats to coastal infrastructure due to rising sea levels.
- Increased incidence of large wildfires.
- Serious public health threats with increased local air pollution, heat waves and ranges for infectious diseases.
- Water shortages.

Sources: 2010 U.S Census; City of Berkeley Climate Action Plan, 2009.

## The Story

Developing Berkeley's Climate Action Plan (Plan) required assessing existing resources, allocating funding and developing priority actions for moving ahead. The planning process began with identification of local resources available to develop a Plan that would fulfill the community's vision for the year 2050. This assessment revealed opportunities to leverage expertise of agency staff and partnerships established through previous climate leadership efforts. The City Council allocated two years of funding to the Office of Energy and Sustainable Development (OESD) to develop and manage the process. According to Timothy Burroughs, Climate Action Coordinator for the City of Berkeley, OESD had one clear objective, "create a Plan that encourages accountability and facilitates implementation." In an effort to achieve this objective, city staff considered four primary approaches: public and agency collaborations, strategies to mitigate and adapt to climate change, linking policies with actions, and establishment of metrics for monitoring and reporting progress.

At the outset, OESD recognized that climate change impacts extend across jurisdictional boundaries, neighborhoods and different sectors and interests. City staff engaged a broad range of stakeholders through existing partnerships established in previous efforts such as the Bicycle Plan and Green Building Initiative. Due to the diversity of climate change issues and affected stakeholders, staff also established new partnerships within the community, neighboring cities and across City departments. Though this level of engagement required additional outreach and coordination on the part of city staff, it added significant value to the Plan by broadening its applicability and promoting consistency across jurisdictions.

OESD formed a cross-departmental working group comprised of staff from the Department of Public Works, Planning and Development, Economic Development and Neighborhoods Services, Health and Human Services and others. The working group relied on a City-hosted interactive website for project management, to communicate with stakeholders and to gather input and expertise from a larger audience.

### ENGAGING AND COMMUNICATING WITH STAKEHOLDERS

**In January 2008, city staff presented the first draft of the Climate Action Plan to the Berkeley City Council and released it for public comment. A second draft was presented to the City Council in September 2008, and additional public comment was accepted through January 2009. The final draft of the Plan was adopted on June 2, 2009. During the planning period, city staff and community volunteers led a series of workshops, meetings and public events to engage the community. These efforts included presentations from neighborhood associations, University of California Berkeley faculty and researchers and other experts in the field of climate science, energy and transportation.**



The Plan, adopted by the Berkeley City Council on June 2009, includes a chapter on climate change adaptation with strategies for making the built and natural environment more resilient to current and projected climate change impacts. Burroughs explains:

*The Plan presented the perfect opportunity to include adaptive strategies because it was a high-profile process already underway involving a great deal of community engagement, and providing a strategic approach for accomplishing things that had been priorities for the City for awhile.*

The adaptation chapter identifies four overarching policies:

- Launch and sustain a collaborative process for increasing Berkeley’s and the region’s preparedness for climate change impacts
- In preparation for the impacts of climate change on the region’s water resources, partner with local, regional and state agencies to encourage water conservation and efficiency, and expand and diversify the water supply
- In preparation for rising sea-levels and more severe storms, partner with local, regional and state agencies to reduce the property damage associated with flooding and coastal erosion
- In preparation for more extreme heat events, partner with local, regional and state agencies to protect and increase urban tree cover

These policies are linked to action items to address both long and short-term priorities. The Plan acknowledges that the efficacy of these policies rests heavily on development and implementation through partnerships with relevant regional and

state agencies. Despite the challenges this poses, the Plan highlights the value of these partnerships for leveraging resources to successfully implement adaptive actions.

The City has been putting the Plan into action and tracking and reporting progress along the way. For implementation, the Plan prioritized the policy actions based on short (2009-2010), medium (2010-2015) and long (2015-2020) timeframes. This staging approach has enabled the City to strategically allocate scarce resources. The City also maximized efficient use of resources by prioritizing policy actions that provide co-benefits for mitigation and adaptation. This approach was important because, as Burroughs points out, “strategies to adapt to climate change impacts are often considered a lower priority for implementation than mitigation of GHG emissions because the benefits of adaptation actions are not usually seen immediately.” Prioritizing strategies with co-benefits has helped jump-start implementation of some adaptation actions.

To assist the transition from the planning to implementation phase, the City expanded their interactive website to include transparent measures for monitoring progress. Through the website, City staff report metrics for implementation of mitigation and adaptation strategies which allows the community to track steps the City is taking to achieve goals set

### **GREYWATER REUSE AND RAINWATER HARVESTING: ACHIEVING ADAPTATION AND MITIGATION CO-BENEFITS**

**Greywater is wastewater generated from domestic activities such as laundry, dishwashing and bathing, which can be recycled on-site for uses such as landscape irrigation. Greywater differs from water from toilets which is designated sewage (or blackwater) to indicate it contains human waste. Residential greywater reuse and rainwater harvest systems collect and utilize these water sources onsite for landscape irrigation and other non-potable uses.**

#### **CLIMATE ISSUES ADDRESSED:**

**Greenhouse gas emissions, water shortages and local flooding**

#### **CO-BENEFITS PROVIDED:**

**Reduces demand for potable or drinking water as well as the energy used to treat and transport water, and can enhance local capacity to manage stormwater**

#### **HOW THIS STRATEGY IS BEING IMPLEMENTED**

**A coordinated effort by multiple city departments to develop and disseminate outreach materials and local guidelines that are consistent with the building code**

**Sources: The Guide to Conserving Water through Rainwater Harvesting and Greywater Reuse for Outdoor Use. 2010. Office of Energy and Sustainable Development; Permit Service Center; Land Use Planning (Zoning); Building & Safety; and Public Works, City of Berkeley.**

forth in the Plan. This online resource is one of the biggest successes of the Plan because it increases accountability for departments and agencies, allows the City, its partners and the community to evaluate the effectiveness of the policies and actions associated with each goal, and facilitates review, revision and additions to strategies as needed.



Source: City of Berkeley Office of Energy and Sustainable Development

## Looking Forward

The City of Berkeley made a significant upfront investment to prepare the Climate Action Plan, but the City projects that actions in the Plan will generate nearly \$500 million in savings for the City by 2020. (City of Berkeley Climate Action Plan, 2009) Thus far, more than \$6 million in grant funds have been secured for implementation. The Plan has unexpectedly facilitated project funding by acting as a template from which city staff and others can easily prepare applications for funding opportunities. They can point to the analysis in the Plan, and the prioritized implementation framework and specific actions associated with policies to justify the need for these efforts.

Development of the Plan has spurred a number of climate-related city projects and community efforts. Through their participation in the planning process, city staff and community members and organizations increased their capacity to effectively develop these projects. Additionally, the City's cross-departmental working group tasked with managing the development of the Plan now provides a framework for ongoing communication and collaboration across divisions and departments. This has set the stage for the Plan's continued implementation and success.

## LESSONS LEARNED

- **Prioritizing actions that provide co-benefits allowed efficient use of resources and more immediate implementation of adaptation and mitigation strategies.**
- **Collaboration and partnerships in the planning process fostered enhanced communication and led to broader implementation of strategies.**
- **The City's interactive climate change website helped create a transparent planning process and establish accountability for implementing policies in the Plan.**
- **Though development of the Plan required significant upfront investment, it allowed the City to allocate and identify additional resources to fund implementation and may lead to nearly \$500 million in savings by 2020.**

## Who We Are

This case study was developed through a state-federal partnership of the San Francisco Bay Conservation and Development Commission (BCDC), the San Francisco Bay National Estuarine Research Reserve (NERR) and the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center. These agencies work together to provide information resources and technical assistance to support local governments in planning for climate change impacts.

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## Sources

City of Berkeley Climate Action Plan, adopted under Resolution 64,480-N.S. on June 2, 2009. Available at: <http://www.cityofberkeley.info/ContentDisplay.aspx?id=19668>