Bay Area Climate & Energy Resilience Project

Stakeholder Interview Summary

Key Findings & Selected Projects

FINAL Report — March 2013

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Executive Summary

This paper summarizes input received through interviews and group discussions conducted by the Joint Policy Committee's Climate Consultant with more than 100 Bay Area climate adaptation stakeholders in late 2012 and early 2013.

The stakeholder input centers around three topics: (a) current adaptation projects underway in the region, (b) what an organization needs to move forward on climate adaptation in 2013 and (c) what we need to do *together* on Bay Area climate impacts – including sea level rise, extreme storms, heat waves, energy/water shortages, price increases on food/energy and ocean acidification. The findings point to actions that will support the Regional Sea Level Rise Strategy (building resilient shorelines), advance projects that are underway on a range of topics, assist individual agencies/organizations in their planning efforts, and create a much stronger, coordinated *regional* approach to climate adaptation.

The interview summary is presented in three sections. First, we present four near-universal needs that were expressed, in some form, by nearly every stakeholder or group. Second, we group the hundreds of good suggestions for action into twelve basic strategies. Third, we spotlight (Appendix A) nearly 100 adaptation projects, programs and initiatives already underway in the Bay Area. Finally, we offer 5 recommended next steps to move from this stakeholder input to developing a strong and action-oriented Bay Area adaptation program.

DISCLAIMER:

THE RECOMMENDATIONS, OPINIONS AND FINDINGS CONTAINED IN THIS REPORT SOLELY REFLECT THE VIEWS OF STAKEHOLDERS INTERVIEWED AS RECORDED AND EDITED BY THE JOINT POLICY COMMITTEE'S CLIMATE CONSULTANT. NOTHING IN THIS REPORT REPRESENTS THE OFFICIAL VIEWS OF THE JOINT POLICY COMMITTEE MEMBERS OR OF THE JPC AGENCIES.

Introduction

Over the last three months, the Joint Policy Committee's Climate Consultant has conducted a series of interviews and group discussions with selected Bay Area climate adaptation stakeholders. This work is being done as part of the Bay Area Climate & Energy Resilience Project, sponsored by the Kresge Foundation and the Bay Area Joint Policy Committee (JPC). The purpose the stakeholder interviews and discussions was to identify how we can accelerate and strengthen climate adaptation work in the nine-county region. The assessment included all relevant Bay Area climate impacts, including sea level rise, extreme storms, heat waves, energy and water shortages, food/energy price increases and ocean acidification.

The individual interviews and group discussions included more than 100 adaptation stakeholders and posed two basic questions:

1. What are the key Bay Area climate adaptation projects or programs that are currently underway?

2. What does your organization need to move forward on climate adaptation in 2013?

3. How can we best work *together* to accelerate the Bay Area's adaptation planning in 2013?

We received input from staff representing water agencies, local governments, regional agencies, energy utilities, land conservation managers, advocacy organizations, public health departments, ecosystems experts, business groups, foundations, transportation agencies, flood control districts, private consultants and more. A complete list of participants is attached as Appendix B.

This report presents a summary of the interviewees' expressed needs and their proposals for regional collaborative action. In addition, Appendix A includes examples of current climate adaptation projects that were highlighted during the interviews. This list of selected Bay Area projects shows on-the-ground examples of the efforts of an increasing number of Bay Area entities to address climate impacts in our region.

The stakeholder input is summarized in two parts. In Part 1, we present four near-universal needs that were identified, in some form, by nearly every stakeholder or group. In Part 2, we group the hundreds of good suggestions for action into twelve basic strategies.

Summary of Input from Stakeholder Interviews

PART 1: Near-Universal Needs

This first section outlines four needs that were expressed, in some form, in nearly every stakeholder interview or group session. Meeting these four needs will provide a sound

foundation for advancing key projects, strengthening major initiatives and generally improving the Bay Area planning process.

A. A Bay Area Campaign to Make the Case for Climate Adaptation Work.

We need someone to come talk with my council/my board/my boss/my funders. Make the case for why we need to be planning for climate impacts, so they increase support for our work. Provide a compelling, science-based presentation that explains how climate change will impact our city/organization/interest group and the Bay Area. Make it clear why we have to do adaptation <u>and</u> GHG reduction. Explain why we should be more involved. Show examples of organizations like ours that are getting involved. Identify leaders and champions that our organization's leaders will see as their peers.

- *What are the most important Bay Area impacts?*
- *How do we plan for something that has so much uncertainty?*
- *Does this mean we are giving up on GHG reduction?*
- *What would you DO, and what will it cost?*
- *With all the current problems we are facing, can't climate adaptation wait?*

Comment: This campaign won't happen by magic. It will take a carefully crafted "story" that resonates with a range of groups and an organized campaign targeting specific influential leaders from all walks of Bay Area life. Right now, we have many different stories (some not accurate) that are either confusing people or failing to make a compelling case. Stakeholders stressed that the success of this effort will depend on employing trusted messengers (based on the target audience). We must bring social science into play here; this is not just about selling hard science.

Key suggestions for action:

- *Identify champions with influence in a wide range of sectors and communities.*
- *Sell mainly short-term benefits, then show longer-term benefits like successful competition with other metropolitan areas.*
- *Be honest about the serious problems we are facing, but show there are many things we can do that will make a difference.*
- *Use Bay Area success stories as models: Spotlight and learn from our big existing successful projects like the Napa River Flood Control Project, Post-East Bay Hills Fire improvements, earthquake retrofit programs and the Long Term Management Strategy (LTMS) for sediment management in the bay.*
- *Demonstrate why this is not just a government problem to solve; the private sector and NGOs have significant roles to play.*
- *Make sure leaders see that this not all "brand new and different" work added on top of their existing burdens. It can be integrated with existing work.*
- *Build support for specific steps forward like the possible 2014 ballot initiative for wetlands restoration.*
- *Use You Tube videos to tell the story and illustrate more powerfully how projects are moving forward across the region.*

B. New Resources/ Efficient Use of Existing Resources for Local/Regional Planning

We need dedicated resources for regional and local climate planning as soon as possible. This is not going to happen at the speed and scale required if we continue to piecemeal it. By working together, we should be able to use existing planning resources more efficiently. Eventually we are going to need big investments for project implementation. Given the state of local governments these days, we are going to need new sources of funding and creative financing instruments if we are going to succeed.

- *Why is something so important as climate change so underfunded? Who is going to change that?*
- *Can't we band together on this instead of going solo or actually competing?*
- *How can we cut down on duplication of efforts on climate change between levels of government (state, regional, local) and NGOs? How can we, instead, align our efforts to get much more done?*
- *Is this all a public sector responsibility? Our private sector has a tremendous number of innovative people and processes. Community-based organizations and advocacy groups have a major role to play.*

Comment: Most interviewees understand that (a) we need increased funding for adaptation planning and (b) local and regional planning funds are very constrained. They understand that some combination of new resources and more efficient use of existing ones will be required. This is not just a knee-jerk "we need more money" reaction, but a major red flag being raised by people who see how complex climate change adaptation planning can be.

Key suggestions for action:

- *Help leverage local funds with money from regional state and federal sources.*
- *Put doers together with potential funders and financial gurus to work together on funding solutions.*
- *Focus on California's Cap and Trade Program as the near-term solution.*
- *Lots of funding is going to small GHG climate projects—why not shift some of that to adaption planning for now?*
- *Change regulations to make it cheaper to do climate smart strategies*
- *Use a shared staffing approach if smaller cities are to be involved.*
- *Spread the costs of big infrastructure instead of just having ratepayers pay when many more people benefit.*
- *Sell big infrastructure projects on how much they will save in damages later.*
- *Fund community-based groups from more vulnerable communities, so they can participate in planning processes.*
- *Send the message that funding from foundations will go further here in the Bay Area because we are doing so many complementary things. Their dollars will go further and we will match their investments. Sell on a "we can be a model for the nation if you invest here now" basis.*

- *Where needed, shift or de-silo funding requirements to open up money for adaptation planning.*
- *Try crowd-sourcing to fund pilot projects and get more people involved.*

C. Help With Information on Impacts: Improved Access to Basic Info, Guidance on How to Use It, and New Research/Analysis for Advanced Needs

We need reliable scientific information on climate impacts that will affect my operations and the Bay Area in general. I don't want to spend hours hunting around the Internet and having to guess which reports to trust. I am a planner (elected official, project manager, activist, etc.), not a climate scientist.

- *What is the most accurate and up-to-date information for my needs?*
- *Can you us find it for us (please)?*
- *Please help us interpret it.*
- *What better information is coming in the near future?*

Comment: There is a wide range of needs for information. Some stakeholders just want a few science numbers from a trusted source to insert in a presentation or report, so they can make the case for adaptation work. Others are beginning planning or project development and need specific data, analysis and direct access to subject matter experts. More advanced organizations are requesting scenarios, so they can conduct what-if exercises. The universal need, however, is for easy access to organized information and expert assistance that will allow planners to be planners, not climate scientists.

Key suggestions for action:

- *A lot of valuable data and information is available. It needs to be organized and managed better.*
- *Much money and time could be saved by bringing planners together to share data and to create joint investigations with information experts. Don't make everyone do this on their own.*
- *Let's invest scenario planning since there is considerable uncertainty about future projections for climate impacts, particularly at the local level.*
- *What would happen if we did X? What would happen to us if our neighbor did X? Use this kind of modeling to illustrate why and where we have to work together.*
- *Tailor information products to our specific needs for general plans, hazard mitigation plans and other similar required work products.*
- *Invest more in research on identifying and serving vulnerable communities.*
- *We must work closely with researchers. The time frames they are comfortable with (2050, 2100, etc.) do not match well with our infrastructure time frames.*
- *We need a comprehensive statewide climate research program to replace the old PIER program.*

D. Information on Bay Area Projects, Programs and Major Initiatives

We need more easily accessible information on what organizations are doing and what they are thinking about doing. This will keep us from reinventing the wheel and

allow us to steal everyone's best ideas. Information on projects can allow us to identify where joint or region-wide initiatives may be more effective than solo efforts or to see where everyone is running up against the same problem. We can see who to form partnerships or coalitions with.

- *What research and planning projects are underway? What are my peers doing?*
- *What success are they having? What's working or not working?*
- *How are they confronting barrier X?*
- *What are the most obvious topic gaps? What are we missing regionally?*

Comment: Interviewees again asked that we make it easier for them to access and select the right information from the huge amount of project data available. Don't create yet another website! Provide a human, personal service via phone, site visits, field trips, short memos, small webinars, email introductions, and other timesaving channels, and then use the web as a convenient document holder. Make it about connecting people and building relationships. As with the science information described above, start with specific customer needs for information/assistance and work from there.

Key suggestions for action:

- *This needs to be like the agricultural extension agent: a knowledgeable person visiting projects "in the field" to learn, provide information, ask questions and connect people.*
- *Regular summaries of key projects by topic areas will show us where there is potential interest in joint action.*
- *Hour-long webinars on a specific topic are far more possible for me than traveling to big meetings and workshops.*
- *Help engineers work with engineers, planners with planners, etc. between organizations. They speak the same language.*
- *Support leaders and residents from highly vulnerable communities to work on these issues.*

PART 2: Twelve Strategies to Accelerate Our Progress

There were hundreds of useful suggestions in the stakeholder interviews and group sessions on how to move forward at the speed and scale required. This second section groups many of them together into a set of 12 important strategies to accelerate regional progress. *The 12 strategies are presented as a group, <u>not</u> in a ranked order.*

A. Create A Bay Area Planning Process

It's good that a number of organizations have initiated adaptation projects in the region and we should encourage more innovation and institutional responsibility. But we need coordinated, strategic planning at a higher level, too. We need to develop a new vision for the Bay Area under climate change. What are our goals as a region? How are we doing? What are the most important steps for the next year? The next 5 years? A coordinated Bay Area approach will make it much easier for all of us to see

where we can plug in. A static plan won't help much (and may actually distract) since things are changing rapidly. We need a nine-county structure and process that is nimble and flexible. What would that look like?

While the Bay Area is facing a number of climate impacts, our vulnerability to bay and coast flooding from major storms and sea level rise is the most pressing need for a coordinated, regional approach. Water knows no city boundaries. The actions of one city or county to protect itself will affect its neighbors. Local development decisions will have an impact on the "commons."

B. Focus on Extreme Events (Extreme Storms, Heat Waves, Multi-Year Droughts)

We should focus more of our resources on preparing the Bay Area for extreme events and their high levels of damage. We may be able to handle slow-moving changes, but we need much more help with major events that can outrun our limited resources. Good preparation now can save money later. Human health will also be most taxed by these events with their multiple impacts, such as an extreme heat wave where electric power is knocked out and transportation is disrupted. Similarly, a multi-year drought could have a significant on urban populations and agriculture. California's history is marked by extensive drought, and unlike the Columbia and Colorado basins, California has a limited amount of reservoir capacity to carry it through multi-year dry spells. *Help us understand what the odds will be of these extreme events and how to prepare.*

C. Focus on Vulnerable Communities

While everyone will be hurt by climate change, highly vulnerable populations and areas will be hit hardest. We need more resources to identify highly at-risk groups and to work with them on solutions. We must ensure that communities and community-based organizations that are often left out of planning processes are 1) invited to partner in designing the planning processes and public engagement strategies at the beginning of adaptation planning, 2) recognized as leaders and participants in meaningful ways throughout all stages including allocating adaptation resources and 3) adequately funded to do this work.

Social cohesion and community strength are important factors in addressing climate and other environmental issues. Improving social networks, conducting peer-to-peer education and other similar strategies can pay great dividends.

Grassroots leaders and organizations are often experts at identifying both needs and existing examples of climate resilience in their communities, and partnering with them can target cost-effective investments in climate adaptation and community resilience. Regional government can support local governments in designing and implementing these community engagement processes.

D. Help Cities/Counties Plan and Convene Local Working Groups

Work with cities to convene infrastructure operators and other key stakeholders within a city, community or neighborhood. Facilitate meetings where we can identify

our common adaptation issues and devise more innovative and cost-effective solutions than we can by ourselves. Help us get up and running; if these partnerships provide true benefits, we will run them ourselves.

Cities need technical assistance, including information on a range of strategy options, to begin discussions with developers and our communities on what may constitute "climate-smart" development. Provide regional guidance and data to help us to better understand how we should translate high-level climate goals into actual projects.

Provide special assistance to cities and counties that are organizing themselves and committing their own resources. Sonoma County has the first legally constituted climate authority in the region. San Francisco is developing a comprehensive climate adaptation plan across all departments. Santa Clara County is doing a major needs assessment with a $1 million grant from the state.

E. Hold Discussions on Proposed Mega-Strategies

We need a neutral place where we can evaluate and discuss mega-strategies that are not within the jurisdiction of any one agency. An example would be a Golden Gate sea barrier for sea level rise and storm surge. Conduct good research, make a science-based presentation of pros and cons of all options, and facilitate in-depth discussion among key leaders. Do the same with major topics like insurance, finance and regional governance.

F. Integrate Climate Adaptation with Earthquake/Disaster Preparedness

We have been doing earthquake preparedness work for years. Programs like the Bay Area Urban Areas Security Initiative (UASI), the statewide Standardized Emergency Management System (SEMS) and local hazard mitigation planning have put together a strong structure for disaster response. ABAG and local governments are now working on the more complex process of long-term recovery from disasters. We should figure out how to integrate climate adaptation planning with our existing work on hazard mitigation plans and other programs. Can we make this a customer-oriented approach for cities? (Too many darn separate plans already!)

G. Link Adaptation with GHG Reduction and Carbon Sequestration

Our adaptation efforts in the Bay Area will eventually be overwhelmed by severe climate impacts unless there is a significant global shift from the current emissions path. While the Bay Area can't do this alone, we should become leaders for serious GHG reduction in California and the U.S. to complement our work on adaptation and resilience. These approaches must be integrated – let's push "climate smart" strategies like energy efficiency and wetlands restoration that reduce GHGs, store carbon <u>and</u> prepare us for climate impacts.

One step towards meaningful GHG reduction should be regional leadership and advocacy for federal action on a carbon tax, cap and trade system, or other means to shift climate economics. With a carbon tax or some similar mechanism, a number of

Bay Area energy-related projects could turn from nice ideas into major strategies. Without it, we will never cut emissions enough.

H. Make Nature-Based Solutions an Integral Part of the Bay Area Approach

"Climate smart" conservation strategies and actions can help us to adapt to climate change while we attack what's producing a much warmer planet. These nature-based solutions can reduce GHGs, reduce climate impacts on wildlife and people, enhance our ability to adapt, and sustain vibrant, diverse ecosystems. Nature-based solutions can include projects like wetlands restoration, forest management, rangeland enhancement, and green infrastructure for storm water management. They boost the health of our ecosystems while providing critical products and services we need like coastal protection from storms, cooling urban heat islands, storing water for use during droughts and reducing energy use on extremely hot days. These solutions are often less expensive than hard infrastructure improvements and other capital-intensive approaches.

I. Reward Innovation

This is the most innovative region in the world. Climate adaptation presents big issues for us that look like they are beyond our current resources and organizational structures. Maybe we need to think differently. Let's bring thousands of individuals into the game—this effort cannot be just the work government agencies (who are often slow and set in their ways). How about a regional competition like the X-Prize to put our great thinkers to work on these issues? Could we structure something like Google allowing its employees to spend 20 percent of their time on independent projects? If anywhere in the world should be able to think "outside the box," it should be the Bay Area.

J. Secure Resources for the Public Health Sector

The public health sector has a major role to play in Bay Area climate adaptation, particularly on heat issues, but our county public health departments are not resourced for this additional work, and there is no regional structure for coordinating their involvement. We need to set up a regional coordinating and service program using an existing structure like the Bay Area Regional Health Inequities Initiative (BARHII) that can assist counties and represent us at the regional level. We must find the funding to support this as soon as possible.

K. Work Smarter with State Government

Pull all Bay Area players together on Issue X, so we can speak more powerfully to Sacramento, Sen. Feinstein, Sen. Boxer, etc. on what we need to succeed. Show them that we are united and putting our own resources into this fight. Figure out how to align our efforts with what the state is doing on adaptation. None of us can do this on our own, yet we keep going down that "siloed" path. The state is doing some good work on adaptation, but it appears to be disconnected from what we are doing in the Bay Area.

L. Work Together on 21st Century Regulatory Reform

Convene key parties to work on 21st century regulatory reform that will be difficult but critical to our climate success. Resolve conflicts between regulations. Streamline the process so we can do the right things for climate. Most everyone wants to do the right thing, but not if it costs a lot more and takes way more time.

Recommendations for Next Steps

The input provided by Bay Area stakeholders in this needs assessment points towards five overall approaches to improve Bay Area adaptation planning and build our regional resilience. Regional discussions over the next few months can advance this process by developing a set of next steps for each of these five categories. With limited resources available, strategic decisions on how to allocate these resources among the strategies will be important.

1. Increase support for major Bay Area *initiatives* such as the development of the Regional Sea Level Rise Strategy (building resilient shorelines) by BCDC and ABAG.

2. Increase support for *selected projects* run by single entities, e.g. cities, counties, special districts and community-based organizations or by peer-group coalitions such as BAWAC and BAFPPA that provide models for regional excellence.

3. Build a structure where diverse stakeholders from across sectors can work together for joint problem solving to address our toughest adaptation issues.

4. Support local and regional agencies in a) researching local climate impacts on highly vulnerable populations, b) creating clear processes to partner with community-based organizations in designing and implementing adaptation planning, and c) funding these community partnerships.

5. Clearly connect Bay Area climate adaptation initiatives to existing earthquake/disaster preparedness programs, economic development activities and our efforts to reduce greenhouse gas emissions.

Appendix A: Selected Bay Area Adaptation Projects

In the course of the stakeholder interviews, a number of key Bay Area projects and programs were identified. While not a comprehensive of listing of all Bay Area projects, the 90+ initiatives described below provide a good snapshot of Bay Area adaptation efforts in early 2013.

Section 1
Protecting & Enhancing Public Health — Heat, Air Pollution, Infectious Diseases

Selected Projects

1. **Cal-BRACE (Building Resilience Against Climate Effects)**
   Bay Area will be one major target area for new California Department of Public Health statewide climate change project, funded by the CDC. CDPH will work with local health departments to apply the CDC BRACE model (Building Resilience Against Climate Effects) including five steps to help develop comprehensive climate and health adaptation plans.

2. **Climate Ready Initiative — San Francisco Department of Public Health**
   CDC-funded pilot project by the San Francisco Department of Public Health to develop public health capacity and adaptation strategies to reduce human health impacts from climate change. The focus is on preventing heat stress morbidity and mortality from extreme heat events and associated air quality impacts, which are expected to increase in frequency and duration.

3. **County Public Health Department Adaptation Projects (partial list)**
   A number of county public health departments have begun climate adaptation-related activities. Marin County added an Extreme Temperature Annex, which includes both extreme heat and cold, to the county's Emergency Operations Plan. Contra Costa County is developing a Health in All Policies framework that includes climate change. Alameda County has participated in the Adapting to Rising Tides project. San Mateo County worked public health into the climate action plan template used by cities in the county. City of Berkeley public health department is involved in the city's climate change planning and emergency preparedness. Santa Clara County PHD plans to work with the County's Office of

Sustainability on multiple aspects of climate change, adaptation, and public health (including ethnic and social vulnerabilities) as part of the countywide adaptation initiative Silicon Valley 2.0.

4. **Mapping Climate Change Exposures, Vulnerabilities, and Adaptation to Public Health Risks in the San Francisco Bay Area and Fresno Regions**
   This excellent 2012 study by Michael Jerrett and colleagues for the state PIER program uses an environmental hazard inequality index and applies it to potential Oakland climate change impacts in order to identify and understand highly vulnerable populations.

5. **NRDC: Climate Change and Health**
   San Francisco office is very actively engaged on climate adaptation issues at the state level concerning health impacts from heat waves, air pollution, infectious diseases and other issues. Strong advocacy (including position papers and other printed material) for greater public health role in climate planning. Engaged with state-level Climate Action Team, FEMA, City of San Francisco, Cal-EMA, and others.

6. **Public Health Institute Climate Change White Paper and Mini-Grants**
   Statewide project, funded by the Kresge Foundation, to produce a white paper linking climate adaptation and mitigation to existing public health programs such as WIC, Nutrition Network, etc. Will include mini-grants for 3 topic areas — possible topics include urban heat islands, regional asthma management program, and community food programs.

SECTION 2

Protecting & Enhancing Bayside/Coastal Assets & Populations — Sea Level Rise and Extreme Storms

1. **Adapting to Rising Tides (East Bay – Bay Bridge to San Mateo Bridge)**
   BCDC leads this major sub-regional undertaking, a multi-stakeholder, 2-year project that is providing vast experience and lessons learned in planning for sea level rise and storm impacts.

2. **Adapting to Sea Level Rise Along the North Bay Shoreline**
   Project funded by the North Bay Watershed Association to support the shoreline of eastern Marin north to the Petaluma River. Project is being operated for the NBWA by PRBO Conservation Science.

3. **Contra Costa County Flood Control District — Sea Level Rise**
   CCCFCD's Mitch Avalon has written "Sea Level Rise and Our Low Lying Communities: A Flood Control Perspective" and is making presentations to

increase flood control district engagement on sea level rise and extreme storm events.

4. **Evaluating Tidal Marsh Sustainability in the Face of Sea-Level Rise: A Hybrid Modeling Approach Applied to San Francisco Bay.**

   Important scientific study led by Diana Stralberg for PRBO evaluating the sustainability and long-term resilience of marshes in the San Francisco Bay under a number of climate change scenarios. Suggests that under high sea level rise scenarios, marshes will suffer significantly, and proposes strategies for the preservation of marshes. Includes a web-based decision support tool to assist land managers in marsh adaptation.

5. **Flood Control 2.0**

   This project, managed by the San Francisco Estuary Partnership, is developing a set of innovative approaches for bringing environmental benefits and cost-savings to flood protection infrastructure along the San Francisco Bay shoreline. The strategy will use channel redesign where sufficient adjacent land use flexibility exists, and sediment redistribution for highly constrained channels. Focused on creek mouths for San Francisquito Creek, lower Novato Creek, and lower Walnut Creek.

6. **Gulf of the Farallones National Marine Sanctuary Ocean Climate Initiative Action Plan**

   Sanctuary staff is developing the Ocean Climate Initiative (OCI) Action Plan in four chapters: Conservation Science; Education and Outreach; Adaptive Management and Policy; and Green Operations (completed). Includes 2010 report *Climate Change Impacts: Gulf of the Farallones and Cordell Bank National Marine Sanctuaries.*

7. **Hayward Shoreline Area Planning Agency (HASPA) Sea Level Rise Project**

   Innovative project to develop strategies to protect Hayward shoreline from sea level rise. Run by a joint powers agency including Hayward, East Bay Regional Parks District, and Hayward Area Recreation and Parks District. One of the Bay Area pioneers for cross-sector problem-solving for climate impacts.

8. **Innovative Wetland Adaptation Strategies Study (Corte Madera Creek)**

   One of the first Bay Area projects to examine how to reduce the vulnerability of tidal wetlands to sea level rise. $600K US EPA grant. Run by USGS, USF, consultants and Marin County Flood Control District.

9. **King Tides Initiative**

   Encourages the public to document the highest seasonal tides (King Tides) to help people visualize the impact of rising waters on the California coast. Documents impacts to private property, infrastructure and wildlife habitat, and offers a glimpse of what daily tides may look like in the future as a result of sea level rise.

10. **Ocean Beach Master Plan for Sea Level Rise**

SPUR-led collaborative project to develop long-range master plan for San Francisco's Ocean Beach area to address the impact of rising seas, the physical and ecological processes shaping the beach, and improved integration with its natural, recreational, and urban contexts.

11. **Our Coast-Our Future: Planning for Sea Level Rise and Storm Hazards Along the Bay Area's Outer Coast**
    Major project, led by Gulf of the Farallones NMS, PRBO and USGS, providing Bay Area natural resource managers, local governments and others with science-based decision-support tools to help Bay Area communities understand, visualize, and anticipate local coastal climate change impacts. Beta version for coast flooding is available now for testing.

12. **PRBO San Francisco Bay Sea-Level Rise Decision Support Tool**
    This new online decision support tool with help managers, planners, conservation practitioners and scientists study sea level rise impacts on Bay Area tidal marshes and bird habitat.

13. **Regional Sea Level Rise Strategy**
    Three-task work plan, approved by the JPC in September 2012, for BCDC and ABAG to lead the development of a regional sea level rise strategy (Item 6, 9/21/12 agenda). The strategy follows on the BCDC Bay Plan Climate Change Amendment (2011), and builds on BCDC's extensive climate change program.

14. **San Francisco Bay and Outer Coast Sentinel Site Cooperative**
    The Bay Area Sentinel Site Cooperative enhances current NOAA and NOAA partner efforts on climate change projects and programs addressing sea level rise and storms along the coast, and within San Francisco Bay. The NOAA Sentinel Site Program provides a place-based, issue-driven approach to ask and answer questions of local, regional, and national significance that affect both NOAA Trust Resources and the surrounding communities.

15. **San Francisco Bay Joint Venture — Climate Change**
    SFBJV, one of eighteen Joint Ventures established by the federal government, brings together public and private agencies, conservation groups, development interests, and others to restore wetlands and wildlife habitat in San Francisco Bay watersheds and along the Pacific coasts of San Mateo, Marin and Sonoma counties. SFBJV is engaged on climate change with its Bay Area partners, including producing a white paper, *Wetland Restoration And Projected Impacts From Climate Change - Recommendations For And By Partners Of The San Francisco Bay Joint Venture*.

16. **San Francisco Bay Keeper**
    Actively engaged in the BCDC Bay Plan amendment process for sea level rise, King Tides Initiative, and other climate-related actions. Since 1989, Baykeeper

has been an important pollution watchdog for San Francisco Bay, using science and advocacy to strengthen clean water laws and hold polluters accountable.

17. **San Francisco Bay Restoration Authority**
New regional government agency charged with raising and allocating resources for the restoration, enhancement, protection, and enjoyment of wetlands and wildlife habitat in the San Francisco Bay and along its shoreline. The Authority was created by the California legislature in 2008 with the enactment of AB 2954 (Lieber). Sam Schuchat (Coastal Conservancy ED) is the Chair. Save the Bay's 2007 report "*Greening the Bay: Financing Wetland Restoration in San Francisco Bay*" recommended formation of the Authority.

18. **San Francisco Bay Subtidal Habitat Goals Project**
Joint project of BCDC/OPC/SCC/NOAA/SFEP providing conservation planning for the submerged areas of the bay through a collaborative, regional effort to advance understanding and conduct future science-based protection and restoration.

19. **San Francisco Estuary Partnership Climate Ready Estuaries Pilot Project**
Project goal is to provide place-based information on the potential implications of climate change for estuarine ecosystems and processes in a form that will enable managers to undertake adaptation planning. Focus is on San Pablo Bay salt marshes and mudflats for sediment retention and community interactions.

20. **San Francisquito Creek Project JPA Highway 101 to Bay Capital Project**
This SFCJPA-BCDC-SFEP project aims to reduce flood risks in East Palo Alto and Palo Alto along a flood-prone reach of the creek from Highway 101 to San Francisco Bay. Planned for bay tides and 50 years of future Sea Level Rise within the creek in concert with the SFCJPA's planned levee system. The project will also provide the capacity needed for upstream flood protection projects, significantly benefit the habitat of three endangered species in the area, and improve Bay trails and outdoor education opportunities.

21. **Save the Bay — Wetlands Restoration**
Save the Bay is working with partners to save 100,000 acres of wetlands in the San Francisco Bay. Wetlands provide vital habitat, and have a direct link to climate change by (a) capturing and storing greenhouse gasses from earth's atmosphere and (b) serving as buffers against storms, flooding, and erosion control

22. **South Bay $1 Billion Funding Drive to Protect Silicon Valley**
Moore Foundation, South Bay business leaders and other stakeholders are initiating a major project to protect the South Bay from sea level rise and extreme storms.

23. **South Bay Salt Pond Restoration Project**
The largest tidal wetland restoration project on the West Coast, led by the Coastal Conservancy with a series of Bay Area partners. Unprecedented restoration effort

in the middle of a major urban center, will transform a landscape the size of Manhattan into a thriving wetland ecosystem— providing a critical natural buffer against the effects of global climate change and sea level rise.

24. **South San Francisco Bay Shoreline Study**
    Congressionally-authorized study being performed by the US Army Corps of Engineers together with the Santa Clara Valley Water District, City of San Jose, Coastal Conservancy and other local partners in Santa Clara County and parts of Alameda County. Purpose is to identify and recommend for federal funding one or more projects for flood damage reduction, ecosystem restoration and related issues such as public access. Includes impacts of sea level rise.

25. **State of California Coastal Conservancy Climate Change Policy & Project Selection Criteria**
    Two important documents from one of the key players on California sea level rise. Describes impacts and identifies the Conservancy's legislative directives, strategies, and project criteria.

26. **The Horizontal Levee**
    The Bay Institute's groundbreaking study about the economic value of tidal marshes, demonstrates that nature performs critical performs critical functions for society. During the era of sea level rise, the marshlands of San Francisco Bay have become a critical adaptation tool. The study shows that restoration of San Francisco Bay's tidal marshes is one of the best and most inexpensive ways to protect valuable shoreline development from sea level rise during the next several decades. By using tidal marshes in combination with earthen levees, construction and maintenance costs can be reduced by almost 50%.

SECTION 3

Protecting & Enhancing Bay Area Ecosystems/Biodiversity — Heat, Drought, Extreme Storms, and Ocean Acidification

1. **Bay Area Ecosystems Climate Change Consortium**
   THE model consortium for the entire region (and the best name!), BAECCC assesses the impacts of climate change on Bay Area ecosystems, and identifies management actions to address those impacts. BAECCC fosters collaboration among natural resource managers, scientists, and others interested in climate change and the future of the San Francisco Bay Area through three elements—communication & coordination, strategic science, and management applications.

2. **Climate Change, Conservation & Land Use: A Sonoma County Pilot Project**
   The Sonoma County Agricultural Preservation and Open Space District and The Nature Conservancy are collaborating to help Sonoma County, and ultimately other counties

across California, address climate change through natural resource conservation and land use. This will be accomplished by developing a replicable countywide portfolio of tools, policies and economic incentives for Sonoma County that facilitate the conservation of priority natural and working landscapes and urban forests to optimize climate benefits, as well as other critical public benefits for the region.

3. **California Climate Commons**

   The California Climate Commons offers a point of access to:

   - Climate change and related environmental data,
   - Helpful information about the data and the science that produced it,
   - Web resources, services, and tools, and
   - The opportunity to communicate with others about applying climate adaptation to conservation practice in California.
   -

4. **Conservation Lands Network/Upland Habitat Goals Project**

   Five-year science-based study of 4.3 million acres and over 1,000 plant and animal targets by over 125 organizations and individuals. The study aimed to identify the most essential Bay Area lands needed to sustain biological diversity. It was designed to recommend the types, amounts and distribution of conservation lands as well as actions needed to sustain diverse and healthy communities of plant, fish and wildlife resources in the nine counties. The study is intended to serve as a guide for selecting areas to be conserved for public and private conservation practitioners.

5. **Marin Carbon Project**

   The Marin Carbon Project was formed to establish the basis for soil carbon sequestration on local rangelands (grazing lands on ranches and wide open spaces). The project emphasizes the value of *local* soil carbon sequestration, to provide ecological and agricultural benefit to rural communities while making full use of educational opportunities in regard to climate change. It is a collaboration between UC Berkeley, UC Davis, UC Cooperative Extension, Marin Organic, Marin Agricultural Land Trust, Marin Resource Conservation District, the USDA Natural Resources Conservation Service, and Nicasio Native Grass Ranch.

6. **North Bay Climate Adaptation Initiative**

   NBCAI facilitates work between technical experts, land managers and policymakers in support of effective local scale climate adaptation strategies that preserve natural resources, biodiversity, and ecosystem services. NBCAI's purpose is to implement effective climate adaptation strategies that sustain ecological and human communities in North San Francisco Bay watersheds. It is currently scoping a possible countywide vulnerability assessment.

7. **PRBO Climate Change Program**

   PRBO's collaborative research program on climate change is aimed at revealing what climate change might mean for Bay Area ecosystem conservation. Current topic areas include "Birds—Indicators of a Changing Climate," "Using the Past to Plan the Future," and "Guiding Conservation in a Changing Climate." PRBO

works in close partnership with government agencies, nonprofits, academics, and the public to guide effective conservation investments.

8. **Preparing for Climate Change with Scenarios: A Marin County Case Study**
   "The Futures of Wild Marin," a one-day workshop using scenario planning, conducted by Sara Moore, Climate Adaptation Consultant, working with conservation managers in Marin County. The workshop and related research are reported in *"Decision-Making Under Uncertainty: An Assessment of Adaptation Strategies and Scenario Development for Resource Managers*, produced for the state PIER program in 2012.

9. **Save the Redwoods Climate Change Initiative**
   The League and scientists from UC Berkeley and Humboldt State University have launched the multi-year Redwoods and Climate Change Initiative to create a comprehensive climate adaptation strategy for the redwoods. Their findings will help focus League efforts on where to protect and restore redwood forestland according to climate change forecasts.

10. **Mt. Hamilton Landscape Conservation and Climate Response and Hazard Reduction**
    Project by the Nature Conservancy and the University of California focuses on microclimate research at the Blue Oak Ranch Reserve and on connectivity along the Pajaro River. The goal is to develop streamlined, standardized protocols and methods that can be used as conservation planning guidelines for other areas threatened by climate change. The project seeks to develop better–quicker, cheaper, more accurate–means of assessment that are cost-effective, reliable ways to evaluate and deal with climate impacts across a variety of landscapes.

10. **Terrestrial Biodiversity Climate Change Consortium (TBC3)**
    Interdisciplinary team of ecologists and earth scientists focused on the development of applied science products to define potential impacts of climate change on the Bay Area and the implications for management of the region's conservation lands, both from the perspective of maximizing the biological value of those lands and the ecosystem services they provide human communities.

SECTION 4

Protecting & Enhancing Water & Energy Supplies — Drought, Reduced Snowpack, Heat, & Extreme Storm Events

WATER

1. **ARK Storm Scenario.**

U.S. Geological Survey Multi Hazards Demonstration Project. Analysis of the consequences a large, scientifically realistic winter storm scenario (500 to 1,000 year storm event) and its secondary hazards such as flooding and landslides, including physical damages to the built environment and social and economic consequences.

2. **Bay Area Integrated Regional Water Management Plan (2013)**
   Integrated plan for Bay Area water agencies includes section on climate change impacts for the first time. Will feature recommended next steps for climate change strategy development. Plan will be completed in 2013.

3. **Bay Delta Conservation Plan (Natural Resources Agency)**
   Appendices 2.C and 5.A.2 are documents particularly focused on climate change. The BDCP is being prepared by a group of local water agencies, environmental and conservation organizations, state and federal agencies, and other interest groups.

4. **Delta Stewardship Council—Delta Management Plan**
   7-member board created by State legislation in 2010 to achieve 2 co-equal goals—ensuring a reliable water supply and protecting, restoring and enhancing the Delta ecosystem. The final draft of Delta Management Plan was approved in September 2012..

5. **Delta Vision Strategic Plan**
   Comprehensive plan, two years in the making, provides a suite of strategic recommendations for long-term, sustainable management of the Sacramento-San Joaquin Delta. The Delta provides two-thirds of Californians – an estimated 25 million people – with some of their water and is home to more than 750 plants and animals that, in some cases, are unique to the Delta.

6. **EBMUD Climate Change Planning**
   In 2008, EBMUD incorporated climate change into its Strategic Plan and has developed and implemented a climate change monitoring and response plan to inform future water supply, water quality, and infrastructure planning. Current activities include assessing potential effects of climate change in the Mokelumne and East Bay watersheds, determining water supply and infrastructure vulnerabilities, integrating climate change in strategic planning and budgeting decisions, advocating for new legislation and regulations that help water and wastewater agencies better respond to climate change, and developing adaptation and mitigation strategies as part of a water supply management program.

7. **North Bay Watershed Association — Climate Change**
   NBWA brings together a range of North Bay organizations—cities, water districts, wastewater agencies, stormwater agencies, flood control and others—to facilitate partnerships that protect and enhance North San Pablo Bay watershed resources. NBWA works directly with PRBO and NBCAI on adaptation issues

and is funding the project "Adapting to Sea Level Rise Along the North Bay Shoreline."

8. **Santa Clara Valley Water District**
   SCVWD very active in adaptation activities including major work with partners on flood control, South Bay salt pond restoration, maintaining stream/creek habitat, expanding water re-use and conservation programs, adjusting to changes in local precipitation, and long-term water supply planning. SCVWD also maintains the Climate Change Portal, a searchable database compiling reports and other technical literature on climate change and how it could affect the agency.

9. **SF PUC Study: Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios (2012) (Item 9)**
   Major climate change study by SFPUC on climate change impacts on the primary source of San Francisco water supply.

10. **Sonoma County Water Agency Adaptation Projects**
    The SCWA is conducting a number of climate adaptation projects. This includes a USGS Climate Change Study featuring downscaling models for the Russian River watershed and a NOAA Weather Forecasting Project to improve National Weather Service short-range precipitation and forecasts, as well as temperature forecasting for wine industry (high heat events and frost protection). SCWA, as the largest energy user in the county, is also working towards being carbon neutral by 2015 by diversifying its energy portfolio and reducing its energy and fuel needs through efficiency and renewable energy production.

11. **Future-Proof Water: Where the Bay Area Should Get Its Water in the 21st Century**
    New SPUR report (March 2013) that analyzes the Bay Area's current water supplies and future growth projections, then recommends the best tools for meeting our water needs — both in the near term and through the end of the century.

ENERGY

1. **Bay Area Bridge to the Clean Economy**
   Major project run the Bay Area Climate Collaborative to advance initiatives on energy efficiency, renewable power, and energy efficiency.

2. **Bay Area Smart Energy 2020**
   Comprehensive 2012 plan for how to significantly reduce Bay Area building energy use by 2020 through efficiency, conservation, renewable power and other means.

3. **Clean Coalition**
   The Clean Coalition, headquartered in Palo Alto, is a nonprofit working in the Bay Area and beyond to accelerate the transition to a modern energy system where smaller-scale, efficient, renewable energy projects deliver affordable and reliable power to communities.

4. **Energy Upgrade California**
   The State of California's latest energy efficiency program for homeowners. Customized by each participating county and coordinated by ABAG in the Bay Area. Planning is underway now for CPUC-approve Regional Energy Networks to coordinate EE work in each metro area. ABAG will coordinate the Bay Area REN with its partners.

5. **Grid Alternatives — Bay Area**
   Both a nonprofit organization and a licensed solar installer, GRID Alternatives' flagship Solar Affordable Housing Program trains and leads teams of job trainees and other community members to install solar electric systems exclusively for low-income families throughout California. GRID Alternatives has installed solar for hundreds of low-income homeowners in the Bay Area region to-date, with the highest concentrations in Oakland, Richmond, and the Bayview district of San Francisco.

6. **Local Clean Energy Alliance**
   The Bay Area's largest clean energy coalition, with 90 affiliated member organizations, working for a clean energy future in the region. The Local Clean Energy Alliance works for the development of local energy resources to create sustainable business, advance social equity, and promote community resilience.

7. **Marin Clean Energy**
   The Bay Area's first "community choice aggregation" electricity provider offers 50% renewable power at a market rate and 100% renewable power for a small premium. Richmond has voted to join the Marin program. Two other counties are in the development stage for similar locally-operated energy networks—CleanPower SF and Sonoma Clean Power.

8. **PG&E — Climate Change**
   PG&E is doing substantial work to address climate change impacts—including heat, reduced snowpack, changes in rainfall patterns, extreme storm events, and sea level rise—that combined with projected increases in electricity demand in a hotter climate will significantly affect its operations. PG&E commissioned its first technical study on climate change's potential physical impacts on operations in 1989. Since 2008, PG&E has maintained a cross-functional team to explore and communicate climate-related risks within the company. PG&E is also implementing a number of projects to reduce greenhouse gas emissions from its power generating system.

9. **Regional Renewable Energy Procurement Project (R-REP)**
   Innovative and expanding partnership of Alameda County, Joint Venture Silicon Valley, and Diablo Innovation Alliance to coordinate public agencies in four counties to collaboratively purchase clean-energy systems. Benefits include 10-15% cost savings over bidding out projects individually, 75% reduction in transaction and administrative time, and highly competitive contract terms compared to individual projects.

10. **Solar Sonoma County**
    Supports innovative solar power and energy efficiency policy programs, educates and trains community members in these fields about solar power and solar energy, advocates for a rapidly growing industry, and acts as a clearinghouse for clean energy activity in Sonoma County.

11. **Two Degrees: The Built Environment and Our Changing Climate**
    New big book co-authored by ARUP's San Francisco-based Cole Roberts includes a number of excellent chapters on adaptation.

SECTION 5

Protecting & Enhancing Transportation Infrastructure — Sea Level Rise, Extreme Storms and Heat

1. **Adapting to Rising Tides: Transportation Vulnerability and Risk Assessment Pilot Project**
   This MTC-led $600,000 project with BCDC, Caltrans and others assessed the risks from sea level rise for transportation infrastructure along the section of the Alameda County shoreline included in the ART project. Study was completed in 2011.

2. **Caltrans Guidance for Incorporating Sea Level Rise in the Project Initiation Document Process**
   2011 document for assessing sea level rise in transportation projects in the project planning process. Working on a second guidance (mid-2013) for regional agencies titled "Adapting Climate Change Adaptation in Regional Transportation Plans: A Guide for California MPOs and RTPAs."

3. **Port of San Francisco Sea Level Rise Project**
   Study by the Port's Engineering Division examining potential future flood risk from sea level rise on Port property. The URS/AGS study provided an estimate of sea level rise for the San Francisco bay shoreline managed by the Port from Mission Bay to Fisherman's Wharf. The team also provided mitigating/adaptation alternatives with associated costs.

4. **Transportation Agency Climate Projects (partial list)**

BART participated in the Adapting to Rising Tides Project and is conducting other studies of its climate vulnerabilities. Caltrain is looking at their vulnerability to sea level rise for trains and shuttles plus other possible future climate change issues. Capitol Corridor participated in the ART project and is reviewing its vulnerabilities along San Francisco Bay. SF MTA has nearly completed a second climate action plan that will include adaptation. Alameda County Transportation Commission participated in the ART project. The Transportation Authority of Marin is investigating vulnerabilities to sea level rise for roads and transit services.

SECTION 6

Multi-Impact Projects —

Food/Energy Prices, Heat, Extreme Storms, Sea Level Rise, Drought, and More

Climate Change Impacts, Vulnerabilities and Adaptation in the San Francisco Bay Area: A Synthesis of PIER Program Reports and Other Relevant Research (2012) Julia Ekstrom and Susanne Moser. California Climate Change Center. *PIER summary report on Bay Area climate impacts.*

Identifying and Overcoming Barriers to Climate Change Adaptation in San Francisco Bay: Results from Case Studies. (2012) Susanne Moser and Julia Ekstrom. California Climate Change Center. *PIER report on the Bay Area expected to be published in SUMMER 2012.*

San Francisco Bay: A Regional Focus. Nine research reports on the San Francisco Bay Area published by the PIER program in 2012 as part of the state's Third Assessment from the California Climate Change Center. Topics include public health, sea level rise, agriculture, electricity consumption, water management, community-based adaptation planning, transportation, climate scenarios and barriers to planning.

1. **ABAG Regional Resilience Program**
   18-month, region-wide initiative to develop a collaborative process through which Bay Area stakeholders can progressively build resilience through joint planning for recovery. ABAG's Regional Hazards Maps and Information site includes maps for wildfires, sea level rise, floods and other climate-related impacts.

2. **Bay Area Regional Health Inequities Initiative (BARHII)**
   Regional undertaking by local health departments in the Bay Area to confront health inequities. Producing health and climate change fact sheets. Has focused considerable attention on SB 375 planning for Bay Area. Includes public health directors, health officers, senior managers and staff from all nine counties. Produced the *Healthy Planning Guide*.

3. **Bay Localize Community Resilience Toolkit 2.0**
   Released first edition of Community Resilience Toolkit in 2009, second edition in 2012. The *Toolkit 2.0* is a collection of online tools to help individuals and organizations understand local impacts of the climate and energy crisis in their region and they can do about them. The tools are for individuals, community groups, teachers, and municipal planners.

4. **Brightline Defense Project**
   San Francisco-based policy advocacy organization that works to promote sustainability in vulnerable communities. Focus is on quality-of-life improvements in low-income communities and communities of color, particularly those historically polluted by dirty power plants. Programs include renewable energy, environmental justice, green jobs, and local hiring.

5. **City of Berkeley Climate Action Plan — Adaptation Section**
   City of Berkeley actively involved with climate adaptation, investigating impacts on waterfront, sewer system, public health, storm runoff, electricity system, water supply, and other issues.

6. **City of Pinole General Plan — Climate Adaptation**
   Pinole addressed climate change through its general plan update. Community visioning was an important part of the process. The general plan addresses climate change adaptation and mitigation through more than 90 policies and actions, all developed under the umbrella of long-term sustainability.

7. **City of Oakland Energy and Climate Action Plan — Adaptation Section**
   Oakland's comprehensive Energy and Climate Action Plan includes a climate adaptation section that features three actions for the next three years—studying the potential of local climate impacts, communicating climate impacts to the community, and indentifying and acting on opportunities to improve resilience through city plans and policies. Oakland has participated in the ART project and is now exploring how to include local climate impacts—sea level rise, storms, heat, food/energy prices, etc.—in a meaningful way in upcoming neighborhood and community plans.

8. **City & County of San Francisco Adaptation Projects (partial list)**
   Adaptation will be included in the city's 2013 Climate Action Plan. SFO is working on shoreline protection strategies. Treasure Island development conducted a major sea level rise study. Planning Department is looking at climate impacts in relation to San Francisco expecting to absorb a large portion of the Bay Area's expected population growth over next two decades. Recreation and Parks Department is looking how parks can help mitigate heat and other impacts. Community resilience planning work is going on through the City Administrator's Office in conjunction with neighborhood organizations. (Other SF projects are listed elsewhere in this document under water, sea level rise and health.)

9. **City of San Jose Adaptation Projects**

Climate adaptation is included in Envision 2040, the city's highly innovative general plan approved in 2011. City very active on flood control, tree planting (urban heat island) water conservation and re-use, and other climate-related measures.

10. **Communities for a Better Environment — Climate Justice**
    CBE is committed to climate justice—policies that combat climate change and sustain, protect and support communities around the world. CBE works with California communities living with the effects of local pollution. Through its clean energy work, CBE is working to help California transition away from reliance on fossil fuels, toward an energy system that is a renewable, rather than one that causes global warming, hastening climate impacts.

11. **Community Food and Justice Coalition — Climate Change**
    Oakland-based organization that is expanding its climate change activities—focus is on the nexus of food and nutrition, public health, and the effects of climate change on the most vulnerable communities. The heath effects of climate change disproportionately impact low-income communities and people of color, acting as a stress multiplier in communities with already high burdens of disease and food insecurity.

12. **Grand Boulevard Initiative**
    Good example of "holistic" transportation/land use project in Bay Area that will reduce energy use, promote healthy activities, bolster local economies, and allow residents/workers to better withstand energy price and supply shocks. A Collaboration of 30 cities, agencies and other organizations working together to help El Camino Real to achieve its full potential. Joint Venture Silicon Valley coordinates this effort with four partners: City/County Association of Governments of San Mateo County (C/CAG), San Mateo County Transit District (SamTrans), Santa Clara Valley Transportation Authority (VTA), and SAMCEDA (San Mateo County Economic Development Association).

13. **Greenlining Institute — Climate Change**
    Key players in the successful legislative fight to allocate $$ from California's new cap and trade program to areas that are disproportionately impacted by pollution and suffering from unemployment and other economic problems. SB 535 (de Leon) requires that 25 percent of the cap and trade fund go towards projects that would benefit these areas and at least 10 percent of the fund must be allocated to projects in disadvantaged communities for programs to reduce pollution and develop clean energy.

14. **Movement Generation Justice and Ecology Project**
    Provides in-depth information and analysis about the global ecological crisis and facilitates strategic planning for action among organizers from urban Bay Area organizations working for economic and racial justice in communities of color. A major focus is Resilience-Based Organizing.

15. **Resilient SF**
ResilientSF is a framework and road map, that coordinates plans, programs, resources and relationships that advance San Francisco's overall resilience. Launched by the City Administrator's Office in 2010, inclusivity is a key element of the ResilientSF initiative. By breaking resilience down into key categories (environmental, economic, public health, safety, etc.) this new framework is designed to offer stakeholder organizations from all policy areas a self identified entry point.

17. **San Mateo County —Regionally Integrated Climate Action Planning Suite (RICAPS)**
Adaptation to sea level rise, heat, and other climate impacts are included in the climate adaptation chapter of the climate action plan template currently being used by cities and the County. Each city in San Mateo County has the opportunity to develop its own plan using tools developed by C/CAG in conjunction with two sets of consultants

18. **Sierra Club SB 375 Working Group (3 Chapters)**
Redwood, Loma Prieta, and SF Bay chapters working together on Sustainable Communities Strategy (SB 375) including impacts of sea level rise and Bay Area adaptation issues.

19. **Silicon Valley 2.0 (Santa Clara County Office of Sustainability)**
Will produce an adaptation strategic plan and decision-making tool under a grant from the Strategic Growth Council. SV 2.0 takes a risk management approach to for climate change impacts on four principal infrastructures (Transportation, Energy, Water, and the "Human Capital" infrastructure system). Will engage stakeholders to create a framework of adaptation strategies and measures for sustaining the region's "livability/desirability index". SV 2.0 also includes an Economic Resiliency Element to provide strategies for local economies (principally innovation technology and agriculture).

20. **West Oakland Environmental Indicators Project—Climate Adaptation**
WOEIP's climate adaptation focus includes the West Oakland Climate Action Committee. WOEIP was a key part of the recent study conducted by the Pacific Institute, *Community-Based Climate Adaptation Planning: A Case Study of Oakland, California* for the State's PIER program.

21. **Youth United for Community Action (YUCA)**
Youth United for Community Action (YUCA), is a grassroots community organization (with a major focus on East Palo Alto) created, led, and run by young people of color, majority from low-income communities. YUCA provides helps young people to empower themselves and work on environmental and social justice issues to establish positive systemic change through grassroots community organizing.

Appendix B: List of Participants

Stakeholder input was received through individual interviews, joint interviews and group discussions with the individuals listed below.

Getting stakeholder input on Bay Area climate adaptation is an on-going process. In the coming months, we will expand and broaden the network represented in this report.

Alan Zelenka, Kennedy Jencks

Alicia Chakrabarti, EBMUD

Ann Draper, Santa Clara Valley Water District

Beth Walukas, Alameda County Transportation Commission

Cole Roberts, ARUP

Demetra McBride, Santa Clara County

Gary Napper, City Manager, City of Clayton

Harry Seraydarian, North Bay Watersheds Association

Ian Wren, San Francisco Bay Keeper

Jeremy Lowe, PWA ESA

Len Materman, San Francisquito Creek JPA

Linda Jackson, Transportation Authority of Marin

Linda Rudolph, Public Health Institute

Louis Blumberg, The Nature Conservancy

Maria Sander, City of El Cerrito

Michael Chandler, City of Martinez

Mike Connor, East Bay Dischargers Authority

Mike Ferreria, Sierra Club Loma Prieta Chapter

Mike Mielke, Silicon Valley Leadership Group

Miriam Rotkin-Ellman, NRDC

Mitch Avalon, Contra Costa County

Paul Helliker, California Department of Water Resources

Richard Fahey, Caltrans

Robert Dickinson, Argos Analytics, LLC

Sandi Galvez, Bay Area Regional Health Inequities Initiative

Stephen Knight, Save the Bay

Susan Wright, San Mateo County

Suzanne Smith, Sonoma County Regional Climate Protection Authority
Lauren Casey, Sonoma County Regional Climate Protection Authority

Marina Psaros, Our Coast, Our Future
Kelley Higgason, Our Coast, Our Future

Kara Goss, Joint Venture Silicon Valley
Rachel Massero, Joint Venture Silicon Valley

Ellie Cohen, PRBO Conservation Science
Grant Ballard, PRBO Conservation Science

Caitlin Cornwall, Sonoma Ecology Center/North Bay Climate Adaptation Initiative
Lisa Micheli, Pepperwood Foundation

Garrett Fitzgerald, City of Oakland
Heather Klein, City of Oakland

Joe LaClair, Bay Conservation and Development Commission
Steve Goldbeck, Bay Conservation and Development Commission

Laurel Prevetti, City of San José
Kerrie Romanow, City of San José
Scott Green, City of San José

Dana Brechwald, ABAG
Danielle Hutchings Mieler, ABAG
Arrietta Chakos, Consultant

City of Berkeley Group Meeting
Neal DeSnoo, City of Berkeley
Timothy Burroughs, City of Berkeley
Sara Lana, City of Berkeley
John Mann, City of Berkeley
Alex Roshal, City of Berkeley
Sue Ferrera, City of Berkeley
Phil Harrington, City of Berkeley
Suzanne Ridel, City of Berkeley

Transit Agencies Group Meeting
Douglas Kim, Caltrain/SamTrans
Jim Allison, Capitol Corridor
Peter Brown, SFMTA
Val Menotti, BART

Brenda Dix, Metropolitan Transportation Commission

SCWA Group Meeting
Grant Davis, Sonoma County Water Agency
Chris Delaney, Sonoma County Water Agency
Dale Roberts, Sonoma County Water Agency
Jay Jasperse, Sonoma County Water Agency
Cordel Stillman, Sonoma County Water Agency

PG&E Group Meeting
Donald Price, PG&E
Chris Benjamin, PG&E
Diane Ross-Leach, PG&E
Francois Rongere, PG&E
Gary Freeman, PG&E
Gina Blus, PG&E
Matthew Sturm, PG&E

Bay Area Business Coalition Group Meeting
Jim Wunderman, Bay Area Council
Mike Mielke, Silicon Valley Leadership Group
Paul Campos, Building Industry Association
Linda Best, Contra Costa Council
Karen Engel, East Bay Economic Development Alliance
Catherine Lyons, Bay Area Council
Diana Bautista, San Mateo County Economic Development Association
Genevieve Herreria, Bay Area Council
Ariel Stephens, Bay Planning Coalition

Public Health Group Meeting
Mona Mena, Alameda County
Muntu Davis, Alameda County
Sara Mayer, San Mateo County
Dean Peterson, San Mateo County
Heidi Merchen, Napa County
Marquita Marquis, Napa County
Sandi, Galvez, Bay Area Regional Health Inequities Initiative
Solange Gould, Bay Area Regional Health Inequities Initiative
Linda Rudolph, Public Health Institute
Janet Berryman, City of Berkeley
Suzanne Ridel, City of Berkeley
Peter Rumble, Sonoma County
Rochelle Ereman, Marin County
Kathy Koblick, Marin County
Alice Kinner, Marin County
Will Dominie, Contra Costa County

Michael Kent, Contra Costa County
Joanne Genet, Contra Costa County
Susan Stuart, County of Santa Clara
Cyndy Comerford Scully, City and County of San Francisco
Ted Selby, Solano County
Kathy Dervin, California Department of Public Health
Paul English, California Department of Public Health
Neil Maizlish, California Department of Public Health
Kirsten Schwind, Bay Localize

San Francisco Group Meeting
Melanie Nutter, SF Environment
Adam Stern, SF Environment
Calla Ostrander, SF Environment
David Behar, SFPUC
Tommy Moala, SFPUC
Cyndy Comerford, SFDPH
Mina Mohammadi, SFDPH
Richard Berman, Port of San Francisco
Uday Prasad, Port of San Francisco
Timothy Papandreou, SFMTA
Peter Brown, SFMTA
Craig Raphael, SFMTA
Nixon Lam, SFO
Jose Campos, SF Planning Department
Scott Edmondson, SF Planning Department
Kate McGee, SF Planning Department
Michael Tymoff, Treasure Island Development Authority
Ana Alvarez, SF Parks and Open Space
Daniel Homsey, City Administrator's Office

Resilience and Equity Group Meeting
Sandi Galvez, Bay Area Health Inequities Initiative
Carl Anthony, Breakthrough Communities
Paloma Pavel, Breakthrough Communities
Joshua Arce, Brightline Defense Project
Linda Rudolph, California Department of Health
Brooke Sommerfeldt, California Department of Health
Marna Schwartz, City of Berkeley
Nile Malloy, Communities for a Better Environment
Eric Middleton, Community Food and Justice Coalition
Michael Kent, Contra Costa Health Services
Sandra Hamlat, East Bay Bike Coalition
Martin Bourque, Ecology Center
Marie Harrison, Greenaction for Health and Environmental Justice
Ryan Young, Greenlining Institute

Janine Macbeth, Greenlining Institute
Mara Meaney-Ervin, GRID Alternatives
Mateo Nube, Movement Generation
Catalina Garzon, Pacific Institute
Alicia Garza, POWER
Jill Ratner, Rose Foundation
Adam Stern, SF Environment
Karen Pierce, San Francisco Department of Public Health
Richard Burnett, SolTrans Advisory Committee
Laura Tam, SPUR
Francesca Vietor, The San Francisco Foundation
Mara Wilson, The San Francisco Foundation
Becky Weinberg, The San Francisco Foundation
Kate White, The San Francisco Foundation
Scott Yundt, Tri-Valley CAREs
Rev. Earl Koteen, UU Ministries
Lindsay Imai, Urban Habitat
Annie Loya, Youth United for Community Action
Margaret Gordon, West Oakland Environmental Indicators Project
Kirsten Schwind, Bay Localize
Corrine Van Hook, Bay Localize
Tatiana Chaterji, Bay Localize