

FINAL DRAFT, 2/5/08



# LOCAL ACTION PLAN FOR CLIMATE PROTECTION

---

PREPARED BY THE CITY OF ALAMEDA  
CLIMATE PROTECTION TASK FORCE AND THE  
PLANNING AND BUILDING DEPARTMENT

As Part of the Cities for Climate Protection Campaign

Adopted on \_\_\_\_\_



City of Alameda Planning and Building Department  
2263 Santa Clara Avenue, Room 190, Alameda, CA 94501

FINAL DRAFT, 2/5/08

Table of Contents

Message from the Mayor.....4  
 Message from the Climate Protection Task Force.....6

**I. Executive Summary ..... 7**

**II. Introduction ..... 11**

    Climate Change: A Global Phenomenon that Impacts the Local Level..... 11  
 Signs of Ongoing Climate Change ..... 13  
 The City of Alameda’s Commitment to Sustainability..... 15  
 Five Milestones to Reduce Greenhouse Gas and Air Pollution Emissions ..... 16

**III. Alameda Greenhouse Gas Emissions and Reduction Target ..... 18**

    Transportation..... 19  
 Energy.....20  
 Solid Waste and Recycling.....20  
 Alameda Greenhouse Gas Emissions Forecast ..... 21  
 Greenhouse Gas Emissions Reduction Target..... 21

**IV. Local Action Plan for Climate Protection Initiatives ..... 24**

    Transportation and Land Use Initiatives..... 24  
 Energy Initiatives..... 28  
 Waste and Recycling Initiatives..... 30  
 Outreach and Education Initiatives ..... 31

**V. Implementation and Monitoring ..... 32**

**Appendix A: City Council and Task Force Resolutions for Climate Protection**  
**Appendix B: Baseline Greenhouse Gas Emissions Inventory Report**  
**Appendix C: Emission Analysis and Assumptions**  
**Appendix D: Public Comments**  
     D.1: Save Alameda from Climate Change Survey  
     D.2: Bike Alameda Correspondence  
     D.3: Biodiesel Recommendations  
     D.4: Public Outreach Recommendations Correspondence  
**Appendix E Alameda Power & Telecom Preliminary Greenhouse Gas Reduction  
 Action Plan**  
**Appendix F: Stopwaste.org’s Model of Environmentally Preferable Purchasing  
 Policy**

## Message from the Mayor

Dear Residents and Interested Community Members:

It is impossible to overstate the importance of global warming. No other issue threatens our planet with such far-reaching impacts, and no other issue is so clearly a worldwide problem. At the same time, many of the most promising solutions to global warming are local initiatives that we can control.

The City of Alameda has established a goal of reducing greenhouse gas emissions to 25% below 2005 levels by 2020. Achieving this goal will require action by government, businesses, and individuals. We know what causes global warming, and the steps to combat it are clear: reduce the use of fossil fuels. Reducing greenhouse gas emissions doesn't have to be difficult. In almost every case, it's good for the family budget and for the local economy.

We encourage you to join us in taking action on both a personal and a policy level. We will continue to examine local government activities to identify areas where we can reduce emissions from City operations. Please take an equally serious look at your own actions and search for ways to reduce emissions from your own activities. Every reduction matters, no matter how small.

Thank you for your interest in this vital issue.

Beverly J. Johnson  
Mayor  
City of Alameda

## Acknowledgements

### *City Council*, City of Alameda

Beverly Johnson, Mayor  
Lena Tam, Vice Mayor  
Doug deHaan, Council Member  
Marie Gilmore, Council Member  
Frank Matarrese, Council Member

### *Climate Protection Task Force*, City of Alameda

Art Autorino, Economic Development Commission Member  
Andrew Cunningham, Planning Board Member  
David Burton  
Ann McCormick, Public Utilities Board Member  
Michael Krueger, Transportation Commission Member  
Louie Pellegrini, Alameda County Industries  
Ron Silberstein  
Stan Schiffman, Chair  
Lizette Weiss

### *Staff*, City of Alameda

Girish Balachandran, General Manager, Alameda Power & Telecom  
Kristi Choi, Planning and Building Department  
Maria DiMeglio, Public Works Department  
Cynthia Eliason, Planning and Building Department  
Lisa Goldman, Deputy City Manager  
Meredith Owens, Alameda Power & Telecom  
Matthew Neclario, Director, Public Works Department  
Andrew Thomas, Planning and Building Department  
Simone Wolter, Planning and Building Department  
Cathy Woodbury, Director, Planning and Building Department

---

### *ICLEI – Local Governments for Sustainability*

Timothy Burroughs, Program Officer  
Brooke Lee, Program Officer

### *Pacific Municipal Consultants (PMC)*

Ben Ritchie, Planner  
Jill Savery, Planner

## Message from the Climate Protection Task Force

Dear Honorable Members of the City Council:

The City of Alameda is recognized nationally as having the lowest greenhouse gas emission rate per capita in Alameda County. Additionally, a large percentage of the energy utilized within the city is from carbon-free sources. Despite these significant achievements, there is still more that can be accomplished.

As members of the City of Alameda's Climate Protection Task Force, appointed by the Council to assist in the development of this Local Action Plan for Climate Protection, we recommend that the City Council pledge to further reduce its greenhouse gas emissions by at least an additional 25 percent by the year 2020.

In order to achieve this goal, we have developed a number of initiatives that are critical to the success of the Plan and the proposed reduction goal. We consider the following five initiatives to be the most critical of those listed in the Plan, and of the most immediate priority:

- 1. Adopt "Zero Waste Strategy" Programs and Ordinances.*
- 2. Develop a multi-faceted community outreach program to increase public awareness and participation in greenhouse gas reductions.*
- 3. Amend the Alameda Municipal Code to include sustainable design and green building standards for all new, substantially expanded, and remodeled buildings.*
- 4. Encourage the Alameda Public Utilities Board to require that Alameda Power & Telecom maintain and expand its source mix to 100 % carbon-free energy.*
- 5. Develop and fund alternative transportation strategies in the City's budget.*

It is absolutely critical that the City Council, its staff, local businesses, industries, institutions and the citizens of Alameda actively dedicate themselves to participating in and supporting these endeavors.

Sincerely,

City of Alameda's Climate Protection Task Force

## I. Executive Summary

### *Climate Change and the “Greenhouse Effect”*

The issue of climate change is frequently discussed on a national level and is a topic of worldwide news, school classrooms, and even casual conversation. The discussion of climate change is often framed by the phenomenon of what is commonly referred to as the “greenhouse effect,” which is the balance of naturally occurring gases that are dispersed in the atmosphere that determine the earth’s climate by trapping solar heat. The result of this effect is often referred to as global warming or global climate change. While some of the greenhouse effect is natural and necessary, because greenhouse gases play a vital role in maintaining the necessary conditions for life on earth, most scientists agree that human activities such as fuel consumption are disrupting the earth’s climate by intensifying the greenhouse effect.

The world’s population is releasing greenhouse gases faster than the earth’s natural systems can absorb them.<sup>1</sup> The release of gases such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), creates a blanket around the earth that allows light to pass through but traps heat, preventing its escape into space and creating the greenhouse effect. These gases are released as by-products of fossil fuel combustion, waste disposal, energy use, physical changes to the land, and other human activities. The Intergovernmental Panel on Climate Change (IPCC) warns that most of the warming observed over the last 50 years is attributable to human activities.

Locally, in Alameda and the surrounding San Francisco Bay Area, the forecasted changes in the climate could have the following impacts:

- Rising sea levels that threaten coastal infrastructure, ecosystems, and water supplies, including Alameda’s west side and its lagoon systems
- Warmer weather, resulting in longer dry spells and a decrease in Sierra snow pack that would affect fresh water availability
- Wetter weather, with an increase in annual rainfall of 20 to 30%, resulting in more serious storm events
- An increase in insect-borne diseases, such as West Nile virus, and other public health issues, such as increased rates of asthma and other pulmonary diseases

### *Local Actions Can Have a Significant Impact*

The good news is that the subject of climate change is receiving attention at many levels, including the local level, resulting in action by local leadership. It is important to note that despite their relatively small size, cities and counties have the ability to

---

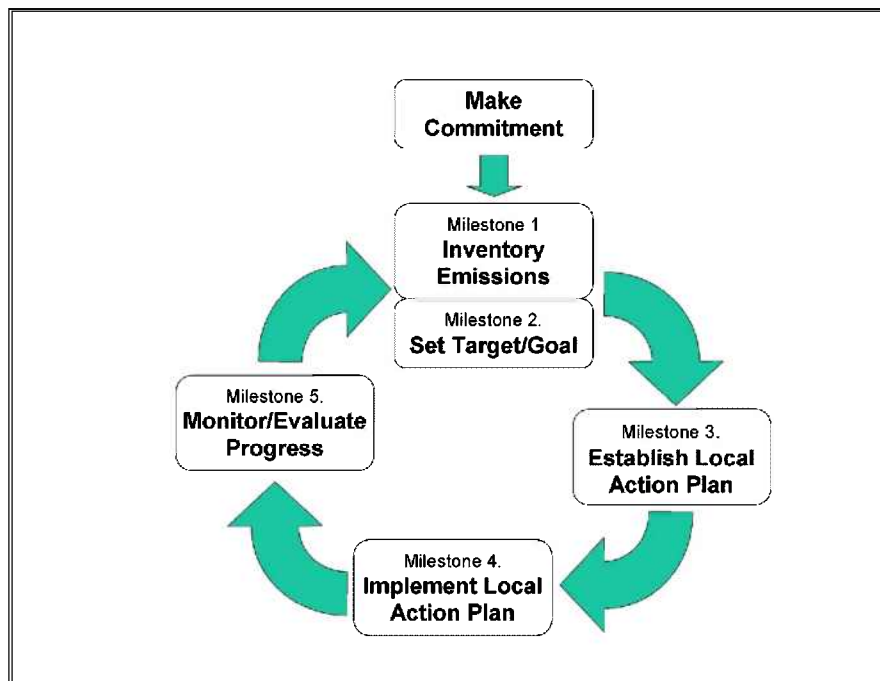
<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2001: The Scientific Basis*

reduce greenhouse gas emissions through effective land use and transportation planning, wise waste management, the protection of natural habitat, the efficient use of energy, and by promoting public awareness.

The residents and businesses of Alameda can take pride in the fact that in July 2006, their City Council adopted a resolution to join the Alameda County-Cities for Climate Protection Campaign. ICLEI – Local Governments for Sustainability<sup>2</sup> launched the campaign in partnership with the Alameda County Waste Management Authority & Recycling Board and the Conference of Mayors. Other participants include the jurisdictions of Alameda County, Albany, Berkeley, Emeryville, Hayward, Newark, Oakland, Piedmont, Pleasanton, San Leandro and Union City.

By participating in ICLEI's Climate Protection Campaign, the City of Alameda pledges to take a leadership role in promoting public awareness about the causes and impacts of climate change by accomplishing five milestones that will reduce greenhouse gas and air pollution emissions throughout the community.

Figure 1.1, Five Milestones for Municipalities



To oversee and help guide the effort involved with achieving these milestones, the City Council appointed a Climate Protection Task Force consisting of one member each from the Planning Board, Economic Development Commission, Transportation Commission, and Public Utilities Board, as well as a representative from Alameda County Industries and four public members at large. As a result of the considerable

<sup>2</sup> <http://www.iclei.org>



work of the Task Force, the City of Alameda has made significant progress on the first three milestones, including the development of this Local Action Plan, which completes Milestone 3. The five milestones are described in more detail in Chapter II of this report.

### Structure of the Local Action Plan

The Local Action Plan contains five chapters:

- Chapter I is the Executive Summary.
- Chapter II is an introduction to climate change, some examples of its impacts at both the global and local levels, and a summary of past actions and future steps to be taken by the City of Alameda in addressing the issue.
- Chapter III discusses the baseline inventory of City and community-wide greenhouse gas emissions, and proposes a series of goals, which are defined by an overall goal of reducing community-wide emissions by 25% below 2005 levels<sup>3</sup> by 2020.
- Chapter IV describes the initiatives developed by the Climate Protection Task Force to accomplish the overall goal of reducing emissions.
- Chapter V describes the steps necessary to implement the plan and monitor the community's progress towards its goals.

### Key Highlights and Findings

- The City of Alameda's 2005 greenhouse gas emissions baseline inventory reveals that Alameda generated approximately 303,097 carbon dioxide equivalent units (eCO<sub>2</sub>)<sup>4</sup> that year.
- Alameda is expected to generate 329,867 eCO<sub>2</sub> by 2020 if the population grows at a rate of 0.65% annually.<sup>5</sup>
- 54% of greenhouse gas emissions are transportation related and are caused by the combustion of fossil fuels.
- 29% of greenhouse gas emissions are related to heating, cooling, and lighting residential uses, and 17% result from commercial uses.
- Alameda sent approximately 59,024 tons of solid waste to landfills in 2005.

---

<sup>3</sup> 2005 was chosen as a baseline year because sufficient data was available in a broad range of categories to develop the baseline data inventory

<sup>4</sup> Emission levels are reported in equivalent carbon dioxide (eCO<sub>2</sub>) units because CO<sub>2</sub> is the most significant greenhouse gas in terms of emissions, and it can be used as the standard. Converting all emissions to carbon dioxide units allows for comparison between greenhouse gases of varying strengths.

<sup>5</sup> The growth rate is a projection developed by the Association of Bay Area Governments that estimates population growth based on potential for land use, economic development and housing.

- About 84% of Alameda Power & Telecom’s power mix is from carbon-free sources.
- The City of Alameda has a wide set of programs and initiatives in place that make Alameda a leader in the area of sustainable practices.

***Initiatives and Target Emissions Reduction Goal***

Since its formation, the Climate Protection Task Force has worked toward identifying multiple initiatives that will help Alameda achieve its overall goal of reducing community-wide emissions by 25% below 2005 levels<sup>6</sup> by 2020. These initiatives have been organized into four categories, which include: 1) transportation and land use; 2) energy; 3) waste and recycling; and 4) community outreach and education. The initiatives are outlined and discussed in Chapter IV of this document.

***Working Toward Community Goals***

The primary purpose of the Local Action Plan is to reduce Alameda’s greenhouse gas emissions. However, through the development and implementation of this Plan, the City of Alameda will also make progress toward related community goals, as discussed in Appendix D.1.

Figure 1.2

Community Goals Achieved by Greenhouse Gas Emission Reduction	
* Improving livability of community and quality of life	<ul style="list-style-type: none"> <li>- Reduction of automobile dependency will decrease traffic congestion</li> <li>- Encouraging walking and biking can improve public health</li> <li>- Planting trees can cool summer air temperatures</li> </ul>
* Reducing air pollution	<ul style="list-style-type: none"> <li>- Decreases associated health risks</li> </ul>
* Saving resources	<ul style="list-style-type: none"> <li>- Using fuels and electricity more efficiently can lower operating costs, making funding available for other purposes</li> <li>- Redirecting the waste stream into composting, reusing, and recycling reduces upfront costs associated with creating virgin products, saving natural resources</li> </ul>
* Securing the energy supply	<ul style="list-style-type: none"> <li>- Reducing dependency on other countries for petroleum and its products, such as gasoline, helps safeguard against potential disruptions in supply</li> </ul>

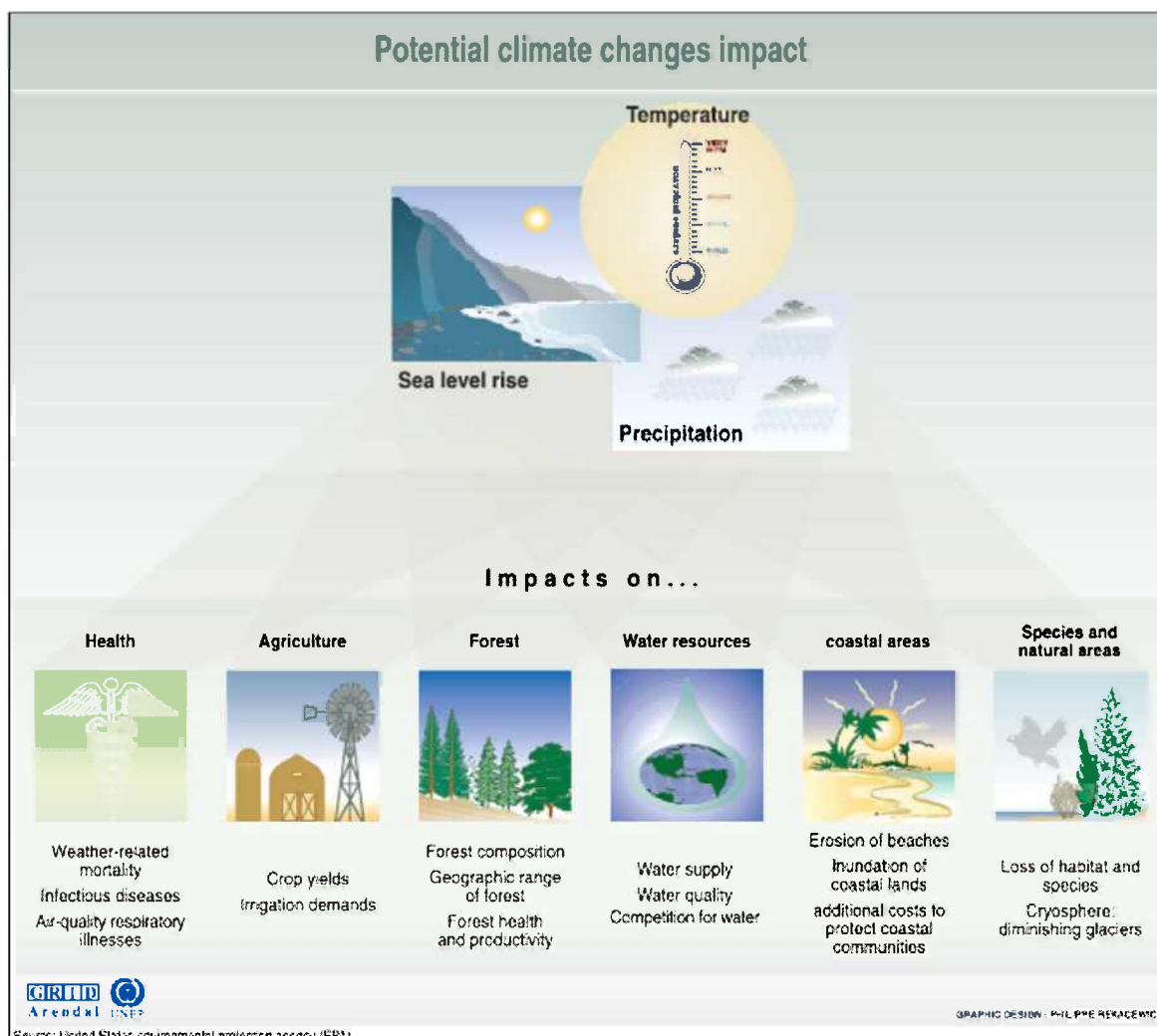
<sup>6</sup> 2005 was chosen as a baseline year because sufficient data was available in a broad range of categories to develop the baseline data inventory

## II. Introduction

### *Climate Change: A Global Phenomenon that Impacts the Local Level*

The Intergovernmental Panel on Climate Change (IPCC) reports that human behavior is accelerating climate change. The release of carbon dioxide (CO<sub>2</sub>) into the atmosphere from burning fossil fuels in power plants and for transportation purposes, the loss of forests that sequester CO<sub>2</sub>, and methane (CH<sub>4</sub>) emissions from landfills are the chief human causes of climate change. These emissions are referred to collectively as “greenhouse gases.”

Figure 2.1

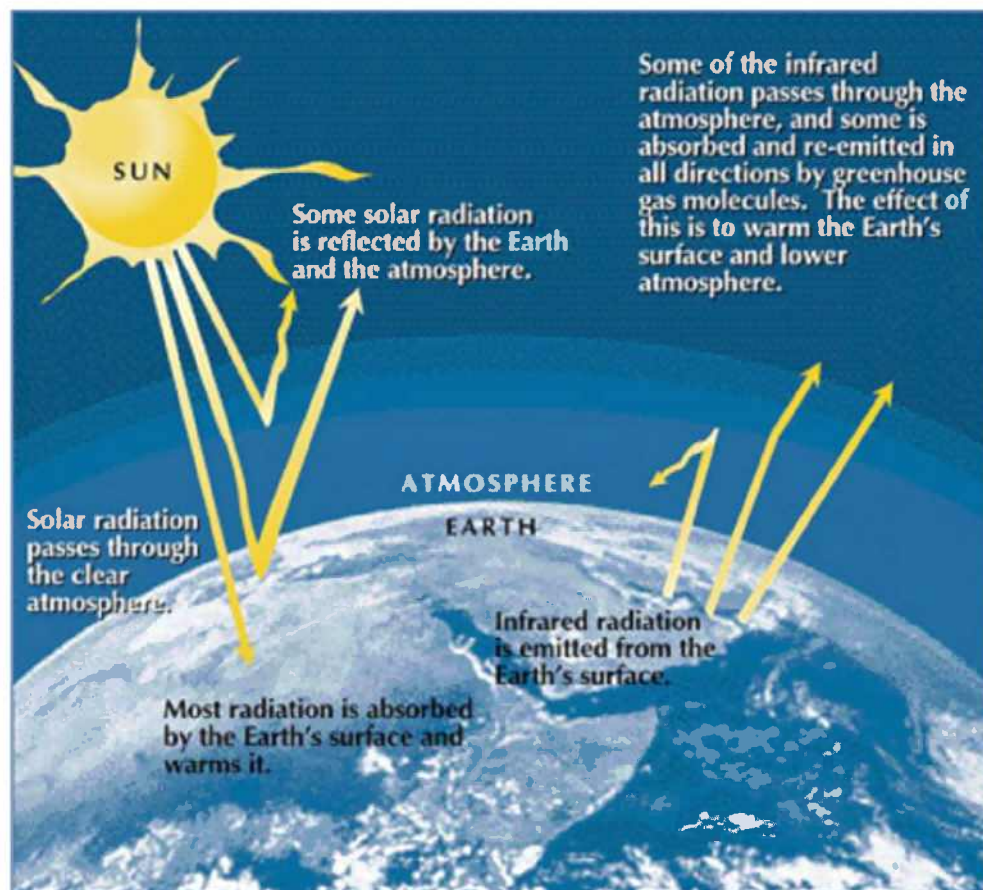


The gases of greatest concern are carbon dioxide, methane, nitrous oxide (N<sub>2</sub>O), and halocarbons (non-metallic carbon compounds in the air). Carbon dioxide, produced primarily through burning gasoline, natural gas, coal, and oil, contributes to an estimated 82% of all U.S. greenhouse gas emissions. About three-quarters of the

carbon dioxide emissions produced by human activity during the past 20 years are due to the burning of fossil fuels. The United States has the highest per capita emissions of greenhouse gases in the world, at 22 tons of carbon dioxide per person per year. With only 5% of the world's population, the United States is responsible for 24% of the world's carbon dioxide emissions. California, despite its strong environmental regulations, is the second largest greenhouse-gas producing state in the nation after Texas, and emits 2% of global human-generated emissions. California's largest contribution of carbon dioxide is from vehicle emissions.<sup>7</sup>

The greenhouse effect refers to the phenomenon by which the earth's atmosphere traps solar radiation, or heat. Gases in the atmosphere operate like glass panels on a greenhouse that let electromagnetic radiation (light) through, but trap thermal radiation (heat) in.

Figure 2.2



<sup>7</sup> Sources: Energy Information Administration: World Carbon Dioxide Emissions from the Consumption and Flaring of Fossil Fuels, 1992-2001, U.S. Census Bureau: Countries Ranked by Population: 2001.

This natural greenhouse effect helps keep the earth's average temperature constant. Without the greenhouse effect, the earth's temperature would be approximately 0°F, and the planet would be largely uninhabitable.

The climate change problem has developed as human activities have added growing amounts of carbon dioxide and other greenhouse gases to the atmosphere, thereby increasing the natural greenhouse effect. The more greenhouse gases increase, the more heat is trapped. If the trend continues through this century, carbon dioxide concentration will rise to levels not seen on earth for 50 million years.

Emissions of methane account for just under 10% of U.S. emissions and result from decomposing landfill waste, manure and fermentation from livestock, and natural gas systems. Nitrous oxide is emitted through fertilizers.<sup>8</sup>

Scientists believe that the earth has a finite capacity to absorb and potentially neutralize emitted greenhouse gases. Once the levels of greenhouse gases overpower earth's climate systems, they will accelerate global warming beyond the rate at which it is occurring today.

### Signs of Ongoing Climate Change

Climate change is a local problem with serious impacts for the San Francisco Bay Area, especially in bayside communities such as Alameda. Signs of ongoing climate change include:

- Rising sea levels, caused by warming of average ocean temperatures and the widespread melting of snow and ice. Calculations estimate that the rise in global sea level could range anywhere from approximately one to three feet by the end of 2100.<sup>9</sup>

*Potential Local Impacts:* Protected bayside areas, infrastructure, and property may be threatened. In California, the sea level is expected to rise up to 12 inches in the next 100 years, resulting in the erosion of beaches, bay shores, river deltas and marshes, and damage to infrastructure at or near sea level, such as harbors, bridges, roads and local airports. A rise in sea level would also cause increased salinity in estuaries, marshes, rivers and aquifers.<sup>10 11</sup> Almost every home and business in Alameda is within five feet of the mean high tide line and could be impacted by rising sea levels and the ebb and flow of the tide in the absence of dams or other retention facilities.

---

<sup>8</sup> Excerpt from City of Los Angeles, Environmental Affairs Office. 2001. Los Angeles Energy Climate Action Plan.

<sup>9</sup> Cayan, D., P. Bromirski, K. Hayhoe, M. Tyree, M. Dettinger, and R. Flick. 2006b. Projecting future sea level. ([www.climatechange.ca.gov/](http://www.climatechange.ca.gov/)).

<sup>10</sup> Union of Concerned Scientists/Ecological Society of America, page 1.

<sup>11</sup> Neumann, James E. for the Pew Center on Global Climate Change. Sea Level Rise and Global Climate Change: A Review of Impacts to the US Coasts. February 2000.

