

**CITY OF MERCED**  
**Development Services**

TO: Climate Action Plan Ad-Hoc Advisory Committee  
FROM: Bill King, AICP, Principal Planner  
DATE: April 6, 2011  
SUBJECT: Draft Report Section "Context of Climate Action Planning"

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ACTION REQUIRED: Review and Comment

DISCUSSION

Staff has prepared this draft section of the Climate Action Plan for your review and comment. Though not the primary component of the CAP, it outlines key topics that will help the Committee decide the objectives of the plan. This draft, along with information in the "*Background Report of the Climate Action Plan*," are to be used to formulate CAP objectives, which will be the primary activity of the April 6<sup>th</sup> meeting. Staff will craft a few "starter" or "sample" objectives, but it will be up to the Assessment Teams to formulate the others. Thus, it is essential that you read this draft section to prepare for the meeting on April 6.

Please read the draft report and come to the meeting prepared to offer comments and ideas, or to ask questions. For example, did Staff miss any important considerations? Are there other perspectives that should be summarized in this section? This is a draft; all ideas are welcome.

**Please remember to bring your "*Background Report of the Climate Action Plan*" to the meeting.**

# PART 2: CONTEXT OF CLIMATE ACTION PLANNING

## Introduction

Though the key product of the Climate Action Plan (CAP) is a set of measures that Merced can deploy to reduce greenhouse gases, it is first necessary to understand the context of Climate Action Planning, which includes: current City emission amounts and trends, the regulatory environment; the City's emission reduction goals, parameters and approach to achieve said goal, and Climate Adaption. Having understood this context, a comprehensive strategy to reduce GHG emissions can be formulated.

## Challenge

During the 1970's, in recognition of our reliance on the earth's ecosystems as the foundation for our culture, sweeping environmental laws were adopted at the state and federal levels to ensure the conservation and protection of the environment. Over the past several decades, substantial modifications were made to meet this challenge. Compared against practices of the industrial age and growth patterns post WW II, the environmental laws of the 1970's were agents of change which led to improvements in the physical nature and operation of our industries and the products they created. Air pollution in many parts of the country decreased, due to cleaner operating cars and factories. For example, high levels of smog have fallen in Los Angeles due to technological advancements and programs like the California Smog Check. Concerns over environmental impacts became part of the decision-making process for projects, programs and policies. Forestry and mining practices were scrutinized and new methods to extract these resources were put in place to lessen the impact on our forests and other denuded lands. Despite these advancements, biological and material resources upon which mankind relies, continue to be impacted.

## CLIMATE CHANGE

The sheer increase in world population and growth demands from developing third world nations are now believed to be creating impacts at the biosphere level. Global Climate Change (GCC), which is now generally accepted by the scientific community to be occurring and caused by Greenhouse Gases (GHGs), is a widely discussed scientific, economic, and political issue in the United States and internationally. Briefly stated, GCC is the cumulative change in the average weather of the earth that may be measured by changes in temperature, precipitation, storms, and wind. GHGs are gases that trap heat in the atmosphere. The scientific and policy communities in the State of California have collectively concluded that a significant and growing scientific body of evidence supports the need for regulating GHG emissions. The time for a response has never been more demanding. As in earlier decades, focused environmental stewardship efforts continue to evolve and develop.

## AN AGENT OF CHANGE

California is a leader in addressing climate change in the United States. To respond to the challenge of climate change, Governor Schwarzenegger issued a landmark Executive Order, in June of 2005, establishing greenhouse gas emission targets for the entire state. To support these GHG reduction targets, the California legislature adopted the *California Global Warming Solutions Act of 2006*, also known as AB 32.

California's Climate Change Scoping Plan encourages local governments to reduce municipal GHG emissions consistent with statewide targets. Every California community contributes to emission of greenhouse gases and it is those communities which hold the most potential in contributing to the solution. As of March 2009, nearly 30% of California cities (over 141 cities) have signed on to the U.S. Conference of Mayors Climate Protection Agreement (CPA) to reduce GHG emissions 7% below 1990 levels by 2020. At least 13 California cities are members of the United Nations Green Cities Declaration with a goal to reduce 25% of GHG emissions by 2030. A total of 30 cities are members of ICLEI Local Governments for Sustainability Cities for Climate Protection (CCP) campaign. As of November 2010, 23 California cities had adopted a Climate Action Plan, and 30 others had adopted Sustainability Plans.

## **City of Merced Responds**

In November 2009, the City Council accepted Energy Efficiency and Conservation Block Grant funds from the Federal Department of Energy to undertake several projects to increase energy efficiency. One of these projects was the drafting of a Climate Action Plan (CAP). In May 2010, the City of Merced applied to and became a member of the "*International Council for Local Environmental Initiatives – Local Governments for Sustainability*" (ICLEI) to assist in this effort. In preparation for the Merced City Council to select a GHG Reduction Target, a Background Report, including the City's first Greenhouse Gas Emission Inventory, was completed in January 2011.

With adoption of the City's GHG Emission Reduction Target in February 2011, the City Council set the goal of Merced's Climate Action Plan. Following Council's lead, the Committee, together with the City CAP Team, prepared recommendations as to what measures should be employed to reach the target.

### **PARAMETERS, TARGETS AND APPROACH**

On February 22, 2011, the Merced City Council adopted greenhouse gas reduction parameters, targets and an approach to drafting the City's Climate Action Plan.

First, the City Council set two broad parameters for the CAP: (a) address emissions from government-based facilities and community-based emission sources; and (b) address the long-term, but include a phasing plan that recognizes short-term and near term approaches to meet the long-term goal. The City Council did not specify a specific year or goal for the long-term. For purposes of this CAP, 2020 is regarded as the long-term goal.

Secondly, the City Council directed Staff to work with the Committee to identify ways to reduce GHG emissions to 20% below 1990 levels by 2020 for government-based facilities and the Community as a whole. The numeric target provides a goal toward which to strive and against which to measure progress. It allows the City to quantify its commitment to reducing GHG emissions, demonstrating that the jurisdiction is serious about its commitment and systematic in its approach.

In addition to the parameters and targets above, the City Council directed staff to draft the CAP following the approach described below:

- Time constraints on City Staff necessitate a focused approach;
- Current City policies will form the foundation upon which specific strategies will be crafted;
- The Climate Action Plan will include a set of recommended strategies and implementation plan;

- Among other topics, the recommended strategies will address state-mandated programs, such as Water Conservation (SB x7-7 2009), Commercial Recycling (AB32), Building Efficiency (CalGreen Code); and other “Co-Benefit” categories and items;
- Strategies will be financially feasible;
- The plan’s focus will be qualitative, in the sense of identifying and crafting feasible strategies that can be implemented in Merced;
- The Plan will seek to create linkages between it and established City plans such as the City’s general, specific, and master plans so that they can work together to achieve the reduction target;
- The strategies will complement and be consistent with the Merced County Association of Government’s (MCAG) charge to craft a Sustainable Communities Strategy as part of Merced County’s Regional Transportation Plan, which has implications for future transportation funding and review of development projects; and,
- Strategies will be implemented in an incremental manner, based on the needs and ability of the Community.

## PHASING PLAN

The structure of the CAP Phasing Plan is based on Council’s direction to recognize short-term and near term approaches to meet the long-term goal. For example, in the near term, to implement measures that provide significant emission reductions with low initial costs, while laying the groundwork for more complicated projects to be implemented in the later phases. This approach is consistent with another Council directive to implement strategies in an incremental manner, based on the needs and ability of the Community. All of the reduction strategies are essential to reach the goals set forth in this Climate Action Plan. Some of these measures, however, are expected to be implemented on a later timeline due to obstacles of available data, technology, or finances.

The City Council did not specify a specific year or goal for the long-term. For purposes of this CAP, 2020 is regarded as the long-term goal. The Committee recommended (Yes – No) the use of interim targets to facilitate additional support and accountability, and help to ensure continued momentum of Merced’s efforts.



## Merced - Staged for Sustainability

Independent political, regulatory, academic and economic factors exist in Merced, and form a strong foundation for sustainable programs in the City of Merced; these are summarized below:

## UC MERCED

According to its “*Sustainability Strategic Plan*,” UC Merced, from the beginning, was envisioned to be a campus shaped by sustainability, possessing the potential to pilot sustainability strategies that can be a model for other growing communities, both regionally and globally [2](#). Such strategies include the following efforts:

### ***Sustainability Strategic Plan***

The 2010 Sustainability Strategic Plan represents the UC Merced’s first comprehensive presentation of its sustainability vision, and includes eleven sustainability goals with critical objectives and milestones for reaching each of these goals. The Plan is a roadmap to adopt sustainability practices across all campus operations. [2](#)

### ***Triple Net Zero Commitment***

The 2009 update to UC Merced Long Range Development Plan (LRDP) established a “triple zero commitment,” requiring the campus to produce its power renewably (known as “zero net energy”), eliminate landfill wastes (zero-net wastes), and achieve climate neutrality (zero net emissions footprint) by 2020. [2](#)

### ***LEED (Leadership in Energy and Environmental Design) Buildings***

UC Merced boasts six LEED Gold buildings, 2 LEED Silver buildings and anticipates receiving certification for the nation’s first LEED Gold child care facility built with modular construction. The 2009 Long Range Development Plan establishes a minimum of LEED Gold for all future buildings, with LEED Platinum certification as a target. [2](#)

### ***Public Engagement***

UC Merced faculty, students and staff are actively engaged in community services, and support and provide leadership in many local organizations. More than half of the campus’ 100 student clubs and more than 25 percent of all students actively participate in or facilitate community service programs [3](#). (See Chapter 4 of the Climate Action Plan Background Report, “*Community Green Goals, Policies and Activities*”).

## HIGH SPEED RAIL

Add Language

## SAN JOAQUIN VALLEY BLUEPRINT

The San Joaquin Valley Blueprint is a long range vision for a more efficient, sustainable, and livable future for the Valley. It is made up three elements: (1) a 2050 growth scenario diagram that identifies areas of existing development, new development, and future regional transit and highway improvements; (2) a Valley-wide average target density of 6.8 units per acre for new residential growth to the year 2050; and (3), the Blueprint reflects the combined visions of the eight Regional Planning Agencies for the future through a set of 12 Smart Growth Principles. These principles are based on the core values of Valley

residents identified early in the Blueprint process and will continue to be used as a basis of future Blueprint planning and implementation. Six of these principles overlap with outcomes of GHG reduction efforts.

- Create Walkable Neighborhoods
- Encourage Community and Stakeholder Collaboration
- Foster Distinctive, Attractive Communities with a Strong Sense of Place
- Provide Mixed Land Uses
- Provide a Variety of Transportation Choices
- Strengthen and Direct Development Towards Existing Communities

While the Valley-wide average target density is 6.8 units per acre, Merced County has the highest average dwelling unit density, coming in at 8.6 units per acre for new residential growth to the year 2050, establishing Merced County, and most likely the City of Merced, as a leader in constructing more compact development. Additionally, Blueprint Planning efforts are highly regarded as probable templates for creating Sustainable Community Strategies (SCS) in the next generation of Regional Transportation Plans, giving the Blueprint Plans a greater role in regional and local land use planning.

## **TRANSITIONING CITY**

The UC Davis Sustainable Transportation Center recently published, *“Achieving Sustainability in California’s Central Valley.”* This report analyzed the barriers and catalysts to sustainable growth and development in Central Valley cities. A finding of the report states: “State level policies should place high priority on “transitioning cities” that will be making important future (development) decisions. Regional planning processes like Blueprint and decisions associated with AB32 and SB375 will have more leverage in “transitioning cities,” that are not hampered by a history of poor development.” Merced is one such transitioning city.

The Planning Department believes that the award of the “Bellevue Corridor Community Plan”(BCCP) (see below) was a direct result of the City’s alignment with the State’s regional planning policies. The State’s objective for the grant is to support the development and implementation of effective and/or innovative local plans that support the State’s AB 32 GHG emission reduction targets and implement SB 375, while creating sustainable communities. Looking to the future, the City’s alignment with the state’s sustainability objectives will pay dividends to the community in federal and state funding for transportation projects, land use, and short and long-range planning efforts.

## **BELLEVUE CORRIDOR COMMUNITY PLAN**

Recently, the City of Merced received a planning grant from the California Strategic Growth Council to establish a plan focused on establishing implementation tools of a variety of sustainability themes, including: .

- Develop “Complete Streets” General Plan Policies;
- Develop Urban Village Form-Based Code Concepts;
- Create Bellevue ROW Standard Design Templates incorporating the bullet-points above; and
- Create "Transit Priority Project" Sites, per SB 375, CEQA is waived.

The Bellevue Corridor Community Plan (BCCP) has the potential to foster development models resulting in less GHG emissions than traditional suburban development patterns. The boundary of the BCCP abuts UC Merced, who has agreed to partner with the City in developing the plan.

## Merced's 2008 Emission Inventory and Forecast

### OVERVIEW OF MERCED'S GREENHOUSE GAS EMISSIONS

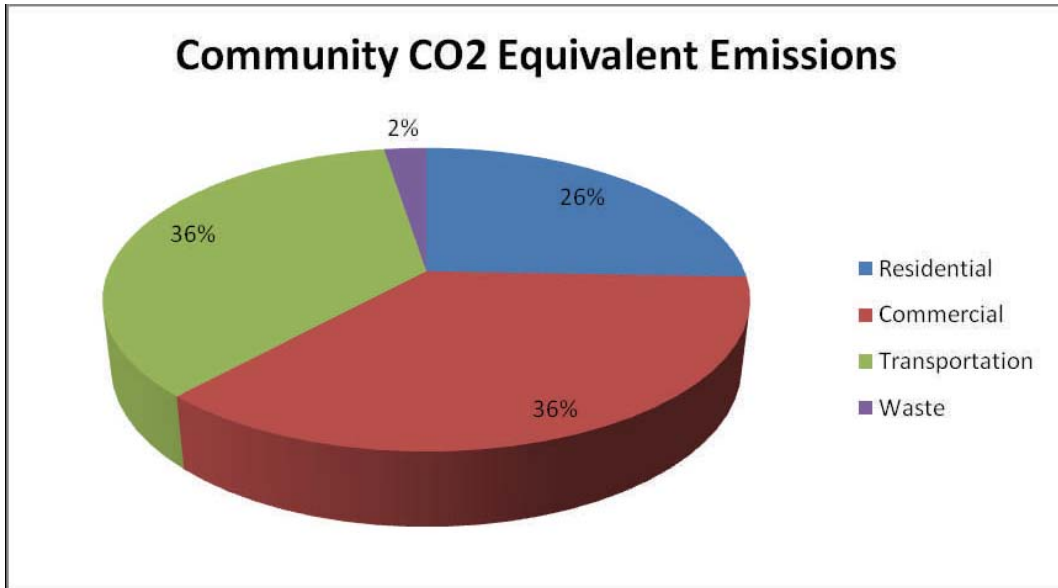
In 2010, the City of Merced prepared a greenhouse gas (GHG) emission inventory using 2008 as the baseline year. This inventory identified the major sources of emissions from the City of Merced, including emissions from local government based sources as well as from the community as a whole (see Chapter 8 of the Climate Action Plan background Report, *"2008 Greenhouse Gas Emission Inventory Report"*). The report shows the amounts and sources of GHG emissions and therefore, where staff and policymakers can target emission reduction activities in a manner that would make significant progress toward adopted targets. For example, since     % of the community's emissions originated from buildings, and because electricity is a major source of energy for these buildings, then targeting GHG reductions by implementing energy efficiency and conservation measures would likely yield large emission reductions. Key findings of the 2008 GHG Emission Inventory, along with implications in reducing GHG emissions are summarized below:

Finding: The "Community" sector, which includes "Local Government" emissions, emitted approximately 408,329 metric tons of CO<sub>2</sub> equivalent emissions in 2008. The "Local Government" sector, a subcomponent of the "Community," emitted approximately 17,655 metric tons of GHG emissions in 2008, which represents approximately 4% of the emissions produced by the "Community," a ratio that is normal for many cities and counties.

Implication: While the Local government emissions fall under the control of a single entity, the City of Merced, the reduction potential represents a small fraction of community-wide emissions. Therefore, the ability for the City to reach the GHG reduction target for 'Local Government' is much greater than the ability of the City as a single entity to reach the GHG reduction target for 'Community.'

Finding: Transportation and Building Sectors produce the largest amounts of GHG emissions in the Community as a whole, with 62% of the emissions originating from existing residential, commercial and industrial buildings.

Implication: The greatest potential for reducing emissions will result in measures that affect existing buildings.



### MERCED'S EMISSION FORECAST

Figure [redacted] depicts Merced's baseline emissions level and the "Business-as-Usual" emissions forecast for the year 2020. This forecast revealed projected emissions levels [redacted]% higher than Merced's 2008 Baseline GHG Emission Inventory. If Merced continues with the 2008 pattern of energy consumption, waste production and transportation use, annual emissions are estimated to increase from 408,329 MT of CO<sub>2</sub>e to [redacted] MT of CO<sub>2</sub>e by 2020. Therefore, the percent change from "business-as usual" in 2020 to 20% below 1990 levels is [redacted]%.

Insert Figure [redacted] here.

Table [redacted] provides emission level data for the years 1990, 2008, and 2020 under different emissions backcasts, forecasts and reduction amounts to show the targeted amounts of greenhouse gas emissions necessary to meet the goal to reduce emissions from community-based and government-based emission sources to 20% below 1990 levels by 2020.

Table [redacted] identifies the 2008 base year emissions and the estimated annual required emissions to meet the 2020 reduction target. A total of [redacted] metric tons is the minimum reduction needed for Merced to meet the 2020 target and the needed reduction in tons could be as high as [redacted] metrics tons if Merced's consumption trends continue. The estimated annual reduction is in the range of [redacted] tons to [redacted] tons per year to meet the target year.

Insert Table [redacted] here.



# Merced's Sustainability Accomplishments

## KEY CITY GHG REDUCTION PROGRAMS

The City is already engaged in several significant programs that have and will continue to result in reduced GHG emissions, and include the following (please see Chapter 3 of the Background Report, "*City of Merced Green Goals, Policies and Activities*," for more details):

- Municipal Retrofit Program
- Bicycle Transportation Planning
- Downtown Revitalization
- "Build a Green Fleet" Program
- Employee Trip Reduction Plan
- Bellevue Corridor Community Plan

## MERCED VISION 2015 GENERAL PLAN

As part of the Climate Action Plan Background Report, City Staff assessed existing policies of the *Merced Vision 2015 General Plan* to gauge its alignment with current planning trends relative to Climate Action Planning, such as smart growth, transit-oriented development, and mixed-use development. In keeping with its namesake, the vision of the General Plan aligns substantially with these concepts (please see Chapter 3 of the Background Report, "*City of Merced Green Goals, Policies and Activities*," for more details).

## UP AND COMING PROGRAMS

In August 2010, City of Merced Department Heads met to review a broad range of GHG emission reduction measures that are part of adopted Climate Action Plans of other California Cities and Counties. The purpose of the review was to compare City of Merced "green" programs with those of other local governments, thereby creating an accounting of measures already underway in the City of Merced, as well as becoming aware of what other measures may be possible for future implementation (please see Chapter 3 of the Background Report, "*City of Merced Green Goals, Policies and Activities*," for more details). A total of 88 measures were identified as part of existing City programs. The 118 remaining measures were assessed by the Committee and City CAP Team as part of this CAP.

## State of California Greenhouse Gas Reduction Drivers

The City's Climate Action Plan Background Report describes many state laws and programs that were crafted to 'drive' Climate Action Planning in the State of California and to create 'opportunity' for development of the green economy. In many ways these new statutes and programs reinforce and further Climate Action Planning efforts and will facilitate implementation of these plans. In some cases, local governments are directed to take action, and in other cases, the State retains control over implementation. Regardless of who has control, this plan accounts for GHG reductions emissions from these regulations. This section of the CAP highlights and summarizes the most prominent of these laws and programs.

## **INITIATIVES UNDER STATE CONTROL**

Merced has limited ability to control decisions that impact a significant portion of its emissions, most notably those in the transportation sector, which is responsible for [REDACTED] % of local emissions. Current state initiatives and programs that focus on transportation and energy generation will reduce emissions and assist Merced in meeting AB 32 reduction targets. Among them are:

### ***Assembly Bill 1493 (Pavley):***

The California Air Resources Board adopted regulations that created increasingly stringent standards in 2004 to reduce global warming emissions from cars and light trucks between 2009 and 2016. The Environmental Protection Agency is expected to allow California to move forward with these new requirements in 2009 or 2010 as outlined in AB 1493 after being challenged by federal and state courts. The AB 32 Scoping Plan estimated that the State's emissions will be reduced by an estimated 5.5% by 2020 resulting from AB 1493.

### ***Renewable Energy Portfolio Standard:***

The State of California's Renewable Energy Portfolio Standard (RPS) requires electricity providers to increase the portion of the energy that comes from renewable sources to 20% by 2010 and by 33% by 2020.

These independent State initiatives have the potential to provide the City with additional reductions in emissions by the year 2020, and are accounted for in the City's reduction targets. By 2020, State initiatives will reduce approximately [REDACTED] MT CO<sub>2</sub>e of GHG emissions in the City of Merced, providing about [REDACTED] % of the community's total emission reductions. In selecting the City's GHG reduction measures, the Committee and City CAP Team took care not to duplicate efforts, which would double-count potential state-based emissions reductions.

## **INITIATIVES UNDER LOCAL CONTROL**

### ***Senate Bill 375***

This legislation reduces emissions by linking transportation funding to land use planning. It requires the Metropolitan Planning Organizations to create sustainable communities strategies in their regional transportation plans to reduce vehicle miles traveled and sprawl. If regions develop integrated land use, housing and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of the California Environmental Quality Act. The AB 32 Scoping Plan estimated that the state's emissions will be reduced by an estimated 1% by 2020 as a result of SB 375. While the City of Merced will not draft or approve a Sustainable Communities Strategy (SCS), local governments retain local land use authority and are the deciding factors as to whether or not the ideas and concepts of a SCS are actually implemented in any given community.

### ***SB 97 (Dutton – 2007)***

SB 97 requires the Office of Planning and Research (OPR) to prepare guidelines for the feasible mitigation of GHG emissions or the effect of greenhouse gas emissions, as required by CEQA, including effects associated with transportation and energy consumption. The guidelines create new requirements for CEQA documents to identify and mitigate for GHG emissions.

### ***AB 1358 (Leno – 2007)***

AB 1358, the '*Complete Streets Act*', requires Cities and Counties to plan for a balanced multi-modal transportation network that meets the needs of all users of streets, roads, and highways, including motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation. AB 1358 furthers Merced Vision 2015 General Plan principles to create walkable neighborhoods, foster distinctive, attractive communities with a strong sense of place, and provide a range of transportation choices.

### ***Rule 9410 of the San Joaquin Air Pollution Control District***

Rule 9410 (Employer Based Trip Reduction) was crafted as a feasible and cost-effective measure to meet the applicable state and federal mandates of the Clean Air Act. Rule 9410 is applicable to employers within the San Joaquin Valley Air basin with at least 100 eligible employers. The employer must create an employer trip reduction plan submitted by September 1, 2011, with resubmission requirements. The employer must begin commuter verification submissions by January 1, 2014. Annual reports of the ETRIP and commuter verification must be first submitted March 31, 2015, and every year thereafter.

### ***California Green Building Code (CALGreen)***

As part of the compliance with Assembly Bill 32, the State of California has developed a new, mandatory green building code (CALGreen), which took effect on January 1, 2011. CALGreen establishes standard and compulsory minimum green building regulations that affect all construction state-wide. The new code does not prohibit municipalities from implementing their own green building standards before the code takes effect, but reviewing the new code and making adjustments to local ordinances is recommended.

## **Co-Benefits**

Efforts to reduce GHG emissions overlap with existing programs and policies that were developed for objectives different than reducing GHG emissions. For example, GHG reduction measures to reduce energy usage of water-pumps overlap with water conservation efforts that seek to reduce water demand. Therefore, actions to continue and enhance these existing programs and policies, will also achieve GHG reduction goals of the City. In selecting the City's GHG reduction measures, the Committee and City CAP Team took care to be aware of such overlaps in order to deploy efficient use of scarce resources. Existing co-beneficial programs and policies include:

- Reduced Air Pollution
- Cut Energy use and Associated Costs
- Reduce Local Government Operation Costs
- Reduce Traffic Levels
- Improve Public Health
- Water Conservation
- Enhance Urban Forests
- Recycling
- Promoting Well-designed, Vibrant, Healthy Communities

## Climate Adaption

Despite State efforts to reduce GHG emissions, the effects of climate change will still be felt in communities in the coming decades. <sup>4</sup> In November 2008, Governor Schwarzenegger's Executive Order S-13-08, asked the Natural Resources Agency to identify how State agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. In cooperation and partnership with multiple state agencies, the "2009 California Climate Adaptation Strategy," referred to herein as 'the "Adaption Strategy,"' was prepared.

According to the 'Adaptation Strategy,' climate change hazards that may directly affect Merced include high temperatures, flooding, and drought. These hazards have always been present, but with the progression of climate change, these will become more severe and frequent. The increasing intensity and frequency of climate events in the future will cause communities across the State to exist in emergency management response mode more frequently. GHG reduction measures that also serve to ameliorate impacts from high temperatures, flooding, and drought - for example, to create energy efficient community cooling centers and to enhance and expand Merced's urban forests, were assessed by the Committee and City CAP Team. As with co-benefits, the consideration of Climate Adaption in the selection of the City's GHG reduction measures helped to identify efficient ways to utilize scarce resources.