City of Lodi

Climate Action Plan

Prepared by
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For

City of Lodi
221 West Pine Street
Lodi, CA 95240

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Chapter 1-Introduction: Planning for Energy Efficiency

The City of Lodi is a diverse community that is passionate about maintaining the city's small town atmosphere, preserving its surrounding agricultural lands, and protecting its natural resources. The City developed this Climate Action Plan (CAP) as part of the General Plan process to serve as a guide for a community-wide effort to increase energy and resource efficiency, while following the State of California's guidance regarding the reduction of greenhouse gas (GHG) emissions. The CAP provides a strategic framework for the development of measures, policies and programs across all sectors that aim to reduce greenhouse gas emissions resulting from communitywide and municipal government operations. The strategy presented in this CAP is unique to Lodi's specific community context so as to be both feasible and implementable.

What is a CAP?

A CAP (Climate Action Plan) is a tool that many cities in California are using to quantify their share of statewide GHG emissions and establish action steps toward achieving a local emissions reduction target. A CAP provides a set of strategies intended to guide community efforts to reduce GHG emissions, typically through a combination of statewide and local actions. Figure 1.1 shows the typical steps included in the CAP process

A CAP contains community-specific GHG emission inventories and forecasts to establish a starting point and probable future emissions levels if no action is taken (Step 1). A reduction target is then defined to provide an aspirational goal for improvement (Step 2). Emission reduction measures and implementation programs are then written to help the city meets its goal by achieving the reduction target (Step 3). Upon adoption of the CAP, the jurisdiction takes action to implement the reduction measures (Step 4), monitor their progress towards achievement of the reduction target (Step 5), then evaluate effectiveness, celebrate their successes, and use the monitoring results to make adjustments to CAP measures to improve performance (Step 6). This CAP represents the City's progress on Steps 1-3.

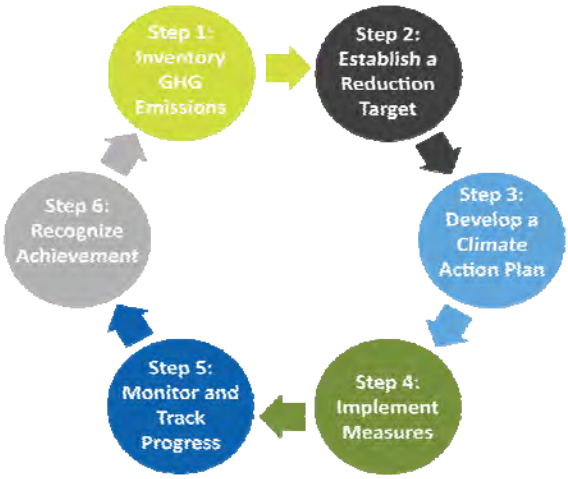

Figure 1.1 Steps in the CAP Process

Purpose

This CAP is the City's first step in the development of a long-range, comprehensive plan to move from business-as-usual practices to more efficient use of energy, the transportation network, and water, and reduced waste. The primary objectives of the CAP process are to contribute to the State's climate protection efforts and to provide California Environmental Quality Act (CEQA) review streamlining benefits for development projects within the city limits.

This CAP provides a summary of Lodi's greenhouse gas emissions inventory and describes how the City will achieve reductions through local actions that contribute to the statewide reduction target defined in Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, CEQA guidelines, and other State guidance.

The CAP aims to:

- Support the community vision described in Lodi's 2010 General Plan of a centralized, compact urban form, safe and comfortable walking and bicycling facilities, smart street designs, and revitalized building stock
- Leverage existing programs available through Lodi Electric Utility (LEU) and various state departments and agencies to encourage voluntary implementation of CAP measures
- Reduce building operating costs through reduced resource consumption; and
- Provide CEQA streamlining to reduce barriers to new development

Chapter Contents

The CAP consists of five chapters, 1) Introduction, 2) Community Context, 3) Baseline Inventory and Projections, 4) Greenhouse Gas Reduction Strategy, and 5) Implementation. The contents of each chapter are briefly described below:

- **Chapter 1- Introduction** provides a summary of the CAP development process and describes the City's rationale for creating the CAP. This chapter also describes the potential impacts Lodi may face as a result of climate change and the benefits that the community will realize upon implementation of the greenhouse gas reduction strategy (defined in Chapter 4). This Chapter also provides a summary of statewide climate change legislation, the CAP's relationship to the General Plan and the potential for CEQA "tiering".
- **Chapter 2- Community Context** describes how Lodi's unique community context played an integral role in the development of the measures in this CAP. This chapter explains how the climate zone, the age of the existing building stock and the local economy relate to GHG reduction measures found in this CAP. This Chapter also describes how successful implementation of the CAP depends on reducing communication and information barriers for certain demographic groups through targeted outreach efforts.
- **Chapter 3- Baseline Inventory and Projections** outlines key steps taken to develop the CAP, including the 2008 baseline GHG inventory, projecting future emissions in 2020 and 2030, setting a communitywide GHG emissions target for 2020 and a long-range target for 2030. This chapter also describes the anticipated local emissions reductions resulting from implementation of State and federal actions.
- **Chapter 4- Greenhouse Gas Reduction Strategy** addresses the five main reduction strategies; building energy efficiency, transportation, water and wastewater, solid waste, and green infrastructure. Each measure contains a description of how the measure reduces emissions and how existing programs can be leveraged in combination with the development of new efforts to achieve the reductions estimated in this CAP. The measures also provide action steps to achieve implementation, a description of co-benefits associated with the measure and the approximate range in cost to the private and public sectors.
- **Chapter 5- Implementation** describes the process to monitor the City's progress toward achieving their GHG reduction target. This chapter identifies monitoring procedures, plan update processes and other steps to ensure successful implementation.

Climate Change Science

The United Nations International Panel on Climate Change (IPCC), defines "climate change" as "a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer." [i] The properties of GHGs are such that they retain heat in the atmosphere, which would otherwise escape to space. GHGs accumulate in the atmosphere when they are emitted faster than they can be naturally removed, and that accumulation prompts changes in the climate system. Once emitted into the atmosphere, GHGs influence the Earth's energy balance for a period of decades to centuries.[ii] [iii]

According to trends identified by the United States Global Change Research Program, average global temperatures and sea level have increased over the last fifty years as a result of an increase in greenhouse gasses in the atmosphere and are projected to continue to rise over the next century[iv]. If the average temperature of the Earth continues to rise, there may be implications on both a global and local level. Potential implications of global climate change include:

- **Global Impacts:** melting of the polar ice caps may cause infrastructural damage along the coast as the global sea level rises. Increased temperatures may create more erratic weather patterns and an increase

in extreme weather systems. Disrupted seasonal patterns, ocean acidification and increased flooding could lead to inundation of aquatic freshwater habitats and affect the status of flora and fauna species worldwide.

- **Local Impacts:** The Central Valley may experience intense heat waves, reduced precipitation, more frequent drought conditions, early melting of the snow pack in the Sierras and disrupted seasonal patterns which could affect farming practices as well as natural habitats.

The California legislature passed legislation (addressed below) based upon the findings of the IPCC, the U.S. Global Change Research Program, and the National Research Council of the U.S. National Academy of Sciences. The development of CAPs in California, in general, is based upon the actions of the California legislature and its reliance on these findings. For further information on Climate Science, please visit the California Climate Change Portal at http://www.climatechange.ca.gov/.

Local Benefits of Addressing GHG Emissions

Planning efforts intended to reduce GHG emissions through resource efficiency and conservation measures often have multiple co-benefits that will improve the quality of life for community members in Lodi. While some co-benefits are qualitative, others are quantifiable improvements over current conditions.

Although the following list is in no way exhaustive of the myriad co-benefits related to climate action planning, this plan references them to illustrate the overlapping benefits of various CAP measures. Overall, these co-benefits:

- Strengthen local economic development (e.g., CEQA streamlining/tiering, transparent development requirements, job creation);
- Improve the downtown and neighborhood experience;
- Protect and preserve agricultural lands by promoting smart growth;
- Preserve underground aquifers by reducing water use;
- Improved air quality and resulting public health benefits;
- Protect and enhance natural habitat; and
- Potential long-term savings for residents resulting from reduced energy use.

Additional co-benefits are discussed in Chapter 4-Greenhouse Gas Reduction Strategy. Each measure is assigned one or more co-benefits which may incentivize residents to participate in the programs that are proposed in this CAP.

Public Outreach

This CAP was developed in collaboration with students of the University of California, Davis's Land Use and Natural Resources extension program, who played a vital role in planning and organizing the public outreach process. Key stakeholders were identified and engaged in a series of individual meetings and group workshops.

Real-estate developers were invited to attend an individual "round-table" discussion. The round-table was attended by representatives of the Building Industry Association of the Delta and FCB Homes who were able to provide a regional perspective on development, as well as Tokay Development, a local developer . The developers provided insight into the state of development in Lodi and the potential for measures that addressed new and existing buildings.

Discussions were also held with local businesses and institutions, including Pacific Coast Producers, the Lodi Unified School District (LUSD), Lodi Memorial Hospital, the Wine and Grape Commission and Lodi Citizens in Action. Some representatives expressed an interest in energy efficiency technologies; as a result, this CAP includes measures to engage these organizations in energy retrofit assistance programs and demonstration projects. Other representatives provided insight into constraints to energy efficiency, such as food processing and hospital sanitation requirements, and how to frame the measures in the CAP to alleviate the concerns of some local interest groups.

The Farmer's Market provided a means of engaging residents (adults and children), including a survey on potential energy efficiency measures, alternative transportation and solid waste disposal. Children were engaged with a trivia game involving a spinning wheel with randomly selected questions. To gauge children's understanding of recycling, composting, energy saving behaviors in the home and the environmental benefits of riding their bikes or walking to school.

Several key conclusions, described below, were drawn from the public outreach process, which informed the development of measures within this CAP.

Energy Efficiency

While Lodi Electric Utility (LEU) offers rebates for the purchase of energy efficient appliances and home energy efficiency upgrades, LEU does not currently have a program to provide

financial assistance such as loans or grants. Rebates absorbed rapidly each year and outreach at the farmer's mar indicated that additional financial resources would encour residents to upgrade their homes. Barriers to increas residential energy efficiency that were identified through pu outreach include:

- Limited understanding of co-benefits;
- Lack of financing options (i.e. loans and grants);
- Program awareness; and
- Language and technological barriers.

LEU's Lodi Energy Efficiency Financing (LEEF) program involv revolving loan fund that commercial customers can use finance energy efficiency retrofits, paying off the balance their monthly utility bill. This program could be expandec increase retrofit financing options for commercial and indust customers.

Lodi has historically experienced a slow rate of developm with growth occurring at less than 2% over the past sev years; a trend which City officials expect will continue over next 5-7 years. As a result GHG reductions associated v energy efficient new developments will not be significant by horizon years 2020 and 2030. Reductions will therefore nee be achieved by reinvesting in the existing vacant or o building stock which will not only improve energy efficiency homes and businesses, but provide more local job opportuni and reduce the number of people commuting by car.

Figure 1.2 Studio 30 Students and the "Wheel of Awesome"

The "Wheel of Awesome" engaged children at the Farmer's Market in the CAP process. After spinning the wheel, the children were asked a question that related to various sectors in the CAP, such as "Do you walk or ride your bike to school?" or "Have you ever heard of composting?" These questions helped to gauge the children's level of awareness of these concepts and informed the development of several outreach and demonstration measures.

Transportation

While residents agree that Lodi is very walkable and bike-friendly, most residents commute by car to work outside of Lodi. Residents indicated that they may drive less if:

- bus service was offered more frequently
- regional connectivity was enhanced
- bicycle awareness was promoted to enhance safety

Transportation Demand Management (TDM) programs exist in some businesses and institutions in Lodi, however; participation is typically low.

Solid Waste

While residents in Lodi typically responded that they "always" recycle, few survey participants were familiar with the term "composting". The Lodi Unified School District had a composting program in the past and while the program was discontinued due to budgetary issues they would like to re-instate it in the future. Lodi's local fruit canning and dairy industries send large amounts of organic solid waste to the landfill each year.

Water

As residents transition to tiered rate pricing with Lodi's Water Meter Program, the City's new Sustainable Water Use Guide could be leveraged to encourage residential water conservation practices.

While the City requires the installation of recycled water pipes in all new development, there is currently no distribution system in place to deliver the water to its larger commercial customers for irrigation and other non-potable water needs.

Green Infrastructure

Local businesses have expressed interest in partnering with the City for a building-integrated vegetation demonstration project.

Planning Context

Many cities in California are using CAPs to quantify their share of statewide GHG emissions and establish action steps toward achieving a local emissions reduction target. CAPs typically address emissions targets through reduced dependency on fossil fuels and nonrenewable energy sources, and through increases in the efficient use of the energy that is consumed. CAPs also provide a way to connect climate change mitigation (GHG reduction) to climate adaptation, community resilience, and broader community goals.

In Lodi, most GHG emissions come from energy used in buildings and gasoline burned in motor vehicles, with water and waste related emissions contributing relatively smaller proportions. Lodi's CAP examines the communitywide activities that result in GHG emissions and establishes strategies that help reduce those emissions in future and existing development through both voluntary and mandatory actions.

Many of the strategies included in this plan, in addition to reducing GHGs, will also help make Lodi a more attractive place to live – lowering energy and water bills through conservation, improving bike and pedestrian facilities, improving air quality, and reducing waste generation to extend the lifetime of local landfills.

California Climate Change Actions

Since the 1970's California has been a leader in environmental health and climate change legislation. In 2005 Governor Schwarzenegger signed Executive Order (EO) S-3-05, which recognizes California's vulnerability to a reduced snowpack, exacerbation of air quality problems, and potential sea-level rise due to a changing climate.

To address these concerns, the governor established targets to reduce statewide GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

In 2006, California became the first state in the country to adopt a Green House Gas reduction target through AB 32. This law codifies the EO S-3-05 requirement to reduce statewide emissions to 1990 levels by 2020. AB 32 resulted in the 2008 adoption by the California Air Resources Board (ARB) of a Climate Change Scoping Plan (Scoping Plan), outlining the State's plan to achieve emission reductions through a mixture of direct regulations, alternative compliance mechanisms, different types of incentives, voluntary actions, market based mechanisms, and funding. The Scoping Plan addresses similar areas to those contained in this CAP, including transportation, building energy efficiency, water conservation, waste reduction, and green infrastructure.

AB 32 engendered several companion laws, referred to as statewide actions throughout this plan, that represent a significant source of estimated GHG reductions for the City. These actions include:

- **Renewable Portfolio Standard (RPS)** established increasingly stringent Renewable Portfolio Standard requirements for California utilities
- **2013 California Title 24** details energy efficiency standards for residential and non-residential development
- **AB 1109** established efficiency standards for residential and commercial lighting products
- **SB 7X** required water management districts to reduce per capita water consumption
- **AB 1493** established emission performance standards for motor vehicles
- **EO-S-1-07** established performance standards for the carbon intensity of transportation fuels
- other vehicle efficiency regulations

Additional descriptions of these and other legislative actions are provided below. At the time of plan preparation, the City estimated the GHG emission reductions associated with AB 1493, EO-S-1-07, the Renewable Portfolio Standard (RPS), AB 1109, and other discrete vehicle efficiency programs (see Chapter 3 for GHG emission reductions associated with these programs). In the future, as the regulatory framework surrounding AB 32 grows, it may be possible to evaluate a wider range of statewide reductions.

Renewable Portfolio Standard

SB 1078, SB 107, and EO-S_14_08 have established increasingly stringent RPS requirements for California utilities. RPS-eligible energy sources include wind, solar, geothermal, biomass, and small-scale hydro.

- **SB 1078** required investor owned utilities to provide at least 20 percent of their electricity from renewable resources by 2020.
- **SB 107** accelerated the timeframe to take effect in 2010.
- **EO-S_14_08** increased the RPS further to 33 percent by 2020.

California Title 24

Title 24 of the California Code of Regulations dictates how new buildings and major remodels are constructed in California. Title 24, Part 6 is a component of Title 24 that details energy efficiency standards for residential and non-residential development. It is updated on approximately a three-year cycle. The State will be increasing building energy conservation requirements through adoption of the 2013 Title 24 standards, which will go into effect beginning in 2014. It is estimated that these revisions to the current 2008 Title 24 standards will result in energy consumption reductions of 25% over the current standards.

AB 1109

AB 1109, known as the Lighting Efficiency and Toxics Reduction Act, established requirements for reducing lighting energy usage in indoor residences and state facilities by no less than 50% by 2018, and a 25% reduction in commercial facilities by the same date.

Figure 1.3 Wind Turbines

To achieve these efficiency levels, the California Energy Commission would apply its existing appliance efficiency standards to include lighting products, as well as require minimum lumen/watt standards for different categories of lighting products. The bill expands existing incentives for energy efficient lighting. The bill also requires manufactures to reduce the levels of toxins in lighting products, such as mercury inflorescent and lead in incandescent bulbs.

SB 7X

SB 7x requires the state to achieve a 20 percent reduction in urban per capita water use by the end of 2020. The bill also requires each urban retail water supplier to develop both interim and long term urban water use targets. Alameda County Water District is in the process of setting a plan to help achieve these targets, and has been closely involved in the development of the CAP to see how it can help achieve this water reduction goal. SB 7x also creates a framework for future planning and actions for urban and agricultural users to reduce per capita water consumption 20 percent by 2020.

AB 1493 (Pavley)

California's mobile-source GHG emissions regulation for passenger vehicles was signed into law in 2002. This bill would require the Air Resources Board (ARB) to set emission standards for greenhouse gases, with no mandate for specific technology. In doing so, the ARB is to consider cost-effectiveness, technological feasibility, economic impacts, and mandate maximum flexibility to manufacturers.

EO-S-1-07 - The Low Carbon Fuel Standard (LCFS)

EO-S-01-07 reduces the carbon intensity of California's transportation fuels by at least ten percent by 2020. The LCFS is a performance standard with flexible compliance mechanisms that incentivizes the development of a diverse set of clean, low-carbon transportation fuel options to reduce GHG emissions.

Vehicle Efficiency Regulations

ARB has adopted several regulations to reduce emissions through improved vehicle efficiency. The following two regulations were quantified and included in the CAP calculations.

Tire Inflation Regulation

On September 1, 2010, ARB's Tire Pressure Regulation took effect. The purpose of this regulation is to reduce GHG emissions from vehicles operating with under-inflated tires by inflating them to the recommended tire pressure rating. The regulation applies to vehicles with a gross vehicle weight rating (GVWR) of 10,000 pounds or less. Under this regulation, automotive service providers must meet the following requirements:

- Check and inflate each vehicle's tires to the recommended tire pressure rating, with air or nitrogen, as appropriate, at the time of performing any automotive maintenance or repair service. Indicate on the vehicle service invoice that a tire inflation service was completed and the tire pressure measurements after the service were performed.
- Perform the tire pressure service using a tire pressure gauge with a total permissible error no greater than + two (2) pounds per square inch (psi).
- Have access to a tire inflation reference that is current within three years of publication.
- Keep a copy of the service invoice for a minimum of three years, and make the vehicle service invoice available to the ARB, or its authorized representative upon request.

Heavy-Duty Vehicle GHG Emission

In December 2008, ARB adopted a new regulation to reduce GHG emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. Fuel efficiency is increased through improvements in tractor and trailer aerodynamics and the use of low rolling resistance tires. The regulation is expected to reduce approximately 1 million metric tons of carbon dioxide-equivalent emissions statewide by 2020.

Over the 11 years between 2010, when the rule went into effect, and the end of 2020, it is estimated that truckers and trucking companies will save about $8.6 billion by reducing diesel fuel consumption by as much as 750 million gallons in California, and 5 billion gallons across the nation. The tractors and trailers subject to this regulation must use U.S. Environmental Protection Agency SmartWaycertified tractors and trailers, or retrofit their existing fleet with SmartWayverified technologies. These requirements apply to both California-registered trucks and out-of-state registered trucks that travel to California.

Relationship to the General Plan

Lodi is among many other cities and counties in California that are addressing the State's greenhouse gas reduction goals in their general plans. The City's policy commitment includes encouraging higher density, mixed-use and infill development in

appropriate locations, energy efficiency, and renewable energy development that contribute to GHG reduction strategies contained in the CAP. Since GHG emissions are a cross-cutting issue addressed by many General Plan elements, the CAP as a whole is generally considered an implementation measure for the General Plan. This structure allows the City to update the CAP on an ongoing, as-needed basis to ensure that the City's climate protection efforts reflect both current legislation and emerging best practices.

Relationship to the California Environmental Quality Act

Local governments may prepare a Plan for Reduction of Greenhouse Gases that is consistent with AB 32 goals. By preparing such a plan, the city can streamline CEQA review of subsequent plans and projects consistent with the GHG reduction strategies and target in the plan. To meet the standards of a qualified GHG reduction plan, Lodi's CAP must achieve the following criteria (which parallel and elaborate upon criteria established in State CEQA Guidelines Section 15183.5[b][1]):

- Completing a baseline emissions inventory and projecting future emissions
- Identifying a community-wide reduction target
- Preparing a CAP to identify strategies and measures to meet the reduction target
- Identifying targets and reduction strategies in the General Plan and evaluating the environmental impacts of the CAP in the General Plan EIR
- Monitoring effectiveness of reduction measures and adapting the plan to changing conditions
- Adopting the CAP in a public process following environmental review

This approach allows jurisdictions to analyze and mitigate the significant effects of GHGs at a programmatic level, by adopting a plan for the reduction of GHG emissions. Later, as individual projects are proposed, project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review in their cumulative impacts analysis. Project-specific environmental documents prepared for projects consistent with the General Plan and CAP may rely on the programmatic analysis of GHGs contained in an EIR that would be certified for the City's future General Plan and CAP. Chapter 5 provides a discussion of the criteria and process the City will use to determine if a future project is consistent with the CAP.

A project-specific environmental document that relies on this CAP for its cumulative impacts analysis must identify specific CAP measures applicable to the project, and how the project incorporates the measures. If the measures are not otherwise binding and enforceable, they must be incorporated as mitigation measures applicable to the project. If substantial evidence indicates that the GHG emissions of a proposed project may be cumulatively considerable, notwithstanding the project's compliance with specific measures in this CAP, an EIR must be prepared for the project.

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[i] Intergovernmental Panel on Climate Change. (2007). Climate Change 2007: Synthesis Report. Retrieved from: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

[ii] 74 Fed. Reg. 66514

[iii] Section retrieved from https://en.wikipedia.org/wiki/Regulation_of_greenhouse_gases_under_the_Clean_Air_Act; October 2012

[iv] United States Global Change Research Program (2009). Global Climate Change Impacts in the US. Retrieved from: http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts; January 2013

Chapter 2-Community Context

This Climate Action Plan has been developed within the context of Lodi's distinct local characteristics. The climate, building stock, demographics, and local economy establish the capacity for emissions reductions opportunities in Lodi. Thus the measures in this CAP were designed to be context specific with implementation strategies based on targeted outreach to engage all demographic groups. This chapter provides an overview of the community characteristics that factored into the measure development process identifies potential barriers to participation of residents and provides a discussion of how actions in this CAP are designed to reduce these barriers, enabling successful implementation.

Climate Zone

Lodi is located in California's agriculturally-rich Central Valley, bounded by the Sacramento-San Joaquin River Delta to the west and the San Joaquin Valley to the east. Lodi is a compact city with situated just south of the Mokelumne River in on a gridded street network surrounded by agricultural lands. Industrial uses are primarily concentrated in the eastern side of the City, defined by the rail road line and Highway 99. Large commercial uses are concentrated along the highway and other major corridors, such as Kettleman Lane to the south. The newly revitalized downtown area is in the very core of the City, located among historic neighborhoods and smaller retail stores. The remainder of the urban area is primarily dedicated to residential developments.

Lodi's climate has a direct relationship to energy use in homes and businesses. Lodi typically experiences cool, rainy winters and hot, dry summers. While inland California experiences greater temperature swings than the temperate coastal areas, Lodi's proximity to the Delta and the San Francisco Bay results in more moderate temperatures than other cities in the valley.

Strategies to increasing energy efficiency in the built environment are central to reducing energy consumption associated with heating and cooling systems during the hot summer and cold winter. One such measure acts to encourage the replacement of conventional roofs with cool roofs, which use reflective materials to deflect the heat of the sun, in turn reducing interior building temperatures and demands on the HVAC system.

Other measures which help to mitigate summer heat include planting large deciduous street trees and planting residential shade trees to protect the southern and western walls of a home from the sun, reducing heat absorption and cooling costs. Building integrated vegetation can also lower energy use as green roofs and green walls act to decrease interior building temperatures by absorbing the sun's energy before it reaches the building envelope.

Each of these measures will reduce greenhouse gas emissions and utility costs for service users. Due to Lodi's unique climate and geography, certain measures will be more successful at reducing emissions than others, but all measures will ultimately improve the quality of life for Lodi's community members.

Building Inventory

The majority of Lodi's housing stock, 68%, consists of single-family homes while 20% consists of multi-family developments. Of the total housing stock, 66% was built prior to 1980, which marked the implementation of Title 24, California's Green Building Code. Homes of this vintage are excellent candidates for building energy retrofits and weatherization as they often suffer from inefficiencies due to outdated heating and cooling systems, poor insulation, single pane windows, cracks in the building foundation and other gaps in the building envelope.

Table 2.1 Tenure by Units in Structure

	2000		2011		%
Housing Type	**Number**	**Percent**	**Number**	**Percent**	**Change**
Owner-Occupied	**11,264**	**54.4**	**12,159**	**54**	8
Single-Family	10,662	51.5	**11,179**	50	5
2 to 4 Units	162	0.8	171	1	6
5 or More Units	90	0.4	458	2	409
Mobile Homes	343	1.7	351	2	2
Renter-Occupied	**9,430**	**45.6**	**10,156**	**46**	8
Single-Family	3,616	17.5	4,016	18	11
2 to 4 Units	1,527	7.4	1,405	6	-8
5 or More Units	4,193	20.3	4,557	20	9
Mobile Homes	94	0.5	178	1	89
Total	**20,694**	**100**	**22,315**	**100**	**8**

Source: ACS Three-Year Estimate, 2011.

Energy efficiency retrofits can achieve significant greenhouse gas reductions for Lodi as building energy is responsible for over 50% of the communitywide greenhouse gas emissions. Several measures in this CAP are aimed at achieving reductions through promoting retrofit assistance programs, which are available to both single family and multi-family property owners and residents.

As of 2008 there was over 6 million square feet of non-residential space in Lodi, composed of primarily industrial food processing facilities. Opportunities for commercial retrofit financing could be expanded to gain additional reductions through energy efficiency improvements.

Renter Occupied Housing

While 50% of Lodi's building stock is composed of single-family detached homes that are owner occupied, as shown in Table 2.1, another 20% are single family homes that are renter occupied and renters occupy a majority of the multi-family housing. Furthermore, Table 2.2 indicates that renters occupy half of the housing stock that was built before the enactment of Title 24 in 1980. In general, renters are less likely to pursue opportunities for energy efficiency improvements, even though they may qualify for free weatherization programs that improve the comfort of their home while reducing utility bills.

"Renters are less likely to pursue opportunities for energy efficiency improvements; even though they may qualify for free weatherization programs that improve the comfort of their home while reducing utility bills."

Table 2.2 Tenure by Year Structure Built

	Owner Occupied		Renter Occupied		
Year Built	**Number**	**percent**	**Number**	**Percent**	**Total**
Total Units	**12,159**	**54**	**10,156**	**46**	**22,315**
2005 or later	242	1	58	0	300
2000 to 2004	1,144	5	385	2	1,529
1990 to 1999	1,535	7	905	4	2,440
1980 to 1989	2,529	11	2,140	10	4,669
1970 to 1979	1,735	8	1,913	9	3,648
1960 to 1969	1,403	6	2,217	10	3,620
1950 to 1959	1,848	8	1,377	6	3,225
1940 to 1949	877	4	511	2	1,388
1939 or earlier	846	4	650	3	1,496
Sum pre-1980	**6,709**	**30**	**6,668**	**30**	**13,377**

Source: ACS Three-Year Estimate, 2011.

Table 2.3-Households by Income Category			
Income Category	**SJ County Income Limits**	**Number**	**Percent**
Extremely-Low (≤30% AMI)	Less than $19,600	2407	11
Very-Low (30%≤50% of AMI)	$19,600-32,700	3013	14
Low (50% ≤ 80% of AMI)	$32,701-52,300	3923	18
Moderate and Above (≥ 80% AMI)	$52,301-78,500	12972	58
Total		22,315	100

1. Number of households per range is an approximate value based on 2011 Census data.
Source: ACS Three-Year Estimate 2011; HCD 2011

Demographics

The majority of the measures in this CAP are voluntary and written to promote participation of Lodi's residents and businesses. As outreach to and participation of all members of the community is a primary objective of this plan, some of the measures are designed to emphasize the engagement of groups in Lodi that might have difficulty accessing the information and resources in this CAP. The measures are designed to help the City work towards reducing barriers to participation for marginalized groups in order to ensure implementation of the CAP. The following population groups are possible candidates for targeted outreach efforts.

Low Income Households

Table 2.3, above, describes the household income characteristics of Lodi residents. Approximately 41% of the households in Lodi are considered low income, very-low income or extremely low income. The high cost of whole-house energy efficiency improvements prevents many low-income residents from investing in retrofits, even though they would save money in the long run on their utility bills. The Federal Weatherization Assistance Program uses local service providers to install cost-effective energy efficiency improvements, such as high efficiency light bulbs, new windows and new insulation, in low income households to reduce utility bills and improve overall comfort and safety. Barriers to energy efficiency for low income residents include a lack of program awareness, as well as informational and technical barriers.

Some measures in this CAP promote the use of alternative transportation by improving bicycle and pedestrian connectivity and increasing service of the City's bus system. Since low income residents are more likely to rely on an alternative means of transportation, enhancing local and regional transit connectivity would not only reduce GHG emissions associated with single-occupancy vehicle trips, but also provide these residents with greater access to job centers.

Senior Households

While the majority of Lodi's residents are middle-aged adults, many are nearing the age of retirement, represented by a 50% increase in population between the ages of 55 to 59 by 2011, and a 53% increase in residents between 60 to 64 years of age. Seniors citizens may have difficulty applying for retrofit programs, but could see significant utility bill savings, especially if they live in older homes.

Targeted outreach efforts can engage seniors with technical assistance, information on available rebates and financial assistance to encourage their participation in energy efficiency retrofit programs. Many seniors live older homes and could reduce their energy cost with energy efficiency improvements. For various reasons, seniors may face challenges in participating in such programs, such as lack of knowledge about energy efficiency programs, reluctance to incur debt (even zero interest rate deferred loans), and the need for help applying for assistance and working with contractors.

Table 2.4-Age Characteristics and Trends					
	2000		**2011**		
Age	**Number**	**Percent**	**Number**	**Percent**	**% Change**
Under 5 years	4,495	8	4,276	7	**-5**
5 to 9 years	4,581	8	4,596	8	**0**
10 to 14 years	4,448	8	4,946	8	**11**
15 to 19 years	4,184	8	4,713	8	**13**
20 to 24 years	3,855	7	4,401	7	**14**
25 to 34 years	7,605	14	7,901	13	**4**
35 to 44 years	8,427	15	8,035	13	**-5**
45 to 54 years	6,896	12	8,180	13	**19**
55 to 59 years	2,421	4	3,627	6	**50**
60 to 64 years	1,946	3	2,972	5	**53**
65 to 74 years	3,694	7	4,147	7	**12**
75 to 84 years	3,146	6	2,889	5	**-8**
Total	56,999	100	64,720	100	

Source: ACS Three-Year Estimate, 2011.

Lodi's General Plan has several policies to encourage mixed-use and transit-oriented developments as the City grows to accommodate future populations. Higher density developments near downtown and other commercial areas create dynamic and walkable communities that have become increasingly appealing to the elderly who may be looking to drive less while downsizing from their larger detached single family homes.

Non Native English Speakers

While Lodi's population has grown at 10% in the last few years, the demographic makeup of the community has also changed. Spanish speaking immigrants compose the majority of the non-native English speakers in Lodi and have grown as a group by 42% between 2000 and 20007.

This CAP emphasizes the importance of reaching out to and engaging all demographic groups in the community who may have difficulty accessing the resources in this CAP due to communication, information and technical barriers. Community and social events provide an excellent channel for engaging various ethnic groups. Without their involvement, the CAP will not reach its mandated emissions reductions projections.

Table 2.5-Ethnicity Characteristics and Trends

	2000		2011		
Age	**Number**	**Percent**	**Number**	**Percent**	**% Change (2000 to 2005-2007)**
White	36,200	64	34,081	55	-6
Latino Hispanic Origin	15,464	27	21,941	35	42
Asian or Pacific Islander	2,860	5	4,000	6	40
Native American	309	<1	341	1	10
African American	260	<1	1,001	2	285
Other	1,906	3	1,095	2	-43
Total	56,999	100	62,459	100	10

Source: ACS Three-Year Estimate, 2011.

Local Economy

Employment opportunities in Lodi are primarily centered on agricultural operations and industrial manufacturing companies. Other employers include the hospital, school district and local retailers. Employment opportunities in Lodi have grown in the last few years, due in part to the development of the Reynolds Ranch property on the southeast end of town which is now occupied by three large commercial retail employers.

Agricultural and food processing facilities in Lodi could contribute hugely to GHG reductions through diverting organic waste from landfills, which releases methane as it decomposes. Industrial manufacturing companies should be encouraged to undergo energy audits and upgrade to more advanced technologies to increase efficiency across their production system. In addition, these companies could develop transportation demand management programs to promote carpooling among employees and provide increased services for employees that may use alternative transit to reach work.

Lodi's proximity to two major freeways provides access to various job centers, but a lack of regional transit connectivity requires many residents to use personal cars for their daily commutes. Over half of the residents in Lodi, or 57%, commute daily for job purposes, which is slightly less than the County average of 59% commute trips. As a result, a large portion of emissions can be attributed to single-occupancy vehicle trips, which can only be reduced by enhanced fuel efficiency or the use of alternative transportation for commuters. While the downtown transit center provides some regional connectivity through Amtrak, further reducing emissions attributed to commuting will require additional alternative transportation options to further connect Lodi residents to regional employment centers.

Table 2.6-Employed Residents and Commuting

Place of Work	Persons	Percent
Lodi Employed Residents		
Worked in Lodi	10,525	43
Worked Outside Lodi	13,694	57
San Joaquin County Employed Residents		
Worked in San Joaquin County	96,497	41
Worked Outside San Joaquin County	136,121	59

Source: ACS Three-Year Estimate, 2011.

Chapter 3-Green House Gas Inventory

The City of Lodi has prepared this CAP to identify long-term strategies to mitigate its contribution of greenhouse gas (GHG) emissions. This chapter identifies trends in community wide GHG emissions to establish a baseline emissions level in the year 2008. Baseline emissions are determined using activity data collected from energy, water and waste collection service providers, as well as information collected as part of the General Plan process. Future emissions levels are then projected for the years 2020 and 2030, based on estimated future. This chapter also establishes a GHG emissions reduction target and explains how local, state and federal actions will contribute to the

2008 Baseline Inventory

The purpose of the 2008 baseline inventory is to identify current emission sources, relative source contributions, and to understand the overall nature and magnitude of communitywide GHG emissions. The inventory is then used to assist policy makers in effectively implementing cost-effective GHG-reduction policies, actions and measures. An accurate inventory is necessary to understand which sectors contribute the largest portion of emissions, have the greatest reduction potential and can be most effectively influenced by policies and actions implemented by the City. This inventory contains both a community and municipal inventory which contribute to the total emissions.

The International Panel on Climate Change (IPCC) identifies six primary GHG compounds, including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) as the predominant GHGs found in non-industrial processes. Since each type of GHG has a different capacity for trapping heat, all emissions are presented in units of metric tons of carbon dioxide equivalent per year (MT CO_2e/yr), which allows all emissions to be normalized to a single unit of measure.

Community Inventory

2008 Baseline Emissions

The city of Lodi's baseline inventory is ordered by sector. A "sector" is an individual subset of the total greenhouse emission spectrum, composed of emissions relating to an economy, industry, market, or general society. The sectors that were measured in this CAP are: energy, transportation, solid waste, waste water, and water consumption. Each of these sectors is shown separately in the overall emissions spectrum to allow for specific measure development for emissions reductions.

Energy

The energy sector consists of electricity and natural gas consumption. Energy use typically represents a large portion of total greenhouse gas emissions and is divided into residential and non-residential uses. The City obtained historical (2008) electricity consumption data from Lodi Electric Utility (LEU) and natural gas consumption data from Pacific Gas and Electric (PG&E). LEU and PG&E provided communitywide data aggregated by land use (i.e., residential and non-residential). Electricity data for kWh used from 2008-2009 was converted into CO_2e using an LEU-specific emission factor. Natural gas data for therms was converted into CO_2e using a PG&E-specific natural gas emission factor.

Table 3.1 Baseline Emissions 2008

Emissions Sector	MT CO_2e	% of total
Energy Consumption	**268,102**	**55.1%**
Residential Electricity	*61,295*	*12.6%*
Residential Natural Gas	*118,486*	*24.3%*
Non-Residential Electricity	*52,548*	*10.8%*
Non-Residential Natural Gas	*35,773*	*7.4%*
Transportation	**148,624**	**30.5%**
On-Road Vehicles	*141,124*	*29.0%*
Off-Road Vehicles and Equipment	*7,500*	*1.5%*
Solid Waste	**54,305**	**11.2%**
Water Consumption	**5,231**	**1.1%**
Wastewater Treatment	**3,649**	**0.7%**
Municipal	**6,717**	**1.4%**
Total	**486,628**	**100.0%**

Transportation

The transportation sector provides an estimate of emissions generated from vehicle miles traveled (VMT) by passenger cars and freight trucks. The inventory accounts for two types of trips; any vehicle trips generated by Lodi land uses that stay within the city limits and half of all vehicle trips generated by Lodi land uses that either begin or end outside of Lodi. The inventory does not account for pass-through trips. Based on these trips, annual vehicle miles traveled (VMT) is estimated using existing daily traffic volumes determined during the 2008 General Plan update process, and average trip length assumptions generated from U.S. Census data. Annual VMT is translated into emissions using a transportation-specific emissions factor, which was developed using national data for vehicle fleet mix, fuel economy and average fuel combustion. The transportation sector also accounts for emissions from off-road vehicles.

Solid Waste

Solid waste emissions are generated from decomposing organic waste in place and methane management activities. Solid waste generated within the City, as a result of community and municipal activities, is collected by Waste Management and deposited at various landfills throughout the region. Annual tons of waste generated and typical waste composition data was obtained from Cal Recycle to determine the total emissions.

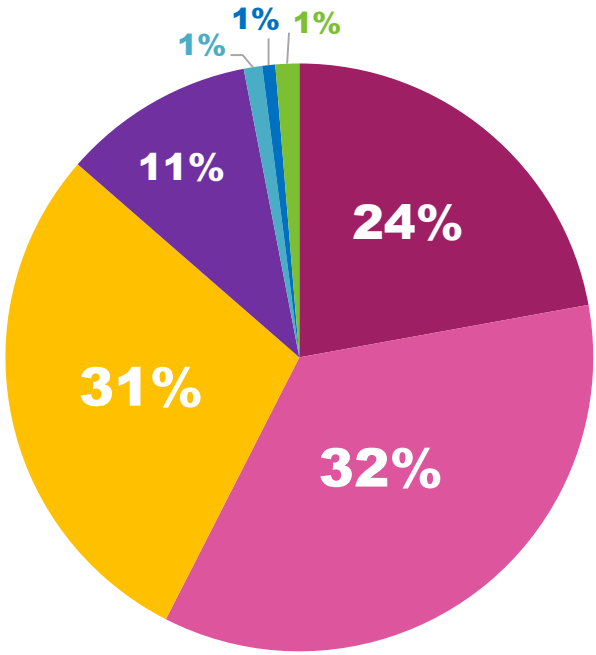


Figure 3.1: Communitywide Emissions by Sector

Wastewater Treatment

Wastewater treatment plants generate as a byproduct of the processes used to break down organic materials in the untreated water. The City provided activity data describing the volume of wastewater treated annually by the White Slough Sewer District. The inventory includes both direct emissions, resulting from the wastewater treatment processes, and indirect emissions, resulting from electricity used to power the wastewater treatment plant. Direct emissions were calculated using the volume of wastewater treated annually. Indirect emissions were determined using state averages for energy intensities in kWh/MG for wastewater collection and treatment. An LEU specific emissions factor was used to convert electricity intensity data to CO2e.

Water Consumption

Unlike the wastewater sector, emissions from the water sector come from the electricity used to treat, convey, and distribute potable water. Total electricity consumption associated with both municipal operations and communitywide land uses was obtained from the City. Emissions were determined using the LEU-specific emissions factor.

Municipal Operations

Emissions from municipal operations are included as a sector in the communitywide total. A separate municipal inventory was conducted and is further described in the next section of this chapter.

Community Inventory Results

The community baseline inventory is composed of the five previously described emissions sectors. The majority of Lodi's communitywide emissions originated from energy (55.1%) and transportation (30.5%), which collectively accounted for approximately 85.6% of the total emissions inventory. Solid waste accounted for 11.2% of communitywide emissions. Wastewater treatment and water consumption combined made up less than 1.8% of emissions. Municipal emissions collectively amounted to 1.4% of the total communitywide emissions.

Table 3.1 provides a summary of the communitywide inventory, presenting subsectors within energy and transportation that were calculated separately during the inventory process. On-road vehicle use is the largest contributor of any subsector, at 29.0% of total community-wide emissions. The next largest contributor is non-residential electricity use at 24.3%, followed by residential electricity (12.6%), and residential natural gas (10.8%).

Municipal Inventory

2008 Baseline Emissions

The baseline municipal emissions inventory follows Local Government Operations Protocols (LGOP) guidance which uses different emissions sources, including; buildings and facilities, the municipal vehicle fleet, wastewater treatment facilities, employee commutes, power generation facilities, public lighting, solid waste, the municipal transit fleet, and water delivery. While municipal operations are a small portion of the communitywide emissions, the City has the power to directly affect its own emissions, thereby setting a good example for programs and policies in the private sector.

Table 3.2 Municipal Emissions 2008

Emissions Sector	MT CO_2e	%
Buildings and Facilities	**1,941**	**29%**
Electricity	*103*	*2%*
Natural Gas	*1,838*	*27%*
Mobile Fleet	**1,612**	**24%**
Gasoline	*1,173*	*17%*
Diesel	*354*	*5%*
Refrigerants	*84*	*1%*
CNG	*2*	*0%*
Wastewater Treatment	**1,519**	**23%**
Employee Commute	**739**	**11%**
Power Generation	**653**	**10%**
Streetlights	**145**	**2%**
Solid Waste	**55**	**1%**
Transit Fleet	**50**	**1%**
Water Delivery	**3**	**0%**
Stormwater Management	*2*	*0%*
Water Delivery Pumps	*1*	*0%*
Total	**6,717**	**100%***

** Individual percentages may not add to 100 due to rounding.*

Buildings and Facilities

Emissions from the City's buildings and facilities result from the consumption of electricity, natural gas and other fuels. Emissions associated with municipal building and facility operations were quantified using data obtained from PG&E and Lodi Electricity Utility (LEU).

Mobile Fleet

The City's vehicle fleet emissions were quantified using fuel consumption data for gasoline, diesel and compressed natural gas (CNG), to operate fire response vehicles, landscape maintenance vehicles, passenger cars, light trucks, and sport utility vehicles (SUVs).

Wastewater Treatment

Wastewater treatment facilities generate methane and nitrous oxide, as a byproduct of the treatment process, as well as emissions from electricity and on-site natural gas consumption. Data relating to electricity consumption was obtained from PG&E. Data relating to backup generators and fuel consumption was obtained from Public Works.

Employee Commute

The municipal inventory also includes emissions resulting from employee commute trips, which are predominantly fueled by gasoline, with only a few vehicles using diesel.

Power Generation

Emissions from power generation facilities result from the combustion of natural gas and coal to generate electricity, as well as the transmission and distribution of purchased electricity.

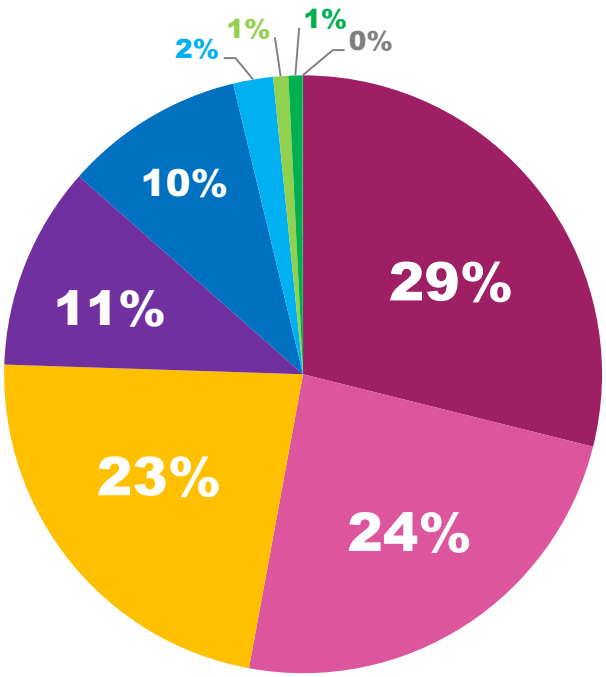
The City operates its own utility which procures electricity through the Northern California Power Agency (NCPA); therefore, only emissions related to transmission and distribution lines are included in the City's inventory.

Streetlights

The City of Lodi also consumes electricity to operate public lighting infrastructure, including traffic signals and streetlights. Data from local utility providers was used to calculate emissions from the City's streetlights.

Solid Waste

Emissions from municipal solid waste are an estimate of methane generation that will result from the anaerobic decomposition of organic waste sent to landfill, including paper and food waste from offices and facilities, construction waste from public works, and plant debris from the parks departments.



BUILDINGS AND FACILITES
MOBILE FLEET
WASTEWATER TREATMENT
EMPLOYEE COMMUTE
POWER GENERATION
STREETLIGHTS
SOLID WASTE
TRANSIT FLEET
WATER DELIVERY

TOTAL $MTCO_2e$

6,717

Figure 3.2: Municipal Emissions by Sector

Transit Fleet

Lodi's transit fleet includes buses and shuttles that run on compressed natural gas (CNG), an alternative fuel that produces significantly lower emissions than gasoline.

Water Delivery

The distribution of potable water for drinking and irrigation purposes generates emissions through electricity and natural gas consumption. Lodi relies entirely on groundwater to supply its potable water needs and must use electricity to power pumps which bring the water from underground aquifers to the surface. Data relating to electricity and fuel consumption were obtained from PG&E.

Municipal Inventory Results

The municipal baseline inventory accounts for emissions from nine separate sources. Similar to the community inventory, the majority of municipal emissions originated from energy use by buildings and facilities (29%) and the City's mobile fleet (24%). Wastewater treatment accounted for 22% of communitywide emissions, city employee commute accounted for 11% and power generation facilities, another 10%. The four remaining emissions sources amounted to less than 5% and include streetlights, solid waste, the City's transit fleet and water delivery.

Table 3.2 provides a summary of the emissions sources for the municipal inventory. Of the largest emissions source, buildings and facilities, natural gas consumption comprised a strong majority at 27% of the total emissions. As for the mobile fleet, a majority of the emissions were the result of vehicles powered by gasoline.

Emissions Forecasts

Community Emissions

The baseline inventory was used to project the communitywide GHG emissions to the horizon years 2020 and 2030 under a business-as-usual scenario. Emission projections estimate future emissions levels and provide insight regarding the scale of reductions necessary to achieve an emissions target. GHG reduction measures developed for the CAP are applied to the 2020 and 2030 emissions levels to determine if the City will achieve its GHG reduction targets. Business-as-usual projections coincide with the statewide greenhouse gas reduction target for the year 2020, set by AB 32, as well as the City's General Plan horizon year 2030. As the CAP is a supporting document for the General Plan, estimating emissions to 2030 will allow for "integral implementation" of the CAP alongside the General Plan.

The business-as-usual scenarios assume that historical and current GHG-generating practices and trends for energy consumption, transportation, solid waste, wastewater, and water consumption will continue through 2030. The business-as-usual projections do not include locally-realized GHG reductions from implementation of statewide GHG reduction programs or the local CAP measures described in Chapter 4.

Emissions projections are based on the estimated increase in service population. Service population measures the number of jobs and population as an indicator of current and potential resource consumption in a community. Estimates used to project emissions for this plan are consistent with estimates determined during the General Plan update process, which assume service population will increase by 39.7% from 2008 to 2020 and 75.2% from 2008 to 2030.

The business-as-usual projections use service population growth assumptions across all sectors in this CAP as an indicator of potential growth in Lodi. The projections have been developed for planning purposes, and due to the complexity of each emissions sector, are subject to change. As 2020 approaches, the City will reevaluate its emissions projections and reduction target to incorporate progress toward long-term GHG reductions, and will repeat this process as 2030 approaches as well.

Municipal Emissions

The growth of City government is related to the population growth within its jurisdiction; however, City government is unlikely to grow at the same rate. Rather, City operations increase in response to demand for resident services, but tend to avoid over-expansion.

"Service population is expected to increase by 39.7% from 2008 to 2020 and 75.2% from 2008 to 2030."

Therefore, growth in the City's municipal operations was projected to occur at a more conservative rate of 65% of the population growth from year 2008 to 2020, and 2020 to 2030. All emissions sectors were projected to increase equally, while in reality, changes in the City's priorities and implementation of the CAP will shift the emission ratios and total mass emissions. In the future, updates to the City's municipal emissions inventory should be evaluated considering the economic state of the City during the baseline year to better understand the connections between other factors.

Communitywide Business-As-Usual Emissions Forecasts

Table 3.3 provides a summary of Lodi's 2020 communitywide business-as-usual projected emissions, which are anticipated to be 671,896 MT CO_2e in 2020 and 843,367 MT CO_2e in 2030. Under this scenario, GHG emissions would increase across all sectors from 2008 to 2020 and 2020 to 2030. Municipal emissions, included in Table 3.3, are incorporated into the communitywide total. By 2020 business-as-usual municipal emissions are anticipated to be 8,075 MT CO_2e, while emissions in 2030 are anticipated to reach 9,207 MT CO_2e.

Emissions Sector	BASELINE 2008		BUSINESS-AS-USUAL 2020		BUSINESS-AS-USUAL 2030	
	MT CO2e	% of total	MT CO2e	% increase 2010-2020	MT CO2e	% increase 2010-2030
Energy Consumption	**268,102**	**55.1%**	**371,915**	**38.7%**	**458,427**	**71.0%**
Electricity	*179,781*	*36.9%*	*249,396*	*38.7%*	*307,408*	*71.0%*
Natural Gas	*88,320*	*18.1%*	*122,520*	*38.7%*	*151,019*	*71.0%*
Transportation	**148,624**	**30.5%**	**212,329**	**42.9%**	**276,901**	**86.3%**
On-Road Vehicles	*141,124*	*29.0%*	*201,925*	*43.1%*	*264,077*	*87.1%*
Off-Road Vehicles	*7,500*	*1.5%*	*10,404*	*38.7%*	*12,824*	*71.0%*
Solid Waste	**54,305**	**11.2%**	**75,333**	**38.7%**	**92,856**	**71.0%**
Water Consumption	**5,231**	**1.1%**	**7,257**	**38.7%**	**8,945**	**71.0%**
Wastewater Treatment	**3,649**	**0.7%**	**5,061**	**38.7%**	**6,239**	**71.0%**
Municipal	**6,717**	**1.4%**	**8,075**	**20.2%**	**9,207**	**37.1%**
Total	486,628	100.0%	679,970	39.7%	852,575	75.2%

Table 3.3: Emission Inventory and Projections

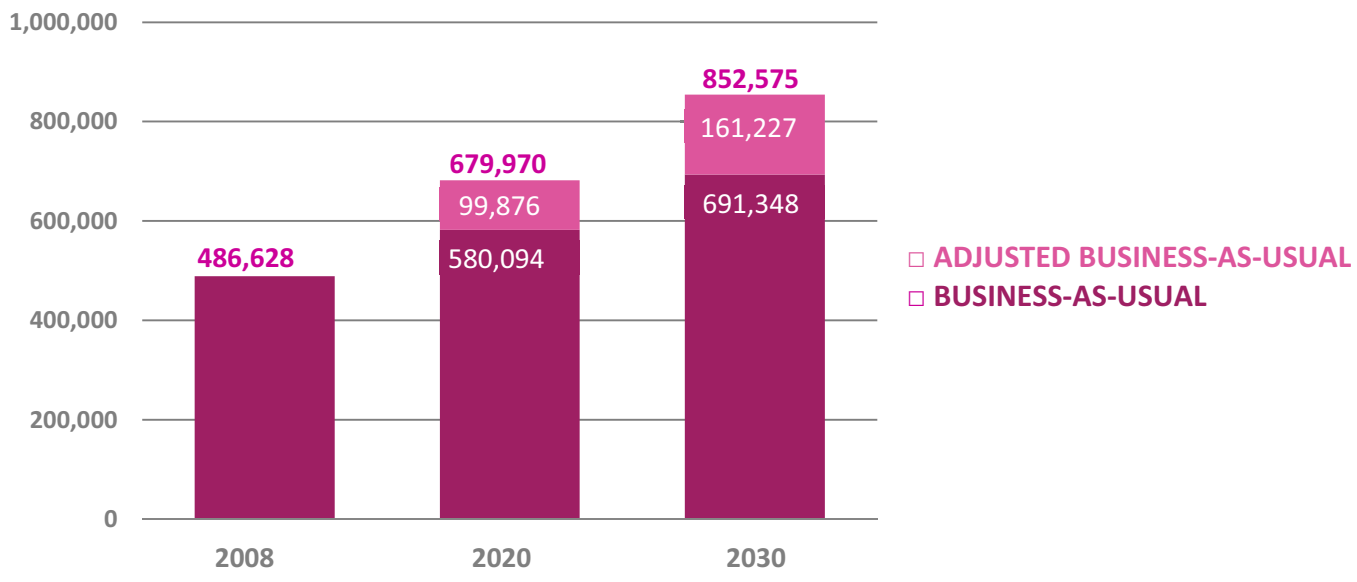


Figure 3.3: Adjusted Business-As-Usual Emissions

Table 3.4 Statewide Reductions		
Emissions Sector	**2020**	**2030**
Pavley I	**44,674**	**92,650**
Low Carbon Fuel Standard	**19,222**	**24,832**
Pavley II	**3,284**	**3,488**
Renewable Portfolio Standard	**31,424**	**38,733**
SB 7x Water Reduction	**1,271**	**1,523**
% Business-As-Usual	*14.9%*	*19.1%*
Total Reduction	**99,875**	**161,227**

Adjusted Business-As-Usual Emissions Forecasts

Table 3.4 describes the emission reductions anticipated to occur within the community through implementation of State and federal policies and regulations. The largest reductions are from State and federal fuel efficiency improvements to passenger vehicles and light-duty trucks. As residents and businesses replace older vehicles with newer ones, people will consume less fuel and generate fewer emissions per vehicle mile traveled. California's low carbon fuel standard will also reduce transportation-related emissions in the community by requiring a transition away from fossil fuels (i.e., gasoline and diesel) toward lower-carbon bio-fuels (e.g., ethanol). Implementation of the regional SB 375 Sustainable Communities Strategy will reduce vehicle emissions through development of effective transit and other alternative transportation systems and encouragement of low-carbon development.

California law also requires all utilities to obtain 33% of their electricity from renewable energy sources by 2020. This increase in renewable electricity will reduce the community energy-related emissions. The medium- and heavy-duty vehicle efficiency improvements program and California Energy Code (Title-24) requirements for new construction will create smaller, but still important, communitywide emission reductions.

State and federal actions that reduce communitywide emissions within the City of Lodi will make it easier for the community to achieve 2020 and 2030 emission reduction goals. As shown in Figure 3.3 with implementation of State and federal actions, communitywide emissions would be 580,094 MT CO2e/yr in 2020 and 691,348 MT CO2e/year in 2030.

Emissions Efficiency Target

The City of Lodi has chosen to utilize an efficiency based emissions target with the CAP. The logic behind the efficiency targets is that if all California communities achieved this level of efficiency on a "fair-share" per service population basis, then the State would achieve its AB 32's 2020 GHG reduction goals. The target metric is calculated by dividing total land use related statewide emissions by the sum total of population and jobs projected in the State in the horizon. As shown in Figure 3.5, this CAP establishes a target of improving communitywide per service population emissions efficiency to 4.5 MT CO2e/ service population/ year by 2020 and to 3.0 MT CO2e/ service population/ year. These goals demonstrate the City's commitment to make a fair-share contribution to state climate protection efforts and demonstrate a trajectory towards an emissions level in-line with the Executive Order S-3-05 goals.

The General Plan planning horizon extends only to 2030, which makes projecting 2050 activity and emission levels highly uncertain. As a result, this CAP does not address the steps needed to achieve reduction goals beyond 2030. However the City will regularly reevaluate its long-term emissions reduction goals to respond to future circumstances.

Community Actions

The greenhouse gas reduction strategy presented in the next chapter of this CAP will serve as a framework for achieving the City's reduction target through local actions. Each greenhouse gas reduction measure includes action steps, which serve to guide the implementation process and insure the City achieves the estimated reductions in the future. The estimated reductions were quantified based on participation rates that reflect on historic trends and future expectations. The 16 quantified greenhouse gas reduction measures would result in communitywide emissions reductions of 44,481 MT CO2e/year and an efficiency level of 4.3 MT CO_2e/ service population/ year.

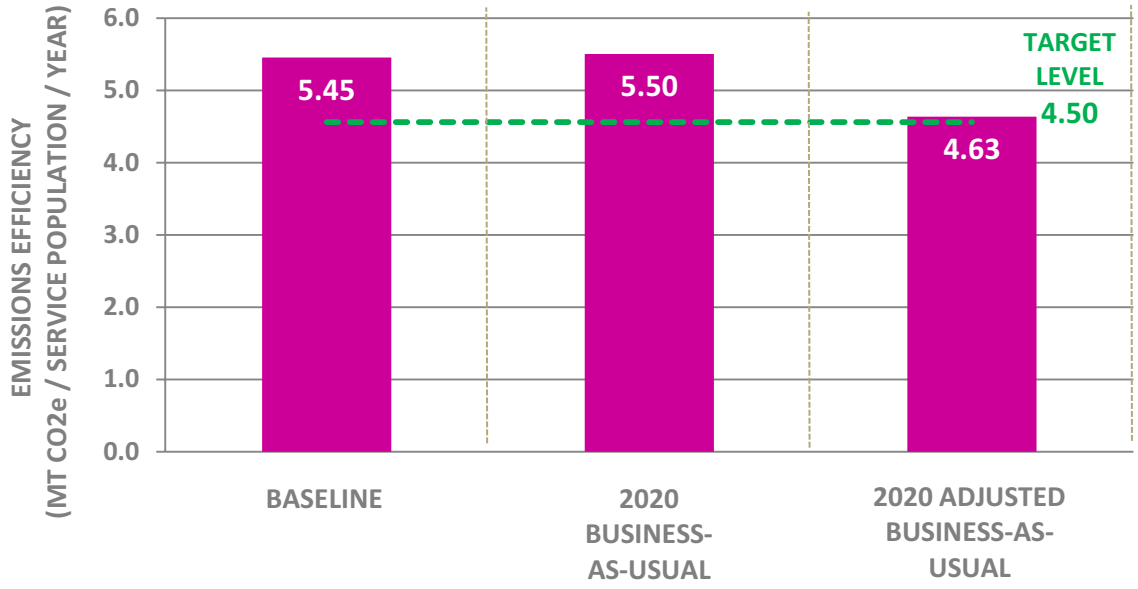


Figure 3.4: Community Emission Efficiency Levels and 2020 Target

Chapter 4-Greenhouse Gas Reduction Strategy

This chapter defines the local strategies that will be implemented by the city in order to achieve its goal of reducing 2008 greenhouse gas emissions 15% by 2020 and 37% by 2030. The measures included in this chapter affect issues within the city's direct influence and are designed to fill the gap between the city's reduction targets and the estimated statewide reductions described in Chapter 3. Measures were developed by (a) evaluating existing community conditions; (b) identifying emission reduction opportunities within the community; and (c) reviewing best practices from other jurisdictions and organizations.

Leverage Local and Regional Opportunities

Measures in this CAP were designed to foster existing local initiatives and implement policies and programs in the 2010 General Plan while leveraging regional partnerships. Existing city programs were identified and opportunities for program expansion were considered. The greenhouse gas reduction potential of existing programs contributes to the total reductions, while action steps to expand these programs contribute additional reductions to help meet the city's target. Where there were no existing programs offered by the city, local and regional initiatives were identified as a platform for cross-promotion or new program development.

Measure Structure

Measures are organized by strategy areas (e.g., energy, transportation), and while most measure are designed to achieve quantifiable GHG reductions, the direct emissions reduction benefits of some measures cannot be accurately quantified. The measures that are not quantified have been identified in this CAP as supporting measures.

Each measure includes: a description providing policy background; action steps to guide implementation; a relative cost analysis; city departments and government agencies with primary responsibility; a description of qualitative and quantitative co-benefits; and an indication of the measure's GHG reduction potential relative to other measures within the strategy area.

Strategy Areas

Measures are grouped into five strategy areas that represent the primary ways to reduce communitywide GHG emissions in Lodi. Strategy areas are as follows:

- **Energy Efficiency** recommends ways to increase energy efficiency in existing buildings and systems; and increase the use of renewable energy.
- **Transportation** encourages alternatives to driving alone by car; promotes transit as a viable transportation mode; and greater travel efficiency.
- **Solid Waste** increases organic waste diversion to decrease methane emissions.
- **Water** recommends actions to support state mandated goals to reduce water consumption and the energy required to collect, store, distribute, and treat water and wastewater.
- **Green Infrastructure** uses urban vegetation to off-set the urban heat island effect, thereby reducing building energy use.

Measure Description

Each measure begins with a description of how GHG emissions are reduced and provides important background information regarding the city's rationale and policy direction. Additionally, some descriptions highlight the city's actions to date and then provide guidance for expanding existing programs.

Actions and Performance

Action steps are provided in a table following each measure description. Actions identify specific steps that the city will take to implement the measure. Performance metrics are also provided so that the city may track progress towards achieving the reductions described in this CAP.

Relative Public and Private Cost

The relative cost associated with measure implementation and participation is provided for the city (i.e., public) and residents / businesses (i.e., private). The cost analysis uses assumptions of labor hours and capital costs for code enforcement, program development, planning, and outreach efforts. In instances where the CAP is simply documenting GHG reductions associated with ongoing or planned city programs (e.g., implementation of the Urban Water Management Plan), the public cost estimates only reflect those additional actions recommended in the CAP (e.g., expanded public outreach efforts). Public costs are estimated as total cost to implement through 2020 (as opposed to annual costs), while private costs are estimated as one-time installation or participation costs.

These assumptions were used to assign a cost range to each measure, represented by the symbols shown in Figure 4.1 below. Where implementation does not require the city to increase funding above baseline levels, the measure is considered cost neutral. Supporting information on cost estimates is provided in Appendix C.

ICON	RANGE
0	**COST NEUTRAL** **PUBLIC:** $0.00 **PRIVATE:** $0.00
$	**VERY LOW** **PUBLIC:** $10,000 and below **PRIVATE:** below $100
$$	**LOW** **PUBLIC:** $10,001 - $20,000 **PRIVATE:** $101 - $200
$$$	**MEDIUM** **PUBLIC:** $20,001 - $100,000 **PRIVATE:** $201 - $1,000
$$$$	**HIGH** **PUBLIC:** above $100,000 **PRIVATE:** above $1,000

Figure 4.1: Relative Cost Analysis Range

Responsible Agencies

Each measure is assigned to a city department, public agency, or non-governmental nonprofit organization that will be responsible for implementing action steps. The following agencies are assigned responsibility for implementing this CAP:

- Lodi Electric Utility Department
- Community Development Department:
    - Planning Division
    - Building Division
    - And Neighborhood Services Division
- Parks, Recreation, and Cultural Services
- Public Works
- San Joaquin County Human Services Agency (HSA)
- Tree Lodi
- Lodi Chamber of Commerce

Community Co-benefits

Beyond reducing GHG emissions as described in Chapter 2, many recommended CAP actions have the potential to provide additional benefits for the community. These co-benefits represent an improvement in the quality of life in Lodi and contribute to improved environmental quality. Some co-benefits are quantifiable, such as the amount of energy that is saved, while others are qualitative and will be realized to varying degrees.

The co-benefits which are quantifiable are listed below, and use the following metrics:

- Electricity Savings: kilowatt hours per year (kWh/yr)
- Natural Gas Savings: therms/yr
- Waste Reduction: tons/yr
- Vehicle Miles Traveled Reduction: miles/yr

Qualitative benefits, which are not quantified, include:

- Utility Bill Savings
- Improved Air Quality
- Improved Water Quality
- Reduced Stormwater Runoff
- Reduced Heat Island Effect
- Improved Public Health

In the future, methodologies may be developed that allow the value of these co-benefits to be quantified.

Greenhouse Gas Reductions

Reduction potential values are provided with each measure that identifies the estimated annual GHG emission reductions anticipated in 2020 and 2030 in MT CO_2e/yr. Each quantified measure also includes a donut chart that describes the percentage of reductions that result from the measure relative to the total reductions for the strategy area.

Greenhouse Gas Reduction Potential

Table 4.1 summarizes the CAP's GHG reduction potential. The majority (43%) of reductions come from energy efficiency improvements. Transportation strategies provide 37% of reductions. Waste reduction and management strategies make up the remaining 20% of reductions.

Table 4.1: Reductions from Quantified Local Measures		2020 (MT CO_2e/yr)	2030 (MT CO_2e/yr)
Energy Efficiency			
Energy Efficiency Retrofits			
E-1.1	LEU* Energy Conservation Programs	7,474	13,919
E-1.2	Energy Efficiency Financing	175	262
E-1.3	Low-Income Weatherization	175	262
Building Systems Efficiency			
E-2.1	Energy Management Systems	1339	4,437
E-2.2	Commercial Building Commissioning	1,698	2,094
E-2.3	Building Shade Trees	34	56
E-2.4	Streetlight Upgrades	1,568	1,568
Renewable Energy Generation			
E-3.1	Solar Photovoltaic Systems	3,735	6,518
E-3.2	Solar Water Heaters	188	235
Subtotal		**16,386**	**29,352**
Transportation			
Transportation Strategy			
T-1.1	Telecommuting and Alternative Work Schedules	3,080	4,134
T-1.2	Reduced Parking Minimum Requirements	527	240
T-1.3	Carsharing	85	109
T-1.4	Transit Improvements	13,717	18,571
T-1.5	Ridesharing	1,558	2,099
Subtotal		**18,967**	**25,153**
Solid Waste			
Waste Diversion			
SW-0.0	Methane Capture**	7,458	7,748
SW-1.1	Organic Waste Diversion	1,671	5,511
Subtotal		**9,129**	**13,260**
Communitywide Subtotal		**44,481**	**67,765**
Statewide Reductions			
Energy Efficiency			
Renewable Portfolio Standard (RPS)		31,424	38,733
California Energy Code (i.e., Title 24 Part 6)		6,171	11,313
Transportation			
AB 1493 (Pavley I)		44,674	92,650
AB 1493 (Pavley II)		3,284	3,488
EO-S-1-07 Low Carbon Fuel Standard (LCFS)		19,222	24,832
Water			
SB 7x Water Conservation		1,271	1,523
Subtotal Statewide Reductions		**106,046**	**172,539**
TOTAL REDUCTION POTENTIAL		**150,527**	**240,304**

* Lodi Electric Utility

** Methane Capture is included as a reduction, but it is assumed the city will not need to take any action. See the discussion on Solid Waste for more information.

ENERGY EFFICIENCY

In 2008, the city's consumption of electricity for appliances, lighting and cooling, and combustion of natural gas for heating, cooking, and other processes within residential, commercial, and industrial buildings generated 58% (295,649 MT CO2-e) of Lodi's total GHG emissions. Of the total energy consumption in Lodi, residential energy use accounted for 39% (113,843 MT CO2-e) whereas non-residential energy use accounted for 61% (181,806 MT CO2-e). The CAP's energy efficiency measures are primarily focused on the efficient use of electricity, though some measures will also result in natural gas savings. Measures include retrofits of existing residential and commercial buildings, building system efficiency upgrades, streetlight upgrades, building shade tree planting, and increasing renewable energy use.

The total GHG emission reduction potential of the energy efficiency strategy is 16,386 MT CO_2e/yr in 2020 and 29,352 MT CO_2e/yr in 2030.

E-1.1 LEU ENERGY CONSERVATION PROGRAMS

Promote existing Lodi Electric Utility energy conservation programs for residential and commercial properties.

About 2/3 of houses in Lodi were built prior to the adoption of California's Title 24 energy efficiency requirements in 1978, and 79% of the building stock that is projected to exist in Lodi in 2020 has already been constructed. Lodi stands to realize a large portion of its emissions reductions from building retrofits. While energy efficiency retrofits reduce building-related greenhouse gas emissions, residents can also benefit from noticeable savings on their utility bills and improved comfort of their home or business. Since 1998, Lodi Electric Utility (LEU) has spent more than $8.3 million in Public Benefits Charge funds on energy efficiency programs, resulting in an 18% peak demand reduction and 16% energy reduction. LEU's energy conservation programs include:

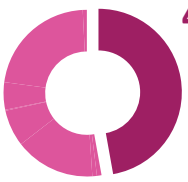
- **Appliance Rebate** for the purchase of an energy efficient refrigerator, clothes washer or dishwasher;
- **Home Improvement Rebate** for replacing insulation, installing attic fans, whole house fans, shade screens or window tinting, radiant barriers or replacing HVAC air conditioning systems;
- **HVAC System Test Rebate** for performing high-end duct system testing to measure air flow, air return and system balance;
- **Commercial/Industrial Rebates** for building envelope improvements and system efficiency upgrades;
- **Commercial Energy Efficiency Financing** up to $150,000 in financing for energy efficiency improvements, to be repaid on the participant's monthly utility bill; and
- **Energy Assessments** on-line and on-site for residential and commercial customers.

LEU will continue to implement its energy conservation programs, and increase participation through a comprehensive public outreach campaign. The city will conduct targeted outreach to demographic groups who may be less likely to retrofit their home.

ACTION STEPS	
A	Maintain the LEU website with information about current energy efficiency rebates and incentives. Add local energy efficiency improvement success stories. Leverage Energy Upgrade California outreach and educational materials.
B	Provide training to Building Division counter staff regarding available sources of rebates/incentives and printed pamphlets or FAQ sheets.
C	Identify demographic groups for targeted outreach efforts; develop promotional materials in several languages for distribution at community events.
D	Partner with San Joaquin County Human Services Agency to develop a program which provides direct assistance to individuals in identifying programs, applying for rebates and working with contractors.

METRIC	
1	**2020:** Achieve net annual energy savings of 20,989 MWh **2030:** Achieve net annual energy savings of 39,091 MWh

COST					RESPONSIBILITY
PUBLIC	$$$	PRIVATE	Varies		**Lodi Electric Utility Department** **Community Development Department** **San Joaquin County Human Services Agency**

CO-BENEFITS		QUALITATIVE	GHG REDUCTIONS	
2020	**20,989,268 kWh/yr**	**Improved Air Quality** **Improved Public Health** **Utility Bill Savings**	**Reductions by 2020:** **7,474** MT CO_2e/yr **Reductions by 2030:** **13,919** MT CO_2e/yr	**Sector Reduction** **47%** 
2030	**39,091,231 kWh/yr**			

E-1.2 ENERGY EFFICIENCY FINANCING

Collaborate with other San Joaquin agencies to create a regional PACE program.

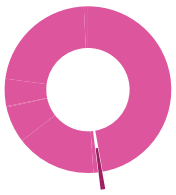
A property-assessed clean energy (PACE) financing program is enabled through AB 811 legislation. This bill allows land-secured loans for homeowners and businesses who install energy efficiency projects and clean-energy generation systems. Senate Bill 555 reinforced implementation opportunities for PACE programs by expanding the scope of activities allowed within a community facilities district, as defined by the Mello-Roos Community Facilities Act of 1982. A PACE program permits property owners within participating districts to finance the installation of energy- and water-efficiency improvements in their home or business through a lien against their property that is repaid through their property tax bill. If the property is sold, payment responsibility transfers to the new owners, allowing building owners to avoid up-front installation costs while at the same time requiring little or no investment of local government general funds. In some instances, the new lender may require repayment of the existing lien, in which case the remaining PACE loan is repaid from the proceeds of the property sale.

The city will partner with other interested San Joaquin County jurisdictions to create a Property Assessed Clean Energy (PACE) financing program for commercial and residential energy efficiency retrofits.

ACTION STEPS		
	A	Develop a regional PACE program through collaboration with other San Joaquin County cities.
	B	Develop an outreach program describing available PACE financing options. Work with LEU to identify large energy users and focus outreach efforts.

METRIC		
	1	**2020:** 4% of existing single-family units install a medium retrofit package (retrofit packages are described in Appendix B) **2030:** 6% of existing single-family units install a medium retrofit package

COST					RESPONSIBILITY	
	PUBLIC	$$	PRIVATE	Varies		**Lodi Electric Utility Department** **Community Development Department**

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
	2020	110,588 kWh/yr 24,642 Therms/yr	Improved Air Quality Improved Public Health Utility Bill Savings	**Reductions by 2020:** 175 MT CO_2e/yr **Reductions by 2030:** 262 MT CO_2e /yr	**Sector Reduction** 1% 
	2030	165,882 kWh/yr 36,963 Therms/yr			

E-1.3 LOW-INCOME WEATHERIZATION

Provide weatherization assistance to low-income households.

Weatherization reduces residential energy consumption by sealing gaps in the building envelope, moderating interior temperatures and reducing loads on HVAC systems. There are several co-benefits that come with weatherization, including reduced utility bills and improved occupant comfort. Weatherization is accomplished through various cost-effective home repairs, including; installing insulation, caulking or replacing windows and doors, and repairing inefficient HVAC systems. While most homes can benefit from weatherization, it is especially effective in older homes and can provide some relief to low-income households who may be struggling to pay their utility bills and do not have the means to invest in more intensive energy efficiency repairs.

Lodi Electric Utility partnered with California Youth Energy Services in the past to provide weatherization services to a few hundred households in Lodi. Future weatherization initiatives will utilize a third party contractor to deliver weatherization services to low income customers who are enrolled in LEU's utility bill assistance programs, or fall below certain income restrictions. San Joaquin County Human Services Agency (HSA) also administers weatherization services to low-income residents through the U.S. Department of Energy (DOE) Federal Weatherization Assistance Program (WAP), which they promote to Lodi residents through the HSA Community Service Center and utility bill assistance programs.

The city will identify neighborhoods that would benefit from weatherization and develop a targeted outreach campaign to provide low income homeowners and renters with information about available weatherization assistance programs, accompanied by application assistance.

ACTION STEPS		
	A	Support LEU in the development of weatherization initiatives for low-income households.
	B	Leverage LEU's CARE and SHARE utility bill assistance programs for cross-promotion of weatherization programs.
	C	Develop a targeted outreach campaign to demonstrate the benefits of weatherization to low-income households and encourage participation in weatherization assistance programs.
	D	Work with San Joaquin County Human Services Agency to promote the federal weatherization assistance program.

METRIC		
	1	**2020:** 4% low-income households receive weatherization assistance **2030:** 6% low-income households receive weatherization assistance

COST					RESPONSIBILITY
PUBLIC		$$$$	PRIVATE	0	**Lodi Electric Utility Department** **Community Development Department** **San Joaquin County Human Services Agency**

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
2020	110,588 kWh/yr 24,642 Therms/yr		Improved Air Quality Improved Public Health Utility Bill Savings	**Reductions by 2020:** 175 MT CO_2e/yr **Reductions by 2030:** 262 MT CO_2e /yr	**Sector Reduction** 1%
2030	165,882 kWh/yr 36,963 Therms/yr				

E-2.1 ENERGY MANAGEMENT SYSTEMS

Promote energy management systems to reduce peak load energy demand.

Energy Management Systems (EMS) are computerized systems that reduce commercial and industrial energy use by automating the control of a building's mechanical, electrical, and ventilation systems. Various energy demand-side management programs throughout the country are leveraging this technology, combined with web-based user interfaces, to attract participation in these kinds of voluntary programs.

The city will develop an outreach campaign to describe how energy management systems work inside a building, including internet-based displays that show how much energy is being used and smart appliances that can defer discretionary electricity use to off-peak hours. LEU will also consider developing peak load reduction incentives for commercial and residential customers.

ACTION STEPS		
	A	Develop an EMS outreach program and make information available at the Building Division counter.
	B	Identify and advertise available rebates for energy management systems on the city's Website.
	C	Consider developing a peak load reduction incentive for LEU customers.
	D	Demonstrate energy efficiency savings and co-benefits through a municipal EMS pilot project.

METRIC		
	1	**2020:** 10% of existing non-residential floor area install energy management systems and compatible technologies **2030:** 25% of existing non-residential floor area install energy management systems and compatible technologies
	2	**2020:** 25% of new non-residential floor area install energy management systems and compatible technologies **2030:** 40% of new non-residential floor area install energy management systems and compatible technologies

COST					RESPONSIBILITY
	PUBLIC	$$$	PRIVATE	Varies	**Lodi Electric Utility Department** **Community Development Department**

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
	2020	3,358,447 kWh/yr	Improved Air Quality Improved Public Health Utility Bill Savings	**Reductions by 2020:** 1,339 MT CO_2e/yr **Reductions by 2030:** 4,437 MT CO_2e /yr	**Sector Reduction** 15%
	2030	11,131,442 kWh/yr			

E-2.2 COMMERCIAL BUILDING COMMISSIONING

Improve energy efficiency in new and renovated buildings through continuous commissioning.

Building commissioning is the process of achieving, verifying, and documenting the performance of a building's facilities and systems to meet defined objectives and criteria. In a study conducted by the Lawrence Berkeley National Laboratory, commissioning resulted in whole-building energy savings averaging 18% with a corresponding payback time of 0.7 years. Building commissioning is typically applied to new construction during the planning/design and construction phases to ensure the building's systems (e.g., heating, ventilation, and air conditioning) are performing at optimum efficiency. Retro-commissioning addresses systems in existing buildings that are undergoing renovation or installing upgraded equipment. Buildings should be re-commissioned every five years to maintain optimal system efficiency.

LEU will consider developing a commercial building commissioning program that will provide information and incentives to commercial customers for commissioning new or renovated buildings and facilities.

ACTION STEPS		
	A	Provide outreach to commercial building owners to promote the energy savings and other benefits of commissioning and retro-commissioning.
	B	Create a building commissioning program through LEU.
	C	Develop a municipal commissioning program to commission all buildings and facilities, with re-commissioning occurring every five years.

METRIC		
	1	**2020:** 25% of existing non-residential buildings undergo commissioning through 2020 **2030:** 25% of existing non-residential buildings undergo commissioning through 2030
	2	**2020:** 25% of new non-residential buildings undergo commissioning through 2020 **2030:** 25% of new non-residential buildings undergo commissioning through 2030

COST					RESPONSIBILITY	
	PUBLIC	$$$	PRIVATE	$$$$		**Lodi Electric Utility Department** **Community Development Department**

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
	2020	**2,733** MWh/yr **136,678** Therms/yr	**Improved Air Quality** **Improved Public Health** **Utility Bill Savings**	**Reductions by 2020:** **1,698** MT CO_2e/yr **Reductions by 2030:** **2,094** MT CO_2e /yr	**Sector Reduction** 7%
	2030	**635,852** MWh/yr **31,793** Therms/yr			

E-2.3 BUILDING SHADE TREES

Plant building shade trees to improve energy efficiency in new and renovated buildings.

When properly placed, large shade trees can reduce energy use by protecting a building from the heat of the sun, in turn reducing demand on the heating and cooling system. A successful shade tree program needs to address various factors, such as tree selection, planting location, and maintenance. Trees with larger canopies and denser foliage provide more shade than other species. Deciduous species are ideal for reducing building cooling costs as they provide shade in summer, but allow winter sunlight into buildings for passive solar gain in cooler weather.

The city will partner with Tree Lodi to develop an outreach program to encourage property owners to plant trees in locations that maximize building shade potential.

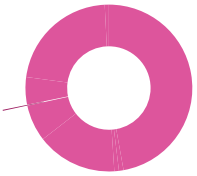
ACTION STEPS	A	Partner with Tree Lodi to promote the various benefits of planting building shade trees to property owners.
	B	Develop a shade tree planting guide to facilitate proper tree selection, siting, and installation.

METRIC	1	**2020:** Plant 2,500 shade trees **2030:** Plant 4,000 shade trees

COST	PUBLIC	$$$	PRIVATE	$	RESPONSIBILITY	**Lodi Electric Utility Department** **Tree Lodi**

CO-BENEFITS	2020	**171,962** kWh/yr	QUALITATIVE	**Improved Air Quality** **Utility Bill Savings** **Reduced Heat Island Effect**	GHG REDUCTIONS	**Reductions by 2020:** **34** MT CO_2e/yr **Reductions by 2030:** **56** MT CO_2e /yr
	2030	**283,738** kWh/yr				

Sector Reduction



>1%

E-2.4 STREETLIGHT UPGRADE

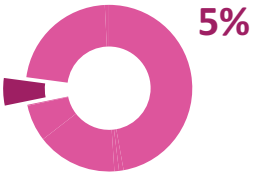
Upgrade existing streetlights with more efficient technology.

High pressure sodium bulbs, commonly used in streetlights, require more energy and have a shorter lifespan than new induction and/or light-emitting diode (LED) lights. The City of Lodi's Public Works Department maintains 6,500 street lights and 52 traffic signals. The city previously upgraded several streetlights around Lodi Avenue as part of the Lodi Avenue Eastside Improvement Project. The city is planning to upgrade all other streetlights, which they estimate will cost $3 million, and save approximately $350,000 to $400,000 per year.

ACTION STEPS	A	Revise the city's street lights standards to include requirements for energy-efficient technology in new and replacement lamps.
	B	Develop a street light upgrade plan that identifies an implementation phasing schedule.

COST	PUBLIC	0*	PRIVATE	0	RESPONSIBILITY	**Lodi Electric Utility Department** **Public Works**

CO-BENEFITS	2020	**4,402,343** kWh/yr	QUALITATIVE	**Improved Air Quality** **Improved Public Health**	GHG REDUCTIONS	**Reductions by 2020:** **1,568** MT CO_2e/yr **Reductions by 2030:** **1,568** MT CO_2e /yr
	2030	**4,402,343** kWh/yr				**Sector Reduction** **5%**



* This CAP measure does not recommend any additional expenses related to streetlight upgrades beyond those already under consideration by the city.

E-3.1 SOLAR PHOTOVOLTAIC SYSTEMS

Promote solar PV rebates and eliminate regulatory barriers.

Increasing the use of distributed renewable energy systems (e.g., rooftop solar photovoltaic) prevents the combustion of fossil fuels to generate electricity, thereby reducing GHG emissions. Solar photovoltaic systems convert solar radiation into electricity that can directly power buildings, increasing energy independence and subsequently reducing monthly utility bills. Solar PV systems can be scaled to individual residential systems and larger-scale commercial systems. Parking lots also provide excellent opportunities for solar energy generation. Numerous barriers may prevent widespread adoption of solar PV technology, including city regulations, up-front costs, and misinformation or lack of information. Reviewing and revising the city's zoning and building codes can remove regulatory barriers to solar PV installation. While up-front cost can deter some property owners from investing in solar energy, rebates are available through Lodi Electric Utility and homeowners can use solar service providers or acquire financing through participation in a PACE program (see Measure E-1.2) to reduce out-of-pocket expenses.

Lodi Electric Utility has engaged in outreach via the Solar Education program and the Solar Fair with solar service providers. The Lodi Unified School District recently installed a 2 MW solar project. LEU will continue to promote solar installations through outreach efforts, seeking partnerships to engage in commercial and industrial solar projects. The city will further reduce barriers to participation by reviewing (and streamlining where possible) the permitting process.

ACTION STEPS		
	A	Review and revise all applicable building, zoning, and other codes and ordinances to remove regulatory barriers to the installation of solar PV in residential and nonresidential construction.
	B	Provide priority permitting and reduced permitting fees for building-scale renewable energy projects.
	C	Enhance outreach efforts to increase solar PV installations, leveraging existing solar PV informational materials from Energy Upgrade California, the California Solar Initiative, and LEU.
	D	Identify potential retail, commercial, or industrial partnerships for large solar projects.

METRIC		
	1	**2020:** 1% single-family residential units install a 4.5 kW solar PV system **2030:** 1% single-family residential units install a 4.5 kW solar PV system
	2	**2020:** Install 3.0 MW (total) of solar PV on non-residential buildings **2030:** Install 6.0 MW (total) of solar PV on non-residential buildings

COST					RESPONSIBILITY	
	PUBLIC	$$$	PRIVATE	$$$$		**Lodi Electric Utility Department** **Community Development Department**

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
	2020	**9,646,226** kWh/yr generated	**Improved Air Quality** **Improved Public Health** **Utility Bill Savings**	**Reductions by 2020:** **3,735** MT CO_2e/yr **Reductions by 2030:** **6,518** MT CO_2e /yr	**Sector Reduction** 22%
	2030	**18,306,313** kWh/yr generated			

E-3.2 SOLAR WATER HEATERS

Promote solar thermal rebates and eliminate regulatory barriers.

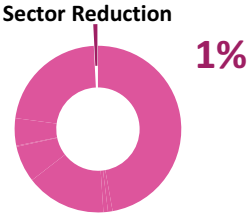
Solar hot water heaters harness the sun's energy to provide hot water, replacing natural gas or electric systems. Solar collectors, usually placed on a roof, absorb the sun's energy to heat water that is stored in a water tank. According to the California Solar Initiative (CSI), solar hot water systems can lower energy bills by meeting 50% to 80% of hot water needs. The California Solar Water Heating and Efficiency Act of 2007 (AB 1470) created a 10-year program aimed at installing solar water heaters in homes and businesses. AB 1470 was designed to lower the initial costs of purchasing a system, which typically range from $3,000 to $6,000. Similar to solar PV installations, available rebates can reduce the upfront costs of solar water heater systems, and participation in a PACE financing program (see Measure E-1.2) can help to amortize the remaining costs.
The city will remove regulatory barriers to solar thermal installations and encourage homeowners to install solar thermal systems through outreach.

ACTION STEPS	
A	Review and revise all applicable building, zoning, and other codes and ordinances to remove regulatory barriers to the installation of solar hot water systems in residential and nonresidential construction.
B	Reduce solar hot water heater permitting fees.
C	Leverage existing California Solar Initiative - Thermal Program information to develop an outreach program to maximize installation of solar hot water systems and promote existing funding opportunities.
D	Work with local Chamber of Commerce to identify industrial businesses with high water use (e.g., Laundromats), and develop an outreach program to explain financial benefits of converting existing hot water heaters to solar hot water systems.

METRIC	
1	**2020:** 1% single-family residential units install a solar hot water system **2030:** 1% single-family residential units install a solar hot water system
2	**2020:** 1% multi-family residential units install a solar hot water system **2030:** 1% multi-family residential units install a solar hot water system
2	**2020:** 3% of non-residential buildings install solar thermal systems **2030:** 3% of non-residential buildings install solar thermal systems

COST					RESPONSIBILITY
PUBLIC	$$	PRIVATE	$$$$		**Lodi Electric Utility Department** **Community Development Department** **Chamber of Commerce**

CO-BENEFITS		QUALITATIVE	GHG REDUCTIONS
2020	**35,412** Therms/yr by 2020	**Improved Air Quality** **Improved Public Health** **Utility Bill Savings**	**Reductions by 2020:** **188** MT CO_2e/yr **Reductions by 2030:** **235** MT CO_2e /yr
2030	**44,345** Therms/yr by 2030		



TRANSPORTATION

Transportation is the second largest sector in Lodi's baseline inventory, producing 29% (148,624 MT CO2-e) of Lodi's total GHG emissions (514,175 MT CO2-e) in 2008. Emissions in this sector are primarily the result of the combustion of fossil fuels and are determined largely by the number of vehicle miles traveled (VMT) by residents and employees. The best practices for reducing transportation-related greenhouse gas emissions involve reducing the number of vehicle trips through various transportation demand management (TDM) strategies and enhancing the viability of transit and other forms of alternative transportation. In addition, transit-oriented development and mixed-use developments result in denser uses near commercial centers that contribute to decreased vehicle trips. The greenhouse gas reduction strategies presented in this CAP primarily focus on TDM strategies and transit system improvements to reduce greenhouse gas emissions.

The total GHG emission reduction potential of the transportation strategy is 18,967 MT CO_2e/yr in 2020 and 25,153 MT CO_2e/yr in 2030.

T-1.1 TELECOMMUTING AND ALTERNATIVE WORK SCHEDULES

Advocate for flextime work arrangements to decrease daily commuter trips.

Flextime includes both telecommuting and alternative work schedules and is one of many transportation demand management (TDM) strategies that reduce greenhouse gas emissions by reducing the number of vehicle trips made on a given day. Flextime reduces peak period traffic congestion directly by allowing employees to set their own work schedules, which often involve a condensed four-day work week. The flexibility in hours can also make ridesharing and transit use more feasible. In addition, staggered shifts can reduce peak-period trips and traffic congestion, particularly around large employment centers.

The city will work to increase employee participation in telecommuting and alternative work schedules through targeted outreach to large local employers. Where programs or policies already exist the city will focus its efforts on outreach to employees in order to increase participation rates. For those employers who do not currently offer flextime schedules, the city will encourage the employer to adopt a program or policy and provide promotional support.

ACTION STEPS		
	A	Target small to moderate increase in employee participation rates in telecommuting and alternative work schedules due to additional promotional efforts by the city.
	B	Encourage employers to adopt a flextime program or policy, if they do not already have one, and provide promotional support upon program kick off.

COST					RESPONSIBILITY	
	PUBLIC	$$$	PRIVATE	$$$$		Community Development Department

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
	2020	614,565 miles/yr by 2020	Improved Air Quality		Reductions by 2020: 3,080 MT CO_2e/yr
	2030	792,395 miles/yr by 2030	Improved Public Health		Reductions by 2030: 4,134 MT CO_2e /yr

Sector Reduction

16%

T-1.2 REDUCED MINIMUM PARKING REQUIREMENTS

Support transit-oriented and mixed use development by reducing parking requirements in new development.

Research shows that there is an indirect link between reduced minimum parking requirements and a decline in vehicle trips. Reducing parking requirements allows market forces to determine the appropriate level of parking supply based on user demands. As parking lots can be land-intensive, reducing these requirements supports transit-oriented and mixed-use development by maximizing commercial retail space and reducing overall cost to development. Such a policy is especially effective near commercial centers where it is easier for people to take transit, walk, or ride their bikes. In addition, the lower development costs can also support housing affordability.

Reduced parking requirements could be established in locations where parking demand will be lower due to geographic and demographic factors, such as downtown and other commercial and transit centers.

ACTION STEPS	A	Identify areas where new or infill development is likely to occur near commercial and transit centers and determine appropriate number of parking spaces based on market demand.
	B	Phase in tailored reductions in minimum commercial parking requirements.

COST	PUBLIC	$$	PRIVATE	0	RESPONSIBILITY	Community Development Department

CO-BENEFITS	2020	1,288,967 miles/yr by 2020	QUALITATIVE	Improved Air Quality Improved Public Health	GHG REDUCTIONS	Reductions by 2020: 527 MT CO_2e/yr Reductions by 2030: 240 MT CO_2e /yr
	2030	587,087 miles/yr by 2030				Sector Reduction 1%

T-1.3 CARSHARING

Support city employees who choose alternative transportation by providing access to cars as needed for work or personal trips.

Carsharing programs reduce the need for businesses or households to own vehicles, while reducing personal transportation costs and vehicle miles traveled (VMT). Carsharing has sometimes been referred to as the "missing link" in the package of alternatives to the private automobile. For example, vehicles available near a person's workplace or school can enable them to commute to work via transit or other means, knowing that they'll have a carshare vehicle available during the day if needed for work or personal trips.

The city will develop a carsharing program for use by city employees. The city will promote the successes of this new program throughout the community, particularly to large employers, to encourage the development of additional programs.

ACTION STEPS		
	A	Implement a small-scale carsharing program for city employees.
	B	Promote the successes of the program throughout the community encouraging large employers to implement similar programs.

COST					RESPONSIBILITY	
	PUBLIC	$$	PRIVATE	0		Community Development Department (CDD)

CO-BENEFITS			QUALITATIVE		GHG REDUCTIONS		
	2020	196,496 miles/yr by 2020		Improved Air Quality		Reductions by 2020: 85 MT CO_2e/yr	Sector Reduction >1%
	2030	253,354 miles/yr by 2030		Improved Public Health		Reductions by 2030: 109 MT CO_2e /yr	

T-1.4 TRANSIT IMPROVEMENTS

Expedite the implementation of improvements identified in the Regional Short-Range Transit Plan.

In most cities that have succeeded in growing while limiting vehicle trips, a fundamental component of their success has been improved transit services. In 2009 the city adopted a Short Range Transit Plan which outlines the current level of service and identified improvements that would increase ridership through fiscal year 2017/18. Implementation of the Short Range Transit Plan, however, has been limited by funding in recent years.

The city should advocate for expedited funding to implement the improvements that were identified in the Short Range Transit Plan, increasing system efficiency by focusing on: maintaining the current level of service coverage throughout the city, streamlining existing routes, reducing route redundancy, and extending service to the Reynolds Ranch development upon completion. The city should coordinate new and existing services to serve both general and targeted travel markets and consider potential consolidation of existing private-sector transit operations. To increase ridership the city should provide real-time arrival information, enhance passenger amenities at transit shelters and major transfer centers, update and distribute new route maps and schedules as hard copies and online, and provide information about other transit services to customers across many platforms.

ACTION STEPS	
A	Advocate for expedited funding of improvements identified in the adopted Regional Short-Range Transit Plan, with targeted improvements to increase system efficiency, enhance access to new developments, and connect with other regional transit services.
B	Improve transit ridership experience through integration of GPS-based technologies, clearer transit schedule messaging, and improvements to transit facilities.

COST					RESPONSIBILITY
PUBLIC	$$$	PRIVATE	0		Public Works

CO-BENEFITS		QUALITATIVE	GHG REDUCTIONS	
2020	38,383,737 miles/yr by 2020	Improved Air Quality	Reductions by 2020:	Sector Reduction
2030	51,950,019 miles/yr by 2030	Improved Public Health	13,717 MT CO_2e/yr Reductions by 2030: 18,571 MT CO_2e /yr	 74%

T-1.5 RIDESHARING

Encourage and support ridesharing groups and initiatives through additional outreach efforts.

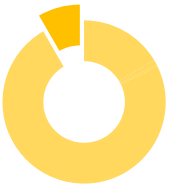
Ridesharing is a transportation demand management strategy that reduces commute trips from single-occupant vehicles through organized carpooling and vanpooling. Ridesharing can attract 5-15% of total commute trips if commuters are encouraged to participate through outreach and information sharing. Providing incentives such as parking cash outs or vanpool subsidies can result in greater participation rates of around 10-30%.

The city can increase participation in employee rideshare programs by working with local employers and/or the Chamber of Commerce to coordinate information sharing, and possibly develop a ridesharing website to help match drivers and riders. The city could also encourage employers to offer parking cash out or subsidies for greater participation rates.

ACTION STEPS	A	Target small to moderate increase in employee participation rates in carpools and vanpools due to additional promotional efforts by the city.
	B	Encourage employers to offer financial incentives for ridesharing, including parking cash out and carpool subsidies

COST	PUBLIC	$$	PRIVATE	$$$$	RESPONSIBILITY	Community Development Department (CDD)

CO-BENEFITS	2020	5,180,041 miles/yr by 2020	QUALITATIVE	Improved Air Quality Improved Public Health	GHG REDUCTIONS	Reductions by 2020: 1,558 MT CO_2e/yr Reductions by 2030: 2,099 MT CO_2e /yr
	2030	6,979,711 miles/yr by 2030				Sector Reduction 8%



SOLID WASTE

Waste disposal creates emissions when organic waste (e.g., food scraps, yard clippings, paper, and wood products) is buried in landfills and anaerobic digestion takes place, emitting methane. In Lodi, 11% of GHG emissions are associated with solid waste generation and disposal in landfills. The CAP's waste diversion measures seek to divert organic waste from landfills by reusing construction materials when possible and increasing communitywide participation in food scrap and yard waste composting.

Construction waste accounts for approximately 29% of the waste stream statewide, and includes items such as lumber, drywall, metals, masonry, carpet, plastics, pipes, rocks, and dirt. Most of these materials are inert and do not contribute to landfill methane generation upon decomposition. However, waste lumber comprises nearly 15% of the total statewide waste stream, and represents a significant source of potential GHG emissions reductions. Per the California 2010 Building Standards Code (Title 24), effective January 1, 2011, all jurisdictions must require the diversion of 50% of construction waste materials generated during certain construction and renovation projects. This CAP assumes the city will enforce these diversion requirements in all applicable future projects.

As shown in Table 4.1, the CAP includes reductions associated with increased methane capture at landfills. The California Air Resources Board approved a new regulation (effective in June 2010) that requires operators of certain landfills to install methane control systems that operate in an optimal manner. Historically, the majority of solid waste generated in Lodi is disposed of at the North County Landfill. While this landfill already has a methane capture system in place, it is less efficient than currently available technology used elsewhere throughout the state. For purposes of this CAP, it is assumed that efficiency improvements will be made to the existing methane capture system at the North County Landfill, but that the city will play no role in implementing these improvements.

The total GHG emission reduction potential of the waste strategy is 9,129 MT CO2e/yr in 2020 and 13,260 MT CO2e/yr in 2030.

SW-1.1 ORGANIC WASTE DIVERSION

Work with Waste Management to divert food waste and compostable paper from landfills and ensure compliance with existing yard waste diversion and construction/demolition waste diversion ordinances.

Food scraps are unwanted cooking preparation items and leftover table scraps, such as banana peels, apple cores, vegetable trimmings, bones, egg shells, meat, and pizza crusts. Compostable paper, sometimes called food-soiled paper, usually comes from the kitchen and is not appropriate for paper recycling due to contamination. Materials such as stained pizza boxes, uncoated paper cups and plates, used coffee filters, paper food cartons, napkins and paper towels are all compostable paper. Diverting these organic items from the landfill helps to reduce methane gas generation from anaerobic decomposition, and helps to prolong the operable life of a landfill. The city will work with Waste Management to expand its yard waste collection program to accept compostable food and paper products in residents' existing green waste bins, so these items can also be diverted to composting facilities. The expanded program will allow collection of:

- all food products: fruits, vegetables, breads, cereals, dairy, meat and fish (including bones);
- coffee grounds, filters, and tea bags; and
- food soiled paper: paper towels, plates, napkins, and pizza boxes.

The city will work with Waste Management to develop comprehensive outreach campaigns to inform solid waste customers about the change to the yard waste collection program, identifying what can and cannot be included in the yard waste bins and providing helpful tips to minimize pest and odor problems. The city will also partner with Lodi Unified School District to promote composting education programs in Lodi classrooms.

ACTION STEPS		
	A	Work with Waste Management to allow residents and local businesses to include food scraps and compostable paper in yard waste collection bins.
	B	Work with Waste Management and Lodi Unified School District to promote organic waste diversion through customer information campaigns.
	C	Ensure compliance with state construction and demolition diversion requirements.

METRIC		
	1	**2020:** 50% of residential units participate in food scrap and compostable paper diversion **2030:** 75% of residential units participate in food scrap and compostable paper diversion
	2	**2020:** 10% of commercial businesses participate in food scrap diversion **2030:** 40% of commercial businesses participate in food scrap diversion
	3	**2020:** 50% of commercial businesses participate in compostable paper diversion **2030:** 75% of commercial businesses participate in compostable paper diversion
	4	**2020:** 50% of construction and demolition debris is diverted from landfills **2030:** 50% of construction and demolition debris is diverted from landfills

COST					RESPONSIBILITY	
	PUBLIC	**$$$**	**PRIVATE**	**$**		**Public Works Department (PWD)** **Waste Management**

CO-BENEFITS			QUALITATIVE	GHG REDUCTIONS	
	2020	**13,093 tons/yr**	**Improved Air Quality** **Improved Public Health**	**Reductions by 2020:** **1,671** **MT CO_2e/yr** **Reductions by 2030:** **5,511** **MT CO_2e /yr**	**Sector Reduction**  **42%**
	2030	**24,004 tons/yr**			

SW-2.1 COMPOSTING EDUCATION

Increase awareness of composting through and outreach and education program.

At-home composting, or turning food scraps into fertilizer, reduces greenhouse gases by reducing the amount of organic waste that is sent to the landfill. Public outreach at the Farmer's Market indicated that few residents in Lodi were familiar with composting or its benefits. The Lodi Unified School District had a composting program in the past, which was cut due to budgetary constraints. The city could work with the San Joaquin County Master Gardening Class and the Landscape Management Outreach Program (LMOP), which focus on education and stewardship, to develop a composting education program for city and county residents. The program could include a school education program focused on Lodi's K-6 students to teach composting skills and spread knowledge of the benefits of waste diversion in their own homes. The program could also include an outreach component to provide information to the general public through newspaper articles, newsletters, informational booths at community events, and other volunteer-led outreach activities.

ACTION STEPS		
	A	Support Waste Management in developing an outreach campaign to encourage residents to include their food scraps and yard waste bins by distributing bill inserts upon roll-out of the food waste program.
	B	Provide composting information on the city's website, with a link to resources provided by the County.
	c	Partner with Lodi Unified School District and the San Joaquin County Master Gardeners to develop a hands-on school composting education program to teach students about the benefits of composting, and how they can do it in their own homes.

COST					RESPONSIBILITY	
	PUBLIC	$$	PRIVATE	0		Public Works Department (PWD) Waste Management

CO-BENEFITS			GHG REDUCTIONS	
	QUALITATIVE	Improved Air Quality Improved Public Health		Supporting Measure Not Quantified

WATER

Water-related GHG emissions are mainly caused by energy used to pump, transport, heat, cool, and treat potable water. Emissions associated with this energy use accounted for approximately 1%of the communitywide GHG inventory. With water supplies expected to continue declining into the future, water conservation strategies have the double benefit of reducing GHG emissions and aligning demand with future water availability. The measures included in this section quantify the greenhouse gas emissions reductions of conservation programs that are already underway in the city.

W-1.1 WATER CONSERVATION PROGRAMS

Support conservation through water metering and other UWMP programs.

The city relies entirely on local groundwater for its water resource needs. By conserving water, the city also conserves energy used to pump, treat, and transport water to its customers. The city will meet its obligations under SB 7-X to reduce water consumption 20% by 2020, primarily through implementation of the Water Meter Program which is planned for completion in 2017. The city will also implement water conservation programs described in the Urban Water Management Plan (UWMP) to reach the mandated reduction target.

ACTION STEPS	A	Implement UWMP water conservation programs.
	B	Promote the city's Sustainable Water Use Guide simultaneously with outreach for the Water Meter Retrofit program.

COST	PUBLIC	0*	PRIVATE	0	RESPONSIBILITY	**Public Works Department**

CO-BENEFITS	QUALITATIVE	**Improved Water Quality** **Utility Bill Savings**	GHG REDUCTIONS	**Quantified in State Reductions**

* This CAP measure does not recommend any additional expenses related to water conservation programs beyond those already planned as part of the city's Urban Water Management Plan.

GREEN INFRASTUCTURE

Green infrastructure refers mainly to the open spaces and vegetation that provide places for recreation, wildlife habitat, and relief from the heat of the sun. The term can also refer to building-integrated vegetation projects, such as green walls and green roofs. There are numerous benefits to planting trees and increasing vegetated surfaces, including reduced surface runoff, increases in natural habitat, reduced urban heat island effect, and opportunities for carbon sequestration. While vegetation-related carbon sequestration is known to reduce greenhouse gases in the atmosphere, the precise level to which this occurs is not well understood and difficult to quantify at this time. Regardless, the other benefits associated with increased tree and vegetation cover, such as reducing the urban heat island effect, may increase comfort and encourage more individuals to walk, ride their bikes, or take transit, indirectly reducing greenhouse gas emissions while contributing to the overall well-being of Lodi's residents.

As a supplement to the quantified measures in this CAP, two measures are included in the Green Infrastructure section that are not quantified, but rather focus on environmental stewardship and education through local agency partnerships and demonstration projects.

GI-1.1 URBAN FOREST

Partner with Tree Lodi to maintain and expand the urban forest.

Healthy urban forests can reduce greenhouse gas emissions through carbon sequestration, cool existing buildings as discussed in Measure E-3.3, and shade parking lots to reduce the urban heat island effect. The urban forest can also improve air quality, provide wildlife habitat, and provide shade for people walking or riding their bicycles.

Currently, the Department of Parks, Recreation and Cultural Services maintains all trees in Lodi's parks system, while the Public Works Department manages Lodi's street trees. The city is also undergoing a survey of existing street trees to determine potential planting locations for new trees. Tree Lodi, a local non-profit group, has assisted the city with the maintenance of its street trees in recent years, and the city sees an opportunity to leverage their relationship through a memorandum of understanding to describe the ways in which Tree Lodi can be more involved in the overall management of the city's urban forest. Such a partnership can expand the urban canopy through planting new trees, while ensuring the proper care and maintenance of all trees in the urban forest.

ACTION STEPS	A	Work with Tree Lodi to outline their role in the management and expansion of the urban forest through a memorandum of understanding.
	B	Support Tree Lodi in outreach efforts, utilizing existing informational materials about the benefits of Lodi's urban forest to encourage the planting of additional trees on private property.

COST	PUBLIC	$$$	PRIVATE	0	RESPONSIBILITY	**Public Works Department** **Parks, Recreation and Cultural Services** **Tree Lodi**

CO-BENEFITS	QUALITATIVE	**Improved Water Quality** **Reduced Storm Water Runoff** **Reduced Urban Heat Island Effect** **Improved Air Quality**	GHG REDUCTIONS	**Supporting Measure Not Quantified**

GI-1.2 EDUCATION AND OUTREACH

Partner with a local business or agency in a green infrastructure demonstration project.

A green infrastructure demonstration project could include a living wall, green roof, or urban rain garden. Living walls and green roofs help to insulate a building, retain water during storms, increase energy efficiency of buildings, and contribute to local wildlife habitats. Rain gardens are vegetated depressions that allow storm water runoff to slowly filtrate through the soil, relieving pressure on storm drains and other urban infrastructure.

The city could partner with local businesses or the school district to create a demonstration living wall, green roof, or rain garden, which would show the community how such innovative projects can provide multiple benefits, which also contribute to GHG reductions.

ACTION STEPS		
	A	Construct a green roof on City Hall or a building in the Downtown area. Provide informational signs at ground level with before/after photos and descriptions of the benefits, including extended roof life, enhanced building insulation, natural habitat for birds and insects, and storm water management. Organize rooftop tours for building owners interested in green roof installation.
	B	Work with LUSD to install a rain garden that allows storm water runoff from a roof, walkway, or parking lot to infiltrate into the ground. Provide informational displays on-site and on the city's and LUSD's websites explaining the benefits and functions of the system, irrigation water savings, and costs/benefits of the project.

COST					RESPONSIBILITY	
	PUBLIC	Varies	PRIVATE	0		**Public Works Department** **Parks, Recreation and Cultural Services** **Lodi Unified School District**

CO-BENEFITS		GHG REDUCTIONS	
	QUALITATIVE	**Improved Water Quality** **Reduced Storm Water Runoff** **Reduced Urban Heat Island Effect** **Utility Bill Savings**	Supporting Measure Not Quantified

Target Achievement

By 2020, implementation of the State and federal actions identified in Chapter 3 and the City's greenhouse gas reduction measures are anticipated to reduce communitywide emissions reductions of 150,528 MT CO_2e/year and achieve a community efficiency level of 4.3 MT CO_2e/ service population/ year. This level of reduction would surpass the City's adopted 2020 emissions target of 4.5 MT CO_2e/ service population/ year. Table 4.2 demonstrates the anticipated level of reductions in 2020.

Table 4.3 demonstrates that by 2030, implementation of City's CAP is anticipated to reduce communitywide emissions by approximately 240,304 MT CO_2e/year and achieve a community efficiency level of 4.1 MT CO_2e/ service population/ year. This level of reduction falls short of the City's adopted 2030 emissions target of 3.0 MT CO_2e/ service population/ year. The City anticipates that additional State actions will contribute greatly to the closing of this gap. The City will reevaluate 2030 target achievement and potential local actions once the next round of State actions has been defined.

Table 4.2: Reduction Potential of Recommended Measures and State and Federal Actions

	2008	2020			
	BASELINE	BUSINESS-AS-USUAL	LOCAL MEASURES	STATE & FEDERAL ACTIONS	LOCAL MEASURES + STATE & FEDERAL ACTIONS
Population	63,362	83,074			
Employment	24,655	39,025			
Service Population	88,017	122,099			
Mass GHG Emissions (CO_2e)	479,911	671,896	627,414	565,850	**521,368**
Change from Mass Emission Baseline	0%	40.0%	30.7%	17.9%	**8.6%**
Emissions Efficiency (MT CO_2e / Service Population / Year)	5.45	5.50	5.14	4.63	**4.27**
Change from Baseline Emissions Efficiency	0%	1%	-6%	-15%	**-22%**

Table 4.3: Reduction Potential of Recommended Measures and State and Federal Actions

	2008	2030			
	BASELINE	BUSINESS-AS-USUAL	LOCAL MEASURES	STATE & FEDERAL ACTIONS	LOCAL MEASURES + STATE & FEDERAL ACTIONS
Population	63,362	99,500			
Employment	24,655	51,000			
Service Population	88,017	150,500			
Mass GHG Emissions (CO_2e)	479,911	852,575	784,810	680,036	612,271
Change from Mass Emission Baseline	0%	77.7%	63.5%	41.7%	27.6%
Emissions Efficiency (MT CO_2e / Service Population / Year)	5.45	5.66	5.21	4.52	4.07
Change from Baseline Emissions Efficiency	0%	4%	-4%	-17%	-25%

Chapter 5-Implementation

This CAP represents the community-wide actions that the city of Lodi will implement and update, accordingly, with the Lodi General Plan. These measures are to serve as the beginning of what the city intends to do in order to reduce GHG emissions. The city staff will be expected to alter or amend any measure to ensure GHG emissions reduction targets are met. This chapter discusses measure implementation, evaluation and evolution of the CAP, benefits and the CEQA streamlining process.

Measure Implementation Progress and Achievements

Ensuring that the measures translate to on-the-ground results is critical to the success of the CAP. To facilitate this, each measure described in Chapter 4 contains a table identifying specific actions the City will implement. The table also identifies responsible departments and establishes an implementation timeframe for each action.

The second section of each table provides performance targets that allow staff, the Board of Supervisors, and the public to track measure implementation and monitor overall CAP progress. These targets are suitable benchmarks to monitor implementation progress. They are indicators to evaluate if a measure is achieving the necessary GHG reductions. Table 5-1 provides a summary of these benchmarks for easy reference. The list also illustrates the measure's sector applicability and if a measure is either mandatory or optional.

Upon adoption of the CAP, identified City departments will be responsible for implementing appropriate action measures of the CAP. Responsible staff in each department will facilitate and oversee action implementation. CAP implementation meetings will occur regularly to assess the status of CAP measure progress and the City's efforts. Some actions will require interdepartmental or inter-agency cooperation and appropriate partnerships will need to be established accordingly.

Plan Evaluation and Evolution

The CAP lays out a comprehensive, communitywide strategy to reduce greenhouse gasses (GHGs) and improve community sustainability. City staff will evaluate the CAP's performance over time and be prepared to alter or amend the plan if it is not achieving the reduction target

Plan Evaluation

There are two important types of performance evaluation: evaluation of the CAP as a whole and evaluation of the individual measures. Subsequent communitywide GHG emission inventories provide the best indication of CAP effectiveness, and will allow actual growth to be reconciled with growth projected by the General Plan and CAP. Conducting periodic inventories will allow comparison to the 1990 baseline and will demonstrate the CAP's ability to achieve proposed reduction targets.

The Planning Division will coordinate community inventories every three to five years beginning in 2015 to measure performance and progress towards achieving emission reduction targets.

While inventories provide information about overall emission reductions, it is also important to understand the efficacy of individual measures. Evaluating the emission reduction capacity, cost, and benefit of individual measures improves County staff and decision makers' ability to manage and implement the CAP.

Evaluating CAP measure performance requires monitoring the level of community participation and the GHG reduction capacity. The progress indicators, provided within each quantified measure, identify the level of participation and performance required to achieve the estimated level of GHG reduction. By evaluating whether the implementation of a measure is on track to achieve its progress indicators, the County can identify successful measures and reevaluate or replace under-performing ones.

CEQA Guidelines Section 15183.5(b)(1)(E) requires that the City amend the CAP if it finds that the plan is not achieving the adopted GHG reduction target. The Planning and Public Works Department will evaluate measures every two years beginning in 2013, and will summarize progress toward meeting the GHG reduction target at that time in a report to the Board of Supervisors that describes:

- Estimated annual GHG reductions;
- (compared to 1990, 2008, and subsequent inventory years);
- Achievement of progress indicators;
- Participation rates (where applicable);
- Implementation costs;
- Community benefits realized;
- Remaining barriers to implementation; and
- Recommendations for changes to the CAP.

Plan Evolution

To remain relevant, the City must be prepared to adapt and transform the CAP over time. It is likely that new information about climate change science and risk will emerge, new GHG reduction technologies and innovative municipal strategies will be developed, new financing will be available, and State and federal legislation will change. It is also possible that future inventories will indicate that the community is not achieving its adopted target. As part of the evaluations identified above, the City will assess the implications of new scientific findings and technology, explore new opportunities for GHG reduction, respond to changes in climate policy, and incorporate these changes in future updates to the CAP to ensure an effective and efficient program.

City of Lodi

2008 Government Operations

Greenhouse Gas Emissions Inventory

Narrative Report

Supported by Pacific Gas and Electric Company
In Collaboration with City of Lodi and
The Great Valley Center

July 26, 2012

Credits and Acknowledgements

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Pacific Gas and Electric Company (PG&E)

Pacific Gas and Electric Company provides comprehensive climate planning assistance to local governments, from providing energy usage data and assistance with greenhouse gas inventories, to training and guidance on climate action plans.

This program is funded by California utility customers and administered by PG&E under the auspices of the California Public Utilities Commission.

This report was prepared by Alicia Valenzuela, Green Communities Intern at the Great Valley Center. The authors would like to thank City of Lodi staff for providing much of the insight and local information necessary for the completion of this report.

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List of Tables and Figures

Executive Summary

City of Lodi Profile

The City of Lodi covers over 12 square miles and ranges from Lodi Lake to Cherokee Memorial Park. The City of Lodi had an estimated population of 62,000 in 2008. With 458 city employees in the year 2008, there was a ratio of approximately 7.3 employees per one thousand residents. The City of Lodi's total budget was $ 213,347,142 for fiscal year 2007-2008 and $ 187,032,383 for fiscal year 2008-2009.

Lodi is located within Climate Zone 12,[1] according to the U.S. Department of Energy. Climate Zone 12 is classified as a Mediterranean climate, by the Köppen Classification System, and is characterized by hot summers and mild winters. Lodi experiences a climate similar to the Stockton area, which recorded 3,066 heating degree days[2] and 1,482 cooling degree days in 2008.[3]

The Purpose of Conducting an Inventory

Each day, local governments operate buildings, vehicle fleets, street lights, traffic signals, water systems, and wastewater plants; local government employees consume resources commuting to work and generate solid waste which is sent for disposal. All of these activities directly or indirectly cause the release of carbon dioxide and other greenhouse gases into the atmosphere. This report presents the findings and methodology of a local government operations (LGO) greenhouse gas emissions inventory for City of Lodi. The inventory measures the greenhouse gas emissions resulting specifically from City of Lodi's government operations, arranged by sector to facilitate detailed analysis of emissions sources. The inventory addresses where and what quantity of emissions are generated through various local government activities. Through analysis of a local government's emissions profile, the City of Lodi can tailor strategies to achieve the most effective greenhouse gas emission reductions.

Strategies by which local governments can significantly reduce emissions from their operations include increasing energy efficiency in facilities and vehicle fleets, utilizing renewable energy sources, reducing waste, and supporting alternative modes of transportation for employees. The benefits of these actions include lower energy bills, improved air quality, and more efficient government operations, in addition to the mitigation of local and global climate change impacts. By

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[1] Pacific Energy Center's Guide to: California Climate Zones, retrieved from http://www.PG&E.com/includes/docs/pdfs/about/edusafety/training/pec/toolbox/arch/climate/california_climate_zones_01-16.pdf

[2] Heating and Cooling Degree Days are a measurement designed to reflect demand for energy needed to heat or cool a facility, and are calculated as the difference between the average daily temperature for a region and a baseline temperature (usually 65° or 80° F). HDD value is the summation of degrees of the average temperature per day below 65° F for the year. CDD is the summation of degrees of the average temperature per day above 80° F for the year.

[3] NNDC Climate Data, retrieved from http://www7.ncdc.noaa.gov/CDO/CDODivisionalSelect.jsp

striving to save taxpayer money through efficient government operations, City of Lodi is working to improve government services in a smart and targeted way that will benefit all of the City/County's residents.

By conducting this inventory, City of Lodi is acting now to limit future impacts that threaten the lives and property of Lodi's residents and businesses, make government operations more efficient, and improve the level of service it offers to the residents of Lodi.

Inventory Results

The following figures summarize the results of the LGO greenhouse gas emissions inventory for the City of Lodi, by sector and source. As illustrated in Figure 1, the sector producing the most greenhouse gas emissions in the City of Lodi is the Buildings and Facilities sector at 28.9%, followed by the Vehicle Fleet sector at 22.8%. As shown in Figure 2, Natural Gas and Gasoline are the sources with the greatest percentage of emissions (32.5% and 26.9% respectively). Table 1 delineates the different types of greenhouse gases (CO_2, CH_4, N_2O, etc.), which are assigned a standard metric of carbon dioxide equivalent (CO_2e), and then combined to describe the City's total emissions by Scope.

Figure 1: 2008 Government Operations CO_2e Emissions by Sector

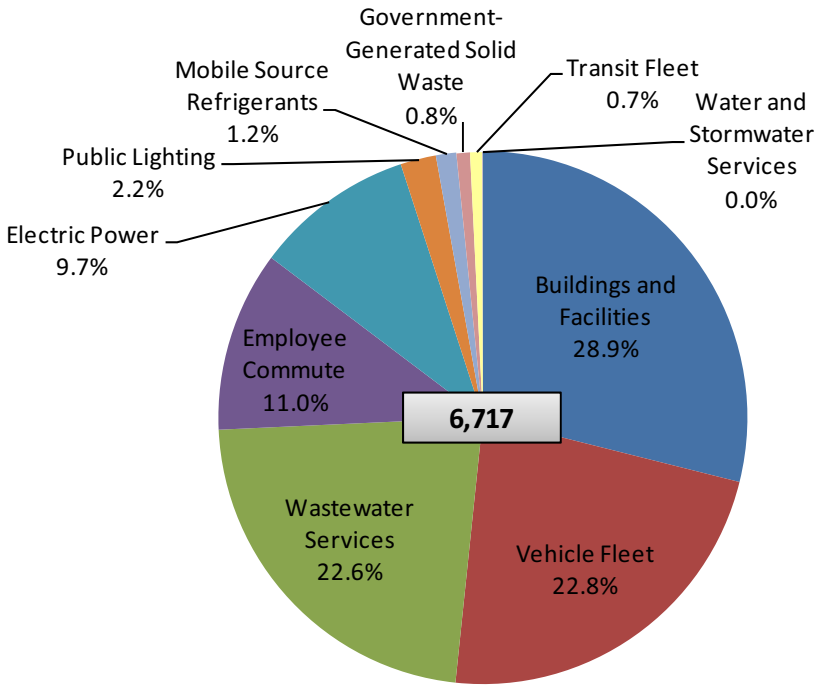

Figure 2: 2008 Government Operations CO_2e Emissions by Source

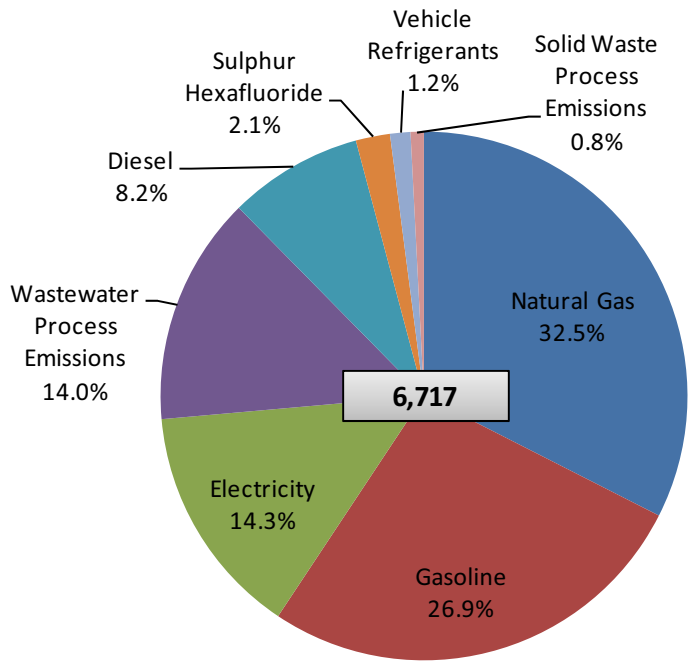

Table 1: LGO Protocol Report - Overall Emissions by Scope

Total Emissions	CO_2e	CO_2	CH_4	N_2O	HFC-134a	SF_6
SCOPE 1	4,965.03	3,730.34	4.53	2.95	0.06	0.01
SCOPE 2	958.00	893.00	0.48	0.18	-	-
SCOPE 3	793.78	721.07	2.66	0.05	-	-
INFORMATION ITEMS	79.14	78.33	0.01	0.00	-	-

For more detail on the concepts of scopes, sources, and sectors, and to review more granular data produced through the inventory study, please refer to the full report on the following pages.

Regional and Local Context

Climate Change Mitigation Activities in California

Since 2005, the State of California has responded to growing concerns over the effects of climate change by adopting a comprehensive approach to addressing emissions in the public and private sectors. This approach was officially initiated with the passage of the Global Warming Solutions Act of 2006 (AB 32), which requires the state to reduce its greenhouse gas emissions to 1990 levels by 2020. The AB 32 Scoping Plan was developed to identify strategies for meeting the AB 32 goal, and was adopted by ARB in December 2008. Among many other strategies, it encourages local

governments to reduce emissions in their jurisdictions by 15 percent below current levels by 2020. In addition, it identifies the following strategies that will impact local governance:

- Develop a California cap-and-trade program
- Expand energy efficiency programs
- Establish and seek to achieve reduction targets for transportation-related related greenhouse gas (GHG) emissions
- Expand the use of green building practices
- Increase waste diversion, composting, and commercial recycling toward zero-waste
- Continue water efficiency programs and use cleaner energy sources to move and treat water
- Reduce methane emissions at landfills
- Preserve forests that sequester carbon dioxide

Other measures taken by the state include mandating stronger vehicle emissions standards (AB 1493, 2002), establishing a low-carbon fuel standard (EO # S-01-07, 2007), mandating a climate adaptation plan for the state (S-EO # 13-08, 2008), establishing a Green Collar Job Council, and establishing a renewable energy portfolio standard for power generation or purchase in the state. The state also has made a number of legislative and regulatory changes that have significant implications for local governments:

- SB 97 (2007) required the Office of Planning and Research to create greenhouse gas planning guidelines for the California Environmental Quality Act (CEQA). In addition, ARB is tasked with creating energy-use and transportation thresholds in CEQA reviews, which may require local governments to account for greenhouse gas emissions when reviewing project applications.
- AB 811 (2007) authorizes all local governments in California to establish special districts that can be used to finance solar or other renewable energy improvements to homes and businesses in their jurisdiction.
- SB 375 (2008) revises the process of regional transportation planning by metropolitan planning organizations (MPOs), which are governed by elected officials from local jurisdictions. The statute calls on ARB to establish regional transportation-related GHG targets and requires the large MPOs to develop regional "Sustainable Communities Strategies" of land use, housing and transportation policies that will move the region towards its GHG target. The statute stipulates that transportation investments must be consistent with the Sustainable Communities Strategy and provides CEQA streamlining for local development projects that are consistent with the Strategy.

Pacific Gas and Electric Company Supported Inventory Project

With the administrative support of Pacific Gas and Electric Company (PG&E) and funding from California utility customers under the auspices of the California Public Utilities Commission, the Great Valley Center was contracted to to assist in the quantification of municipal greenhouse gas emissions for the City of Lodi and the following other

participating communities throughout 2012: the Counties of San Joaquin, Stanislaus and Merced and the cities of Atwater, Dos Palos, Gustine, Los Banos, Manteca and Tracy.

Climate Change Mitigation Activities in City of Lodi

The City of Lodi is currently preparing a community-wide greenhouse gas emissions inventory and reduction strategy in sequence with the municipal inventory as part of its Climate Action Planning process. The Climate Action Plan will identify the significant sources of greenhouse gas emissions that can be influenced and/or controlled through various governmental actions, including federal, State and local actions. Mitigation measures are being planned to address the State's AB 32 goals.

Introduction

General Methodology

Local Government Operations Protocol

A national standard called the Local Government Operations Protocol (LGO Protocol) has been developed and adopted by the California Air Resources Board (ARB). This standard provides accounting principles, boundaries, quantification methods, and procedures for reporting greenhouse gas emissions from local government operations. The LGO Protocol forms the basis of the Clean Air & Climate Protection Software (CACP 2009), which allows local governments to compile data and perform the emissions calculations using standardized methods.

Greenhouse Gases and Carbon Dioxide Equivalent

In accordance with LGO Protocol recommendations, CACP 2009 calculates and reports all six internationally recognized greenhouse gases regulated under the Kyoto Protocol (Carbon Dioxide, Methane, Nitrous Oxide, Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride). Emissions summaries found throughout this report also use CACP 2009's ability to combine emissions from the various greenhouse gases into carbon dioxide equivalent, CO_2e. Since equal quantities of each greenhouse gas have more or less influence on the greenhouse effect, converting all emissions to a standard metric, CO_2e, allows apples-to-apples comparisons amongst quantities of all six emissions types. Greenhouse gas emissions are reported in this inventory as metric tons of CO_2e ($MTCO_2e$).

Table 2 exhibits the greenhouse gases and their global warming potential (GWP), a measure of the amount of warming a greenhouse gas may cause compared to the amount of warming caused by carbon dioxide.

Table 2: Greenhouse Gases

Gas	Chemical Formula	Activity	Global Warming Potential (CO_2e)
Carbon Dioxide	CO_2	Combustion	1
Methane	CH_4	Combustion, Anaerobic Decomposition of Organic Waste (Landfills, Wastewater), Fuel Handling	21
Nitrous Oxide	N_2O	Combustion, Wastewater Treatment	310
Hydrofluorocarbons	Various	Leaked Refrigerants, Fire Suppressants	12–11,700
Perfluorocarbons	Various	Aluminum Production, Semiconductor Manufacturing, HVAC Equipment Manufacturing	6,500–9,200
Sulfur Hexafluoride	SF_6	Transmission and Distribution of Power	23,900

Calculating Emissions

In general, emissions can be quantified in two ways.

1. Measurement-based methodologies refer to the direct measurement of greenhouse gas emissions from a monitoring system. Emissions measured this way may include those emitted from a flue of a power plant, wastewater treatment plant, landfill, or industrial facility. This method is the most accurate way of inventorying emissions from a given source, but is generally available for only a few sources of emissions.

2. Calculation-based methodologies refer to an estimate of emissions calculated based upon measurable ***activity data*** and ***emission factors***. Table 3 provides examples of common emissions calculations.

Table 3: Basic Emissions Calculations

Activity Data x	Emissions Factor =	Emissions
Electricity Consumption (kilowatt hours)	CO_2 emitted/kWh	CO_2 emitted
Natural Gas Consumption (therms)	CO_2 emitted/therm	CO_2 emitted
Gasoline/Diesel Consumption (gallons)	CO_2 emitted /gallon	CO_2 emitted
Waste Generated by Government Operations (tons)	CH_4 emitted/ton of waste	CH_4 emitted

The Scopes Framework

This inventory reports greenhouse gas emissions by sector and additionally by "scope", in line with the LGO Protocol and World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Emissions Protocol Corporate Standard.

Scope 1: Direct emissions from sources within a local government's operations that it owns and/or controls, with the exception of direct CO_2 emissions from biogenic sources. This includes stationary combustion to produce electricity, steam, heat, and power equipment; mobile combustion of fuels; process emissions from physical or chemical processing; fugitive emissions that result from production, processing, transmission, storage and use of fuels; leaked refrigerants; and other sources.

Scope 2: Indirect emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling.

Scope 3: All other emissions sources that hold policy relevance to the local government that can be measured and reported. This includes all indirect emissions not covered in Scope 2 that occur as a result of activities within the operations of the local government. Scope 3 emission sources include (but are not limited to) tailpipe emissions from employee commutes, employee business travel, and emissions resulting from the decomposition of government-generated solid waste.

LGO Protocol provides standard methodologies for calculating emissions from the sources shown in Table 4. Other sources of emissions, such as those associated with the production of consumed products do not yet have standard calculation methodologies and are thus excluded from this inventory.

Table 4: Inventoried Emissions Sources by Scope

Scope 1	Scope 2	Scope 3
Fuel consumed at facilities	Purchased electricity consumed by facilities	Solid waste generated by government operations
Fuel consumed by vehicle fleet and mobile equipment	Purchased electricity consumed by electric vehicles*	Fuel consumed by vehicles during employee commuting
Fuel consumed to generate electricity		
Leaked refrigerants from facilities and vehicles		
Fugitive HFC Emissions from electricity transmission and distribution		
Solid waste in government landfills		
Wastewater decomposition and treatment at a municipal wastewater treatment plant		

Organizational Boundaries

The organizational boundary for the inventory determines which aspects of operations are included in the emissions inventory, and which are not. Under the LGO Protocol, two control approaches are used for reporting emissions: operational control or financial control. A local government has operational control over an operation if it has full authority to introduce and implement policies that impact the operation. A local government has financial control if the operation is fully consolidated in financial accounts. If a local government has joint control over an operation, the contractual agreement will have to be examined to see who has authority over operating policies and implementation, and thus the responsibility to report emissions under operational control.

LGO Protocol strongly encourages local governments to utilize operational control as the organization boundary for a government operations emissions inventory. Operational control is believed to most accurately represent the emissions sources that local governments can most directly influence, and this boundary is consistent with other environmental and air quality reporting program requirements. For this reason, this inventory was conducted according to the operational control framework.

Types of Emissions

As described in the LGO Protocol, emissions from each of the greenhouse gases can come in a number of forms:

Stationary or mobile combustion: These are emissions resulting from on-site combustion of fuels (natural gas, diesel, gasoline, etc.) to generate heat, electricity, or to power vehicles and mobile equipment.

Purchased electricity: These are emissions produced by the generation of power from utilities outside of the jurisdiction.

Fugitive emissions: Emissions that result from the unintentional release of greenhouse gases into the atmosphere (e.g., leaked refrigerants, methane from waste decomposition, etc.).

Process emissions: Emissions from physical or chemical processing of a material (e.g., wastewater treatment).

Significance Thresholds

Within any local government's own operations there will be emission sources that fall within Scope 1 and Scope 2 that are minimal in magnitude and difficult to accurately measure. Within the context of local government operations, emissions from leaked refrigerants and backup generators may be common sources of these types of emissions. For these less significant emissions sources, LGO Protocol specifies that up to 5 percent of total emissions can be reported using methodologies that deviate from the recommended methodologies in LGO Protocol. In the context of registering emissions with an independent registry (such as the California Climate Action Registry), emissions that fall under the significance threshold are called ***de minimis***.

In this report, the following emissions fell under the significance threshold and were reported using best available methods:

- Scope 1 fugitive emissions from leaked refrigerants from vehicles and equipment

In this report, some emissions were calculated using methods that deviate from the methods recommended in the LGO Protocol. However, the LGO Protocol identifies several alternative methods that still meet emission calculation standards. For the following areas, alternative methods were used to calculate emissions:

- Scope 2 CO_2, CH_4 and N_2O emissions from purchased electricity used in City facilities were calculated using the CARB California Grid Average electricity emissions factor

In addition, emissions data from the following sources could not be obtained for this report and therefore emissions from these sources are not included in this inventory:

- Scope 1 fugitive emissions from the leakage of refrigerants from stationary heating, air conditioning, and refrigeration units
- Scope 1 fugitive emissions from leaked/deployed fire suppressants

Information Items

Information items are emissions sources that are not included as Scope 1, 2, or 3 emissions in the inventory, but are reported here separately in order to provide a more complete picture of emissions from the City of Lodi's government operations.

A common emission that is categorized as an information item is carbon dioxide emitted in the combustion of biogenic fuels. Local governments will often burn fuels that are of biogenic origin (wood, landfill gas, organic solid waste, biofuels, etc.) to generate power. Common sources of biogenic emissions are the combustion of landfill gas from landfills or biogas from wastewater treatment plants, as well as the incineration of organic municipal solid waste at incinerators.

Carbon dioxide emissions from the combustion of biogenic fuels are not included in Scope 1 based on established international principles. Methane and nitrous oxide emissions from biogenic fuels are considered Scope 1 stationary combustion emissions and are included in the stationary combustion sections for the appropriate facilities. These principles indicate that biogenic fuels (e.g., wood, biodiesel), if left to decompose in the natural environment, would release CO_2 into the atmosphere, where it would then enter back into the natural carbon cycle. Therefore, when wood or another biogenic fuel is combusted, the resulting CO_2 emissions are akin to natural emissions and should therefore not be considered as human activity-generated emissions. The CH_4 and N_2O emissions, however, would not have occurred naturally and are therefore included as Scope 1 emissions.

The emissions categorized as information items in this inventory are presented below in Table 5. Information items quantified for this inventory include:

- Scope 1 emissions from natural gas consumption by backup generators at the CT1 generation plant
- Scope 2 emissions from consumption of electricity at the CT1 generation plant

Table 5: Information Items

INFORMATION ITEMS	CO_2e
CT1 Emergency Generator (Natural Gas)	68.14
CT1 Plant Electricity Consumption	11.00
Total Information Items	79.14

Understanding Totals

It is important to realize that the totals and sub-totals listed in the tables and discussed in this report are intended to represent all-inclusive, complete totals for the City of Lodi's operations. However, these totals are only a summation of inventoried emissions using available estimation methods. Each inventoried sector may have additional emissions sources associated with them that were unaccounted for, such as Scope 3 sources that could not be estimated.

Also, local governments provide different services to their citizens, and the scale of the services (and thus the emissions) is highly dependent upon the size and purview of the local government. For these reasons, comparisons between local government totals should not be made without keen analysis of the basis for figures and the services provided.

Inventory Results

Emissions Total

In 2008, the City of Lodi's greenhouse gas emissions from government operations totaled 6,717 metric tons of CO_2e. This number represents a roll-up of emissions. While the roll-up is a valuable figure, information on the breakdown of emissions from local government operations by scopes, sources, and sectors allows the comparative analysis and insight needed for effective decision-making on target setting, developing GHG reduction measures, or monitoring. The LGO Protocol identifies reporting by scopes, sources, and sectors as the strongly preferred form of reporting a greenhouse gas inventory. For more details on the breakdown of City of Lodi's emissions by scopes, sources, and sectors, refer to subsequent sections within Inventory Results in this report.

Buildings and Other Facilities

Facility operations contribute to greenhouse gas emissions in two major ways. First, facilities consume electricity and fuels such as natural gas. This consumption is associated with the majority of greenhouse gas emissions from facilities. In addition, fire suppression, air conditioning, and refrigeration equipment in buildings can emit hydrofluorocarbons (HFCs) and other greenhouse gases when these systems leak refrigerants or fire suppressants. Refrigerants and fire suppressants are very potent greenhouse gases, and have Global Warming Potential (GWP) of up to many thousand times that of CO_2. For example, HFC-134a, a very common refrigerant, has a GWP of 1300, or 1300 times that of CO_2. Therefore, even small amounts of leaked refrigerants can have a significant effect on greenhouse gas emissions.

City of Lodi operates several facilities, ranging from general offices to parks. For the purpose of reporting emissions, these facilities were grouped by department. Data relating to natural gas consumption were obtained from PG&E. Data relating to electricity consumption were obtained from both LEU and PG&E.

The Buildings and Facilities sector produced the largest amount of emissions by sector. Overall, these facilities produced 1,941 metric tons of CO_2e (28.9% of total emissions). As illustrated in Figure 3 and Table 6, the facility group producing the most greenhouse gas emissions in the City of Lodi is the Public Works facility group at 60.2%. The second largest contributor is the Police facility group at 15.1%.

As illustrated in Figure 4, the source producing the most greenhouse gas emissions in the Buildings and Facilities sector is Natural Gas at 94.7%, followed by Electricity at 5.3%. Emissions from electricity consumption are lower by comparison due to the fact that Lodi receives electricity from the Northern California Power Agency, which reports low emissions factors from power generation.

Figure 3: Buildings and Other Facilities Emissions by Department

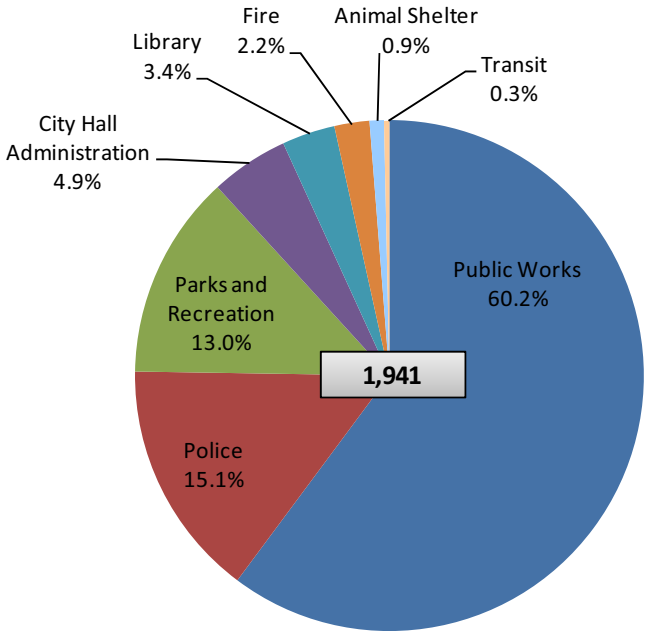

Table 6: Buildings and Other Facilities Emissions by Department

Department	metric tons CO_2e
Public Works	1,167.96
Police	292.70
Parks and Recreation	251.72
City Hall Administration	95.93
Library	65.32
Fire	43.13
Animal Shelter	17.68
Transit	6.58
Totals	**1,941.02**

Figure 4: Buildings and Other Facilities Emissions by Source

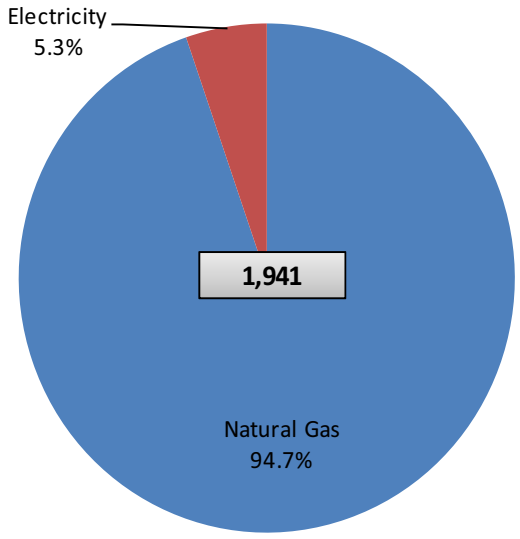

Table 7: Buildings and Other Facilities Emissions by Source

Source	metric tons CO_2e
Natural Gas	1,838.33
Electricity	102.69
Totals	**1,941.02**

Table 8: LGO Protocol Report - Buildings Sector Emissions by Scope and Emission Type

BUILDINGS & OTHER FACILITIES					
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**			
SCOPE 1		CO_2e	CO_2	CH_4	N_2O
	Stationary Combustion	1,838.33	1,833.62	0.17	0.00
	Total Direct Emissions	**1,838.33**	**1,833.62**	**0.17**	**0.00**
SCOPE 2		CO_2e	CO_2	CH_4	N_2O
	Purchased Electricity	102.69	95.71	0.05	0.02
	Total Indirect Emissions	**102.69**	**95.71**	**0.05**	**0.02**

Streetlights, Traffic Signals, and Other Public Lighting

Like most local governments, City of Lodi operates a range of public lighting including traffic signals and streetlights. The majority of emissions associated with the operation of this infrastructure are due to electricity consumption. Data relating to electricity consumption for public lighting were obtained from both LEU and PG&E.

The Public Lighting sector produced the sixth-largest amount of emissions of all sectors overall, but this comparison is distorted by the lack of kWh reported for other public lighting operation data that were not collected. Overall, these facilities produced 145 metric tons of CO_2e (2.2% of total emissions). As illustrated in Figure 5 and Table 9, the subsector producing the most greenhouse gas emissions in the Public Lighting sector are Streetlights at 97.4%, followed by Traffic Signals at 2.6%.

Figure 5: Public Lighting Emissions by Subsector

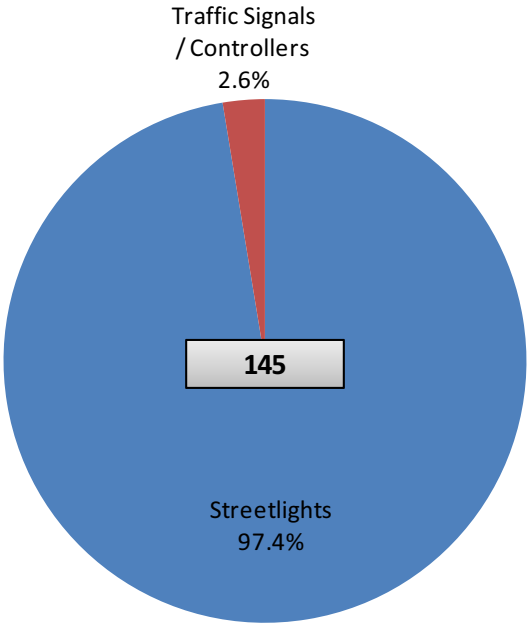

Table 9: Public Lighting Emissions by Subsector

Subsector (Light Type)	metric tons CO_2e	% of Sector Emissions	Electricity Use (kWh)
Streetlights	141.25	97%	5,240,885
Traffic Signals / Controllers	3.76	3%	139,425
Totals	**145.01**	**100%**	**5,380,310**

Table 10: LGO Protocol Report – Public Lighting Emissions by Scope and Emission Type

STREETLIGHTS, TRAFFIC SIGNALS, AND OTHER PUBLIC LIGHTING					
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**			
SCOPE 2		CO_2e	CO_2	CH_4	N_2O
	Purchased Electricity	145.01	135.15	0.07	0.03
	Total Indirect Emissions	**145.01**	**135.15**	**0.07**	**0.03**

Water Delivery Facilities

This sector includes emissions from equipment used for the distribution or transport of water, including drinking water, sprinkler systems and irrigation. The City of Lodi operates a range of water transport equipment. Electricity consumption and the on-site combustion of fuels such as natural gas are significant sources of greenhouse gas emissions from the operation of City of Lodi's water transport equipment. Data relating to electricity consumption were obtained from PG&E. Data relating to fuel consumption were obtained from PG&E.

The Water Transport sector produced the smallest amount of emissions overall, with 3 metric tons of CO_2e (less than 0.1% of total emissions). As illustrated in Figure 6 and Table 11, the subsector producing the most greenhouse gas emissions in the Water Transport sector is Water Delivery Pumps at 77.4%, followed by Stormwater Management at 22.6%.

Figure 6: Water Delivery Facilities Emissions by Subsector

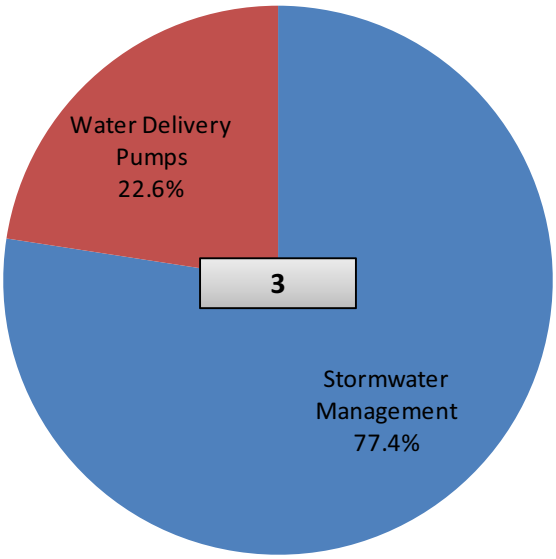

Table 11: Water Delivery Facilities Emissions by Subsector

Subsector (Equipment Type)	metric tons CO_2e	% of Sector Emissions	Electricity Use (kWh)	Natural Gas Use (Therms)
Stormwater Management	2.23	77%	7,538	-
Water Delivery Pumps	0.65	23%	18,739	27
Totals	**2.87**	**100%**	**26,277**	**27**

Table 12: LGO Protocol Report - Water Delivery Facilities Emissions by Scope and Emission Type

WATER TRANSPORT FACILITIES					
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**			
SCOPE 1		CO_2e	CO_2	CH_4	N_2O
	Stationary Combustion	0.14	0.14	0.00	0.00
	Total Direct Emissions	**0.14**	**0.14**	**0.00**	**0.00**
SCOPE 2		CO_2e	CO_2	CH_4	N_2O
	Purchased Electricity	2.73	2.66	0.00	0.00
	Total Indirect Emissions	**2.73**	**2.66**	**0.00**	**0.00**

Wastewater Treatment Facilities

Wastewater coming from homes and businesses is rich in organic matter and has a high concentration of carbon and nitrogen (along with other organic elements). As wastewater is collected, treated, and discharged, chemical processes in aerobic and anaerobic conditions lead to the creation and emission of two greenhouse gases: methane and nitrous oxide. Local governments that operate wastewater treatment facilities, including treatment plants, septic systems, collection lagoons, and other facilities, must therefore account for the emission of these gases.

Electricity consumption and the on-site combustion of fuels such as natural gas and diesel are also significant sources of greenhouse gas emissions from the operation of wastewater treatment facilities. Data relating to electricity consumption were obtained from PG&E. Data relating to backup generators and fuel consumption were obtained from Public Works.

The City of Lodi has operated the White Slough Wastewater Treatment Facility since 1966. The treatment plant covers approximately 1,040 acres. In 2008, these facilities served approximately 63,313 people, including the residents and businesses located in other jurisdictions.

The Wastewater Treatment sector produced the third-largest amount of emissions in this inventory. Overall, this facility produced 1,519 metric tons of CO_2e (22.6% of total emissions). As illustrated in Figure 7 and Table 13, the subsector producing the most greenhouse gas emissions in the Wastewater Treatment sector is Centralized Treatment Process Emissions at 57.4%, followed by Facility Energy Use at 31.9%.

Figure 7: Wastewater Treatment Facilities Emissions by Subsector

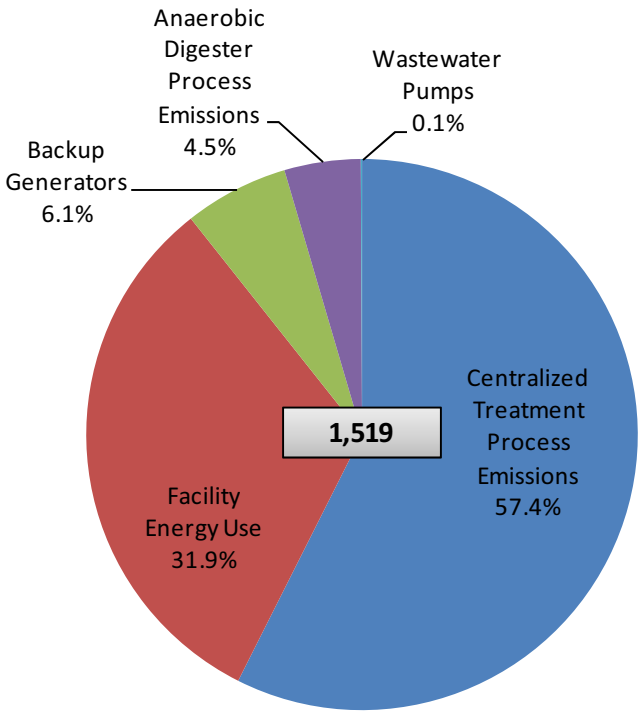

Table 13: Wastewater Treatment Facilities Emissions by Subsector

Subsector	metric tons CO_2e
Centralized Treatment Process Emissions	872.15
Facility Energy Use	485.11
Backup Generators	92.85
Anaerobic Digester Process Emissions	68.05
Wastewater Pumps	1.01
Totals	**1,519.17**

Table 14: LGO Protocol Report - Wastewater Treatment Facilities Emissions by Scope and Emission Type

WASTEWATER TREATMENT FACILITIES					
Scope	Emission Type	Greenhouse Gas Emissions (metric tons)			
SCOPE 1		CO_2e	CO_2	CH_4	N_2O
	Stationary Combustion	383.77	382.46	0.04	0.00
	Process Emissions	940.20	-	3.24	2.81
	Total Direct Emissions	**1,323.97**	**382.46**	**3.28**	**2.81**

Power Generation Facilities

Emissions from power generation are due to the combustion of fuels (natural gas, coal, etc.) to generate electricity. Emissions can also come from purchased electricity used by the utility, transmission and distribution losses, and the emission of sulfur hexafluoride from power transmission lines.

City of Lodi is one of the relatively few local governments in California that operates a municipal utility. In order to serve their residents' and businesses' energy needs, municipal utilities can perform a variety of functions—among others, this may include generating electricity, purchasing natural gas and other fuels, and purchasing renewable energy offsets. This allows the City of Lodi more flexibility in determining how "clean" the electricity is (what proportion of electricity comes from renewable or low-polluting sources), and provides an excellent opportunity for effective emissions reduction within the City's operations.

Lodi Electric Utility is a publicly owned utility provider (POU) which services the City of Lodi and surrounding areas. LEU procures electricity through the Northern California Power Agency (NCPA), a joint powers authority. The NCPA purchases and generates electricity on behalf of member entities. Since electricity generation at LEU facilities is part of the NCPA collaborative, emissions from these activities are not counted toward the City of Lodi's municipal GHG emissions inventory. However, the City does own and operate local transmission and distribution lines. Transmission and distribution of electricity in inherently inefficient, so emissions associated with transmission losses are included in

this inventory. Additionally, transmission and distribution lines are insulated by chemicals, such as SF_6, which release GHG emissions when leaked. SF_6 leakage is also included in this inventory.

The Power Generation Facilities sector produced the fifth-largest amount of emissions in this inventory. Overall, these facilities produced 653 metric tons of CO_2e (9.7% of total emissions). As illustrated in Figure 8 and Table 15, the subsector producing the most greenhouse gas emissions in the Power Generation Facilities sector was the Transmission and Distribution system at 78.4%, followed by SF6 Emissions at 21.6%.

Figure 8: Power Generation Facilities Emissions by Facility

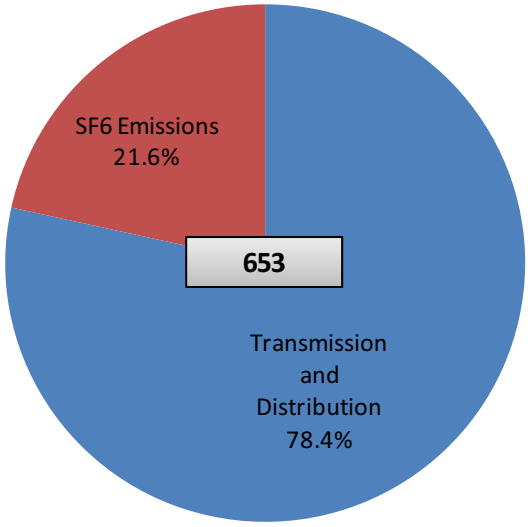

Table 15: Power Generation Facilities Emissions by Facility

Facility	metric tons CO_2e
Transmission and Distribution	512.36
SF_6 Emissions	140.93
Totals	**653.29**

Table 16: LGO Protocol Report – Power Generation Emissions by Scope and Emission Type

POWER GENERATION FACILITIES					
Scope	Emission Type	Greenhouse Gas Emissions (metric tons)			
SCOPE 1		CO_2e	SF_6		
	Fugitive Emissions	140.93	0.01		
	Total Direct Emissions	**140.93**	**0.01**		
SCOPE 2		CO_2e	CO_2	CH_4	N_2O
	Purchased Electricity	512.36	477.52	0.26	0.09
	Total Indirect Emissions	**512.36**	**477.52**	**0.26**	**0.09**

Vehicle Fleet and Mobile Equipment

The vehicles and mobile equipment used in the City of Lodi's daily operations include: heavy duty trucks responding to emergency fire calls; heavy and light trucks used for landscape and maintenance tasks; passenger cars, light trucks, and sport utility vehicles (SUVs) driven on a variety of site visits, including building inspections; among others. Most vehicles consume gasoline, some consume diesel, some consume compressed natural gas (CNG), and each results in greenhouse gas emissions. Gasoline and diesel-powered maintenance equipment contributes to greenhouse gas emissions as well (22 pieces of equipment were repoted). In addition, vehicles with air conditioning or refrigeration equipment use refrigerants that can leak from the vehicle.

The majority of vehicles in the fleet were used in the Public Works Department across a variety of divisions (e.g. Water, Streets, Park Maintenance, etc.). Other vehicles were used by the Police Department, Fire Department, and Administration, among others.

The Vehicle Fleet sector produced the second-largest amount of emissions in this inventory. Overall, this sector produced 1612 metric tons of CO_2e (24.0% of total emissions). As illustrated in Figure 9 and Table 17, the source producing the most greenhouse gas emissions in the Vehicle Fleet sector was Gasoline at 72.8%, followed by Diesel at 21.9%. Emissions from vehicle fleet use by department are illustrated in Figure 10.

Figure 9: Vehicle Fleet Emissions by Source

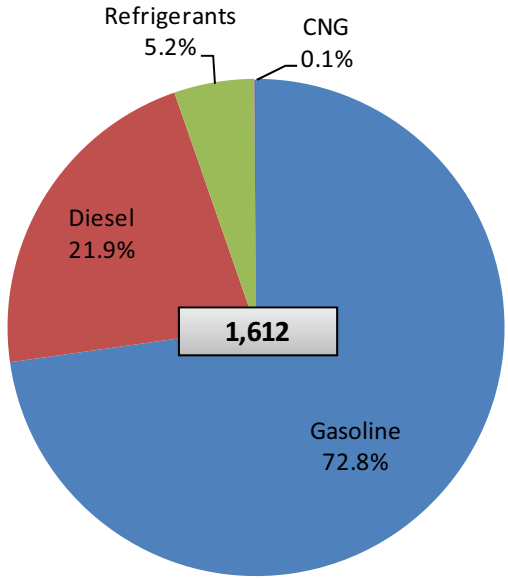

Table 17: Vehicle Fleet Emissions by Source

Source	metric tons CO_2e	Consumption Quantity	Consumption Units
Gasoline	1,172.77	132,092	US gal
Diesel	353.61	34,620	US gal
Refrigerants	83.73	64	kg
CNG	1.86	11,383	US gal
Totals	**1,611.98**		

Figure 10: Vehicle Fleet Emissions by Department

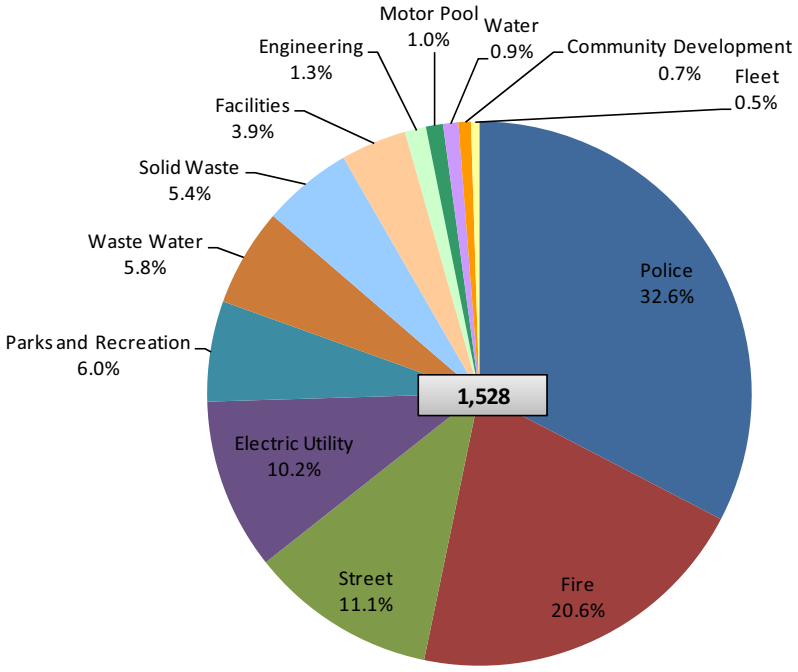

Table 18: LGO Protocol Report - Vehicle Fleet Emissions by Scope and Emission Type

VEHICLE FLEET						
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**				
SCOPE 1		CO_2e	CO_2	CH_4	N_2O	HFC-134a
	Mobile Combustion	1,528.24	1,513.31	0.07	0.04	-
	Fugitive Emissions	-	-	-	-	0.06
	Total Direct Emissions	**1,528.24**	**1,513.31**	**0.07**	**0.04**	**0.06**
INDICATORS	Number of Vehicles	214				
	Vehicle Miles Traveled	1,272,697				
	Number of Pieces of Equipment	22				

Transit Fleet

The vehicles and mobile equipment used in the City of Lodi's public transportation operations, including buses, shuttles, and others, burn compressed natural gas (CNG), resulting in greenhouse gas emissions. In addition, vehicles with air conditioning or refrigeration equipment use refrigerants that can leak from the vehicle. These values were not provided assuming they are included in with the vehicle fleet.

The Transit Fleet sector produced the eighth-largest amount of emissions in this inventory. Overall, this sector produced 49.68 metric tons of CO_2e (0.7% of total emissions). As illustrated in Table 19, the only source producing the greenhouse gas emissions in the Transit Fleet sector was CNG.

Table 19: Transit Fleet Emissions by Source

Source	metric tons CO_2e	Consumption Quantity	Consumption Units
CNG	49.68	112,361	US gal
Totals	**49.68**		

Table 20: LGO Protocol Report - Transit Fleet Emissions by Scope and Emission Type

TRANSIT FLEET					
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**			
		CO_2e	CO_2	CH_4	N_2O
SCOPE 1					
	Mobile Combustion	49.68	0.80	1.01	0.09
	Total Direct Emissions	**49.68**	**0.80**	**1.01**	**0.09**

Government-Generated Solid Waste

Many local government operations generate solid waste, much of which is eventually sent to a landfill. Typical sources of waste in local government operations include paper and food waste from offices and facilities, construction waste from public works, and plant debris from parks departments. Organic materials in government-generated solid waste (including paper, food scraps, plant debris, textiles, wood waste, etc.) generate methane as they decay in the anaerobic environment of a landfill. Emissions from the waste sector are an estimate of methane generation that will result from the anaerobic decomposition of all organic waste sent to landfill in the base year. It is important to note that although these emissions are attributed to the inventory year in which the waste is generated, the emissions themselves will occur over the 100+ year timeframe that the waste will decompose.

The Solid Waste sector produced the seventh-largest amount of emissions in this inventory. Overall, this sector produced 54.87 metric tons of CO_2e (0.8% of total emissions). The breakdown of shares of waste generation by

department and/or location are reported in Figure 11 and Table 21. The subsector that produced the most waste was Parks and Recreation (not including Hutchins Square) at 32 metric tons of CO_2e (57.8%).

Figure 11: Government Waste Emissions by Subsector

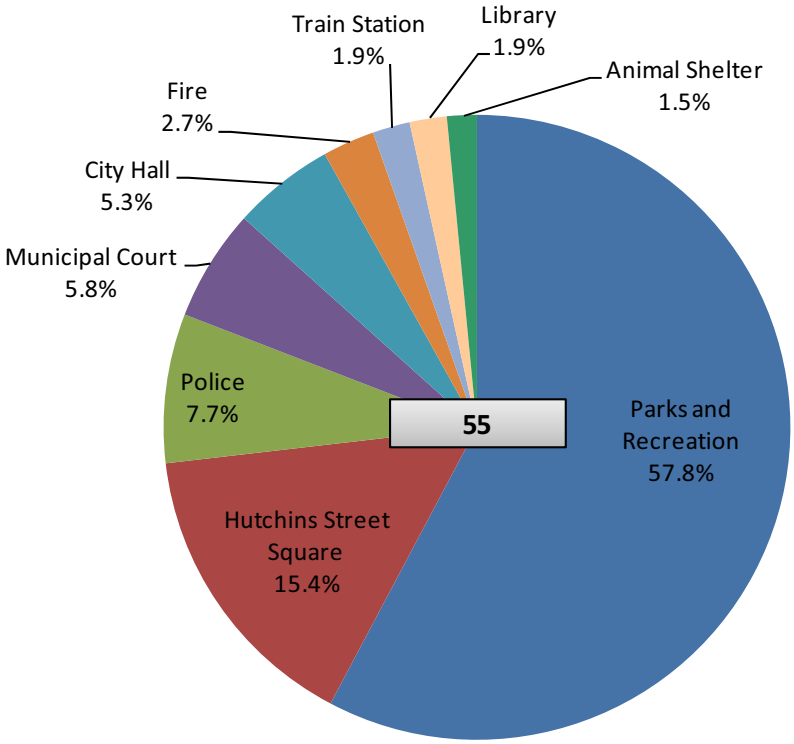

Table 21: Government Waste Emissions by Subsector

Department	metric tons CO_2e
Parks and Recreation	31.69
Hutchins Street Square	8.45
Police	4.23
Municipal Court	3.17
City Hall	2.89
Fire	1.48
Train Station	1.06
Library	1.06
Animal Shelter	0.85
Totals	**54.87**

Table 22: LGO Protocol Report - Government Waste Emissions by Scope and Emission Type

SOLID WASTE GENERATION		
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**
SCOPE 3		CO_2e
	Waste All Facilities	54.87
INDICATORS	Short tons of solid waste	216.34

Employee Commute

Emissions in the Employee Commute sector are due to combustion of fuels in vehicles used by government employees for commuting to work at the City of Lodi. Results from a survey are shown below. Current full-time City staff members were surveyed and 94 responses were collected, resulting in a sample of approximately 21% of employees at 2008 staff levels. The survey was used to collect the data needed to calculate emissions and also capture other information that will help the City set effective policy addressing this sector.

The Employee Commute sector produced the fourth-largest amount of emissions in this inventory. As seen in Table 23, this sector produced 739 metric tons of CO_2e (11.0% of total emissions). Nearly all vehicles are fueled by gasoline, with only a few using diesel.

Tables 24 through 28 present summary information from preference-based questions included in the survey. This information is intended to inform the City of Lodi about potential transportation options to increase convenience and productivity while reducing the City's impact on the environment.

Table 23: LGO Protocol Report - Employee Commute Emissions by Scope and Emission Type

EMPLOYEE COMMUTE		
Scope	**Emission Type**	**Greenhouse Gas Emissions (metric tons)**
SCOPE 3		CO_2e
	Mobile Combustion	738.917

Table 24: Employee Commute – Reasons for Not Carpooling/Vanpooling

Reason	Percentage
Other people do not match my schedule or route	7%
Difficult to find others to carpool/vanpool	12%
Work late or irregular hours	9%
May not be able to get home quickly in an emergency	12%
Like the privacy when I'm in my own car	13%
Dislike being dependent on others	17%
Need my car on the job	4%
Need to make stops on the way to work or home	13%
Makes my trip too long	4%
I don't know enough about carpooling or vanpooling	1%
Never considered carpooling or vanpooling	3%
Other	4%

Table 25: Employee Commute – Reasons for Not Taking Transit

Reason	Percentage
Transit service doesn't match my route or schedule	19%
It costs too much	2%
It takes too long	9%
It is not safe or easy to walk to work from the transit stop	5%
Not enough parking at the transit stop from which I'd depart	4%
It is too far to walk to work from the transit stop	0%
I work late or irregular hours	12%
May not be able to get home quickly during an emergency	12%
Like the privacy when I'm in my own car	12%
Need my car on the job	4%
Need to make stops on the way to work or home	16%
I don't know enough about taking transit	0%
Never considered using public transit	5%
Other	0%

Table 26: Employee Commute – Reasons for Not Walking/Biking

Reason	Percentage
I live too far away	15%
There isn't a safe or easy route for walking or biking	6%
Weather	19%
No place at work to store bikes safely	2%
It's not easy to look good and feel comfortable for work after walking or biking	8%
Workplace does not have adequate facilities for showering/changing	6%
May not be able to get home quickly in an emergency	15%
Need to make stops on the way to work or home	13%
Never considered walking or biking to work	4%
I don't know enough about walking or biking to work	0%
Other	12%

Table 27: Employee Commute – Travel Mode Data

Mode	Percentage
Drive Alone	100%
Carpooling/Vanpooling	0%
Public Transportation	0%
Bicycling	0%
Walking	0%
Telecommute/Other	0%

Table 28: Employee Commute – Reasons for Not Carpooling/Vanpooling

Miles	Percentage
0-5	67%
6-10	14%
11-15	10%
15-20	5%
21-25	0%
26-30	5%
31-35	0%
36-40	0%
41-45	0%
46-50	0%
51-75	0%
76-100	0%
Over 100	0%

Inventory Methodologies

The Clean Air & Climate Protection Software (CACP 2009) made it possible to calculate greenhouse gas emissions for the following greenhouse gases: Carbon Dioxide, Methane, Nitrous Oxide, Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. Activity data was collected for a number of operations through a number of methods. Activity data was stored in Master Data Workbook (MDWB), which serves as a tool for organizing and conditioning data, and, in some cases, calculating emissions. Data collection methods range from LGO Protocol-recommended, to LGO Protocol-alternative and non-LGO Protocol (but generally accepted) alternatives. The methods used depend on the availability and format of data. Inputting activity data into CACP 2009, along with the correct emission factor, resulted in the calculation of greenhouse gas emissions for the City of Lodi's 2008 government operations.

Buildings and Other Facilities

The Building and Facilities sector of the inventory reports emission from two main sources: electricity and natural gas. The required data were obtained from the local government departments and regional utility providers. The utility companies that service City of Lodi's government facilities are:

- Pacific Gas and Electric (PG&E) – natural gas and electricity service
- Lodi Electric Utility (LEU) – electricity service

This data were acquired per request and approval from both the City of Lodi and the utility providers. The data were received in the following formats:

- PG&E electricity and natural gas (kWh/therms) – Excel spreadsheet indicating therms of consumption and cost by individual account
- LEU electricity (kWh) – Data table indicating kWh consumption and cost by address.

The data were then inserted into the corresponding section within the MDWB. The data were then sorted and conditioned in order to use the recommended method for reporting emissions.

Buildings and Other Facilities: Electricity and Natural Gas Related Emission

According to the LGO Protocol, the recommended method for reporting emissions related to electricity consumption and natural gas combustion is summing the total number of kWh or therms (Activity Data) and multiplying the Activity Data by a corresponding emission factor. Emission factors are values that are reported by the utility company and are stored within CACP software.

- Summed Activity (kWh/therm) x Emissions Factor = GHG Emissions

The raw data were inserted into the spreadsheet labeled *FA-Utility Raw Data* (raw data must be kept without conditioning as a quality-control reference) and then copied to the spreadsheet labeled *FA-Utility Working Data* in the MDWB to be sorted. The data were sorted within the *FA-Utility Working Data* spreadsheet to isolate building facilities kWh and therm usage; premise type, account numbers, addresses, and service descriptions were categories used to sort the data. Once sorted, the data were copied to the *Building Working Data* spreadsheet, where they were separated into the different building facilities. The kWh and therms were then summed per individual facility and the values per facility and grand total are reflected in the *Building Final Data* spreadsheet.

After the *Building Final Data* spreadsheet was populated with all of the facilities and their kWh/therm usage, the information was entered into CACP. According to LGO protocol, inventory of kWh emissions for the Building and Facilities sector is reported as Scope 2-purchased electricity while the inventory of therm emission is reported as Scope 1-stationary combustion. A separate record is entered into CACP per facility's kWh and therm usage, making sure that the entry is reported under the correct Scope and with the correct emissions factor (differs for each utility provider).

Buildings and Other Facilities: Reporting Inconsistencies and Troubleshooting

Electricity and natural gas data were conditioned according to the LGO protocol with some minor inconsistencies. While sorting the data to clearly identify the electricity and natural gas used per facility, there were some facilities that had only electricity or natural gas usage associated with them:

- Parks and Recreation (OFC) – natural gas data missing
- Parks and Recreation (SW/COR N STKN-E LOCUST) – electricity data missing
- Public Works (1331 S HAM LN UNIT B) – electricity data missing
- Public Safety Building – electricity data missing

The totals were reported with these inconsistencies assuming that the utility providers may have included the accompanying natural gas or electricity usage for the facility elsewhere (i.e. the facility shares a utility meter with another facility). Another explanation may be that the building does not use electricity or natural gas. For instance, some heating systems may be run completely by electricity, rendering natural gas service unnecessary.

Since LEU procures electricity through the Northern California Power Agency (NCPA), the emissions factors related to electricity use at City facilities must be taken from NCPA operations rather than LEU alone. NCPA's emissions factors tend to be lower than average, so it was important to utilize the appropriate factors for Scope 2 emissions calculations. While the format of emissions reported by NCPA to CARB and the Climate Registry were not compatible with CACP, 2005 emissions factors for NCPA were available. 2005 emissions factors were applied to all facilities utilizing NCPA power.

Facility refrigerants were omitted from the inventory due to unavailability of data. Thus, emissions in this sector may be slightly undercounted. Fire suppressants were also omitted from the inventory. According to the Facilities Services division, the City's extinguishers are serviced once per year. No further data could be acquired pursuant to LGO protocol recommended methods.

During the course of this inventory, backup power generator fuel records were requested from the Facilities Services division, LEU, and White Slough Wastewater Treatment Facility. While data were acquired for the latter two facilities (reported in the Power Generation and Wastewater Treatment sectors), backup generator data could not be obtained for general buildings and facilities. Thus, emissions in this sector may be slightly undercounted.

Streetlights and Traffic Signals

The Lighting sector of the inventory reports emission from one main source, electricity. The required data were obtained from the regional utility providers. The utility company that services City of Lodi's lighting is:

- LEU – electricity service

This data were acquired per request and approval from both the City of Lodi and LEU. The data were received in the following formats:

- LEU Traffic Signals (kWh) – Data table indicating electricity consumption by month
- LEU Streetlights (kWh) – Aggregate value for electricity consumption and total number of streetlights

The data were inserted into the corresponding section within the MDWB public lighting final data tab. The recommend method was used for reporting emissions.

Lighting: Electricity Related Emission

According to the LGO Protocol, the recommended method for reporting emissions related to electricity consumption is summing the total number of kWh (Activity Data) and multiplying the Activity Data by a corresponding emission factor. Emission factors are values that are reported by the utility company and are stored within CACP software.

- Summed Activity (kWh) x Emissions Factor = GHG Emissions

The raw data were provided asaggregate values, requiring no further conditioning. After the *Public Lighting Final Data* spreadsheet was populated with the kWh usage, the information was entered into CACP. According to the LGO protocol, the inventory of kWh emissions for the Public Lighting sector is reported as Scope 2-purchased electricity. A separate record is entered into CACP per subsector's kWh usage, making sure that the entry is reported under the correct Scope and with the correct emissions factor (differs for each utility provider).

Lighting: Reporting Inconsistencies and Troubleshooting

Additional public lighting data were not provided upon request including park lighting, traffic controllers, and other lighting. There is indication that the data exists but was not readily available.

Electricity emissions factors for 2005 were used as proxy factors in lieu of 2008 factors. In 2008, the information was not reported in a format consistent with LGO protocol methodologies.

Water Transport Facilities

The Water Transport sector of the inventory reports emission from two main sources, electricity and natural gas. This sector of the inventory consisted of electricity and natural gas for the operation of sprinkler systems, lift stations, and well pumps associated with non-waste water transport. The required data were obtained from the local government departments and regional utility providers. The utility company that services City of Lodi's water transport facilities is:

- PG&E – electricity service

This data were acquired per request and approval from both the City of Lodi and PG&E. The data were received in the following formats:

- PG&E electricity and natural gas (kWh/therms) – Excel spreadsheet indicating therms of consumption and cost by individual account

The data were inserted into the corresponding section within the MDWB raw data tabs. The data were then sorted and conditioned in order to use the recommended method for reporting emissions.

Water Transport Facilities: Electricity Related Emission

According to the LGO Protocol, the recommended method for reporting emissions related to electricity consumption is summing the total number of kWh (Activity Data) and multiplying the Activity Data by a corresponding emission factor. Emission factors are values that are reported by the utility company and are stored within CACP software.

- Summed Activity (kWh/therms) x Emissions Factor = GHG Emissions

The raw data were inserted into the spreadsheet labeled *FA-Utility Raw Data* (raw data must be kept without conditioning as a quality-control reference) and then copied to the spreadsheet labeled *FA-Utility Working Data* in the MDWB to be sorted. The data were sorted within the *FA-Utility Working Data* spreadsheet to isolate lighting activity (kWh); premise type, account numbers, addresses, and service descriptions are categories used to sort the data.

Once sorted, the data were copied to the *Water Transport Working Data* spreadsheet to be separated into the different subsectors (water delivery pumps, sprinklers/irrigation, storm water, and others). The kWh and therms were then

summed per individual facility. The values per facility and grand total are reported in the *Water Transport Final Data* spreadsheet.

After the *Water Transport Final Data* spreadsheet was populated with all of the subsectors and their energy usage, the information was entered into CACP. According to the LGO Protocol, the inventory of kWh emissions for the Water Transport sector is reported as Scope 2-purchased electricity, while the inventory of therm emission is reported as Scope 1-stationary combustion.. A separate record is entered into CACP per subsector's kWh usage to ensure the entry is reported under the correct Scope and with the correct emissions factor (differs for each utility provider).

Water Transport Facilities: Reporting Inconsistencies and Troubleshooting

An assumption made is that all the data were provided and some data may include only one type of consumption. For example, the drainage pumps are powered only by electricity and not natural gas.

Wastewater Treatment Facilities

The Wastewater Treatment Facilities sector of the inventory reports emission from three main sources: electricity, natural gas, and wastewater processes. This sector of the inventory consisted of electricity and natural gas data from the treatment facility, wastewater pumps, and wastewater lift stations. In addition, emissions from wastewater treatment processes are also reported in this sector of the inventory. The required data were obtained from the local government departments and regional utility providers. The utility companies that service City of Lodi's wastewater facility are:

- PG&E – natural gas and electricity service
- LEU– electricity service

This data were acquired per request and approval from both the City of Lodi and utility providers. The data were received in the following format:

- PG&E electricity and natural gas (kWh/therms) – Excel spreadsheet indicating therms of consumption and cost by individual account
- LEU electricity (kWh) – Data table indicating kWh consumption and cost by address

In addition, the White Slough Waste Water Treatment Facility division provided relevant data to calculate process emissions and emissions from fuels consumed by backup generators.

The data were inserted into the corresponding section within the MDWB raw data tabs. The data were then sorted and conditioned in order to use the recommend method for reporting emissions.

Wastewater Treatment Facilities: Electricity and Natural Gas Related Emission

According to the LGO Protocol the recommended method for reporting emissions related to electricity consumption and natural gas combustion is summing the total number of kWh or therms and multiplying them by their corresponding emission factor. Emission factors are values that are reported by the utility company and are stored within CACP software.

- Summed Activity (kWh/therm) x Emissions Factor = GHG Emissions

The raw data were inserted into the spreadsheet labeled *FA-Utility Raw Data* (raw data must be kept without conditioning as a quality-control reference) and then copied to the spreadsheet labeled *FA-Utility Working Data* in the MDWB to be sorted. The data were sorted within the *FA-Utility Working Data* spreadsheet to isolate the wastewater facility kWh and therm usage as well as wastewater transport kWh; premise type, account numbers, addresses, and service descriptions are categories used to sort the data.

Once sorted, the data were copied to the *WW-Energy Use Working Data* spreadsheet, where it was separated into the different facilities. The kWh and therms were then summed per individual facility. The values per facility and grand total are reflected in the *WW-Energy Use Final Data* spreadsheet.

After the *WW-Energy Use Final Data* spreadsheet was populated with all of the facilities and their kWh/therm usage, the information was entered into CACP. According to LGO Protocol, inventory of kWh emissions for the Wastewater Treatment Facilities sector is reported as Scope 2-purchased electricity, the inventory of therm emission is reported as Scope 1-stationary combustion, and the inventory of wastewater treatment is reported as Scope 1-process emissions. A separate record is entered into CACP per facility's kWh and therm usage to ensure the entry is reported under the correct Scope and with the correct emissions factor (differs for each utility provider).

Wastewater Treatment Facilities: Wastewater Treatment Related Emission

According to the LGO protocol, the recommended method for reporting emissions related to wastewater treatment processes is to obtain site-specific measurements and apply a standard equation (below) based on the type of treatment system in place. The alternative method is to utilize population estimates, which applies a standard per-capita emissions rate. In 2008, the City of Lodi maintained a centralized treatment facility with an anaerobic digester.

As outlined in LGO protocol Equations 10.7 and 10.9 below, quantifying emissions from centralized treatment facilities requires collection of the following data: quantity of nitrogen produced per day, and population served by the treatment facility. The nitrification/denitrification process creates N_2O, which is emitted into the atmosphere. Emissions are calculated using the following formulas, which are built into the MDWB.

- Equation 10.7: Annual N_2O emissions (metric tons CO_2e) = ((P_{total} x $F_{ind\text{-}com}$) x EF nit/denit x 10^{-6}) x GWP

Where:

TERM		DESCRIPTION	VALUE
P_{total}	=	total population that is served by the centralized WWTP adjusted for industrial discharge, if applicable [person]	user input
$F_{ind\text{-}com}$	=	factor for industrial and commercial co-discharge waste into the sewer system	1.25
EF nit/denit	=	emission factor for a WWTP with nitrification/denitrification [g N_2O/person/year]	7
10^{-6}	=	conversion from g to metric ton [metric ton/g]	10^{-6}
GWP	=	N_2O Global Warming Potential	310

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009).

- Equation 10.9: Annual N_2O emissions (metric tons CO_2e) = (N Load x EF effluent x 365.25 x 10^{-3} x 44/28) x GWP

Where:

TERM		DESCRIPTION	VALUE
N Load	=	measured average total nitrogen discharged [kg N/day]	user input
EF effluent	=	emission factor [kg N_2O-N/kg sewage-N produced]	0.005
365.25	=	conversion factor [day/year]	365.25
10^{-3}	=	conversion from kg to metric ton [metric ton/kg]	10^{-3}
44/28	=	molecular weight ratio of N_2O to N_2	1.57
GWP	=	Global Warming Potential	310

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009).

As outlined in LGO protocol Equation 10.1 below, quantifying emissions from anaerobic digesters requires collection of the following data: quantity of digester gas produced per day, and fraction of digester gas as CH_4. The anaerobic digestion process creates CH_4, which is captured and combusted. Due to minimal destruction inefficiencies, some gases escape the system. Emissions from digester gas are calculated using the following formula, which is built into the MDWB.

- Equation 10.1: Annual CH_4 emissions (metric tons CO_2e) = (Digester Gas x F_{CH4} x $\varrho(CH_4)$ x (1-DE) x 0.0283 x 365.25 x 10^{-6}) x GWP

Where:

ITEM		DESCRIPTION	VALUE
Digester Gas	=	measured standard cubic feet of digester gas produced per day [ft^3/day]	user input
F CH_4	=	measured fraction of CH_4 in biogas	user input
p(CH_4)	=	density of methane at standard conditions [g/m^3]	662.00
DE	=	CH_4 Destruction Efficiency	.99
0.0283	=	conversion from ft^3 to m^3 [m^3/ft^3]	0.0283
365.25	=	conversion factor [day/year]	365.25
10^{-6}	=	conversion from g to metric ton [metric ton/g]	10^{-6}
GWP	=	Global Warming Potential	21

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-7 (2009).

Power Generation Facilities

The Power Generation sector of the inventory reports emissions from electricity and natural gas consumption by LEU facilities, transmission and distribution losses by LEU, and fugitive gasses in the transmission and distribution process. The required data were obtained from LEU, either directly or indirectly (i.e. by being directed to CARB reports).

Power Generation Facilities: Electricity and Natural Gas Related Emissions

According to the LGO Protocol the recommended method for reporting emissions related to electricity consumption and natural gas combustion is summing the total number of kWh or therms and multiplying them by their corresponding emission factor. Emission factors are values that are reported by the utility company and are stored within CACP software.

- Summed Activity (kWh/therm) x Emissions Factor = GHG Emissions

The raw data were obtained directly from LEU in the following format:

- LEU electricity (kWh) – aggregate total electricity usage and cost for the CT1 operation
- Natural gas (MMBTU) – aggregate total natural gas usage and cost for the CT1 operation

LEU also operates the STIG facility. However, energy consumption data was not available for this facility.

The data were classified as information items because the facilities are owned and operated under a joint powers agreement with NCPA and other members.

Power Generation Facilities: Transmission and Distribution Loss Related Emissions

The City of Lodi owns and operates the City's transmission and distribution system. The recommended method for reporting emissions related to transmission and distribution system losses is by first identifying the amount of electricity lost, and then by multiplying that amount by its corresponding emission factor. Emission factors are values that are reported by the utility company and are stored within CACP software.

- Electricity losses (kWh) x Emissions Factor = GHG Emissions

LEU provided commentary on the rate of loss for the local system (approximately 4%). The total amount of electricity transmitted by LEU was obtained from a report submitted to CARB for 2008 operations. The rate of loss was applied to the total amount. After that, the standard Scope 2 – purchased electricity methodology is applied.

Power Generation Facilities: Transmission and Distribution Fugitive Emissions

The calculation for annual fugitive SF_6 emissions was very simple. Instead of the LGO protocol preferred mass balance method, a sum total value was provided for the amount of fugitive SF_6 emission. LEU reports this information to

CARB, so the information was readily available. The raw value was inserted into the *MPG-Raw Data* Spreadsheet and then copied to the *MPG-SF6 Final Data* Spreadsheet. According to the LGO protocol, the inventory of emissions related to SF_6 is reported as Scope 1-fugitive emissions. A single record is entered into CACP, to ensure that the entry is reported under the correct Scope.

Power Generation Facilities: Reporting Inconsistencies and Troubleshooting

Electricity emissions factors for 2005 were used as proxy factors in lieu of 2008 factors. In 2008, the information was not reported in a format consistent with LGO protocol methodologies.

Energy consumption records could not be obtained from the STIG facility. The facility is connected directly to the transmission system. Thus, emissions from electricity consumed by the STIG facility may already be reported in the transmission and distribution losses. Energy consumption records for the CT1 facility were provided by LEU; however, it was noted that the facility is connected directly to the internal distribution system and that the figures were reported based on the amount billed to NCPA through a contractual cost-sharing agreement. Since this facility is operated under an agreement with NCPA, and because emissions from electricity consumed by the CT1 facility may already be reported in the transmission and distribution losses, these emissions were recorded as information items.

Vehicle Fleet, Transit Fleet and Mobile Equipment

The Vehicle Fleet and Transit Fleet sectors of the inventory report emission from three main sources: fuel combustion, vehicle miles traveled (VMT) and refrigerants. The recommended method for reporting mobile emission varies according to the emission source. For fuel combustion, the recommended method requires individual vehicle fuel data in order to build a detailed fuel consumption record. For VMT, the recommended method involves gathering individual vehicle miles to create a detailed record. The records were acquired through the City's Fleet Services division in the following format:

- Name of vehicle or vehicle group, vehicle type, model year, class description, department, gallons consumed, fuel type, cost, and operating hours/miles
- Aggregate refrigerant purchases

Vehicle Fleet, Transit Fleet and Mobile Equipment: Fuel and VMT Related Emission

According to LGO protocol, the emissions from vehicle fleet must be reported according to CO_2 emissions, calculated directly from fuel combustion, and N_2O /CH_4 emissions, calculated from VMT.

- Fuel (gallons) x Emissions Factor = CO_2 Emissions
- VMT (miles) x Emissions Factor = N_2O/CH_4 Emissions

The raw data were inserted into the spreadsheet labeled *VF-Raw Data Data* (raw data must be kept without conditioning as a quality-control reference) and then copied to the spreadsheet labeled *VF-Working Data* in the MDWB to be sorted by:

- Department
- Vehicle type
- Fuel type

Once sorted and conditioned, data were entered into the *VF-Detailed Fuel Final Data* and *VF-Detailed VMT Final Data* spreadsheets where the total amounts fuel consumption and VMT are reported per department and vehicle type.

After the *VF-Detailed Fuel Final Data* and *VF-Detailed VMT Final Data* spreadsheets were populated, the information was entered into CACP. According to LGO protocol, the inventory of fuel and VMT emissions for the Vehicle Fleet sector is reported as Scope 1-mobile combustion. A separate record is entered into CACP per department to ensure the records are entered as follows:

- Fuel related emissions:
  - Fuel type
  - Vehicle type
  - Model year
  - Fuel CO_2 coefficient - *Default*
  - Transport Average - *Highway Fuel CO_2 only*
- VMT related emissions:
  - Fuel type
  - Vehicle type
  - Model year
  - Fuel CO2 coefficient - *Highway VMT N_2O, CH_4, and CAP*
  - Transport Average - *Default* for VMT emissions.

Vehicle Fleet, Transit Fleet and Mobile Equipment: Refrigerant Related Emission

This sector of the inventory required refrigerant charge information. For leaked refrigerants, the recommended method requires individual data per vehicle on the amount (lbs or kg) of refrigerant recharged into the vehicle. In the event that there is not sufficient information to complete the recommended method, alternative methods can be used to calculate the amount of leaked refrigerants. In this case, aggregate refrigerant purchases were used as indicators of the amount of refrigerant recharged throughout the year. Since refrigerants were reported in aggregate, it was not possible to disaggregate data by sector (Vehicle Fleet vs. Transit Fleet), so all refrigerant related emissions were allocated to the larger vehicle fleet.

According to LGO Protocol, the recommended method for reporting emissions from leaked refrigerants is the mass balance method where HFC's that have escaped into the atmosphere are summed and then multiplied by the Global Warming Potential (GWP) factor. A simplified version of the mass balance method was used in this sector of the inventory, with purchased refrigerants serving as proxy measures of leaked refrigerants.

- Total purchased HFCs (kg) x GWP Factor = GHG Emissions

The raw data were inserted into the spreadsheet labeled *RF-Raw Data* and then copied to the spreadsheet labeled *RF-VF Working Data* in the MDWB (raw data must be kept without conditioning as a quality-control reference) to be sorted by refrigerant type. Once sorted and conditioned, the data were then entered into the *RF-VF Mass Balance Data* spreadsheet.

Once the *RF-VF Mass Balance Data* spreadsheet was populated, the information was entered into CACP. According to LGO Protocol, the inventory of refrigerant emissions for the Vehicle Fleet sector is reported as Scope 1-fugitive emissions. A separate record is entered into CACP per refrigerant and vehicle type to ensure the entries are reported under the correct Scope and with the correct GWP factor (differs for each refrigerant).

Vehicle Fleet, Transit Fleet and Mobile Equipment: Reporting Inconsistencies and Limitations

Records of purchased refrigerants served as a proxy measure of leaked refrigerants in lieu of actual data. All refrigerants were recorded in the Vehicle Fleet sector because refrigerant data could not be disaggregated.

Government-Generated Solid Waste

The Government-Generated Solid Waste sector of the inventory reports emission from one main source, solid waste. This sector focused exclusively on the solid waste generated by government operations. The records were acquired through

- Public Works department – manages contract with waste-hauler

and were in the following format:

- Solid Waste by Volume – City report providing the number of units, capacity and number of pick ups per week for each location

Government-Generated Solid Waste: Solid Waste Related Emission

According to the LGO protocol, the recommended method for reporting emissions associated with solid waste is to acquire the volume of waste collected per department within the local government operations. This information was entered into the *WG-Solid Waste by Volume* spreadsheet. The volumes are converted to tons of waste that are ultimately sent to landfill. The totals are then

pasted into the *WG-Solid Waste Final Input Data* spreadsheet and used to create a record within CACP. The government-generated waste was entered into CACP as Scope 3 – waste related emissions. The following waste characterization[4] is preset in CACP with different emissions factors for each waste type:

- Paper Products – 39.4%
- Food Waste – 9.8%
- Plant Debris – 7.0%
- Wood and Textiles – 6.7%
- All other waste – 27.1%

Government-Generated Solid Waste : Reporting Inconsistencies and Troubleshooting

Containers were assumed to be 90% full at pickup, which is a conservative estimate in lieu of actual records. Each record indicated whether the unit contained waste or recyclable material. 100% of the waste was assumed to be sent to landfill. Data relating to recycling containers were excluded during the calculation process because those materials were assumed to be diverted from the waste stream.

Employee Commute

The Employee Commute sector of the inventory reports emission from two main sources: fuel combustion and vehicle miles traveled. This sector of the inventory utilized a survey to assess VMT and fuel data. The employees were surveyed on their work commute time, distance, vehicle type, fuel consumption, fuel type, and several reasons for not using alternative transportation like bus transit or bicycling. The records were acquired through

- Employee Commute Questionnaire – Survey

and were in the following format:

- Survey results – Excel spreadsheet

Employee Commute: Fuel and VMT Related Emission

The VMT information was adjusted according to the survey response rate. The adjusted VMT for each vehicle type was entered into CACP as Scope 3 – employee commute. The Total VMT value was entered with the transport average set coefficients were set to Default and the fuel set coefficients were set to Highway VMT (N_2O, CH4). The Total Fuel value was entered into CACP as Scope 3 – employee commute. For this data, the transport average set coefficients were set to Highway Fuel CO_2 Only and the fuel set coefficients were set to Default.

[4] Default Waste Characterization provided by the CIWMB 1999 Waste Characterization Study -- Public Administration Group: http://www.ciwmb.ca.gov/WasteChar/BizGrpCp.asp. Waste categories in the report were bundled to fit the waste categories of the Clean Air and Climate Protection 2009 software (CACP 2009).

Employee Commute : Reporting Inconsistencies and Troubleshooting

The City opted to use a truncated form of the Employee Commute Survey alongside the full version developed by ICLEI. While the truncated survey matches the full version by generating responses regarding employee commute time, distance, vehicle type, fuel consumption and fuel type, it does not include questions to determine behavior choices – as the regular ICLEI survey does. As a result, summary statistics regarding commute choices are from the sample of 21 employees who opted to respond to the full version.

The emissions reported in this sector are derived from a sample of 94 current employees, which is a 20.5% response rate assuming the 2008 staffing level (458). The calculations rely on commute trends extrapolated from this sample, rather than all employees.

Public Review Draft

Initial Study/ Negative Declaration

For the

City of Lodi

Climate Action Plan

TREE CITY USA

PUBLIC REVIEW DRAFT

INITIAL STUDY/NEGATIVE DECLARATION

FOR THE

CITY OF LODI CLIMATE ACTION PLAN

Prepared by the City of Lodi
Community Development Department
221 West Pine Street
Lodi, CA 95240

August 2013

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

RECEIVED
AUG 14 2013
COMMUNITY DEVELOPMENT DEPT
CITY OF LODI

August 13, 2013

Immanuel Bereket
City of Lodi Community Dev. Dept.
221 West Pine Street
Lodi, CA 94565

Subject: Climate Action Plan
SCH#: 2013072024

Dear Immanuel Bereket:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. The review period closed on August 12, 2013, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2013072024
Project Title Climate Action Plan
Lead Agency Lodi, City of

Type Neg Negative Declaration

Description The proposed project is the adoption of a policy document, the Climate Action Plan, intended to provide policy direction and identify actions the City and the community can take to significantly reduce the generation of Greenhouse Gases (GHG) consistent with California Assembly Bill (AB) 32 and Executive Order S-3-05. The purpose of the plan is to guide the development, enhancement, and ultimately the implementation of actions and strategies that reduce Lodi's greenhouse gas emissions.

Lead Agency Contact

Name Immanuel Bereket
Agency City of Lodi Community Dev. Dept.
Phone 209 333 6711 **Fax**
email
Address 221 West Pine Street
City Lodi **State** CA **Zip** 94565

Project Location

County San Joaquin
City Lodi
Region
Lat / Long
Cross Streets Entire City
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways Hwy 99, 12
Airports No
Railways UPRR
Waterways Mokelumne River
Schools Lodi USD
Land Use City of Lodi, City Wide

Project Issues

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 2; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 10; Air Resources Board, Transportation Projects; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission; California Energy Commission

Date Received 07/12/2013 **Start of Review** 07/12/2013 **End of Review** 08/12/2013

NOTICE OF AVAILABILITY AND NOTICE TO OF INTENT TO ADOPT A NEGATIVE DECLARATION FOR THE CITY OF LODI CLIMATE ACTION PLAN

The City of Lodi has prepared an Initial Study pursuant to California Environmental Quality Act (CEQA) and the CEQA Guidelines (Public Resources Code, Division 13 and California Code of Regulations, Title 14, Chapter 3) evaluating the potential environmental impacts of the Lodi Climate Action Plan (CAP). The City proposes to adopt a Negative Declaration ("ND") because the CAP would not have a significant effect on the environment. This ND and the Initial Study describe the reasons that this project will not have a significant effect on the environment and, therefore, does not require the preparation of an environmental impact report under CEQA.

In accordance with provisions of the CEQA Guidelines, the Draft Negative Declaration tiers off of the 2009 General Plan Final Environmental Impact Report (FEIR) (SCH# 2009022075 that was certified by the City Council in April 2010. Together, this Draft Negative Declaration and the 2009 General Plan FEIR constitute the environmental record for the proposed CAP. The 2010 General Plan FEIR can be viewed at Lodi City Hall (221 West Pine Street, Lodi Ca 95240) or on the City's website http://www.lodi.gov/com_dev/EIRs.html

FILE NUMBER: 13-ND-01

PROJECT TITLE: City of Lodi Climate Action Plan

PROJECT LOCATION: The City of Lodi Climate Action Plan is intended to provide strategies for reducing greenhouse gas emissions throughout the City of Lodi, including White Slough Water Pollution Control Facility.

PROJECT DESCRIPTION: The proposed project is the adoption of a policy document, the Climate Action Plan, intended to provide policy direction and identify actions the City and the community can take to significantly reduce the generation of Greenhouse Gases (GHG) consistent with California Assembly Bill (AB) 32 and Executive Order S-3-05. The purpose of the plan is to guide the development, enhancement, and ultimately the implementation of actions and strategies that reduce Lodi's greenhouse gas emissions. The plan consists of five (5) chapters and appendices that:

- Summarize climate change, outline actions by the State and City to reduce emissions, and describe how Lodi residents and business owners can participate in GHG reduction efforts;
- Describe the role public participation played in the formation of the CAP, State regulations governing climate action planning, and regional climate change initiatives and programs;
- Characterize Lodi's current GHG emissions, indicate the City's projected emissions in 2020 and 2050, and note the action by City General Plan policy to establish a reduction target;
- Propose strategies and measures the City can take to achieve its emissions reduction target, and analyze the estimated cost of the proposed measures; and

- Discuss the means by which the City will monitor the Plan's implementation, verify achievements; and fund the selected measures.

PUBLIC REVIEW PERIOD: As mandated by State law, the minimum public review period for this document is 30 days. The proposed Negative Declaration will be circulated for a 30-day public review period, beginning on Monday, July 15, 2013 and ending on Thursday, August 15, 2013. Copies of the Draft Negative Declaration and Draft Development Code documents are available for review at the following locations:

- **Community Development Department**, 221 West Pine Street, Lodi, CA 95240
- **Lodi Public Library**, 201 West Locust Street, Lodi, CA 95240
- **Online at** http://www.lodi.gov/com_dev/EIRs.html

Any person wishing to comment on the Initial Study and proposed Negative Declaration must submit such comments in writing **no later than 5:30 pm on Thursday, August 15, 2013** to the City of Lodi at the following address:

Immanuel Bereket, Associate Planner
City of Lodi
P. O. Box 3006
Lodi, CA 95241

Facsimiles at (209) 333-6842 will also be accepted up to the comment deadline (please mail the original). For further information, contact Immanuel Bereket, Associate Planner, at (209)333-6711.

A public hearing will be scheduled before the Planning Commission and City Council to receive comments on the document and to adopt the Negative Declaration. This meeting will be separately noticed when the date and time are set.

Konradt Bartlam, Community Development Director

7-10-13
Date

TABLE OF CONTENTS

LIST OF EXHIBITS

Section 1

1.1 - INTRODUCTION AND REGULATORY GUIDANCE

This document is an Initial Study/Mitigated Negative Declaration (IS/MND) for the City of Climate Action Plan (Draft CAP). The City of Lodi has prepared a Draft Climate Action Plan using input from city staff, consultants, the public, and from various interviews, stakeholder meetings and sessions. The Draft CAP was prepared and developed consistent with the recently adopted 2010 General Plan. Pursuant to Section 15152 of the California Environmental Quality Act (CEQA) Guidelines, this Initial Study is tiered from the City of Lodi 2010 General Plan Environmental Impact Report (General Plan EIR) (State Clearinghouse Number 2009022075).

Under CEQA, tiering refers to the use of analysis contained in previously certified, broad-level Environmental Impact Reports (EIRs) (often programmatic EIRs) to support or complement project-specific EIRs or IS/NDs.[1] CEQA Guidelines encourage the use of tiered environmental documents to reduce delays and excessive paperwork in the environmental review process. This is accomplished in tiered documents by eliminating repetitive analyses of issues that were adequately addressed in the Program EIR and by incorporating those analyses by reference. Impacts only need to be analyzed in more detail in the Initial Study if they were not examined in the prior EIR or if findings were not adopted for significant, unavoidable impacts.

1.2 - PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this Initial Study and proposed Negative Declaration (IS/ND) is to identify the potential environmental impacts and mitigation measures associated with the Draft Climate Action Plan. The intended use of this document is to provide information to support conclusions regarding the potential environmental impacts of the Draft CAP. The IS/ND provides the basis for input from public agencies, organizations, and interested members of the public.

This Initial Study is organized into the following chapters:

Section 1: Introduction. This section provides an introduction and overview of the Initial Study document.

Section 2: Project Description. This section describes the location and setting of the Draft CAP, along with the principal components of the project boundaries and its relations to the City's recently adopted General Plan. The section also describes the policy setting and implementation process. In addition, this section provides pertinent project details, including lead agency contact information, project location, and General Plan and Zoning designations.

[1] California Association of Environmental Professionals, 2012, CEQA Statute and Guidelines.

Section 3: Environmental Determination. This chapter summarizes environmental factors potentially affected by this project and the City's environmental determination.

Section 4: Environmental Checklist and Findings. Making use of the CEQA Appendix G Environmental Checklist, this chapter identifies and discusses anticipated impacts from the proposed Master Plans, providing substantiation of the findings made. The chapter concludes with the determination, based on the analysis contained in this Initial Study, that a Negative Declaration is appropriate for the proposed Master Plans.

Chapter 5: References. This chapter provides a list of documents used in the project.

1.3 - INCORPORATION BY REFERENCE

The references outlined below were utilized during preparation of this Initial Study/Mitigated Negative Declaration. The documents are available for public review at the addresses listed below. All City of Lodi documents are available at City of Lodi, Community Development Department, located at 221 West Pine Street, California 95240.

- City of Lodi General Plan 2010. State law requires every city and county to adopt a comprehensive, long-term general plan for the physical development of that city and county. The City of Lodi *General Plan*, adopted April 2010, contains goals, policies, and programs which are intended to guide land use and development decisions for the next twenty years. The *General Plan* consists of eight elements, or chapters, which together fulfill the requirements for a general plan. The *General Plan* chapter include the Land Use; Growth Management and Infrastructure; Community Design and Livability; Transportation; Parks, Recreation and Open Space; Conservation; Safety, and Noise Elements.

- City of Lodi General Plan Final Environmental Impact Report, February 2010. The City of Lodi General Plan, *Final Environmental Impact Report (General Plan FEIR), SCH2009022075,* is intended to provide information to public agencies and the general public regarding the potential environmental impacts related to implementation of the City of Lodi General Plan. The purpose of the EIR is "to identify the significant effects of a project on the environment, to identify alternatives to the project and to indicate the manner in which significant impacts can be mitigated or avoided."

- City of Lodi General Plan Draft Environmental Impact Report, November 2009. The City of Lodi, *Pubic Review Draft General Plan Environmental Impact Report, SCH2009022075,* is a first-tier evaluation of the environmental effects associated with the adoption of the updated City of Lodi General Plan.

- The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) 2000. The City of Lodi adopted the SJMSCP in 2001, and projects under the jurisdiction of the City can seek coverage under the plan. The proposed project is consistent with the SJMSCP, as amended, as reflected in the conditions of project approval for this proposal. Pursuant to the Final EIR/EIS for the SJMSCP, dated November 15, 2000, and certified by the San Joaquin Council of Governments on December 7, 2000, implementation of the SJMSCP is expected to reduce impacts to biological resources resulting from the proposed project to a level of less-than-significant. That document is hereby incorporated by reference and is available for review during regular business hours at the San Joaquin Council of Governments (555 E. Weber Avenue, Stockton, CA 95202) or online at: ww.sicoq.orq.

- City of Lodi Municipal Code. The City of Lodi *Zoning Code* is contained in Chapter 17 of the Lodi Municipal Code (LMC) and represents the minimum requirement for the promotion of public safety, health, convenience, comfort, prosperity or general welfare.

1.4 - NECESSARY PUBLIC AGENCY APPROVALS:

The City of Lodi is the lead agency with responsibility for approving the proposed Development Code update. No other public agency approvals are needed.

Section 2

2.1 - PROJECT TITLE:

City of Lodi Climate Action Plan (CAP)

2.2 - LEAD AGENCY NAME AND ADDRESS:

City of Lodi
Community Development Department
221 West Pine Street
Lodi, CA 9540

2.3 - CONTACT PERSONS:

Environmental document:	Immanuel Bereket: 209-333-6711
Project Coordinators:	Joseph Wood: 209-333-6711
	Immanuel Bereket: 209-333-6711

2.4 - PROJECT SPONSOR'S NAME AND ADDRESS:

City of Lodi, Community Development Department
221 W. Pine Street
Lodi CA 95240

2.5 - GENERAL PLAN DESIGNATION:

The Draft CAP encompasses the entire City of Lodi General Plan area.

2.6 - ZONING DESIGNATION:

The Draft CAP area includes various zoning designations.

2.7 - PROJECT ASSUMPTIONS:

This IS/ND assumes compliance with all applicable state, federal, and local codes and regulations.

2.8 - PROJECT BACKGROUND

The City of Lodi adopted its current General Plan in April of 2010. The General Plan is the City's vision for how to accommodate anticipated growth within the next 20 to 30 years. The City of Lodi currently provides services to approximately 8,911.55 acres. According to the 2010 General Plan 2010, the service area will increase to approximately 10,623 acres of land (16.6 square miles) at full buildout of the General Plan boundaries. Low Density Residential will continue to represent the largest land use category in the City and will make up approximately 33 percent of the total acreage at buildout. The General Plan calls for preparation, adoption and implementation of a Climate Action Plan.

California has adopted a wide variety of regulations aimed at reducing the State's greenhouse gas (GHG) emissions. While State actions alone cannot stop global warming, the adoption and implementation of this legislation demonstrates California's leadership in addressing this critical challenge. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, requires California to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 directs the California Air Resources Board (ARB) to develop and implement regulations that reduce statewide GHG emissions. The *Climate Change Scoping Plan* (Scoping Plan) was approved by ARB in December 2008 and outlines the State's plan to achieve the GHG reductions required in AB 32. The Scoping Plan contains the primary strategies California will implement to achieve a reduction of 169 million metric tons of carbon dioxide equivalent (MMT C02e), or approximately 28% from the State's projected 2020 emission levels.

In the Scoping Plan, ARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community emissions that parallel the State commitment to reduce GHGs. Though the specific role local governments will play in meeting the State's AB 32 goals is still being defined, they will nonetheless be a key player in implementing GHG reduction strategies.

Lodi's Draft CAP articulates the City's intentions with respect to reducing community-wide GHG emissions in a manner consistent with AB 32. Throughout the Draft CAP, the City outlines strategies, objectives, measures and actions to minimize energy consumption and waste; create an interconnected transportation system; and conserve, create and enhance natural assets that improve the community's quality of life. An action, program, or project would be considered consistent with the Draft CAP if, considering all of its aspects, it would further the strategies, objectives, measures, and actions set forth within the Draft CAP and not obstruct their attainment.

2.9 - PROJECT LOCATION

Lodi is situated in the San Joaquin Valley between Stockton, 6 miles to the south; Sacramento, thirty-five miles to the north; and along State Route (SR) 99. The City is located on the main line of the Union Pacific Railroad and is within 5 miles of I-5 via SR-12. The regional is depicted in Figure 2.1, Regional Location Map.

The Mokelumne River forms the northern edge of the city; Harney and Hogan lane southern edge. The Central California Traction Line (CCT) railroad (north of Kettleman Lane) and SR-99 (south of Kettleman Lane) form the eastern boundary. The western boundary extends approximately one-half mile west of Lower Sacramento Road. Lodi (exclusive of White Slough Water Pollution Control

Facility) encompasses an area of 12.3 square miles. Figure 2 – 1: Regional Map illustrates the City's location in regional context.

2.10 - PROJECT OBJECTIVES

The Draft CAP establishes a comprehensive community-wide GHG emissions reduction strategy for Lodi with regard to: a) buildings and energy, b) transportation and land use, and c) waste and water. The project objectives, derived from the vision statement, are expressed below.

- Adopt a CAP that will comply with and implement State law, advance citywide sustainability and reflect community values.
- Reduce Lodi's annual community-wide GHG emissions by 15% below 2005 baseline emission levels by 2020.
- Provide clear guidance to City staff and decision-makers regarding when and how to implement key actions to reduce GHG emissions.
- Inspire residents and businesses to participate in community efforts to reduce GHG emissions.

Based on these objectives, the Draft CAP defines community strategies and GHG reduction measures through text and maps. The Draft CAP also includes implementation actions corresponding to quantified GHG reduction measures. The recommended actions serve as the basis for future programming decisions related to the assignment of staff and expenditure of City funds toward implementing the CAP.

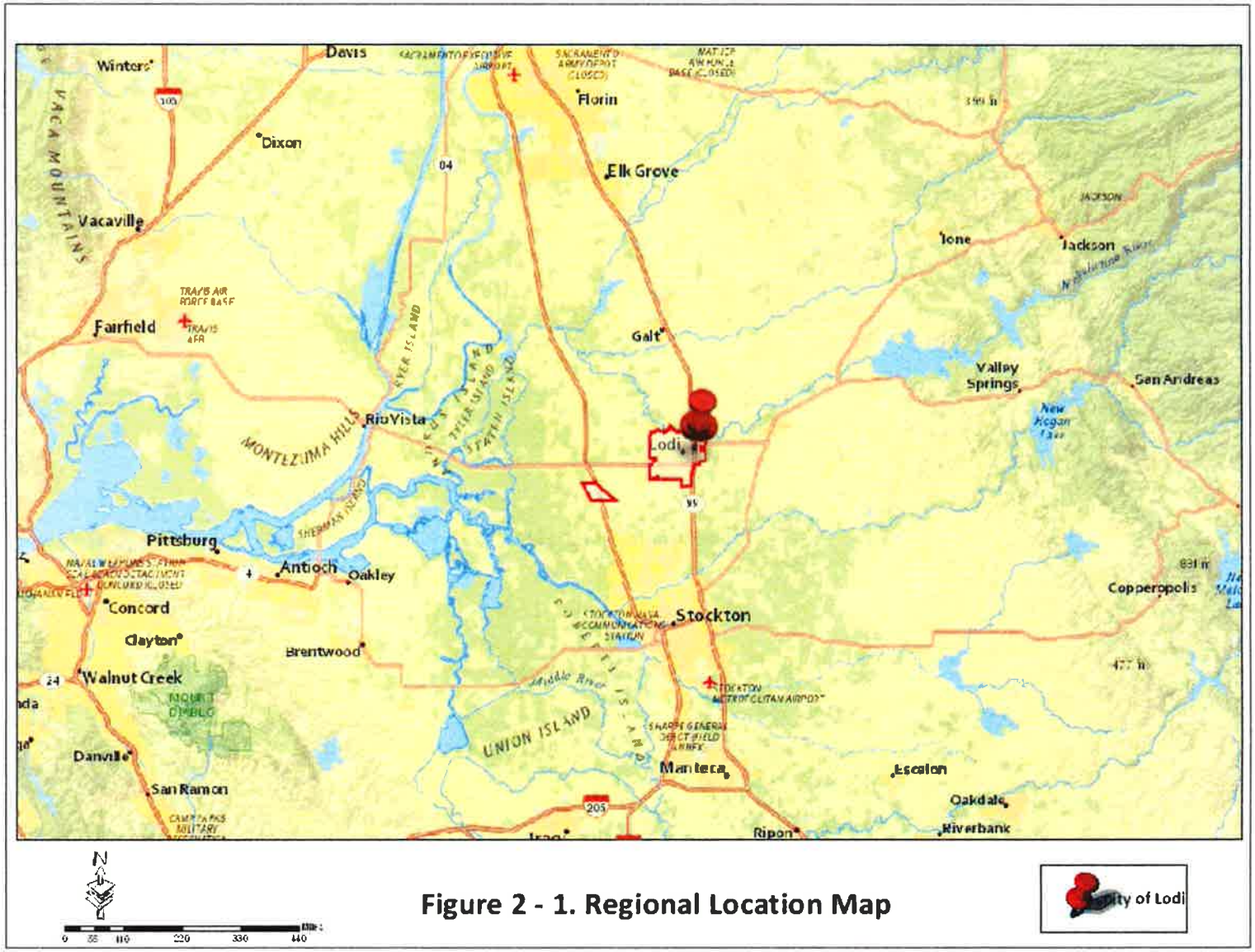

Figure 2 - 1. Regional Location Map

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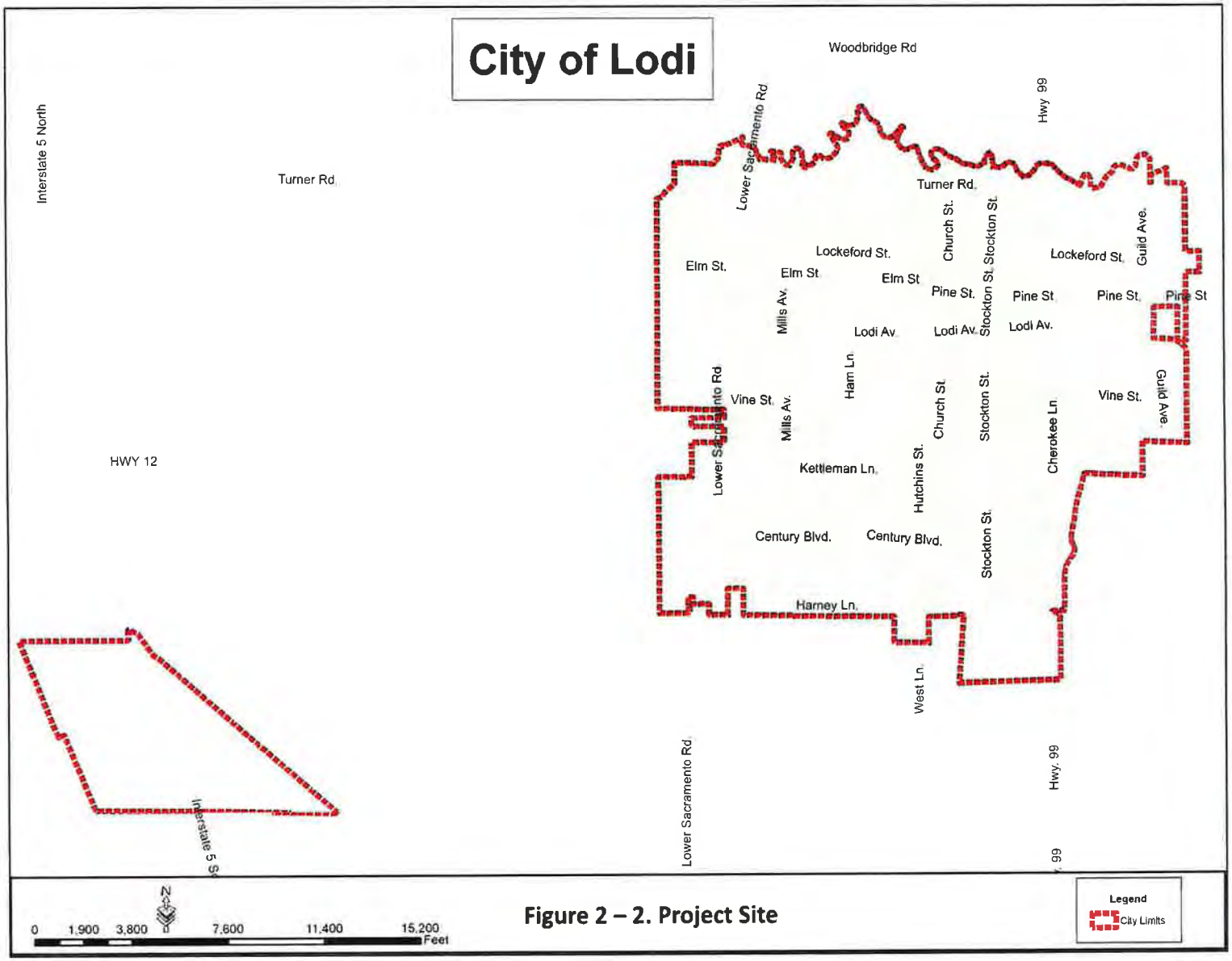

Figure 2 – 2. Project Site

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2.11 - PROJECT DESCRIPTION

The City of Lodi has prepared a Draft Climate Action Plan (CAP or plan) with input from the City Council, City staff, community members, the development community and citizens. Pursuant to the California Environmental Quality Act (CEQA) the City has prepared this Initial Study (IS) to assess the environmental impacts of adoption and implementation of the CAP. This IS consists of a summary, followed by a description of potential environmental effects that may result from adoption and implementation of the draft CAP.

The Draft CAP provides policies and identifies actions intended to reduce GHG emissions within the City and serves to aid the State in its implementation of Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, which requires California to reduce statewide greenhouse gas (GHG) emissions to 1990 levels by 2020. AB 32 directed the California Air Resources Board (ARB) to develop and implement regulations that reduce statewide GHG emissions. The *Climate Change Scoping Plan* (Scoping Plan) was approved by ARB in December 2008 and outlines the State's plan to achieve the GHG reductions required by AB 32. The Scoping Plan contains the primary strategies that California will implement to achieve a reduction of 169 million metric tons of carbon dioxide equivalent (MMT CO_2e), or approximately 28 % from the State's projected 2020 emission levels, which includes actions to be taken by local governments.

The Lodi Draft CAP provides general information about climate change and how GHG emissions within the City contribute to it, as well as an analysis of the potential effects of climate change on the City. In addition, the Draft CAP describes baseline GHG emissions produced in Lodi, and projects GHG emissions that could be expected if the Draft CAP is not implemented. The strategies, measures, and actions proposed in the Draft CAP are described in more detail under "Greenhouse Gas Emission Reduction Strategies," below.

2.12 - EMISSIONS INVENTORY, BASELINE AND PROJECTIONS

Chapter 3 of the Draft CAP, "Green House Gas Inventory," presents a GHG emissions inventory, establishes an emissions baseline dating back to the year 2008, provides projections of emissions in 2020 and 2030, and describes the City's emissions reduction target. Baseline emissions are determined using activity data collected from energy, water and waste collection service providers, as well as information collected as part of the General Plan process. Future emissions levels are then projected for the years 2020 and 2030, based on estimated future. The emission inventory identifies the sources, distribution, and amount of GHG emissions by emission sector, including energy consumption, transportation, solid waste, wastewater and water consumption.

2008 Baseline Emissions

The city of Lodi's baseline inventory is ordered by sector. A "sector" is an individual subset of the total greenhouse emission spectrum, composed of emissions relating to an economy, industry, market, or general society. The sectors that were measured in this CAP are: energy, transportation, solid waste, waste water, and water consumption. Each of these sectors is shown separately in the overall emissions spectrum to allow for specific measure development for emissions reductions.

Energy

The energy sector consists of electricity and natural gas consumption. Energy use typically represents a large portion of total greenhouse gas emissions and is divided into residential and non-residential uses. The City obtained historical (2008) electricity consumption data from Lodi Electric Utility (LEU) and natural gas consumption data from Pacific Gas and Electric (PG&E). LEU and PG&E provided communitywide data aggregated by land use (i.e., residential and non-residential). Electricity data for kWh used from 2008-2009 was converted into CO2e using an LEU-specific emission factor. Natural gas data for therms was converted into CO2e using a PG&E-specific natural gas emission factor.

2008 BASELINE EMISSIONS		
Emissions Sector	**MT CO_2e**	**%**
Residential Electricity	61,295	12
Residential Natural Gas	52,548	10
Non-Residential Electricity	118,486	23
Non-Residential Natural Gas	63,320	13
Total Energy Consumption	**295,649**	**58**
On-Road Vehicles	141,124	28
Off-Road Vehicles and Equipment	7,500	1
Total Transportation Emissions	**148,624**	**29**
Solid Waste	**54,305**	**11**
Water Consumption	5,231	1
Wastewater Treatment	3,649	1
Municipal	6,717	1
TOTAL	**514,175**	**100**

Transportation

The transportation sector provides an estimate of emissions generated from vehicle miles traveled (VMT) by passenger cars and freight trucks. The inventory accounts for two types of trips; any vehicle trips generated by Lodi land uses that stay within the city limits and half of all vehicle trips generated by Lodi land uses that either begin or end outside of Lodi. The inventory does not account for pass-through trips. Based on these trips, annual vehicle miles traveled (VMT) is estimated using existing daily traffic volumes determined during the 2008 General Plan update process, and average trip length assumptions generated from U.S. Census data. Annual VMT is translated into emissions using a

transportation-specific emissions factor, which was developed using national data for vehicle fleet mix, fuel economy and average fuel combustion. The transportation sector also accounts for emissions from off-road vehicles.

Solid Waste
Solid waste emissions are generated from decomposing organic waste in place and methane management activities. Solid waste generated within the City, as a result of community and municipal activities, is collected by Waste Management and deposited at various landfills throughout the region. Annual tons of waste generated and typical waste composition data was obtained from Cal Recycle to determine the total emissions.

WASTEWATER MASTER PLAN
The City owns and operates the WSWPCF. The wastewater treatment facility has a current average dry weather flow capacity of 8.5 million gallons per day (mgd). Current dry weather flow is approximately 5.7 mgd. The wastewater treatment facility was originally constructed in 1966 with a capacity of 5.8 mgd. In the late 1980's and early 1990's the City expanded the treatment capacity to 6.3 mgd, and also improved the level of treatment. Between 2003 and 2009 the City again expanded the treatment capacity to the current 8.5 mgd and added tertiary treatment and ultraviolet light disinfection improvements. In conjunction with the 2007 improvements to the WSWPCF, the 48-inch trunk line from the City limits to the treatment plant influent headworks was lined, thereby reducing it effective diameter to 42-inches.

Water Consumption
Unlike the wastewater sector, emissions from the water sector come from the electricity used to treat, convey, and distribute potable water. Total electricity consumption associated with both municipal operations and communitywide land uses was obtained from the City. Emissions were determined using the LEU-specific emissions factor.

2.13 - REDUCTION STRATEGIES

Measures are grouped into five strategy areas that represent the primary ways to reduce communitywide GHG emissions in Lodi. Strategy areas are as follows:

Energy Efficiency
The Draft CAP's energy efficiency measures are primarily focused on the efficient use of electricity, though some measures will also result in natural gas savings. Measures include retrofits of existing residential and commercial buildings, building system efficiency upgrades, streetlight upgrades, building shade tree planting, and increasing renewable energy use.

In 2008, the city's consumption of electricity for appliances, lighting and cooling, and combustion of natural gas for heating, cooking, and other processes within residential, commercial, and industrial buildings generated 58% (295,649 MT

CO_2e) of Lodi's total GHG emissions. Of the total energy consumption in Lodi, residential energy use accounted for 39% (113,843 CO_2e) whereas non-residential energy use accounted for 61% (181,806 MT CO_2e).

About 2/3 of houses in Lodi were built prior to the adoption of California's Title 24 energy efficiency requirements in 1978, and 79% of the building stock that is projected to exist in Lodi in 2020 has already been constructed. Lodi stands to realize a large portion of its emissions reductions from building retrofits. While energy efficiency retrofits reduce building-related greenhouse gas emissions, residents can also benefit from noticeable savings on their utility bills and improved comfort of their home or business. Since 1998, Lodi Electric Utility (LEU) has spent more than $8.3 million in Public Benefits Charge funds on energy efficiency programs, resulting in an 18% peak demand reduction and 16% energy reduction. LEU's energy conservation programs include:

- **Appliance Rebate** for the purchase of an energy efficient refrigerator, clothes washer or dishwasher;
- **Home Improvement Rebate** for replacing insulation, installing attic fans, whole house fans, shade screens or window tinting, radiant barriers or replacing HVAC air conditioning systems;
- **HVAC System Test Rebate** for performing high-end duct system testing to measure air flow, air return and system balance;
- **Commercial/Industrial Rebates** for building envelope improvements and system efficiency upgrades;
- **Commercial Energy Efficiency Financing** up to $150,000 in financing for energy efficiency improvements, to be repaid on the participant's monthly utility bill; and
- **Energy Assessments** on-line and on-site for residential and commercial customers.

LEU will continue to implement its energy conservation programs, and increase participation through a comprehensive public outreach campaign. The total GHG emission reduction potential of the energy efficiency strategy is 16,386 MT CO_2e /yr in 2020 and 29,352 MT CO_2e/yr in 2030.

Transportation

Transportation is the second largest sector in Lodi's baseline inventory, producing 29% (148,624 MT CO_2e) of Lodi's total GHG emissions (514,175 MT CO_2e) in 2008. Emissions in this sector are primarily the result of the combustion of fossil fuels and are determined largely by the number of vehicle miles traveled (VMT) by residents and employees. The best practices for reducing transportation-related greenhouse gas emissions involve reducing the number of vehicle trips through various transportation demand management (TDM) strategies and enhancing the viability of transit and other forms of alternative transportation. In addition, transit-oriented development and mixed-use developments result in denser uses near commercial centers that contribute to decreased vehicle trips. The greenhouse gas reduction strategies presented in this CAP primarily focus on TDM strategies

and transit system improvements to reduce greenhouse gas emissions. The total GHG emission reduction potential of the transportation strategy is 18,967 MT CO_2e/yr in 2020 and 25,153 MT CO_2e/yr in 2030.

Solid Waste

Waste disposal creates emissions when organic waste (e.g., food scraps, yard clippings, paper, and wood products) is buried in landfills and anaerobic digestion takes place, emitting methane. In Lodi, 11% of GHG emissions are associated with solid waste generation and disposal in landfills. The CAP's waste diversion measures seek to divert organic waste from landfills by reusing construction materials when possible and increasing communitywide participation in food scrap and yard waste composting.

Construction waste accounts for approximately 29% of the waste stream statewide, and includes items such as lumber, drywall, metals, masonry, carpet, plastics, pipes, rocks, and dirt. Most of these materials are inert and do not contribute to landfill methane generation upon decomposition. However, waste lumber comprises nearly 15% of the total statewide waste stream, and represents a significant source of potential GHG emissions reductions. Per the California 2010 Building Standards Code (Title 24), effective January 1, 2011, all jurisdictions must require the diversion of 50% of construction waste materials generated during certain construction and renovation projects. This CAP assumes the city will enforce these diversion requirements in all applicable future projects.

The Draft CAP proposes reductions methods associated with increased methane capture at landfills. The California Air Resources Board approved a new regulation (effective in June 2010) that requires operators of certain landfills to install methane control systems that operate in an optimal manner. Historically, the majority of solid waste generated in Lodi is disposed of at the North County Landfill. While this landfill already has a methane capture system in place, it is less efficient than currently available technology used elsewhere throughout the state. For purposes of this CAP, it is assumed that efficiency improvements will be made to the existing methane capture system at the North County Landfill, but that the city will play no role in implementing these improvements.

The total GHG emission reduction potential of the waste strategy is 9,129 MT CO_2e/yr in 2020 and 13,260 MT CO_2e/yr in 2030.

Water

Water-related GHG emissions are mainly caused by energy used to pump, transport, heat, cool, and treat potable water. Emissions associated with this energy use accounted for approximately 1%of the communitywide GHG inventory. With water supplies expected to continue declining into the future, water conservation strategies have the double benefit of reducing GHG emissions and aligning demand with future water availability. The measures included in this section quantify the greenhouse gas emissions reductions of conservation programs that are already underway in the city.

Green Infrastructure

Green infrastructure refers mainly to the open spaces and vegetation that provide places for recreation, wildlife habitat, and relief from the heat of the sun. The term can also refer to building-integrated vegetation projects, such as green walls and green roofs. There are numerous benefits to planting trees and increasing vegetated surfaces, including reduced surface runoff, increases in natural habitat, reduced urban heat island effect, and opportunities for carbon sequestration. While vegetation-related carbon sequestration is known to reduce greenhouse gases in the atmosphere, the precise level to which this occurs is not well understood and difficult to quantify at this time. Regardless, the other benefits associated with increased tree and vegetation cover, such as reducing the urban heat island effect, may increase comfort and encourage more individuals to walk, ride their bikes, or take transit, indirectly reducing greenhouse gas emissions while contributing to the overall well-being of Lodi's residents.

As a supplement to the quantified measures in this CAP, two measures are included in the Green Infrastructure section that are not quantified, but rather focus on environmental stewardship and education through local agency partnerships and demonstration projects.

Section 3

3.1 - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project as indicated by the checklist on the following pages.

Environmental Factors Potentially Affected		
☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Greenhouse Gas Emissions	☐ Biological Resources	☐ Cultural Resources
☐ Geology/Soils	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Services Systems	
☒ None With Mitigation	☐ Mandatory Findings of Significance	

3.2 - ENVIRONMENTAL DETERMINATION

☐ I find that the proposed project could not have a significant effect on the environment, and a Negative Declaration will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A Mitigated Negative Declaration will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an Environmental Impact Report is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measure based on the earlier analysis as described on attached sheets. An Environmental Impact Report is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Immanuel Bereket, Associate Planner

7/10/13
Date

Section 4

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
1	**AESTHETICS.** *Would the Project:*				
	a. Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
	b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	■
	c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	■	☐
	d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	■	☐

a) The Draft CAP proposes strategies and measures that would aid in reducing the City's emission of GHGs, and thus, would not directly lead to development that would affect scenic vista. The CAP does not recommend specific densities, building heights massing or design of any projects. However, the proposed measures encourage installation of photovoltaic (PV) panels and other distributed renewable energy technologies on the hones, businesses and City facilities to provide alternate sources of energy. PV panels could be placed on rooftops, which could potentially alter scenic views for homes or businesses located behind the rooftop panels. However, the placement of PV panels for residential or civic use would likely not be large enough to significantly affect views from other residences located uphill or behind the rooftop panels. Instillation of these panels would require standard building permits from the City, which would ensure the PV panels would not have a specific, adverse impact on public health and safety. Implementation of the Draft Cap would result in **less-than significant-impact**. Further, the CAP would implement 2010 General Plan policies and the impacts of implementing the CAP would be similar to those identified in the 2010 General Plan FEIR.

b) There are no designated state scenic highways within or within view of the City. Therefore, there would be **no impact**.

c) The Draft CAP recommends rehabilitation and renovation of existing buildings to improve energy efficiency and the development of infill projects to maximize land use potential in the city. The installation of PV panels on rooftops could result in slight changes to existing visual character. However, renovations and new development would be designed to be compatible with existing development. PV panels would be associated with existing structures and installation of PV panels would be subject to Planning and Building review and approval, ensuring that they do not result in substantial changes to the visual character of the city. Implementation of the CAP would result in a **less-than-significant-impact.**

d) Implementation of the Draft CAP would not result in the development of major light sources, although distributed installation of PV panels on homes, businesses, and City facilities is encouraged to reduce Lodi's dependence on energy sources that produce GHGs. PV panels are specifically designed to absorb, not reflect, sunlight. Thus, their placement and orientation on individual properties would not adversely affect day or nighttime views in the area.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
2	**AGRICULTURE RESOURCES:** *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the Project:*				
	a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program in the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
	b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	■
	c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in PRC Sec. 4526), or timberland zoned Timberland Production (as defined in PRC Sec. 51104 (g)?	☐	☐	☐	■
	d. Result in loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
	e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	■

a-e) The Draft CAP does not propose a specific construction plan. The CAP implementation 2010 General Plan policies and the impacts of implementing the Draft CAP would be similar to those identified in the 2010 General Plan FEIR. The Draft CAP would have no effect on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as farming, gardening, and similar uses would be allowed in all zoning districts by right. **No impact** would occur with respect to this issue.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
3	**AIR QUALITY.** *Would the Project:*				
	a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	■	☐
	b. Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?	☐	☐	■	☐
	c. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	■	☐
	d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
	e. Create objectionable odors affecting a substantial number of people?	☐	☐	☐	■

a) The purpose of the Draft CAP is to reduce GHG emissions within the city to help contribute to global efforts to reduce the effects of climate change. Recommendations within of the Draft CAP include reducing vehicle use, developing bicycle and pedestrian facilities, enhancing public transit, using renewable energy, improving energy efficiency in buildings, improving energy management, increasing water conservation, and promoting green infrastructure and urban agriculture. In addition to reducing GHGs, each of these elements would help to reduce criteria air pollutants and would not conflict with or obstruct the San Joaquin Valley Air Pollution Control District's Air Quality Management Plan. Implementation of the Draft CAP would result in a **less-than-significant impact.**

b-d) Growth regulated by, and the impacts of, the Draft CAP would be similar to those identified in the 2010 General Plan FEIR. Generally, a project would conflict with or potentially obstruct implementation of an air quality plan if it would contribute to population growth in excess of that forecasted in the air quality management plan (California Air Resources Control Board, 2007). The proposed Draft CAP would not result in an increase of population for the City beyond that forecast in the 2010 General Plan FEIR. Consequently, as noted in the FEIR, the Draft CAP is not expected to generate population in excess of that envisioned in the local Air Quality Management Plan (AQMP). **Less-than-significant-impact** would occur.

e) The Draft CAP does not proposed strategies or measures that would directly or indirectly result in the creation of objectionable odors. Therefore, there would be **no impact.**

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
4	**GREENHOUSE GAS EMISSIONS.** *Would the Project:*				
	a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	■
	b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	■

a) Implementation of strategies and measures proposed within the Draft CAP would result in annual communitywide GHG emission reductions by 2020. Table 1 in the Project Description identifies the MT CO2e reductions and percentages that would be expected from implementation of each proposed Draft CAP strategy and objective. Implementation of the Draft CAP would therefore directly and indirectly *reduce* community-wide GHGs. There would be **no impact**.

b) California has adopted a wide variety of regulations aimed at reducing the State's greenhouse gas (GHG) emissions. AB 32, the California Global Warming Solutions Act of 2006, requires California to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 directs ARB to develop and implement regulations that reduce statewide GHG emissions. The *Climate Change Scoping Plan* (Scoping Plan) was approved by ARB in December 2008 and outlines the State's plan to achieve the GHG reductions required in AB 32. The Scoping Plan contains the primary strategies California will implement to achieve a reduction of 169 MMT CO2e, or approximately 28% from the State's projected 2020 emission levels. In the Scoping Plan, ARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community emissions that parallel the State commitment to reduce GHGs. The Scoping Plan recommends that local governments consider adopting a goal of 15% below current emissions levels to assist the State in implementing AB 32.

Lodi's Draft CAP articulates the City's intentions with respect to reducing community-wide GHG emissions in a manner consistent with AB 32. Implementation of strategies and measures proposed within the Draft CAP would result in annual community-wide GHG emission reductions of approximately 15,660 MT CO2e by 2020. Table 1 in the Project Description identifies the MT CO2e reductions and percentages that would be expected from implementation of each proposed Draft CAP strategy and objective. Implementation of the Draft CAP alone would not meet the City's goal of reducing GHG emissions to 25% below 2004 baseline levels, although it would exceed a 15% community-wide GHG reduction target by 2020, which would be consistent with AB 32 Scoping Plan recommendations. As of this writing, there are no adopted regional or local plans,

policies or regulations other than the Scoping Plan and the City's Draft CAP which are designed to reduce emissions of GHGs. There would be **no impact.**

Issues		Potentially Significant Impact	Potentially Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
5	**BIOLOGICAL RESOURCES** *Would the proposal:*				
	a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	■	☐
	b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	■	☐
	c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	■	☐
	d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	☐	☐	■	☐
	e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	■	☐
	f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

a) The CAP would not modify, either directly or indirectly, habitats of any species identified as a candidate sensitive, or special status. Furthermore, existing General Plan policies would significantly constrain development in areas that support sensitive or special status species. In addition, if development projects in these areas were to involve such species, project specific biological studies and mitigation would be required as part of specific project approvals in compliance with applicable Federal, State and local requirements. The CAP's implementation would, therefore, result in a **less-than-significant-impact.**

b) The implementation of the CAP would have a **less-than-significant-impact.**

c) The implementation of the CAP is not expected to cause adverse effect on federally protected wetlands. In the event wetlands could potentially be affected by future actions, project-specific wetland studies and mitigation, if necessary, would be required pursuant to existing Clean Water Act requirements. Implementation of the CAP would result in a **less-than-significant-impact.**

d) See Item C above. The primary wildlife corridors in the City of Lodi are within the *Mokelumne River* area and to a lesser extent along open areas within the city. Implementation of the CAP would result in a **less-than-significant-impact.**

e) The City of Lodi CAP does not contain any component that would directly or indirectly conflict with local policies that protect biological resources. Therefore, there would be would a **less-than-significant-impact.**

f) No Habitat Conservation Plan or Natural Communities Conservation Plan would be affected by the CAP.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
6	**CULTURAL RESOURCES** *Would the Project:*				
	a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	■	☐
	b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	■	☐
	c. Directly or indirectly destroy a unique paleontological resource or unique geologic feature?	☐	☐	■	☐
	d. Disturb any human remains, including those interred outside of formal cemeteries.	☐	☐	■	☐

a) The Draft CAP does not propose any strategy or measure that would directly result in an adverse change in the significance of a historical resource. However, the Draft CAP does recommend retrofitting and renovation of older buildings to be more energy efficient and thus reduce GHGs associated with energy consumption. Most of the housing stock in the City is more than 70 years old, thus some of the structures which may be retrofitted could be eligible for classification as historic resources. All major alterations to structures in the City are reviewed by the Planning staff through the City's established through permitting process, which routinely ensures that the historical integrity of structures is not be compromised. Continued compliance with the City's established permitting procedures and process would ensure a **less-than-significant impact.**

b) The CAP would have no impact on historical resources, as it would not directly involve excavation, demolition, tree removal, no other physical changes that would affect a archeological resources in the community. If there are potential impacts to historical resources that would b associated with specific projects, these would be addressed in a project-specific CEQA reviews. In addition, the 2010 General Plan requires protection of significant archaeological resources. A **less-than-significant** impact would occur with the implementation of the CAP.

c) **The City of Lodi** does not contain any known paleontological resources or unique geologic features. The proposed **CAP** is implementation of a draft plan intended to reduce community-wide GHG emissions and does not include any elements that would directly or indirectly destroy these features. There is a remote possibility that ground-disturbing activities that occur as a result of building additional pedestrian and bicycle infrastructure pursuant to the Draft CAP could uncover unique paleontological resources or sites or unique geologic features. In the event such resources or features are discovered, compliance with State regulations and General Plan policies pertaining to discovery of paleontological resources would ensure that this impact is **less-than-significant.**

d) There is a remote possibility that ground-disturbing activities that occur as a result of building additional pedestrian and bicycle infrastructure pursuant to the CAP could uncover previously unknown human remains. In the event this occurs, compliance with State regulations and General Plan policies pertaining to discovery of human remains would ensure that this impact is **less-than-significant.**

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
7	**GEOLOGY AND SOILS.** *Would the Project:*				
	a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	■	☐
	ii. Strong seismic ground shaking?	☐	☐	■	☐
	iii. Seismic-related ground failure, including liquefaction?	☐	☐	■	☐
	iv. Landslides?	☐	☐	☐	■
	b. Result in substantial soil erosion, or the loss of topsoil?	☐	☐	■	☐
	c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	■	☐
	d. Be located on expansive soils, as defined in Table 18-1-13 of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	■	☐
	e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	■	☐

a)

i. There are no mapped surface or subsurface faults that traverse the city and the city is not listed within a State designated Alquist-Priolo Earthquake Fault Zone. Any future construction will be required to employ building standards set forth in the City's Building Code, including specific provisions for seismic design of structures. In addition, the General Plan FEIR concluded that impacts associated with seismic-related ground shaking would be reduced to **less than significant** due to mandatory compliance with building codes, policies contained in the General Plan, and mitigation measures included in the General Plan EIR.

ii. The Draft CAP would implement measures intended to reduce community-wide GHGs, none of which would directly affect the potential to expose the people or structures to strong seismic ground shaking. Some components of the Draft CAP

would include the development of an expanded net work of bike and pedestrian facilities and retrofitting existing residential and commercial structures to be more energy efficient, and thus reduce GHG emissions associated with energy consumption. These bike and pedestrian facilities, new structures, and building retrofits could be adversely affected by strong seismic ground shaking if not developed in compliance with building code in effect. However, all future projects associated with the implementation of the Draft CAP would be required to meet the building code in effect, which would ensure that these project components do not expose people or structures to the risks associated with strong seismic ground shaking. This would be **less-than-significant** impact.

iii. The City of Lodi is not considered to be particularly susceptible to liquefaction, although some of the northern areas located along Mokelumne River may be relatively more susceptible. However, similar to Items (a) (i, ii), all future projects associated with implementation of the Draft CAP would be required to meet engineering and structural requirements, as well as applicable building and fire codes. Such compliance would ensure safety to structures and people. The impact would **less-than-significant.**

iv). The City of Lodi is located in an area of generally level terrain that would not produce a landslide. Average grade within the City is between zero and five degrees. Further, according to the Official Maps of Seismic Hazard Zones provided by the State of California Department of Conservation, the City of Lodi is not located within an earthquake-induced landslide zone, which is defined as an area where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement. As a result, **no impacts** related to landslides would occur.

c) No future project resulting from implementation of the Draft CAP would directly involve major movement of topsoil or directly result in substantial soil erosion. In the event that proposed residential or commercial retrofits or renovations, construction of bike paths and pedestrian improvements, such activities would be subject to the City's Grading Ordinance to reduce erosion impacts. As a normal and standard condition of approval for future development proposals, projects would be required to prepare and have approved individual Stormwater Pollution Prevention Plans (SWPPPs) that mandate construction and post-construction water quality provisions, including but not limited to erosion control plans during construction, installation of biofilters and/or mechanical cleansing of stormwater run-off and similar elements. Compliance with the applicable regulations would reduce impacts to **less-than-significant.**

d) Al projects that may possibly be developed as a result of implementation of the Draft CAP would be subject to applicable engineering and City building code requirements, which would ensure that they are developed in a way that

minimizes the possible effects of expansive soil. Compliance with existing code regulations would ensure a **less-than-significant impact.**

e) The City of Lodi uses a sewer system and does not require the use of alternative wastewater disposal systems or septic tanks. Thus, there would be **no impact.**

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
8	**HAZARDS AND HAZARDOUS MATERIALS.** *Would the Project:*				
	a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
	b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	■	☐
	c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	■
	d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	■	☐
	e. For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	■
	f. For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	■
	g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
	h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	■	☐

a) The Draft CAP and the future projects that could potentially result from implementation of the Draft CAP would not result in the routine transport, use, or disposal of hazardous materials. It is possible that construction activities associated with new mixed-use or transit-oriented development projects or residential and commercial retrofit and renovation projects recommended by the Draft CAP would require use of construction materials, such as paints and solvents, but not in

large enough quantities to cause adverse effects. This would be a **less-than-significant-impact.**

b) Retrofitting of buildings constructed prior to 1978 cold create a risk of worker exposure to lead-based paints and asbestos. Contractors would required to conform to strict state and federal EPA regulations regarding work on such structures, including worker training and containment and removal of hazardous materials. This would reduce the risk on the surrounding environment and worker health to a **less-than-significant-impact.**

c) The implementation of the CAP would not involve direct handling or emission of hazardous materials. Indirect effects associated with future projects, including those on sites nearby or upwind of sensitive receptors (e.g., residential land uses), or within one-quarter mile of a school, would be addressed through environmental review when an application is submitted to the City, As the CAP does not enable any specific development project, **no impact** would occur relative to this issue.

d) The CAP presents a citywide program, though proposed development associated with it would be concentrated older part of town. The CAP does not propose or enable any specific development project. New developments would be required to go through project level environmental review and would be evaluated and controlled by the 2010 General Plan EIR. The City of Lodi's CAP would have a **less-than-significant-impact** relative to this issue.

e) There are no public or private airports within the City limits of City of Lodi, nor is the City within two miles of a private or public airfield. The City limits are outside of the Part 77 Horizontal Surface zone of the Lodi Airpark and Kingdon Executive Airport. Part 77 Horizontal Surface zone consists of the airport's primary, horizontal, conical, approach and transitional surfaces. Therefore, **no impact** is anticipated.

f) See e) above. No impact is anticipated.

g) The City's 2010 General Plan identifies both urban and wildland fire hazards exist in the Lodi Planning Area, creating the potential for injury, loss of life, and property damage. Urban fires primarily involve the uncontrolled burning of residential, commercial, and/or industrial structures due to human activities. Factors that exacerbate urban structural fires include substandard building construction, highly flammable materials, delayed response times, and inadequate fire protection services.

The CAP does not include any strategies that would impair implementation of or interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the CAP's implementation would have **less-than-significant-impact** relative to emergency evacuation plans.

h) The City of Lodi is not characterized by substantial areas of wildlands. The topography of the City is relatively homogenous and steep slopes that could contribute to wildland fires are not common. The City's General Plan indicates that less than one percent of the City and its immediate vicinity has "Moderate" fire hazard potential.

No project that could be associated with the CAP's strategies would expose residences or wildlands to any wildfire threat. The policies of the CAP seek to mitigate the impacts of climate change. The CAP's implementation would have **less-than-significant-impact** in relation to wildland fires.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
9	**HYDROLOGY AND WATER QUALITY** *Would the Project:*				
a.	Violate any water quality standards or waste discharge requirements?	☐	☐	■	☐
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	■
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	■	☐
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	■	☐
e.	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	■	☐
f.	Otherwise substantially degrade water quality?	☐	☐	■	☐
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	■	☐
h.	Place within a 100-year floodplain structures which would impede or redirect flood flows?	☐	☐	■	☐
i.	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	■	☐
j.	Inundation by seiche, tsunami, or mudflow?	☐	☐	■	☐

a) The Draft CAP recommends energy efficiency renovations within existing residential and commercial structures. Construction associated with these projects could increase erosion and adversely affect urban runoff. However, the City enforces

General Plan policies that require urban runoff controls, and enforces the adopted stormwater ordinance, all of which would prevent pollutants from entering drainages. Proper enforcement and compliance with both National Pollutant Discharge Elimination System (NPDES) requirements and the City's implementing stormwater ordinance would ensure that water quality would not be adversely affected by construction and renovation activities resulting from implementation of the Draft CAP. This would be a **less-than-significant** impact.

b) The Draft CAP recommends numerous water conservation measures, which may result in reduced demand for groundwater supplies. The Draft CAP does not recommend any strategies or measures that would require additional water supply that would be attained from groundwater supplies and would not result in any future projects that would substantially interfere with groundwater recharge. There would be **no impact.**

c) The Draft CAP does not recommend any strategy or measure that would directly alter drainage patterns. No streams or rivers are anticipated to be altered. The Draft CAP does recommend construction of additional pedestrian and bicycle paths, which may indirectly result in slight alterations to drainage patterns. However, the changes would not be substantial, and any changes that would occur would be subject to existing federal and state regulations. Compliance with existing regulations would result in a **less-than-significant** impact.

d) The Draft CAP encourages the development of an expanded network of bike and pedestrian facilities, expansion of existing transit facilities, and retrofitting existing residential and commercial structures for renewable energy. Runoff that would result from these facilities and developments could contribute to the flood potential of existing stream channels. However, the Draft CAP does not directly enable this development. and all proposed projects would be subject to environmental and regulatory reviews. These standards mandate installation of either biological or mechanical methods of treating and cleansing stormwater runoff prior to entering the City and regional drainage system, or equivalent water quality features. With adherence to these requirements, this impact would be **less-than-significant** impact.

e) See Item (d). This would be **less-than-significant** impact.

f) Although there is a potential for surface water pollution from construction of new development, such water quality impacts would be reduced to a less-than-significant level by adherence to City of Lodi and Regional Water Quality Control Board surface water quality standards, including applicable NPDES requirements. Water quality features would be required by the City as part of the normal development review process to reduce the potential for water pollution to a **less-than-significant** level.

g) The Draft CAP would not place housing within a 100-year flood hazard area identified on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other

flood hazard delineation map because it does not propose construction. Therefore, **no impact** would occur.

h) In coordination with the 2030 General Plan, the Draft CAP would regulate development within the 100-year flood zone. However, as discussed in the 2010 General Plan FEIR, 2010 General Plan requires developments to incorporate adequate mitigation measures to achieve an acceptable level of risk from potential flooding hazards. The FEIR concludes that this and other policies would reduce flood hazards to a less than significant level. Because development regulated by the Development Code would be consistent with forecasts contained in the 2010 General Plan FEIR, flooding impacts associated with Development Code implementation would also be **less-than-significant**.

i) The City of Lodi is located in a dam inundation area for the Pardee and Camanche Dam and dike system. Flood water from the Pardee dam would take 4 hours and 20 minutes to reach west Lodi, and flood water from the Camanche Dam and dike system would take 4 to 6 hours to reach Lodi. No strategy or measure proposed within the Draft CAP would expose people or structures to these risks. The impact would be **less-than-significant**.

j) Lodi is not subject to risks relating to seiche or tsunami. Lodi is located inland from the Pacific Ocean and as such, is not subject to tsunami hazards. The project limits are relatively flat and fully urbanized and therefore not susceptible to mudflows. The potential for exposure to such risks would be the same as that identified for the 2030 General Plan and, with implementation of 2010 General Plan policies and existing City regulations, would be reduced to a **less-than-significant** level.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
10	**LAND USE AND PLANNING.** *Would the Project:*				
	a. Physically divide an established community?	☐	☐	☐	■
	b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating on environmental effect?	☐	☐	☐	■
	c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	■

a) The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying area. The Draft CAP proposes strategies and policies that would improve pedestrian and bicycle circulation, and at the same time provide alternative to vehicular transportation. The Draft CAP encourages the creation of infrastructure that improves connectivity throughout the community. The plan contains no language that recommends or supports the division of an established community. **No impact** would occur as result of the plan's implantation.

b) The Draft CAP is consistent with, and builds the goals of the 2010 Lodi General Plan. The Draft CAP proposes strategies and measures to reduce GHG emissions. Implementing the Draft CAP would not conflict with existing policies, and where conflicts do occur, the Draft CAP strategies and measures would generally result in greater avoidance or mitigation of environmental effects, as the Draft CAP is designed to mitigate adverse environmental impacts associated with global climate change. Therefore, **no impact** would occur due to implementation of the Draft CAP.

c) No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan would conflict with implementation of the Draft CAP. Therefore, **no impact** would occur due to implementation of the Draft CAP.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
11	**MINERAL RESOURCES** *Would the Project:*				
	a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	■
	b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	■

a-b) The Draft CAP proposes strategies and policies that would improve pedestrian and bicycle circulation, and at the same time provide alternative to vehicular transportation. The Draft CAP encourages the creation of infrastructure that improves connectivity throughout the community. The Draft CAP contains no language that recommends or supports extraction of mineral resources. In addition, the 2010 General Plan prohibits the extraction of mineral resources that could result in significant environmental impacts. Implementation of the Draft Cap would be consistent with that regulated by the 2010 General Plan and forecast in the 2010 General Plan FEIR. **No impact** to mineral resources would occur due to implementation of the Draft CAP.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
12	**NOISE**				
	Would the Project result in:				
	a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
	b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
	c. A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	■	☐
	d. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	■	☐
	e. For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	■
	f. For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	■

a) While the Draft CAP does not recommend any strategy or measure that would generate excessive amounts of noise, construction activity associated with recommended energy efficiency retrofits in residential or commercial buildings, expansion of bicycle and pedestrian facilities, and installation of distributed renewable energy systems could possibly result in temporary increases in noise levels.

As discussed in Section 4.9 of the 2030 General Plan FEIR, all construction activities would be required to adhere to the following General Plan policies:

N-G1 Protect humans, the natural environment, and property from manmade hazards due to excessive noise exposure.

N-G2 Protect sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise.

N-P1 Control and mitigate nose at the source where feasible, as opposed to at the receptor end.

N-P2 Encourage the control of noise through site design, building design, landscaping, hours of operation, and other techniques for new development deemed to be noise generators.

N-P3 Use the noise and land use compatibility matrix provided in the General Plan 2010 and allowable noise exposure levels as review criteria for all new land uses. Incorporate noise attenuation measures for all Projects that have noise exposure levels of "conditionally acceptable" and higher. These may include:

- Façades constructed with substantial weight and insulation;
- Sound-rated windows in habitable rooms;
- Sound-rated doors in all exterior entries;
- Active cancellation;
- Acoustic baffling of vents for chimneys, fans and gable ends;
- Ventilation system affording comfort under • closed-window conditions; and
- Double doors and heavy roofs with ceilings of two layers of gypsum board on resilient channels to meet the highest noise level reduction requirements.

In addition, noise in the City is governed by Chapter 9.24 of the Municipal Code, which specifically declares that loud, unnecessary, and unusual noise is a nuisance and is unlawful. The criteria for determining whether a nuisance exists includes the ambient noise level, the sound level of the objectionable noise, the intensity of the noise, whether the noise is continuous or intermittent, the duration and tonal content of the noise, the proximity of the noise to sleeping facilities, the zoning of the area, and the nature of the source. The City of Lodi Municipal Code regulations relevant to construction noise are:

9.24.020 a. General Noise Regulations. Notwithstanding any other provision of this chapter, and in addition thereto, it is unlawful for any persons to willfully make or continue or permit or cause to be made or continued, any loud, unnecessary or unusual noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal noise sensitivity.

9.24.030 c. It is unlawful for any person, firm or corporation to cause, permit or generate any noise or sound as described herein between the hours of 10:00 p.m. and 7:00 a.m. which exceeds the ambient noise levels at the property line of any residential property as determined at the time of such reading by more than five decibels. This section shall be applicable whether such noise or sound is of a commercial or noncommercial nature.

Since the exact nature of future construction that could occur pursuant to the Draft CAP is not known at this time, construction noise levels cannot be estimated. All construction activities must comply with the City's noise ordinance. In addition, future projects which would potentially cause noise levels exceeding noise ordinance requirements would be required to undergo acoustical analysis to determine specific impacts. Construction activity noise levels for projects resulting from the Draft CAP would not be excessive when compared to those associated

with similar construction projects not associated with the Draft CAP. Since potential noise levels would be temporary in duration and must comply with the City's noise ordinance, and because future project specific impacts would require further evaluation and mitigation, this would be a **less-than-significant impact.**

b) Similar to the evaluation within Item (a), temporary construction activities resulting from implementation of the Draft CAP could potentially result in excessive groundborne vibration or groundborne noise levels for a temporary period of time associated with recommended energy efficiency retrofits in residential or commercial buildings, expansion of bicycle and pedestrian facilities, and installation of distributed renewable energy systems. All construction activities must comply with the City's noise ordinance, which prohibits construction noise between 10:00 PM to 7:00 AM seven days a week. In addition, future projects which would potentially cause excessive groundborne vibration would be required to undergo environmental analysis to determine specific impacts. Construction activity vibration levels for projects resulting from the Draft CAP would not be excessive when compared to those associated with similar construction projects. Since potential groundborne vibration would be temporary in duration and must comply with the construction hour provisions of the City's noise ordinance, and because future-project specific impacts would require further evaluation and mitigation, this would be a **less-than-significant impact.**

c) The Draft CAP encourages strategies designed to reduce vehicular traffic and to increase alternative mode of travel. No increase in local traffic volumes is anticipated as a result of implementing the Draft CAP. Therefore, future ambient noise levels should be similar to or somewhat reduced from present levels. This would be a **less-than-significant impact.**

d) One source of temporary ambient noise in Lodi would be construction activity, as described in Item (a) above. Since the Draft CAP encourages continued investment in existing homes to reduce energy consumption, there would continue to be construction-related noise in the city. Compliance with the City's noise ordinance would reduce impacts to this would be a **less-than-significant impact.**

e) There is not an airport located within two (2) miles of the city limits. The Draft CAP would not expose people excessive noise levels generated by public use airports, or private airstrips. The closest airport to the city site is the Lodi Airpark, located approximately four (4) miles southwest of the city limits, and supports twenty to thirty (20-30) operations per day. The airport's noise "footprint" does not extend beyond the immediate airport boundary. There would be **no impact.**

f) No private airstrip is located within or near Lodi. There would be **no impact.**

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
13	**POPULATION AND HOUSING** *Would the Project:*				
	a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	■	☐
	b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	■	☐
	c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	■	☐

a) The Draft Cap includes strategies and measures that seek to reduce GHG emission. Proposed measures include encouraging public transport expansion and retrofitting existing residential and commercial buildings to make them more energy efficient. The CAP does not recommend any specific development, density or number of residential units. Commercial and residential energy efficiency retrofits that may occur as a result of the Draft CAP would update homes already located in the city to make them more energy efficient and would not be likely to include additions that make homes larger and accommodate more people. Therefore, impacts would be **less-than -significant.**

b) Although the Draft CAP strategies and measures encourage energy efficient retrofits for existing homes, the Draft CAP does not include measures to increase or decrease density or displace homes. Replacement housing would not be necessary. This would be a **less-than-significant-impact.**

c) The Draft Cap contains no strategies that encourage the displacement of existing housing. Implementation of the Draft CAP poses **a less-than-significant-impact.**

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
14	**PUBLIC SERVICES**				
	Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	a. Fire protection?	☐	☐	■	☐
	b. Police protection?	☐	☐	■	☐
	c. Schools?	☐	☐	■	☐
	d. Parks?	☐	☐	■	☐
	e. Other public facilities?	☐	☐	■	☐

City of Lodi General Plan

The Lodi General Plan Growth Management and Infrastructure Element addressed public services.

GM-G4: Provide public facilities-including police and fire services, schools and libraries commensurate with the needs of the existing and future population.

Existing Conditions

Fire Protection

The Lodi Fire Department (LFD) provides fire protection, basic life support (BLS), fire prevention, technical rescue, and hazardous materials response services to the City of Lodi. The LFD employs 48 firefighters, captains, and engineers. In addition, LFD employs 4 battalion chiefs, 2 division chiefs, 1 fire chief, 2 support staff, and 1 inspector for a total department work force of 59. LFD maintains 4 front line fire apparatus capable of 1500 GPM, one Truck Company, 100 ft aerial, 2 reserve apparatus, and various support vehicles. The LFD has 4 fire stations located throughout the City of Lodi.

Police

The Lodi Police Department provides law enforcement and animal services to the City of Lodi. The LPD has 117 positions including 78 Sworn Officers. The LPD will service the area that will be annexed. In addition, the LPD maintains SWAT van, 1 SWAT armored Vehicle, 1 Mobile Command Center, 1 DUI trailer, 1 Crime Prevention van, 1 FET van, 24 patrol cars, 25 undercover cars, 4 motorcycles, 1 bomb squad van, and 4 volunteer vehicles. The LPD also maintains an average of 1.25-minute emergency response time and maintains an average of 31 minutes per call at the scene of the incident.

Schools

The Lodi Unified School District provides public education for grades preschool through twelve on a traditional calendar system. The District employs 3,018 contracted employees, including 1,573 teachers. The District maintains thirty elementary schools, seven middle schools, and ten alternative schools, and three charter schools.

Parks and Recreation. The City of Lodi operates a total of 27 parks, natural open space areas, and sports field. Park facilities in Lodi range from mini-parks and tot lots to larger regional parks and natural open space areas, in accordance with the City of Lodi Park development standards. Several parks serve the dual purpose of a park facility and a storm drainage detention basin during the winter rainy season. The City of Lodi General Plan established a standard of 8 acres of neighborhood and community parkland per 1,000 population, including school parks and storm drainage detention basin parks, and 3.9 acres of neighborhood and community parkland per 1,000 population, excluding school parks and storm drainage detention basin parks.

a-i) The Lodi Fire Department (LFD) provides fire protection, basic life support (BLS), fire prevention, technical rescue, and hazardous materials response services to the City of Lodi. The Draft CAP does not propose population growth and would not contribute greatly to the need for increased fire protection services. Thus, implementation of the Draft CAP would not result in a need for additional Fire Department services. This would be a **less-than-significant** impact.

a-ii) The Draft CAP would no result in a substantial increase of residents as it does not encourage growth. Increase in population would be governed by the RHNA, the Housing Element, and the 2010 Lodi General Plan, which contains policies to provide for adequate and orderly increase in fire protection services. As the Draft CAP does not recommend any specific projects, all future development would undergo environmental review when formal application s are submitted to the City. Therefore, the implementation of the plan would not increase the need for Fire Department's protection services within the City. Implementation the Draft CAP would result in a **less-than-significant** impact.

a-iii) Implementation of the Draft CAP is not expected to result in substantial population growth and would not necessitate an increase in school district services. Thus, implementation of the Draft CAP's would result in a **less-than-significant** impact.

a-iv) The City of Lodi operates a total of 27 parks, natural open space areas, and sports field. Park facilities in Lodi range from mini-parks and tot lots to larger regional parks and natural open space areas. Implementation of the Draft CAP is not expected to result in substantial population growth, and thus would not contribute greatly to the nee for additional park facilities. This would be a **less-than-significant** impact.

a-v) As discussed above, the Draft CAP does not propose population growth. Impacts related to library and other services would be **less-than-significant.**

	Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
15	**RECREATION**				
	a. Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	■	☐
	b. Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	■	☐

a) Implementation of the Draft CAP is not expected to result in substantial population growth, and thus would not result in increased physical deterioration of parks and recreational facilities. Conversely, the Draft CAP promotes the expansion of the current network of bicycle and pedestrian trails, which could provide additional recreational facilities within Lodi, and possible lessen wear on existing facilities. This would be a **less-than-significant** impact.

b) The Draft CAP specifically recommends that the City implement the bike infrastructure improvements contained in the City's current Bicycle Master Plan and key improvements to be identified in a proposed pedestrian obstacle study, with the objective of encouraging complete streets throughout Lodi.

Construction of these facilities could potentially result in adverse impacts on the environment. However, environmental impacts associated with such facilities would likely be minimal, due to the built-out urban nature of the city and the likelihood that such facilities would be constructed within existing rights-of-way. In any case, prior to construction of additional bike or pedestrian trails, the City would be required to prepare subsequent project-level environmental documentation as required by CEQA. These documents would provide site-specific environmental analyses that would analyze all possible impacts and recommend mitigation if necessary. Because adverse impacts associated with bicycle and pedestrian trail construction pursuant to the Draft CAP would likely not be substantial, and because additional project-level analysis would ensure that physical impacts do not occur, this would be a **less-than-significant** impact.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
16	**TRANSPORTATION/TRAFFIC** *Would the Project:*				
a.	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	■	☐
b.	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	■	☐
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	■
d.	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	■	☐
e.	Result in inadequate emergency access?	☐	☐	☐	■
f.	Result in inadequate parking capacity?	☐	☐	☐	■
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	■

a) None of the proposed objectives and strategies in the Draft CAP courage, promote or causes an increase in vehicular traffic relative to existing conditions. To the contrary, implementation of Draft CAP strategies and measures would increase the availability of transit service for Lodi residents, add additional bike and pedestrian facilities. Achieving each of these goals would result in a reduction in traffic loads, which would reduce the number of vehicle trips, volume to capacity ratio, and intersection congestion within the City. Furthermore, no proposed strategy or measure would directly increase traffic in relation to the existing traffic load and capacity of the street system. This would be a **less-than-significant impact.**

b) The San Joaquin County Congestion Management Program (CMP) documents the existing and future conditions along the County's Congestion Management Agency (CMA) roadway system. The San Joaquin County Lodi County Congestion Management Plan (CMP) requires a regional traffic impact analysis when a Project adds 50 or more peak hour vehicles to a CMP Highway system intersection or 150 or more peak hour trips to a mainline freeway link. The intent of CAP policies relative to new development is encourage carpool uses, increase convenience of transit, which would reduce vehicular GHG emissions. The CAP'S implementation

would result in **less-than-significant** impacts in relation to traffic and road network level of service.

c) The Project site is located roughly two miles from the Lodi Airpark and approximately four miles from the Kingdon Executive Airport. Implementation of the proposed Development Code would have no effect on air traffic patterns. **No impact** would occur.

d) The CAP encourages development of pedestrian and bicycle infrastructure and features that will serve to reduce GHG emissions. These facilities would not increase hazards but rather have the opposite effect by providing features to make crossings and roads safer and more convenient for pedestrians and cyclists, including a number of strategies, including use of new signage, paving materials, and bike lanes. In having a beneficial effect on the public safety aspects of the City's road network particularly for non-motorized traffic, the plan's implementation would have **no impact** relative to this issue.

e) The Draft CAP recommends strategies and measures that would increase safety for drivers, pedestrians, and bicyclists and seeks to reduce the number of automobiles on City streets, both of which may actually make access for emergency vehicles easier and more efficient. No strategy or measure proposed within the Draft CAP would result in the development of uses or facilities that would degrade emergency access. This would be a **less-than-significant-impact.**

f) Implementation of the Draft CAP would not substantially increase parking demand or remove existing parking. Conversely, the Draft CAP encourages walking, biking, carpooling, and public transit use and discourages single occupancy vehicle use. Implementation of the Draft CAP could reduce the need for parking spaces and possibly result in less demand for parking. This would be a **less-than-significant impact.**

g) The Draft CAP supports and enhances adopted City policies, plans, and programs supporting alternative transportation. Therefore the CAP's implementation would have **no impact** in relation to this issue.

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
17	**UTILITIES AND SERVICE SYSTEMS** *Would the Project:*				
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	■	☐
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	■	☐
c.	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	■	☐
d.	Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	■	☐
e.	Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	☐	☐	■	☐
f.	Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	■	☐
g.	Comply with federal, state, and local statutes, and regulations related to solid waste?	☐	☐	■	☐

a) Implementation of the Draft CAP would not trigger population increase. Thus, there would be no increase in demand for wastewater treatment that would exceed treatment requirements. This would be a **less-than-significant** impact.

b) Implementation of the Draft CAP would not result in a significant increase in population. Thus, resulting needs for water and wastewater treatment would not increase substantially. No expanded or new treatment facilities would be required. This would be a **less-than-significant** impact.

c) Increase in population due to new development could increase in the amount of storm water runoff, which could necessitate the need for more and larger storm water drainage facilities. However, implementation of the Draft CAP would not result in a significant increase in either population or new development. This, it is not likely that storm water runoff would increase with implementation of the Draft CAP to the extent that new or expanded drainage facilities would be needed. This impact would be **less-than-significant** impact.

d) Implementation of the Draft CAP would not result in a significant increase in population. The Draft CAP does not directly enable development and all projects

would be subject to environmental and regulatory review. Thus, no new water supplies would be required. Water demand projections for Lodi indicate that the City has sufficient water supplies for anticipated growth in Lodi. This impact would be **less-than-significant** impact.

e) The City owns and operates the wastewater collection system within its corporate limits. The collection system includes separate domestic and industrial sewers and related pumping facilities. Untreated wastewater is piped to the City's treatment plant through pipes, utilizing both gravity flow and lift stations, where appropriate. The City also owns the treatment facilities at the White Slough Water Pollution Control Facility (WSWPCF) located approximately 6 miles southwest of the City. The City has adopted and maintains a *Wastewater Master Plan* to estimate future infrastructure and service demands within Lodi. Because Draft CAP does not directly enable new development inconsistent with development projections regulated by the 2010 General Plan, sufficient plant capacity would continue to be available and impacts relating to wastewater service would be **less than significant**.

f) As indicated in the General Plan EIR, The increased solid waste due to implementation of the General Plan could be accommodated within the existing landfill capacity. Adoption of the Draft CAP would not facilitate any substantial new development activity beyond that analyzed in the General Plan EIR, and thus will not lead to any significant solid waste production beyond that previously indicated. Furthermore, compliance with the City's Source Reduction and Recycling Element (SRRE) program, whereby all future development projects must divert solid waste to meet state diversion goals associated with AB 939, as well as State and County waste reduction programs and policies, would reduce the volume of solid waste entering landfills. Review of future projects will continue be carried out to ensure that the projects are consistent with all General Plan Policies and Policy Actions and the SRRE program. Adherence to such requirements would reduce potential impacts associated with solid waste to a less than significant impact level. Growth regulated by the Draft CAP would be consistent with that regulated by the 2030 General Plan and forecast in the 2010 General Plan FEIR. Therefore, the Draft CAP would not create any impacts beyond those identified in the 2010 General Plan FEIR and impacts would be **less than significant**.

g) The Draft CAP does not recommend any strategy or measure that does not comply with applicable solid waste regulations. Conversely, the CAP promotes recycling and measures to reduce the City's waste stream and achieve County wide waste reduction goals. There will be **no impact.**

Issues		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
18	**MANDATORY FINDINGS OF SIGNIFICANCE**				
	a. Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	■	☐
	b. Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	☐	☐	■	☐
	c. Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

a) As discussed in Section IV, *Biological Resources* and Section V, *Cultural Resources,* the Draft CAP does not have the potential to substantially reduce habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

The purpose of the Draft CAP is to reduce community-wide GHG emissions in Lodi with the intention of reducing environmental impacts associated with global climate change. The Draft CAP proposes strategies and measures to lessen numerous environmental impacts and does not contain any strategy or measure that would either directly substantially reduce habitat, reduce wildlife populations, threaten animal or plant community restrict the range of species, or eliminate examples of history or prehistory. This would be a **less-than-significant impact.**

b) The Draft CAP would not result in any adverse environmental impacts that are cumulatively considerable. The Draft CAP is intended to contribute to a cumulative reduction in GHG emissions and to reduce adaptation impacts associated with global climate change, both of which would have beneficial cumulative environmental effects. The CAP contains measures that, if enacted, would reduce GHG emissions through encouraging the use of alternative modes of transportation, promoting residential and commercial energy and water efficiency, increasing use of

renewable energy, investing in green infrastructure and open space, and reducing waste. These measures would, in general, have beneficial effects on the environment. Future land uses and development determined to be consistent with the CAP would not make a cumulatively considerable contribution to the production of GHG emissions. In addition, The CAP'S short-term and long-term goals are in alignment in this regard; so it is highly unlikely that it would have short-term goals that would disadvantage long-term environmental goals. The CAP's implementation would thus have a **less-than-significant** impact.

c) As discussed in Section III, *Air Quality*; Section VI, *Geology and Soils*; Section VII, *Hazards and Hazardous Materials*; Section VIII, *Hydrology and Water Quality*; Section XI, *Noise*; and Section XV, *Transportation and Traffic*, implementation of the Draft CAP would not create environmental effects that would adversely affect human beings. The Draft CAP is a policy document tended to reduce Lodi's community-wide GHG emissions to help cumulatively address the adverse environmental impacts associated with global climate change, while also protecting and enhancing the quality of life in Lodi. Its strategies and measures strive to protect the environment, enhance human health and safety, and conserve natural resources, both within and beyond Lodi. Adoption and implementation of the Draft CAP would result in beneficial environmental effects, and would not cause substantial adverse direct or indirect effects on human beings resulting from a change in the physical environment. Impacts would be **less-than-significant**.

Section 5

Documents Referenced

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