



Agenda

Sustainability Task Force

A Committee of the Chico City Council

Meeting of Thursday, March 10, 2016 – 5:30 p.m.

Municipal Center - 421 Main Street, Conference Room No. 1 in the Council Chambers

1. **CALL TO ORDER AND ROLL CALL**
2. **APPROVE JANUARY 28, 2016 MEETING MINUTES**
Draft 01/28/16 minutes attached.
3. **STATUS REGARDING THE CITY'S BICYCLE MASTER PLAN UPDATE PROCESS, AND DISCUSSION WITH BCAG, CHICO VELO, AND BUTTE BIKE COALITION REGARDING ALTERNATIVE TRANSPORTATION EFFORTS AND IMPLEMENTATION OF CAP ACTIONS – (City Staff, BCAG, Chico Velo, and Butte Bike Coalition) (Assistant Civil Engineer West and Principal Planner Vieg)** – At its last meeting, the STF requested an overview and highlights regarding the City's Bicycle Master Plan Update planning process. Further, BCAG, Chico Velo, and the Butte Bike Coalition have been invited to attend the meeting to share updates and coordinate on alternative transportation efforts that may further implementation of the City's CAP.
4. **STATUS OF CHANGES TO THE 2016 SUSTAINABILITY BUSINESS SERIES FORMAT/SCHEDULE (STF Member Chastain)**
5. **STATUS REGARDING THE STF AND CAP BEING PLACED ON CITY COUNCIL AGENDA (STF Chair Stemen)**
6. **BUSINESS FROM THE FLOOR** - Members of the public may address the Task Force at this time on any matter not already listed on the agenda, with comments being limited to three minutes. The Task Force cannot take any action at this meeting on requests made under this section of the agenda.
7. **REPORTS & COMMUNICATIONS** - These items are provided for the Task Force's information. Although the Task Force may discuss the items, no action can be taken at the meeting. Should the Task Force determine that action is required, an item may be included on a subsequent agenda.
8. **ADJOURNMENT** - Next meeting scheduled for Thursday, April 28, 2016 (*consider changing meeting date to May 12, 2016*)

ATTACHMENTS: 01/28/16 STF Meeting Minutes (Draft)
CAP Actions Related to Transportation

Agenda available from the City's website at www.ci.chico.ca.us under "**Meetings/Agendas**"

Prepared: 03/04/16
Posted: 03/04/16
Prior to: 5:30 p.m.

Community Development Department
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Please contact the City Clerk at 896-7250 should you require an agenda in an alternative format or if you need to request a disability-related modification or accommodation in order to participate in a meeting. This request should be received at least three working days prior to the meeting in order to accommodate your request.

Sustainability Task Force Members:

Cheri Chastain
Lucas RossMerz

Dave Donnan
Mike Rubio, Vice Chair

Ryne Johnson
Mark Stemen, Chair

William Loker

**CITY OF CHICO SUSTAINABILITY TASK FORCE
MINUTES OF THE MEETING OF
January 28, 2016**

Municipal Center
421 Main Street
Council Chambers, Conference Rm. 1

STF Members Present: Mark Stemen, Chair
Mike Rubio, Vice Chair (arrived late)
Cheri Chastain
William Loker
Lucas RossMerz

STF Members Absent: Dave Donnan
Ryne Johnson

Staff Members Present: Brendan Vieg, Principal Planner

Guests Present: Chuck Thistlethwaite, Planning Manager, Butte County
Scott Grist, Nikki Dow, Chuck Greenwood, CHICO 350

1. CALL TO ORDER

Chair Stemen called the meeting to order at 6:35 pm. STF members, City staff, and guest were present as noted.

2. APPROVE JANUARY 14, 2016 MEETING MINUTES

The 01/14/16 minutes were approved (3-0-1; Rubio, Donnan, Johnson absent; Chastain abstained).

3. DEVELOP STF WORK PLAN FOR CALENDAR YEAR 2016

Butte County's Planning Manager Chuck Thistlethwaite provided an overview of Butte County's efforts to develop and implement its Climate Action Plan (CAP). The presentation closely followed the information provided on **Attachment 1** (PowerPoint Presentation) and **Attachment 2** (CAP Monitoring Report).

There were a number of group discussions, including, but not limited to:

- The difficulty in garnering support for addressing climate change as an environmental issue in a conservative community, and the need to highlight CAP benefits like savings of money and energy to businesses and residents, as well as streamlining of CEQA review

- Amount of staff and financial resources dedicated by County to implement the CAP
- The County's efforts to address reducing GHG emissions in the Agriculture Sector, including the receipt of a \$300k grant from the Strategic Growth Council to audit Ag emissions, identify stakeholders, develop Best Practices, and create an outreach program
- Coordination with Butte LAFCo regarding transportation related issues
- The continued steady growth of solar installations and discussion of a solar overlay zone
- The potential support (or lack of) for a gas tax to implement GHG emission reduction efforts
- The level of engagement with the agricultural community, and any coordination with the CSU, Chico University Farm
- The need to coordinate closely regarding the next CivicSpark opportunity to ensure that both jurisdictions seek a member
- Other opportunities to coordinate with the City to address climate action, including supporting grants efforts on E/V readiness and low income energy efficiency upgrades, outreach and participation in the STF's Sustainable Business Series, and involvement in the under-study Community Choice Aggregation program.

4. **BUSINESS FROM THE FLOOR**

None.

5. **REPORTS & COMMUNICATIONS**

The STF discussed upcoming meeting topics and the need to coordinate agenda items with similar topics planned for the Sustainable Business Series. The STF requested that at its March 10th meeting the following issues be agendized: 1) Transportation – with invites to BCAG, Chico Velo, Butte Bike Coalition, and potentially a City representative to provide an update on the City's Bike Master Plan Update process; and 2) Education Opportunities – a review of community events calendars to identify opportunities for the STF to inform the community what they can do address climate change.

6. **ADJOURNMENT**

There being no further business from the STF, the meeting adjourned at 6:50pm to the meeting of **Thursday, March 10, 2016.**

Date Approved

Brendan Vieg, Principal Planner

Butte County Climate Action Plan

City of Chico
Sustainability Task Force Meeting
January 28, 2016



What is the Climate Action Plan?

- A plan to help residents and businesses save energy and money.
- A tool to address climate change in Butte County.
- A strategy to implement the General Plan and achieve sustainability in unincorporated communities.



Purpose of the Climate Action Plan

- Implementation mechanism of the County's General Plan.
- Supports statewide GHG emissions reduction goals identified in Assembly Bill (AB) 32 and Senate Bill (SB) 375.
- Serves as a Qualified GHG Reduction Strategy under the California Environmental Quality Act (CEQA).



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Figure ES-2: 2006 Community Emissions and Sector Explanations



Nonresidential Energy
Commercial and industrial electricity and natural gas consumed in the community

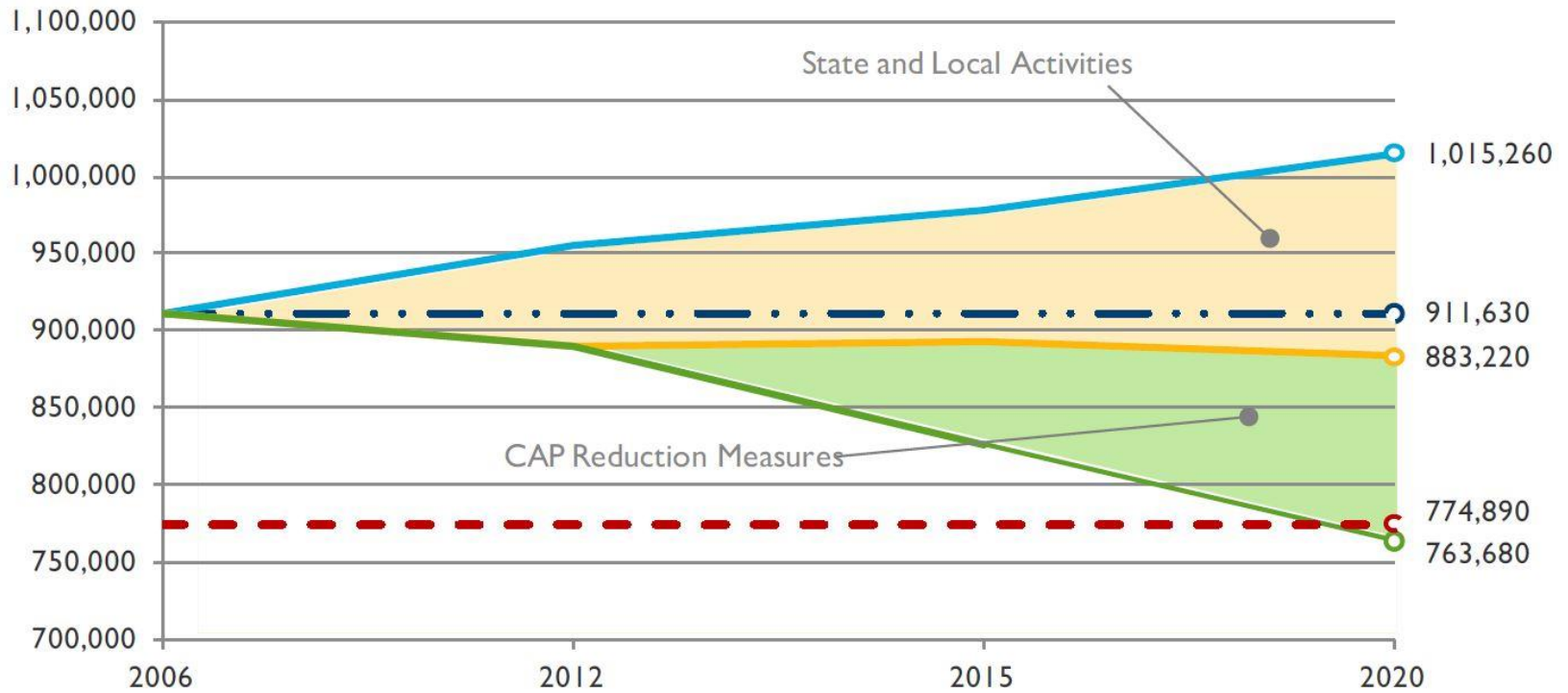
Off-Road Equipment
Emissions from construction and lawn and garden equipment used in the community

Waste
Methane emissions from waste sent to landfills from the community

Wastewater & Water
The energy required to extract, filter, move, and treat water, and direct emissions from septic systems and treatment



Figure ES-3: 2020 CAP Reductions



- 2006 Baseline
- 2020 Forecast Adjusted with Local and State Activities
- CAP Reduction Measures
- GHG Reduction Targets
- 2020 Forecast



MEMO

To: Dan Breedon
Butte County

From: Jennifer Venema

Cc: Jeff Henderson, Tammy Seale

Date: November 13, 2015

Re: 2015 Quarter 3 Butte County Climate Action Plan Monitoring Report

We are pleased to provide the 2015 Quarter 3 Butte County Climate Action Plan Monitoring Report. This memo provides the third **quarterly update on the County's progress** with implementing the Butte County Climate Action Plan. The memo provides an updated overview of progress, with additional information that builds on the first two quarterly updates to the Board of Supervisors. Following this report, the project team will prepare an annual report that will provide an estimate of annual community-wide GHG emissions through the calendar year of 2014, serving as a basis to analyze progress toward Climate Action Plan targets. After the delivery of the annual report, County staff will transition to provide mid-year reports on progress to the Board, along with annual reports on overall **changes in local activity and estimated progress toward the County's Climate Action Plan goals.**

We look forward to your input and will revise this document following your feedback. If you have any questions or comments, please contact Jennifer Venema at jvenema@mbakerintl.com or (916) 517-4407.

INTRODUCTION

The Butte County Board of Supervisors adopted the Butte County Climate Action Plan (CAP) in **February 2014**. **The CAP establishes measures and implementation actions that serve as the County's strategy to reduce greenhouse gas (GHG) emissions.** The CAP is an implementation tool of the County **General Plan, serving as the County's mitigation strategy to address climate change consistent with the California Environmental Quality Act (CEQA) Guidelines criteria for a Qualified GHG Reduction Strategy.** Reduction targets in the CAP call for a 15% reduction below baseline 2006 GHG emissions levels by 2020 consistent with state guidelines, and a 42% reduction below baseline 2006 levels by 2030, which is the General Plan horizon year. The CAP calls for monitoring implementation efforts to **help demonstrate the County's progress in implementing the General Plan and to be consistent with the CEQA Guidelines.**

Butte County initiated monitoring of the CAP in March 2015. County staff and consultant Michael Baker International (formerly PMC) provided two quarterly reports on progress to the Board of Supervisors in June and August 2015. These initial efforts have allowed the project team to prepare the first annual report on CAP progress, planned for early 2016. This memo is the last interim, quarterly report prior to submission of the annual report in early 2016. This memo presents additional information collected since the August report, including **reports on the County's energy programs and updates on solar photovoltaic installations in the unincorporated county.** For purposes of brevity, this report focuses on new information since the August report. The annual report will provide a comprehensive summary of progress, including information from previous quarterly reports.

CHANGES IN ACTIVITY DATA

The monitoring process involves collecting data from multiple agencies and organizations, including private utility companies such as the Pacific Gas and Electric Company (PG&E), local service providers, and state agencies. Service providers and agencies often require a lengthy period to process and release data. As a result, data on local activities that produce GHG emissions (energy use, vehicle miles traveled, solid waste produced, and others, collectively known as activity data) is limited at this time, although some information is available. For example, data from PG&E shows that residential energy use has declined consistently since the 2006 baseline and that this decline has continued to occur despite improving economic conditions and population growth. As of 2013, residential electricity use has declined approximately 7% from 2006 levels and residential natural gas use has dropped by approximately 21%.

The County and Michael Baker are moving forward with data requests from additional agencies and organizations, and will analyze the information as it is made available. County and consultant staff will also continue to analyze PG&E data to identify additional trends and other items of relevance to CAP tracking. This information will be presented in the annual report to provide an estimate of updated GHG emissions in the unincorporated areas of Butte County and to identify progress toward achieving CAP goals.

ONGOING AND COMPLETED ACTIONS

Butte County has succeeded with the implementation of numerous CAP strategies, also referred to as GHG reduction measures. CAP implementation involves numerous County departments and external agencies and groups. Despite the variety of departments and agencies involved, these efforts

collectively help achieve the goals in the County’s adopted CAP. Early steps in implementing the CAP also demonstrate County leadership and the cost-saving benefits of numerous CAP measures. These ongoing efforts include actions which may not contribute to a directly measurable reduction in GHG emissions, but which support GHG reduction activities, such as educational campaigns that raise community awareness about energy conservation. These items include actions that the County has conducted internally (for example, waste reduction efforts in County buildings), actions that the County has implemented in the wider community (for example, new bike lanes on roads in unincorporated areas), and steps undertaken by community members and other organizations that the County is not directly carrying out (for example, residents installing solar panels on the roofs of their homes). Several of these actions may have been initiated prior to CAP adoption in early 2014, but they continue to reduce GHG emissions or support reductions and can serve as a foundation for more extensive future GHG reduction efforts.

- **Solar Panels:** Since CAP adoption in 2014, the County has experienced continued installation of solar photovoltaic (PV) throughout the unincorporated area. Previous quarterly reports showed information on solar PV in the unincorporated county reported by PG&E. However, new data available through **the County’s online permitting system showed** approximately double the number of permitted solar PV capacity, as measured in kilowatts (kW). County records indicate 27,753 kW of solar PV permitted since 2014 across 1,544 solar sites (though September 2015). This permit activity indicates early progress towards the overall targets for distributed solar PV in measure EN10. The County has permitted 1,485 homes for solar PV, exceeding the residential target of 1,400 homes by 2020 established in measure EN10. Commercial PV has achieved nearly **25% of the CAP’s 2020 goal** from measure EN10. A summary of solar PV permit activity since CAP adoption in 2014 is shown in Table 1 below.

Table 1: Solar PV Permit Activity by Type (01/2014 – 09/2015)

Category	2014			2015			Total, 01/2014 – 09/2015		
	kW	#	Average size	kW	#	Average size	kW	#	Average size
Residential PV	14,094	761	19 kW	7,309	724	10 kW	21,403	1,485	14 kW
Commercial PV	2,898	41	71 kW	3,452	19	182 kW	6,350	60	106 kW
Total	16,992	802	21 kW	10,761	743	14 kW	27,753	1,545	18 kW

- **Solar Overlay Zone:** The County has progressed toward creating a solar energy overlay zone, as **directed by CAP measure EN11. The project, “Power Butte,” has engaged a stakeholder group** including PG&E, the Farm Bureau, solar contractors, and overlay-area property owners. The overlay zone will encourage job creation, simplify the permitting process, protect valuable farmland and biological resources, and encourage an increased amount of utility-scale, Tier 4 solar energy

facilities. Butte County successfully secured a competitive grant from the Strategic Growth Council for this effort. In June, the County hosted two workshops to share project information and invite input from the public. The Planning Commission held a workshop in July and reviewed information generated at the two public workshops. In August, a workshop on the overlay zone was presented to the Butte County Board of Supervisors. The Board provided direction to move **forward with the project's** vision and guiding principles. As of this update, Tasks 3 (GIS Mapping and Analysis) and 4 (Overlay Concepts), are under way as County staff continues to analyze potential sites for the overlay with the PlaceWorks consultant team. The CAP anticipates that development of the solar energy overlay will result in the largest single source of local GHG emissions reduction credits, providing nearly 60% of the local GHG reductions necessary to achieve the 2020 target of a 15% reduction below 2006 levels.

- **Property Assessed Clean Energy:** Financing for energy efficiency, energy generation, and water conservation improvements is available for residential, commercial, retail, agricultural, and industrial property owners in Butte County through **the County's Property Assessed Clean Energy (PACE)** program. A number of improvements may be funded through the program, including upgrades to HVAC, roofing, lighting, windows, plumbing, and irrigation, as well as the installation of solar PV. In October 2015, the Board of Supervisors approved new PACE programs for operations in the county to expand finance opportunities for property owners. Commercial PACE in the county is provided by FigTree Energy Company and Ygrene Works. Residential PACE providers include Open PACE, Ygrene Works, FigTree, and HERO. As of October 9, no energy efficiency retrofits in the county had been completed using PACE funding. County staff in the **County Administrator's Office continues** to coordinate and promote these programs.
- **Community Choice Aggregation:** To continue to promote energy savings and provide opportunities for homes and businesses to reduce energy costs, the County is evaluating options to create or participate in a community choice aggregation (CCA) program. A CCA program allows a government or group of governments (through a JPA) to procure wholesale electricity and provide it to residents in the governing region. This creates the potential for the CCA to provide an increased amount of renewable energy at competitive or lower service rates, compared to the existing power provider. In this scenario, PG&E would still provide transmission and distribution of energy, and would still be the owner of the grid infrastructure. In the Board of Supervisors meeting on August 25, County staff presented the idea of the CCA to gauge the **Board's** interest level. The Board spoke favorably of the concept and requested more information. County staff will provide additional details on CCA to the Board in January.
- **CivicSpark:** The County submitted a proposal with the City of Chico to obtain a shared AmeriCorps **fellow through Governor Brown's CivicSpark** program. The task of the CivicSpark member would be to assist with CAP implementation. Specifically, this fellow would help develop a transportation demand management (TDM) program for unincorporated Butte County, as established by CAP measure T1. This would involve developing a voluntary program for small and large businesses in the County concerning alternative transportation options, and providing literature and outreach to businesses. The program provides a low-cost opportunity to provide additional staff resources and expertise to the County.
- **Solid Waste Diversion:** Following CalRecycle guidance, Butte County is currently achieving a waste disposal rate of 4.12 pounds per person per day, equivalent to a waste diversion rate of 58% for the unincorporated county. This level of attainment represents progress toward the 2020 goal

of 75% waste diversion established in CAP measure W2. Butte County is working with waste haulers and third-party processors to incorporate organics recycling mandated by AB 1826. The County is also investigating acquiring additional property to establish an aerobic composting operation for organic waste.

- **Government Operations Efficiency:** Butte County has completed key strategic steps toward improving energy efficiency and reducing utility costs at government buildings. The General Services Department has conducted energy audits of facilities to identify inefficiencies and potential retrofit opportunities. The FY 2015–2016 budget includes funds to complete a number of projects recommended by the audits, including \$275,000 for lighting and roofing upgrades. The County is currently waiting until mid to late November for PG&E lighting rebates to be released. Once specifics about the types of rebates PG&E will offer for lighting are announced, the County will develop a scope of work to maximize cost and energy savings. Approval of a scope of work for lighting upgrades is expected in December 2015 or January 2016.

Since adoption of the CAP, the County has retrofitted 36,000 square feet of existing County **buildings, achieving nearly 12% of the County's goal to retrofit 300,000 square feet of government** buildings by 2020. Retrofits reduce energy use and save on utility costs, while improving operations and the comfort of County facilities and fulfilling maintenance needs. Retrofits since CAP adoption include a roofing and HVAC project, along with installation of an energy management system at a County facility for better climate control. The County recently issued a notice to proceed to replace a circa 1980 boiler at 25 Center County Drive, which is expected to be 30% more efficient than the old version. A 2015 upgrade to a groundwater pump at the Butte County Fairgrounds is expected to save 2.5 million gallons of water per year. Butte County has also built the new Chico Public Works Yard to CALGreen Tier 1 standards, providing an above-code level of efficiency. The County is in the process of completing construction of the new Hall of Records facility, including attainment of CALGreen Tier 1 standards. The notice of completion for this project is expected to be issued on November 20, 2015. When complete, the County will achieve over 75% of its target to construct 60,000 square feet of new County facilities to CALGreen Tier 1 standards by 2020.

CONCLUSION AND NEXT STEPS

Since the adoption of the CAP in 2014, County staff has succeeded with the implementation of several CAP measures and programs that are achieving reductions in GHG emissions. The County has achieved notable progress with voluntary solar PV installations, implementation of energy programs, and cost savings with energy improvements at municipal facilities. The County has also attained two highly competitive grants from the Strategic Growth Council for implementation of priority CAP measures. The County and Michael Baker will consolidate progress updates to analyze overall progress toward CAP targets in the forthcoming annual report.

Quarterly CAP progress reports provide a concise summary of ongoing efforts to reduce GHG emissions and support reductions. Tracking changes over time also provides flexibility to County staff, identifying early successes that could support or offset other measures that prove challenging to implement or less effective than anticipated. Quarterly reports will also demonstrate County leadership and continue to support cross-departmental collaboration in implementing GHG reduction strategies. Once each year, County and consultant staff will prepare an annual report that estimates the current GHG emission levels based on measure implementation and community-wide activity.

Annual reports will provide a more comprehensive summary on progress made toward the GHG reduction target in the adopted CAP. Following submission of the first annual report in early 2016, the County will transition from interim quarterly reports to preparation of two reports each calendar year. Reports will include a mid-year report on CAP progress and the annual progress report.

Phase I Actions

Phase I of the CAP contains a total of 55 actions. The City recognizes that several factors, including technology maturity and implementation challenges, may cause actual reductions from individual actions to be higher or lower than estimated. The inclusion of many different actions in the CAP will help ensure that the 2020 target is achieved.

Quantified Actions and Non-quantified Actions

The CAP estimates the GHG emissions reduction potential for 40 of the Phase I actions, known as “quantified actions”. Documentation of how the GHG emission reduction estimates for the Phase I quantified actions were calculated is provided in **Appendix D** and the emissions factors used in the calculations are in **Appendix C**. The remaining “non-quantified actions” will also contribute to reaching the overall CAP reduction target, but their emissions reduction potential was not estimated for various reasons. Generally, either their GHG reduction potential could not be estimated at the time of Plan preparation or the action would reduce emissions for activities that were not measured by the baseline GHG Inventory. For those that could not be estimated for the CAP release, the omission was due to either: 1) insufficient data, such as unknown quantities of the units of measurements, to quantify GHG reduction potential, or 2) no reliable quantification methodology at present time to calculate these reductions. The City’s high standard for quantification methodologies may have resulted in the exclusion of some emissions reductions, but the standard reflects the City’s desire to not over estimate the reduction potential of the CAP actions. In the future, if reliable data or quantification methods are available, the City will include the reduction estimates.

As mentioned above, the emissions reduction potential of certain actions was also not quantified because those activities were not measured in the baseline GHG Inventory. These reductions, therefore, are not counted toward meeting the City’s 2020 emissions reduction target, but remain in the CAP in recognition of their overall contribution to reducing GHG emissions and climate change.

As indicated in Chapter 2, the City also identified and estimated the potential GHG emission reductions that may be achieved within the Chico area as a result of the implementation of the AB32 Scoping Plan. The following actions were quantified and accounted for in this CAP because they most directly impact the Chico area, and have the potential to reduce emissions from activities that were measured in the baseline GHG Inventory:

1. Manufacture of more efficient vehicles (Pavley I and II and)
2. 33% renewable energy portfolio requirement for utilities by 2020 (RPS)
3. Low Carbon Fuel Standard

These external actions are estimated to reduce **84,874 MtCO_{2e}** from the Business as Usual emissions scenario by the end of Phase I with additional reductions expected during Phase II (see **Appendix F** for more details on how these actions were quantified).

Detailed Cost-Benefit Analysis of City-Implemented Actions

The City conducted an in-depth cost-benefit analysis on most of the actions to be implemented by the City in Phase I, taking into account the exact costs and circumstances surrounding those actions. The results, further explained and summarized in **Appendix E**, show a net present value (costs and savings over the action lifetime, in current dollars) of over \$4 million in savings. As an example, the City’s installation of LED streetlights is estimated to result in an annual savings of \$73,796 to the City, and would represent a net savings of over \$593,000 over the LED project 25-year lifetime.

Tables 3.1 thru **3.5** throughout this chapter list and summarize the Phase I actions that will be taken by the City and members of the community (local actions), or by other government agencies (external actions) in each sector: Transportation, Energy, and Solid Waste. The total estimated GHG emissions reduction from all of the Phase I actions, by sector, by implementer and collectively, is shown in **Table 3.1** below.

Summary of Phase I Emissions Reductions

TABLE 3.1

SECTOR	Total Identified Phase I Estimated Emissions Reductions (MtCO ₂ e)		
	City of Chico	Greater Community	Total
TRANSPORTATION ACTIONS	384	22,286	22,670
ENERGY ACTIONS	2,391	52,780	55,171
SOLID WASTE ACTIONS	63	203	266
COMMUNITY OUTREACH		542	542
TOTAL LOCAL ACTION REDUCTIONS:	2,838	75,811	78,649
TOTAL EXTERNAL ACTIONS REDUCTIONS:		84,874	84,874
		TOTAL ESTIMATED PHASE I REDUCTIONS:	163,523
		PHASE I TARGET REDUCTION GOAL:	165,820

Transportation Sector Actions

The baseline GHG Inventory identified transportation as the largest source of locally generated greenhouse gas emissions. It is also one of the most difficult sources of emissions to reduce because it can involve the installation of costly infrastructure as well as require a change in long established auto-related habits. If parking remains abundant and traffic is not congested, vehicle travel will continue to be a convenient option. Achieving the 2020 reduction target will, therefore, require significant changes

to the transportation system in and around Chico. To reduce emissions in the transportation sector, changes need to occur in three areas: reducing vehicle miles traveled, improving vehicle efficiencies, and increasing the use of lower emission fuels. Phase I of the Climate Action Plan includes actions to capitalize on improvements in vehicle efficiency and public transportation, the use of alternative fuels, and strategies to decrease the amount of vehicle miles traveled.

Transportation Objective 1: Reduce Vehicle Miles Traveled

1.1 Car Share Programs: Car sharing programs like “Zip Car” allow participants to reserve vehicles online for a low hourly rate. Although users are still using vehicles, it has been found that car sharing can impact the travel behavior of its members. Once members give up their personal cars, the car is no longer the default mode of travel and is therefore used less than a personally owned vehicle. Additionally, car share vehicles are often newer, more efficient models or hybrid vehicles. In 2009, CSU, Chico implemented the “Zip Car” program in which five fuel efficient cars are available to students, faculty and staff 24 hours a day, seven days a week. It is estimated that **1,856 MtCO_{2e}** of GHG emissions will be reduced from this effort by 2015.

1.2 Optimization of City Fleet: In 2009, the City underwent a fleet optimization effort in which the City analyzed its fleet needs and removed unnecessary vehicles and equipment from its inventory. The City also revised its vehicle use policy to reduce the amount of take-home vehicles by City staff. Vehicles driven home are now limited to only those living within the Chico area and are only allowed upon approval of the City Manager on an annual basis. The number of take-home vehicles was reduced from over 35 vehicles down to approximately 12. The City’s new take home vehicle policy and its other fleet optimization efforts has resulted in an annual fuel savings of 32,731 gallons, which is estimated to reduce GHG emissions by **308 MtCO_{2e}** per year.



1.3 Subsidize Employee Bus Ridership: The City and Butte County Association of Governments (BCAG), who administers the Butte Regional Transit System (B-Line), established a program to subsidize transit passes for employers and employees who work or live within the Central Business District of Chico. Bus passes are also provided to City of Chico employees and CSU, Chico staff and students. This action will continue this practice and will expand public education and promotion efforts to increase the use of the program by more downtown employers, employees, and students. An estimated **4,308 MtCO_{2e}** of GHG emissions will be reduced from this Phase I action.



- 1.4 Flexible Work Schedules:** In 2008, the City of Chico instituted a 9-80 flexible work schedule in which employees may choose to work nine 9-hour days with one day off over a two-week work period. This one day less of commuting by the current employees on a flex schedule results in an estimated GHG emissions reduction of **23 MtCO_{2e}** annually. This action will also include encouraging other Chico employers to consider establishing flex schedules within the work place.
- 1.5 City Travel Demand Management Plan:** Develop and implement a Travel Demand Management Plan that provides incentives for City employees to commute in modes other than single-occupant vehicles. An estimate of the GHG emissions that would be reduced by this action was not quantified because it is unknown at this time how many employees will participate (CIRC-9.1.1).
- 1.6 Carpooling Program:** A core component of this action will be to consider developing or subscribing to a web-based carpooling website, such as “Ride-Share” or “Zimride”, where people with similar commutes can find each other and create effective car pools. In addition to the ZipCar program, CSU, Chico also participates in the Zimride carpool program. The City will work with BCAG and other relevant agencies to further facilitate ridesharing in the community. Additionally, the City will pursue options to provide shade, weather protection, seating, lighting, and bike racks at carpool pick up areas to facilitate resident participation in casual carpools. The City will also explore the need for additional ride share stations. It is estimated that **288 MtCO_{2e}** of GHG emissions will be reduced from this action.
- 1.7 Employer Vehicle Trip Reduction Programs:** Through education and outreach, encourage existing employers to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, and preferential parking for carpools/vanpools to reduce vehicle miles traveled. Also, consistent with the General Plan, require new non-residential projects that employ more than 100 people to submit a Travel Demand Management Plan that identifies strategies, including, but not limited to transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, to reduce single-occupancy vehicle trips. The estimated GHG emissions reduction for this action was not quantified because this is primarily an educational campaign and it is unknown at this time how many employers and employees may participate in a trip reduction program (CIRC-9.1.2, CIRC-9.1.3).
- 1.8 Expanded and Improved Bus Service:** In 2009/10, the Butte County Association of Governments conducted a Market Based Transit Study of the Butte Regional Transit System (B-Line) to determine user needs and to improve transit productivity. Based on the study’s recommendations, regional and Chico routes were adjusted to improve on-time performance and to establish an express bus route providing service to Chico from the south end of the town, through the major points of destination every 15 minutes. Changes in hours of route operations, and identification of additional transfer locations were also achieved. Comparing ridership in a calendar month before and after the improvements (November 2009 to November 2011) reveals that

B-Line ridership in Chico has increased approximately 9% and that the increasing ridership trend is continuing. It was estimated that this increase bus ridership decreased annual GHG emissions by **4,846 MtCO_{2e}**.

- 1.9 Regional Transportation Planning:** SB375 requires Metropolitan Planning Organizations like Butte County Association of Governments (BCAG) to create a Sustainable Communities Strategy (SCS) in their regional transportation plans to reduce greenhouse gas emissions from passenger vehicle trips. The SCS aims to more closely coordinate land use and transportation planning and includes strategies to reduce vehicle miles traveled and therefore greenhouse gas emissions. The City and the Transportation Ad-Hoc Committee of the Sustainability Task Force will work with local and regional planning organizations, such as BCAG, to develop and implement long-term community transportation strategies.

Although SB 375 is expected to reduce vehicle miles traveled (VMT) and transportation-related emissions, this action is not separately quantified due to the overlap with the current transportation, land use, and transit-oriented development actions already included in the CAP. For instance, Chico's recently adopted 2030 General Plan directs infill, mixed-use, and compact urban development, promotes thoughtful urban design, and details multimodal circulation enhancements community-wide, making it a critical component of BCAG's SCS.

1.10 Sustainable Policy and Regulatory Framework:

As mentioned in Chapter 1, the 2030 General Plan, adopted in April 2011, reinforces the City's compact urban form. Future development projects must be consistent with the General Plan, which guides infill and mixed-use development to areas contiguous to existing development, so it may be efficiently served by the extension of infrastructure and municipal services. The Plan further emphasizes a balanced, multimodal circulation system that is efficient and safe, connecting neighborhoods to jobs, shopping, schools, services, local attractions, and open space. Implementation of the 2030 General Plan policy

framework, and the supporting comprehensive update of development standards in the City's Municipal Code, will result in increased densities and thoughtful mixed-use layouts that support the use of alternate modes of transportation, and therefore reduced VMT and GHG emissions.

As part of the General Plan EIR, a 4Ds (density, diversity, design, destination) analysis was performed comparing buildout of the 2030 General Plan Land Use Diagram to buildout of the 1994 General Plan Land Use Diagram (business as usual). The analysis showed that the 1994 General Plan Alternative had a VMT per household of 64 miles, while the 2030 General Plan Land Use Alternative had a VMT per household of 56 miles (11 percent reduction). The analysis concluded that this significant reduction is due to the 2030 General Plan Land Use Alternative being considerably denser, more diverse, having better pedestrian design, and having better access to regional destinations when compared to the 1994 General Plan. This action, which includes the following sub-actions, is estimated to reduce GHG emissions by **7,754 MtCO_{2e}** by 2015.

1.10.1 Tiered City Fee Structure: The City will update and adopt a tiered development fee program that varies fees by development type and location in recognition of the different impacts that various types of development have on City services, infrastructure costs and efforts to reduce GHG emissions. This will be another incentive for infill development for which GHG emissions reductions were quantified elsewhere. (LU-4.1.2)

1.10.2 Pedestrian Connections for New Development: The City will amend the Municipal Code to require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major adjacent destinations such as transit stops, schools, parks, shopping centers, and jobs.

1.11 Expand and Enhance Bicycling and Pedestrian Infrastructure: Bike racks are essential to encourage bicycle ridership for commuting and daily shopping and errands. The City will identify commercial and public areas that lack appropriate levels of bicycle parking and install the needed facilities, as funding is available. The City also requires the provision of adequate bicycle parking for tenants, employees, and customers in new residential and non-residential development. To avoid double counting of GHG emissions reductions, the GHG reductions that may be attributed to this action is included in Action 1.10- “Sustainable Policy and Regulatory Framework” above .

1.12 “Complete Streets” Policy: As indicated in the 2030 General Plan, the City has a “complete streets” policy to facilitate all modes of travel (public transit, cars, bicyclists, pedestrians) as safely as possible on new, and as funding allows on existing streets. This action will help improve pedestrian infrastructure, such as ensuring that sidewalks are continuous and complete, and improving the Americans with Disabilities Act (ADA) access at intersections (CIRC-2.1.1). The GHG emissions reductions that could be attributed to this action are included in Action 1.10 above.

1.13 Corridor Management Measures & Traffic Calming: The City has an ongoing program of modifying major road corridors to enhance traffic flow and to reduce congestion and vehicle idling. Modifications include, but are not limited to, synchronization and optimization of signal timing, multi-modal roadway enhancements, intersection capacity improvements, and roundabouts. Since the 2005 base year, the following corridors have been enhanced:

- East Avenue/Manzanita/Bruce Road from Nord Avenue to SR 32,
- W. 8th Avenue between Nord and Esplanade,
- E. 5th Avenue between Esplanade and SR 99,
- Mangrove Avenue between SR 99 to E. 1st Ave,
- E. 1st Avenue between Esplanade and Downing Avenue.

As a result of the flow management enhancements, City Engineering staff estimates a reduction in vehicle emissions along these corridors of between 10 and 20 percent. In addition, the City continues to implement traffic calming measures such as landscape medians and street corner bulbouts to improve pedestrian safety and to reduce greenhouse gas emissions by lowering traffic speeds and improving the pedestrian and bicycle environment. Where practical and cost-effective, the City will continue to implement traffic calming and corridor flow management measures, such as evaluating the use of stop signs where not necessary for safety, along existing roadways and in new development. The GHG emissions reductions for this action has not been quantified as it relates to other transportation related actions.



Hwy 99 Corridor Bikeway Project

The City’s award-winning Hwy 99 Bikeway Project consists of a 7-mile long contiguous bike path generally paralleling State Route 99. The project is being developed in two phases. Phase I was completed in 2011, and Phase II should be finished within three years. The bikeway commences at Eaton Road and traverses south to Southgate Avenue across a combination of Class I and Class II/III facilities, as well as bike bridges over creeks.

1.14 New Bike Paths: As funding allows and where feasible, the City will continue to enhance the existing network of bike paths, and require new bike paths as part of conditions for new development. Examples of new bike path opportunities are the recently constructed Hwy 99 Corridor Bikeway Project and the proposed 1st Street/2nd Street Couplet project (see side bars). The construction of these two projects alone is estimated to reduce GHG emissions by **1,455 MtCO_{2e}** annually.

This action also includes the City updating its Bike Master Plan to include connections, crossings, and standards to support the new General Plan Land Use Diagram, enhance bicycle and pedestrian circulation community-wide, support safe routes to schools, and reduce reliance on the automobile

1.15 Pursue A Solid Waste Franchise System:

Currently, the City has a solid waste permit system in which two waste haulers are allowed to provide waste service, curbside recycling, and yard waste recycling to Chico residents and businesses. Because the customer has a choice between either of these two haulers, six heavy diesel-powered solid waste vehicles can potentially traverse any given street in Chico every week. This action proposes to reduce vehicle miles traveled by establishing waste zones for residential collection services in which each hauler will be assigned a given area to serve, resulting in an estimated **683 MtCO_{2e}** of GHG emissions reduced each year.

1.16 Safe Routes to Schools: A large number of children are driven to school each day in private automobiles. The City will ensure that essential infrastructure improvements are made to enable safe routes to schools to promote students' walking and bicycling. The City will also work with schools to create trip reduction programs that encourage walking, bicycling, carpooling, and public transit use. Specific attention will be placed on expanding the walking school bus programs throughout the community, where children walk to school in adult supervised and school coordinated groups. An estimate of the GHG emissions that would be reduced

by this action was not quantified because it is unknown at this time how many students are affected by the safe routes to schools projects. This action will be monitored and the GHG emissions will be quantified as each "safe routes to schools" project is implemented.

1.17 Comprehensive Update of City Parking Standards:

Policies in the General Plan direct amendments to the City's parking standards. Through the Title 19 Municipal Code Update, the City will adopt new parking standards for parking areas that facilitate carpooling and alternative transportation. New standards may include:

- Providing reserved preferential parking spaces for motorcycles, car-share, carpool, and ultra-low or zero emission vehicles.
- Minimum and maximum parking requirements that reduce surface parking area and ensure areas are not over-parked based on development intensity, proximity to transit, and availability of nearby on-street parking and parking facilities.
- Promoting shared parking among different land uses, where feasible.
- Requiring covered and uncovered bicycle parking at higher ratios.
- Providing employee facilities to support alternative modes of transportation, including showers and lockers.
- Providing convenient pedestrian pathways through parking areas.

An estimate of the GHG emissions that would be reduced by this action was not quantified, but will be monitored and determined during Phase I.

1.18 Anti-idling Policies: The City will enforce its policy to limit the idling time of City vehicles and equipment and, where applicable, will encourage other public and private entities, such as UPS and FedEx, to follow state mandates to reduce idling.

Transportation Objective 2: Expand the Use of Alternative Fuels

- 2.1 Community Use of Biodiesel:** Biodiesel is alternative diesel fuel derived from biological sources (such as vegetable waste oils or tallow), which can be used in unmodified diesel-engine vehicles. Most commonly, these fuels are used in a blend with petroleum diesel. Some local residents and businesses are already using biodiesel fuel when it is available, and many others express interest. The GHG emissions that have been reduced by the local use of biodiesel is estimated at **11 MtCO_{2e}**.
- 2.2 Hybrid Vehicles:** Hybrids emit 80% fewer harmful pollutants and greenhouse gases than comparable gasoline cars.⁴⁵ This action would expand upon the City's current efforts to replace traditional gas and diesel vehicles with hybrid or electric vehicles when a fleet vehicle is due for replacement. This action sets the goal to replace City vehicles, where applicable, with alternative fuel or hybrid technology by 2015. The City also attempted to identify the number of hybrids purchased by members of the Chico community. Using the CAPP software, the City estimates that replacing 266 vehicles with hybrids communitywide would decrease greenhouse gas emissions by **875 MtCO_{2e}** annually.
- 2.3 Electric Vehicles:** The City of Chico has several electric vehicles that it uses at its wastewater treatment plant and fleet maintenance yard. The City will be exploring the feasibility of using more electric vehicles for City operations, such as for Parks maintenance crews and as pool cars for employees. In addition during Phase I, the City will, to the best of its ability, quantify and account for GHG emission reductions achieved from the purchase of electric vehicles by local residents and businesses from 2005-2015. This action is estimated to reduce the GHG emissions by **74 MtCO_{2e}**.



- 2.4 Electric Vehicle Charging Stations:** In order for the City and the community to purchase more electric vehicles, it is imperative that electric charging stations be located in convenient and accessible locations throughout Chico. As called for by the 2030 General Plan and the update of Title 19 of the Municipal Code, the City will consider installing electric vehicle charging stations at City facilities and in municipal parking lots, and will encourage the installing of stations by businesses and large employers. This action is estimated to reduce the GHG emissions by **3 MtCO_{2e}**.
- 2.5 Compressed Natural Gas (CNG) Conversion:** Natural gas is a clean-burning alternative to gasoline or diesel for municipal and private fleet vehicles. While natural gas is a fossil fuel, it has lower carbon emissions per unit of energy than gasoline or diesel. Since the 2005 base year, the Butte Regional Transit System (B-Line) has been converting its regional and local buses to use CNG. The City will also consider the purchase of CNG vehicles and equipment where feasible. This action is estimated to reduce annual GHG emissions by **186 MtCO_{2e}**.

The following **Table 3.2** lists each Phase I Transportation Sector action, identifies the anticipated implementer (City of Chico or the greater community), and provides the estimated annual GHG emissions reduction (if available).

Phase I: Transportation Sector Actions

TABLE 3.2

		Implementor		Estimated Emissions Reductions (MtCO ₂ e)		
		City of Chico	Greater Community	City of Chico	Greater Community	Total Reduction
Objective 1: Reduce Vehicle Miles Traveled						
1.1	Promote Car Share Programs		x	TBD	1,856	1,856
1.2	City Fleet Optimization	x		308		308
1.3	Subsidize Employee Bus Ridership	x	x		4,308	4,308
1.4	Flexible Work Schedules	x	x	23		23
1.5	City Travel Demand Mgmt Plan	x		TBD		TBD
1.6	Carpooling Program		x		288	288
1.7	Employer Trip Reduction Programs	x	x		TBD	TBD
1.8	Expand/Improved Bus Service		x		4,846	4,846
1.9	Regional Transportation Planning	x		TBD		0
1.10	Sust. Policy/Regulatory Framework including:	x			7,754	7,754
	Tiered City Fee Structure	x				incl. in 1.10
	Pedestrian Connections for New Development	x				incl. in 1.10
1.11	Expand Bicycling/Pedestrian Infrastructure	x	x			incl. in 1.10
1.12	Complete Streets Policy	x				incl. in 1.10
1.13	Corridor Management/Traffic Calming	x		TBD	TBD	TBD
1.14	New Bike Paths	x	x	TBD	1,455	1,455
1.15	Solid Waste Franchise System	x		TBD	683	683
1.16	Safe Routes to Schools	x	x	TBD	TBD	TBD
1.17	Update of City Parking Standards	x			TBD	TBD
Objective 2: Expand Use of Alternative Fuels						
2.1	Community Use of Biodiesel (B20)		x		11	11
2.2	Hybrid Vehicles	x	x	53	822	875
2.3	Electric Vehicles		x		74	74
2.3	Electric Vehicle Charging Stations	x	x		3	3
2.5	Compressed Natural Gas (CNG) Conversion:		x		186	186
TOTALS:				384	22,286	22,670

TBD: To be determined as part of the annual monitoring and evaluation of the implementation of the actions.

Phase II Actions

The CAP includes 27 Phase II actions described below and depicted in Tables 4.2 through 4.5 for each sector: Transportation, Energy, and Solid Waste.

There are fewer actions in Phase II than Phase I because many of the Phase I actions will still reduce emissions during Phase II and because the list of Phase II actions will be reviewed and likely expanded before Phase II begins. For many of the reasons stated above, the GHG emissions reductions for these potential actions have not been quantified at this time, but will be estimated if and when chosen for implementation during Phase II.

Transportation Sector Actions

OBJECTIVE 1: REDUCE VEHICLE MILES TRAVELED

1.1 Require Large Employers to Provide Facilities to Encourage Bicycle Commuting: A large barrier to cycling as a means of commuting to work is a lack of facilities for changing into work clothes and protecting bicycles from the rain. Shower facilities encourage people who live further away to cycle to work. Covered and indoor bicycle parking increase security and prevent bikes from getting wet during the winter. The new action will establish a standard for large employers to provide showers and covered bicycle storage facilities where feasible.

1.2 Design Guidelines Manual Update: With direction from the 2030 General Plan, the City will amend its Design Guidelines Manual to address residential infill conflicts, detail how to incorporate passive solar design into buildings, and include provisions for remaking older auto-centric transit corridors as pedestrian-friendly, multi-modal seams within the community. Renewed corridors support infill and redevelopment, and promote non-auto transportation modes. Passive solar design solutions support energy efficiency and renewable energy. The reductions from this action are not quantified to avoid possible double-counting with other quantified actions related to infill development and solar photovoltaic installations.

1.3 Residential Transportation Education and Challenge: The City will partner with BCAG to expand its public education and outreach campaigns to encourage residents to use alternative transportation and reduce their individual annual vehicle miles traveled by 8%. The amount of GHG emissions reductions from this challenge will be determined in the future based on the number of participants who obtain this goal and the vehicle miles saved.



OBJECTIVE 2: EXPAND THE USE OF ALTERNATIVE FUELS

2.1 Preferential Street Parking for Alternative fueled vehicles: The City will provide preferential parking spaces for car share, carpool, and ultra-low or zero emission vehicles such as electric vehicles that will encourage residents to carpool or purchase low or zero emission vehicles. Preferential street parking spaces for eligible vehicle types will be located throughout the community’s commercial districts.

2.2 Use of Biodiesel: Biodiesel is alternative diesel fuel derived from biological sources, which can be used in unmodified diesel-engine vehicles. If readily available locally and if it does not impact local food resources, the City will convert a portion of its fleet to use B20 biodiesel (80% diesel/20% biodiesel),

2.3 Expand Conversions to Compressed or Liquid Natural Gas (CNG or LNG) or Propane: The City will continue to pursue converting the City’s equipment and vehicles to those that use CNG, LNG or propane where possible. The City will also continue to encourage BCAG, the solid waste haulers, and other local diesel fleets to consider converting their vehicles to CNG or LNG where feasible.

2.4 Encourage Alternative Fuel Stations in Certain New Development: The City will require that master plans and planned developments projects in new growth areas include the siting of alternative fueling stations and electrical vehicle charging stations.

The following **Table 4.2** lists potential Phase II Transportation Sector actions, identifies the anticipated implementer (City of Chico or the greater community), and provides the unit of measurement and emission factors that will be used to calculate the annual 2020 GHG emissions reductions for each action (if available).

Phase II Transportation Sector Actions

TABLE 4.2

		Implementor		GHG Emissions Estimates	
		City of Chico	Greater Community	Unit of Measurement	Emission Reduction/ Unit (MtCO2e)
Objective 1: Reduce Vehicle Miles Traveled					
1.1	Large Employer Bicycle Facility Requirement	x	x	TBD	TBD
1.2	Design Guidelines Manual Update	x		TBD	TBD
1.3	Residential Transportation Education/Challenge	x		# residents @ 8% VMT reduced	0.00941
Objective 3: Expand Use of Alternative Fuels					
2.1	Preferential Parking for Alternative Fuel Vehicles	x	x	TBD	TBD
2.2	Use of Biodiesel (B20)	x	x	# vehicles converted	1.36
2.3	Expand Vehicle Conversion to CNG/LNG/Propane	x	x	# vehicles converted	15.5
2.4	Encourage Alter. Fuel Station in New Development	x	x	# of stations installed	1.697