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Emissions Reduction Plan for County Operations

PREPARED BY:

NAPA COUNTY DEPARTMENT OF PUBLIC WORKS

AND

KENWOOD ENERGY

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Emissions Reduction Plan for County Operations

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GHG EMISSIONS FROM COUNTY OPERATIONS STEM FROM THREE BASIC CATEGORIES:

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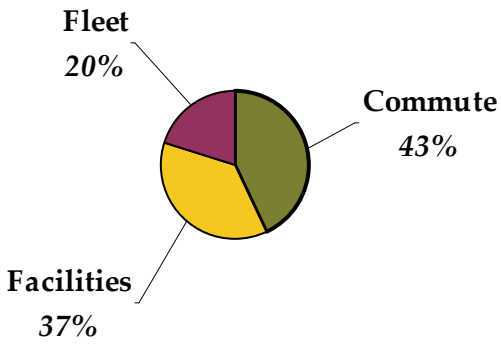
EXECUTIVE SUMMARY

The California Air Resources Board's (CARB) Scoping Plan for the California Global Warming Solutions Act of 2006 (AB 32) states that local government should reduce greenhouse gas (GHG) emissions from their own operations by 15% below current levels by 2020 in order to support meeting AB 32 targets. Although County operations represent less than one percent (<1.0%) of county emissions as a whole, the County recognizes its role as a leader in this effort and has prepared this plan accordingly.

Most local governments who have completed a GHG emissions inventory have used 2005 as their base year due to the availability of good data, and Napa County has done the same. The County has calculated its emission goal to be 6,907 equivalent tons (eTons) of carbon emissions based upon a 15% reduction below the 2005 baseline of 7,940 eTons. The County will need to set a reduction target of 1,385 GHG eTons based upon the calendar year 2007 GHG actual emissions level and additional GHG caused by the Parking Structure. In addition to this required reduction, the county will need to employ appropriate measures to assure no-net-increase in GHG emissions from any future growth and/or expansion of programs/activities.

Emissions from County facilities are the result of natural gas used and the production of electricity used to heat/cool/light County facilities and to operate the office equipment necessary to administer County operations. Fleet emissions result from the gas, diesel and oil consumption by County owned and operated vehicles and equipment and from personal vehicles used for County business. Employee commute emissions are comprised solely of the fuel consumed in the daily commute of County employees to and from work.

SUMMARY OF GREENHOUSE GAS EMISSIONS	GREENHOUSE GAS EMISSIONS (etons)
2005 Baseline	7940
2007 Calculated Emissions Plus Emissions from Garage	8292
Greenhouse Gas Reduction Goal (15% reduction from 2005)	**6907**
Greenhouse Gas Reduction Target	**1385**



GREENHOUSE GAS EMISSIONS BY CATEGORY (2007)

EMISSION DISTRIBUTION

Emissions from County facilities are the result of natural gas used and the production of electricity used to heat/cool/light County facilities and to operate the office equipment necessary to administer County operations. Fleet emissions result from the gas, diesel and oil consumption by County owned and operated vehicles and equipment and from personal vehicles used for County business. Employee commute emissions are comprised solely of the fuel consumed in the daily commute of County employees to and from work.

The chart above indicates that 63% of our GHG in 2007 resulted from mobile sources (employee commute and County fleet) while 37% came from stationary sources (County facilities). This distribution differs from analysis previously shared with the Board which pointed toward an even distribution between mobile and stationary sources. This revision has been made based upon a recommendation from the California Air Resources Board (CARB) to utilize an emission conversion coefficient specific to Pacific Gas & Electric that results in a reduced impact upon GHG emissions from the use of electricity.

As of this writing, the information presented herein has not been updated to reflect 2008 data due to the relative unavailability of timely information. Two tools have been developed by ICLEI – Local Governments for Sustainability USA that have just become available to local governments in their efforts to collect, calculate, track GHG emissions. For the purposes of future updates, it is the intention to utilize these two tools. For our purposes in preparing this document it was determined that the present baseline data through 2007 provided sufficient information to develop the proposed Emission Reduction Plan for County Operations

GOALS

GOAL #1:

Reduce impact on the environment directly attributable to County building and facility use by implementing improvements to existing County buildings and facilities that reduce energy demand, incorporate energy reduction standards into all new County facility construction and, where practical, utilize the buildings and structures to host renewable energy production.

GOAL #2

Reduce the amount of GHG emissions directly attributable to work related employee travel by increasing the percentage of County Fleet vehicles that are classified as low emission vehicles and by encouraging Departments to use low emission fleet vehicles instead of employees' private automobile on County business.

GOAL #3

Reduce the amount of GHG emissions directly attributable to Napa County employees' commute by increasing employee transportation alternatives.

GUIDING POLICY CONSIDERATIONS

Longevity of Investment and Financial Return

This Emission Reduction Plan for County Operations makes recommendations for Facility and Fleet improvements where there is an overall positive Internal Rate of Return (IRR) and the Facilities are considered highly likely to remain in the County's long term real estate portfolio. The Plan analysis considers both the emissions reductions and the lifecycle cost to identify possible opportunities and actions. In many cases, there is a positive financial benefit when lifecycle costs are considered. The Net Present Value (NPV) is another commonly used financial evaluation tool which is used in our analysis.

Flexibility

The County is currently developing Facilities Master Plans that include the Downtown and Health and Human Services campuses in the project scope. The final outcome of these master planning efforts will be incorporated into the County Five-Year Capital Improvement Plan. It is understood that certain assumptions inherent to this Plan may need to be revisited depending on a host of variables including the continued availability of some County buildings to host photovoltaic systems (PV), design and construction standards for new County buildings and the efficacy of undertaking certain energy efficiency retrofits.

Continued Service to Public

Implementing GHG emission reduction strategies ought not reduce the public's ability to obtain services from the County, nor cause a net reduction in the County's ability to provide these services. While some measures may require adjustments to County operations, the ability to provide services in the aggregate should not be affected by the County's introduction of programs aimed at reducing GHG emissions.

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EMISSION REDUCTIONS AND FINANCIAL IMPLICATIONS FROM PHOTOVOLTAIC AND ENERGY EFFICIENCY PROJECTS

PROJECT TYPE	E-TONS	TARGET	% OF TARGET	INTERNAL RATE OF RETURN	NET PRESENT VALUE
Photovoltaic	417	1384.9	33.9	7.90%	$1,801,880
Energy Efficiency	267	1384.9	19.3	15.50%	$512,153
Totals	684		53.2		

Completion of the Facilities Master Plans for the Downtown and Health and Human Services campuses is critical to determining how the County will meet this component of its GHG reduction goals. The County will consider options as diverse as retrofitting existing facilities to accommodate continued use, to the replacement of facilities with the addition of significant square footage. The Master Plans, and how they are implemented, could either reduce GHGs or significantly increase GHGs depending upon the standards employed for building design and construction.

Omitted from the analysis of energy efficiency and renewable generation opportunities discussed above, are potential opportunities available at four facilities that may be slated for replacement or identified as disposable properties. The Carithers Building, the Hall of Justice (HOJ) Facility, the Health and Human Services (HHS) Campus, and the 650 Imperial Way property all have potential for energy savings and renewable generation. Table Three shows the *potential* GHG reductions for each of the buildings, if these buildings are to be retained and energy reduction improvements undertaken. These emission reductions would be in addition to the reductions outlined in the previous discussion.

The replacement of County facilities subject to the Downtown and Health and Human Services campuses Facilities Master Plans with new construction could result in either an increase or decrease in GHG emissions, depending upon the construction standards that are used. The County has the option of constructing facilities that meet the minimum energy and environmental requirements as outlined by California's Title 24, or constructing to Leadership in Energy and Environmental Design (LEED) Gold standard. Constructing new facilities to Title 24 standards is estimated to result in increases in the County's GHG footprint, while constructing to the LEED Gold standard can result in a decrease in emissions. Financial modeling run against the Title 24 versus LEED standards suggest a positive IRR return from the additional investment to build at a LEED Gold level.

A summary of recommended actions associated with Goal #1 is included in Appendix 1.

DISCUSSION ON GOAL #1, FACILITIES

As noted, in 2007, County facilities accounted for 37% of the total GHG emissions attributable to County operations. The Plan identifies an array of energy generation measures, including photovoltaic (PV) and energy efficiency measures, and analyzes the potential for these measures to provide positive impact toward GHG emission reduction.

Please refer to Appendix 2 for Details of each of the individual projects are included in Appendix 2.

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A summary of recommended actions associated with Goal #1 is included in Appendix 1.

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DISCUSSION ON GOAL #2, FLEET

Policy CON-79 of the General Plan's Conservation Element provides: "*The County shall ensure that all County vehicles conform with applicable emission standards at the time of purchase and throughout their use. To the extent feasible, the County shall purchase the lowest emitting vehicles commercially available to meet County vehicle needs*."

Through a program of replacing vehicles at their fully depreciated life cycle, it is anticipated that the Fleet composition will change from its present composition where twelve percent considered "green" (that is, hybrid, plug-in hybrids, or E85 vehicles) to sixty-nine percent by 2020.

The table that follows reflects the potential GHG emission reductions from implementing the Fleet modernization with a particular mix of low emission vehicles and on a schedule that is in keeping with the established vehicle depreciation and replacement cycle. No acceleration of depreciation or replacement for existing fleet vehicles was considered in this analysis.

DISCUSSION ON GOAL #3, EMPLOYEE COMMUTE

Reduction of GHG emissions caused by the employee commute is a key variable in achieving AB32 requirements. However, it may be the most difficult and expensive variable to quantify and implement, and provides the smallest return on investment. GHG reduction strategies in the commute segment entail reducing employee commute through a comprehensive program that changes commuter behavior.

Most of the available options focus on changing commuter behavior. From a fiscal perspective, there are no direct cost savings to the County for any strategy identified to reduce the amount of vehicle miles traveled by employees as part of their daily commutes. Therefore, the table below reflects the anticipated annual e-Ton reduction and not the IRR provided in the discussions above under Goals 1 and 2.

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Most of the available options focus on changing commuter behavior. From a fiscal perspective, there are no direct cost savings to the County for any strategy identified to reduce the amount of vehicle miles traveled by employees as part of their daily commutes. Therefore, Table seven below reflects the anticipated annual e-Ton reduction and not the IRR provided in the discussions above under Goals 1 and 2.

CHANGING COMMUTER BEHAVIOR

Based on a September 2008 survey, the percentage of County employees driving alone in their work week commute (Monday through Friday) averaged 82 percent. This compares to a countywide estimate of almost 73 percent. The County has articulated its intention through Objective CIR-2 in the Circulation Element to "*Work with the Napa County Transportation and Planning Agency and incorporated jurisdictions*

in Napa County to reduce the percentage of work trips that are by private single-occupant vehicles by 2030 such that Napa County's percentage decreases to 50 percent." On the plus side, it should be noted that nearly 70% of County employees live within Napa County, thus shortening their commutes.

Notwithstanding the stated objective, for the purposes of this analysis the emission reductions considered herein are based on the current distribution of County employees at County facilities and the assumption that a comprehensive program will result in conservatively 5% of all employees participating in some commute reduction program resulting in a 20% reduction in commute miles for the participating employees by 2020. The table above depicts the annual GHG emission reduction that could result from 5% of the employees nominally changing their commute habits.

Days of Operation

Staff research into the potential benefits of modifying the business days from the traditional five-day schedule to some form of a 4 day model to reduce employee commute miles was inconclusive. While the County Operations emissions may appear to benefit from many employees driving to work 20% fewer days, there is no way to accurately account for the off-day employee driving habits and as a consequence no recommendation is included in this Plan related to changes in the days of operations for County programs.

Potential reduction in greenhouse gas emiisions from changes in commte behavior

Program Name	Potential eTon Reduction	Target	% of Target	Internal Rate of Return	Net Present Value
Comprehensive Commuter Program (assumes 56 County employees affected by Program)	32	1386	2.3		

POTENTIAL ACTION TYPES :

ENERGY GENERATION—PHOTO VOLTAIC ON COUNTY FACILITIES

ENERGY EFFICIENCY—LEED GOLD STANDARD ON ALL NEW COUNTY CONSTRUCTION

FLEET MODERNIZATION—LOWEST EMISSION VEHICLE APPROPRIATE FOR END USE

SUMMARY OF RECOMMENDATIONS

The Plan has identified potential GHG reductions intended to bring the three principal sectors of County's operations closer to the target reduction to meet the requirements of AB32. These include:

- A combination of energy generation through installation of PV systems on current county facilities, energy efficiency projects and adoption of LEED Gold Standard which, if implemented to the fullest extent, could potentially enable the County to achieve 85% of its target GHG emission reduction.
- The estimated GHG emission reductions attributable to an aggressive modernization of the County's Fleet/Equipment Pool that requires acquisition of the lowest emission vehicles appropriate to the end use which can be expected to yield a 25% reduction in GHG emissions.

Changing the commute behavior of County employees through a Comprehensive Commute Program is expected to yield an additional 2% of Target reduction in GHG attributable to County Operations.

While not quantified, in addition to the activities outlined in this Plan, the County will further review its activities in many areas, including purchasing practices, business travel, equipment use, and solid waste reduction with the intention of exceeding the emission reduction targets set forth herein.

"LOCAL GOVERNMENTS ARE ESSENTIAL PARTNERS IN ACHIEVING CALIFORNIA'S GOALS TO REDUCE GREENHOUSE GAS EMISSIONS."

-AB32 SCOPING PLAN

INTRODUCTION

This Emission Reduction Plan for County Operations was developed by direction of the County Board of Supervisors with the following goals:

- Increase the County's understanding of its GHG footprint by refining the original GHG baseline;
- Establish a target GHG reduction based on policies established by the California Air Resources Board;
- Develop a list of GHG reduction actions that can be considered as part of the General Plan and Climate Protection Action Plan implementation;
- Evaluate the economics of the Actions; and
- Develop options under the Emission Reduction Plan for County Operations that can be presented to the Board for consideration and implementation.

BACKGROUND

California Governor Arnold Schwarzenegger has taken two legislative actions that address GHG reduction issues within the State of California. The Governor signed Executive Order S-3-05 on June 1, 2005, which established the first GHG reduction targets in California:

- Reduce GHG emissions to 2000 levels by 2010;
- Reduce GHG emissions to 1990 levels by 2020; and
- Reduce GHG emissions to 80% below 1990 levels by 2050.

On September 27, 2006, the Governor signed into law the California Global Warming Solutions Act of 2006 (AB32). AB32 sets into statute the Governors' 2020 goal of reducing emissions to 1990 levels. AB32 empowers the California Air Resources Board (CARB) to establish the rules and regulations required to implement AB32. AB32 requires the CARB to accomplish the following:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved, including provisions for using both market mechanisms and alternative compliance mechanisms;
- Convene an Environmental Justice Advisory Committee and an Economic and Technology advancement Advisory Committee to advise the CARB;
- Ensure public notice and opportunity for comment for all CARB actions; and
- Adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.

In March 2007, the Napa County Board of Supervisors directed staff to complete a Baseline Study analysis that evaluated emissions resulting from County operations. This study was the first step in the implementation of this Emission Reduction Plan for County Operations that will meet the local government requirements portion of AB32.

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On May 13, 2008, County staff presented to the Board of Supervisors the County of Napa Government Operations GHG Baseline Study. The baseline study provided information on the science and relationship between climate change and County operations as well as information on the methodology of the baseline study. In response to the Baseline Study, the Board directed staff to develop this Emission Reduction Plan for County Operations.

On June 3, 2008 the Board of Supervisors approved the adoption of the updated County General Plan. Both the Circulation and Conservation Elements of the General Plan contain policy direction related to the County's role in reducing GHG emissions from its own operations, including the preparation of the County Government Operations GHG Baseline Study mentioned above and the need to conduct an audit "*within the next five years…… to evaluate energy use, the effectiveness of water conservation measures, production of GHGs, use of recycled and renewable products and indoor air quality to develop recommendations for performance improvement or mitigation*." (Action Item CON CPSP-4)

LEGISLATIVE UPDATE

The Global Warming Solutions Act of 2006 (AB32) authorized the CARB to promulgate the rules and regulations required to implement AB32 through the development of a Scoping Plan. Overriding goals for the legislation include:

- Regulations designed to encourage early implementation;
- Ensure that "early implementers" receive credit for accomplishments;
- Consider cost effectiveness in the regulations; and
- Minimize the administrative burden resulting from the regulations.

The Scoping Plan was approved and adopted by the CARB on December 11, 2008. The plan was based on the underlying principle that a balanced mix of strategies would be the best methodology to cut emissions by approximately 30 percent, while at the same time grow the economy in a clean and sustainable direction. Key recommendations of the plan include:

1. Expanding and strengthening existing energy efficiency programs, building standards and appliance standards;
2. Achieving a statewide renewable energy mix of 33 percent;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
4. Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard;
6. Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation and;
7. Full deployment of the California Solar Initiative, high-speed rail, water-related energy efficiency measures and a range of regulations to reduce emissions from trucks and from ships docked in California ports.

The CARB will begin developing detailed strategies to implement all of the recommended measures that must be in place by 2012. While the targets identified in AB32 are defined for the State as a whole, the Scoping Plan specifically addresses the vital role to be played by local governments if the targets are to be attained:

> *"Local governments are essential partners in achieving California's goals to reduce greenhouse gas emissions. They have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect greenhouse gas emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce greenhouse gas emissions rely on local government actions."*

The Scoping Plan for AB32 indicates that local government reductions should be *"15% below current levels by 2020"* to meet AB 32 targets. For the purposes of defining the "current" levels, representatives of BAAQMD, ICLEI – Local Governments for Sustainability U.S.A., Inc. and Climate Protection Campaign concur in their recommendations to County staff that there is no strict definition for "current", but that 2005 has become the standard inventory year as nearly all local governments in California that have inventoried emissions have done so for 2005. Accordingly, for the purposes of defining the GHG reduction goals and objectives and evaluating program alternatives, 2005 has been established as the base year for the Emission Reduction Plan for County Operations.

BASELINE UPDATE AND GREENHOUSE GAS REDUCTION TARGET

The original Baseline Study, completed in May 2008, established empirical databases that were used to understand the County GHG emissions and emission trends. This baseline was developed as a tool to make preliminary decisions, recognizing that the accuracy of the data will improve over time, and that the baseline and resulting target will also be refined accordingly.

Essentially all GHG emissions from County Operations result form three segments of County operations:

1. Electricity and natural gas use for the operation of County Facilities;
2. Gasoline and diesel use by the County's fleet of equipment and vehicles and employee use of personal vehicles on County business; and
3. Fuel consumption by County employees traveling to and from work.

Since completion of the original Baseline Study, the Local Government Operations Protocol has been developed collaboratively by the California Air Resources Board, the California Climate Action Registry, the Climate Registry and ICLEI. This protocol was designed to provide a common set of standards to assist local governments in quantifying and reporting GHG emissions associated with their government operations.

Based upon this protocol and more specific data regarding employee commute, the Department has made certain modifications to its original estimates made in May 2008. The following changes are reflected in the revised baseline data:

- In the original baseline, the County Staff used commute behavior from a Sonoma County survey as the basis for evaluating commute behavior in Napa County. Also,

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the commute mileage was based on estimates from employee zip codes. In September 2008 the County worked with 511.org to complete an Employee Transportation Survey that more accurately assessed County employee commutes. As a result, the percentage of emissions from the Commute segment was increased.

- In the original baseline, emissions from employee reimbursed mileage were inadvertently omitted from the Fleet segment.
- The emissions resulting from the use of electricity has changed significantly. The CARB Local Government Operations Protocol has updated the emissions resulting from the use of electricity. The original baseline was generated based on the value of 1.1 #/kWh recommended by ICLEI at the time for all of California. The CARB now recommends a PG&E specific electric emission conversion coefficient of 0.62 #/kWh because of the clean fuels mix used by PG&E.
- In the original baseline, leased facilities were not included and certain county owned facilities were omitted. Leased facilities are now included in the baseline analysis along with the Greenwood Ranch and Yountville Fire Stations and the Homeless Shelter.
- Emissions from the facilities segment have been updated to include 2007 energy use data.

One major change referenced above is the guidance received from the CARB to revise downward the impact of GHG emissions from the use of electricity. This change has caused the proportional share of the County's GHG to change from a 50-50 split between mobile and stationary sources to where 63% of our GHG emissions come from mobile sources while 37% come from stationary sources.

The table below identifies the updated GHG emissions by County segment:

HISTORICAL GREENHOUSE GAS EMISSIONS BY CATEGORY

Year	Commute	Fleet	Facilities	Total
2000	2,679	1,692	2,935	7,306
2001	2,974	1,796	2,832	7,602
2002	3,062	1,945	2,685	7,692
2003	2,986	1,865	2,773	7,624
2004	3,178	1,773	2,664	7,615
2005	3,350	1,787	2,804	7,940
2006	3,504	1,691	2,709	7,904
2007	3,531	1,640	3,079	8,292

CALCULATION OF COUNTY TARGET EMISSIONS REDUCTIONS	
2007 Emissions (eTons)	8,250
Add: Emissions from Parking Structure	43
Total Projected Emissions	8,292
Less: Emission Goal	6907
County Emissions Reduction Target	**1,386**

The emissions reflected in the historical GHG emissions by category includes the benefits derived from energy management projects that the County has already completed, and which have incrementally reduced the County's emissions footprint.

The Business as Usual scenario illustrates what the County GHG emissions would had been had the County **not implemented** energy management projects. This analysis is commonly known as the "Business-as-Usual" (BAU) scenario.

The information provided in the tables allow two different perspectives from which to determine the County's 2005 baseline. Given that one CARB goal has been to provide credit for early implementers of GHG reductions, it is reasonable to use the 2005 data from second table (Business as Usual) to establish the County Operations target goal.

As can be seen from the information provided in the two previous tables, the County's GHG emissions have continued to grow in both the Commute and Facilities components despite County implementation of energy management strategies.

Based on the goal above, and considering the continued increase of emissions, the County can calculate a "Target" reduction of emissions.

The table above accounts for the opening of the parking structure has increased the County's emission portfolio. Based on the goal above, and considering the continued increase of emissions, the County can calculate a "Target" reduction of emissions.

This Plan has not been updated to reflect 2008 data given the lag time between experience and data availability. For the purposes of future updates, it is the intention to utilize two tools developed by ICLEI – Local Governments for Sustainability USA.

BUSINESS AS USUAL SCENARIO

YEAR	TOTAL CURRENT EMISSIONS	ENERGY EFFICIENCY	RENEWABLE GENERATION	HYBRID VEHICLES	ETONS WITHOUT ENERGY MANAGEMENT
2000	7,306	0	0	0	7,306
2001	7,602	0	0	0	7,602
2002	7,692	0	0	0	7,692
2003	7,624	0	0	0	7,624
2004	7,624	0	0	0	7,624
2005	7,941	0	176	9	8,126
2006	7,941	173	176	21	8,311
2007	8,250	197	176	39	8,662

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The Clean Air and Climate Protection (CACP) Software 2009 **(**CACP 2009) is a one-stop emissions management tool that calculates and tracks emissions and reductions of GHG (carbon dioxide, methane, nitrous oxide) and criteria air pollutants (NOx, SOx, carbon monoxide, volatile organic compounds, PM10, PM 2.5) associated with electricity, fuel use, and waste disposal.

According to ICLEI, this tool will help the County to create emissions inventories for the community as a whole or for the government's internal operations, quantify the effect of existing and proposed emissions reduction measures and predict future emissions levels and set reduction targets and track progress towards meeting those goals.

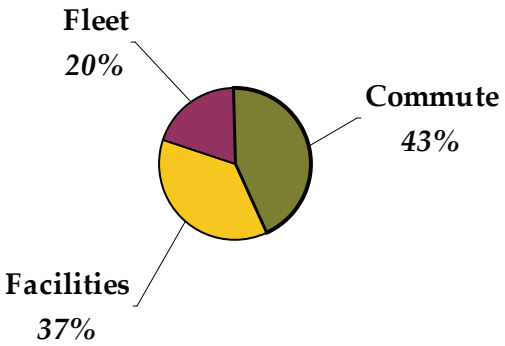
The second tool, the Climate and Air Pollution Planning Assistant (CAPPA) Decision Support Tool provides a comprehensive, customizable and expandable library of emissions reduction strategies relevant for local government audiences, as well as decision support capability to assist local government users in identifying strategies for inclusion in their own emissions reduction plans. The tool also provides information and quantification tools for over 100 distinct emissions reduction strategies. Default assumptions regarding average degree of implementation and resulting performance of each strategy are based on real-world data from other U.S. communities and a variety of expert sources.

It is important to emphasize that emissions may also increase if the County increases its programmatic responsibilities, an increase that would be manifested from a variety of sources including employee's daily commute, the proportional increase in the numbers of computers and other communication equipment, and potential expansion of facility square footage to accommodate a growing employee base. Accordingly, in order to continue making progress toward achieving the established emissions reduction targets, the County will be required to attenuate the usual impacts associated with new program implementation to assure no net increase in GHG emissions.

Understanding the distribution of GHG emissions by segment is essential in developing this Emissions Reduction Plan for County Operations and its associated range of policy/action/ program options. Chart two shows the relative percentages of emissions by component for calendar year 2007.

Reflective of the three primary areas of concern for County operations, Buildings/Facilities, Fleet/Equipment Pool and Napa County employee commute, this Plan is structured around three principal Goals and three associated underlying Guiding Principles or Policy Considerations:

The Target Reduction is the amount of GHG emissions the County must eliminate from its operations in order to achieve the Goal of reducing its emissions to "15% below current levels" as defined by CARB.



BASED UPON A 15% REDUCTION BELOW THE 2005 BUSINESS AS USUAL BASELINE OF 8,126 ETONS THE COUNTY EMISSION GOAL SHOULD BE:

COUNTY EMISSION GOAL = 6,907 ETONS

GOALS

GOAL #1:

Reduce impact upon the environment directly attributable to County building and facility use by implementing improvements to existing County buildings and facilities that reduce energy demand, incorporate energy reduction standards into all new County facility construction and, where practical, utilize the buildings and structures to host renewable energy production.

GOAL #2:

Reduce the amount of GHG emissions directly attributable to work related employee travel by increasing the percentage of County Fleet vehicles that are classified as low emission vehicles and by encouraging Departments to use low emission fleet vehicles instead of employees' private automobile on County business.

GOAL #3:

Reduce the amount of GHG emissions directly attributable to Napa County employees' commute by increasing employee transportation alternatives.

GUIDING PRINCIPLES/POLICY CONSIDERATIONS

Longevity of Investment and Financial Return

This Plan makes recommendations for Facility and Fleet improvements where there is an overall positive Internal Rate of Return (IRR) and the Facilities are considered highly likely to remain in the County's Real Estate Portfolio. The IRR is a financial metric used to evaluate and compare the financial benefit of one energy management, capital improvement, or other investment project to another. The IRR represents the annualized return that will be realized from making an investment, taking into account inflation rates, depreciation, loan payments, and the life of the project. The Plan analysis considers both the emissions reductions and the lifecycle cost to identify possible opportunities and actions. In many cases, there is a positive financial benefit when lifecycle costs are considered.

The Net Present Value (NPV) is another commonly used financial evaluation tool. NPV reflects the amount of money the County makes from an investment when compared to other options, accounting for inflation, or an assigned discount rate. In general, a positive NPV shows that a particular investment alternative may be better than other investment options available to the County.

Flexibility

The County is undertaking development of Facilities Master Plans covering the Downtown and Health and Human Services campuses. The final outcome of these master planning efforts will be incorporated into the County Five-Year Capital Improvement Plan. It is understood that certain assumptions inherent in this Plan may need to be revisited depending on a host of variables including the continued availability of some County buildings to host photovoltaic systems (PV), design and construction standards for new County buildings and the efficacy of undertaking certain energy efficiency retrofits.

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Continued Service to Public

Implementing GHG emission reduction strategies ought not reduce the public's ability to obtain services from the County nor cause a net reduction in the County's ability to provide these services. While some measures may require adjustments to County operations, the ability to provide services in the aggregate should not be affected by the County's introduction of programs aimed at reducing GHG emissions.

METHODOLOGY

For each of the three articulated goals, an array of GHG reduction opportunities was considered and ultimately a specific set of proposals were evaluated for their potential to reduce the County's contribution to GHG emissions. Development of a "menu" of options was the result of the County's efforts in the following areas:

1. Participation in Energy Watch Program to obtain a facility energy use baseline that ranked County facilities based on energy use and energy management potential, and enabled a more comprehensive analysis of lighting system retrofit opportunities for the Carithers Building, the Library, and the Animal Shelter;
2. Implementation by Napa County Information Technology Services of a computer power management system that reduces electric energy consumption at computer and employee workstations by putting the equipment into either a sleep, standby or hibernate mode when not in use for a defined period of time;
3. Implementation by the Napa County Information Technology Services of a server virtualization program that decreases the number of physical servers required to serve the technology and data needs of the County;
4. Completion of an analysis of solar photovoltaic (PV) opportunities and HVAC efficiency upgrades at various Napa County facilities, including the Administration Building, the Hall of Justice, the Library, the Carithers Building, 650 Imperial, the Animal Shelter, the Airport administration building and hangers, the JJC, and the Sheriff's facility;
5. Completion of a vehicle replacement analysis aimed at maximizing GHG emission reductions through emphasis on purchasing low emission vehicles when existing fleet vehicles reach the end of their useful life; and
6. Review of proven effective strategies aimed at reducing employee commute via single occupant private auto.

The array of GHG reduction opportunities reviewed was then entered into a database so that both emissions and life cycle cost benefits could be evaluated using various criteria.

FINANCIAL BENEFIT ANALYSIS

There are a number of financial metrics that can be used to evaluate energy management, capital improvement, and other investment projects.

Simple Payback:
The Simple Payback (SPB) is the most simplistic financial criterion for evaluating the cost-benefit of an investment. It is the net initial investment divided by the first year's energy savings. It does not include inflation factors, loan interest, depreciation of the dollar, or the life of the project.

Net Present Value:
The Net Present Value (NPV) estimates today's value of an investment, taking into account estimates for the inflation in the cost of electricity, loan payments, inflation, and the life of the project.

Internal Rate of Return:
The Internal Rate of Return (IRR) represents the annualized return that will be realized from making an investment, taking into account inflation rates, depreciation, loan payments, and the life of the project.

Each of the actions being recommended in this Plan was prioritized by its Internal Rate of Return, which allowed the cost effectiveness of one measure to be compared to others and the amount of emissions (eTons) reduced by the action. The actions that were evaluated fell into one of two categories:

1. Actions that generate income/savings (such as an energy efficiency project where the investment saves money); or
2. Actions that have no income or savings stream (such as a commute program), but result in decreased GHG emissions.

GHG reduction strategies can also fall into two classifications, and apply to emission segments that were evaluated:

Demand Side — Includes efficiency improvements and reductions in use; and

Supply Side — Includes better fuels or other energy sources that reduce emissions without necessarily reducing the amount of fuel/energy being used.

GOAL #1

REDUCE IMPACT UPON THE ENVIRONMENT DIRECTLY ATTRIBUTABLE TO COUNTY BUILDING AND FACILITY USE BY IMPLEMENTING IMPROVEMENTS TO EXISTING COUNTY BUILDINGS AND FACILITIES THAT REDUCE ENERGY DEMAND, INCORPORATE ENERGY REDUCTION STANDARDS INTO ALL NEW COUNTY FACILITY CONSTRUCTION AND, WHERE PRACTICAL, UTILIZE THE BUILDINGS AND STRUCTURES TO HOST RENEWABLE ENERGY PRODUCTION

DISCUSSION ON GOAL #1, FACILITIES

As noted previously, County facilities account for 37% of the total GHG emissions attributable to County operations. This Plan identifies an array of both energy generation and energy efficiency measures and the potential for these measures to provide positive impact toward GHG emission reduction.

For County facilities, GHG emissions are the result of electricity and natural gas use to heat/cool/light the facilities, and to operate all of the office equipment needed to administer County operations. Essentially all of the electricity and natural gas that is included in the baseline analysis is used for facility operations. As is the case in the fleet analysis in the following section of this report, the GHG emissions associated with electricity and natural gas use can be addressed on the supply (generation) and demand (conservation/usage) side of the energy equation.

Tables which summarize the GHG reduction benefit, costs, IRR and NPV are provided below that summarize the energy strategies that were evaluated and are included for consideration as First Tier and Second Tier projects. First Tier projects are defined as those projects evaluated for facilities that are considered likely to remain in the County's real estate portfolio in continued use while Second Tier projects are defined as those identified in County facilities that are the subject of discussion for replacement by projects being considered in the two Facilities Master Plans. The IRR and NPV calculations are premised on the County using its cash resources to fund these investments with a subsidy being provided through an existing California Energy Commission (CEC) program. The County has other funding options to implement these improvements (which are discussed later) where there still is a positive IRR and NPV, but with a lesser positive yield than if the County used its cash resources.

SUPPLY SIDE – GENERATION

There are three potential strategies the County can consider implementing to offset GHG emissions resulting from utility power generation:

Construct renewable energy generation facilities. These facilities can take the form of photovoltaic (PV) systems, wind power, or waste gas energy generation. The County has implemented this strategy by constructing PV systems at the Juvenile Justice Center, the Sheriff facility and the 5th Street Parking structure. The County has also evaluated a number of other opportunities for PV systems at County owned facilities.

Install cogeneration systems. Cogeneration is the generation of two types of energy from one source. In this case, the County would use a natural gas powered generator to generate electricity and use the waste heat from the process to offset the need to consume natural gas for water heating. Cogeneration is not renewable energy unless the gas comes from a renewable source such as landfill gas, but because the County can use the waste heat from the generation cycle, the overall efficiency of the process can exceed 75% as opposed to PG&E power plant efficiency of approximately 35 to 45%. The cost effectiveness of a cogeneration system is highly dependant upon an available use for the waste heat.

Purchase Renewable Energy Credits. The purchase of Renewable Energy Credits (REC) supports the construction of green energy, and through the purchase the County can take credit for the GHG emissions offset by the energy generated. There would not be energy generated directly to County operations. PG&E has an alternative rate, the funds from which would be used to develop carbon-reducing projects such as forest sequestration. This allows the customer to claim "carbon neutrality" in its use of energy from the utilities. Renewable Energy Credits are also called Green Tags, Energy Credits, and GHG offsets. An energy credit trading market is in the process of being established and is currently referred to as a "Cap and

Trade" Program. It is the GHG equivalent to pollution credit trading for industrial gross polluters. For example, if the County is not able to meet its targets through capital investments, then credit for GHG reduction can be purchased from others. The investment the County makes in the credits will encourage others to invest in projects that reduce GHG emissions.

The table that follows summarizes the renewable energy strategies that were evaluated and are included in First Tier recommendations for PV Retrofits. For purposes of analysis, first tier projects are defined as those projects determined to have positive internal rates of return and positive net present value.

First Tier Photovoltaic Projects

Project Name	Initial Cost	Annual Cost	Subsidy	Energy Savings	Emission Reduction	Internal Rate of	Net Present Value
Administration	$380,323	$500	$105,463	$19,874	49.0	9.7%	$248,778
Airport: New Hangars	$86,075	$500	$22,112	$4,167	10.0	7.7%	$35,148
Airport: Old Hangars	$68,335	$500	$17,555	$3,308	8.0	7.4%	$25,114
Airport: Runway	$266,029	$500	$68,340	$12,879	32.0	8.5%	$136,889
Airport: Shade Hangars	$28,626	$500	$7,354	$1,386	3.0	4.9%	$2,675
Airport: Terminal	$238,628	$500	$61,301	$11,552	29.0	8.5%	$121,385
Animal Shelter	$346,711	$500	$92,024	$17,342	43.0	9.0%	$200,516
CA Boulevard Corporate Yard	$99,515	$500	$26,205	$4,938	12.0	8.2%	$46,640
Greenwood Ranch Fire Station	$142,884	$500	$31,836	$6,000	15.0	6.4%	$37,605
Homeless Shelter	$177,736	$500	$45,686	$8,609	21.0	8.3%	$87,119
Library: Flat Roof	$103,119	$500	$27,077	$5,102	13.0	8.2%	$48,340
Library: Sloped Roof	$170,320	$500	$45,836	$8,638	21.0	8.9%	$95,469
Sheriff: Parking	$1,482,651	$500	$330,353	$62,255	154.0	7.1%	$516,808
Yountville Corporate Yard	$58,132	$500	$15,264	$2,877	7.0	7.4%	$21,377
Yountville Fire Station	$121,353	$500	$23,780	$4,109	0.0	4.0%	($29)
	$3,770,437	$7,500	$920,186	$173,036	417.0		

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The table below summarizes the renewable energy strategies that were evaluated and are included as potential Second Tier recommendations for PV Retrofits. For purposes of analysis, second tier projects are defined as those projects determined to value but are for buildings that are possible disposition properties.

Second Tier Photovoltaic Projects

Project Name	Initial Cost	Annual Cost	Subsidy	Energy Savings	Emission Reduction	Internal Rate of Return	Net Present Value
Carithers	$656,302	$1,000	$179,741	$31,461	78.0	7.0%	$346,735
Hall of Justice	$383,703	$500	$106,541	$18,649	46.0	8.9%	$213,367
HHSA: Buildings A, B & C	$98,850	$750	$26,269	$4,951	12.0	78.0%	$40,963
Imperial Way	$436,081	$500	$114,834	$21,640	53.0	9.0%	$250,122
	$1,574,936	$2,750	$427,385	$76,701	189.0		

DEMAND SIDE – ENERGY USAGE

The first step to reducing energy use is to gain an understanding of where and how it is being used, and how it can be reduced. Identified locations/consumption and potential areas for energy efficiency improvements are summarized below:

Lighting:

Lighting efficiency retrofits were considered at several facilities. Lighting retrofits typically improve light quality and reduce maintenance costs while reducing energy use/ emissions.

Heating Ventilation and Air Conditioning (HVAC)

Replacement of HVAC equipment does not usually make economic sense solely for energy efficiency reasons, but the County has a great deal of equipment that is at or near the end of its life and should be replaced. Upon replacement, it generally makes sense to install high efficiency equipment.

Computers:

Computer controllers and server virtualization equipment is now available that significantly reduces energy use of network equipment and stand-by energy use.

Facilitation of Climate-Smart Behaviors:

Development and implementation of an outreach campaign to employees to be responsible stewards in exercising prudent judgment to reduce unnecessary energy usage. This includes changing behavior where the last person who leaves the office should shut off the office lights to unplugging electrical devices not in use given they still use phantom energy. Depending on the source, estimates range from five to ten percent of energy consumption is from electronics that continue to draw power even though they are not in active use. Identifying the specific phantom sources within the County, and then developing an effective campaign to modify individual employee behaviors, could result in significant energy savings at County owned or leased facilities.

Miscellaneous:

There are numerous miscellaneous energy efficiency projects that can be implemented such as controls, variable speed motors, high efficiency motors, newer refrigerators, etc.

Included in Appendix 2 is a comprehensive listing of all County Energy Projects that were evaluated to ascertain potential benefits from pursuing energy related projects. This list identifies potential e-ton benefits as well from those projects that may not yield a positive Net Present Value nor reflect a reasonably short pay-back period but nonetheless deserve attention for their positive impact on the County's carbon footprint.

Energy management strategies that were evaluated and are included in First Tier recommendations for Conservation improvements are summarized in the table that follows.

Energy Management Strategies for First Tier Projects

Project Name	Initial Cost	Annual Cost	Subsidy	Expected Asset Life	Emission Reduction	Simple Pay Back	Internal Rate of Return	Net Present Value
Chiller Replacement: Administration	$312,160	$8,114	$8,850	20.0	23.0	34.4	(0.3%)	($117,373.00)
Lighting Retrofit: Animal Shelter	$8,855	$1,166	$890	10.0	2.0	8.6	0.7%	$1,249
Lighting Retrofit: Carithers	$57,165	$11,927	$7,883	10.0	21.0	5.7	16.0%	$33,925
Lighting Retrofit: Library	$23,724	$4,577	$3,539	10.0	9.0	5.4	17.5%	$16,393
Lighting Retrofit: Airport	$8,000	$1,600	$1,339	10.0	4.0	4.8	20.8%	$7,047
Lighting Retrofit: Sheriff	$460	$0	$327	10.0	1.0	1.4	75.7%	$2,824
Thermostat Setpoint: Administration	$0	$0	$1,194	2.0	4.0	0.0		$2,307
Vending Machine Misers	$230	$180	$428	10.0	1.0	0.1	861.0%	$4,248
Water Heaters: Animal Shelter	$1,800	$97	$153	15.0	1.0	11.1	8.5%	$659
	$412,394	$27,661	$24,603		66			

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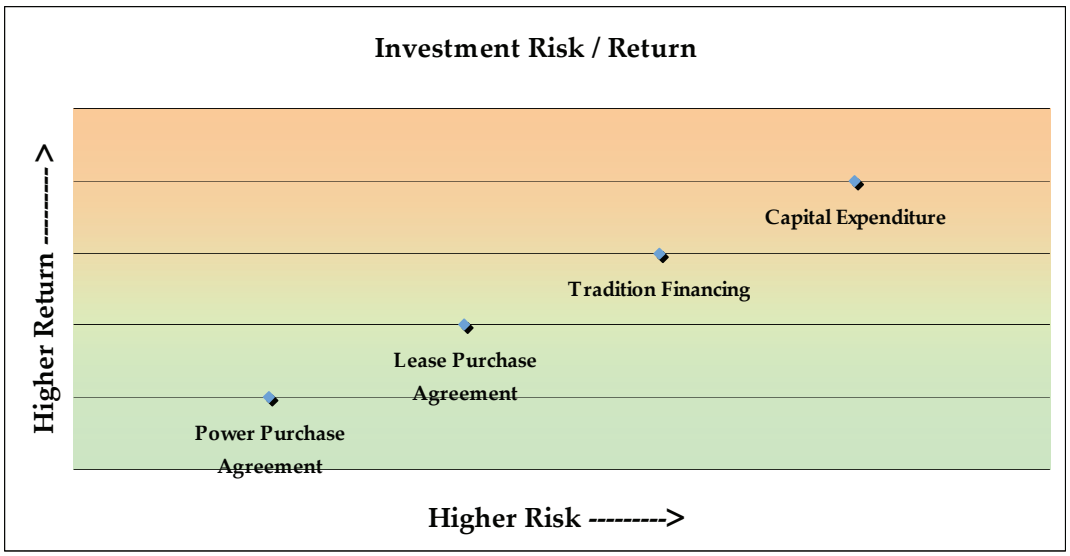
FUNDING OPTIONS

The economic analysis that was completed for the potential GHG reduction actions is based on funding with existing County funds. However, there are several funding methods that the County can consider to manage the risk and reward of the investment. At one end of the spectrum is paying for the project out of capital funds. This option represents a high cost/high-risk investment with the potential for a relatively high return. At the other end of the payment option spectrum is a Power Purchase Agreement, discussed in detail below, which represents a low cost/low risk purchase option with a significantly reduced return on the investment. The following graphic illustrates the balance and tradeoff between risk and return.

When considering the Plan as a whole, it is important to consider all of the purchasing/financing options that are available. It is possible that a combination of different funding options will best manage the County's risk and reward. Following are descriptions of some funding options for the entire Plan or portions of the Plan.



ENERGY PROJECT FINANCING

Energy management projects often pay for themselves in a very short period of time. As such, if the projects are financed over time, the annual payments are typically less than the cost savings associated with the project. Following is a sample based on financing all of the energy efficiency projects with an IRR greater than 10% (PV projects are excluded from this analysis due to alternative funding mechanisms that are discussed later).

The California Energy Commission (CEC) has a low interest loan program that is available to local governments with a finance rate of 3.45% and a term up to 15 years. The program is easy to use and uses the energy savings as the collateral for the loan.

Power Purchase Agreements

A Power Purchase Agreement (PPA) is an alternate method of "buying" renewable energy without having any out-of-pocket expenses. The vendor constructs the renewable energy system at no cost to the County, and charges the County for the energy produced. The vendor can take advantage of available tax credits and accelerated depreciation, and pass the savings along to the County. The advantages to the County are:

- Renewable energy cost can be less than what the County is currently paying to the utility;
- County has no out-of-pocket expenses;
- Vendor is responsible for operating and maintaining the equipment; and
- County makes no payments if the system is not operating.

When entering into a long-term contract such as this, there are many energy issues that must be addressed. Some of the main issues include the cost of energy and term of the agreement, the risks associated with liability clauses in the contract, the costs at the end of the contract term, and ownership of the Renewable Energy Credits.

Lease Purchase Agreement

A Lease Purchase Agreement (LPA) is similar to a PPA in several ways. The vendor constructs the Renewable Energy system at minimal to no upfront cost to the County, but instead of charging for the energy that is produced, the County would pay a fixed annual lease payment. Under an LPA, the County is responsible for the operation of the system and is required to make payments even if the system is not operating. The advantages to the County are

- Annual lease payment can be less than what the County is currently paying in energy costs, and
- County may have no out-of-pocket expenses

Clean Renewable Energy Bonds

Clean Renewable Energy Bonds (CREBs) are an additional method for a non-profit agency to fund renewable energy installations, including wind and solar energy. CREBs provide interest free capital that is treated in a manner similar to tax exempt bonds. CREBs allotments are prioritized based on the size of the renewable energy system that is proposed, with the smallest requests being given priority. Napa County has sought and has been granted an allocation of authority from the U.S. Department of the Treasury, Internal Revenue Service to issue New CREBs under section 54C of the Internal Revenue Code. Allocation of authority to issue New CREBs has been granted to fifteen Napa County PV projects totaling over $7 million. The County has up to three years from the date the approvals were granted (October 23, 2009) in which to exercise this authority and issue bonds.

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OTHER INCENTIVE PROGRAMS

There are also numerous incentive programs that make energy efficiency and renewable energy a more viable investment: Energy Efficiency Rebate Programs; California Solar Initiative (CSI) Incentive; Self Generation Incentive Program; Net Metering; Federal Tax Credit; and Federal Accelerated Depreciation.

Energy Efficiency Rebate Programs are funded through the California Public Utilities Commissions and administered by PG&E. These programs provide cash rebates that can help to offset the initial cost of an energy efficiency project.

The California Solar Initiative Program incentive is paid over a period of five years, and for non-profit and public entities is currently equal to $0.32 per kWh generated for five consecutive years. The program is designed for the incentive to decrease as more PV systems are installed in California. When this current level of funding is completely used, the rebate will be reduced to $0.26.

The Renewable Energy Program provides rebates for renewable energy sources other than solar. The program provides a set rebate for each watt of power that the Renewable Energy system generates. In contrast to the CSI program, the rebate is paid in a single payment when the installation has been completed. Rebates vary based on the type of renewable generating system being installed, and on the power output rating of the system.

COUNTY FACILITY MASTER PLAN

The County is developing Facility Master Plans for the Health and Human Services and Downtown campuses with the stated purpose of planning to meet both current and long term space needs. Completion of the Facilities Master Plans is critical in determining how the County will meet this element of its GHG reduction goals. The County will consider options as diverse as retrofitting existing facilities to accommodate continued use, to the replacement of facilities with the addition of significant square footage. The Master Plans, and how they are implemented, could either reduce or increase GHGs, depending upon the standards employed for building design and construction. Incorporation of the approved Facilities Master Plan into the County Five-Year Capital Improvement Plan is the primary linkage to timing and funding capital improvements generally and implementation of facility related GHG reduction strategies specifically. The recently approved contract with with Jones Lang LaSalle Brokerage, Inc in association with HOK Advance Strategies for the preparation of the Facilities Master Plans provided the following major tasks:

- Identify site capacity;
- Graphic representations of alternatives, including site plans, building massing studies, stacking plans, departmental adjacency and floor-plate studies;
- Narrative description of how each alternative meets the County's requirements;
- Phasing recommendations;
- Identification of any significant impact on zoning and code requirements, parking, vehicular and traffic access, infrastructure and surrounding properties, etc; and
- Construction cost estimates.

A second, but related effort is underway. The contractor will assess of existing systems (including but not limited to HVAC systems, plumbing systems, electrical systems, fire/life safety systems, elevators, telephone systems, roofing and windows) and provide the overall condition of the systems based upon a logical scale. The resultant report will provide timelines and cost estimates of anticipated required system retrofits or necessary replacements as well as details regarding the remaining useful life of these systems. In approving an agreement with a Consulting firm to go forward with the Facilities Master Plan, the Board directed that different facility scenarios be evaluated.

Conceptual Facility Master Plans

A summary of the alternatives approved for study for possible inclusion in two Facility Master Plans follows. It is important to note that the scenarios as presented are preliminary, and that the recommendations by Jones Lang LaSalle could materially differ from the scenarios in the analysis below.

Health and Human Services Campus

Maximum Site Capacity Scenario:
This scenario involves the use of higher rise (up to three story) buildings in a more dense configuration. Under this scenario there would be more vacant land on the campus that could be used for surface parking lots, future expansion capacity beyond 2028, co-location of non-HHSA County offices or facilities, or as a buffer between HHSA uses and the surrounding neighborhood.

Low-Rise Scenario:
This scenario involves the use of lower rise (one to two story) buildings in a less dense (more spread out) configuration.

Downtown Campus

Renovate Administration Building:
Under this primary scenario, a new Jail would be built on the site of the current Jail/Hall of Justice/Superblock parking lot; the Administration Building would be renovated to house other Law and Justice departments; a new Administration Building would be built on the currently vacant Sullivan block. If necessary, property adjacent to Superblock would be identified for acquisition to meet current/future needs

Build New Public Safety Building:
This secondary scenario replicates the primary scenario except in the case that it is determined that there is not sufficient space or it would not be cost effective to renovate the current Administration Building to house the Law and Justice departments, the existing Administration Building would be demolished and a new Public Safety Building constructed in its

As can be readily understood, the ultimate ability to affect real and quantitative reductions in GHG emissions related to County facilities will depend, in large measure, upon the final decision(s) as to what the respective Health and Human Services and Downtown Campuses will end up looking like. After the adoption of the Facilities Master Plans, the next step will be to incorporate this Plan in tandem with any other capital improvement needs into the County Five-Year Capital Improvement Plan. The adoption of the multi year Capital Improvement Plan will define the timing and financing expectations for the full array of capital improvement projects.

While it is clearly premature to conduct an analysis of potential GHG reductions that might be expected to result from implementation of the Facilities Master Plan related capital improvements, for the sake of discussion and illustration presented below are three different facility construction projects resulting from a combination of the scenarios being evaluated in the Facilities Master Plans. The estimation of square footage for each of the scenarios is for analysis purposes only, and may change based on the recommendations of the Facilities Master Plan. The three scenarios include: Construction of a new Administration Building (90,000 square feet); Construction of new Health and Human Services facility (95,000 square feet); and Construction of a new Hall of Justice/Jail facility (185,000 square feet). Following is a discussion of potential GHG emission impacts resulting from these three projects.

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HYPOTHETICAL PROJECT #1

Build a two-story, 90,000 square foot Facility and eliminate use of the existing Carithers facility. This scenario would move Adult Probation, the District Attorney, Public Defender and Child Support Services into the present Administration facility (1195 3rd Street) while also transferring the Administrative and Land Use related department functions and the Assessor/ Recorder/County Clerk, and potentially Information Technology Services into the new facility.

HYPOTHETICAL SCENARIO #2

Replace all Health and Human Services campus modular facilities and Building K with 95,000 square feet of new, two story facilities, and eliminate 650 Imperial Way. This scenario would consolidate all Health and Human Services functions presently at 650 Imperial Way and Carithers with its main campus. All modular facilities and Building K would be replaced with the exception of Buildings A, B and C. If Information Technology Services is relocated as suggested in scenario #1, 650 Imperial Way could become available for alternative disposition.

HYPOTHETICAL SCENARIO #3

Replace current Hall of Justice facility of 127,415 square foot with 185,000 square foot facility.

EXPECTED ENERGY USE AND EMISSIONS BASED ON CONSTRUCTION STANDARDS

	Hypothetical Scenario #1	Hypothetical Scenario #2	Hypothetical Scenario #3
	Administra-tion	Combined HHS and Imperial	Hall of Justice
Current Energy Usage (kBTU/SF)	59.4	66.4	110.1
Projected Energy Use with CBECS Building Standard (kBTU/SF)	71.6	71.6	91.1
Projected Energy Use with LEED Gold Building Standard (kBTU/SF)	40.1	40.1	51.1

IMPACT ON GREENHOUSE GASES

All construction in California is required to meet Title 24 energy efficiency standards. These standards require construction to use either prescriptive or calculated energy use models to ensure that facilities are designed to operate efficiently. However, due to the methods of calculating energy use resulting from Title 24, it is not possible to use the standards to predict energy use of a facility that has not been through detailed design.

The Commercial Buildings Energy Consumption Survey (CBECS) collects energy use data for all types of facilities throughout the Country. CBECS data is available specifically for the Pacific Coast to account for lower energy use, which has been used as the standard.

Data is available for energy use of Leadership in Energy and Environmental Design (LEED) facilities. Title 24 designed facilities are generally capable of obtaining the LEED certification (Title 24 is estimated to be functionally equivalent to LEED Basic or Silver), but LEED Gold and Platinum ratings represent much more efficient facilities. Therefore, for the purpose of estimating energy use of future facilities Title 24 is essentially equivalent to CBECS Pacific Coast which in turn is also essentially equivalent to LEED Basic.

A metric that is commonly used to evaluate the energy efficiency of facilities across the Country is thousands of BTUs per square foot (kBTU/SF). The existing energy use for each scenario can be stated this way, as well as the energy use based on CBECS and LEED facilities. Table sixteen shows the kBTU/SF for existing facilities based on existing energy use, plus the expected energy use based on the CBECS and LEED standards

The information in this table illustrates that the existing facilities are reasonably efficient, and that if the new facilities are built to typical standards, then the new facilities will use more energy per square foot for scenarios 1 and 2, but less for scenario 3. In addition, Scenarios 1 and 3 represent significant increases in square footage, thus indicating additional increases in both energy use and GHG emissions.

If, however, the facilities are built to LEED Gold or even Platinum standards, the efficiency of the facilities would increase resulting in a reduction in emissions per square foot. The higher building standards allow for increases in square footage with a potential overall reduction in GHG emissions instead of the expected increase in emissions.

The table below compares the GHG emissions from new construction utilizing standard/business as usual construction standards (CBECS) to new construction utilizing LEED Gold building standards. Utilization of standard construction techniques will result in an overall increase in emissions for all scenarios, while utilization of LEED standards - when combined with corresponding abandonment of existing/less efficient buildings - would likely result in significant reductions in emissions overall, even with the increases in square footage.

COMPARATIVE EMISSIONS (ETONS) STANDARD/BUSINESS AS USUAL VS. LEED GOLD BUILDING STANDARDS

	Hypothetical Scenario #1	Hypothetical Scenario #2	Hypothetical Scenario #3
	Administration	Combined HHS and Imperial	Hall of Justice
CBECS Building Standard	232.2	31.9	189.4
LEED Gold Building Standard	38.2	(168.1)	(306.5)

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RECOMMENDED ACTIONS, GOAL #1

1. Prioritize implementation of facility energy efficiency improvements for building HVAC, lighting, and other systems where there is an overall positive IRR and the facilities are considered highly likely to remain in the County's Real Estate Portfolio and not otherwise included in the Downtown and Health and Human Services campus Facilities Master Plans. (Who Responsible: PW and CEO to bring recommended project priority list to BOS by 10/31/2010).
2. Upon completion of the Downtown and Health and Human Service campuses Facilities Master Plans, prioritize implementation of facility energy efficiency improvements for building HVAC, lighting, and other systems where there is an overall positive IRR and the facilities are designated for continued use for County operations. (Who Responsible: PW and CEO to bring recommended priority list to BOS upon completion of Master Plans).
3. Prioritize the fifteen PV projects for which the County is in receipt of allocation of authority to issue New Clean Renewable Energy Bonds (CREBs), direct the issuance of CREBs when the economic climate and County financial capability is favorable to project financing goals. (Who Responsible: PW and CEO to bring recommended priority list to BOS by 10/31/2010).
4. Establish LEED Gold as the design and construction standard for all new construction of facilities housing County operations.
5. Identify and implement emission offsets to balance against any future growth of county programs that would otherwise contribute additional GHG emissions to assure that there is no net increase in GHG emissions resulting from new program implementation.(Who Responsible: CEO to include in Budget Instructions to Departments that GHG emission impact analysis must be included with any request for additional staff and new program implementation along with identification of mitigations to assure no net gain in emissions).
6. Carry out an audit of County facility energy use and update carbon emissions inventory within five years of Plan adoption. (Who Responsible: PW to coordinate by 2015)
7. Track energy usage on a monthly and post quarterly reports of energy use trends and how well the reduction goals are being addressed. (Who Responsible: PW, publish initial report by July 1, 2010)
8. Develop and implement Best Management Sustainable Energy Practices as they pertain to water supply/use at County facilities and to waste stream management. (Who Responsible: PW in consultation with DEM and Sustainability Council)
9. Continue to pursue financing options that will enable the county to maximally leverage County financial resources to effect energy production projects, power purchase agreements and energy efficiency projects with the aim of increasing the total share of the County's energy consumption from renewable resources to exceed 50% which is well above the goal of 30% by 2020 established in the Governors' Executive Order S-14-08. (Who Responsible: CEO and PW)
10. Pursue public/private partnerships within Napa County for the development and purchase of energy from renewable resources, in particular capitalizing on the availability of large warehouse rooftops for installation of PV systems. (Who Responsible: CDPD and PW)

GOAL #2

REDUCE THE AMOUNT OF GREENHOUSE GAS EMISSIONS DIRECTLY ATTRIBUTABLE TO WORK RELATED EMPLOYEE TRAVEL BY INCREASING THE PERCENTAGE OF COUNTY FLEET VEHICLES THAT ARE CLASSIFIED AS LOW EMISSION VEHICLES AND BY ENCOURAGING DEPARTMENTS TO USE LOW EMISSION FLEET VEHICLES INSTEAD OF EMPLOYEES' PRIVATE AUTOMOBILE ON COUNTY BUSINESS.

DISCUSSION ON GOAL #2, FLEET

Policy CON-79 of the General Plan's Conservation Element provides: "*The County shall ensure that all County vehicles conform with applicable emission standards at the time of purchase and throughout their use. To the extent feasible, the County shall purchase the lowest emitting vehicles commercially available to meet County vehicle needs*.

Through a program of replacing vehicles at their fully depreciated life cycle, it is anticipated that the Fleet composition will change from its present composition where twelve percent of the Fleet is considered "green" (that is, hybrid, plug-in hybrids, and E85 vehicles) to sixty-nine percent by 2020. For the purposes of achieving the target low emission vehicle complement, staff had to employ current knowledge of vehicle technology commercially available (now and projected) and how each type of product might be best employed in the Fleet; i.e., the mix of hybrid, plug-in hybrid or E-85 to meet the specific vehicle needs of the County's different departments. Conservative assumptions were used in this projection as to when future technology vehicles will be produced at a price point where, from a life cycle cost analysis, there will be a positive net present value.

GHG emissions associated with the County's fleet of vehicles are the result of the combustion of gasoline and diesel fuels assuming that every gallon of gasoline or diesel consumed results in approximately 20 pounds of CO_2 emissions. Reductions in fleet related GHG emissions come from balance of demand and supply side actions - a reduction in fuel consumption (demand side) or the consumption of cleaner burning fuels (supply side).

SUPPLY SIDE FLEET STRATEGIES

For the Fleet segment, supply side considerations refer to the emissions caused by the consumption of fuel by the fleet vehicles. The County fleet currently uses significant amounts of gasoline and diesel fuels. Implementation of cleaner fuel strategies will reduce emissions, but can be challenging due to limited infrastructure, conflicting legislation, and social effects. Technologies that are under consideration include:

Bio-diesel:

Bio-diesel fuel is made from vegetable matter. Bio-diesel burns cleaner than petroleum based diesel, and it is manufactured from carbon sources that are on the surface of the earth and are already part of the earth's balanced carbon cycle. Bio-diesel comes in various blends, such as B5 and B20, which are 5% and 20% bio-diesel, respectively. Current research indicates that B5 and B20 fuels could be utilized by the County fleet without much concern for vehicle maintenance issues or shortened vehicle life. Conversion to B100 fuels could require significant upgrades to the fleet to prevent damage to fuel lines and internal engine seals particularly in the case of fleets comprised of older vehicles.

It should also be stressed that the use of bio-diesel in modern fleet vehicles is still relatively new. Staff expects challenges from regulatory agencies and vehicle and equipment manufacturers during the initial years of implementation. For example, the California Air Resources Board (CARB) has recently established regulations that mandate fuel and exhaust particulate filtration that may be incompatible with bio-diesel in some systems, and the State Water Quality Control Board has not approved any tank system to hold biodiesel fuel that exceeds B15

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Ethanol:

Ethanol is a clean burning, high-octane fuel that is produced from renewable sources that can be substituted for gasoline. In its most basic form, ethanol is grain alcohol. Ethanol is not used as a fuel in its pure form, but is mixed with unleaded gasoline. The result is to decrease gasoline cost, increase gasoline octane rating, and decrease harmful emissions. E10 (10% ethanol) is the most common form of ethanol fuel and is approved for all vehicles sold in the U.S. E85 (85% ethanol) is intended for use in Flexible Fuel Vehicles (FFV), which are manufactured by all three U.S. auto manufacturers. More than 4 million FFVs are on the road in the U.S. and more are being manufactured each year. FFVs run on E85, but can be switched to regular gasoline when E85 is not available. E85 will reduce GHG emissions by 18% to 28%.

Challenges associated with E85 Ethanol include CARB regulations that make it generally unavailable in California, only Flexible Fuel Vehicles are able to operate with the fuel, questionable availability at current production levels nationally, unknown cost when it is readily available and decreased vehicle operating range estimated at 20-25%.

Demand Side Fleet Strategies

Fleet demand-side strategies depend on available and emerging technologies. There has been a great deal of progress in recent years in vehicle efficiency with the development of hybrid vehicles. It also appears that additional progress will be made in the near future with the development of plug-in hybrids and all electric vehicles. These vehicles, however, are typically designed for the portion of the vehicle population that has the greatest number of vehicles, i.e. passenger cars.

The County has implemented a phased replacement plan for the 4-wheel drive, SUV, mid-size, and compact vehicles portion of its fleet with existing hybrid technologies. To date, the County has replaced 31 standard gasoline engine vehicles with Hybrids. Within the next few years the technology is expected to improve and plug-in hybrids and all electric vehicles may become realistic options.

However, there are some County fleet vehicles that are not suitable for hybrid equivalents, specifically special duty vehicles such as the heavy fleet and sheriff patrol vehicles. For example, the County owns and operates heavy equipment that does not have any type of fuel-efficient option available. Another example of a vehicle type that is ill suited for replacement with existing technology is the Sheriff Patrol vehicle. This vehicle type must prioritize performance over fuel efficiency.

It goes without saying that reducing vehicle miles traveled will also reduce our fuel needs and emissions. The County already has policies in place to minimize use of county vehicles, including encouraging grouping of trips (particularly to the farther reaches of the county) and of course only making trips when necessary for County business. The County will continue to look for ways to reduce vehicle miles, but these efforts are not quantified here

SUMMARY OF FLEET STRATEGIES

County staff has completed an analysis for each vehicle classification that details initial cost, fuel savings, cost savings, maintenance savings, and GHG emission reductions resulting from the replacement of each vehicle classification with its hybrid equivalent. The table below provides a summary of anticipated emission reductions based upon the current County fleet replacement strategy:

ANTICIPATED EMISSION REDUCTIONS FROM FLEET MODERNIZATION

Program Name	Initial Cost	Annual Cost	Savings	Expected Useful Life	eTon Reduction	Simple Pay Back	Internal Rate of Return	Net Present Value	# Vehicles Purchased
2009 Hybrid	$30,165	(734.00)	$4,379	7.0	14.0	6.9	4.4%	$2,960	6
2010 Hybrid	$74,231	(1,141.00)	$11,239	7.0	35.0	6.6	5.7%	$5,978	16
2011 Hybrid	$60,628	(428.00)	$9,531	7.0	30.0	6.4	6.9%	$3,895	14
2012 Hybrid	$49,388	(1,108.00)	$7,235	7.0	23.0	6.8	4.7%	$4,665	10
2013 Hybrid	$46,876	(236.00)	$7,438	7.0	23.0	6.3	7.2%	$2,842	11
2014 Hybrid	$52,198	(938.00)	$7,809	7.0	24.0	6.7	5.3%	$4,472	11
2015 Plug-in Hybrid	$87,115	115.00	$12,261	7.0	38.0	7.1	3.4%	($8,422)	16
2016 Plug-in Hybrid	$54,553	137.00	$7,739	7.0	24.0	7.0	3.6%	$5,301	10
2017 Plug-in Hybrid	$63,052	658.00	$9,167	7.0	29.0	6.9	4.4%	($7,924)	13
2018 Plug-in Hybrid	$49,082	318.00	$6,979	7.0	22.0	7.0	3.7%	($5,924)	10
2019 Plug-in Hybrid	$91,234	126.00	$12,159	7.0	38.0	7.5	1.6%	($13,270)	21
2020 Plug-in Hybrid	$36,681	(11.00)	$4,424	7.0	14.0	8.3	-1.5%	($7,946)	11
Ethanol Vehicles	$0	0.00	$960	7.0	26.0	0.0	0.0%	$6,220	21
	$695,203	(3,242.00)	$101,320		340.0				

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Through a program of replacing vehicles at their fully depreciated life cycle, it is anticipated that the Fleet composition will change from its present composition of twelve percent green to sixty nine percent green by 2020. Specifically, the anticipated fleet composition consisting of low emission vehicles and evaluated in this Plan is projected to represent the mix indicated in the table below.

Conservative assumptions were used in this projection as to when future technology vehicles will be produced at a price point where, from a life cycle cost analysis, there is a positive net present value. For example, even though it is anticipated that manufactured plug-in hybrids and electric vehicles will be produced by major automobile manufacturers within the next few years, our forecast does not assume that plug-in hybrids will meet that price point until 2015, and does not forecast adding electric vehicles to our fleet. It is also not presently anticipated that there will be cost effective "green" technology advancements that will match the programmatic requirements of certain classifications of vehicles such as pick-up trucks, large vans and certain law enforcement vehicles. Finally, actions by the Federal Government to raise the minimum fuel efficiency standards for automobiles and trucks have not been analyzed or factored into this analysis. As technology evolves and other actions are taken at a federal or state government level, we will revisit our assumptions and make appropriate adjustments to take advantage of greener vehicles.

ANTICIPATED FLEET COMPOSITION

Vehicle Type	Quantity
E85	27
Hybrids	50
Plug-In Hybrids	81

RECOMMENDED ACTIONS, GOAL #2

1. Direct that County Fleet Management shall first consider low emission vehicles for purchase to replace existing fleet vehicles that have been fully depreciated, been taken out of service due to damage or mechanical problems, or are otherwise at the end of their useful life. Rule: Lowest emission vehicle commercially available that best meets the intended end use. (Who Responsible: PW/Fleet Management, ongoing)
2. Direct that all new additions to the Fleet complement be low emission vehicles unless the specific end use dictates vehicle performance currently unattainable from any commercially available low emission vehicle. Rule: Lowest emission vehicle commercially available that best meets the intended end use. (Who Responsible: PW/Fleet Management, ongoing)
3. Direct Fleet Management to undertake periodic review of private auto use at the Departments in the conduct of County business to determine if assignment of a low emission vehicle is warranted, appropriate to the end use and financially feasible for the Department(s). (Who Responsible: PW/Fleet Management ongoing)
4. Track Fleet fuel usage and report semi annually on progress in meeting Fleet emission reduction objectives. (Who Responsible: PW/Fleet Management).
5. Evaluate Fleet vehicle use at departments to assure that low emission vehicles are used to the maximum extent practicable. (Who Responsible: PW/Fleet Management ongoing).
6. Direct the reduction in employee work related travel between County work locations by emphasizing co-location of compatible and interrelated County programs and services in the facility master planning process.
7. Direct County departments to, wherever practical, schedule employee field work around routes that minimize back and forth travel between the office and field locations.
8. Encourage the purchase and use of ride-share bicycles (potentially in conjunction with a similar City of Napa program), to discourage use of vehicles for short trips. (Who Responsible: Environmental Management)

GOAL #3

REDUCE THE AMOUNT OF GREENHOUSE GAS EMISSIONS DIRECTLY ATTRIBUTABLE TO NAPA COUNTY EMPLOYEES' COMMUTE BY INCREASING EMPLOYEE TRANSPORTATION ALTERNATIVES.

DISCUSSION ON GOAL #3, EMPLOYEE COMMUTE

Reduction of GHG emissions caused by the employee commute is a key variable in achieving AB32 requirements. However, it may be the most difficult variable to quantify and implement. GHG reduction strategies in the commute segment fall into two general categories. The first is reducing employee commute through a comprehensive program that changes commuter behavior, and the second is by considering a change to the County's traditional five-day operating model..

COMPREHENSIVE COMMUTE PROGRAM

Emissions stemming from the vehicle miles traveled (VMT's) through the daily commute of Napa County employees accounts for approximately 43% of total emissions from County operations.

Affecting peoples commute habits is the most challenging segment to understand and plan, because it addresses individual behavior. However, as a segment that accounts for more than one third of total emissions, transportation is a critical component of the Emissions Reduction Plan for County Operations.

In March 2008, a multi-departmental working committee was formed to research the issue of Napa County employee commute. This working group included representatives of the County Executive Office, the Public Information Officer, Human Resources, Public Works and the Health and Human Services Agency, and has now been expanded to include Environmental Management. Recognizing that each commuter has unique circumstances and needs, the working group sought to research possible actions that would decrease employee vehicle miles traveled (VMT) and therefore emissions.

Understanding that the development and implementation of a successful commuter program requires customization based upon geography and socioeconomics, the working group made the following initial recommendations:

- Continue Trip Reduction Program in its current form pending future actions;
- Conduct an employee commute survey to obtain baseline data with follow-up surveys being completed annually;
- Establish Emergency Ride Home program through Solano Napa Commuter Information;
- Establish Ride Matching Program through Solano Napa Commuter Information;
- Host Community Transportation Fair; and
- Research enhanced/expanded telecommuting and/or alternative work week scheduling.

The Commuter Working Group received approval to proceed with the first five action items. The Group also received preliminary approval to proceed with the sixth action item, however the alternative models/measures are currently treated as options available to departments at the discretion of departmental management.

In order to better understand the commuter behavior of Napa County employees, the County partnered with Solano Napa Commuter Information (SNCI) in September 2008 to complete a survey of employees to learn more about existing commute habits and actions that might entice employees to reduce fuel consumption associated with commuting. The survey found that approximately 82% of the County's employees drive alone to and from work in personal vehicles. This compares to a countywide estimate of almost 73 percent reported in Table CIR-A in the Circulation Element of the General Plan as driving alone on their daily commute. The County has articulated its intention through Objective CIR-2 in the Circulation Element to "*Work with the Napa County Transportation and Planning Agency and incorporated jurisdictions in Napa County to reduce the percentage of work trips that are by private single-occupant vehicles by 2030 such that Napa County's percentage decreases to 50 percent.*"

TOP 4 COUNTIES OF RESIDENCE

68% OF EMPLOYEES RESIDE IN NAPA COUNTY

18% OF EMPLOYEES RESIDE IN SOLANO COUNTY

6% OF EMPLOYEES RESIDE IN SONOMA COUNTY

4% OF EMPLOYEES RESIDE IN CONTRA COSTA COUNTY

Notwithstanding the stated objective, for the purposes of this analysis the emission reductions considered herein are based on the current distribution of county employees at County facilities and the assumption that a comprehensive program will result in conservatively 5% of all employees participating in some commute reduction program resulting in a 20% reduction in commute miles for the participating employees by 2020. The table below depicts the annual GHG emission reduction that could result from 5% of the employees nominally change their commute habits.

- Number of County Employees Affected by Program: 56
- Greenhouse Gas Emission Reduction (e-Tons) 32

This information underscores the importance the potential impact of shifting current commute habits of County workers to alternative methods with respect to the achievement of reductions in emissions.

The *Commuter Choice Primer: An Employer's Guide to Implementing Effective Commuter Choice Programs*, a cooperative effort of three federal agencies (United States Department of Transportation Federal Transit Administrations, United States Department of Transportation Federal Highway Administration, and the United States Environmental Protection Agency) identifies and analyzes a range of options that employers can use to encourage employees to choose an alternative solo vehicle commuting. These options are categorized into four commuter choice categories:

1. Mode Choice	How Employees Commute	The **how** of commute travel deals with the variety of available transportation options and incentives for moving between "home" and "work" locations.
2. Time Choice	When and How Fast to Commute	**When** employees "get to work" is a function of both mode and schedule. Employers that offer flex-time and alternative work schedules allow employees to plan their travel around peak commute times, thus reducing both travel time for the employee and peak period congestion for the community. Flex-time allows individuals to better juggle work and home life and thus create positive benefits for employee and employer.
3. Location Choice	Where to Commute and Whether to Commute	Technology and land use choices affect where and even whether an employee travels to work. Employers that encourage tele-work, either from home or tele-work centers, decrease the need for commuting and the commute distance.
4. Route Choice	Which Way to Commute	The commute route choice is typically the result of necessity, experience, and current information. Employees take routes that get them where they need to go (including en route stops) based on experience over time that informs them of the most efficient way to get to and from their work locations. Employers can assist employees by providing information that helps them plan travel routes specific to their individual needs and current travel conditions. Additionally, employers may assist in linking employees to other employees who travel similar routes so that they can coordinate travel routes and schedules. These choices recognize that each employer, each worksite, and each employee has different needs and characteristics.

In some cases, successful commute programs include a paid parking component as a disincentive to commute in a single occupant vehicle. In some cases, employers have offset the cost of the parking charge with a stipend that can be retained by the employee should they choose a commute alternative. The stipend provides an incentive to avoid driving alone because the employee can then spend the increase for other needs. The paid parking component creates a disincentive to drive alone due to the relatively high cost of parking. These two attributes of a paid parking program create a powerful incentive to not drive alone. However, this type of program can create equity and employee relations issues and is not expected to be further studied at this time.

At this point, and pending development of a comprehensive commute program, we have based cost and GHG emissions reduction estimates on a purely incentive-based program that does not include paid parking.

To be effective in reducing emissions, a commute program will need additional policy emphasis from the Board, and program development and marketing to employees and departments. A successful commute program also takes a great deal of management. One common theme in all of the successful commute programs analyzed was the dedication of at least one half time equivalent (FTE) employee to manage the program. Presently the County is attempting to develop such a program without a dedicated staff position, but through the multi-department working group.

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Consistent with Objective CIR-2 in the Circulation Element cited above, i.e., to "*Work with the Napa County Transportation and Planning Agency and incorporated jurisdictions in Napa County to reduce the percentage of work trips that are by private single occupant vehicles*;" accordingly it would be appropriate to recommend that Napa County allocate 0.5 FTE staff position to be responsible for coordinating TDM (transportation demand management) programs aimed at reducing single occupant vehicle commute by County employees.

Four Day Operation of County Offices

Another option that has been suggested as a potential measure to reduce GHG emissions is the conversion of appropriate facilities from a five-day schedule to a four-day schedule. This consists of changing the time that a facility is open to the public and to staff from five, eight-hour days to four, ten-hour days, or four, nine-hour days. Staff research into the potential benefits of modifying the business days from the traditional five-day schedule to some form of a 4 day model to reduce employee commute miles was inconclusive. While the County Operations Emissions/Employee Commute factor may appear to benefit from many employees driving to work 20% fewer days, there is no way to accurately account for the off-day employee driving habits and as a consequence no recommendation is included in this Plan related to changes in the days of operations for County programs.

SUMMARY OF EMPLOYEE COMMUTE REDUCTION STRATEGIES

From a financial point of view, there is no demonstrable cost savings to the County for any strategy identified to reduce the amount of vehicle miles traveled by employees from home to work and back to home. Yet commuter mileage is the single largest contributor to GHG emissions among the three components discussed in this report. It is anticipated that GHG emissions reductions stemming from a comprehensive commute program would be approximately 32 eTons.

RECOMMENDED ACTIONS, GOAL #3

1. Allocate 0.5 FTE staff position to be responsible for coordinating TDM (transportation demand management) programs aimed at reducing single occupant vehicle commute by County employees and to work with NCTPA member agencies to jointly develop and operate a comprehensive commute alternatives program targeting first the employees of the respective jurisdictions and then those working for other Napa County employers. (Who Responsible: Directors of Public Works and Environmental Management to propose in upcoming budget).
2. Identify and adopt employee incentives to participate in carpooling and other ridesharing programs. (Who Responsible: Public Works, assuming action 1 is implemented)
3. Authorize Department Heads to offer flexible working hours and telecommuting where consistent with job duties and customer service needs. (Who Responsible: Human Resources Director)