

# Foster City Ad Hoc Environmental Sustainability Task Force



# Recommended Sustainability Action Plan

## ACKNOWLEDGEMENTS

### City Council

John Kiramis, Mayor  
Rick Wykoff, Vice Mayor  
Pam Frisella, Council Liaison to Task Force  
Art Kiesel  
Linda Koelling

### Ad Hoc Environmental Sustainability Task Force

Task Force Chair: Frank Niccoli  
Task Force Vice-chair: Jason Bade  
Task Force Members: Marah Curry  
Heather Foster  
Ira Fruitman  
John Igoe  
Sally Liu  
Myrna Martinson  
Penny Mika  
Patricia Player Maxwell  
Surinder Sikand

### City Staff

Jim Hardy, City Manager  
Kristi Chappelle, Assistant City Manager, Staff Liaison to Task Force  
Norm Dorais, Public Works Maintenance Manager  
Laura Galli, Public Works Assistant Engineer  
'Andra Lorenz, Management Analyst  
Cori Wilser, Environmental Sustainability Intern  
Thanks to many other City Staff that provided information and expert advice.

### Guests and Speakers

Joanne Bohigian, Resident, Past President of Bayfront Court Homeowners' Association  
Sue Chamberlain, Resident, President of Bayfront Court Homeowners' Association  
Jennifer Chicconi, Allied Waste  
Hilary Gans, SBWMA  
Herb Gong, PG&E  
Kathy Lavezzo, PG&E  
Jeffrey Liang, RecycleWorks  
Christine Maley-Grubl, Peninsula Traffic Congestion Relief Alliance  
Oscar Mace, Resident, Director of Bayfront Court Homeowners' Association  
Laura McHugh, Gilead Sciences  
Kirsten Raubitschek, Resident  
Miriam Reiter, RecycleWorks  
Craig Rush, Resident, Master Composter  
Nicole Sandkulla, BAWSCA  
Jonathan Strunin, ICLEI  
Kirk Syme, Woodstock Development  
Sonja Tappen, Resident  
Don Weden, Retired Santa Clara County Principal Planner

### Other Resource Organizations

Joint Venture Silicon Valley Network  
Sustainable Silicon Valley  
Sustainable San Mateo County

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# 1.0 Executive Summary

## 1.1 Introduction

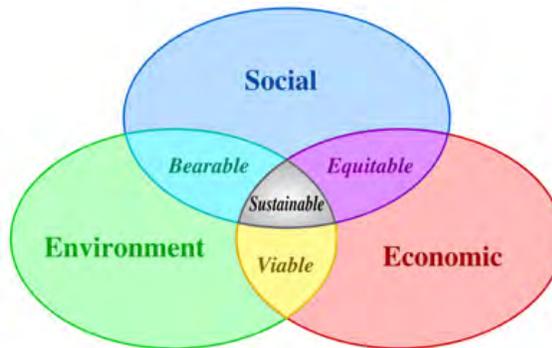
This Environmental Sustainability Action Plan is a set of goals, recommendations and a general framework that create a path to a more sustainable Foster City. The Ad Hoc Environmental Sustainability Task Force (ESTF or Task Force) defined its vision for a “Sustainable Foster City Community” as follows:



***Foster City’s vision is to be a community that meets the needs of the present without compromising the ability of future generations to meet their own needs.<sup>1</sup>***

In order to achieve the Task Force’s vision, four distinct elements of sustainability must be balanced. These four E’s of sustainability and how their principles are used in this Sustainability Action Plan are described below:

Environment	Social Equity	Economics	Education
The goals and recommendations promote a sustainable environment that is naturally replenished and thriving. It provides clean air, water and land for food and shelter for all living things.	The goals and recommendations ensure the opportunity for full participation by all segments of the community in all activities, benefits, and decision-making of society.	The goals and recommendations encourage economic activity that serves the common good, is self-renewing, builds local assets and self-reliance, and encourages a wide variety of community serving businesses to operate locally.	The goals and recommendations incorporate education as a key tool for successful implementation of the larger sustainability program.



There are many actions that can be taken to achieve environmental, social equity or economics goals individually, but, as the graphic illustrates, to achieve true

<sup>1</sup> Based on the 1987 Brundtland Report’s definition of Sustainable Development: [“Report of the World Commission on Environment and Development.”](#) General Assembly Resolution 42/187, 11 December 1987.

sustainability, a community must choose those actions that fall into areas where the categories overlap. The goals, recommendations, and implementation suggestions included in this plan were prioritized by the Task Force to balance these principles. Keeping this balance in mind during consideration and implementation of these recommendations will help reduce the chance of unintended consequences. For example, when a business regulation ordinance is recommended, the recommended implementation approach is to work closely with the local business community and the Foster City Chamber of Commerce to make sure that business concerns are addressed and to avoid unintentional economic hardship for the local businesses, while still reaching the Task Force's environmental goals.

The education recommendations help to maintain this balance. Education is an essential tool to give individuals good information and alternatives for making sustainable choices that balance environmental concerns with social equity and economics.

While the plan addresses environmental and educational recommendations directly, it gives higher priority to recommendations that could increase business opportunities, create local or regional jobs, or save money for residents, businesses or Foster City (City). Economics are discussed in the *Financial Impact* section of each recommendation.

ESTF addressed social equity by selecting a variety of sustainability recommendations and funding options for these initiatives. It was careful to consider recommendations that were affordable and feasible for all residents and businesses. It also avoided recommendations that, while good for one group, might harm another either directly or indirectly. Social equity issues are indirectly addressed throughout the *Description*, *Implementation* or *Financial Impact* sections of the report.

This action plan is the first step in helping the community to do its part to curb human influence on climate change, to protect natural resources, and to create a "Sustainable Foster City Community." ESTF members believe the City can help the community set high standards for sustainability while still being mindful of current economic conditions. While each recommendation will certainly require resources to implement, such as staff time or funding, most recommendations will result in short or long term financial savings to the City, its residents, or local businesses. The initial up front investment by the City, its residents or businesses will not only have a positive impact on the environment, but have the potential to improve the "bottom line" for family, business and City budgets.

## 1.2 Report Summary Overview

There continues to be increasing evidence that carbon dioxide (CO<sub>2</sub>) and other greenhouse gases (GHGs) released into the atmosphere are having a profound effect on the Earth's climate and that more collective efforts are needed to meet this challenge.

See **Appendix A**  
for Sustainability  
Terms and  
Acronyms

The report includes the results of a baseline community-wide GHG Emission Inventory for calendar year 2005. This information will be used to evaluate the effectiveness of GHG reduction efforts and progress made toward established goals.

The ICLEI-recommended GHG emissions measurement methodology puts community-wide GHG emissions for the City into three categories: the Built Environment, Transportation, and Waste. The inventory shows that in 2005, 58% of Foster City's GHG emissions came from the Built Environment, created from the production of energy consumed in residential, commercial and government buildings and processes. Transportation GHG emissions, created from the burning of fuel in equipment and vehicles used on local roads in the City, constituted 38% of the total. The remaining 4% of GHG emissions are created from landfill waste directly attributable to Foster City. (See section 2.3.2 for a discussion on the inclusion of local roads and state highways in the GHG emission inventory.)

The City has a history of environmentally friendly policies, procedures and practices and has already made strides toward reducing the impact of city operations on the environment. The City has shown an increasing awareness of community-wide GHG emissions issues by establishing ESTF to develop goals and create a recommended action plan for community-wide environmental sustainability in Foster City. However, environmental sustainability is about more than just climate change. In addition to GHG emission reductions, ESTF has chosen to make this plan inclusive of other pollution prevention efforts and natural resource protection. Instead of a climate action plan, which might mainly focus on energy and fuel consumption, this plan also addresses water conservation, water pollution prevention, solid waste source reduction and recycling.

### Approach

To better manage the broad subject of sustainability, ESTF divided recommendations into resource, education, and administrative categories. The resource categories were further divided into four subjects:

*Resource:*

- Energy
- Solid Waste

- Air Quality / Transportation, and
- Water

The Task Force’s process of developing goals and recommendations for the action plan included meeting twice a month from July of 2008 through February of 2009. During meetings, ESTF members learned about and discussed sustainability concepts, current City, county, regional, state and federal efforts, and possible ideas to consider for Foster City. ESTF members were informed by dialogue with subject-matter experts and each other, and did additional research and development of goals and recommendations in subcommittees.

### Goals & Recommendations

To determine what actions should be recommended, ESTF first had to evaluate what goals, when attained, would lead to a more a sustainable community. In many cases the goals chosen were in line with guiding legislation, such as:

- AB (Assembly Bill) 32 – The California Global Warming Solutions Act
- SB (Senate Bill) 375 – Transportation and Land Use Planning
- AB 1881 – The Water Conservation and Land Use Act
- AB 939 / AB 1016 – The Integrated Waste Management Act

The following tables list the goals and recommendations detailed in Section 3 of this report. Each table, except for *Table 1-1. Overall Goals*, references the page where each recommendation is discussed in Section 3 (*Page*); whether the recommendation applies to residential, commercial or both (*Sector*); whether the recommendation uses incentives, mandates participation or both (*Approach*); and the estimated time it will take to implement the recommendation (*Time*). As described in more detail in Section 2.4.2, there were other evaluation criteria considered by ESTF, including several financial criteria. While these economic data were important to the discussion and prioritization of the recommendations, estimates represent a very preliminary staff assessment. This preliminary assessment can be found in the evaluation matrix in Appendix E. A more detailed analysis of the costs, savings and economic benefits will be part of a “next steps” implementation plan for the recommendations.

**Table 1-1. Overall Goals**

Create short-term goals to measure progress toward AB 32 GHG reduction goals, including:
• 5% reduction from 2005 GHG levels by 2010
• 15% reduction from 2005 GHG levels by 2015
• 25% reduction from 2005 GHG levels by 2020 (AB 32)

**Table 1-2. Energy Goals and Recommendations**

<b>Goals:</b>					
<ul style="list-style-type: none"> <li>Reduce community-wide electricity and natural gas consumption by 20% from 2005 levels by 2015</li> </ul>					
<ul style="list-style-type: none"> <li>Increase renewable energy usage by 33% over 2005 levels by 2020 (AB 32)</li> </ul>					
<b>Recommendations:</b>		<b>Page</b>	<b>Sector</b>	<b>Approach</b>	<b>Time</b>
E 1	Energy Efficient Appliances	3-5	Residential	Incentive	2-5 yrs
E 2	Business Energy Efficiency Upgrades	3-6	Commercial	Incentive	2-5 yrs
E 3	Green Building Ordinance	3-8	Both	Mandatory	2-5 yrs
E 4	Business Energy Audit	3-10	Commercial	Mandatory	0-2 yrs
E 5	Energy Monitoring	3-11	Residential	Incentive	2-5 yrs
E 6	Energy Efficiency & Renewable Energy Financing	3-12	Residential	Incentive	2-5 yrs
E 7	Renewable Energy Requirements	3-14	Both	Mandatory	6+ yrs
E 8	Green Business Program	3-14	Commercial	Incentive	0-2 yrs

E = Energy

**Table 1-3. Solid Waste Goals and Recommendations**

<b>Goals:</b>					
<ul style="list-style-type: none"> <li>Meet or exceed the state-wide mandate of 50% diversion of waste from landfills (AB 1016)</li> </ul>					
<ul style="list-style-type: none"> <li>Increase participation in food waste collection in both residential and commercial sectors by 50% each from 2005 levels by 2015</li> </ul>					
<b>Recommendations:</b>		<b>Page</b>	<b>Sector</b>	<b>Approach</b>	<b>Time</b>
SW 1	Commercial Food Waste Collection	3-17	Commercial	Incentive	2-5 yrs
SW 2	Ban on Plastic Bags and Styrofoam	3-18	Commercial	Mandatory	2-5 yrs
SW 3	Construction & Demolition Ordinance	3-20	Both	Both	2-5 yrs
SW 4	Yard Waste Ordinance	3-21	Commercial	Mandatory	2-5 yrs
SW 5	Recycling of Styrofoam and Hard-To-Recycle Plastics	3-21	Both	Incentive	0-2 yrs
SW 6	RecycleBank or Pay-As-You-Throw	3-22	Both	Incentive	0-2 yrs
SW 7	Pharmaceutical Drop-Off	3-23	Residential	Incentive	0-2 yrs
SW 8	City-Wide Swap Meet	3-24	Residential	Incentive	0-2 yrs

SW = Solid Waste

**Table 1-4. Air Quality / Transportation Goals and Recommendations**

<b>Goals:</b>						
<ul style="list-style-type: none"> <li>• Reduce Vehicle Miles Traveled (VMT) by 20% from 2005 levels by 2020</li> </ul>						
<ul style="list-style-type: none"> <li>• Increase the number of vehicles in the community that are electric, hybrid, or use alternative fuel. (ESTF has not set a quantifiable goal yet for the number of vehicles with lower GHG emissions. More research needs to be done to determine a baseline of how many of these vehicles are currently being used in Foster City to determine the opportunity for improvement in this area.)</li> </ul>						
<ul style="list-style-type: none"> <li>• Contribute to the reduction of PM<sub>2.5</sub> (fine particulate matter) and harmful chemicals in the air by 10% from 2005 levels by 2035. (ABAG Bay Area Regional Goal)</li> </ul>						
<ul style="list-style-type: none"> <li>• Contribute to the reduction of PM<sub>10</sub> (coarse particulate matter) in the air by 45% from 2005 levels by 2035. (ABAG Bay Area Regional Goal)</li> </ul>						
<b>Recommendations:</b>		<b>Page</b>	<b>Sector</b>	<b>Approach</b>	<b>Time</b>	
AQT	1	Preferred Parking / Electric Plug-In	3-27	Both	Mandatory	2-5 yrs
AQT	2	PCE Elimination	3-28	Commercial	Mandatory	2-5 yrs
AQT	3	Urban Forestation	3-29	Both	Mandatory	2-5 yrs
<b>Transportation Committee Recommendations Supported by ESTF:</b>						
CS	2	Utilize "NextBus" Technology				
CS	3	Expand Service Hours				
CS	4	Provide Weekend and Evening Connection Shuttle Service				
CS	5	Provide Bike Racks on All Shuttles				
CS	6	Create Timed Transfers at Key Shuttle Points				
OT	3	Install Bus Stop Improvements				
EL	5	Install Bike Lockers				
ADMIN	2	Foster Relationships with Local Transit Agencies, the City of San Mateo and other Neighboring Municipalities				
ADMIN	4	Advocate for Improved SamTrans 251 Service				
PO	1	Launch Publicity Campaign				

ABAG = Association of Bay Area Governments  
 ADMIN = Administration & Oversight  
 AQT = Air Quality / Transportation  
 CS = Connection Shuttle  
 EL = Engineering & Land Use  
 OT = Other Transit  
 PCE = perchloroethylene  
 PM<sub>2.5</sub> = Particulate matter of 2.5 micrometers or less in size  
 PM<sub>10</sub> = Particulate matter of 10 micrometers or less in size  
 PO = Public Outreach and Education

**Table 1-5. Water Goals and Recommendations**

<b>Goals:</b>					
<ul style="list-style-type: none"> <li>Reduce home and commercial water use by 20% from 2005 levels by 2020 (BAWSCA Goal)</li> </ul>					
<ul style="list-style-type: none"> <li>Maintain or improve current water quality standards in the lagoon and the effluent to the bay</li> </ul>					
<b>Recommendations:</b>		<b>Page</b>	<b>Sector</b>	<b>Approach</b>	<b>Time</b>
W 1	Water-Wise Landscaping	3-31	Both	Mandatory	2-5 yrs
W 2	Education Garden	3-32	Residential	Incentive	2-5 yrs
W 3	Tiered Water Rates	3-33	Both	Incentive	0-2 yrs
W 4	More Informative Water Bills	3-34	Both	Incentive	2-5 yrs
W 5	Water Conservation Help Line	3-35	Residential	Incentive	0-2 yrs
W 6	Water Saving Appliances	3-36	Both	Incentive	0-2 yrs
W 7	Conservation Program for Multi-Family Dwellings	3-37	Residential	Incentive	2-5 yrs
W 8	Reliable and Uninterruptible Water Sources	3-37	Both	Both	6+ yrs

BAWSCA = Bay Area Water Supply and Conservation Agency

W = Water

**Public Outreach & Education**

Public outreach and education are critical components of an Environmental Sustainability Action Plan. Many people do not fully understand the problems, and those that do may not know the best solutions or how they can make a difference. Public outreach and education can influence behavior change by helping people to understand both their impact on the community’s sustainability and the actions they can take to reduce their negative impacts. The following table lists the Public Outreach Goals & Recommendations and references the page numbers where they are detailed in Section 4 of this report:

**Table 1-6. Public Outreach Goals & Recommendations**

<b>Goals:</b>
<ul style="list-style-type: none"> <li>Create a Public Outreach and Education campaign to explain, promote, and market sustainability.</li> </ul>
<ul style="list-style-type: none"> <li>Make 2010 “The Year of Sustainability”. Through Council leadership reach out to all community groups, including service clubs, churches, schools, social clubs, etc., and challenge them all to choose at least one sustainability project to accomplish for the year. This will help kick off many of the other outreach efforts.</li> </ul>
<ul style="list-style-type: none"> <li>Create a short summary version of the Environmental Sustainability Action Plan so that it is easily understood and referenced by the public. This document would be used in all other outreach efforts.</li> </ul>

**Table 1-6. Public Outreach Goals & Recommendations Cont'd**

<b>Recommendations:</b>		<b>Page</b>
EDU	1   Earth Day or Sustainability Fair	4-2
EDU	2   Educational Workshops	4-2
EDU	3   Grass-roots Organization	4-3
EDU	4   Information Gathering	4-3
EDU	5   Foster City Green Website	4-4

EDU = Public Outreach and Education

### **Administration and Oversight**

For the recommendations listed in this action plan to be successfully implemented, administrative oversight will be needed. The following table lists the administrative recommendations and references the page numbers where they are detailed in Section 5 of this report.

**Table 1-7. Administrative Recommendations**

<b>Recommendations:</b>		<b>Page</b>
ADMIN	1   Living Document	5-1
ADMIN	2   City Operations	5-1
ADMIN	3   Staffing	5-2
ADMIN	4   On-Going Role for ESTF	5-2

ADMIN = Administration and Oversight

The administrative recommendations recognize that to be truly sustainable, goals and recommendations must be reviewed and updated on a regular basis. Because of the fast pace of technology improvements and newly developing funding opportunities, ESTF recommends annual progress reports on the implementation of the recommendations in the report, as well as a review of the action plan itself every three years.

This section of the report further acknowledges that by adopting and implementing environmental sustainability goals and programs for its own operations, the City can set a positive example for the rest of the community.

ESTF understands that implementing the recommended Environmental Sustainability Action Plan will require a significant commitment of City staff time and other resources. It also understands that in this economic climate, the City may not be able to afford to do everything at once.

By submitting this report to the City Council, ESTF has fulfilled its mission. However, the task force recognizes several ways in which it can be of further assistance to the City and recommends the continuation of ESTF as an Ad Hoc Committee. Ongoing ESTF support could augment limited City resources and

move implementation efforts along faster. If extended for three years, the task force could be helpful in the following ways:

- Conducting further research
- Implementing and tracking recommendations
- Providing a volunteer and organizational base for public outreach and education
- Reviewing the action plan's first three years.

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## **2.0 Overview**

### **2.1 Background**

In September 2006, the City adopted Resolution No. 2006-71, recognizing the importance of supporting efforts of all governments to develop policies and programs to reduce global warming. The City then passed Resolution No. 2007-57 in June 2007 showing its support for the development of the San Mateo Energy Strategy to reduce the impact of global warming and the corresponding climate change. See Appendix A for a glossary of terms and acronyms.

There continues to be increasing scientific evidence that carbon dioxide (CO<sub>2</sub>) and other GHGs released into the atmosphere will have a profound effect on the Earth's climate, increasing the risk to communities from increased extreme weather events, changing rainfall and crop productivity patterns, and migration of infectious diseases. For the City, global climate change will likely mean diminished snow pack and increased drought, an earlier and longer wildfire season impairing air quality and fire fighting resources, reduced habitat for native species, and rising water levels in the San Francisco Bay.

The City has shown increasing awareness of these issues. A list of environmentally friendly policies and actions that have already been implemented by the City is included in Appendix B. The City participates in the Joint Venture Silicon Valley Network Climate Protection Task Force, has joined Sustainable Silicon Valley (SSV), and is working with ICLEI-Local Governments for Sustainability, USA (ICLEI) to complete GHG emissions inventories for both city-wide operations and the community, and participates in RecycleWorks and Sustainable San Mateo County events.

In April 2008, the City passed Resolution No. 2008-30 establishing ESTF to create a recommended action plan for community-wide environmental sustainability in Foster City. The action plan was to include recommendations that could be implemented in the short-, medium-, and long-term including a feasibility study of each recommendation and a measurable outcome to enable evaluation. See Section 2.2 for the complete Mission Statement of ESTF.

Both regionally and across the country, there is an effort underway for local governments to create Climate Action Plans to address the climate change and GHG issues described above. However, environmental sustainability is about more than just climate change. In addition to GHG emission reductions, ESTF has chosen to make this plan inclusive of other pollution prevention efforts and natural resource protection. So instead of a climate action plan, which would mainly focus on energy and fuel consumption, this plan also addresses water conservation, water pollution prevention, solid waste source reduction and recycling.

The newly created ESTF had its first meeting on July 10, 2008, and met twice a month through February 2009. The Task Force was made up of 11 residents of Foster City from diverse backgrounds and interests. There were also several non-member residents and business representatives that participated regularly in the meetings and added valuable discussion as members of the public.

ESTF has created this plan and now presents it to the City Council as its recommended Community-Wide Sustainability Action Plan. ESTF believes that adopting this plan is an important first step toward encouraging the community to do its part to curb the human influence on climate change, to protect our natural resources, and to create a “Sustainable Foster City Community.”

Since the City has a unique role as a leader in the effort to become a more sustainable community, ESTF supports the City’s efforts to create a City Operations Specific Sustainability Plan. The City could use this Community-Wide Sustainability Action Plan as a guiding document.

## **2.2 Mission Statement**

Resolution No. 2008-30 defines the mission of ESTF as:

*The mission of the Environmental Sustainability Task Force is to create a recommended action plan for community-wide environmental sustainability in Foster City. The action plan shall include recommended actions that can be implemented in the short-, medium-, and long-term and shall include an analysis of the feasibility of each recommendation and at least one measureable outcome that will enable successful evaluation.*

*Specific tasks may include developing the following kinds of recommendations for City Council (Council) consideration: 1) Where to focus the community’s efforts based on results of a community-wide greenhouse gas (GHG) emissions inventory; 2) Specific targets/goals for GHG emissions reductions/avoidance; 3) Items to be included in an action plan; 4) Implementation strategies; and 5) Ways to monitor and verify progress on action plan implementation and GHG emission reduction/avoidance.*

## **2.3 Existing Conditions**

### **2.3.1 Current Policies and Actions**

Foster City has already made several steps toward environmental sustainability. A list of policies and actions that have already been implemented are included in Appendix B.

### **2.3.2 Residential Mixture**

Foster City has a high percentage of multi-family dwellings (MFDs) in its residential mixture. In 2008, MFDs made up 63.5% of all housing units in Foster City. Based on the 2000 Census data, Foster City had the highest MFD percentage in San Mateo County.

This is an important statistic to understand when developing programs that target the residential sector. MFDs often require different strategies for incentive-based programs, due to the fact they are often in Homeowners' Association (HOAs), involve landlord-tenant relationships, or residents do not have complete control over their property. Because of these complexities, MFD residents may not ever see their water bill, or share a community trash collection point, taking away many of the typical ways to incentivize residents to use less/recycle more for instance.

Because of Foster City's residential mixture and the complexities that stem from MFDs, ESTF created recommendations that specifically target MFDs and tried to make sure that, where applicable, special consideration is given to MFDs so that this significant population can be included in sustainability programs.

### **2.3.3 Foster City Community-Wide GHG Emission Inventory**

In 2008, Foster City staff completed a baseline community-wide GHG Emission Inventory for the year 2005. Future inventories will allow Foster City to measure its success in reducing GHG emissions based on the implementation of the recommendations in this plan against this baseline year.

Foster City used ICLEI's Cities for Climate Protection Methodology and Clean Air and Climate Protection (CACP) software to systematically estimate GHG emissions from energy use and waste related activities at the community-wide scale. The CACP software reports emissions in terms of carbon dioxide equivalents (CO<sub>2</sub>e) to allow for the consideration of all GHGs in comparable terms. The emissions coefficients and methodology used are consistent with national and international inventory standards established by the International Panel on Climate Change (IPCC), the U.S. Voluntary Greenhouse Gas Reporting Guidelines, and the United States Environmental Protection Agency (U.S. EPA) Waste Reduction Model. For more information on the inventory methodology and assumptions, see Appendix C.

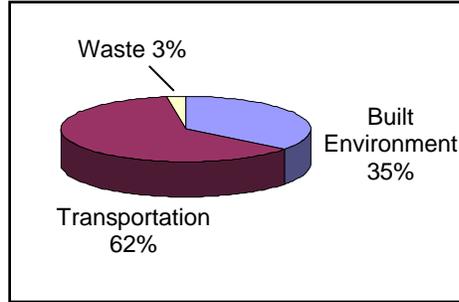
The Community-Wide GHG Emissions Inventory looks at emissions from three major sectors:

- **The Built Environment:** GHG emissions created from the production of energy consumed in residential, commercial, government, and industrial buildings and processes in the City.
- **Transportation:** GHG emissions created from the burning of fuel in vehicles and equipment in the City.
- **Waste:** GHG emissions created from landfill waste directly attributable to Foster City.

Table 2-1 lists the CO<sub>2</sub>e emissions (in metric tons) for the major categories.

**Table 2-1 Community-Wide GHG Emission Inventory – Including State Highway Data**

Category	2005 CO <sub>2</sub> e (metric tons)
<b>Built Environment</b>	<b>87,577</b>
Residential	44,594
Commercial	42,983
<b>Transportation</b>	<b>151,873</b>
<b>Waste</b>	<b>6,304</b>
<b>Total</b>	<b>245,754</b>



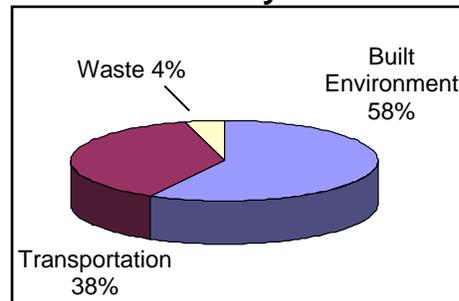
The data presented here show that transportation is, by a significant amount, the most contributing category. However, the data are skewed slightly for two reasons. First, Foster City has no major industrial operations, making both the Transportation category and the Built Environment a larger percentage overall when compared to other municipalities. Second, and more significant, is that the transportation data that goes into the City’s inventory include the portion of Hwy 92 in the City, including 50% of the San Mateo / Hayward Bridge, the portion of Hwy 92 that spans the bay. So it is somewhat misleading when all of the Hwy 92 data are included, given that such a large portion of the highway vehicle miles travelled (VMT) is being allocated to such a small city, and that the City has little to no influence over the driving patterns of the majority of the users of the bridge.

The ICLEI methodology does not have a clear way of addressing each community’s impact on the state highway system. The actual number of state highway miles – and therefore VMT – to include in the GHG inventory is unknown. The City does have influence over some of the state highway VMT though (residents commuting out of the City and workers commuting into the City, for example), and supports several land use planning and regional transportation options that could reduce state highway VMT.

When the highway data are taken out of the inventory, Transportation contributes 38%, the Built Environment 58% and Waste 4%. This is more representative of what Foster City can control or have influence over. Goals and measurement of future GHG reductions will be measured and compared to the data with local roads only as represented in Table 2-2.

**Table 2-2 Community-Wide GHG Emission Inventory – Local Roads Only**

Category	2005 CO <sub>2</sub> e (metric tons)
<b>Built Environment</b>	<b>87,577</b>
Residential	44,594
Commercial	42,983
<b>Transportation</b>	<b>56,892</b>
<b>Waste</b>	<b>6,304</b>
<b>Total</b>	<b>150,773</b>



## **2.4 Methodology**

### **2.4.1 Framework**

ESTF was tasked with creating an action plan for community-wide environmental sustainability. ESTF met twice a month from July 10, 2008 to February 18, 2009 to accomplish this task.

The first two meetings were spent brainstorming and developing a framework for future meetings. During these two meetings, it was decided that the broad subject of “environmental sustainability” needed to be divided into smaller categories to make ESTF’s work more manageable. The categories are:

- Energy
- Solid Waste
- Air Quality / Transportation
- Water, and
- Public Outreach & Education

ESTF dedicated one meeting to each of these categories, learning about sustainability concepts, regional efforts, and possible ideas for the City to consider. This was the education phase of the Task Force’s work. Speakers were brought in from various agencies and city departments to help provide information and resources.

After this phase, a subcommittee was formed to discuss the detailed goals and recommendations for that category. The subcommittees produced written reports of their findings and recommendations for the Task Force.

Following the education sessions, ESTF began reviewing the detailed recommendations from the subcommittees, and the possible goals and recommendations.

For a complete summary of the topics discussed in each meeting and speakers, resources and public participation see Appendix D.

### **2.4.2 Evaluation**

At the culmination of the review process, ESTF had created 57 recommendations, not including the Public Outreach & Education or Administrative recommendations. ESTF recognized that though each recommendation would help lead the City toward greater sustainability, too many recommendations could be overwhelming and cost prohibitive to implement. It was decided that the recommendations should be evaluated and prioritized to create a more manageable list.

Staff provided a preliminary evaluation of each recommendation, looking at the following items:

- Sector: residential or commercial
- Approach: mandatory or incentive/awareness
- Implementation Time-frame: short (0-2 years), medium (2-5 years), long (6+ years)
- Complexity: Low, medium, high, based on the number of agencies involved, whether it was a new program, required public approval or legal analysis
- Economic Benefits: whether the implementation of the recommendation would provide some kind of economic benefit to the community, whether through job creation, increased demand for local services, etc.
- Cost: the estimated cost to the City
- Funding Available: a list of potential sources that could help with funding
- Savings: whether the implementation of the recommendation would result in any kind of financial benefits – to the city, residents or businesses, through energy savings, rebates, etc.
- Goal Impact: how many of the overall goals would be positively impacted if the recommendation were implemented.

Additional staff analysis is recommended to fully understand all of these evaluation factors. The preliminary evaluation matrix created by staff for ESTF is included in Appendix E.

### **2.4.3 Prioritization**

A special meeting was held on December 11, 2008 to prioritize the recommendations (not including education or administrative recommendations, which were discussed at a later date). During this meeting a “dotmocracy” exercise was completed, where each ESTF member was given an equal number of dots to place next to the recommendations he or she gave the highest priorities based on his or her own evaluation. The initial top 25 recommendations were then reviewed by the Task Force. During the discussion of this preliminary list, several recommendations were removed and several were re-prioritized to be included in the final list.

By the end of the meeting, the Task Force had decided on 27 final recommendations to send to Council as its top priorities. These 26 items are discussed in detail in Section 3.0 of this report. Public Outreach and Education recommendations can be found in Section 4.0, and Administration and Oversight recommendations in Section 5.0. The recommendations that were not considered a top priority at this time are in Appendix F. They can be considered by Council, community groups,

volunteers, and businesses looking for sustainability projects to implement.

This is intended to be a living document with regular evaluation of goals and recommendations and revisions to keep current with emerging technology, funding opportunities and proven successful strategies from other jurisdictions. The recommendations that were not considered top priorities at this time should be re-evaluated for inclusion into the priorities of the Sustainability Action Plan in future revisions, along with other new emerging ideas.

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## 3.0 Recommendations

### 3.1 Introduction

Early on in the ESTF meetings, the Task Force realized that the broad subject of “sustainability” could be better managed if recommendations were divided into resource, education, and administrative categories. The resource categories were further divided into four subjects:

*Resource:*

- Energy
- Solid Waste
- Air Quality / Transportation, and
- Water

### 3.2 Summary of Goals

To determine what actions should be recommended, ESTF first had to evaluate what goals, when attained, would lead to a more a sustainable community. In many cases the goals chosen were in line with guiding legislation, such as:

- Assembly Bill (AB) 32 – The California Global Warming Solutions Act
- SB 375 –Transportation and Land Use Planning
- AB 939 / AB 1016 – The Integrated Waste Management Act
- AB 1881 – The Water Conservation and Land Use Act

Most goals fell into the specific categories listed in Section 3.1 above, and are discussed in detail in the following sections. However, ESTF realized that GHG emission reduction goals could be impacted by actions taken in all of the categories and are discussed here as overall goals for the entire Sustainability Action Plan.

In Fall 2006, the California legislature passed landmark legislation mandating significant reductions in GHG emissions starting first with “stationary sources” such as power plants and petroleum refineries (AB 32). Even though AB 32 starts by targeting specific industries, local governments expect to be required to play an important role in helping the state meet its greenhouse gas reduction goals. AB 32 calls for a return to 1990 greenhouse gas levels by the year 2020, which represents a 25 percent drop from 2005 emission levels<sup>1</sup>. Longer-term, the law calls for emissions to be reduced to 80 percent of 1990 levels by 2050.

ESTF recommends the following overall goals to ensure that the Foster City community does its part to help reach these state-wide goals:

- Create short-term goals to measure progress toward AB 32 reduction goals, including:

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<sup>1</sup> San Mateo County Energy Strategy 2012, Executive Summary, pg 5

- 5% reduction from 2005 GHG levels by 2010
- 15% reduction from 2005 GHG levels by 2015
- 25% reduction from 2005 GHG levels by 2020 (AB 32)

To monitor the community’s success in achieving these goals, Foster City should complete a Community-Wide GHG emission inventory at a minimum of every 5 years. However, the goals will more likely be attained if the inventory is done more often in order to measure intermediate progress. A baseline GHG emission inventory has been completed for 2005. (See Section 2.3.2.)

### 3.3 Summary of Recommendations

While some recommendations will help attain specific goals, other recommendations cross multiple, if not all, categories. The Public Outreach & Education recommendations are an example, with so much cross-over and similarity throughout each category that they are listed in a separate section (4.0). In addition, there are administrative recommendations that do not directly impact the goals of the Task Force. They are listed in a separate section as well (5.0).

Table 3-1 is a list of all of the non-education/administrative recommendations that are detailed later in this section of the report. ESTF gave these recommendations the highest priority based on each member’s sense of what actions would be most successful in helping the Foster City community achieve its goals.

**Table 3-1. Recommendations List**

<b>ID</b>	<b>Recommendation</b>
E 1	Energy Efficient Appliances
E 2	Business Energy Efficiency Upgrades
E 3	Green Building Ordinance
E 4	Business Energy Audit
E 5	Energy Monitoring
E 6	Energy Efficiency & Renewable Energy Financing
E 7	Renewable Energy Requirements
E 8	Green Business Program
SW 1	Commercial Food Waste Collection
SW 2	Ban on Plastic Bags and Styrofoam
SW 3	Construction & Demolition Ordinance
SW 4	Yard Waste Ordinance
SW 5	Recycling of Styrofoam and Hard-To-Recycle Plastics
SW 6	RecycleBank or Pay-As-You-Throw
SW 7	Pharmaceutical Drop-Off

ID	Recommendation
SW 8	City-Wide Swap Meet
AQT 1	Preferred Parking / Electric Plug-In
AQT 2	PCE Elimination
AQT 3	Urban Forestation
W 1	Water-Wise Landscaping
W 2	Education Garden
W 3	Tiered Water Rates
W 4	More Informative Water Bills
W 5	Water Conservation Help Line
W 6	Water Saving Appliances
W 7	Conservation Program for Multi-Family Dwellings
W 8	Reliable and Uninterruptible Alternative Water Sources

AQT = Air Quality / Transportation  
E = Energy  
PCE = perchloroethylene  
SW = Solid Waste  
W = Water

Additional recommendations that were discussed by the Task Force are included in Appendix F. These additional recommendations can also be considered by City Council (Council) for inclusion in the Sustainability Action Plan, but at the very least should be re-evaluated during the next Sustainability Action Plan update, and at any time the City or any person or organization in the community is looking for additional sustainability projects to undertake.

Table 3-2 is a summary of the characteristics of the final prioritized recommendations.

**Table 3-2. Characteristics Summary**

Sector	Approach	Time-Frame
<b>Residential</b> 30%	<b>Mandatory</b> 33%	<b>Short</b> 33%
<b>Commercial</b> 26%	<b>Incentives</b> 59%	<b>Med</b> 59%
<b>Both</b> 44%	<b>Both</b> 7%	<b>Long</b> 7%

Time-Frame: Short = 0-2 years, Med = 2-5 years, Long = 6+ years  
Note: Columns may not add up to 100% because of rounding.

As described in more detail in Section 2.4.2, there were several other evaluation criteria (characteristics) considered by ESTF, including several financial criteria. While these economic data were important to the discussion and prioritization of

the recommendations, the evaluation was a very preliminary staff assessment. However, this preliminary assessment can be found in the evaluation matrix in Appendix E. A more detailed analysis of the costs, savings and economic benefits will be done if Council provides direction for further study and an implementation plan for the recommendations.

## **3.4 Energy Recommendations**

### **3.4.1 Introduction**

This category of recommendations deals with energy consumption in the Built Environment, including electricity and natural gas, used in buildings.

San Mateo County has developed an Energy Strategy for the County and its cities to address the ever-increasing financial costs of energy and water, the impact that creating additional energy related infrastructure will have on local communities, and the increasing concern about climate change and its effects. According to the San Mateo County Energy Strategy, PG&E estimates a one percent annual increase in overall electricity use for the Peninsula area (which includes Foster City) over the next five years. If the area continues to use more energy every year as expected, the environmental impact will be significant. The State will require PG&E to develop new power sources and add new transmission lines to prevent outages. These additional power sources will continue to strain natural resources and emit GHGs and other air pollutants.

The simplest, fastest and most cost-effective way to reduce harmful GHG emissions is to reduce the overall amount of energy used and to use cleaner forms of energy.

### **3.4.2 Energy Goals**

To help achieve the AB 32 goals listed in Section 3.2, the following energy-specific goals are recommended:

- Reduce community-wide electricity and natural gas consumption by 20% from 2005 levels by 2015
- Increase renewable energy usage by 33% over 2005 levels by 2020 (AB 32) by
  - Encouraging PG&E to increase renewable energy portfolio
  - Increasing renewable energy sources within Foster City

The community's total renewable energy usage (including residential and commercial renewable energy projects like solar panels) will need to be estimated and tracked to measure the progress of these goals. All other data are available in the GHG inventory. The renewable energy usage baseline for 2005 will need to be determined.

### 3.4.3 Energy Recommendations

In order to meet these goals, ESTF recommends the following:

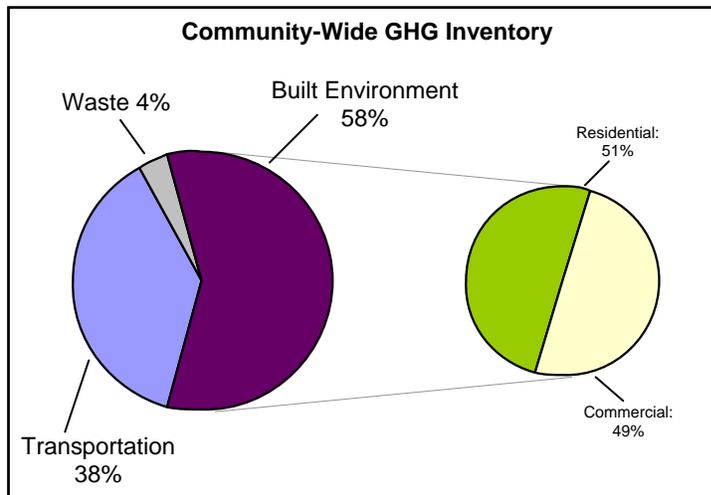
*Recommendation*

**E 1 – Energy Efficient Appliances: Expand financial incentives for energy efficient appliances, including Homeowners’ Associations (HOAs) and Multi-Family Dwelling (MFD) landlords.**

Sector	Approach	Time-Frame
Residential	Incentive	2-5 years

*Description*

Residential energy consumption is 30% of the Foster City Community-Wide GHG emission inventory (51% of the Built Environment). The best way to reduce GHG emissions is to become more efficient and consume less energy. As an example, 2008 ENERGY STAR® qualified refrigerator models used at least 20% less energy than required by federal standards and 40% less energy than the conventional models sold just 7 years previously in 2001<sup>2</sup>. Rebates are an effective way of helping residents install energy efficient appliances in their homes. However, most rebates do not effectively target residential renters, HOAs, landlords and property owners, leaving out a large segment of the Foster City population.



*Implementation*

- Research the available funding for energy efficient appliance rebates through PG&E and Community Development Block Grants (CDBG) and any other potential resources.

<sup>2</sup> [http://www.energystar.gov/index.cfm?c=refrig.pr\\_refrigerators](http://www.energystar.gov/index.cfm?c=refrig.pr_refrigerators)

- Meet with renters, HOAs, landlords and property owners to determine ways to incentivize them to take advantage of the rebates, potentially using City funds to increase the rebates if needed.
- Determine the approximate number of appliances within the community to estimate the total funding and effort needed.

*Financial Impact*

The rebates may not need City funding if research finds that funding is already currently available. However, if current funding is not sufficient to entice/incentivize renters, HOAs, landlords and property owners, then the City may find it necessary to provide some of the funds to support the effort. Additional City costs may include marketing. This recommendation will require time to research, implement, and monitor.

Rebates will not only provide a one-time savings to energy customers for individual appliance upgrades, but will also provide on-going savings in energy bill reductions going forward. In addition, there could be local economic benefits to businesses selling the appliances.

*Indicators/Monitoring*

Track the number and type of appliances that are upgraded within the community and their potential energy savings. It would also be useful to determine the number and type of appliances already in place to determine a baseline.

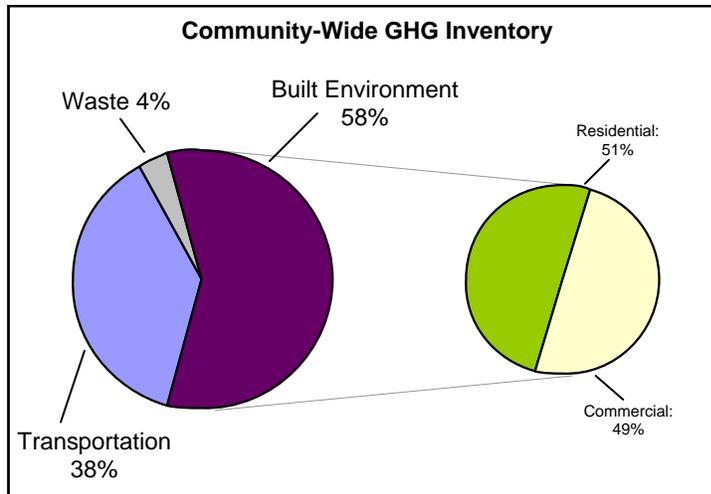
*Recommendation*

**E 2 – Business Energy Efficiency Upgrades: Using existing rebates from the state and utilities or by developing new rebates, create incentives and technical assistance for businesses to do energy efficiency upgrades.**

Sector	Approach	Time-Frame
Commercial	Incentive	2-5 years

*Description*

Similar to the reasoning for E1, it is important for businesses to become energy efficient as well. The commercial sector’s energy consumption makes up 29% of the City’s Community-Wide GHG Emission Inventory (49% of the Built Environment).



In addition to funding, this recommendation includes a component of technical assistance to the commercial sector. It is especially difficult for small businesses to find the time or personnel to become energy efficient. This recommendation would provide outreach to small businesses to educate them about ways in which energy can be saved, therefore helping them save money as well.

#### *Implementation*

- Research available rebates or work with PG&E, the state and county to create rebates for energy efficiency upgrades for the commercial sector.
- Research other resources for technical assistance and make them available to the public.

#### *Financial Impact*

Funding sources should include PG&E, the State of California, and San Mateo County. Additional funds may be needed for outreach. This recommendation will require time to research, implement, and monitor.

Rebates will not only provide a one-time savings to businesses for energy efficiency projects, but will also provide on-going savings in energy bill reductions going forward. In addition, there could be local economic benefits to businesses selling energy efficiency products and engineering firms designing the projects.

#### *Indicators/Monitoring*

Track all energy efficiency upgrades by type and potential energy savings. A baseline of existing appliances and potential energy efficiency projects should be estimated to understand the funding and level of effort needed.

*Recommendation*

**E 3 – Green Building Ordinance: Adopt a mandatory Green Building Ordinance, to include The Leadership in Energy and Environmental Design (LEED) Silver for Commercial and Build It Green 75 for Residential.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential & Commercial	Mandatory	2-5 years

*Description*

Energy efficiency, which can be achieved through a mandatory Green Building Ordinance, as opposed to use of alternative/renewable energy or behavioral changes, will have the greatest impact on energy emission reductions in the Built Environment. ESTF recommends staying in-line with regional policy on Green Building Ordinances in order to ensure that Foster City is still a desirable and economically competitive location in which to build and/or maintain property. ESTF recommends that Foster City advocate for a regional Green Building Ordinance that requires at least the following:

- LEED Silver Equivalent certification for all new commercial/industrial construction and significant remodels. (See discussion of a significant remodel below)
- Build It Green (BIG) Point Equivalent Rating of 75 points for all new residential construction and significant remodels. (The Task Force supports and recommends training City staff to self-certify equivalency to make certification more cost effective for builders and property owners.)
- Provide incentives for projects that exceed LEED Silver or BIG 75 requirements. Incentives can be both monetary and recognition-based.
- Gradually increase the minimum standards over time.

It is worth noting that a successful green building ordinance has the opportunity to not only positively impact energy goals, but to also impact air quality, transportation, water quality, water conservation and solid waste source reduction/recycling goals. The LEED and BIG checklists are included in Appendix G.

*Implementation*

- Collaborate with regional efforts to create a uniform Green Building Ordinance, advocating for the minimum points above.
- Define what would be considered a “significant” remodel. Currently Foster City does not define “significant remodels. However, Fire Code defines it as projects that:

- Add or remodel 25% of the existing square feet (sq ft) in a commercial building, or
- Add or remodel 50% of the existing sq ft in a residential building

ESTF suggests that there are other triggers that should be considered instead of just size. For instance, because of the impact a bathroom or kitchen remodel can make on energy and water efficiency, perhaps all bathroom and kitchen remodels could be considered significant.

- Write and present the ordinance to the Planning Commission and City Council for adoption.
- Create an outreach campaign to help builders and property owners understand the new ordinance, including technical workshops put on either by the City or by LEED and BIG.
- One method of implementing the ordinance could be similar to the City's Construction & Demolition (C&D) ordinance, where the builders or property owners would put down a deposit insuring that they will meet the standards of the Green Building Ordinance. If the builders do not meet the requirements upon completion of the project, they would forfeit their deposit. The forfeited deposits then could be used to fund over-achievement incentives (any builder or property owner that achieves a rating higher than LEED Silver or BIG 75).

#### *Financial Impact*

This recommendation will require time to collaborate with regional efforts to create a uniform Green Building Ordinance, time to write the ordinance, a staff report, and Planning Commission and City Council time for consideration. If adopted, time will also be required for technical assistance, staff training, staff inspections, and to monitor the program. Over-achievement incentives could be through recognition and would not require significant funding. These could include faster turn-around time on permits, a wall of accomplishment in City Hall, or recognition through the City Marquee, City Website and Foster City Television (FCTV), etc.

While there may be an initial increase in cost to developers in the region to meet green building standards, the effort could help put regional developers and builders at the forefront of green building technology, making them more marketable in the future, as more areas adopt green building technology and the State continues to increase its green building requirements. In addition, buildings that have a high green building rating may be more marketable and are more efficient to operate with long-term cost savings to owners and tenants.

*Indicators/Monitoring*

As part of the planning process, all new projects will be required to meet a minimum standard. Some project developers may wish to achieve a higher standard. Track each project for what levels of achievement are met, as well as the amount of money forfeited and used for incentives.

*Recommendation*

**E 4 – Business Energy Audit: Require businesses complete a free PG&E Energy Audit prior to renewing their business license.**

Sector	Approach	Time-Frame
Commercial	Mandatory	0-2 years

*Description*

Part of the struggle in becoming a sustainable community is educating individuals and organizations about the simple steps they can take to reduce their own GHG emissions and potentially save money. PG&E’s business energy audits are free and a great way to help with the education process. While doing an energy audit is not a guarantee that emissions will be reduced or costs saved, many businesses will not only learn how to do things in a more sustainable way, but will also learn that they could potentially save money.

An additional requirement or incentive to consider would be that after the initial audit is completed, with each additional business license renewal, one energy efficiency action would need to be completed. This portion of the recommendation could be considered at a later time, once the initial audit requirement has been implemented and monitored for effectiveness.

*Implementation*

- Create an outreach campaign to help inform businesses of the new requirement.
- Send out reminder notices to businesses with the license renewals and track progress.
- Work with the City Attorney to determine enforcement options.

*Financial Impact*

This recommendation requires time to plan, revise the business license ordinance, implement/provide outreach and track the program.

Other than some time and planning ahead, there is no mandatory cost to the businesses. If businesses choose to implement any of the efficiency improvement recommendations, this could reduce operating costs for

businesses and provide a regional economic benefit to local businesses that are hired to do the energy efficiency work or provide the products.

*Indicators/Monitoring*

Track which businesses have completed the audit, and whether or not any of the efficiency recommendations are implemented.

*Recommendation*

**E 5 – Energy Monitoring: Provide rebates for energy consumption monitoring.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential	Incentive	2-5 years

*Description*

If homeowners and renters are provided information about their energy consumption, they will be able to better understand their own energy consumption and be more inclined to change their behavior voluntarily.

Rebates could be given for the installation/use of the following energy consumption monitoring examples:

- Smart Metering – intelligent meters that help residential customers understand how much energy they are using in real-time. A meter is installed in the home that allows residents to see their real-time energy usage. Some meters even show room by room information. Some utilities, such as PG&E have new meters that they are also calling “Smart Meters.” These, however, do not always provide in-home, real-time information to the resident<sup>3</sup>.
- Thermal Scanning – Many homes waste energy because heat is lost through leaks. Thermal scanning is a service that looks at the heat loss of a structure and would help residential customers understand the amount of loss they are experiencing, which could give them the incentive to weatherize/insulate their home better.
- Programmable Thermostats – A simple programmable thermostat lets residents pre-program the thermostat for different times of the day – allowing them to turn the system down or off when it is not needed. These thermostats could help residential customers prevent wasted energy consumption by allowing them to program exactly what temperature, and when and how long their heat and air conditioning systems are in use.

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<sup>3</sup> PG&E is currently replacing existing Foster City meters with a new meter they refer to as a SMART Meter. These provide PG&E the ability to read meters remotely and offer rate options to encourage conservation. Real-time energy consumption is available to PG&E but they do not have any plans at this time to make this data available to the customers.

*Implementation*

- Research existing rebates, or work with the State, County and PG&E to create rebates.
- Research additional types of monitoring technologies/devices.

*Financial Impact*

This recommendation will require time to research, implement, market, and monitor.

If successful, this monitoring will help people to change their behavior and save money on their energy bills.

Some economic benefit is possible to businesses that sell or provide monitoring products or services.

*Indicators/Monitoring*

Track the number and type of monitoring done and the dollar amount of rebates provided.

*Recommendation*

**E 6 – Energy Efficiency & Renewable Energy Financing: Create low-interest financing (AB 811) for residential energy efficiency and renewable energy projects.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential	Incentive	2-5 years

*Description*

AB 811, passed by the California Legislature in 2008, enables a city to lend money to homeowners to pay for efficiency upgrades and renewable energy projects, where the loan would be repaid through property tax assessments.

A hurdle to most homeowners for some of the more expensive projects (cool roofs, solar panels, etc.) is the upfront cash requirement. Not only does this recommendation provide a low-interest loan option to homeowners, but it allows the payment of the loan to stay with the home if a homeowner decides to sell before the loan is paid off.

ESTF further recommends that there be a requirement to do an energy efficiency audit and possibly upgrades on a home prior to receiving a loan for renewable energy projects. Renewable energy projects will be sized incorrectly if energy is being wasted.

Since this recommendation requires bond funding, small cities like Foster City would benefit from a more regional effort. Several other cities

have expressed interest in a joint effort. The Association of Bay Area Governments (ABAG), who already administers project financing for small jurisdictions, has expressed interest in taking on this assignment. A joint effort such as this would provide an opportunity for sharing the cost of program development and issuing bonds. ESTF recommends that even if a regional effort does not form, Foster City move forward with its own program.

#### *Implementation*

- Advocate for a regional AB811 program.
- Consult with the City Attorney and special bond counsel to help draft or review the loan program. (AB 811 does not have very many limitations on the types or size of the projects.)
- Determine the requirements and limitations of the loans.
- Create an outreach campaign.

#### *Financial Impact*

This recommendation will require the cost of consultation with the City Attorney and special bond counsel, bond issuance costs, as well as time to help draft and determine requirements. However, time and costs can be lower if the City enters into a regional program.

Residents using the loans for energy efficiency or renewable energy projects will see cost savings in their energy bills.

There could be some regional economic benefits to businesses that do energy efficiency upgrades or that install renewable energy systems, and those businesses may gain the knowledge and experience to make themselves more marketable.

#### *Indicators/Monitoring*

Track the total number and type of projects along with the loans. Estimate a baseline number of existing residential renewable energy systems (such as solar panels) prior to the start of the program. If this information can be estimated for 2005, it will match the other baseline information staff has already gathered for the GHG emission inventory.

*Recommendation*

**E 7 – Renewable Energy Requirements: Create a requirement for new homes and commercial buildings of a certain size to install solar panels or another comparable renewable energy system.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential & Commercial	Mandatory	6+ years

*Description*

Require that all new construction and major renovation projects install solar or another renewable energy system(s).

*Implementation*

- Decide what size commercial buildings, if not all, would activate the requirement.
- Decide what percentage of the expected energy consumption of the building(s) must be covered by the renewable energy system.
- Amend the uniform building code to include the requirement.
- Provide outreach/education to permit applicants.

*Financial Impact*

This recommendation requires time to research and receive Council approval to amend the uniform building code.

New homes and buildings would have energy bill savings built in for new occupants.

There could be some regional economic benefit to businesses that install solar (or other renewable energy systems), and those businesses may gain the knowledge and experience to make themselves more marketable.

*Indicators/Monitoring*

Track the total number of renewable energy projects brought into the City because of this requirement, as well as the size of the renewable energy system and the size of the construction project.

*Recommendation*

**E 8 – Green Business Program: Adopt the San Mateo County Green Business Program.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Commercial	Incentive	0-2 years

### *Description*

Like the Green Building Ordinance (E3), the Green Business Program has the potential to not only reduce energy consumption in the Built Environment, but also could impact air quality, transportation, water quality, water conservation and solid waste source reduction/recycling goals.

The Green Business Program provides a mechanism by which small and medium sized businesses can be recognized for choices that they make to operate in an environmentally sustainable way. By meeting specific minimum criteria in the areas of Energy Efficiency, Water Conservation, Pollution Prevention and Solid Waste Reduction, businesses can be certified by San Mateo County as “green businesses” and use that designation in marketing materials and other public ways.

ESTF recommends along with this program that all qualifying businesses in the Green Business Program be recognized by the City on the Marquee, the website and FCTV as allowed by law.

### *Implementation*

- The San Mateo County Green Business Program is already an established program. City staff has been through training for the implementation of the County Program. To implement the program, the City needs to inform the County of the City's interest.
- The Foster City Chamber of Commerce has indicated an interest in helping the City with program administration and promotion.

### *Financial Impact*

The program will require time to review and monitor application materials and inspect businesses for compliance.

The program is free to business and allows the business to display a Green Business sign that could provide advertising to attract customers. This recommendation includes recognizing certified Green Businesses on the Marquee, the City website, and through FCTV as allowed by law. Depending on which items in the program that businesses choose to implement, the businesses may also see savings in their energy, water and waste bills.

### *Indicators/Monitoring*

There are monitoring and tracking requirements in the County program, but at a very least, for this effort, the City's monitoring effort will need to include tracking which businesses are in the program. It may also be beneficial to have participating businesses try to track any savings from energy and water conservation or solid waste reduction, and whether

their customer base increases due to being in the program. The businesses will be asked to share that information with the City each time they renew their Green Business Certification (every three years).

## **3.5 Solid Waste Recommendations**

### **3.5.1 Introduction**

This category of recommendations deals with solid waste from both the residential and commercial sectors. In 1989, AB 939, known as the Integrated Waste Management Act, was passed in the California legislature because of the increase in waste stream and the decrease in landfill capacity. AB 939 mandated a reduction in waste being disposed as follows: jurisdictions were required to meet diversion goals of 25% by 1995 and 50% by the year 2000. The bill was re-enacted in 2008 as AB 1016. The 50% reduction rate remains the same, but the calculations used to measure achievement of this goal have been simplified. Foster City achieved its 50% diversion rate in 2006.

In addition to diverting waste (recycling, composting, etc.), ESTF discussed and set goals for solid waste source reduction, to reduce the total amount of waste generated in the first place, and to slow the consumption of natural resources used in the manufacturing of materials.

ESTF came across these interesting facts in its research:

- In the past 30 years, one-third of the world's natural resources have been consumed.<sup>4</sup>
- The U.S. makes up 5% of the world's population, but consumes 30% of the world's resources, and generates 30% of the world's waste.<sup>5</sup>
- The average person in the U.S. consumes twice as much today as the average person in the U.S. consumed 50 years ago.<sup>6</sup>
- The U.S. generates twice as much garbage today as 30 years ago.<sup>7</sup>
- For every can of garbage thrown away, 70 equivalent cans of garbage are generated in the making of the garbage that was discarded.<sup>8</sup>

### **3.5.2 Solid Waste Goals**

ESTF recommends the following goals to assist the Foster City community in doing its part to slow resource consumption and lessen the impact on California's landfills:

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<sup>4</sup> Paul Hawken, Amory Lovins and L. Hunter Lovins, *Natural Capitalism*, Little Brown and Company, (1999). Excerpted from page 4: "In the past three decades, one-third of the planet's resources, its 'natural wealth,' has been consumed."

<sup>5</sup> "The U.S. produced approximately 33% of the world's waste with 4.6% of the world's population" (Miller 1998) quoted in *Global Environmental Issues* by Frances Harris (2004).

<sup>6</sup> "Why Consumption Matters" by Betsy Taylor and Dave Tilford, in *The Consumer Society Reader* Edited by Juliet B. Schor and Douglas Holt (2000), p. 467.

<sup>7</sup> U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Municipal Waste in the United States: 2001 Facts and Figures* (2003), pp.3 -4.

<sup>8</sup> *The Next Efficiency Revolution: Creating a Sustainable Materials Economy* by John Young and Aaron Sachs, Worldwatch Institute (1994), p. 13.

- Meet and exceed the state-wide mandate of 50% diversion of waste from landfills.
- Increase food waste collection tonnage in both residential<sup>9</sup> and commercial sectors by 50% from 2005 levels by 2015.

To comply with AB 1016, Foster City must measure and track the citywide waste diversion rate every year. The City is not required by law to separately track food waste collection, but the information is available from the trash hauler and should be tracked by the City each year to measure progress toward the above goal.

### 3.5.3 Solid Waste Recommendations

In order to meet these goals, ESTF recommends the following:

*Recommendation*

**SW 1 – Commercial Food Waste Collection: Implement a public grading or recognition/award program for commercial food waste collection.**

Sector	Approach	Time-Frame
Commercial	Incentive	2-5 years

*Description*

Commercial waste diversion in Foster City is only at 20%<sup>10</sup>. ESTF recommends this program to incentivize commercial business to improve participation in food waste collection which will help increase the overall commercial diversion rate and help the City maintain and exceed its AB 1016 mandate.

The recommendation includes grading each business based on its food waste diversion rate. The grade would then be publicized and the businesses with the highest grades would be given an award or recognition.

The recommendation could be expanded to include all types of waste diversion.

ESTF recommends along with this program that all qualifying businesses in the Green Business Program be recognized by the City on the Marquee, the website and FCTV as allowed by law.

<sup>9</sup> Currently, food waste collection does not exist in the Foster City residential sector. It is anticipated to be rolled out in 2011.

<sup>10</sup> It should be noted that this statistic is not calculated the same way as the 50% diversion mandated by AB 989. AB 989 calculations take into account growth rates and other factors. The 20% referenced here is a measured rate from Allied Waste (Q3 2008 MIS Report), which may also not include recycling done through other vendors.

### *Implementation*

- Research how to measure individual business food waste diversion. The current trash hauler only collects this information by sector, as opposed to individual business.
- Decide if only certain businesses should be included (restaurants, hotels, markets, etc.).
- Meet with local business owners and the Foster City Chamber of Commerce for input on how the system would work best to give an incentive to businesses that do well.

### *Financial Impact*

This recommendation will require time to research and work with local businesses to define the program. In addition staff will need to track results. There will be costs for marketing and materials for awards/signs/recognition.

The businesses that participate should see a savings in their waste collection fees by diverting more waste from the landfill, as landfill waste has a higher collection fee than recycling (free) and food waste collection (25% discount).

Businesses that do well in the program could receive an economic benefit by gaining patrons that find sustainable practices to be important.

### *Indicators/Monitoring*

In addition to the tracking of individual business diversion rates needed to run the program, also track the total amount of food waste diverted in the community so it can be compared year by year. Compare this to the overall diversion rate of the City to see if this program makes a difference in the overall diversion effort.

### *Recommendation*

**SW 2 – Ban on Plastic Bags and Styrofoam: Create a gradual ban on plastic bags and polystyrene containers at businesses.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Commercial	Mandatory	2-5 years

### *Description*

Though plastic bags didn't come into widespread use until the early 1980s, environmental groups estimate that 500 billion to 1 trillion of the bags are now used worldwide every year.<sup>11</sup> Plastic bags unnecessarily use up natural resources, consume energy and produce chemical waste to manufacture, create litter, choke marine life and add to landfill waste.

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<sup>11</sup> <http://www.resuablebags.com/facts.php>

Polystyrene (Styrofoam) takes thousands of years to decompose and is already a huge problem in waterways. The California Integrated Waste Management Board reported that polystyrene is responsible for 15 percent of the litter collected in storm drains<sup>12</sup>.

ESTF recommends looking at the Palo Alto ordinance as a model for the ban of plastic bags, and considering exceptions for type and size of business as well as an exception if reasonable alternatives cannot be found. For this ban to be successful, it is imperative that the City work with local businesses early in the process to understand and potentially mitigate impacts to businesses. A similar approach could also be used for the ban on polystyrene.

This recommendation starts with an education and outreach campaign to encourage voluntary action and get buy-in from the stakeholders, but within 3 years should move to an ordinance requiring action.

#### *Implementation*

- Research existing bans after which to model the Foster City version. ESTF has proposed using the Palo Alto ban as a model.
- Meet with businesses and the Foster City Chamber of Commerce for input on how to successfully implement the program and to assess impact on businesses.
- Write the ordinance.
- Make the process gradual including an education/outreach phase, a voluntary phase and then eventually a ban on plastic bags and Styrofoam.
- After successful implementation of the plastic bag and polystyrene ban, gradually move through the same process for a ban on paper bags. Eventually, the Foster City Community will only be using reusable shopping bags and containers.

#### *Financial Impact*

This recommendation will require time to research, define, write the ordinance, enforce and track the program. There will be costs for marketing and education.

#### *Indicators/Monitoring*

Estimate the current baseline of plastic bags and polystyrene used in the businesses to be included in the ban. The baseline year of 2005 should be used if possible. Going forward, track annually how usage changes compared to baseline to assess the effectiveness of each phase. ESTF

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<sup>12</sup> "Use and Disposal of Polystyrene in California, A Report to the California Legislature", Integrated Waste Management Board, December 2004. (<http://www.ciwmb.ca.gov/Publications/Plastics/43204003.doc>)

recommends asking for/requiring reports from businesses to help with the estimates/measurements.

*Recommendation*

**SW 3 – Construction & Demolition Ordinance: Amend current C&D ordinance to include incentives for deconstruction (Los Altos Hills model) and require higher mandatory recycling/reuse rates for contractors (Hillsborough model).**

Sector	Approach	Time-Frame
Residential & Commercial	Incentive & Mandatory	2-5 years

*Description*

Deconstruction is the dismantling of a structure in order to salvage, reuse, and recycle as many of the building materials as possible. Deconstruction often does not cost more than regular demolition. In fact, depending on the age and type of buildings, deconstruction can be done at a cost savings to the owner because of reduced disposal fees, the donation value of the materials, as well as the tax benefits.

Some of the benefits of deconstruction include:

- REDUCE construction waste sent to landfills
- RECYCLE building materials suitable for resale
- PRESERVE natural resources by reusing salvaged materials

In addition, The South Bayside Waste Management Authority (SBWMA) recommends that the mandatory recycling/reuse rate for contractors in the existing C&D ordinance be expanded to include a requirement that 100% of inert materials (concrete, bricks, asphalt, tiles, rock, gravel and dirt) be recycled from all commercial projects. The implementation of this recommendation could help the City maintain or exceed the diversion rate requirement of AB 1016 mandate,

*Implementation*

- Update the existing ordinance to reflect the recommended models in Los Altos Hills and Hillsborough.
- Provide educational materials to permit applicants.

*Financial Impact*

This recommendation will require time to update the ordinance and track results. Changes to the ordinance may also require additional staff time to review permits, track progress and monitor compliance of projects. There will be costs for outreach/education materials. In addition, the Los

Altos Hills model calls for waiving permit fees for contractors that do deconstruction, which could lower revenues for the City. This cost might be offset by forfeiture of deposit fees for failure to meet the ordinance requirements.

Depending on the age and type of the buildings, contractors may find that they save money overall on a project because of reduced disposal fees, donation value of materials and tax benefits.

*Indicators/Monitoring*

Track the number of deconstruction permits created. Require contractors to provide information about the amount of materials deconstructed so that information can be tracked as well.

*Recommendation*

**SW 4 – Yard Waste Ordinance: Adopt an ordinance (similar to C&D) requiring that all landscapers and landscape maintenance businesses recycle/divert yard waste**

Sector	Approach	Time-Frame
Commercial	Mandatory	2-5 years

*Description*

ESTF recommends implementing a requirement that all landscapers and landscape maintenance businesses recycle/divert yard waste.

*Implementation*

- Explore existing yard waste diversion ordinances or a new creative way to require diversion that can be easily managed and enforced.

*Financial Impact*

This recommendation will take time to research and implement. Until an actual ordinance or ordinance model is defined, other costs are unknown.

*Indicators/Monitoring*

Measure and track the amount of yard waste being diverted, both before and after the requirement goes into affect.

*Recommendation*

**SW 5 – Recycling of Styrofoam and Hard-To-Recycle Plastics: Facilitate recycling of Styrofoam and hard-to-recycle plastics by holding regular collection events (like e-waste) and/or establishing permanent drop-off points in coordination with neighboring agencies.**

Sector	Approach	Time-Frame
Residential & Commercial	Incentive	0-2 Years

*Description*

The current trash hauler for Foster City does not take Styrofoam and some types of plastics for recycling so businesses and residents are forced to throw these items in the trash. ESTF recommends that the City's e-waste events be expanded to also collect these items. Exploring a regional drop-off point where residents could take these items for collection is also recommended.

*Implementation*

- Work with SBWMA and the operator of the transfer station to see if they are able and willing to provide a regional drop-off point to collect Styrofoam and hard-to-recycle plastic waste or accept such waste collected during an e-waste event.

*Financial Impact*

This recommendation will take time to research and track. Research will need to be completed before costs or funding sources can be determined.

Residents and businesses could see some savings in their waste bills if they are able to divert these materials from the landfill since recycling collection fees are less than landfill waste collection fees.

*Indicators/Monitoring*

Track the amounts of the materials collected either during e-waste events or at a regional drop-off point.

**SW 6 – RecycleBank or Pay-As-You-Throw: Advocate for RecycleBank or a Pay-as-You-Throw program to incentivize good recycling habits.**

Sector	Approach	Time-Frame
Residential & Commercial	Incentive	0-2 years

*Description*

RecycleBank is a company that works with the trash hauler to provide incentives for recycling. A chip is placed in each recycling bin. The chip is scanned every time the bin is picked up, the bin is weighed, and the recycling amount is tracked. Based on recycling efforts, residents earn

rewards from RecycleBank that can be redeemed at local stores, or donated to local charities.

Alternatively, there are other models that are called pay-as-you-throw programs. Instead of rewards for recycling, trash bills are tiered to decrease as landfill waste decreases.

*Implementation*

- Work with the new trash hauler after 2011 to see if they are willing and able to partner with RecycleBank or determine if there are other ways to provide a similar service.
- If not, explore other incentive or pay-as-you-throw programs.

*Financial Impact*

This recommendation will take time to research and track.

To make sense financially, rate payers would need to see that lower trash bills and the value of rewards equal or exceed the cost of the RecycleBank (or similar) program.

*Indicators/Monitoring*

Track the amount of recycling before and after the program is started and the amount of rewards or savings given to ratepayers.

**SW 7 – Pharmaceutical Drop-Off: Establish a pharmaceutical drop-off location in Foster City**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential	Incentive	0-2 years

*Description*

Expired and unused medication is often thrown in the trash or flushed down the toilet. These options have negative impacts on the environment and public safety. Given its proximity to the bay, improperly disposed medication in Foster City can have an immediate impact on marine water quality.

San Mateo County RecycleWorks has developed a Pharmaceutical Drop-Off program. This program provides containers that are placed in police stations where residents can drop off expired or unused medication. The containers are similar to postal mail boxes, so items can be placed into the container, but cannot be taken out without a key. When the container is full, the police transport the materials to a disposal facility that properly incinerates the pharmaceuticals.

ESTF recommends placing pharmaceutical drop-off location at the Foster City Police Station.

*Implementation*

- Work with the Police Department to find a suitable location for the container and a process for managing it.
- Sign up with the County to receive the collection box.

*Financial Impact*

Other than on-going monitoring and purchase of the collection box, there should be very little time or cost associated with this recommendation.

*Indicators/Monitoring*

Track the amount of pharmaceuticals recycled.

**SW 8 – City-Wide Swap Meet: Sponsor a city-wide swap meet to trade items people would otherwise throw away (San Francisco model) - include e-waste collection**

Sector	Approach	Time-Frame
Residential	Incentive	0-2 years

*Description*

A city-wide swap meet would allow the residents of Foster City to come to one venue and trade or sell unwanted items that they would otherwise throw in the trash. This both helps reduce waste and prevent people from buying new items sooner than needed, which is strain on natural resources.

Providing recycling and e-waste bins at the event for proper disposal of items that are not sold is also recommended.

The swap meet will start as an annual event. Depending on the success of the event(s) the City may decide either to increase or decrease the frequency. This kind of event also has the potential for building community spirit like the Summer Concert Series, Arts & Wine Festival, and 4<sup>th</sup> of July celebration.

*Implementation*

- Coordinate the event, potentially partnering with the new trash hauler after 2011.

*Financial Impact*

Some funding would be required for administrative support of the event including police, fire, and janitorial services.

### *Indicators/Monitoring*

Track the number of participants as well as the amount of recycling that occurs at the event.

## **3.6 Air Quality / Transportation Recommendations**

### **3.6.1 Introduction**

In addition to the Built Environment, transportation is the other sector that has a significant and direct impact on GHG emissions. In Foster City, the transportation sector made up 38% of the total GHG emission inventory for 2005. The national average is 28%<sup>13</sup>. However, this does not mean that Foster City residents and people employed in the City drive significantly more or drive more polluting cars than the national average. Foster City does not have any major GHG emitting industries, and California's electricity production emits fewer GHG emissions than the national average. This makes the transportation sector a higher percentage than the national average. For this reason, it is impossible to compare inventory percentages between jurisdictions. What it does mean for Foster City though, is that the transportation sector has a lot of room for improvement and it is where Foster City could most likely make the biggest reduction in its community GHG emissions.

Though the United States, and especially California, have made much progress toward air quality improvement, there are still other ways that Foster City, as a community, can further improve its air quality by reducing harmful chemical usage and through plants that help absorb pollution.

### **3.6.2 Air Quality / Transportation Goals**

Transportation impacts GHG emissions through VMT and through the emissions standards. To support AB 32, ESTF recommends the following goals:

- Reduce VMT 20% from 2005 levels by 2020.
- Increase the number of vehicles in the community that are electric, hybrid, or alternative fuel. (ESTF has not set a quantifiable goal yet for the number of vehicles with lower emissions. More research needs to be done to determine a baseline of how many of these vehicles are currently being used in Foster City to determine the opportunity for improvement in this area.)

To support the desire to improve air quality in general, the following goals are recommended:

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<sup>13</sup> <http://www.state.gov/documents/organization/89651.pdf> (4th U.S. Climate Action Report, 2007)

- Contribute to a reduction in PM<sub>2.5</sub> (fine particulate matter) and harmful chemicals in the air by 10% from 2005 levels, by 2035. (ABAG Bay Area Regional Goal)
- Contribute to a reduction in PM<sub>10</sub> (coarse particulate matter) in the air by 45% from 2005 levels by 2035. (ABAG Bay Area Regional Goal)

### 3.6.3 Air Quality / Transportation Recommendations

Foster City has another Ad Hoc committee that is working in parallel with ESTF. That committee is the Ad Hoc Transportation Committee. They too are working on a plan and recommendations to submit to the City Council. There are several recommendations in the Transportation Plan that will help meet ESTF goals. Instead of detailing them here, ESTF has chosen to let the Transportation Committee lead those efforts. The following are recommendations from the Transportation Committee report for which ESTF would like to show its support. These recommendations will also help the City achieve SB 375 goals for mixed use, transportation-oriented and infill development, and greater jobs/housing balance.<sup>14</sup>

- CS2 Utilize “NextBus” Technology
- CS3 Expand Service Hours
- CS4 Provide Weekend and Evening Connection Shuttle Service
- CS5 Provide Bike Racks on All Shuttles
- CS6 Create Timed Transfers at Key Shuttle Points
- OT3 Install Bus Stop Improvements
- EL5 Install Bike Lockers
- ADMIN2 Foster Relationships with Local Transit Agencies, the City of San Mateo and other Neighboring Municipalities
- ADMIN4 Advocate for Improved SamTrans 251 Service
- PO1 Launch Publicity Campaign

If these recommendations are not adopted through the Transportation Plan, ESTF will need to reconsider how best to reach its VMT reduction goals as well as the SB 375 requirements.

ESTF recommends the following to reach its air quality goals:

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<sup>14</sup> Abbreviations used in this list:

CS = Connection Shuttle  
 OT = Other Transit  
 EL = Engineering and Land Use  
 ADMIN = Administration and Oversight  
 PO = Public Outreach and Education

*Recommendation*

**AQT 1 – Preferred Parking / Electric Plug-In: Develop a requirement that businesses, developers, and property managers create preferred parking for electric and alternative fuel vehicles and study the installation of electric charging stations for plug-in vehicles.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential & Commercial	Mandatory	2-5 years

*Description*

To encourage residents and employees working in Foster City to drive lower emission vehicles, there need to be incentives and infrastructure to support the goal. Preferred parking for drivers of electric or alternative fuel vehicles is a good start that will help encourage as well as market low emission vehicles to drivers. Currently, the technology for plug in vehicles is not standardized. ESTF recommends requirements for electric plug-ins at all places of employment but technology needs to be standardized first.

*Implementation*

- Create a requirement for all new developments, as well as a way to phase in upgrades in existing developments.
- Research electric plug-in technology and advise Council if there is a standard in the area that they can consider adopting.

*Financial Impact*

This recommendation will require time to create new requirements as well as to educate developers and existing businesses, and to track the progress of the recommendation.

The cost to install or re-designate parking spaces will be borne by the property owners.

*Indicators/Monitoring*

Evaluate how much, if any, parking is currently designated for low-emission vehicles in Foster City and track the amount installed in the future. In addition to measuring the success of this recommendation, this information can also be used in future marketing or public outreach campaigns. Complete regular surveys to find out whether these spaces are being used to determine if future updates to this recommendation should include more or fewer spaces required.

*Recommendation*

**AQT 2 – PCE Elimination:** Consider an ordinance that gradually reduces then bans the use of perchloroethylene (PCE) in dry cleaning, beginning with education and voluntary action first.

Sector	Approach	Time-Frame
Commercial	Mandatory	2-5 years

*Description*

In the 1960's perchloroethylene (PCE) (also known as tetrachloroethylene, or Perc) became the solvent of choice for commercial clothes cleaning. PCE has since been shown to have a variety of health and safety issues associated with it. As a result, it has been subject to increased regulation, taxation, and liability costs. However, ESTF recommends eliminating the use of this chemical in the City, because not only does the use of PCE impact our air quality, it also impacts water quality and is a known carcinogen. PCE has been found in 38% of 9,232 surface water sampling sites throughout the United States. It has also been found in at least 771 National Priorities List (NPL) sites. The NPL consists of 1,416 hazardous waste sites identified by U.S. EPA as the most serious in the nation. PCE is known to cause liver and kidney toxicity, neurotoxicity, developmental and reproductive toxicity, and cancer<sup>15</sup>.

The best way to accomplish this ban is gradually, starting with education and voluntary action. ESTF recommends approximately a 3-year time-frame for the education and voluntary portions of the recommendation, after which a regulatory ban would go into place.

*Implementation*

- Put together an education/outreach plan to the City's dry cleaners including fact sheets and workshops to help educate them on the dangers and alternatives to PCE.
- Work with the local dry cleaners and the Foster City Chamber of Commerce to determine the best course of action.
- Draft a regulation for eliminating PCE.
- Look carefully at the alternatives to make sure that there are not alternatives that should also be prohibited. All known alternatives have lower health risks than PCE, but some still have other short term acute risks as well as safety risks, such as flammability.

<sup>15</sup> [http://www.turi.org/library/turi\\_publications/five\\_chemicals\\_study/final\\_report/chapter\\_5\\_perchloroethylene](http://www.turi.org/library/turi_publications/five_chemicals_study/final_report/chapter_5_perchloroethylene)

*Financial Impact*

This recommendation will require time for education and outreach to all Foster City dry cleaners, as well as time for drafting an ordinance to ban the substance.

There are alternatives to PCE. However, it is unknown if these alternatives are more or less costly than PCE. There will be some cost to the businesses to change their processes and equipment.

*Indicators/Monitoring*

During the education process determine the amount of PCE used currently, and create a baseline. Gather this information annually for the three year voluntary period to see if education and voluntary action are working.

*Recommendation*

**AQT 3 – Urban Forestation: Create a requirement for urban forestation at all new developments.**

Sector	Approach	Time-Frame
Residential & Commercial	Mandatory	2-5 years

*Description*

An increase in the tree canopy coupled with the appropriate selection of trees has many beneficial environmental impacts: reduction of ozone concentrations via several mechanisms including direct absorption of ozone and its precursors, lowering of local temperatures, which reduces the rate of ozone formation, providing shade to buildings which reduces the cooling energy needs, and a reduction of parking lot temperatures which reduce gasoline evaporation<sup>16</sup>. Trees can also help in sequestering CO<sub>2</sub> (the most prevalent GHG) from the atmosphere.

ESTF recommends reviewing the existing City planting and irrigation guidelines to make certain that carbon sequestration is considered a high priority in plant selection. ESTF also recommends that these guidelines become requirements for all new developments and large landscaping renovations. In addition, this recommendation should also include an education campaign to encourage homeowners to plant appropriate trees for this purpose.

<sup>16</sup> <http://www.airquality.org/bod/2008/FebUrbanForestBrdLtrandReso.pdf>

### *Implementation*

- Research the most appropriate trees, and then revise the existing guidelines and write a requirement for new developments and major landscape renovations.
- Create a residential outreach campaign to encourage residents to also plant the appropriate trees in existing yards.

### *Financial Impact*

This recommendation would include time to research, write the requirements and track progress.

It is uncertain at this time if there will be any additional costs to developers, property managers or home owners to plant the recommended trees.

### *Indicators/Monitoring*

Once the research is complete, start tracking how many of the trees are planted in the City. If possible, complete a baseline survey of the existing trees in Foster City.

## **3.7 Water Recommendations**

### **3.7.1 Introduction**

Though water usage is not directly measured in determining the City's GHG emission inventory, water use does consume energy in pumping and distribution, so the reduction in water usage will help attain AB 32 goals of reducing GHG emissions state-wide. However, water usage is also important for the following reasons:

- *Water is becoming scarce:* On June 4, 2008 Governor Schwarzenegger declared a statewide drought after two years of below-average rainfall and low snow-melt<sup>17</sup>. Foster City receives 100% of its water supply from the Hetch Hetchy System, which relies mostly on the Sierra snowpack, where experts predict a 29-73% loss of Sierra snowmelt by the end of the century. Schwarzenegger warned that residents and water managers must immediately cut their water use or face the possibility of rationing in 2009. In addition, AB 1881, The Water Conservation and Land Use Act, requires local agencies to adopt a water efficient landscape ordinance by January 1, 2010.
- *Water is getting expensive:* Infrastructure upgrades will also drive prices up. The Hetch Hetchy System is 86 years old. Significant upgrades will be required in the near future. Several upgrades to the system (23 projects) have already been completed, including reservoir upgrades, new water storage tanks and pump stations, and pipeline replacements and installations. Information on the status of

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<sup>17</sup> <http://gov.ca.gov/executive-order/9797/>

specific projects and schedules can be found at: [http://sfwater.org/mto\\_main.cfm/MC\\_ID/35/MSC\\_ID/393/MTO\\_ID/649](http://sfwater.org/mto_main.cfm/MC_ID/35/MSC_ID/393/MTO_ID/649).

- *Water delivery is not infallible:* Water from the Hetch Hetchy System crosses four known major earthquake faults to get to Foster City. Though Foster City has four storage tanks that can provide up to 3-4 days of emergency supply (exceeding the regulatory guidelines), Foster City is completely dependent on the Hetch Hetchy system for its entire water supply.

In addition to these water supply concerns, water quality, especially with the City’s lagoons and proximity to the bay, is important to maintain. The City currently meets or exceeds all National Pollutant Discharge Elimination System (NPDES) requirements. With the lagoon system and year-round wet drain inlets, the City has a unique ability to quickly spot and track down pollutant discharges.

### 3.7.2 Water Goals

Governor Schwarzenegger has asked the California (CA) State Legislature, and the CA Department of Water Resources to assist him in passing a bill that requires that Californians reduce water consumption by 20% by the year 2020. Though this is not a regulation yet, ESTF agrees that it is a reasonable goal. The state has not yet provided direction on what the baseline year would be. Since all other goals in this plan use 2005, ESTF recommends that also be the baseline year for the water goals:

- Reduce home and commercial water use by 20% from 2005 levels by 2020.
- Maintain current water quality standards in the lagoon and the effluent to the bay.

### 3.7.3 Water Recommendations

In order to meet these goals, ESTF recommends the following:

*Recommendation*

**W 1 – Water-Wise Landscaping: Create a water-wise landscaping ordinance for new commercial and MFDs.**

Sector	Approach	Time-Frame
Residential & Commercial	Mandatory	2-5 years

*Description*

To meet AB 1881 requirements and reduce water consumption in the City and to maintain or improve existing water runoff quality, ESTF recommends the following be required in a water-wise landscaping ordinance:

- Design landscapes according to a water budget OR by using non-potable water sources for irrigation
- Require a mulching layer on all non-turf, non-hardscape areas
- Require ornamental features to meet at least one of the following: closed recirculation, sustains aquatic life, utilizes reclaimed water, utilizes naturally occurring water source
- Minimize soil disturbance and properly prepare soil for landscaping
- Select appropriate plants for local climate, soil type, pesticide use reduction, and carbon sequestration
- Include irrigation specifications to prevent over watering
- Include an Integrated Pest Management (IPM) Plan

*Implementation*

- Research the various elements of these requirements, and provide guidance documents with examples.
- Write a new water-wise landscaping ordinance to incorporate these requirements.
- Compare the final version with the new Green Building Ordinance (Recommendation E 3) to make sure they are consistent.

*Financial Impact*

This recommendation requires time to research and write the new ordinance and guidance documents, inspection of design plans and final landscaping systems, as well as tracking the recommendation.

There will likely be an increase in cost to developers and property managers to incorporate parts of the plan, but there should be a corresponding savings in water bills in the future.

*Indicators/Monitoring*

Monitor new developments and landscaping that are required to follow this new ordinance and compare future water usage to past usage.

*Recommendation*

**W 2 – Education Garden: Facilitate an education garden through schools, social clubs, churches or community groups.**

Sector	Approach	Time-Frame
Residential	Incentive	2-5 years

*Description*

There are numerous benefits to having a community garden and ESTF would eventually like to see one built in Foster City. However, the cost of building a community garden is prohibitive in this current economic environment. Instead, ESTF recommends an education garden which often can be funded through California Landscape Contractors Association (CLCA).

An education garden is typically located in a school yard, church ground or similar outdoor space that can provide access to school children and residents. These gardens are maintained by volunteers and can be used to demonstrate such things as native plant species, water-wise landscaping, mulching, composting and basic gardening skills. When located at schools the gardens provide a place for school children to also learn about the source of their food, the importance of eating local vegetables and the harvest can then be used by the school cafeteria.

*Implementation*

- Work with the community to find an organization(s) or school to host an education garden.
- Support the school district or community organization in applying for funding through CLCA.

*Financial Impact*

This recommendation requires some time to support the school district or community organization to get started. The actual cost of the installation of the garden may be completely covered through grant funding or volunteer financial or in-kind contributions. The City may also want to set aside funding to provide public information about the garden.

*Indicators/Monitoring*

Monitor the size and participation in the garden. If the garden is located at a school or used by school children, ESTF recommends that the school provide this information and perhaps something in writing from the school children that use it that can be used for marketing and outreach for general environmental sustainability. ESTF also recommends that the cost of installation be noted for future reference, in case another garden is wanted for general residents.

*Recommendation*

**W 3 – Tiered Water Rates: Establish tiered water rates**

Sector	Approach	Time-Frame
Residential & Commercial	Incentive	0-2 years

*Description*

Currently Foster City has one water rate for all residential and commercial users. ESTF recommends lower rates for those that consume less water to encourage a reduction in use.

*Implementation*

- Investigate the best method for establishing tiered water rates.
- Implement new rates.

*Financial Impact*

This recommendation will require some staff time and possibly consultant time to establish the new rates and upgrade software for computing bills though there may be cost offsets by rate payers in the higher tier.

Water consumers will have the ability to lower their water bills if they conserve enough.

*Indicators/Monitoring*

Monitor water usage after the new rates are established. It would be especially useful to watch users that are just on the low-end of a higher rate to see if they change their water consumption behavior.

*Recommendation*

**W 4 – More Informative Water Bills: Improve water bills to help users better understand their water usage.**

Sector	Approach	Time-Frame
Residential & Commercial	Incentive	2-5 years

The current water bills don't give much useful information to the water consumer. The water amounts are listed in hundreds of cubic feet (CCF) (748 gallons). Since water consumers are more familiar with gallons, the consumer will have a better understanding of their usage if total gallons and gallons per day are referenced instead of CCFs. In addition, the bill should show the change from month to month and year to year. For instance, the bill would read that the consumer used 800 gallons in a given month, instead of 1.07 CCF. If the consumer uses 100 gallons less from month to month, the bill would show a 100 gallon reduction instead of a 0.13 CCF reduction.

The new bills should also list how close a consumer is to dropping into a lower tiered rate (assumes that W 3 is adopted). Color coding and tips should also be included to help highlight usage and provide useful information to the consumer.

*Implementation*

- Design what should be included in the new bills and software.
- If some parts of this recommendation, such as the change in units, are simple and fast to implement, they should be done sooner, rather than waiting for the parts of the recommendation that might require more intensive dedication of resources, such as software updates.

*Financial Impact*

This recommendation will require staff time and possibly consultant time to upgrade the bills.

If water consumers use the information wisely, they should be able to drop to a lower tiered rate and save money on their water bill.

*Indicators/Monitoring*

The monitoring done for this recommendation is identical to W 3.

*Recommendation*

**W 5 – Water Conservation Help Line: Work with BAWSCA to establish a voicemail/email/website that residents can use to ask questions about water conservations efforts.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential	Incentive	0-2 years

*Description*

Making information available to the community is one way to help change behavior. Many people want to do the right thing, but they aren't sure how. For this reason, ESTF recommends a help line be established for people to quickly receive answers about water conservation. An email or phone line to a well trained staff member is one option. A website with information and frequently asked questions (FAQs) is another. ESTF recommends working with the Bay Area Water Supply and Conservation Agency (BAWSCA) to create a regional program.

*Implementation*

- Work with BAWSCA to advocate for this recommendation.

*Financial Impact*

This recommendation may require time to work with BAWSCA.

Residents may be able to save money through water usage reduction.

*Indicators/Monitoring*

ESTF recommends monitoring the usage of the help line, as well as the response time and quality.

*Recommendation*

**W 6 – Water Saving Appliances: Expand rebates for water saving appliances.**

<b>Sector</b>	<b>Approach</b>	<b>Time-Frame</b>
Residential & Commercial	Incentive	0-2 years

*Description*

The City has been offering rebates to residents to upgrade to low-flow toilets since 1992 and washing machines since 2000. This program has been very successful and has seen 40% of the toilets in Foster City upgraded. ESTF recommends that this program continue to be funded so that it can continue with the toilet and washing machine campaign and be expanded to include dishwashers. ESTF also recommends that this program have a better public outreach campaign to make sure that all residents are aware of the rebate.

*Implementation*

- Determine funding needed from Estero Municipal Improvement District (EMID) to continue and expand the program.
- Create public outreach campaign to inform customers of the rebates, including, but not limited to periodic notices in water bills, banners along main streets in town, FCTV and the City Website.

*Financial Impact*

Determine if existing rebate funds are sufficient for an expanded program and how to fund the rebate program if not.

Participating residents should see a drop in their water bill once new low water using appliances are installed.

*Indicators/Monitoring*

Estimate a baseline of the number of appliances to be upgraded and track the number and type of rebates given.

*Recommendation*

**W 7 – Conservation Programs for Multi-Family Dwellings: Create incentives for property managers and renters in MFDs to upgrade to water saving appliances.**

Sector	Approach	Time-Frame
Residential	Incentive	2-5 years

*Description*

In most rebate programs, rental properties are not active participants. This is because the water user either does not pay the water bill, or does not have a stake in upgrading the property. ESTF recommends a special campaign to engage these users, and the property managers/owners to try to find incentives for upgrades.

*Implementation*

- Meet with renters, HOAs, landlords, and property managers to help determine the best way to incentivize this group.
- Organize these meetings and draft a proposed plan for an incentive program aimed specifically at this group.

*Financial Impact*

This recommendation will require time to organize and research a new program.

Determine if existing rebate funds are sufficient for an expanded program and how to fund the rebate program if not.

*Indicators/Monitoring*

Monitor the number and type of rebates given, as well as who takes advantage of them: the renter or the property owner.

*Recommendation*

**W 8 – Reliable and Uninterruptible Alternative Water Sources: Research potential reliable and uninterrupted water sources for Foster City.**

Sector	Approach	Time-Frame
Both	Both	6+ years

*Description*

Foster City is dependent on the Hetch Hetchy system for its entire water supply. As snow melt decreases, demand increases, and considering

the earthquake faults the system crosses, there is a need for an uninterrupted and more reliable alternative sources of water for the city.

*Implementation*

- Research options for alternative water supplies, including desalination, grey water, and reclaimed water.
- Monitor the status of the Bay Area Regional Desalination Project, and other regional efforts towards desalination.
- Participate with BAWSCA in its efforts to investigate a desalination facility.
- Research the possibility of purchasing reclaimed water from Redwood City.
- Research options for using grey water for non-potable activities.

*Financial Impact*

This effort will take staff time for research.

*Indicators/Monitoring*

At this stage, this recommendation is for research only. The indicator for progress on this recommendation will be that the research is completed and findings submitted to Council.

## **4.0 Public Outreach and Education**

### **4.1 Introduction**

Public outreach and education are critical components of an Environmental Sustainability Action Plan. Many residents do not know what the problems are, and many that do, do not know the best solutions or how they can make a difference.

Each recommendation listed in Section 3.0 needs to have significant public outreach and education components to ensure success. Additionally, ESTF members felt that some goals could be attained with only a public outreach and education campaign. Many of the recommendations have overlapping campaign needs, so ESTF decided to put all public outreach and education recommendations together in one category. This section will detail the goals and recommendations of Public Outreach and Education as well as give some recommended detail to what types of information to give to the public.

### **4.2 Public Outreach and Education Goals**

ESTF has three goals for Public Outreach and Education:

- Create a Public Outreach and Education campaign to explain, promote and market environmental sustainability. The campaign should keep in mind the high population of MFDs and renters in Foster City, so that all residents and businesses are targeted appropriately.
- Make 2010 The Year of Sustainability. Through Council leadership, reach out to all community groups, including service clubs, churches, schools, social clubs, etc. Challenge them all to choose at least one sustainability project to accomplish for the year. This will help kick off many of the other outreach efforts.
- Once approved by the Council, create a short summary version of the Sustainability Action Plan so that it is easily understood and referenced by the public. This document would be used in all other outreach efforts.

### **4.3 Public Outreach and Education Recommendations**

ESTF has come up with several ideas to include in a Public Outreach and Education Campaign. All of these ideas are reasonable to execute with the initial adoption of the Sustainability Action Plan, but ESTF has prioritized them in case the City cannot implement them all immediately. These top 5 priorities will help to provide a base for all other outreach efforts:

These recommendations will require a budget and staff time, but are considered by ESTF to be the most cost effective and “friendly” approach to improving sustainability in the City.

**EDU 1 – Earth Day or Sustainability Fair. Hold an annual event to focus on and promote sustainability.**

*Description*

Each year, an event or festival should be held specifically to focus the community on sustainability issues. This event could be held on Earth Day (typically around April 20<sup>th</sup>), but does not need to be tied to that date necessarily. This year, in 2009, the City's Arts and Culture Committee is going to be holding a small child-focused Earth Day event. ESTF recommends that the ESTF members be included in the planning and provide volunteers for that effort. In the future, ESTF could help to or specifically organize on-going annual events. The fair could include:

- Hands-on kid's activities
- Art/writing contests that are prepared ahead of time through the schools
- Workshops/speakers for adults
- Vendor Fair

In addition, all existing festivals and events in the City should include a sustainability component. ESTF can work with existing event sponsors to provide materials, ideas and volunteers for a sustainability booth.

**EDU 2 – Educational Workshops. Conduct regular educational workshops through the Foster City Recreation Center.**

*Description*

Find local/regional experts and agencies that can conduct workshops for the public on environmental sustainability topics. These workshops should be taught on a regular basis/schedule throughout the year, open to all residents, businesses and employees in the City and region. The list of topics could include, but not be limited to:

- Green Building
- Green Purchasing
- Green Business
- Composting / Worm Bins
- Water Efficient Landscaping / Irrigation Technology
- Alternative Water Supplies
- Renewable Energy Systems
- Proper Irrigation and Technology Options
- Wind Technology
- Transportation Alternatives
- Household actions – What can individuals do to make a difference?

The topics would only be limited by the speakers that can be found. The workshop sessions could also advertise for other regional classes that may be beyond the scope of the Foster City workshops. Past experience

with the master composter classes has shown that advertising through the Foster City Leisure Update has good results.

**EDU 3 – Grass-roots Organization. Help develop Grassroots programs to be led through community groups to promote sustainability.**

*Description*

While EDU 2 would help get the message of sustainability out from the top down, grassroots organization could promote the message from the bottom up. There are several examples of programs that could be led through community groups, neighborhoods, churches, schools, etc. including:

- Carbon-Diet Program: This program pulls together small groups of people and challenges them to reduce their carbon foot-print. They work together over a period of several months to achieve their goals.
- School Contests: Work with local schools to create challenges amongst kids similar to the existing water conservation program. The following list are examples and could be expanded further:
  - Energy conservation
  - Walking/biking to school
  - Essays/Artwork
  - Green Science Fair
- Cool the Earth – A ready-to-run program for K-8 schools to help get kids and their families involved with fighting global warming and the simple actions they can take to help.
- Acterra – The Acterra mission is to bring people together to create local solutions for a healthy planet. They have several different programs to help get community groups started toward sustainability.
- Shoreline Community Cleanup Events

These are just a few of the examples of programs that could be considered for a grass-roots campaign. ESTF envisions that as a task force, they would reach out to existing community groups, churches, schools, clubs etc. and help them get started. ESTF could then track and promote their progress.

**EDU 4 – Information Gathering. Pull together existing information on sustainability and sort for use by other outreach campaigns.**

*Description*

There is a tremendous amount of information that already exists on the broad subject of sustainability. This information has been developed by researchers, businesses, and government agencies – local, regional, state, federal and international. There is no need for the City to recreate the research and time that has gone into producing this existing information. Instead, ESTF recommends that the time be spent gathering

all of this information, sorting and indexing it, and tailor it for the City, so that it can be used for all of the various outreach campaigns.

**EDU 5 – Foster City Green Website. Create a website specifically focused on Sustainability for Foster City residents, businesses, and employees.**

*Description*

Information is only worthwhile if it is able to be shared. ESTF recommends creating a fun, user-friendly website that can be used to share information (like that gathered in EDU 4), to promote outreach efforts, and share in the progress of the sustainability action plan recommendations. This website should have an easy-to-remember web address, though it could still be hosted through the City's main website.

**Other Public Outreach and Education Recommendations**

The following are other brainstorming ideas that ESTF came up with that could either be incorporated into some of the priority outreach recommendations, or could be worked on separately once the priority items are completed or moving forward:

- Produce periodic newsletters or create regular flyers discussing:
  - Green Businesses
  - Green Purchasing
  - Recycling
  - Composting / Worm bins
  - Energy Conservation
  - Carbon Footprint
  - Water Conservation
  - Alternative Fuels and Electric Vehicles
  - Alternative Transportation
  - Bike/Walking Routes and Opportunities in Town
  - Idling Reductions
  - Energy and Water Efficient Appliances
  - Water-wise Landscaping / Mulch Mowing
  - Etc.
- Use FCTV to promote programs. Advertise Green Businesses, classes, workshops, events and provide tips. Develop new content or seek out existing content that is relevant to Foster City with an environmental sustainability focus.
- Create community challenges:
  - Residents with the most reduction in VMT
  - Residents with the most bike miles logged
  - Residents with the largest water use reduction
- Conduct Town Hall meeting(s) to get residents and businesses excited about sustainability action plan recommendations and volunteer opportunities.

## **5.0 Administration and Oversight**

### **5.1 Introduction**

For the recommendations listed in this action plan to be successfully implemented, administrative oversight is needed. The following four administrative recommendations are proposed.

### **5.2 Administrative and Oversight Recommendations**

#### **ADMIN 1 – Living Document**

This recommended Sustainability Action Plan will be most successful in reaching its goals if the plan remains a “living document.” ESTF recommends that the Sustainability Action Plan be reviewed, evaluated and revised every three years at a minimum.

The first step to the review process would be to collect and analyze the data from each of the recommendations. In the Recommendation Section (3.0), each recommendation has a description of the types of indicators that should be monitored. During the review process, these data would be collected and analyzed to determine if

1. the recommendation made a positive difference in the community, and
2. the goals of the plan were positively affected by the actions taken.

Based on this information, the plan would be re-evaluated. If, for instance, the progress shows the community to be on target toward reaching its Energy goals, then that section of the report could be left alone. On the other-hand, if Energy goals are not being met, additional recommendations would need to be considered and recommended to Council.

In addition, the sustainability movement is still developing. By doing frequent revisions to the document, the City will be able to use the newest data and programs that are working regionally and nationally as examples and ways to improve its own plan, rather than be committed to a plan that could quickly become irrelevant if new technologies and studies change the path of the sustainability movement significantly.

#### **ADMIN 2 – City Operations**

This recommended Sustainability Action Plan deals solely with the actions that will impact the community as a whole, rather than specifically focusing on City Operations. However, the City has a unique role in the community as a leader in the effort to become a more sustainable community.

ESTF supports the City’s efforts to create a City Operations Specific Sustainability Action Plan. This City Operations plan could use this Community-Wide Action Plan as a guiding document, but could focus on some of the specific

and unique actions the City can take. This demonstrates leadership and sets a positive example for the rest of the community.

The City is already working on its GHG Emission Inventory for City Operations, the first step in creating an action plan.

### **ADMIN 3 – Staffing**

Many of the recommendations in this report create long-term, on-going program coordination and monitoring responsibilities for the City. Even participating in County or regional efforts not administered directly by the City require coordination and monitoring. In addition, the sustainability movement continues to develop and requires a certain amount of attention.

ESTF recommends that the City eventually hire a full-time staff member to act as the Environmental Sustainability Coordinator. However, ESTF recognizes that, especially in the current economy, it might not be the best time for additional staff. ESTF asks the Council to evaluate this recommendation as the budget and the economic climate allow.

### **ADMIN 4 – On-Going Role for ESTF**

One of the ways the City can accomplish some the work that will be required to implement, review, evaluate and revise this plan in the near future would be to extend the role of ESTF. The current ESTF mission is complete, but the members would like to continue to play a role in supporting the community's sustainability efforts.

ESTF recommends a continuation of the Task Force and a new mission. This mission in the near term would include helping to implement recommendations through research and volunteer work. ESTF can play a vital role in the public outreach and education efforts. Some monitoring of the recommendations could also be accomplished by ESTF members. When it is time to review and revise the Sustainable Action Plan, ESTF could carry out the same role it did for this initial document. In the future, the Task Force could meet monthly or quarterly instead of bi-monthly.

## Appendix A: Glossary of Terms & Acronyms

**AB:** Assembly Bill

**AB 32:** The Global Warming Solutions Act. 2006. In Fall 2006, the California legislature passed landmark legislation mandating significant reductions in statewide GHG emissions starting first with “stationary sources” such as power plants and petroleum refineries. AB 32 calls for a return to 1990 greenhouse gas levels by the year 2020, which represents a 25 percent drop from 2005 emission levels<sup>1</sup>. Longer-term, the law calls for emissions to be reduced to 80 percent of 1990 levels by 2050.

**AB 811:** The Energy Independence Loan Program. 2008. AB 811, passed by the California Legislature in 2008, enables a city to lend money to homeowners to pay for efficiency upgrades and renewable energy projects, where the loan would be repaid through property tax assessments. The cities of Berkeley and Palm Desert currently have the most developed AB 811 program.

**AB 939:** The Integrated Waste Management Act. 1989. Passed in the California legislature because of the increase in waste stream and the decrease in landfill capacity, AB 939 mandated a reduction of waste being disposed. Jurisdictions were required to meet diversion goals of 25% by 1995 and 50% by the year 2000. The bill was re-enacted in 2008 as AB 1016. The 50% reduction rate remains the same, but the calculations used to measure achievement of this goal have been simplified.

**AB 1016:** Re-enactment of AB 939: The Integrated Waste Management Act. 2008. See AB 939.

**AB 1881:** The Water Conservation and Land Use Act. 2006. Assembly Bill 1881 promotes water conservation practices in four ways:

1. Local ordinances: By January 1, 2009, Assembly Bill 1881 requires the State Department of Water Resources to update the model water efficient landscape ordinance.
2. Common interest developments: It is common for homeowners associations that run common interest developments to regulate the use of private property through covenants, conditions, and restrictions. Assembly Bill 1881 prohibits a common interest development from restricting the use of low water-using plants if the plants meet maintenance standards.
3. Energy performance standards: Assembly Bill 1881 requires the California Energy Commission to adopt regulations that set performance standards and labeling requirements for landscape irrigation equipment.

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<sup>1</sup> San Mateo County Energy Strategy 2012, Executive Summary, pg 5

4. Water meters: Current law requires urban water suppliers to install water meters on their municipal and industrial customers. AB 1881 requires water purveyors to require separate water meters for landscape purposes as a condition of new water service, starting January 1, 2008.

**ABAG:** Association of Bay Area Governments. ABAG is committed to enhancing the quality of life in the San Francisco Bay Area by leading the region in advocacy, collaboration, and excellence in planning, research, and member services.

**BAWSCA:** Bay Area Water Supply and Conservation Agency. BAWSCA represents the interests of 25 cities and water districts, and two private utilities, that purchase water wholesale from the San Francisco regional water system. The entities provide water to 1.7 million people, businesses and community organizations in Alameda, Santa Clara and San Mateo counties.

**BIG:** Build It Green. Residential home building guidelines that promote a holistic approach to homebuilding emphasizing quality construction, energy efficiency, good indoor air quality and livable neighborhoods. Points are based on different elements chosen during the planning, design, and building process.

**Built Environment:** Stationary man-made surroundings provided for human activity.

**C&D:** Construction and Demolition

**CA:** California

**CACP:** Clean Air and Climate Protection. Software developed by ICLEI to systematically calculate GHG emissions from various sources.

**CCF:** One Hundred Cubic Feet = 748 gallons

**CDBG:** Community Development Block Grants. Flexible grants administered by the California Housing and Urban Development Department that provide communities with resources to address a wide range of unique community development needs.

**City Operations GHG Emissions Inventory:** A calculation of GHG emissions for a base year and a forecast year. The calculations capture emissions levels from all municipal operations (e.g., city owned and/or operated buildings, streetlights, transit systems, wastewater treatment facilities, equipment, and vehicle fleets). This inventory and forecast provide a benchmark for planning and monitoring progress. The base year for Foster City is 2005. 2005 was chosen as a baseline year as part of a regional decision, largely due to the availability of data and emissions factors from PG&E and other sources.

**Climate Change:** The earth's climate has been changing continually for millions of years. Scientists know many of the things that cause these changes. Some, like the amount of carbon dioxide in the atmosphere, are now being affected by human activities.

**CLCA:** California Landscape Contractors Association

**CO<sub>2</sub>:** Carbon Dioxide

**CO<sub>2</sub>e:** Carbon Dioxide Equivalent. A quantity that describes, for a given mixture and amount of a greenhouse gas, the amount of CO<sub>2</sub> that would have the same global warming potential, when measured over a specified timescale (generally, 100 years).

**Community-Wide GHG Emissions Inventory:** An estimate of the quantity of GHG emissions which the community as a whole generates for a specific analysis year. The community inventory includes the quantities of electricity and fuels used in the residential, commercial, industrial, government, and transportation sectors, along with the amount of waste produced and landfilled in the analysis year, as well as the quantity of GHG emissions produced by each of these sectors. The baseline analysis year for Foster City is 2005. 2005 was chosen as a baseline year as part of a regional decision, largely due to the availability of data and emissions factors from PG&E and other sources.

**Complete Streets:** Complete Streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street.

**Deconstruction:** The dismantling of a structure in order to salvage, reuse, or recycle as many of the building materials as possible and is an alternative to demolition.

**Earth Day:** Earth Day is one of two observances, both held annually during spring in the northern hemisphere, and autumn in the southern hemisphere. These are intended to inspire awareness of and appreciation for the Earth's environment. The United Nations celebrates an Earth Day each year on the March equinox, a tradition which was founded by peace activist John McConnell in 1969. A second Earth Day, which was founded by U.S. Senator Gaylord Nelson as an environmental teach-in in 1970, is celebrated in many countries each year on April 22.

**EMID:** Estero Municipal Improvement District

**Energy Audit:** An energy audit is an inspection, survey and analysis of energy flows in a building, process or system with the objective of understanding the energy dynamics of the system under study. Typically an energy audit is conducted to seek opportunities to reduce the amount of energy input into the system without

negatively affecting the output(s). When the object of study is an occupied building then reducing energy consumption while maintaining or improving human comfort, health and safety are of primary concern.

**Energy Efficiency:** Using less energy to provide the same level of energy service. An example would be insulating a home to use less heating and cooling energy to achieve the same temperature. Another example would be installing fluorescent lights and/or skylights instead of incandescent lights to attain the same level of illumination. Efficient energy use is achieved primarily by means of a more efficient technology or process rather than by changes in individual behavior.

**ESTF:** Ad Hoc Environmental Sustainability Task Force (also: the Task Force)

**FAQ:** Frequently Asked Question

**FCTV:** Foster City Television

**GHG:** Greenhouse Gas. Gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect, which causes warming of the atmosphere of the Earth.

**Global Warming:** If climate change occurs due to an increase in GHG emissions, not every day or every place will be warmer. But on average most places will be warmer. This will cause changes in the amount and pattern of rain and snow, in the length of growing seasons, in the frequency and severity of storms, and in sea level. Farms, forests, and plants and animals in the natural environment, will all be affected.

**HOA:** Homeowners' Association

**ICLEI:** ICLEI-Local Governments for Sustainability, USA. A membership association of local governments committed to advancing climate protection and sustainable development.

**IPCC:** International Panel on Climate Change

**IPM:** Integrated Pest Management - an approach to pest control that utilizes regular monitoring and record keeping to determine if and when treatments are needed, and employs a combination of strategies and tactics to keep pest numbers low enough to prevent unacceptable damage or annoyance. Biological, cultural, physical, mechanical, educational, and chemical methods are used in site-specific combinations to solve the pest problem. Chemical controls are used only when needed, and in the least-toxic formulation that is effective against the pest. Educational strategies are used to enhance pest prevention, and to build support for the IPM program.

**Joint Venture Silicon Valley Network:** Established in 1993, Joint Venture: Silicon Valley Network provides analysis and action on issues affecting the region's economy and quality of life. The organization brings together established and emerging leaders - from business, government, academia, labor and the broader community - to spotlight issues and work toward innovative solutions. In 2007 Joint Venture facilitated the formation of the Climate Protection Task Force, a working group with representatives from 44 cities, counties and special districts in Silicon Valley.

**LEED:** The Leadership in Energy and Environmental Design. A Green Building Rating System, developed by the U.S. Green Building Council, provides a suite of standards for environmentally sustainable construction. LEED ratings are based on a point system. Points are awarded for various elements that can be chosen during the planning, design, and building process.

**Metric Tons:** 1,000 kilograms

**MFD:** Multi-family dwelling

**NPL:** National Priorities List

**PCE:** perchlorethylene

**PG&E:** Pacific Gas and Electric

**PM<sub>10</sub>:** Particulate matter of 10 micrometers or less in size.

**PM<sub>2.5</sub>:** Particulate matter of 2.5 micrometers or less in size.

**RecycleBank:** A company focused on providing recycling rewards. It does this by measuring the amount of material each home recycles then issuing RecycleBank Points based on the amount of materials recycled. These points can be used at participating local and national rewards partners.

**RecycleWorks:** A program of San Mateo County dedicated to providing information on garbage and recycling services, where to recycle, waste reduction, composting, green building and other related environmental issues. RecycleWorks administers the San Mateo County Green Business Program, has written the San Mateo County Energy Strategy and is working to create a regional Green Building Policy. They are a source of local information and technical assistance for the region.

**Renewable Energy:** Energy generated from natural resources—such as sunlight, wind, rain, tides and geothermal heat—which are naturally replenished.

**San Mateo Energy Strategy:** San Mateo County has developed an Energy Strategy for the County and its cities to address the ever-increasing financial costs of energy and water, the impact that creating additional energy related infrastructure will have on local communities, and the increasing concern about climate change and its effects.

**SB:** Senate Bill

**SB 375:** The Transportation and Land Use Planning Act. 2008. SB 375 builds on climate change legislation signed into California law in 2006 (AB 32) and the regional “blueprint plan” developed in the Sacramento region. The bill’s core provision is a requirement for regions with high air pollution to develop a “Sustainable Communities Strategy” in order to reduce greenhouse gas emissions from cars.

**SBWMA:** South Bayside Waste Management Authority. SBWMA is a joint powers authority with twelve member agencies (the cities of Belmont, Burlingame, East Palo Alto, Foster City, Menlo Park, Redwood City, San Carlos and San Mateo, the towns of Atherton and Hillsborough, the County of San Mateo and the West Bay Sanitary District) in San Mateo County. The primary goal of the SBWMA is to provide cost effective waste reduction, recycling, and solid waste programs to member agencies through franchised services and other recyclers to meet and sustain a minimum of 50% diversion of waste from landfill as mandated by California State Law, AB 939.

**Sequester:** To separate in order to store. In carbon sequestration, CO<sub>2</sub> is separated from the atmosphere and stored for usage (typically by plants).

**Solar Panels:** Panels that are made up of photovoltaic cells, which convert sunlight into electricity.

**Solid Waste:** Any garbage, refuse, sludge and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operation, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges, or sources of special nuclear, or by-product material.

**SSV:** Sustainable Silicon Valley: a collaboration of businesses, governments, and non-governmental organizations that are identifying and addressing environmental and resource pressures in the Valley. As its first initiative, SSV is engaging prominent Valley organizations to work towards self-imposed goals of reducing regional carbon dioxide (CO<sub>2</sub>) emissions.

**Sustainable San Mateo County:** Sustainable San Mateo County is dedicated to the long-term health of our county's economy, environment and social equity. The goals are to:

- Provide fact-based information about San Mateo County's economy, environment, and society.
- Educate the community about sustainability. Bring the concepts of sustainability into the mainstream of decision-making countywide.
- Contribute to the long-term improvement of our economy, environment, and society.

**U.S. EPA:** The United States Environmental Protection Agency

**VMT:** Vehicle Miles Travelled

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## **Appendix B: Existing Foster City Green Policies & Practices**

Foster City has made several steps towards environmental sustainability over the years including the following policies and actions that have already been implemented:

### **Policies and Strategies**

- Passed Resolution 2006-71, supporting efforts of all governments to develop policies and programs to reduce global warming.
- Passed Resolution 2007-57, supporting the development of an energy strategy for San Mateo County to reduce the impact of global warming and the corresponding climate change.

### **Carbon Emissions**

#### Emissions from City Operations

- In the process of conducting an inventory of greenhouse gas (GHG) emissions from City operations. Once completed, this inventory will be used to create a prioritized action plan to reduce emissions. The action plan may include the setting of an emissions reduction goal for City operations. The City currently has a number of programs that reduce carbon emissions both from City operations and the community as a whole. Future work will document the estimated reductions from these and new efforts.
- In the process of converting to a system by which water meters can be read remotely, eliminating the need to routinely access on-site meters around the city by automobile.

#### Promotion and Support of Mass Transportation

- As a member of the Traffic Congestion Relief Alliance, Foster City works with employers to ensure that trip-reducing alternatives are available, introduced to employees, and publicized on a regular basis.
- Provides funding, along with a matching grant from the City/County Association of Governments, for the Connections Shuttle, a free in-town shuttle service that provides connections to recreational activities, shopping centers, and to other regional mass transit alternatives for Foster City residents and employees of local businesses.
- Promotes the Alameda-Contra Costa (AC) Transit transbay bus service.
- Promotes employer-operated shuttles to and from the San Mateo Caltrain Station and the Millbrae Intermodal Station from three areas of town: Lincoln Centre, North Foster City, and Mariners Island.
- Operates a Senior Express Shuttle to transport residents age 55 and older to events and activities in the region.

#### Bicycle Alternatives

- Requires that bicycle racks be installed at all new commercial/office developments in town. Bicycle racks are also on all shuttles.

- Maintains a bicycle/pedestrian path along the bayfront—a leg of the Bay Trail that connects with trails maintained in neighboring cities and allows for an easy commute by bicycle between Foster City and a number of Peninsula cities.

#### Foster City Employee Trip Reduction

- Has implemented an alternative schedule for most employees, reducing employee commuter trips from a traditional schedule.
- Has implemented the option for certain employees to telecommute from home, keeping cars off the roadways while still maintaining a productive workforce.

#### City Fleet Fuel Efficiency

- Is increasing the percentage of hybrids in the City fleet and reviewing other fuel-efficient alternatives as vehicles are replaced.
- Has replaced traditional vehicles with electric options for parks maintenance operations when appropriate.
- Maintains its vehicle fleet in peak condition in order to maximize performance and minimize carbon emissions.

#### Other Carbon-Reducing Policies

- Reduced speed limits on most City streets to allow for residents' and businesses' use of Neighborhood Electric Vehicles (NEV) for intra-City transportation.
- Adopted regulations prohibiting the installation or replacement of wood burning appliances unless certain conditions are met to protect air quality.

#### **Energy Conservation and Renewable Energy**

- Eliminated permit fees for installation of solar panels.
- Installed high-efficiency, high-pressure sodium vapor street lights that use approximately 35 percent less energy than older mercury vapor or incandescent lights.
- Converted all traffic and pedestrian signals to light emitting diodes (LED's); these lights use about 20 percent of the electricity of the older, halogen lights.
- Implemented energy conservation practices in building maintenance supplies, parts and systems in City facilities. Computer-controlled heating, ventilation and air conditioning systems in some buildings make them more energy efficient, shutting off the systems during times when work areas may not be inhabited.
- Participates in the San Francisco Community Power Demand Response Program, reducing city-wide electricity use on peak demand days.
- Installed radar-equipped speed safety signs near Bowditch Middle School that utilize solar energy as the only power source.
- Has converted to energy efficient electronic ballasts in City lighting systems.

#### **Water Conservation**

- As a member of the Bay Area Water Supply and Conservation Agency (BAWSCA), offers incentives for residents and businesses to conserve water, such as rebates for low-flow toilets and high-efficiency clothes washers.

- In collaboration with local schools, provides "home audit" kits to fifth graders who report back water savings as part of a school project and teaches water conservation to students on water utility facility field trips.
- Offers free informational resources, such as Water-Wise Gardening in the Bay Area CD-ROM for water customers.
- Installed low-flow toilets, state of the art irrigation systems and controllers, and drought tolerant plantings in order to reduce water usage in City facilities and parks.
- Turf grass in selected parks has been replaced with artificial turf which does not require irrigation.
- Installed water fixtures in City buildings that work on a sensor system to conserve water.

### **Recycling**

- As member of South Bay Waste Management Authority (SBWMA), administers programs to meet and sustain a minimum 50% diversion rate mandated by the state.
- Promotes residential and commercial recycling efforts. Foster City has increased its solid waste diversion rate over the last several years.
- Implemented residential curbside collection of batteries and cell phones in addition to providing a collection point at City Hall.
- Sponsors annual electronics recycling event.
- Recycles all used lamps and ballasts from City lighting systems.
- Recycles used printer cartridges.
- Purchases "in-unit" recycling containers that the garbage collection contractor distributes to residents of multi-family dwellings.
- Hosts free compost give-away events during the year utilize green waste collection.
- Fire Department participates in food waste collection program.
- Passed an ordinance requiring a minimum of 50 percent of the debris generated from certain construction and demolition projects be diverted from landfills to recycling facilities.

### **Habitat Preservation and Protection**

- Maintains storm water system in compliance with National Pollution Discharge Elimination System requirements, reducing pollution of Bay waters.
- Through Foster City Lagoon Management Plan, directs the use of environmentally-friendly products and processes, rather than chemical treatment, to manage lagoon water quality whenever possible.
- With Audubon Society, created new seasonal wetlands for bird habitat as part of lagoon dredging project.

### **Other**

- Is an active member of the Joint Venture Silicon Valley Network Climate Protection Taskforce, Sustainable Silicon Valley and ICLEI-Local Governments for Sustainability, USA in order to pursue regional climate protection alternatives.

- Ensures that janitorial supplies used in City facilities are environmentally friendly including: low pH diluted cleaning concentrates and renewable resource paper products.

## Appendix C: ICLEI GHG Inventory Methodology & Assumptions



# Community Greenhouse Gas Inventory Methodology for Bay Area Local Governments

Prepared as part of Bay Area Air Quality Management District -- ICLEI Workshop in San Mateo County on September 7, 2007

### Community-Scale Inventory

The community-scale inventory estimates the quantity of greenhouse gas (GHG) emissions for which the community as a whole is responsible for a specific analysis year. The community inventory is organized by sector—residential, commercial, industrial, transportation, and waste. When completed, the community inventory will include the quantities of electricity and fuels used in the residential, commercial, industrial, and transportation sectors, along with the amount of waste produced and landfilled in the analysis year, as well as the quantity of GHG emissions produced by each of these sectors. The data needed is typically available from **electric and gas utilities, planning and transportation agencies and solid waste management departments.**

Each local community has unique characteristics (e.g., population, housing types, transportation networks, industries, electricity fuel mix) that make its GHG inventory different from other cities or counties. The primary value of an emissions inventory is to enable the demonstration of progress over time. For this Community Inventory Workshop, all participating local governments will use data provided by common sources. However, each local government may choose to supplement this analysis with additional data sources of greenhouse gas emissions to analyze on their own.

#### *Emissions Sources that are Included*

The community-wide analysis includes emissions from residential, commercial, and industrial sources, as well as transportation and waste management. All electricity and fuel use should be included as well as all waste generated from these sectors. Community-scale emissions analyses should utilize the geographic boundaries of the community.

#### *Emissions Sources that are Excluded*

Local governments should endeavor to include all possible emissions sources in their community-scale inventories. However, local governments will often choose to exclude emissions sources that meet the following criteria:

- *Small and unimportant* – Emissions sources can be excluded from the analysis (e.g. are “de minimis”) if, when combined, the excluded emissions total less than 5% of the total of the emissions from the Community or Government Inventory.<sup>1</sup>
- *Prohibitively difficult to track with accuracy* – such as lawn care equipment, off-highway construction equipment, methane from wastewater and sewage sludge, non-combustion industrial emissions sources.
- *Largely located outside the jurisdiction’s boundaries* – such as intercity transportation fuel (i.e. air, rail, marine and intercity highway traffic).

Finally, emissions from very large energy intensive industrial facilities (paper and steel mills, industrial chemical plants, petrochemical plants and refineries, metal smelters, large cement making operations) should be represented within the context of the community-scale emissions inventory results in an appropriate fashion, as (1) their emissions may be well documented in other inventory programs, (2) the purpose of a local government analysis is to account for the emissions the jurisdiction has the ability to influence, and (3) their inclusion could skew the results to the point of prohibiting the facilitation of intercity comparisons.

### ***Base vs. Additional Emissions Sources***

Base Emissions Sources are effectively required for reporting of community-scale emissions inventories. Any future comparative reporting of emissions across jurisdictions should include comparison of energy/fuel demand and emissions produced exclusively by these base emissions sources. Guidance on estimating emissions from these sources will be included in the ICLEI Local Government Emissions Analysis Protocol.

Additional Emissions Sources should also be calculated and included to the extent possible. Guidance on estimating emissions from these sources will also be included in the Local Government Emissions Analysis Protocol. However, it is recognized that in some communities data on some of these emissions sources will be unavailable or inappropriate to include within a community-scale emissions analysis. Thus any future comparative reporting should also enable appropriate comparison of total emissions with sufficient transparency of source components included.

### ***Scopes***

Scope 1 emissions sources within the context of community-scale emissions analyses include all direct emissions generated during the analysis period within the community boundaries.

Scope 2 emissions sources within the context of community-scale emissions analyses include all emissions generated during the analysis period outside the community’s geographic boundaries but due to activity occurring inside the boundaries (e.g., emissions from power plants associated with electricity consumption).

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<sup>1</sup> Note: an inventory should include at least 95% of the emissions released by the government and community as a whole. Therefore, if a large number of small emissions sources occur within the jurisdiction, they cannot all be ignored.

Information Items within the context of community-scale emissions analyses include additional potentially policy-relevant emissions data that does not fit within the above scope definitions. In some cases this might include lifecycle emissions estimates associated with up-stream manufacture or transport of fuels or materials.

### ***General Data Requirements***

Emission factors (also referred to as emission coefficients) and activity level data, typically framed as the amount of energy consumed or waste generated, are needed to calculate emissions resulting from that activity. Emission factors describe the quantity of a pollutant emitted for every unit of activity. For example, the emission factor for electricity purchased from PG&E in 2005 is 0.489 lbs. of CO<sub>2</sub>/kwh of electricity delivered. ICLEI recommends converting all GHG emissions into carbon dioxide equivalent units, or CO<sub>2</sub>e, per the international convention of using global warming potentials outlined in the IPCC's Second Assessment Report (SAR). However, this convention may change in the future as international consensus shifts to using the values identified in the third assessment report. See Appendix A for more information.

## Residential, Commercial and Industrial Sectors

### What is included in this data?

- CO<sub>2</sub>e for all PG&E electricity that is consumed within your jurisdiction. The CO<sub>2</sub> emission factor has been certified by the California Climate Action Registry (CCAR) and accounts for transmission losses.
- CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions for all natural gas that was delivered within your jurisdiction.

### What is not included in this data?

- All electricity purchased through Direct Access (DA) accounts or from a municipal utility. The amount of DA in a given community varies; however, 11.9% of electricity consumption in California was DA in 2005 according to the CPUC. <http://www.cpuc.ca.gov/static/energy/electric/electric+markets/direct+access/00thru05.htm>. Estimates of DA electricity consumption and emissions per county are presented based on data from California Energy Commission.
- Fuel sources not delivered by PG&E. For example, wood, charcoal, propane, kerosene, diesel, heavy fuel oil, etc.
- PFCs, HFCs, SF<sub>6</sub>. This data may be prohibitively difficult to obtain.

### Emission Factors and Calculation Methodology:

Emission Source	GHG	Emission Factor	Emission Factor Source
PG&E Electricity*	CO <sub>2</sub>	0.489155 lbs/kwh	The certified CO <sub>2</sub> emission factor for delivered electricity is publicly available at <a href="http://www.climateregistry.org/CarrotDocs/19/2005/2005_PUP_Report_V2_Rev1_PGE_rev2_Dec_1.xls">http://www.climateregistry.org/CarrotDocs/19/2005/2005_PUP_Report_V2_Rev1_PGE_rev2_Dec_1.xls</a>
	CO <sub>2</sub> e	0.492859 lbs/kwh	PG&E
Default Direct Access Electricity*	CO <sub>2</sub>	343.3 short tons/GWh	ICLEI/Tellus Institute (2005 Region 13 - Western Systems Coordinating Council/CNV Average Grid Electricity Coefficients)
	CH <sub>4</sub>	0.035 short tons/GWh	
	N <sub>2</sub> O	0.027 short tons/GWh	
Natural Gas	CO <sub>2</sub>	53.05 kg/MMBtu	PG&E/CCAR. Emission factors are derived from: California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks: 1990-1999 (November 2002); and Energy Information Administration, Emissions of Greenhouse Gases in the United States 2000 (2001), Table B1, page 140.
	CH <sub>4</sub>	0.0059 kg/MMBtu	CCAR. Emission factors are derived from: U.S. EPA, "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2000" (2002), Table C-2, page C-2. EPA obtained original emission factors from the Intergovernmental Panel on Climate Change, Revised IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual (1996), Tables 1-15 through 1-19, pages 1.53-1.57.
	N <sub>2</sub> O	0.001 kg/MMbtu	

\*These emission factors only apply for the year 2005.

### Data Sources:

Electricity and Natural Gas Consumption: Pacific Gas and Electricity (PG&E)

Contact: Jasmin Ansar, Manager, Environmental Policy, PG&E, JxA2@pge.com, (415) 973-4570

Emission Factors: See above.

## Transportation Sector

### What is included in this data?

- All non-highway VMT is included in city data.
- State and Interstate highway VMT within each city.

### What is not included in this data?

- Vehicle emissions related to sea ports and air ports.
- Rail transit emissions. However, BART's electricity consumption is embedded in the community electricity data.
- This methodology will not reflect the use of any fuels besides gasoline and diesel.
- PFCs, HFCs, SF<sub>6</sub>. This data may be prohibitively difficult to obtain.

### Emission Factors and Calculation Methodology\*:

County	CO <sub>2</sub> Rates (grams/mile)		CH <sub>4</sub> Rates (grams/mile)		N <sub>2</sub> O Rates (grams/mile)		VMT Mix		CO <sub>2</sub> Rates- (grams/gallon)		Fuel Usage		Fuel Efficiency (miles/gallon)	
	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel	Gas	Diesel
San Mateo	440	1,269	0.058	0.030	0.070	0.050	96.8%	3.2%	8,609	10,216	92.5%	7.5%	19.6	8.1
Santa Clara	462	1,361	0.062	0.027	0.070	0.050	95.9%	4.1%	8,612	10,117	90.4%	9.6%	18.6	7.4
Bay Area AQMD Average	463	1,389	0.063	0.030	0.070	0.050	94.9%	5.1%	8,607	10,091	87.8%	12.2%	18.6	7.3

\*The values above only apply for the year 2005

### Data Sources:

2005 Vehicle Miles Traveled (VMT) data by City and County: MTC- Metropolitan Transportation Commission. Based on the Highway Performance Monitoring System (HPMS), Data is reported in Daily Vehicle Miles Traveled. Annual VMT is calculated by multiplying the DVMT by 365 days, as the DVMT accounts for decreased traffic volumes on the weekends. Attached MTC Memo to Local Governments in the Bay Area.

Contact: Benjamin Espinoza, Transportation Planner, MTC, BEspinoza@mtc.ca.gov

Emission Factors, VMT Mix, Fuel Usage and Fuel Efficiency: Bay Area Air Quality Management District (BAAQMD). CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emission factors are generated using the EMFAC model. The basis for the estimates are CO<sub>2</sub> emission rates (grams/mile), which are based on engine testing at different speeds, and county-wide vehicle registration data obtained from DMV. Estimates are available for years 1970-2040. The model also provides estimates of criteria air pollutants, as well as methane emissions (CH<sub>4</sub>). In addition, it produces an estimate of fuel usage, and fuel economy. County variations in emission factors are due to the use of county-specific vehicle usage, vehicle mix, vehicle speed and ambient temperatures. For more information on EMFAC2007, please refer to California Air Resources Board website: [http://www.arb.ca.gov/msei/onroad/latest\\_version.htm](http://www.arb.ca.gov/msei/onroad/latest_version.htm)

Contact: Ana Sandoval, Principal Environmental Planner, BAAQMD, [ASandoval@baaqmd.gov](mailto:ASandoval@baaqmd.gov)

## Waste Sector

### *What is included in this data?*

- 1) Landfill Waste in Place
  - Total emissions (methane emissions) released from any landfills located in your jurisdiction in the baseline year
- 2) Lifetime Decomposition Associated with Waste Generated
  - Total emissions (methane emissions) from solid waste generated in your jurisdiction in the baseline year that was sent to landfills regardless of whether they are located within or outside of your jurisdiction's boundaries
  - Total emissions (methane emissions) from the Alternative Daily Cover (ADC) used in the landfills where the waste generated in your jurisdiction is disposed.

### *What is not included in this data?*

- Any GHG emissions from fossil-based products (incineration or decomposition) are not included nor are GHG emissions from organic waste handling and decay because they are considered to be biogenic in origin.

### **Emission Factors and Calculation Methodology:**

- 1) Total Emissions Generated from Landfill Waste in Place: Estimate using the EPA Landfill Gas Emissions Model (LandGEM). LandGEM is available online: <http://www.epa.gov/ttn/catc/products.html>. Also a version of LandGEM is available in ICLEI's CACP Software User's Manual: <http://www.epa.gov/ttn/catc1/dir1/landgem-v302-guide.pdf>
- 2) Lifetime Decomposition Associated with Waste Generated: The methane emission factors used in the ICLEI CACP Software were derived from the EPA WARM model. For quantification of emissions only methane generation (or gross emissions) is taken into account. More information on the WARM Model is available at: [http://epa.gov/climatechange/wycd/waste/calculators/Warm\\_home.html](http://epa.gov/climatechange/wycd/waste/calculators/Warm_home.html)

### **Data Sources:**

- 1) Landfill information and total landfill waste in place: Bay Area Air Quality Management District (BAAQMD). Contact: Ana Sandoval, Principal Environmental Planner, BAAQMD, [ASandoval@baaqmd.gov](mailto:ASandoval@baaqmd.gov)
- 2) Waste Generated Tonnage: California Integrated Waste Management Board (CIWMB), California Solid Waste Statistics. Waste disposal and alternative daily cover (ADC) tonnage is reported by permitted facility operators and compiled by county/regional agency disposal reporting coordinators and published in the Disposal Reporting System (DRS) for every county/jurisdiction from 1999 to 2005 (as of September 2007).by the California Integrated Waste Management Board. <http://www.ciwmb.ca.gov/lgcentral/DRS/Reports/JurDspFa.asp?VW=JURIS>

Waste Characterization: CIWMB 2004 Statewide Waste Characterization Study. This state average waste characterization accounts for residential, commercial and self haul waste. <http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097>  
Residential and Commercial Waste Characterization Studies are provided every five years by county/jurisdiction. The CIWMB does not compile the sector-specific tonnage of waste generated. Therefore, this characterization is only usable if every jurisdiction has the exact tonnage per sector. <http://www.ciwmb.ca.gov/Profiles/Juris/Default.asp>

CIWMB's waste categories correlate with the ICLEI CACP software categories according to the following guidelines:

- Paper Products includes all paper types.
- Plant Debris includes leaves and grass, prunings and trimmings, branches and stumps, and agricultural crop residues.
- Wood and Textiles includes lumber.
- Other category includes all inorganic material types reported: glass, metal, electronics, plastics, non organic C&D, and special/hazardous waste.

Landfill Gas Recovery Rate (or Methane Recovery Factor): *Solid Waste Disposal. Chapter 2. AP 42 Emission factors.* U.S. EPA 1998

Landfills in the San Francisco Bay Area are regulated under the EPA New Source Performance Standard regulations. The local implementation agency is the Bay Area Air Quality Management District. Onsite measurements should be reported to comply with the control emissions (Non Methane Organic Compounds). The recommended landfill gas recovery rate (or methane recovery factor) that landfills should apply for their uncontrolled emissions is provided by the EPA AP 42 Emission Factor Guidelines and it is from 60%-85%. ICLEI recommends using the minimum recommended rate being consistent with the 2006 IPCC Guidelines of acknowledging the uncertainties associated with the measurements.

<http://www.epa.gov/ttn/chief/ap42/ch02/index.html>

# Appendix A

## *Global Warming Potentials and CO<sub>2</sub>e*

When reporting GHG emissions and reductions, the individual gases are typically converted to carbon dioxide equivalencies (CO<sub>2</sub>e) in order to report a single number that captures the total amount of GHG being released (or avoided).

Carbon dioxide equivalent (CO<sub>2</sub> e) is a commonly used unit that allows amounts of greenhouse gases of different strengths to be added together based on each gas's relative impact on climate change. CO<sub>2</sub> e is expressed in terms of the amount of carbon dioxide it would take to produce the same impact on global climate change. For example, nitrous oxide is 310 times more potent than carbon dioxide as a greenhouse gas. Therefore, one ton of N<sub>2</sub>O is equal to 310 tons CO<sub>2</sub>e. This conversion factor is known as the gas's "global warming potential." The global warming potential is calculated based on a 100 year time frame, taking into consideration both impact and the length of time the gas remains in the atmosphere (i.e. a more potent greenhouse gas that is removed from the atmosphere in 10 years could have a lower global warming potential than a weaker gas that remains in the atmosphere for 50 years).

### **Relative Global Warming Potentials from the IPCC's Second (SAR) and Third (TAR) Assessment Reports**

<b>Gas</b>	<b>SAR</b>	<b>TAR</b>
Carbon Dioxide	1	1
Methane	21	23
Nitrous Oxide	310	296
HFC-23	11,700	12,000
HFC-125	2,800	3,400
HFC-134a	1,300	1,300
HFC-143a	3,800	4,300
HFC-152a	140	120
HFC-227ea	2,900	3,500
HFC-236fa	6,300	9,400
Perfluoromethane (CF <sub>4</sub> )	6,500	5,700
Perfluoroethane (C <sub>2</sub> F <sub>6</sub> )	9,200	11,900
Sulfur Hexafluoride (SF <sub>6</sub> )	23,900	22,200

## **Appendix D: Task Force Schedule & Participation**

### **7/10/08**

- **Task Force Welcome**
- **Organization**

**Speakers:** None

**Public:** Jennifer Chicconi (Allied Waste), Kirk Syme (Woodstock Development), Laura McHugh (Gilead Services)

### **7/30/08**

- **Definition of Sustainability**
- **Framework of Topics/Meetings**
- **Brainstorming of Recommendations**

**Speakers:** None

**Public:** Sonja Tappen (resident), Sue Chamberlain (resident, president Bayfront Court Homeowners' Association), Joanne Bohigian (resident, immediate past president Bayfront Court Homeowners' Association), Craig Rush (resident, Master Composter), Jennifer Chicconi

### **8/14/08**

- **Sustainability 101 Presentation**
- **Definition of Sustainability**

**Speakers:** Jason Bade (ESTF)

**Public:** Joanne Bohigian, Paul Bade

### **8/28/08**

- **Energy Panel**
- **Established Subcommittees**

**Speakers:** Jeffrey Liang (RecycleWorks), Kathy Lavezzo (PG&E), Herb Gong (PG&E)

**Public:** Jennifer Chicconi, Craig Rush

### **9/11/08**

- **Solid Waste Panel**

**Speakers:** Laura Galli (Assistant Engineer, Foster City), Jennifer Chicconi (Allied Waste), Hilary Gans (SBWMA), Miriam Reiter (RecycleWorks)

**Public:** Craig Rush, Joanne Bohigian, Kirsten Raubitschek (resident)

**9/25/08**

- **Water Panel**
- **Earth Day Event**

**Speakers:** Norm Dorais (Foster City Public Works), Nicole Sandkulla (BAWSCA), Frank Niccoli (ESTF)

**Public:** Ray Towne (Director of Public Works, Foster City), Joanne Bohigian

**10/09/08**

- **Green Business Program**
- **Green Purchasing**
- **Education**
- **Draft Solid Waste Recommendations**

**Speakers:** None

**Public:** Craig Rush

**10/23/08**

- **Joint Meeting with the Transportation Committee**
- **Winds of Change Presentation (Land Use and Environmental Sustainability)**

**Speakers:** Don Weden, Retired Santa Clara County Principal Planner

**Public:** Christine Maley-Grubel (Peninsula Traffic Congestion Relief Alliance), Craig Rush

**11/13/08**

- **Environmental Sustainability Logo**
- **Earth Day Event**
- **Draft Energy Recommendations**

**Speakers:** None

**Public:** Joanne Bohigian, Craig Rush, Oscar Mace (resident, director of Bayfront Court Homeowners' Association), Laura McHugh

**11/24/08**

- **Draft Water Recommendations**
- **Draft Air Quality / Transportation Recommendations**

**Speakers:** None

**Public:** Joanne Bohigian, Oscar Mace

**12/11/08**

- **Prioritization of Recommendations**

**Speakers:** None

**Public:** Craig Rush

**1/08/09**

- **Arts & Wine Festival**
- **Earth Day Event**
- **Draft Public Education & Outreach Recommendations & Prioritization**

**Speakers:** None

**Public:** Craig Rush

**1/22/09**

- **Draft Sustainability Action Plan Review**
- **Arts & Wine Festival**

**Speakers:** None

**Public:** None

**2/9/09**

- **Final Sustainability Action Plan Review**

**Speakers:** None

**Public:** None

**2/18/09**

- **Distribution of Final Report**
- **Preparation for Council Meeting**
- **Wrap-Up Party**

**2/23/09**

- **Presentation of Report to City Council**

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**Appendix E: Evaluation Matrix**

**Prioritization Exercise**

Sector	Approach	Time-Frame	Complexity
<b>Residential</b> 31%	<b>Mandatory</b> 29%	<b>Short</b> 27%	<b>Low</b> 38%
<b>Commercial</b> 15%	<b>Incentives</b> 62%	<b>Med</b> 65%	<b>Med</b> 48%
<b>Both</b> 54%	<b>Both</b> 10%	<b>Long</b> 6%	<b>Hi</b> 12%

ID	ESTF Recommendations	Sector	Approach	Time-Frame	Complexity	Financial				Goal Impact		Goals								
						Econ. Benefits	Cost	Funding Avble	Savings	Quality	Qty	GHG Emiss Red	Energy Consumption Red	Renew Enrgy Inc	Water Use Red	Wat Pol Prev	VMT Red	Non-Veh. Air Pol Prev	Source Red	Landfill Div
AQT 1	Expand bus/shuttle service	Both	Inc	2-5 yrs	Hi	No	<\$3k		Yes		3	x							x	x
AQT 2	Improve convenience, connectivity, ease for public transportation	Both	Inc	2-5 yrs	Hi	Yes	\$3-\$30k	? PGE	Yes		2	x	x							
AQT 3	Promote ridesharing (website, education, coordination with schools)	Both	Inc	0-2 yrs	Low	No	<\$3k		Yes		2	x					x			
AQT 4	Consider round-about in new developments	Both	Both	2-5 yrs	Hi	No	>\$30k		Yes		1	x								
AQT 5	Create an ordinance that requires businesses, developers, and property managers to install electric plug-ins and preferred parking for electric and alternative fuel vehicles.	Both	Man	2-5 yrs	Med	No	<\$3k	? ACTERRA	Yes		2	x	x							
AQT 6	Develop programs to increase bike commuting: a) bike map/commute routes b)commercial requirements for bike facilities c)improve safety of routes with bike lanes and bike/pedway 101 crossing	Both	Both	0-2 yrs to 6+ yrs	Low-Hi	No	-	? CA			1					x				
AQT 7	Consider a bike-share program	Both	Inc	2-5 yrs	Med	No	\$3-\$30k				1					x				
AQT 8	Consider a car-share program	Both	Inc	2-5 yrs	Med	No	<\$3k		Yes		9	x	x	x	x	x	x	x	x	x
AQT 9	Require new developments to provide NEVs	Both	Man	2-5 yrs	Med	Yes	\$3-\$30k		Yes		2	x		x						
AQT 10	Provide charging stations around town for electric vehicles	Both	Inc	6+ yrs	Hi	No	<\$3k				3						x		x	x
AQT 11	Include "Complete Streets" in city planning	Both	Both	2-5 yrs	Med	No	\$3-\$30k				1								x	
AQT 12	Incorporate transit oriented and mixed use development in general plan	Both	Both	2-5 yrs	Med	No	\$3-\$30k		Yes		1	x								
AQT 13	Consider an ordinance to reduce or eliminate the use of PCE in dry cleaning	Com	Man	2-5 yrs	Med	No	>\$30k				1						x			
AQT 14	Ban the use of 2-cycle engines	Both	Man	2-5 yrs	Med	No	<\$3k		Yes		1					x				
AQT 15	Create Safe Routes to school, including "walking school bus"	Res	Inc	2-5 yrs	Low	No	<\$3k				1									x
AQT 16	Create requirements for urban forestation for all new developments	Both	Man	2-5 yrs	Med	No	\$3-\$30k				1					x				
E 1	Expand financial incentives for low-energy using appliances, including HOA and MFD Landlords	Res	Inc	2-5 yrs	Med	Yes	>\$30k		Yes		2	x		x						
E 2	Create rebates for commercial facilities to upgrade regfigeration efficiency	Com	Inc	2-5 yrs	Med	No	<\$3k				2	x							x	
E 3	Torcherie Turn-In and/or POS rebates for CFLs for residents	Res	Inc	0-2 yrs	Low	No	\$3-\$30k		Yes		2	x								
E 4	Lighting efficiency ordinance for MFD common areas	Res	Man	2-5 yrs	Med	No	<\$3k				2	x								x
E 5	Using existing rebates from the state and utilities or by developing tax rebates, create incentives and technical assistance for businesses to do energy efficiency upgrades	Com	Inc	2-5 yrs	Low	No	<\$3k				3	x							x	x
E 6	Adopt a mandatory Green Building Ordinance, to include LEED Silver for Commercial and Build It Green 75 for Residential.	Both	Man	2-5 yrs	Med	No	\$3-\$30k				1						x			
E 7	Require businesses to do a free PG&E Energy Audit prior to renewing their business license.	Com	Man	0-2 yrs	Low	No	<\$3k	? BAWSCA	Yes		1					x				
E 8	Provide rebates for energy monitoring such as: SMART metering devices from PG&E, thermal scanning for leaks, programmable thermastats, etc. for residents	Res	Inc	2-5 yrs	Med	No	<\$3k				2						x			x
E 9	Partner with Acterra's Green@Home to provide energy audits for residents.	Res	Inc	0-2 yrs	Low	No	<\$3k	? School Dist/PTA	Yes		2	x						x		
E 10	Create low interest financing (AB811) for home renewable energy projects.	Res	Inc	2-5 yrs	Med	Yes	<\$3k		Yes		1	x								
E 11	Create a requirement for new homes and commercial/city buildings of a certain size to have solar panels.	Both	Man	2-5 yrs	Med	No	<\$3k				2	x								x
E 12	Evaluate Community Choice Aggregation option to provide Foster City with more control over the type of energy sources it uses.	Both	Inc	6+ yrs	Hi	Yes	\$3-\$30k		Yes		3	x	x			x				
E 13	Develop planning and zoning regulations conducive to small-scale wind turbine siting/installation, and research wind energy opportunities as part of Foster City's comprehensive planning.	Both	Man	6+ yrs	Hi	No	<\$3k		Yes		3	x							x	x
E 14	Adopt the County Green Business Program	Com	Inc	0-2 yrs	Low	Yes	\$3-\$30k		Yes		2	x				x				

**Appendix E: Evaluation Matrix**

**Prioritization Exercise**

Sector	Approach	Time-Frame	Complexity
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ID	ESTF Recommendations	Sector	Approach	Time-Frame	Complexity	Financial				Goal Impact		Goals								
						Econ. Benefits	Cost	Funding Avble	Savings	Quality	Qty	GHG Emiss Red	Energy Consumption Red	Renew Enrgy Inc	Water Use Red	Wat Pol Prev	VMT Red	Non-Veh. Air Pol Prev	Source Red	Landfill Div
SW 1	Begin residential food waste collection program (like San Carlos) as soon as possible, rather than waiting for 2011.	Res	Inc	2-5 yrs	Med	No	<\$3k	? PGE	Yes		2	x	x							
SW 2	Implement a public grading or recognition/award program for commerical food waste collector	Com	Inc	2-5 yrs	Low	Yes	<\$3k	? PGE	Yes		2	x	x							
SW 3	Create a gradual ban on plastic bags at businesses (a-work with chamber to reach out and teach businesses, b-determine a time period for required reporting from businesses and tracking progress,	Com	Man	2-5 yrs	Med	No	<\$3k		Yes		2	x	x							
SW 4	Amend current C&D ordinance to include incentives for deconstruction (Los Altos Hills model) and require higher mandatory recycling/reuse rates for contractors (Hillsborough model).	Both	Both	2-5 yrs	Med	No	<\$3k	? C/CAG	Yes		2	x					x			
SW 5	Adopt an ordinance (similar to C&D) requiring that all landscapers and landscape maintenance businesses recycle/divert yard waste	Com	Man	2-5 yrs	Med	Yes	\$3-\$30k		Yes		3	x	x		x					
SW 6	Facilitate recycling of styrofoam and "weird" plastics by holding regular collection events (like e-waste) and/or establish permanent drop-off points (regionally)	Both	Inc	0-2 yrs	Low	No	<\$3k		Yes		2				x	x				
SW 7	Increase frequency of e-waste events and partner with organizations that collect re-usable electronics.	Both	Inc	0-2 yrs	Low	No	>\$30k		Yes		1	x								
SW 8	Advocate for Recycle Bank or Pay as You Throw program to incetivize good recycling habits.	Both	Inc	0-2 yrs	Low	Yes	<\$3k		Yes		1	x								
SW 9	Provide tennis ball recycling bins at all tennis courts.	Res	Inc	0-2 yrs	Low	No	\$3-\$30k				2	x						x		
SW 10	Establish a pharmaceutical drop-off location in Foster City	Res	Inc	0-2 yrs	Low	No	<\$3k				2	x								x
SW 11	Sponser a city-wide swap meet to trade items people would otherwise throw away. (SF model)	Res	Inc	0-2 yrs	Low	Yes	<\$3k				6	x	x	x		x			x	x
W 1	Add waterwise landscaping design to building ordinance for commercial and multi-family dwellings	Both	Man	2-5 yrs	Med	Yes	\$3-\$30k				2	x								x
W 2	Create an ordinance requiring all pools and/or spas to include furnished and installed cover assemblies	Res	Man	2-5 yrs	Med	No	<\$3k	? CA	Yes		2	x	x							
W 3	Request that the State of California install a weather station in the San Mateo/Foster City area (CIMIS)	Both	Inc	2-5 yrs	Med	Yes	\$3-\$30k	? PGE			2	x	x							
W 4	Create a Foster City waterwise garden	Res	Inc	2-5 yrs	Low	No	<\$3k to >\$30k	? C/CAG	Yes		2	x						x		
W 5	Create a Foster City community garden and/or "edible school yard".	Res	Inc	2-5 yrs	Low	Yes	>\$30k	? C/CAG	Yes		2	x						x		
W 6	Establish tiered water rates	Both	Inc	0-2 yrs	Low	No	<\$3k		Yes		1				x					
W 7	Improve water bills	Both	Inc	2-5 yrs	Low	No	\$3-\$30k				2	x								x
W 8	Establish inspection criteria for grey water systems	Both	Man	2-5 yrs	Med	Yes	\$3-\$30k	? PGE	Yes		2	x	x							
W 9	Work with BAWSCA to establish a voicemail/email/website residents can use to ask questions about water conservations efforts.	Res	Inc	0-2 yrs	Med	No	\$3-\$30k		Yes		1	x								
W 10	Expand rebates for water saving appliances	Both	Inc	0-2 yrs	Low	Yes	\$3-\$30k		Yes		2	x		x						
W 11	Create incentives for multi-family dwellings to upgrade to water-saving appliances	Res	Inc	2-5 yrs	Low	No	>\$30k	? C/CAG	Yes		2	x						x		

**Abbreviations/Definitions**

**Sector:** Residential (Res), Commercial (Com), Both (Bth) [Answers the question: Who is being regulated or who is receiving the incentive?]

**Approach:** Mandatory (Man), Incentives/Awareness (Inc), Both (Bth)

**Time-frame:** Short (< 1yr), Medium (2-5 years), Long (6+ yrs)

**Complexity:** High (Hi), Medium (Med), Low

**Economic Benefits:** Meaning it creates regional jobs or business opportunities. (Yes/No)

**Cost:** to the City High (Hi > \$30k), Medium (\$3-\$30k), Low (<\$3k)

**Funding Available (to the city):** Yes, No, Maybe (with potential source listed)

**Savings:** Yes/No (to anyone)

**VMT:** Vehicle Miles Traveled

**AQT** = Air Quality/Transportation, **E** = Energy, **SW** = Solid Waste, **W** = Water

## **Appendix F: Non-prioritized Recommendations**

This list of 25 recommendations constitutes approximately half of the total non-education recommendations the Task Force developed during its six months together. Though all of the recommendations were deemed important and useful in attaining ESTF goals, the Task Force felt it was important to prioritize an initial set of recommendations that the City could focus on first. Competing priorities, combined with limitations on resources and time would make it prohibitive to implement all of the recommendations. These non-prioritized recommendations remain important to ESTF. These recommendations can also be considered by City Council for inclusion in the Sustainability Action Plan, but at the very least should be re-evaluated during the next Sustainability Action Plan update (recommended in three years), and at anytime the City or any person or organization in the community is looking for additional sustainability projects to undertake.

### **Energy**

- Create rebates for commercial facilities to upgrade refrigeration efficiency.
- Create a lighting efficiency ordinance for MFD common areas.
- Evaluate Community Choice Aggregation option to provide Foster City with more control over the type of energy sources it uses.
- Develop planning and zoning regulations conducive to small-scale wind turbine siting/installation, and research wind energy opportunities as part of Foster City's comprehensive planning.
- Partner with Acterra's Green@Home Program to provide energy audits for residents.

### **Solid Waste**

- Create an ordinance requiring all pools and/or spas to include furnished and installed cover assemblies.
- Implement Torcherie Turn-In and/or Point-of-Sale rebates for compact fluorescent lights for residents.
- Provide tennis ball recycling bins at all tennis courts.
- Begin residential food waste collection program (like San Carlos) as soon as possible, rather than waiting for 2011.

### **Air Quality / Transportation**

- Promote ridesharing (website, education, coordination) with schools.
- Create Safe Routes to school, including "walking school bus."
- Develop programs to increase bike commuting: a) bike map/commute routes; b) commercial requirements for bike facilities; c) improved safety of routes with bike lanes and bike/pedway 101 crossing to Caltrain; d) increased marketing promotion.
- Provide charging stations around town for electric vehicles.
- Incorporate transit oriented and mixed use development in general plan.
- Consider a bike-share program.
- Consider a car-share program.
- Require new developments to provide Neighborhood Electric Vehicles.
- Include "Complete Streets" in city planning.

- Expand bus/shuttle service (specifically for commuters) to Caltrain and BART, coming both into and out of city, making transit more efficient, and bringing shuttles together to be more cohesive).
- Improve convenience, connectivity, and ease for public transportation.
- Consider roundabouts in new developments.
- Ban the use of 2-cycle engines.

### **Water**

- Create a Foster City water-wise demonstration garden.
- Establish inspection criteria for grey water systems.
- Request that the State of California install a weather station in the San Mateo/Foster City area (CIMIS).

## **Appendix G: LEED/BIG Checklists**

# LEED Project Checklist

## Project Checklist

### Sustainable Sites

14 Possible Points

Prereq 1	Construction Activity Pollution Prevention	Required
Credit 1	Site Selection	1
Credit 2	Development Density & Community Connectivity	1
Credit 3	Brownfield Redevelopment	1
Credit 4.1	Alternative Transportation, Public Transportation Access	1
Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
Credit 4.3	Alternative Transportation, Low Emitting & Fuel Efficient Vehicles	1
Credit 4.4	Alternative Transportation, Parking Capacity	1
Credit 5.1	Site Development, Protect or Restore Habitat	1
Credit 5.2	Site Development, Maximize Open Space	1
Credit 6.1	Stormwater Design, Quantity Control	1
Credit 6.2	Stormwater Design, Quality Control	1
Credit 7.1	Heat Island Effect, Non-Roof	1
Credit 7.2	Heat Island Effect, Roof	1
Credit 8	Light Pollution Reduction	1

### Water Efficiency

5 Possible Points

Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
Credit 2	Innovative Wastewater Technologies	1
Credit 3.1	Water Use Reduction, 20% Reduction	1
Credit 3.2	Water Use Reduction, 30% Reduction	1

### Energy & Atmosphere

17 Possible Points

Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
Prereq 2	Minimum Energy Performance	Required
Prereq 3	Fundamental Refrigerant Management	Required
Credit 1	Optimize Energy Performance	1–10
Credit 2	On-Site Renewable Energy	1–3
Credit 3	Enhanced Commissioning	1
Credit 4	Enhanced Refrigerant Management	1
Credit 5	Measurement & Verification	1
Credit 6	Green Power	1

### Materials & Resources

13 Possible Points

Prereq 1	Storage & Collection of Recyclables	Required
Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	1
Credit 1.2	Building Reuse, Maintain 95% of Existing Walls, Floors & Roof	1
Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	1
Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1

# LEED Project Checklist

Credit 2.2	<b>Construction Waste Management</b> , Divert 75% from Disposal	1
Credit 3.1	<b>Materials Reuse</b> , 5%	1
Credit 3.2	<b>Materials Reuse</b> , 10%	1
Credit 4.1	<b>Recycled Content</b> , 10% (post-consumer + 1/2 pre-consumer)	1
Credit 4.2	<b>Recycled Content</b> , 20% (post-consumer + 1/2 pre-consumer)	1
Credit 5.1	<b>Regional Materials</b> , 10% Extracted, Processed & Manufactured Regionally	1
Credit 5.2	<b>Regional Materials</b> , 20% Extracted, Processed & Manufactured Regionally	1
Credit 6	<b>Rapidly Renewable Materials</b>	1
Credit 7	<b>Certified Wood</b>	1

## Indoor Environmental Quality

**15 Possible Points**

Prereq 1	<b>Minimum IAQ Performance</b>	Required
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required
Credit 1	<b>Outdoor Air Delivery Monitoring</b>	1
Credit 2	<b>Increased Ventilation</b>	1
Credit 3.1	<b>Construction IAQ Management Plan</b> , During Construction	1
Credit 3.2	<b>Construction IAQ Management Plan</b> , Before Occupancy	1
Credit 4.1	<b>Low-Emitting Materials</b> , Adhesives & Sealants	1
Credit 4.2	<b>Low-Emitting Materials</b> , Paints & Coatings	1
Credit 4.3	<b>Low-Emitting Materials</b> , Carpet Systems	1
Credit 4.4	<b>Low-Emitting Materials</b> , Composite Wood & Agrifiber Products	1
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	1
Credit 6.1	<b>Controllability of Systems</b> , Lighting	1
Credit 6.2	<b>Controllability of Systems</b> , Thermal Comfort	1
Credit 7.1	<b>Thermal Comfort</b> , Design	1
Credit 7.2	<b>Thermal Comfort</b> , Verification	1
Credit 8.1	<b>Daylight &amp; Views</b> , Daylight 75% of Spaces	1
Credit 8.2	<b>Daylight &amp; Views</b> , Views for 90% of Spaces	1

## Innovation & Design Process

**5 Possible Points**

Credit 1.1	<b>Innovation in Design</b>	1
Credit 1.2	<b>Innovation in Design</b>	1
Credit 1.3	<b>Innovation in Design</b>	1
Credit 1.4	<b>Innovation in Design</b>	1
Credit 2	<b>LEED Accredited Professional</b>	1

## Project Totals

**69 Possible Points**

**Certified** 26–32 points ■ **Silver** 33–38 points ■ **Gold** 39–51 points ■ **Platinum** 52–69 points



# BIG Single-Family Checklist

POINTS PER CATEGORY	Community	Energy	IAQ/Health	Resources	Water
<b>D. STRUCTURAL FRAME &amp; BUILDING ENVELOPE</b>					
1. Apply Optimal Value Engineering					
a. Place Rafters & Studs at 24-Inch On Center Framing				1	
b. Size Door and Window Headers for Load				1	
c. Use Only Jack and Cripple Studs Required for Load				1	
2. Use Engineered Lumber					
a. Beams and Headers				1	
b. Insulated Engineered Headers	1				
c. Wood I-Joists or Web Trusses for Floors				1	
d. Wood I-Joists for Roof Rafters				1	
e. Engineered or Finger-Jointed Studs for Vertical Applications				1	
f. Oriented Strand Board for Subfloor				1	
g. Oriented Strand Board for Wall and Roof Sheathing				1	
3. Use FSC-Certified Wood					
a. Dimensional Lumber, Studs and Timber: Minimum 40% (total 2 points)				2	
b. Dimensional Lumber, Studs, and Timber: Minimum 70% (total 4 points)				2	
c. Panel Products: Minimum 40% (total 1 point)				1	
d. Panel Products: Minimum 70% (total 2 points)				1	
4. Use Solid Wall Systems (Includes SIPs, ICFs, & Any Non-Stick Frame Assembly)					
a. Floors		2		2	
b. Walls		2		2	
c. Roofs		2		2	
5. Reduce Pollution Entering the Home from the Garage					
a. Tightly Seal the Air Barrier between Garage and Living Area			1		
b. Install Garage Exhaust Fan OR Build a Detached Garage			1		
6. Design Energy Heels on Roof Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall)		1			
7. Design Roof Trusses to Accommodate Ductwork		1			
8. Use Recycled-Content Steel Studs for 90% of Interior Wall Framing				1	
9. Thermal Mass Walls: 5/8-Inch Drywall on All Interior Walls or Walls Weigh more than 40 lb/cu.ft.		1			
10. Install Overhangs and Gutters					
a. Minimum 16-Inch Overhangs and Gutters				1	
b. Minimum 24-Inch Overhangs and Gutters		1			
<b>Structural Frame and Building Envelope = Total 36</b>					
<b>E. EXTERIOR FINISH</b>					
1. Use Recycled-Content (No Virgin Plastic) or FSC-Certified Decking				2	
2. Install a Rain Screen Wall System				2	
3. Use Durable and Noncombustible Siding Materials				1	
4. Use Durable and Noncombustible Roofing Materials				2	
<b>Exterior Finish = Total 7</b>					
<b>F. INSULATION</b>					
1. Install Insulation with 75% Recycled Content					
a. Walls and/or Floors				1	
b. Ceilings				1	
2. Install Insulation That Is Low-Emitting (Certified CA Section 01350)					
a. Walls and/or Floors			1		
b. Ceilings			1		
3. Inspect Quality of Insulation Installation before Applying Drywall		1			
<b>Insulation = Total 5</b>					
<b>G. PLUMBING</b>					
1. Distribute Domestic Hot Water Efficiently					
a. Insulate Hot Water Pipes from Water Heater to Kitchen		1			1
b. Insulate All Hot Water Pipes		1			1
c. Use Engineered Parallel Piping					1

# BIG Single-Family Checklist

POINTS PER CATEGORY	Community	Energy	IAQ/Health	Resources	Water
d. Use Engineered Parallel Piping with Demand Controlled Circulation Loop					1
e. Use Structured Plumbing with Demand Controlled Circulation Loop		1			2
f. Use Central Core Plumbing		1		1	2
2. Install Only High Efficiency Toilets (Dual-Flush or 1.3 gpf)					4
<b>Plumbing = Total 17</b>					
<b>H. HEATING, VENTILATION &amp; AIR CONDITIONING</b>					
1. Design and Install HVAC System to ACCA Manual J, D, and S Recommendations		4			
2. Install Sealed Combustion Units					
a. Furnaces			2		
b. Water Heaters			2		
3. Install Zoned, Hydronic Radiant Heating with Slab Insulation		1	1		
4. Install High Efficiency Air Conditioning with Environmentally Responsible Refrigerants	1				
5. Design and Install Effective Ductwork					
a. Install HVAC Unit and Ductwork within Conditioned Space		3			
b. Use Duct Mastic on All Duct Joints and Seams		1			
c. Install Ductwork under Attic Insulation (Buried Ducts)		1			
d. Pressure Balance the Ductwork System		1			
e. Protect Ducts during Construction and Clean All Ducts before Occupancy		1			
6. Install High Efficiency HVAC Filter (MERV 6+)			1		
7. Don't Install Fireplaces or Install Sealed Gas Fireplace with Efficiency Rating Not Less Than 60% using CSA Standards			1		
8. Install Effective Exhaust Systems in Bathrooms and Kitchens					
a. Install ENERGY STAR Bathroom Fans Vented to the Outside			1		
b. All Bathroom Fans Are on Timer or Humidistat			1		
c. Install Kitchen Range Hood Vented to the Outside			1		
9. Install Mechanical Ventilation System for Cooling					
a. Install ENERGY STAR Ceiling Fans & Light Kits in Living Areas & Bedrooms		1			
b. Install Whole House Fan with Variable Speeds		1			
c. Automatically Controlled Integrated System		2			
d. Automatically Controlled Integrated System with Variable Speed Control		3			
10. Install Mechanical Fresh Air Ventilation System					
a. Any Whole House Ventilation System That Meets ASHRAE 62.2		1	2		
b. Install Air-to-Air Heat Exchanger		1	2		
11. Install Carbon Monoxide Alarms			1		
<b>Heating, Ventilation and Air Conditioning = Total 37</b>					
<b>I. RENEWABLE ENERGY</b>					
1. Pre-Plumb for Solar Water Heating		4			
2. Install Solar Water Heating System		10			
3. Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft <sup>2</sup> of South-Facing Roof		2			
4. Install Photovoltaic (PV) Panels					
a. 30% of electric needs OR 1.2 kw (total 6 points)		6			
b. 60% of electric needs OR 2.4kw (total 12 points)		6			
c. 90% of electric need OR 3.6 kw (total 18 points)		6			
<b>Renewable Energy = Total 34</b>					
<b>J. BUILDING PERFORMANCE</b>					
1. Diagnostic Evaluations					
a. House Passes Blower Door Test		1			
b. House Passes Combustion Safety Backdraft Test			1		
2. Design and Build High Performance Homes - 15% above Title 24 - Required		30			
3. House Obtains ENERGY STAR® with Indoor Air Package Certification			5	2	
<b>Building Performance = Total 39</b>					
<b>K. FINISHES</b>					
1. Design Entryways to Reduce Tracked-In Contaminants			1		
2. Use Low-VOC or Zero-VOC Paint					
a. Low-VOC Interior Wall/Ceiling Paints (<50 gpl VOCs (Flat) and <150 gpl VOCs (Non-Flat))			1		
b. Zero-VOC: Interior Wall/Ceiling Paints (<5 gpl VOCs (Flat))			3		

# BIG Single-Family Checklist

POINTS PER CATEGORY	Community	Energy	IAQ/Health	Resources	Water	
3. Use Low-VOC, Water-Based Wood Finishes (<250 gpl VOCs)			2			
4. Use Low-VOC Caulk and Construction Adhesives (<70 gpl VOCs) for All Adhesives			2			
5. Use Recycled-Content Paint				1		
6. Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood B) Reclaimed, C) Rapidly Renewable D) Recycled-Content or E) Finger-Jointed						
a. Cabinets (50% Minimum)				1		
b. Interior Trim (50% Minimum)				1		
c. Shelving (50% Minimum)				1		
d. Doors (50% Minimum)				1		
e. Countertops (50% Minimum)				1		
7. Reduce Formaldehyde in Interior Finishes (CA Section 01350)						
a. Subfloor & Stair Treads (50% Minimum)			1			
b. Cabinets & Countertops (50% Minimum)			1			
c. Interior Trim (50% Minimum)			1			
d. Shelving (50% Minimum)			1			
8. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27ppb			3			
<b>Finishes = Total 22</b>						
<b>L. FLOORING</b>						
1. Use Environmentally Preferable Flooring: A) FSC-Certified Wood B) Reclaimed C) Rapidly Renewable D) Recycled-Content E) Exposed Concrete. <i>Flooring Adhesives Must Have &lt;50 gpl VOCs.</i>						
a. Minimum 15% of Floor Area				1		
b. Minimum 30% of Floor Area				1		
c. Minimum 50% of Floor Area				1		
d. Minimum 75% of Floor Area				1		
2. Thermal Mass Floors: Floor Covering Other than Carpet on 50% or More of Concrete Floors		1				
3. Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)			2			
<b>Flooring = Total 7</b>						
<b>M. APPLIANCES</b>						
1. Install Water- and Energy-Efficient Dishwasher						
a. ENERGY STAR		1				
b. Dishwasher Uses No More than 6.5 Gallons/Cycle (total 2 points)					1	
2. Install Water- and Energy-Efficient Clothes Washing Machine						
a. Meets CEE Tier 2 requirements (modified energy factor 2.0, Water Factor 6.0) (total 3 points)		1			2	
b. Meets CEE Tier 3 requirements (modified energy factor 2.2, Water Factor 4.5 or less) (total 5 points) <sup>2</sup>						
3. Install ENERGY STAR Refrigerator						
a. ENERGY STAR Qualified & < 25 Cubic Feet Capacity		1				
b. ENERGY STAR Qualified & < 20 Cubic Feet Capacity		1				
4. Install Built-In Recycling & Composting Center						
a. Built-In Recycling Center				2		
b. Built-In Composting Center				1		
<b>Appliances and Lighting = Total 12</b>						
<b>N. OTHER</b>						
1. Incorporate GreenPoint Rated Checklist in Blueprints - Required				P		
2. Develop Homeowner Manual of Green Features/Benefits		1	1		1	
3. Innovative Measures That Meet the Green Building Objectives of the Guidelines. Maximum of 20 points.						
4. Community Design Measures and Local Priorities: Maximum of 20 points.	20					
<b>Other = Total 43</b>						
<b>TOTAL SUMMARY</b>						
Total Available Points in Specific Categories	24	108	45	66	47	290
Innovation Points Available in Any Category						20
OVERALL TOTAL (Note: Some points are not applicable to every project type.)						310
<b>MINIMUM POINTS REQUIRED IN SPECIFIC CATEGORIES</b>		30	5	6	9	50