

# **Response to the Palo Alto Climate Protection Plan**

**Palo Alto Cool Cities Team (PACCT)**

**Sierra Club  
Cool Cities Campaign**

**January, 2008**

**Bruce Hodge  
David Coale  
Bryan Long  
Ken Novak  
Max Greenberg**

**"We have at most ten years– not ten years to decide upon action, but ten years to alter fundamentally the trajectory of global greenhouse emissions... Such an outcome is still feasible in the case of global warming, but just barely."**

**Dr. James Hansen, director  
NASA Goddard Institute for Space Science**

<b>EXECUTIVE SUMMARY</b>	<b>3</b>
<b>BASELINE</b>	<b>6</b>
<b>UTILITIES</b>	<b>7</b>
<b>Carbon Neutral Goals</b>	<b>7</b>
<b>City Ownership of Power Generation</b>	<b>7</b>
<b>Solar Incentives</b>	<b>8</b>
<b>SUSTAINABLE PURCHASING</b>	<b>9</b>
<b>TRANSPORTATION AND SUSTAINABLE LAND USE</b>	<b>9</b>
<b>GREEN BUILDING</b>	<b>11</b>
<b>ZERO WASTE</b>	<b>13</b>
<b>EDUCATION, MOTIVATION AND OUTREACH</b>	<b>13</b>
<b>Marketing the CPP:</b>	<b>13</b>
<b>Utilities “Informational” Programs</b>	<b>14</b>
<b>Recognition as a Leader</b>	<b>15</b>
<b>Outreach to Other Communities</b>	<b>16</b>
<b>GENERAL</b>	<b>17</b>
<b>EXACTLY WHAT IS THE PLAN?</b>	<b>18</b>
<b>CONCLUSIONS</b>	<b>20</b>

## Executive Summary

The City of Palo Alto has produced an excellent first report addressing the complex issues surrounding climate change. The Climate Protection Plan (CPP) includes the GHG emissions for the city and larger community, outlines reduction goals in specific areas, and does a first look at a cost benefit analysis of proposed reductions.

The Palo Alto Cool Cities Team (PACCT), which includes members of the Palo Alto Green Ribbon Task Force, has done an extensive review of the PCC and recommends the following:

- The City should pursue a more aggressive reduction timeline that is more in line with the current scientific consensus on the necessary reductions – an annual reduction equal to approximately 2% of emissions in 2007.
- The CPP should clarify its baseline estimates and provide more detail for non-commute transportation emissions.
- The City should consider an aggressive program to make Utilities climate neutral in 5 years (as opposed to 2020).
- The City should consider innovative approaches to influencing reductions in transportation emissions, including telecommuting and smart commute programs, particularly since transportation accounts for roughly half of GHG emissions in the community.
- The City should require LEED Gold certification (instead of Silver) on all new commercial buildings over 2500 square feet and consider adopting the Architecture 2030 goals. It should also promote LEED-EB certification for existing buildings.
- The City should establish and invest in an ongoing marketing campaign that will engage Palo Alto citizens in a community effort based in civic pride, moral obligation and a widespread recognition of the threat to our economy and environment.
- The City should establish an ongoing policy of outreach and cooperation with other communities striving to achieve similar goals.
- The CPP should provide, perhaps via annual addendums, clear and specific goals and action plans for each area of activity.

The time for aggressive actions is now. PACCT is ready and eager to work with City staff on an ongoing basis.

## Introduction

The Palo Alto Climate Protection Plan (CPP) is an impressive first step for the city in what will be an ongoing proactive effort to reduce greenhouse gas emissions. We would like to thank the city council and staff for their past and present leadership in what is undoubtedly the most important issue of our time. Thanks also go to the Green Ribbon Task Force (GRTF), which prepared a precursor report to the CPP.

Despite the fact that responding to climate change will be an ongoing long-term struggle for decades to come, the world is confronted with an extremely tight deadline given the nature of our current carbon emissions. Current scientific consensus is that to avoid disastrous climate change, we have 10 years or less to peak our emissions world-wide and to implement reductions in greenhouse gas (GHG) emissions at around 2% of 2007 levels per year. Currently worldwide emissions are not only growing, they're actually accelerating. See <http://tenaya.com/climatechange/archives/54>

Effectively, this means that the developed world must step into a leadership role and peak its emissions even sooner. The developed world emits a large amount of carbon per capita: for instance the US per capita emissions are around 7 times that of China's and 15 times that of India's. It's time for the developed world to embark upon an aggressive campaign to drastically reduce carbon emissions per capita. Because of the lifetime of GHGs in the atmosphere and the size of the current annual emissions, peaking emissions in a short time frame will give future generations the best shot at preventing our climate from reeling out of control.

Palo Alto is particularly well positioned to make significant reductions in a short time period. We are an affluent and educated community, with many of our citizens recognizing the risks we face in the future and also willing and anxious to join the fight. Palo Alto has a long history of being in the forefront of technological developments, and will undoubtedly continue to contribute in the same mold well into the future. The example we set will have an impact disproportionate to our city size. Now is the time for Palo Alto to become a locus of activity for climate change.

The PACCT believes that Palo Alto should pick **more aggressive** GHG reduction goals that reflect more closely the actual targets that current scientific consensus is suggesting. The targets set by CPP are insufficient to put us on a path of climate stabilization.

Palo Alto enjoys certain unique advantages that make it easier to move more rapidly towards carbon neutrality.

- Our utilities are city owned and managed – we're in charge!
- More than 60% of our electric power is already hydro (carbon-neutral).
- We enjoy utility rates that are substantially lower than PG&E.
- Palo Alto can react more nimbly than larger cities or entities such as PG&E.
- We have a receptive community.

- Palo Alto is home to unique and extremely talented residential, business, technical and scientific communities.

Accordingly– and in line with necessary worldwide reductions– the PACCT suggests the following reduction regime: reducing GHGs annually by 2% of 2007 levels. This is in line with the targets set in AB32 and with the current recommendation of the Sierra Club, and is substantially more aggressive than the CPP targets.

The following table shows the reductions achieved from such a regime (w/ CPP targets indicated for cross-reference).

2007 Emissions	Annual reduction	Year	% reduction from 2007 levels	CPP Target
100%		2007	0%	
98%	2.0%	2008	2%	
96%	2.0%	2009	4%	
94%	2.0%	2010	6%	
92%	2.0%	2011	8%	
90%	2.0%	<b>2012</b>	<b>10%</b>	<b>5%</b>
88%	2.0%	2013	12%	
86%	2.0%	2014	14%	
84%	2.0%	2015	16%	
82%	2.0%	2016	18%	
80%	2.0%	2017	20%	
78%	2.0%	2018	22%	
76%	2.0%	2019	24%	
74%	2.0%	<b>2020</b>	<b>26%</b>	<b>15%</b>

Note, the CPP numbers assume reductions from 2005. This table uses 2007 as a baseline year. The difference between 2005 and 2007 emissions is likely around 1 to 2%. The annual reduction is measured from 2007 levels, not from each new year.

Continuing this 2% reduction regime achieves a 86% reduction by 2050, which is approximately the level of reductions needed, particularly if you assume that there will still be significant growth in emissions from the developing world. Unfortunately, there is mounting evidence that even such drastic reductions may not be enough, particularly when accounting for global equity concerns. See for example, [http://www.ecoequity.org/GDRs/GDRs\\_Nairobi.pdf](http://www.ecoequity.org/GDRs/GDRs_Nairobi.pdf).

Note also that this regime fails to achieve a completely carbon neutral economy even after 50 years of robust reductions.

PACCT recommends that more of the scientific basis for choosing reduction targets be included in the CPP to provide background and motivation for the recommendations, and that references be provided in the CPP using links and footnotes. These additions will enable staff, officials and citizens to educate themselves in the complex issues surrounding climate protection. We have a very

serious and difficult task in front of us, and the CPP report does not yet reflect the sobering reality of the scope of change necessary.

A good presentation summarizing some of the key science behind these goals, authored by Steven Schiller of the California Institute of Energy and the Environment, University of California, can be found at [http://www.climatechange.ca.gov/events/2007\\_conference/presentations/2007-09-13/2007-09-13\\_SCHILLER\\_STEVEN.PDF](http://www.climatechange.ca.gov/events/2007_conference/presentations/2007-09-13/2007-09-13_SCHILLER_STEVEN.PDF)

## Baseline

The emissions reporting in the CPP is very inclusive, and PACC commends the City staff for this approach, which includes many real emission sources that should be accounted for, but are missing from other emission protocols. If this approach were used by other cities, there would be a much more accurate and comparable accounting of GHG emissions.

CPP builds on estimates made by the GRTF report and admirably attempts a fuller accounting of GHG emissions by including the upstream emissions associated with recyclable items that are discarded into the waste stream rather than being recycled. The analysis by CPP provides a solid reason for why we should recycle – it's yet another way to reduce carbon emissions.

The CPP estimates are based on the total waste stream of Palo Alto facilities, which services several other municipalities; perhaps only the Palo Alto portion should contribute to the baseline. This would also make the other cities more aware of their own complete emissions and hopefully motivate them to reduce their share of emissions over which Palo Alto has little control. Furthermore, biogenic emissions are less interesting from a climate point of view, although a better use of the energy derived from flaring and incineration would offset upstream emissions.

The City can provide very accurate GHG emissions numbers since we own our own utility. We have accurate data about electricity consumption. However one component that's proving hard to estimate is fugitive natural gas emissions. Do we have leaky gas distribution lines? At any rate, it seems more logical to place these emissions into the community portion of the carbon emissions, rather than as a municipal emission.

The other major component of the CPP baseline is the emissions from the transportation sector, which includes the transport of both humans as well as a plethora of "stuff". The GRTF report attempted to account for upstream emissions in the transportation industry by using fuel consumption data based on data collected by the Board of Equalization as well as the California Air Resources board (CARB). Estimates for Palo Alto were based on extrapolations from regional data. GRTF used commuter data collected by the US Census to extrapolate commuter emissions.

Estimating carbon emission baselines for transportation is a difficult task, particularly at the level of an individual city, because of a lack of data. It's simply not collected and recorded in many cases. We need to start collecting this data.

The CPP should clarify its transportation analysis and give more detail for the portion of transportation emissions not related to commute travel. This category is very large and needs to be broken down into several sub-categories. It represents the emissions from non-commute driving of citizens, as well as all of the emissions from the fuel consumed by trucks extrapolated to Palo Alto. The fuel consumption data includes all trucking associated with the shipping of goods.

Since the data is based on extrapolations, it will be very difficult to use this as a baseline for measuring progress of Palo Alto on a yearly basis. The change in Palo Alto's emissions can't be determined through extrapolated data. We'll get a much clearer picture of our progress by tracking other indicators of carbon emissions.

We need to identify these indicators and start collecting data right now. Plus a clever proposal to track some of this data through the DMV (required annual odometer readings coupled with estimates of the vehicle fuel economy) can provide a more accurate picture of GHG emissions. Cars and trucks should be required to collect and store this data in the future. And of course, we can improve our data collection of all carbon emissions. The city can lobby for more help from regional and state authorities in this arena.

## **Utilities**

### ***Carbon Neutral Goals***

Palo Alto Green is an innovative program that allows customers to choose fully renewable electric energy. But perhaps it's just a stepping stone, because we want to move rapidly towards a city-wide carbon neutral energy supply, which shouldn't be too hard in the short term because of our tremendous reliance on hydro power.

PACC commends the goal of the City Utilities to become carbon neutral by 2020. However, the City should seriously consider achieving carbon neutral power within 5 years. Given that less than 40% of our electric power is carbon based, this should be relatively easy on the electric side, although not without challenges. We can shift our natural gas consumption to bio-gas, convert gas appliances to electric, and buy carbon offsets until we complete the transition. The City should consider buying carbon offsets that are used for new renewable energy sources located close to Palo Alto.

### ***City Ownership of Power Generation***

One idea that merits attention is City ownership of power generation facilities. As mentioned in the Green Building comments below, the City can start a deployment program of solar that utilizes the large rooftops of commercial buildings. The idea

is to simply set a rate of installation of panels (kW/yr), and start installing panels. There's a fair amount of innovation in solar in the Palo Alto area, and it would be good to spread the investments over a variety of different technologies and local vendors.

The city of Berkeley has devised an ingenious plan for encouraging solar installations on private homes by a loan financed by property taxes . This plan is worth analyzing for its benefits, while keeping in mind the idea of deploying on larger scales on commercial rooftops by the City Utilities as an interesting alternative to Berkeley's plan.

Wind power is currently quite cheap compared to solar. We should develop a balanced energy portfolio that includes both wind, solar, and biofuels. Again, we can look at actual ownership as opposed to contracts. The wind turbines should ideally be located in windy areas as close to Palo Alto as feasible. Biofuels should also come from local or regional sources as much as possible.

In general, moving towards a paradigm that's been called variously "micro power" and "distributed power" will provide the City with more reliable and more efficient power in the long term.

Another alternative is to support these programs through utility rates, as Palo Alto has some of the lowest rates in the area. We are justifiably proud of past decisions which have given us our low rates, but it is hard to argue that the Palo Alto community cannot afford the same energy rates paid by consumers in surrounding towns. Rate increases could go a long way in supporting the actions in the CPP and making Palo Alto a visible example of leadership. With more than 80% of Palo Altans concerned about global warming, this could enjoy wide support by the community. The existing Energy Assistance Program could be expanded, if necessary, to offset increases for low-income residents.

### ***Solar Incentives***

The implementation of a solar hot water program should begin as soon as possible. Table 3.3 in the CPP suggests that this program would be 10 times more cost effective than the Palo Alto PV Partners program. The City should encourage citizens to take advantage of the recently announced state rebate program for hot water systems. Hot water systems are generally less expensive and have a quicker rate of return than PV. There are many technologies "on the horizon" in the PV market, but encouraging folks to wait for "cheaper and better" technologies delays implementation and the offsets that are demanded now.

Another model for making PV cost effective would make use of a third party entity (a company) that would install and own the PV system on a homeowner's house. The company would get the Palo Alto rebate, the state tax credit, and the full federal 30% tax credit that is not capped at \$2000. The company would also get an accelerated five-year depreciation which homeowners do not get. The homeowner would pay a regular monthly fee to the company for the electricity

generated from the system. At the end of five years the company would sell the system to the homeowner.

By encouraging arrangements such as this, the City can reduce its rebate and yet retain the same overall benefit. The extra money could go towards funding other more cost effective CO2 reduction programs.

## **Sustainable Purchasing**

Just as the Utility department is adding a cost on to electricity sources that produce CO2 to account for the GHG emissions from that purchase, so should the City purchasing policy look at the cost of CO2 emissions upstream and downstream to calculate the true cost of an item.

An example of this might be the paper example used in the report. When the upstream and downstream costs of the 30% and 100% recycled paper are considered, it could be that the 100% recycled paper is already cost effective compared to the 30% recycled paper when you account for an GHG adder.

In particular, analyses of this sort should be used to drive community-wide material consumption practices.

## **Transportation and Sustainable Land Use**

Unfortunately, there are portions of our carbon emissions that are very difficult for the City to directly influence. Transportation emissions in general are hard for a city to influence or control. However, we should still strive to identify and promote solutions to this problem. For instance, telecommuting has the potential to save huge amounts of GHG emissions with little cost. Why aren't we moving actively on this front as a community?

Why aren't companies in Palo Alto being asked to draft plans for the reduction of commuter miles (driven solo)? Most of Palo Alto commuters come in from outside the city. They should be encouraged to car pool, take public transportation, or move closer. Why aren't Palo Alto residents encouraged to do the same?

To reduce commute trips in Palo Alto, the city could implement a requirement that any company with over X employees has to have a commute coordinator at the company. This could work in conjunction with the city's transportation demand management (TDM) coordinator. For other large developments, as has been done by the county for Stanford's development, the city could require certain trip reductions by these companies as a condition of the project.

The CPP air travel estimates are based on total air transport fuel data for California – extrapolated to Palo Alto. The CPP should indicate more clearly what this estimate represents. In the future, we need a better breakdown of this estimate. Palo Alto residents should be educated on the negative impacts of air travel and

encouraged to offset their air miles. We can develop a local mechanism for investing such offsets into projects that will fund and improve our local energy infrastructure.

The City could encourage community residents to purchase offsets for air travel. It would be helpful to track offset purchases. Acterra, with their Cool-It carbon calculator ([www.acterra.org](http://www.acterra.org) and click on Cool-it), can supply a way to track community offsets as long as there is a web portal from which they start. Acterra can also track how many people are signed up with Palo Alto Green when they purchase offsets through Cool-It. Ideally, we'd like the same data from all offset vendors.

The increased use of biodiesel is one area that the City could make a big difference. If the City made biodiesel available to the public, this would spur biodiesel use in the region and hence the reduction of GHGs. Presently the closest biodiesel stations that offer B100 are in San Jose and San Francisco. Palo Alto is nicely positioned to fill a gap in the current biodiesel supply chain by offering B100.

The information on biodiesel in the CPP needs to be updated in several areas. The statement from the report: "However, biodiesel cannot be used with newer vehicles because it cannot be used with the ultra low sulfur diesel they require" is simply not true. Some of the newer diesel engines have a higher pressure fuel delivery system, which has caused some problems overall but are not related to biodiesel use. The cost figures used in the report are also out of date. B20 is quoted at \$4.10 a gallon while diesel is quoted at \$2.80 a gallon. Biodiesel today is about \$3.60 a gallon for B100 and diesel fuel is about \$3.40 a gallon.

The City should look into biodiesel suppliers that are more independent of the price of diesel fuel. These suppliers (e.g. Pacific Biodiesel <http://www.pacfuel.com>) offer biodiesel prices that are much more stable than diesel prices. This should be true in that the majority of biodiesel stock is not petroleum based. It is only when a fuel supplier offers both fuels that you see the price of biodiesel change with the price of regular diesel, as the supplier sees what the market for diesel will support.

There are other biodiesel opportunities that the city could investigate. The City should consider making biodiesel (or send out an RFP for this) from the waste oil and grease that end up in the city's wastewater treatment plant. This is currently being done in the city of Pacifica.

The City could also consider the free collection of waste oil within the wastewater treatment plant's service area to be used to make biodiesel for the city. This would help in the upstream reduction of waste oil in the sewer system which is a problem and supply the city with feed stock for biodiesel production thereby reducing the overall cost of biodiesel and the local reuse of a waste product. This is currently being done in San Francisco and on the Stanford campus.

Parking Cash Payout (PCP) is a good way to get people out of their cars. The City staff did mention this as an option for the city at the 12/3/07 meeting, but it is not clear where this is spelled out in the CPP. The City could also use PCP as an

incentive for new buildings to reduce their parking requirement if they implement PCP. Various studies have shown the effectiveness of PCP to reduce car use. See the Cities 21 web site for studies on this: <http://www.cities21.org/tdm.htm>.

The City should have a goal of 5 bike parking spaces per block in business district areas to encourage bike use. In some places this could take the place of car parking space on the street.

To reduce car traffic around schools, it might be interesting for the City to explore if there is a way to implement car trip cash-outs for parents in K-8<sup>th</sup> and PCP for high schools. Monies could either go to the participants or to a school fund. This would have to be coordinated with the school district and could be driven by the sustainable schools committee.

## Green Building

The CPP proposes that in the short-term, all new City buildings over 5,000 square feet be LEED Silver certified (compared to the current requirement of 10,000 square feet).

PACCT suggests that this be changed to LEED Gold certification for all commercial and City buildings greater than 2,500 square feet. The lifetime of a building is quite long (50 years) and its GHG emissions will be with us for an even longer time frame (100 years). The CPP should consider gradually tightening the standard and square footage minimums on a publicized schedule.

These stricter building standards should be increasingly easy to meet as more and more green buildings are built, and this becomes the standard for all buildings. The benefits of green buildings are already cost-effective in the marketplace, such that a lesser certification level will quickly be no longer competitive.

Another possible incentive for greener buildings could be that green building designs get to go to the front of the line for plan checking.

The city should also consider signing onto the Architecture 2030 platform. See <http://www.architecture2030.org>. The 2030 Challenge is asking the global architecture and building community to adopt the following targets:

- All new buildings, developments and major renovations shall be designed to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
- At a minimum, an equal amount of existing building area shall be renovated annually to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.

- The fossil fuel reduction standard for all new buildings shall be increased to:
  - 60% by 2010
  - 70% by 2015
  - 80% by 2020
  - 90% by 2025
  - 100% by 2030 (Carbon-neutral)

These targets may be accomplished by implementing innovative sustainable design strategies, generating on-site renewable power and/or purchasing (20% maximum) renewable energy and/or certified renewable energy credits.

Many cities have signed onto to this challenge (most recently Santa Barbara), as it is a very good long-term plan to reduce GHG emissions from buildings. This can be used in conjunction with LEED and BIG standards. Also the California Public Utilities Commission (CPUC) has been considering zero-net-energy for all residential buildings by 2020, and for nonresidential buildings by 2030. If Palo Alto is to be a leader in this area, the City needs to adopt much more aggressive goals and standards for buildings.

Focusing on how to build new houses and commercial buildings so that they are energy smart is very important. But perhaps even more important in the short term is reforming our existing stock. We live in leaky, energy inefficient houses and commercial buildings.

By serving as an intermediary, the City can connect Palo Alto residents and business with firms that can retrofit our houses and businesses, using RFPs to implement bulk purchasing power. Efficiency and insulation improvements have been repeatedly shown to be the best initial investments on the road to clean energy. For residences and businesses, the short list would include more insulation, efficient water heaters and boilers, and double & triple paned windows.

Palo Alto businesses, especially those with large rooftops, can provide their rooftops to site large solar panel installations by allowing the City access via an "energy" easement. The granting of the easement would result in favorable utility rates, or other compensation.

The new LEED-EB (existing building) certification process could also be aggressively promoted to Palo Alto businesses. It has the same tiered rating system as LEED for new buildings and has been successfully applied by Adobe Systems at their corporate headquarters in San Jose. Their \$1.4 million investment paid for itself in less than 10 months.

<http://www.nytimes.com/2008/01/27/realestate/commercial/27sqft.html?ex=1359090000&en=f47958e4c7188ec4&ei=5090&partner=rssuserland&mp;emc=rss&pagewanted=all>

## **Zero Waste**

One of the great insights of the CPP is the connection between waste and GHG emissions. The existing zero waste program deserves more resources.

The City should examine the long term emissions from the wastewater treatment plant, as the wastewater treatment plant is very energy intensive. Other forms of digestion should be explored to see if they are viable in the long run. This will constantly have to be addressed as the growth and innovation in the biomedical field brings new possibilities to this problem. Can the digestion process be tuned to produce more useful methane or perhaps grow algae that are high in oil content that could then be used to make bio-fuels?

## **Education, Motivation and Outreach**

The CPP focuses quite a bit on municipal emissions. On the one hand, we welcome the opportunity to set a good example at the City operational level through enlightened management practices. But, the fact remains that municipal emissions for most California cities are less than 5% of the community's. The problem of carbon emissions is mostly caused by the community as a whole. A successful CPP needs to put more focus on developing plans to encourage all Palo Alto residents and businesses to reduce their GHG footprint.

How can we engage the community? Residents can have fairly diverging viewpoints on the merits of responding forcefully in a short time period (< 10 yrs). There also appears to still be a lot of confusion in the general public about the extent of the problem, the magnitude of the required response, and the timelines over which particular actions need to occur. We should engage with the Stanford community and partner education solutions that resonate with the general public.

A successful approach might involve articulating a vision of Palo Alto as a model community engaged in an active role of reducing GHG emissions. This needs to be positioned as a marketing campaign to get Palo Alto residents to embrace the idea of clean energy and a sustainable economy.

### ***Marketing the CPP:***

Effective "marketing" of CPP programs is essential to achieving the goals of the CPP, which depend on actions taken by residents and business even more than on direct actions taken by the City. Lifestyle changes by residents, in particular, may be motivated less by economics than by emotions such as fear of consequences, moral obligation, civic pride, and social status. The City can and must play a critical role motivating and educating the community so that we all come together in common perception and action.

The City should make the CPP a cornerstone in all communications with the city residents. The CPP program should be given prime space in every vehicle of communications, such as the City website. Community press should be

encouraged to cover CPP activities and be given a regular feed of material for reporting. The City should take every opportunity to build civic pride, and to link CPP activities to that civic pride. This will be advanced the more Palo Alto can achieve and maintain “leadership” status (e.g., the PA Green participation rate, etc).

The City should position CPP activities as one of the top reasons “Why Palo Alto” in any city marketing activities, along with factors such as climate, medical facilities, educational institutions, etc.

Businesses should be encouraged to participate in CPP related activities, and should be recognized by the City for their achievements by certificates, letters, and awards which can be reported on by the press and displayed by the businesses. A specific “Climate Action Heroes” award could be given on a regular basis to businesses that have made a significant contribution to CPP goals.

Providing more information to residents via the web is a fruitful course. There are enough domain experts in Palo Alto to support a very sophisticated web portal and climate wiki. Let’s get the brightest talent and put together an informative web-accessible journal of Palo Alto’s journey towards climate stability.

The web is a great place to provide personal emissions profiling tools as well as corresponding offset options. In general, residents are unsure about the relative impacts of their activities. They need to learn more about the tremendous costs of transport in general, and the large impact of their air travel. How can we make this exposure to profiling tools more well known?

The City should consider collecting and publishing carbon reduction success stories on the web – perhaps another good use of a climate wiki. They would certainly serve as an inspiration for the rest of us.

### ***Utilities “Informational” Programs***

Information can be a very powerful catalyst for change.

CPAU and city records could be utilized to rank residences on their energy use both in absolute terms and per square foot. Utility bills can include a quintile rating and/or chart that informs the homeowner how their energy use compares to others in the city – effectively a grade for energy efficiency. Many homeowners may not be aware that their home is inefficient compared to what it could be.

Households that realize a significant year-over-year drop in energy use could be congratulated by a certificate or perhaps a small “energy-star” decal or plaque that could be affixed to a door, window, or mailbox.

To help establish energy reduction as a “status” activity, CPAU could identify “Energy Heroes”. Each month, the utility bill could feature a picture of a family

that achieved significant energy use reduction, along with a brief story on how they did it.

Neighborhood information could be aggregated to show energy-intensity on a map by neighborhood, along with monthly year-on-year change information. An annual award or city-sponsored picnic could reward the neighborhood which makes the greatest contribution to CPP goals.

Significant increases in energy (or water) use should also trigger a special notice to the household. A simple "We've noticed..." insert in the utility bill could alert homeowners to lifestyle changes (or faulty systems) that have resulted in increased energy use, and potentially motivate a change.

If CPAU can migrate residences to intelligent utility meters, more possibilities emerge for energy use awareness. Studies in several countries have found that placing energy meters displaying daily use and comparison data result in significant reductions in energy use.

### ***Recognition as a Leader***

Palo Alto's CPP exemplifies the leadership of our city in recognizing and responding to the crisis of human-caused climate change. If the CPP is executed with commitment, Palo Alto will be an example to other cities throughout the country.

There is more to the responsibility of leadership, however, than setting a good example. Palo Alto should also seek to actively engage, encourage, and mentor other communities to follow our example. In return, Palo Alto can learn lessons from other leading communities to accelerate its progress.

"Outreach" should be explicitly included in the Palo Alto CPP, because it is one of the most powerful means to our goal of reducing CO2 emissions. It will do Palo Alto no good at all to have reduced our GHG emissions sharply if most other cities take no action. We will not escape the effects of global climate change based on our own actions alone. A Palo Alto CPP Outreach program could have a much higher net effect than many other possible GHG reduction programs.

What Palo Alto does on its own to reduce GHG emissions will be insignificant unless it is part of a greater movement among cities, consumers, and businesses. As first-movers, it is in our best interests to "create a buzz" and promote awareness. Outside of our community, we will get only occasional and limited recognition and "press" for our internal programs and their results. An Outreach program, on the other hand, becomes a "story" of wider interest, both to the communities involved and to the national press.

Interest in our programs will be influenced by which communities we reach out to. If we assist other local communities, it will be a "regional-interest" story. If we assist communities in other states, it will become a "national-interest" story. If we assist communities in other nations, it will become a "international" story.

Obviously the costs are not identical, but with telecommunications technologies even international assistance need not be expensive.

Press and recognition of Palo Alto generated by outreach activities will have a beneficial effect at home in Palo Alto as well. Positive external recognition will reinforce our own pride in and commitment to CPP programs. Public awareness of Palo Alto's institutional leadership may also make it a more attractive target community for climate protection initiatives and pilot projects conducted by foundations or companies.

### ***Outreach to Other Communities***

While NGOs can provide tools and templates to other cities, and many citizens of Palo Alto are already involved in assisting other communities, Palo Alto City staff have a unique "insider's view" which would be of great value to another city government following the same path. The City of Palo Alto is gaining first-hand experience of how a city government can respond to the climate change crisis. Some of this experience is tangible in the form of assessment methods and program descriptions, but there is also less tangible experience in the "politics" of a program that is out of the usual "charter" of city services. City of Palo Alto staff will have experience that NGOs cannot easily provide: the real-world introduction and implementation of a CPP.

An effective Outreach program can be based on three primary components:

1. The city and community publish and disseminate documents which describe and evaluate the implementation of the CPP. For an example of dissemination efforts from other California cities, visit <http://www.fypower.org/bpg/index.html?b=institutional> .
2. City staff and citizens participate in inter-city forums and initiatives, to offer its experiences to other climate protection projects, and to learn from other leading actors. These include:
  - The Clinton Climate Initiative, a global partnership among cities, which maintains a best practices website at <http://www.c40cities.org/bestpractices/>, as well as inter-city cooperative projects such as the Energy Efficiency Building Retrofit Program.
  - The US Dept. of Energy Clean Cities program, which includes a grant funding program (<http://www1.eere.energy.gov/cleancities/> )
  - The League of California cities and the related Institute for Local Government, which runs the California Climate Action Network
  - There are many routine meetings of government officials every year at a regional or California state level in which city staff already participate, where Palo Alto could share its experience and help raise the profile of climate issues.

3. Direct partnerships with specific communities to assist their climate programs. This would involve participation by key city personnel who can “coach” their counterparts in another community, and by Palo Alto citizens who have been or are active in our CPP. Because the program will be highly visible and will involve staff time and resources, it is appropriate that both the City Council and the City Manager be involved in the selection process. Existing “sister city” relationships may be an entry into a CPP-related mentoring relationship. One or more cities could be chosen, based on criteria such as
  - The potential for GHG reductions
  - The need for assistance of the kind we can provide
  - Geographic proximity and other cost factors
  - The “PR” attractiveness of the relationship
  - Intangible “Compatibility” with the target

Taken together, an Outreach program could greatly assist the development and implementation of a CPP in other communities and provide an impact much larger than would be possible inside Palo Alto alone.

## General

In the final analysis, the City needs to decide how to engage in the difficult business of GHG reduction. Clearly, there are big actions that can be taken by other players which would dramatically affect transportation emissions in particular. And even on a local basis, there are many aspects over which the city has no direct control.

However, in other ways, the City is in an ideal position to engage citizens. The City can help citizens at least understand the roots of the problem, and provide guidance on mitigation options.

The cost benefit analysis needs to be more inclusive so that the real costs and benefits of the actions taken can be done in a timely and prudent manner. Land use and transportation take a long time to change and implement so that these projects and the planning for them should be started in the early stages even if they are long term goals, otherwise we will never realize the multiple benefits from these important changes. Our transit systems will not work if we do not have livable, walkable communities (with green building) to support them. This includes communities that are senior friendly as well.

Cost benefit analysis is a good tool to use for determining the actions to take, but it should not be treated as the only metric. Often, cost benefit analysis ignores market externalities, capital costs, and opportunity costs. It can also ignore long-term realities by focusing on short-term economic trends. So while it's a good metric, other metrics and analysis methodology should also be employed.

Finally, GHG mitigation is ultimately going to require that we make long-term capital acquisition decisions (new power plants, new cars, new houses, etc) that accurately factor in the lifetime operational costs of GHG emissions.

Spending a bit more upfront will often result in substantial lifetime cost savings. Manufacturers and sellers of long term assets such as houses and cars should be required to provide several lifetime cost estimate scenarios.

Many of the actions called out in the CPP dovetail with existing city programs such as Zero Waste, water conservation and the Urban Forest Master Plan (UFMP). But we must also make sure that all these plans are well integrated. The UFMP must take into account the use of solar PV, solar hot water and passive solar design so that one program does not reduce the effectiveness of another. Just as the city has a program for the right tree in the right place, so that trees do not interfere with power lines, there must also be an integrated approach to solar access for buildings.

The CPP assumes a forward-looking vantage point. It may be helpful to also get a perspective from a future vantage point looking back at this point in time. From this future vantage point we must make sure we will not be saying, "we should have done more".

The CPP states: "Palo Alto is known nationally and internationally as a community of intellectual capital and innovative technology, developing new approaches to solving problems. As a community, Palo Alto has the opportunity to continue its leadership role in finding solutions to the challenges posed by the climate issue."

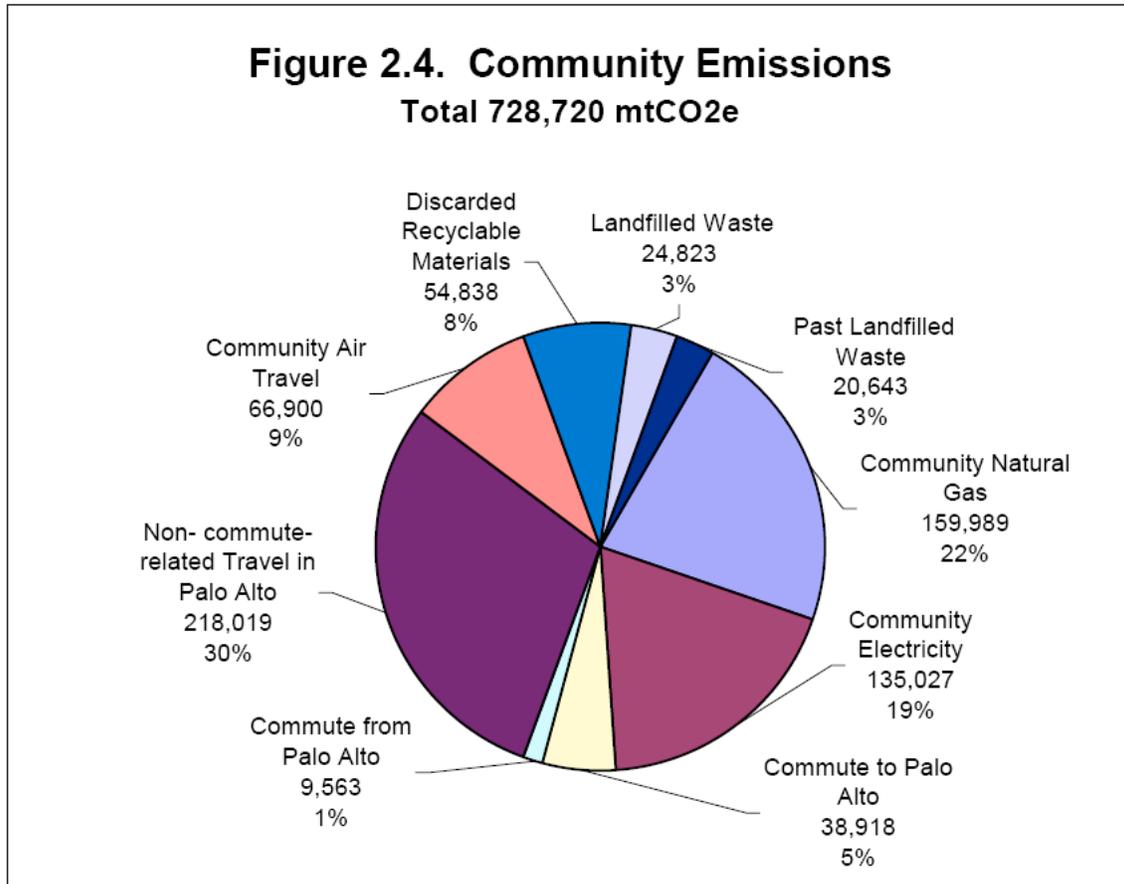
Palo Alto has enormous financial capital as well, and with all of these resources Palo Alto has an obligation to do more to reduce GHG emissions. Other communities that do not have this abundance of resources will not be able to do as much, so Palo Alto should step up to the plate and play a real leadership role in GHG reductions.

## **Exactly what is the plan?**

The CPP provides a wealth of details about various initiatives, programs, standards, and partnerships, and promises to do more about just about everything. This is all very laudable.

But what appears to be lacking is a plan summarized in a few pages, and containing clear goals and timelines.

Consider the pie-chart of the community emissions:



PACCT would like to see a plan that lays out specific goals and timelines for each wedge, along with a list of proposed actions and their estimated cost. This can be summarized if necessary for each wedge. This should be done on an annual basis, with the estimated baseline emissions data from previous years reported as well. The municipal emissions should be included in this pie, with perhaps less emphasis placed on the smaller municipal wedges.

We would like to suggest that the proposed actions be aggressive, but without attaching blame for the failure to achieve the targets. We expect that there will be successes and challenges. Failure to achieve a target should be just another piece of data used to adjust the strategies and approaches moving forward. Innovation almost demands failures, let's not stigmatize city leaders and staff for any real or perceived program failures.

Note that unless we're able to gather more accurate baseline data for the transportation sector, we'll want to track other local indicators as well, such as commuters per vehicle, telecommuters, portion of commuters using public transport, etc.

## Conclusions

The CPP is an excellent report and the staff should be commended for their excellent work. The completeness and inclusiveness of the emissions inventory is exemplary and should be followed by other cities (and ICLEI) that are looking to do their GHG inventories. The inclusion of both upstream and downstream emissions give a more complete picture of the community's GHG emissions.

The City should fund a permanent staff position to see that the actions outlined in this report (and other environmental issues) are acted upon.

Palo Alto has the means and the support of the community to move aggressively on solutions outlined in the CPP. Although the CPP meets the state goals for 2020 GHG emissions, the 2050 goals will be harder to meet. The more actions we do now the easier and more cost effective they will be.

PACCT looks forward to working with the City to develop an accurate and forward looking Climate Action Plan that can become the real blueprint for change in this community, not just for municipal operations, but for the community as a whole.