



# Sustainability and Climate Action Plan

## Ideas Expo

November 18, 2014 6-8 pm

Downtown Library, 270 Forest Ave

## WORKSHOP SUMMARY

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On November 18<sup>th</sup>, 2014, about 75 community members gathered at the Palo Alto Downtown Library for a workshop to gather input on the city's Sustainability and Climate Action Plan (S/CAP). The overall objective of the S/CAP project is to establish a set of cohesive sustainability and greenhouse gas mitigation strategies, implementation plans, and progress metrics for the City of Palo Alto.

The Ideas Expo used the S/CAP process as a platform to engage the community in a broad discussion about sustainability and greenhouse gas (GHG) emissions and explore what would it take for City of Palo Alto to achieve new aggressive goals for GHG reductions and other sustainability goals. Community members were invited to bring their ideas for current or potential programs that would have significant positive impact on the community. The event was promoted on the City's website and social media accounts, through an eBlast to community members and partners and through direct outreach to City and community partners and stakeholders.

During the course of the evening, workshop participants shared information in an open house format and facilitated discussion about existing and proposed initiatives for sustainability and GHG reductions. To encourage big, bold ideas, workshop participants were asked to explore what it would take for Palo Alto to be carbon neutral in 10 years or less.

### 1.1. Workshop Format

During a short introduction, City staff and project consultants presented background information about the S/CAP project, which seeks to preserve and enhance quality of life, prosperity and community resilience for the future. Gil Friend, Chief Sustainability Officer for City of Palo Alto introduced the S/CAP project and outlined three domains of action: the infrastructure of things and systems (including buildings, transportation and other information) that we build to enable our lives; the resources (including energy, water and other materials) that flow through our community' and the behaviors (including beliefs, commitments and actions, and policies) we enact to fulfill our aspirations.

The S/CAP will build on the momentum of the city's GHG emissions reductions achieved to date to meet or exceed California and international GHG reduction goals. For Palo Alto, the remaining substantial GHG emissions sources are related to transportation and natural gas consumption in the community. Project consultants presented preliminary analysis of what it would take to achieve different levels of emissions reduction targets.

- 80 percent below 1990 levels by 2050.
- 80 percent below 1990 levels by 2030.
- Carbon neutral by 2025.

To encourage creativity and ambitious ideas, Ideas Expo participants were asked to explore what actions are needed to achieve a carbon neutral goal by 2025. Approximately 15 poster presenters briefly introduced their ideas for GHG reduction strategies, including both existing programs and new strategies for consideration. Following the poster presentations, workshop participants circulated around the room to explore ideas in more depth with presenters and other participants, as well as generate new ideas and other feedback for the S/CAP team.

Participants recorded their ideas on flip charts and posters distributed throughout the room as well as on comment cards provided to each person. Large sheets of butcher paper with four additional questions were posted for people to share their ideas. These questions and responses are included below. The workshop concluded with a facilitated discussion of key takeaways, and ideas that people felt should be prioritized. Gil Friend closed the session by encouraging community members to stay engaged in the S/CAP process as well as work together to support shared sustainability programs and shared interests.

## 1.2. Common Themes

Many of the ideas presented and discussed by participants focuses on the following common themes .

- **Fuel switching.** To achieve significant GHG emissions reductions, we must utilize fuels and energy sources with lower carbon content. Given Palo Alto's carbon neutral electricity supply, a lot of attention was paid to electrification of buildings and transportation. This includes supporting on-site solar generation for homes and local businesses, as well as electrification of gas using appliances such as furnaces and water heaters. Many individuals also mentioned electric vehicles and Caltrain to move away from gasoline and diesel fuels.
- **Mode share (de-car-ification).** Not only is fuel switching needed, but a sustainable future should include the ability to get around without needing to use personal vehicles. Ideas included new information technology, such as an open data information platform for transit and as a way to facilitate the transition to new modes and paradigms for mobility.
- **Finance.** How to pay for programs and technology solutions was another important area. Ideas included ways to support community investment. One community member suggested that a carbon tax was needed or other mechanisms for more accurately capturing the environmental and societal costs of greenhouse gas emissions.
- **Behavior change (community engagement).** Sustainability and addressing climate change requires community to support and commitment. As such, workshop participants explored different programs and ideas to encourage environmentally friendly programs. Ideas included a carbon credit program for residents and businesses, GoCO2Free platform, demonstration projects and the Georgetown Energy Prize program.

Ultimately, the discussion for the community focused on how sustainable does Palo Alto want to be and what would it take to get there?

## 1.3. Community Questions

During the workshop, participants were invited to answer four questions by writing their responses on large sheets of butcher paper. The questions and responses are below, organized by theme where relevant.

**1. What would it take for Palo Alto to be carbon neutral in 10 years or less?**

Topic Area	Comments
Transportation	<ul style="list-style-type: none"> <li>- Regionally coordinated public transportation with better service</li> <li>- Install electric vehicle charging at rental housing</li> <li>- Change behavior around car idling; shut off engines while parked. This would significantly reduce emissions by many metric tons.</li> <li>- Roundabouts – safer, cleaner, less expensive than stop lights</li> <li>- Electrified transportation including pervasive personal rapid transit</li> <li>- Fiber to the premises to promote telecommuting rather than driving or other physical commuting</li> </ul>
Housing and Land Use	<ul style="list-style-type: none"> <li>- Build energy efficient micro-homes (apartments) in downtown/office-dense areas to decrease traffic</li> <li>- Increased housing and pedestrian-oriented development along El Cerrito Real (help address job/housing imbalance)</li> </ul>
Community	<ul style="list-style-type: none"> <li>- City-wide (all departments) instructed in implementing systems thinking/planning as in permaculture. Consider the multiple functions/benefits of actions you can take and the multiple facets of the issues/needs you are trying to address to find optimal solutions which solve multiple problems.</li> <li>- Give out Clipper cards as incentives for energy, waste and water reduction</li> <li>- Focus on leadership through fuel switching</li> <li>- We would need to get all of Palo Alto working on this including our neighboring cities</li> </ul>
Energy	<ul style="list-style-type: none"> <li>- Return to previous practice of offsetting utility bill one-for-one for excess PV electrical generation</li> <li>- Time of use metering for PV and EVs</li> <li>- Winter rates for electrical heat (instead of natural gas winter rates)</li> <li>- If Palo Alto wants to be carbon neutral and depend on a blend of hydro, solar and wind, we need to consider reductions in hydro production at Hetch Hetchy due to a reduction in the Sierra snowpack. Scientists predict a 30% reduction in the Sierra snowpack by 2030.</li> <li>- Provide incentives for landlords to incorporate higher efficiency appliances.               <ul style="list-style-type: none"> <li>o Is there a dichotomy between renters and landlords? Renters have no incentive to upgrade appliances and because landlords don't pay utility bills there is no incentive.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- Incentives for homeowners to replace gas heaters/water heaters</li> <li>- Educate home builders about the pros and cons of gas</li> </ul>
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**2. What other goals should we pursue besides CO2?**

Topic Area	Comments
Transportation	<ul style="list-style-type: none"> <li>- Reduce auto in commuting</li> <li>- Make travel convenient without personal cars</li> <li>- Dedicated separate bike paths for safety, with colored pavement</li> </ul>
Solid Waste	<ul style="list-style-type: none"> <li>- Food compost collection bins city-wide in commercial areas</li> <li>- Support local yard and food composting at “measure E” site</li> <li>- Demonstrate sewer landfill management 5x better than standards for reducing allowed methane leakage.</li> <li>- Commercial compost at the curb for residents. Less food waste = less methane production <ul style="list-style-type: none"> <li>o Combine with sewage in advanced anaerobic digester – make methane and use as fuel for generators</li> </ul> </li> </ul>
Green infrastructure	<ul style="list-style-type: none"> <li>- Design curbs to send rain runoff into planting strips</li> <li>- Continue and expand incentives/requirements for sustainable gardens (either native/drought tolerant and or food producing)</li> </ul>
Water	<ul style="list-style-type: none"> <li>- Ensure water conservation measures do not contribute to statewide adoption of desalination</li> <li>- 60 gallons per day per person of potable water <ul style="list-style-type: none"> <li>o Most renters don’t pay their water bills (in high density housing). So there is no information on how much waters renters are using.</li> </ul> </li> </ul>
Housing and Land Use	<ul style="list-style-type: none"> <li>- Make housing more affordable and accessible</li> <li>- Limit population growth</li> <li>- Make Palo Alto ecosystem services positive through green and built infrastructure</li> </ul>
Energy	<ul style="list-style-type: none"> <li>- Energy storage system for grid stabilization</li> <li>- Limit tall buildings that shade adjacent properties</li> <li>- Give solar panels rights – trim trees that shade panels</li> </ul>

**3. What actions will you (or your organization) take to further these goals?**

The community shared ideas on how they were committed to sustainability and greenhouse gas emissions reductions. Workshop participants wrote that they plan to:

- o Stop watering lawn/replace with xeriscaping
- o Replace gas water heater

- Replace gas dryer
- Replace gas or wood fireplace
- Continue to live close by to work and keep my commute time low and doable by bike
- Work at home

#### 4. How quickly should we aim to reduce GHG emissions?

GHG Reduction Target	# of Votes
80% below 1990 levels by 2050	No votes
80% below 1990 levels by 2030	No votes
Carbon neutral by 2025	8 votes

### 1.4. Posters

Approximately 15 community members presented posters or introduced ideas, as follows:

- **Cool City Challenge California.** What might a Cool City look like with citizens living low-carbon and green lifestyles in resilient and livable neighborhoods? Behaviors that build up from one household to neighborhood blocks to whole neighborhoods leading to entrepreneurs and leaders responding to consumer shift.
- **Next Generation Caltrain.** Ideas focused on improving Caltrain, including electrification, improved train car design for expanded capacity and faster loading/unloading, transit connections, and funding strategies.
- **Microgrid at Stanford Research Park.** One idea was to complete a demonstration project of a microgrid project with on-site generation, dynamic energy consumption (demand response) and show how community energy scale system could work in Palo Alto. Calculations show more than 200 acres of parking and rooftop PV may be possible, combined with smart inverters directly tied in with energy storage.
- **Georgetown University Energy Prize.** Palo Alto is a participant of the Georgetown University Energy Prize competing against 51 other communities for a \$5 million prize to reduce electric and natural gas usage in the residential, multi-family, municipal and schools sectors.
- **Putting People First (Not Cars).** The strategies include bus rapid transit for El Camino Real and Middlefield Road, painted and protected bike boulevards, prioritized and secure bike routes, bike share, LED lighting for bike lanes and transit and frequent local transit coordinated between VTA, shuttles, Caltrain, SamTrans and Marguerite. Also, that a registration fee for gasoline vehicles to be used to support transit.
- **Revenue Neutral Carbon tax.** To change local buying decisions and advance a replicable model for other cities, Palo Alto should enact a revenue-neutral carbon tax. The tax may be phased in over a period of time (e.g., 3-10 years) with pricing that represents a “true” cost of carbon (i.e., over \$120/metric ton of CO<sub>2</sub>e)
- **Top Transportation Tactics from Fort Collins.** There are five key areas that Fort Collins is focusing on to reduce vehicle miles traveled by 30% by 2030 and increase electric vehicle adoption rates.

Tactics are focused on off-street parking, on-street pricing, coordinated mass transit, fleet electrification, and an open transportation data and mobile transit application.

- **Carbon Neutral Electricity to Zero Natural Gas for Palo Alto.** Move from voluntary City of Palo Alto Utilities GreenGas Program to buy offsets or credits to immediately make the entire natural gas supply carbon neutral in Palo Alto. Then focus on designing and implementing strategies for fuel switching, efficiency and policy drivers to move away from natural gas.
- **Go CO2 Free Palo Alto.** This is a game and interactive program for Palo Alto residents and businesses to learn about options to lower greenhouse gas reductions. The program includes a dashboard to plan and track individual and program level accomplishments.
- **Palo Alto's Carbon Neutral Portfolio.** City of Palo Alto Utilities presented information about the path to carbon neutral electricity. Renewable resources include wind and landfill, with solar projects coming online in 2015 and 2016.
- **Gasoline or Electric? A comparison of costs.** This poster showed cost of operating a conventional gasoline vehicle in the range of 11-17 cents per mile, compared with electric vehicles costing 4-6 cents per mile using City of Palo Alto Utility rates.
- **Palo Alto Solar Projects.** City of Palo Alto Utilities Local Solar Plan identifies a set of strategies and initiatives to continue promoting solar. The goal is to increase the penetration of local solar installations from 0.7% of the City's total energy needs in 2013 to 4% by 2023. Utilities offers rebate programs and payment for electricity generated at customer sites. Upcoming programs include community solar, group-buy down and solar donation program.
- **Carbon Free Palo Alto.** Concepts for carbon neutrality in 10 years or less include fuel switching, end of life program for water heaters (e.g., 24 hour hotline to get an electric replacement), electric vehicle programs (e.g., Drive-EV marketing campaign, EV chargers in every city garage), promoting heat pump technologies and reducing air travel.
- **Project Green Home.** Low impact home designed and built by the Thesen family in Palo Alto to be "zero net energy" and produce as much energy as it consumes. Real life example of how a local home was able to achieve zero net energy.
- **Sustainable & High Value Transportation (Active Transportation).** While electric vehicles are essentially zero emissions, it perpetuates car culture and sprawl. Walking, cycling and public transit needs to be key strategies to improve help, reduce congestion and promote social equity. Electric bikes, and intelligent active transportation systems (e.g., Stanford's Capri program) are needed.
- **Mobility as a Service.** Concept presented by the City of Helsinki (not present at the workshop) to combine all transportation into one flexible, all-inclusive service. Framework for providing mobility services at a package price per month to enable decreased car ownership, and increase public transportation.
- **Energy + Household with Zero Annual Energy Bills.** A net zero energy household in Cupertino achieved with efficiency, home electrification, automobile electrification and renewable energy. The poster presents steps for others to achieve a net zero energy home.
- **Downtown Palo Alto Net Zero Energy (DPANZE).** The DPANZE initiative is targeting 100 commercial buildings in downtown Palo Alto for net zero energy, and serve as a retrofit example for all of Palo Alto and beyond. In addition to energy efficiency and local renewables, DPANZE

will also heavily promote fuel switching to electrify natural gas applications and petroleum-dependent vehicles.

- **Low Impact Housing.** The idea includes micro-apartments targeted at seniors, singles, and tech workers that are ~300 square foot in the downtown & California Avenue areas. This may reduce driving and GHG emissions by 66% and 75%, respectively, compared to current residents. Living, working and shopping downtown reduces vehicles miles traveled. Ideas to reduce vehicle ownership and increase transit usage include Zipcar, transit passes, unbundled parking, EV charging. The property taxes can provide school budget surplus.
- **Variation on Stanford Transportation Demand Management.** Idea includes small sticks and large carrots. For example, charging \$2/day per single-occupancy vehicle (SOV) during commute, and using the revenue to provide \$3/day incentives for alternative transportation. This could reduce SOV in-commute mode share from 77% to 54%, which is approximately 42,000 fewer car trips per day and 63,000 fewer tons of GHG per year. The funds would create \$24,000,000 per year for new transit services, biking, and carpool funding out of thin air. Consider providing a real-time commute dashboard and collaborate sub-regionally with other cities to implement.

## 1.5. Additional Comments

A number of participants provided written comments on cards. The table below summarizes the comments.

Topic Area	Comments
Transportation	<ul style="list-style-type: none"> <li>- Use paint to increase albedo and also to delineate bike-only or bike-privileged.</li> <li>- Make biking safer by dedicated, separate bike lanes</li> <li>- Equitable transportation</li> <li>- How many people can afford to buy EVs?</li> <li>- Promote resale of electric vehicles (EVs) to lower income drivers</li> <li>- Batteries will be less than \$100/kwh capacity within 1-2 years, and probably 10,000 discharge cycles within 2 years.</li> <li>- Palo Alto to lead the way with ultralight system, planned to connect to north and south when they act too, and designed as economic and time breakthrough that cuts cost of mobility by at least 40%, and has high amenity in terms of view, comfort, but not elite design issues.</li> <li>- 92,000 workers (here) commute into Palo Alto</li> <li>- Bi-directional monorail (Pavers Design International) has many times capacity of single-track</li> <li>- Check out Skytran, which is an elevated personal rapid transit that may go 100 mph</li> </ul>
Housing and Land Use	<ul style="list-style-type: none"> <li>- Affordable housing is needed</li> <li>- Support diversity of those who can live in Palo Alto and surrounding communities, drawing artists, teachers, non-tech workers gives Palo Alto balance and makes it more interesting and reduces commuting.</li> </ul>

Topic Area	Comments
Community	<ul style="list-style-type: none"> <li>- It was great to see the Palo Alto emissions bar chart and the contribution breakout for each segment. For context, add in the emissions per capita then compare this per capita emissions with those of other aspiring green cities.</li> <li>- Business ecosystems for rolling out replacement technologies, supported by incubators that focus on a business cluster.</li> </ul>
Green Infrastructure	<ul style="list-style-type: none"> <li>- Elmer Avenue – in L.A. as a sample</li> <li>- Need more cork trees</li> <li>- Eliminate paved creeks</li> <li>- Divestment of companies that are not in line with Palo Alto environmental values?</li> <li>- Too many mature trees are being cut down in Palo Alto</li> </ul>
Energy	<ul style="list-style-type: none"> <li>- Palo Alto should generate its own electricity through putting solar on all schools, and public buildings</li> <li>- Encourage homeowners to replace gas heaters, furnaces, dryers with electric</li> <li>- Educate new builders about pros/cons of installing gas appliances – incentives/penalties</li> <li>- As utility rates and carbon taxes increase, will there be help for poorer people?</li> <li>- As Palo Alto strives to be carbon-neutral with a hydro-solar-wind portfolio, we need to take into consideration that the Sierra snowpack is reducing (30% by 2030) and hydropower generation capacity will decrease. In addition to building more solar-wind options locally, we need to provide more incentives for conservation efforts.</li> <li>- I’m currently a renter in Palo Alto and pay for my utilities. The appliances in my house are old and inefficient, but my landlord has no incentive to upgrade old appliances. We need to target property owners to increase efficiency for renters. This includes water conservation, especially in high density properties where landlords by fer the water bill.</li> <li>- I love my o-power report and would love to see more gamefication elements as Palo Alto goes more carbon neutral.</li> <li>- Solar over all parking, partial solar over many sheets to power transport EVs and buildings – special structural technology for it.</li> <li>- Passive solar design for lower heating/cooling bills</li> </ul>
Solid Waste	<ul style="list-style-type: none"> <li>- The City should move expeditiously to do anaerobic digestion of all organic waste. This will generate biogas as well as handling sewage, food waste and yard waste.</li> <li>- A composting program would be great and also maybe reduce that rat issue (?)</li> </ul>



Topic Area	Comments
	<ul style="list-style-type: none"> <li>- High-tech biodigester for sewage and part of yard waste – electricity and compost</li> </ul>

## 1.6. Next Steps

Participants were encouraged to stay involved in the S/CAP process by signing up for the sustainability new list, participate in the Open City Hall forum, follow on Twitter (#SCAP), and attend the City Council Study Session on December 8th, 2014. Gil Friend encouraged all participants to take ideas back into the community to motivate friends and neighbors to action. The S/CAP team will utilize the input from the community to develop a Sustainability Roadmap to guide City efforts across a broad range of environmental sustainability initiatives. The team will report back in 2015, with draft work products for public review.