

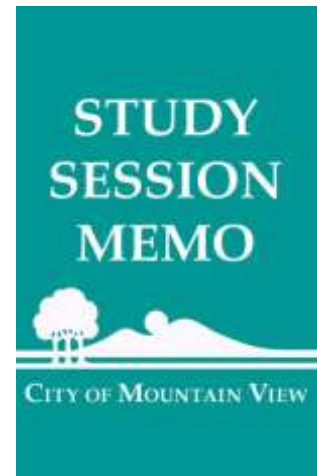
DATE: April 28, 2015

TO: Honorable Mayor and City Council

FROM: Steve Attinger, Environmental Sustainability Coordinator
Terry Blount, Assistant Community Development Director
Randal Tsuda, Community Development Director

VIA: Daniel H. Rich, City Manager

TITLE: **Community Climate Protection Roadmap**



PURPOSE

The purpose of this Study Session is for the City Council to review and provide input regarding the proposed Public Review Draft of the communitywide Climate Protection Roadmap (CPR).

BACKGROUND

In November 2009, the City Council adopted voluntary greenhouse gas (GHG) emission reduction targets for the community as a whole. The targets require a reduction in total emissions below a baseline year (2005) and do not account for residential and commercial growth. The adoption of the targets was in response to the Global Warming Solutions Act (AB 32) being signed into law, requiring California to reduce Statewide GHG emissions over time.

Since that time, the City has developed several plans and policies to guide its sustainability efforts and GHG reduction strategies, such as two Environmental Sustainability Action Plans (ESAPs) and a regulatory-based Greenhouse Gas Reduction Program (GGRP) associated with the General Plan update. However, a comprehensive plan to meet the City's communitywide 2050 GHG reduction targets has not been developed.

While the GGRP seeks to limit the increase in GHG production associated with growth anticipated in 2020 and 2030 under the 2012 General Plan update, it does not aim to reduce emissions below 2005 levels in alignment with the City's 2050 reduction targets. The actions identified in the GGRP are required under the California Environmental Quality Act (CEQA) to implement the General Plan, whereas the Mountain View CPR is

more comprehensive and includes strategies and implementation mechanisms the City could adopt in order to meet its broader 2050 GHG reduction targets.

The City's communitywide GHG reduction targets are:

- 5 percent below 2005 levels by 2012;
- 10 percent below 2005 levels by 2015;
- 15 percent to 20 percent below 2005 levels by 2020; and
- 80 percent below 2005 levels by 2050.

While these reduction targets are voluntary and there are no legal consequences of not achieving them, working to reduce the City's GHG emissions supports the State's GHG reduction goals under AB 32.

In February 2013, the City Council authorized staff to develop communitywide and municipal operations Climate Action Plans (CAPs) in conjunction with the County of Santa Clara (County), which had secured PG&E and Strategic Growth Council grant funding to develop CAPs for several local cities. Staff has worked with the County's consultant, AECOM, to develop a Public Review Draft communitywide Climate Protection Roadmap (Attachment 1). In parallel, staff has also worked on the development of a draft Municipal Operations Climate Action Plan (MOCAP) to guide the City's municipal operations GHG reduction efforts. A Public Review Draft MOCAP was presented to the City Council at a Study Session on March 31, 2015, and is scheduled for adoption in May 2015.

DISCUSSION

The purpose of the CPR is to provide the City Council with a series of strategies and actions the City could undertake to reduce its communitywide GHG emissions and potentially reach the absolute GHG reduction targets adopted by the City Council in November 2009. The strategies include level-of-magnitude cost and GHG reductions, and can be used by the City Council and staff as the basis for further conversation and development of more detailed work plans for those strategies deemed a priority. However, in receiving the CPR, the City Council would not be committing to implement any of the strategies/actions specifically.

In creating the CPR, the City undertook the following process:

1. Calculated the City's 2012 communitywide GHG emissions and compared them to the City's baseline 2005 emissions.
2. Projected 2050 communitywide emissions under two scenarios—one projecting future emissions if the City continues Business As Usual (BAU), and the other scenario taking into consideration the potential impacts key State emission reduction programs may have on Mountain View's community GHG reduction efforts, or Adjusted Business As Usual (ABAU).
3. Conducted an activity-based emissions impact analysis to identify the types of macro-level changes in emissions-generating activity that could create sizable reductions in community emissions.
4. Performed a core strategy analysis to review the effectiveness and feasibility of specific emission reduction strategies that could reduce community emissions.
5. Completed a review of Best Practice City-level implementation mechanisms for each core strategy. Implementation mechanisms are policies, programs, or other actions that the City could take to implement a core strategy.
6. Identified potential strategies and implementation mechanisms that could enable the City to achieve its 2050 communitywide GHG reduction target under an ABAU scenario.

Since the City's reduction targets only currently include the years 2012, 2015, 2020, and 2050, the CPR recommends establishing five additional reduction targets every five years between 2020 and 2050 to make it easier to track the City's progress in meeting its 2050 reduction target. This would require the City to calculate its community GHG emissions every five years at a minimum. Over time, it may make sense to calculate emissions every two to three years to gain greater visibility of the City's progress between the target years; however, the City does not currently have the resources for such frequent calculations. The proposed additional GHG reduction targets are:

- 26 percent below 2005 levels by 2025;
- 37 percent below 2005 levels by 2030;
- 48 percent below 2005 levels by 2035;

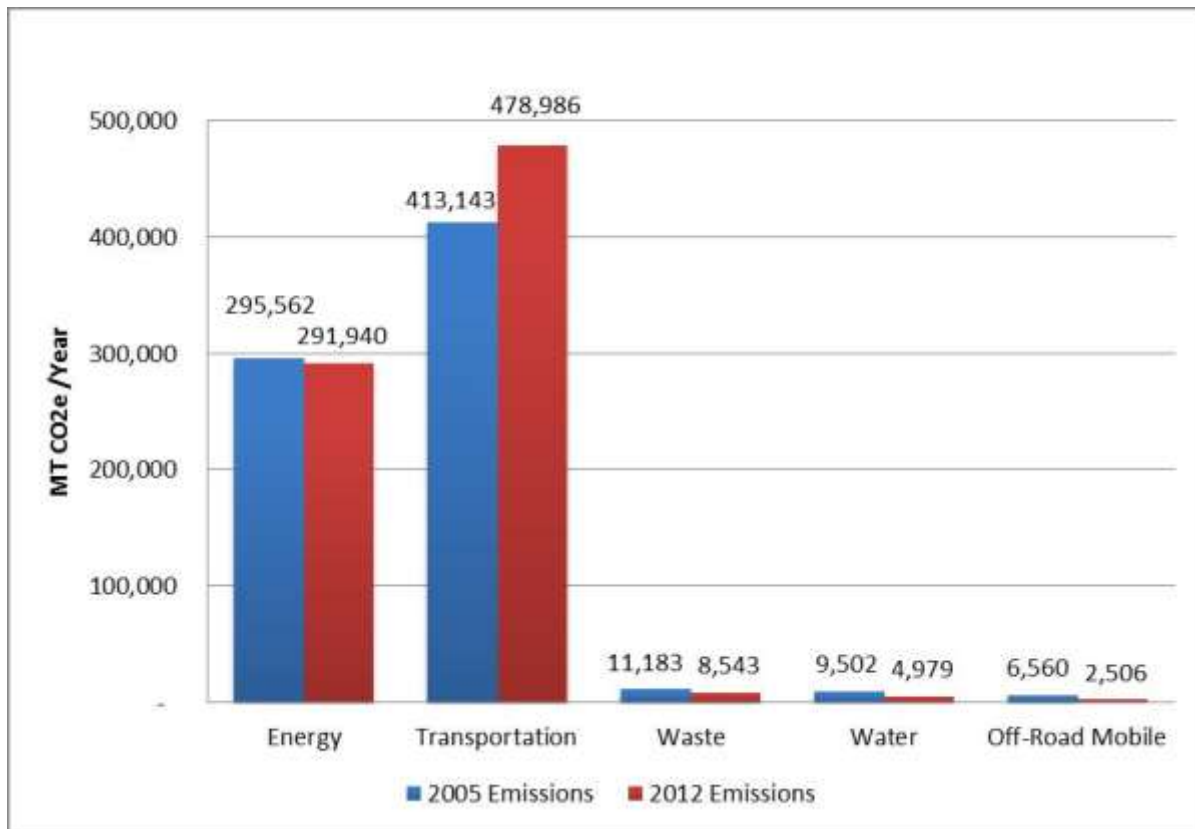
- 58 percent below 2005 levels by 2040; and
- 69 percent below 2005 levels by 2045.

2012 Community Greenhouse Gas Emissions Inventory

In order to evaluate the City's progress against its 2012 GHG reduction target, staff conducted a 2012 community GHG emissions inventory, as shown below in Figure 1.

Between 2005 and 2012, Mountain View's communitywide GHG emissions increased 6.9 percent to 786,954 metric tons of carbon dioxide equivalent (MT CO₂e) annually. When compared to the City's 2012 reduction target of a 5 percent decrease from 2005 levels, this puts the City approximately 12 percent short of its goal.

Figure 1: 2005 Baseline and 2012 Community Emissions by Sector



Mountain View's emissions are broken down into the following five sectors: Energy, Transportation (On-Road), Waste, Water, and Off-Road Mobile. Among these sectors, Energy, Transportation, and Waste comprised 99 percent of communitywide emissions in 2012. A comparison of sector emissions between 2005 and 2012 is shown in Table 1.

Table 1: 2005 Baseline and 2012 Community Emissions by Sector

Sector	2005 Emissions (%)	2012 Emissions (%)	2005 to 2012 Change (MT CO ₂ e)
Energy	40%	37%	-1%
Transportation (On-Road)	56%	61%	+16%
Waste	2%	1%	-24%*
Water	1%	1%	-48%*
Off-Road Mobile	1%	<1%	-62%

When comparing 2005 and 2012 emissions, it is important to examine the changes in each sector in order to see the whole picture.

Energy: From 2005 to 2012, electricity usage increased 0.6 percent and natural gas usage increased 2.5 percent, but energy-related emissions overall decreased 1.2 percent due to the use of 9.0 percent cleaner energy sources in 2012.

Transportation: On-road emissions increased 16 percent between 2005 and 2012 due to a 13 percent increase in gasoline consumption and an 11 percent increase in diesel use.

Waste: Solid waste volume increased 17 percent between 2005 and 2012, but emissions decreased 24 percent* due to differences in how emissions were calculated between the two years.

Water: Usage decreased 10 percent and water-related emissions decreased 48 percent* between 2005 and 2012. These declines are due to water conservation efforts and differences in how emissions were calculated between the two years.

Off-Road Mobile: Emissions related to off-road transportation and mobiles sources decreased about 62 percent from 2005 to 2012 due to recession-induced declines in both sectors, and the fact that lawn and garden equipment became substantially more efficient, thus reducing fuel consumption.

For additional details on the 2012 GHG emissions inventory, see Attachment 1.

* In 2005, both Waste and Water sector emissions were overestimated due to use of less accurate emissions accounting methods than in 2012, and therefore the percent decreases in Waste and Water emissions between 2005 and 2012 are artificially large.

Community GHG Emission Projections

Under a BAU scenario, the City’s communitywide emissions are expected to reach 1,235,873 MT CO₂e annually by 2050, which is 840 percent above the 2050 absolute emission reduction target of 147,190 MT CO₂e. Under an ABAU scenario, which takes into consideration the future emissions reduction potential of existing State and Federal GHG-related policies and regulations, the City’s emissions are expected to reach 899,645 MT CO₂e annually by 2050, 611 percent above the 2050 emission reduction target of 147,190 MT CO₂e.

Proposed Community GHG Reduction Strategies

The proposed CPR strategies focus on Building Energy, Transportation, and Solid Waste, since those three areas generated 99 percent of communitywide GHG emissions in 2012. Strategies are not included for the Water/Wastewater and Off-Road Mobile areas because of their very small contributions to community emissions.

Table 2 summarizes the three GHG reduction strategy areas and their respective contributions toward the City’s 2050 reduction target. Implementing all of the actions identified in the CPR could generate about 100 percent of the emission reductions needed (approximately 750,000 MT CO₂e) to reach the 2050 reduction target under an ABAU scenario.

Table 2: Contributions to 2050 Reduction Target by CPR Strategy Area

Strategy Area	2012 Emissions (%)	Contribution to 2050 Reduction Target (%)
Building Energy	37%	21%-50%
Transportation	61%	40%-47%
Solid Waste	1%	<1%-3%
	99%	61-100%

To assist decision-makers in evaluating the proposed GHG reduction strategies, the CPR provides estimated, level-of-magnitude one-time implementation costs and GHG reduction ranges. For actions the City Council wishes to pursue, staff will provide more detailed financial costs, the impact to staff resources, the timeline, and the benefits on a project-by-project basis. Based on this information and Council priorities, staff can develop a more detailed work plan and budget for achieving the City’s absolute reduction targets.

Building Energy Strategies

While Building Energy-related GHG emissions comprised about 37 percent of 2012 community emissions, the six Building Energy strategies are estimated to provide up to 50 percent of the emission reductions needed to reach the City's 2050 reduction target under an ABAU scenario. The strategies focus on increasing the amount of renewable energy used by the community, but also cover fuel switching (explained below) and energy efficiency in new construction and existing buildings.

- A. Lower-Carbon Electricity
- B. Renewable Energy Generation – Solar Photovoltaic
- C. Renewable Energy Generation – Solar Hot Water
- D. Fuel Switching – Heating and Hot Water: From Natural Gas to Electric Heat Pumps
- E. Energy Efficiency – Existing Buildings
- F. Energy Efficiency – New Construction

Transportation Strategies

GHG emissions from Transportation produced about 61 percent of total 2012 community emissions, and the three Transportation strategies are estimated to provide up to 47 percent of the emission reductions needed to reach the City's 2050 reduction target under an ABAU scenario. The three strategies focus exclusively on fuel switching from conventional gasoline and diesel transportation to vehicles that run on compressed natural gas, electricity, or biofuels.

- A. Fuel Switching – Compressed Natural Gas (CNG)
- B. Fuel Switching – Electric Vehicles (EV)
- C. Fuel Switching – Second Generation Biofuels

Solid Waste Strategies

Solid Waste-related emissions represented 1.1 percent of the City's 2012 community emissions, and the Solid Waste strategies are estimated to provide up to 3 percent of the

emission reductions needed to reach the City's 2050 reduction target under an ABAU scenario. While the CPR contains only one overarching Solid Waste strategy, which is to reduce landfilled waste through developing and implementing a Zero Waste Plan (ZWP), the ZWP itself will contain more details on the relevant required policies, programs, and actions.

A Focus on Fuel Switching

The purpose of the CPR is to chart the most direct path toward achieving the City's communitywide, absolute 2050 GHG reduction target. As such, many of the CPR strategies and mechanisms are focused on fuel switching from traditional fossil fuel-based energy sources to renewable ones, since fuel switching provides the most effective way of reducing emissions quickly. *It should be noted that the absence of other transportation and land use strategies and mechanisms in the CPR for addressing climate change does not infer that they are less important or should not be pursued, only that they may not help the City reduce its emissions as quickly. See "Comment 4" below.*

California Environmental Quality Act (CEQA) Compliance

To comply with CEQA, staff evaluated the CPR for its potential environmental impacts and determined that none of the proposed strategies and implementation mechanisms has the potential for causing a significant effect on the environment. Since the CPR can be seen with certainty to have no significant effect on the environment, it is not subject to CEQA (CEQA Guidelines Section 15061.b.3).

COMMITTEE REVIEW

On February 5, 2015, the Council Environmental Sustainability Committee (CESC) and public provided comments on a Pre-Draft of the CPR. Subsequently, where possible, staff made the requested changes and produced a Public Review Draft CPR (Attachment 1).

Following are the key comments from the February 5, 2015 CESC meeting:

Comment 1: The CESC supported the CPR's overall approach, but wanted clarification on which strategies/actions the City can control and implement itself, and which strategies/actions are outside of the City's jurisdiction.

Response 1: This distinction was added to the CPR.

Comment 2: The CESC requested more detail on who would implement the strategies/actions, who would pay for them, and where the funds would come from.

Response 2: This additional level of detail could not be provided within the scope of this project, but as indicated above, staff will conduct additional cost-benefit analysis on the strategies/actions of most interest to the Council.

Comment 3: The CESC requested to make Community Choice Energy (CCE) a priority, and asked for a placeholder in the Fiscal Year 2015-16 budget and a work plan for continuing the City's involvement in the multi-agency Silicon Valley CCE feasibility study.

Response 3: Staff has included money in the proposed Fiscal Year 2015-16 budget to continue the next phase of the City's CCE efforts.

Comment 4: The CESC emphasized the importance of how (1) bicycle- and pedestrian-friendly city design; (2) the City's transportation demand management (TDM) requirements for new office development projects; and (3) "other" community-related Transportation projects already under way or being planned outside of the CPR (related to public transit, biking, walking, and reduction in single-occupancy vehicle use) contribute to the CPR's goal of emission reductions. Further, many of these other actions have direct public health and community benefits, and staff could implement a Citywide competition to encourage biking, walking, and electric vehicle (EV) adoption.

Response 4: While the CPR focuses heavily on reducing energy usage and switching fuel sources in order to reduce GHG emissions as quickly as possible, the City is also pursuing many other Transportation projects and initiatives to help reduce vehicle miles traveled, since Transportation is the largest contributor to community GHG emissions and the most difficult area in which to affect change.

Comment 5: The CESC encouraged the City to act quickly to incorporate solar power and EV charging infrastructure in new construction, and to set solar and EV adoption goals.

Response 5: The CPR includes strategies to incorporate solar power and EV infrastructure in new construction.

Comment 6: The CESC encouraged use of water-saving measures throughout the City, such as increasing the use of recycled water and fostering the use of dual-plumbing in buildings.

Response 6: In 2014, the City studied alternatives for extending the recycled water system beyond the North Bayshore Area. The recommended alternative includes extending service to Shorebird Way and Charleston Avenue in North Bayshore (included in the Proposed 2015-16 Capital Improvement Program) and to the Bay View development at NASA (to be completed by Google as part of the Bay View development). As part of Fiscal Year 2015-16 goal setting, Council has requested the City investigate options to reduce the salinity of recycled water and increase its usefulness, and study the viability of using treated water from contaminated groundwater sites in the recycled water system. And, while dual-plumbing is not specifically highlighted in the CPR, the Council may wish to consider this proposal as part of their CPR evaluation.

Comment 7: Several members of the public encouraged the City to (1) migrate to more renewable sources of electricity through CCE, and then switch to electricity-based fuel sources; (2) not use natural gas as a transportation fuel, and instead focus on electrification and biofuels; (3) focus on reducing vehicle miles traveled through better urban planning; and (4) prioritize communitywide over municipal operations emission reduction activities.

Response 7: The Council may wish to consider these comments as part of their CPR evaluation.

Specific comments from the public are shown in Attachment 2.

RECOMMENDATION

Staff seeks direction from the City Council on the CPR, including whether:

1. The Council endorses its overall approach;
2. Any of the proposed strategies or actions should be prioritized or removed;
3. Any new strategies should be added; and
4. The City should adopt the proposed additional GHG reduction targets every five years between 2020 and 2050.

NEXT STEPS

Based on City Council direction from the Study Session, staff will revise the Public Review Draft CPR and return to the Council in the fall with a Final Draft for evaluation and adoption. There would be no direct fiscal impact to adopting the CPR, as it does not commit the Council to funding any of the underlying actions. The CPR will be used as a framework to further analyze and prioritize strategies and actions, and to forward specific actions to the Council for funding. It should be expected that some strategies will have significant financial and staff resource implications.

Following adoption of the CPR by the City Council, staff will perform a cost-benefit and resource impact study to prioritize the strategies and return to the Council with an Environmental Sustainability Action Plan 3 that incorporates actions from the CPR and MOCAP, and other initiatives deemed high priority by the Council.

PUBLIC NOTICING

Agenda posting and e-mails sent to community members interested in environmental sustainability.

SA-TB-RT/7/CAM
816-04-28-15SS-E

Attachments: 1. Public Review Draft Climate Protection Roadmap
2. Public Comments on Pre-Draft Climate Protection Roadmap

cc: APWD—Hosfeldt, APWD—Solomon, PP, ZA, CBO, EDM, TBM, SWPM, DSC,
BDS