

STAFF REPORT

DATE: April 25, 2022

TO: Natural Resources Commission

FROM: Dianna Jensen, CAAP Project Director, PWET City Engineer
Kerry Loux, CAAP Project Manager, CDS Sustainability Coordinator

**SUBJECT: 2020-2040 Climate Action and Adaptation Plan (CAAP) Status Report
Cost Effectiveness Analysis and Greenhouse Gas Reduction**

Recommendation

1. Receive a CAAP project status update.
2. Receive information on approach and high-level results of Cost Effectiveness Analysis (CEA)
3. Receive information on approach and high-level results of the Greenhouse Gas (GHG) Reduction Potential Analysis and Target Achievement; and information on other actions context
4. Review and comment on materials provided.

Council Goals

The CAAP directly supports the City Council Goal to Pursue Environmental Sustainability, and supports the *Resolution of the Council Declaring a Climate Emergency and Proposing Mobilization Efforts to Restore a Safe Climate*, adopted in March 2019.

Background and Presentation Overview

This is the regular monthly CAAP update to the NRC and liaisons from other Commissions. It is also an in-depth discussion of the draft additional scope items requested at the December 7, 2021 City Council meeting, which were included in the Contract Addendum #2 approved by City Council on February 1, 2022. A summary of all of these items was included in the NRC CAAP Staff Report, February 28, 2022.

In early March 2022, the CAAP project management team, Dianna Jensen and Kerry Loux, and the consultant, AECOM, met with Dan Carson, City Councilmember, to discuss the preliminary stages (25%) of the Cost Effectiveness Analysis (CEA) Workbook. The discussion confirmed that the work underway at that time was going in the direction expected by the City Council subcommittee.

Tonight, the discussion will focus on the data included in the attached 'Workbook'—Cost Effectiveness Analysis (CEA); greenhouse gas (GHG) emissions reduction potential for the identified CAAP actions; and information on other context. The PowerPoint presentation gives an overview of this material, and we hope to have a detailed discussion, input and recommendations at this NRC meeting.

Due to the time sensitivity of getting NRC and Commission input and expertise on these materials, and in consideration of other NRC agenda items for April 25, 2022, this item

will be held to a time certain of two hours. If additional time is needed for further discussion, or to receive updated information from the consultant or staff project management team based on discussion and feedback from this meeting, we will ask the NRC to continue the discussion to a Special Meeting in early May.

Josh Lathan of AECOM will provide an overview of the data related to GHG reduction potential and analysis of 2030 and 2040 target achievement. This will include discussion of two possible approaches to three of the Building Energy and Design actions—voluntary action vs. mandatory or required (ordinance) implementation, which have a significant impact on target achievement.

Emily Schwimmer of AECOM will provide a CEA overview, with a primer on how to use the Workbook, along with an example of data in one of the actions.

Diana Edwards of AECOM will address other actions context information, such as the top actions related to co-benefits and to climate hazards addressed.

Even though the PowerPoint identifies the top actions in these various areas for discussion purposes, we are not asking the NRC to identify top actions at this point. Time will be provided after each presentation section for clarifying questions. Please be prepared with clarifying questions only, and save discussion until the appropriate time at the end of the CAAP item.

The Chair will open public comment at the end of the above presentations. Following public comment, the agenda allows for the NRC to have an hour or more for discussion.

Technical Information

Overview of Workbook Information:

For best use of the information, it is highly recommended to first become familiar the 'Read Me' tab at the bottom of the Excel file before starting to look at the data in the Workbook.

Note that while we expect that the data in the Workbook will be very helpful for making final decisions about what to include as priority actions in the CAAP, the CEA and GHG data does not give us 'answers' to which actions to select. Cost effectiveness findings provide just one data point and GHG reduction potential another for prioritizing actions and should be considered along with other criteria, including co-benefits, actions that offer specific benefits to lower-income households, climate hazards addressed, public acceptance, momentum or other factors.

We recognize that there are certain mitigation (M) actions that do not have data provided in the Workbook, given various factors and difficulty in assessing these actions for CEA and GHG reduction. These factors are included where appropriate. Of course, adaptation actions (A) are not included in this analysis. The NRC may want to discuss these mitigation actions with the consultant and City staff to determine if more effort to provide data should be made before bringing these materials to City Council on May 24.

However, the data that is provided on the remaining actions is detailed, precise, and will provide deep context for decisions on next steps for CAAP actions by policy makers.

2030 and 2040 GHG Emission Targets:

The data in the Workbook and the PowerPoint presentation show that the City of Davis will meet 2030 targets for GHG emissions reduction with mandatory actions. However, none of the data shows that the 2040 carbon neutrality target will be met with implementation of the current actions.

While this may be concerning, it is important to note that it is not unexpected. Addressing climate actions through implementation of the CAAP is necessarily an iterative process. As we approach the 2030 target, we will be monitoring, measuring, adjusting and updating the CAAP and the implementation actions to meet carbon neutrality by 2040. Emerging and evolving policies, opportunities, funding and technology may be available at the federal, state and local level to address GHG reduction between now and then. The City of Davis, in collaboration with regional and state partners, will be responsive to these changes and improved prospects for carbon sequestration and reduction.

Recommendations for regular 2020-2040 CAAP updates, monitoring and metrics of the implementation will be integrated into the CAAP document. The project management team recommends an interim CAAP review and update after two years (2023-24), and every five years following that (2028, 2033, 2038) to track progress and identify any course corrections needed to attain the interim goals at 2030 and community carbon neutrality by 2040. We have made a commitment to update the GHG Inventory every two years, which will provide regular ‘checks’ on the progress of carbon reduction. The last inventory was completed in April 2020; the additional transportation analysis was completed by Fehr and Peers in April 2021. The next GHG Inventory update is targeted to be completed by the end of 2022.

GHG Quantification Approach:

The California Air Pollution Control Officers Association (CAPCOA) Handbook for Quantifying Greenhouse Gas Mitigation Measures methodology was applied for analyzing most transportation actions, as well as water conservation and carbon removal actions. The Modified CAPCOA Handbook methodologies were applied for most building energy actions to reflect emissions forecast scenarios. High-level implementation assumptions defined aspects of actions to be quantified (outlined in Action Analysis Workbook) and reduction estimate results were compared to emissions forecasts by sub-sector to avoid over-estimation within entire sectors/sub-sectors.

Cost Effectiveness Analysis:

The cost effectiveness analysis estimates the cost for reducing one metric ton (MT) of carbon (CO_{2e}) emissions. The methodology is derived from the California Air Resources Board (CARB) approach to the cost effectiveness analysis, as required under AB 32.

Cost effectiveness findings provide just one data point for prioritizing actions and should be considered along with other criteria, including GHG reduction potential, co-benefits, and actions that offer specific benefits to lower-income households.

Importantly, this analysis considers total costs and savings incurred for implementing, operating and maintaining the action. Social costs/benefits are not included. It does not identify *who* pays for action implementation (e.g., the City vs. consumers) nor *who* receives the savings (e.g., the City vs. consumers), although these factors are generally important when designing policy. In many cases, the payee and the savings recipient are different.

The following two charts addressing information in the Workbook are included in the PowerPoint presentation, and help to understand how to use the Workbook:

Target Year (2030) GHG Reductions (MT CO ₂ e/yr.)	Annualized Capital Cost (\$)	Annual O&M Cost (\$)	Annual Savings (\$)	Annual Net Costs/Savings (\$)	Cost per MT (\$/ton based on combined costs)
GHG reductions in the target year	Capital costs associated with implementing the strategy	Costs of operating and maintaining the action	Savings realized by implementing the strategy, usually expressed as a negative number	Total costs and the total savings from implementing the action.	Annual net costs/savings divided by the number of MT CO ₂ e/year of emission reductions.

% of 2030 Total Target	% of 2040 Total Target	Emissions Sub-sector Addressed and Relative Reductions	Action Interdependencies	Climate Hazard Addressed	Number of Climate Hazards Addressed	Positive Co-benefit Impacts	Negative Co-benefit Impacts
% of emissions reduced toward total 2030 reductions target.	% of emissions reduced toward total 2040 reductions target.	Identifies the emissions sub-sector each action relates to, presents the sub-sectors contribution to total 2030 emissions, and states the amount of the sub-sector the action will reduce in 2030 (e.g., 10%).	Describe how the action is dependent on or influences other actions (e.g., potential overlap between actions A1(a) and A3(a))	Climate hazard(s) that the action addresses: <ul style="list-style-type: none"> • Extreme Heat • Drought • Flood • Air Quality 	Count of how many climate hazards does the action address.	Count of how many positive co-benefits the action has: <ul style="list-style-type: none"> • Air Quality & Public Health • Equity & Inclusion • Environmental Stewardship • Biodiversity/Natural Habitat • Job Create/Economic • Water Conservation/Quality • Cost of Living Reduction • Energy Resilience • Public Safety • Quick Wins/Fast Starts • Regional Collaboration • Food Access/Security & Local/Fresh Agriculture 	Count of how many negative co-benefits the action has (i.e., increases cost of living [B8, D3], increases inequity [B8, B10])

Additional Transportation Background Information Now Available:

As previously noted, the subconsultant, Fehr + Peers, completed transportation analysis to supplement the 2020 Greenhouse Gas Inventory. This material was used as background data to develop consultant recommendations and analysis of community action input, but those documents have not been posted until now. The City of Davis Vehicle Miles Traveled (VMT) Estimates document was attached to the March 28 NRC Staff Report and will be posted on the CAAP website. The Origin-Destination Analysis is available now, will be posted on the CAAP website and is attached to this Staff Report.

Attachments

- ATT 1 Davis Draft Actions Analysis Workbook
- ATT 2 Davis CAAP PowerPoint Presentation to NRC, April 25, 2022
- ATT 3 Background Information: Fehr + Peers Transportation Origin-Destination Analysis: completed at the outset of the project; finalized document attached