



AGENDA
COMMISSION ON THE ENVIRONMENT
REGULAR MEETING
WEDNESDAY, APRIL 22, 2015
6:00 PM
COMMUNITY ROOM
420 CAPITOLA AVENUE, CAPITOLA, CA 95010

CALL TO ORDER AND ROLL CALL

Commissioners Jacques Bertrand, Amie Forest, Vice Chair Peter Wilk, and Chair Kristin Sullivan

ORAL COMMUNICATIONS *(No action may be taken)*

The Chair may announce and set time limits at the beginning of each agenda item.

The Committee Members may not discuss Oral Communications to any significant degree, but may request issues raised be placed on a future agenda.

APPROVAL OF MINUTES – March 25, 2015

OTHER BUSINESS

- a. Climate Action Plan
- b. Green Economy Study

FUTURE AGENDA ITEMS

ADJOURNMENT

Notice: The Commission on the Environment meets on the fourth Wednesday of each month at 6:00 PM in the Community Room located at 420 Capitola Avenue, Capitola.

Agenda and Agenda Packet Materials: The Commission on the Environment Agenda is available on the City's website: www.cityofcapitola.org/ on Friday prior to the Wednesday meeting. If you need additional information please contact the Community Development Department at (831) 475-7300.

Americans with Disabilities Act: Disability-related aids or services are available to enable persons with a disability to participate in this meeting consistent with the Federal Americans with Disabilities Act of 1990. Assisted listening devices are available for individuals with hearing impairments at the meeting in the City Council Chambers. Should you require special accommodations to participate in the meeting due to a disability, please contact the City Clerk's office at least 24-hours in advance of the meeting at 831-475-7300. In an effort to accommodate individuals with environmental sensitivities, attendees are requested to refrain from wearing perfumes and other scented products.



MEETING MINUTES CAPITOLA COMMISSION ON THE ENVIRONMENT

Wednesday, March 25, 2015 – 6:00 P.M.
City Community Room
420 Capitola Avenue, Capitola CA

Steve Jesberg called the meeting to order at 6:03 p.m.

1. CALL TO ORDER & ROLL CALL

Members present: Jacques Bertrand, Amie Forest, Kristin Sullivan, Peter Wilk

City Staff Present: Steve Jesberg, Danielle Uharriet

Community Members Present: Sara Stith, Marina Cerin-Stith

2. WRITTEN AND ORAL COMMUNICATIONS None

3. APPROVAL OF MINUTES

Kristin Sullivan made a motion to approve the January 28, 2015 meeting minutes. Amie Forest seconded the motion. Motion passed 3-0, Jacques Bertrand abstained.

4. OTHER BUSINESS

a. Election of Chair and Vice-Chair

Amie Forest was nominated as Chair and declined.

Kristin Sullivan was unanimously elected chair (Bertrand/Forest)

Peter Wilk was unanimously elected vice-chair (Sullivan/Forest)

b. Draft Climate Action Plan

Staff requested the COE to review the draft Climate Action Plan (CAP) and provide comments at the next regular meeting. Following review by the COE, staff will make necessary revisions and then present the report to the Planning Commission and City Council before initiating public review. Staff suggested that the COE hold a special workshop before the April 22nd meeting to thoroughly review and comment on the CAP. Rich Grunow, Community Development Director and, the CAP consultant will be available to respond to the COE comments and questions.

Peter Wilk suggested that there be an executive summary that sets forth the overall goals of the CAP. He clarified that staff is looking for the COE to review, and accept the CAP as proposed. Jacques Bertrand concurred with Peter Wilk, stating that a summary would be a benefit for the public. Kristin Sullivan emphasized that the CAP should include targets and timelines to accomplish the tasks set forth in the CAP. The COE can then take tasks from the CAP to develop a work plan for implementation of the CAP.

The COE discussed the need to use the Green Economy study that was prepared for the General Plan Update to further develop an implementable work program.

Jacques Bertrand stated that Daniel Kostelec has been discussing bike issues in Capitola with each councilmember. He suggested that the Commission invite Daniel to give the COE the same bike presentation.

5. ITEMS FOR THE NEXT AGENDA

Draft Climate Action Plan

Green Economy study

Bike Presentation

6. ADJOURNMENT: The commission adjourned to a Special Workshop Meeting on Monday, April 6, 2015 at 6:00 p.m. in the Community Room, 420 Capitola Avenue, Capitola, California.

Approved at the meeting of April 22, 2015

Danielle Uharriet
Environmental Projects Manager

COE CAP Comments and Responses

Comments from COE member Peter Wilk:

1. **Executive Summary.** This is a detailed comprehensive plan. An Executive Summary up front – much like what Chris Sentieri did in Appendix C - would be helpful.

RESPONSE: Staff can add an executive summary to the public review draft CAP if desired by the COE.

2. **Acronyms.** An acronym glossary would be helpful for the uninitiated reader (like me).

RESPONSE: Staff can add a glossary to the public review draft CAP if desired by the COE.

3. **Introduction is misleading.** The third paragraph states that the CAP establishes a strategy to meet a reduction target “required by state legislation.” However, as shown in Table 4-4 and stated in the third paragraph on page 5-2, the adjusted BAU (business as usual) projections already meet GHG (greenhouse gas) requirements without the need for local measures and therefore the City need take no action to be compliant.

RESPONSE: Capitola could meet its 2020 emission reduction target through the “adjusted business as usual” approach which accounts for state and federal programs and actions, but does not include any local measures. However, Capitola is not projected to meet its 2035 interim target nor its state mandated 2050 target, even with implementation of identified local programs and measures. Consequently, it will be important for the City to implement reasonable, effective, and timely GHG reduction measures in order to make meaningful progress toward long-range targets.

4. **Already compliant.** Because adjusted BAU projections show the City as already meeting requirements, it should be made clear that additional measures suggested for improving GHG reductions ARE NOT MANDATORY and therefore should be viewed and prioritized accordingly, especially when new *requirements* are being considered.

RESPONSE: The City is obligated to meet 2020 and 2050 reduction targets. While the 2020 forecast appears attainable solely through state and federal programs and actions, Capitola (as well as most other California jurisdictions) is not projected to meet its 2050 target without the development of transformational technologies. Accordingly, the City is required to take local actions to demonstrate that it has taken reasonable steps to become compliant with long-term targets.

- 5. Reduction targets are confusing.** Page 1-3 should reference Appendix B for clarification. Appendix B explains that the City chose to use statewide baseline data instead of researching actual 1990 historical levels. Were we not already on track to meet the 4.9% reduction goals based on adjusted BAU projections, I would think it worthwhile to estimate/calculate/extrapolate 1990 emissions because I suspect we already beat them.

RESPONSE: Staff will add a reference to Appendix B. For clarification: the City chose to use a 2010 baseline because data is not available to conduct an inventory of 1990 emission levels. Developing the data necessary for a 1990 inventory would have been time consuming and costly. Moreover, the City benefited from free 2010 baseline data provided by AMBAG for its three-county member agencies.

- 6. More detail on VMT (vehicle miles traveled) needed.** Figure 1.1 and page 1-5 point out that the biggest GHC culprit is VMT. In Appendix C, Bhupendra Patel estimates 302,528 miles per day. It would be interesting to review the calculation that created this number (RBF consulting for the City of Capitola for 2010) since it includes not just miles traveled within city limits but ½ the destination miles for commuters and excludes miles traveled through the City but not terminating there. I suspect quite a lot of assumptions were made and I think we should know what they were.

RESPONSE: Staff will provide a copy of the Origin-Destination study that was prepared for the General Plan Update and used to calculate transportation emissions.

- 7. Cross reference the “Moving Forward 2035 Monterey Bay” plan.** Page 2-10 states that we must be in accordance with this plan in order to receive grant funding. The CAP should spell out which actions are needed to be eligible for this funding. (And how much funding are we talking about?)

RESPONSE: Many state transportation and land use grant opportunities require applicant cities and counties to demonstrate a proposed project’s compliance with the adopted Metropolitan Transportation Plan (MTP) in order to qualify for grant funding. In other words, the plan or project for which grant funding is requested cannot be inconsistent with the MTP (the Moving Forward plan is the Monterey Bay region’s MTP). There are no specific City initiated actions that need to occur to ensure grant funding eligibility. Staff will revise the language in this paragraph to improve clarity.

Grant availability and funding amounts vary widely year-to-year depending on individual grant cycles, legislative initiatives, and budget constraints, and cannot be accurately forecasted.

- 8. Save the trees.** Page 2-13 is the first of several mentions of the need to preserve “long-lived plants” This is in conflict with the recommendation on page 7-19 to “allow removal of non-heritage trees” to provide better solar panel access. There may

be other reasons to allow tree removal. Reducing GHG doesn't seem to be one of them.

RESPONSE: Capitola currently has a tree protection ordinance which prohibits the removal of mature trees anywhere within the City unless: 1) the tree is dead, dying, or diseased; 2) the tree is a fruit-bearing specimen; or 3) the tree is causing substantial property damage which cannot be mitigated from root pruning. The draft CAP includes a measure to amend the City's ordinance to allow removal of trees if necessary to provide adequate solar access. If such an amendment is enacted, property owners would be required to demonstrate that removal of a tree is the only means to provide adequate solar access.

9. Natural gas reduction. Page 3-3 points out that residential natural gas use is another high contributor. This should be kept in mind when prioritizing actions. Efficient household energy use can have a big impact. Does Title 24 (ref page 4-7) already sufficiently cover this or does the City need to take additional action?

RESPONSE: The draft CAP includes several GHG reduction measures/actions which promote improved home energy efficiency which meet or exceed Title 24 standards. Residential natural gas efficiency is addressed in ENRG-1.2, Residential Solar Thermal, ENRG-2 Energy Upgrade California Whole Home Retrofit, and ENRG-3 Residential Weatherization.

10. Solid Waste. Page 4-2 mentions City compliance to California AB-341 but doesn't detail how we will should comply. Is that an effort separate from the CAP?

RESPONSE: AB341 requires California municipalities to achieve a 75% solid waste diversion rate by 2020. The City is actively working with its solid waste provider, GreenWaste, and other regional agencies to develop a plan to meet its waste diversion targets. The GHG reduction achieved through compliance with this state mandate is included in the City's GHG reduction forecast.

11. State and regional grants. Page 7-1 mentions eligibility for grants. What grants? Can we be specific? Shouldn't we target our actions specifically with these grants in mind?

RESPONSE: As previously noted, many state and federal grants, particularly those related to transportation improvements, require an agency demonstrate compliance with the adopted MTP and state climate change directives. The grants typically require regulatory compliance, not compliance with individual action items in an agencies CAP.

12. VMT -1. Ride sharing. How about a resident survey of commuters with the aim of alerting them as to who might be potential carpool buddies?

RESPONSE: Staff can add this suggestion as a potential action item and will coordinate with AMBAG and the Santa Cruz County Regional Transportation Commission (SCCRTC) to partner on commuter studies and/or surveys if desired by the COE.

13. VMT -2. Bus ridership. Suggest we explore the ridership to UCSC and Cabrillo potential benefits.

RESPONSE: VMT-2 includes a measure to Work with regional agencies to establish baseline values for vehicle trip makeup (origin/destination) for residents, businesses, and municipalities, and create baseline transportation numbers for in-town trips. Staff can add students to this measure if desired by the COE.

14. VMT-3. Bicycle ridership. I prefer the train tressel bike path idea over the VMT-6 Rail Commute option. Also, we talked about safe bike-to-school routes.

RESPONSE: The draft CAP includes measures to support both the Monterey Bay Sanctuary Trail (aka “rail trail”) and the passenger rail concept. SCCRTC is currently implementing segments of the trail and is studying the feasibility of a passenger rail project. The SCCRTC believes the projects are compatible and is proceeding with the goal of implementing both projects.

The draft CAP also includes a measure (VMT-7) to support safe routes to school programs.

15. VMT-4 Alternative modes. I like the idea of blocking off the village, perhaps just the esplanade, for farmers markets or other special events. Also, explore blocking the esplanade off permanently to eliminate traffic jams and route traffic efficiently through the village and up to the parking lots. (Big GHG savings)

RESPONSE: The idea of permanently closing the Esplanade to vehicular traffic has been debated at great length. The concept has been controversial with strong opinions both in favor and opposed to the idea.

This topic was most recently discussed during the General Plan Update process. The decision was to adopt the following General Plan action item:

Action MO-6.2 Esplanade Parking. When additional parking to serve the Village is provided in a new parking structure or equivalent location, initiate a study to assess the feasibility of converting existing parking on the Esplanade to publically accessible open space.

The COE should discuss whether it wishes to recommend the City Council adopt a CAP action item to consider permanently closing the Esplanade.

16. VMT-5 Electric vehicles. Are there (enough) charging stations in the village parking lots? How about free parking spots for electric vehicles only?

There are currently two electric vehicle charging stations in Beach and Village parking lot #1. There is typically at least one open charging station available; however, additional stations will likely be needed in the future to serve the growing number of electric vehicles.

The COE should discuss whether it wishes to recommend the City Council adopt a CAP action item to provide free parking for electric vehicles using the charging stations.

17. VMT-17. I like the idea of synchronization of traffic signals on 41st and further pursuit of the roundabout on Bay/Capitola Ave. Pursue village parking structure, again. I do NOT like the recommendation for increased vertical growth in the village. Not sure what the commercial uses in the area south of Capitola road means...add a Starbucks in the jewel box?

RESPONSE: VMT-7 includes a measure to:

Amend the Zoning Ordinance to encourage new development or significant redevelopment in the Village Mixed-Use zoning district to be vertical mixed-use (i.e., residential or office above ground-floor retail).

This is similar to General Plan Land Use Policy LU-6.6:

Encourage vertical mixed use (i.e. housing above ground floor commercial) as a way to increase the vitality and activity in the Village).

The intent of these policies is to encourage new and significant redevelopment projects in the Village to include ground-floor commercial uses and upper floor residences to maintain the Village's mixed commercial/residential character. The policy is not intended to allow or promote increased height or massing.

VMT-7 also includes a measure to:

Support efforts to attract resident-serving commercial uses in the area south of Capitola Road.

This measure is intended to apply to 41st Avenue, south of Capitola Road. Staff will clarify this measure accordingly.

18. Residential energy. We talked about promoting green building practices using local architects as our conduit.

RESPONSE: Staff intends to pursue all available outlets to promote green building practices, including outreach efforts and collaboration with local architects, planners, engineers, and builders. Staff will note this in the residential energy section of the plan.

19. ENGR-1. Solar. Do NOT place onerous solar requirements on home and business owners unnecessarily. Remember, we are already compliant.

RESPONSE: Based on previous feedback from stakeholders and the General Plan Advisory Committee (GPAC), the draft CAP proposes a primarily voluntary, incentive-based approach rather than imposing mandatory energy production and efficiency requirements. The COE should discuss whether it wants to recommend that the City Council adopt mandatory energy standards on Capitola homes and businesses.

20. ENGR-2 Energy efficiency. Do NOT place onerous energy requirements on home and business owners unnecessarily. Remember, we are already compliant. How about we instead promote “Star nights” where the city goes dark and we can all see the Milky Way?

RESPONSE: The COE should discuss whether it wishes to recommend inclusion of a “Star Nights” event as a CAP action item. The issue of voluntary, incentive-based vs. mandatory measures should also be discussed by the COE.

21. ENGR-5 Energy efficiency. Same comment as ENGR-2

RESPONSE: See above responses.

22. WW-1 Water Conservation. The state and water districts already have this covered. However, planting green lawns on city property in the middle of the drought sends a bad message (just sayin’).

RESPONSE: It’s true that state codes and local water districts already implement many, but not all, of the water conservation measures listed in WW-1. Staff will add a caveat to this section noting that City action may not be necessary if other state or water district regulations are already in effect.

After significant debate, the City Council recently voted to reinstall the lawn at Esplanade Park because it is a high-demand area frequently used by beach visitors. To mitigate for the water used in this area, the Council also directed staff to capture used shower water to irrigate the Esplanade Park lawn and to remove grass from Nobel Gulch Park, Jade Street Park, and Monterey Park.

23. WW-2 Water Recycling. Resurrect the rain barrel program again next year. (I’ll get one this time)

RESPONSE: The City Council will consider offering the program again this fall.

24. SW-2 Food Waste. Create a compost barrel program similar to the rain barrel program?

RESPONSE: The City was able to offer the rain barrel program at a low cost to the City through a partnership with Rain Water Solutions, a private company which works directly with municipalities to offer small residential rain barrels at reduced costs. Rain Water Solutions also administered the program, managed program funds and accounting, and provided a free website with program information. Staff is not aware of any available low-cost compost programs with administrative support like the rain barrel program.

GreenWaste currently accepts some food waste (fruits, vegetables) in its green (yard) waste bins and there have been regional discussions about initiating a broader residential compost program.

The COE should discuss whether it wishes to recommend that the City Council add a CAP action item to consider or implement a subsidized residential composting program.

25. Appendix C. There's a passing mention of sea level rising. Any thoughts on constructing (better) emergency sea walls for storm surges?

RESPONSE: Depot Hill residents formed a Geologic Hazard Abatement District (GHAD) many years ago with the intent of raising funds via a private tax assessment district to construct a new sea wall. It is staff's understanding that the GHAD has been dormant and has no near-term plans to pursue a sea wall. Moreover, sea walls require permits from the California Coastal Commission, who generally discourage the construction of new sea walls and coastal armoring.

COMMENTS RECEIVED AT APRIL 6, 2015 COE MEETING:

- Reference the Capitola Green Economy report (aka Green Jobs report) in the CAP

RESPONSE: Staff will add a reference to the Green Economy Report in the CAP.

- Provide timing assumptions for implementing various GHG reduction measures to COE

RESPONSE: Implementation schedules are shown under each reduction measure summary (example shown below) and on pages 118-119 of Appendix A.

REDUCES GHG EMISSIONS BY:

- Reducing City use of both natural gas and electricity generated from non-renewable sources.

COST EFFECTIVENESS: HIGH

The City would incur costs from time and money spent to conduct energy audits and implement energy efficiency upgrades; however, because energy efficiency upgrades can significantly reduce energy usage, many individual energy efficiency improvements could potentially realize long-term costs savings. Given that this measure has strong potential to result in significant returns through energy cost savings, it is deemed highly cost effective.

ACTION ITEMS AND RESPONSIBLE PARTIES:

City Staff:

- Coordinate internally, as well as with PG&E and other regional partners to conduct energy audits for City facilities, and identify priority projects and programs to reduce municipal energy use.
- Collaborate to implement and involve all staff in energy efficiency programs and facility upgrades.

IMPLEMENTATION SCHEDULE: 2015–2034; potentially ongoing.

- Provide tentative priority list to COE

RESPONSE: Action items have been prioritized through the implementation schedule with the goal of completing measures which offer substantial GHG reductions at low costs to the City. Recognizing the City's limited resources, staff has begun working toward some measures identified in the CAP, including:

- Development of a Green Energy Incentive Program which provides over-the-counter permitting and waives all City permit fees for private solar installations, solar hot water heaters, and electric vehicle charging stations.
- Amended the Green Building Fund to allow funds to be used for climate action planning and water efficiency activities.
- Enrolled in the Solar Roadmap program which offers participating agencies with a host of free services to promote solar energy in their community, including: access to a comprehensive digital library of best practices, how-to-guides, ordinance and procedure templates, financing tools and programs, solar market development programs, and free technical support. A Capitola Roadmap has been developed and can be viewed at: <http://my.solarroadmap.com/ahj/city-of-capitola/view>
- Enrolled in the Home Energy Renovation Opportunity (HERO) program. The HERO program is a Property Assessed Clean Energy Program (PACE) which enables property owners to finance renewable energy, water efficiency improvements, and electric vehicle charging systems through annual property assessments. The program is free to join, entirely voluntary for residents, and has realized great success throughout California. <https://www.heroprogram.com/>
- As part of the Solar Roadmap program, staff is currently investigating participation in the SEED Fund program which provides public agencies with an opportunity to install solar projects at reduced costs through collaborative procurement and by deferring upfront costs through power purchase agreements. <http://www.solarroadmap.com/regional-initiatives/seed/>

- Staff is currently drafting amended Green Building Guidelines based on proposed action items in the draft CAP. The Guidelines will be presented to the City Council shortly after the CAP is adopted.
- Staff has begun investigating potential sites for a community garden or “food forest” and has identified potential private partners to implement a project. It is anticipated that this item will be discussed with the COE at a future date.
- Staff intends to begin developing a “sustainability” page on its website to serve as a repository for information about climate action planning, water and energy conservation, green building practices, available programs and incentives, and links to local organizations, events, and resources.
- Staff will prepare new and updated applications, forms, inspection checklists, and informational handouts related to green energy projects (solar, e.v. charging stations, grey water systems, etc). All materials will be posted on the website.

- Page 1-1: Add the local green economy in the first sentence of the second paragraph

RESPONSE: Staff will add a reference to the local green economy.

- Page 1-5: note potential COE role in implementing/monitoring of the CAP

RESPONSE: Staff will note the COE as a partner in implementing various CAP action items.

- Page 1-6: add “natural” before open space references (global comment)

RESPONSE: Staff will revise references to open spaces to clarify that it refers to natural open spaces and/or undeveloped open spaces (parks, areas planted with ornamentals, etc), as appropriate.

- Chapter 4: acknowledge that Capitola intends to implement local GHG reduction measures which go beyond “adjusted business as usual”

RESPONSE: Staff will add this clarification.

- Consider showing the projected GHG reductions attributable to each individual measure as a percentage of the City’s forecasted reduction.

RESPONSE: Table 6-1 on pages 6-5 and 6-6 shows the percentages of projected local GHG reductions. Measures not listed on the table provide very small or incalculable reductions.

- Summarize the City’s implementation strategy and note the COEs role

RESPONSE: Staff will add a discussion of the City’s implementation strategy to the CAP.

- Staff to research and provide examples of other cities who have adopted point-of-sale energy efficient upgrade requirements.

RESPONSE: Staff will research this and will provide examples to the COE.

- Provide Zoning Code update schedule to COE once approved by the City Council

RESPONSE: The Zoning Code update schedule was discussed at the April 9th City Council meeting. The process will initiate with a joint Planning Commission/City Council meeting on April 30th at 6:00 pm. The Planning Commission will hold special meetings dedicated to discussing the Zoning Code update on May 18th, May 21st, June 15th, June 22nd, July 20th, and July 30th. All meetings will begin at 6:00 pm and will be held in the Council Chambers.

This appendix outlines the assumptions, data, sources, coefficients, models and modeling outputs, and supporting calculations behind a) the Business As Usual (BAU) and Adjusted Future Year Greenhouse Gas (GHG) Emission Forecasts presented within this document, and b) estimates of projected greenhouse gas emission reductions associated with planned or existing state and local actions outlined in this document.

These projections were facilitated using resources made available (at no cost) to California jurisdictions (and those working on their behalf) by The Statewide Energy Efficiency Collaborative (SEEC), an organization devoted to helping California cities and counties reduce greenhouse gas emissions and energy consumption. SEEC is a collaboration between three statewide nonprofit organizations and California's four investor-owned utilities: ICLEI Local Governments for Sustainability USA, The Institute for Local Government (ILG), The Local Government Commission (LGC), Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and the Southern California Gas Company (SCGC).

The primary resource used to facilitate this analysis was SEEC-ClearPath California. SEEC-ClearPath California, is a cloud-based suite of climate and energy management tools developed by ICLEI for the California SEEC Program. These tools were created to assist local governments in developing customized plans for mitigating local contributions to climate change, as well as tracking and reporting on the performance of those plans over time. SEEC-ClearPath California provides information and quantification tools to: conduct or update GHG Inventories, create and update Future Year GHG Forecasts, calculate projected GHG reductions for a breadth of emission reduction strategies, and more.

City-specific data was entered into the SEEC-ClearPath California software and combined with emission coefficients, local growth rates (i.e.- Population, Housing, Employment), carbon intensity modifiers (i.e. California's Renewable Energy Portfolio regulations), reduction targets, and measure implementation metrics (ie- scope, duration, useful life) to create actionable projections of future GHG emissions, as well as anticipated reductions in emissions from state and local action.

The Business as Usual Future Year GHG Forecasts were developed using a) the 2010 Baseline Capitola Greenhouse Gas Inventory provided by the Association of Monterey Bay Area Governments (AMBAG), b) growth projections for Population, Housing, and Employment growth for the City of Capitola provided by DC&E/Placeworks, c) carbon-intensity modifiers for state-level actions (including: the Renewable Portfolio Standard, and Pavley I and II), and d) the Forecast module of SEEC ClearPath California.

The projected GHG reductions for each of the included local reduction measures were calculated using models developed by ICLEI- Local Governments for Sustainability and included in the a) SEEC- ClearPath California platform, b) the SEEC- Climate and Energy Management Suite (CEMS), and c) the Climate and Air Pollution Planning Assistant (CAPPA) version 1.5. The calculators utilized are indicated for each measure.

The Adjusted Future Year GHG Forecast accounting for all reductions associated with the included local reduction measures was calculated using the SEEC- ClearPath California Planning Module.

It is important to note here that developing a climate action plan is a forward looking exercise and as such, the calculations made are inherently speculative and require a number of assumptions about external drivers technology development, state and local government action, and human behavior. Calculations made in the Forecasting and Planning modules of SEEC- ClearPath CA are no different. This analysis is meant to help illustrate the scope of effort that would be required to meet chosen reduction targets, to help determine which reduction strategies are most likely to be most effective within the City of Capitola's unique circumstances, and to help design a manageable and logical implementation plan.

This analysis also served to develop reasonable performance metrics for the included reduction measures, which will help City staff manage the successful implementation of the Climate Action Plan. The SEEC-ClearPath California platform includes a user-friendly Monitoring and Implementation Module, which will assist City staff in tracking and reporting the progress of individual measures, as well as the comprehensive plan overall.

The calculations, estimates, assumptions and qualitative and/or contextual information provided in this appendix include (but are not limited to): the source consumption data (kWh, therms, vehicle miles, tons of waste, gallons of water, etc), projected growth rates, models and calculators utilized, memos and correspondence, historic and current market trend data, any default values used and their sources, emission factors, and conversion metrics that form the basis of the projected performance modeled for each included reduction measure, as well as the resulting Business As Usual and Adjusted Future Year GHG Forecasts.

Reference #	Reduction Measure Name	Corresponding Reference #'s from Initial Draft List (from DC&E/Placeworks)	Start year	End year
Energy Measures				
ENRG-1.1a	Increased Residential Solar Photovoltaic Phase I	RE-1, RE-2, RE-3, RE-4, RE-5, RE-6, RE-7, RE-10, RE-11	2015	2019
ENRG-1.1b	Increased Residential Solar Photovoltaic Phase II	RE-1, RE-2, RE-3, RE-4, RE-5, RE-6, RE-7, RE-10, RE-11	2020	2024
ENRG-1.2	Increased Residential Solar Thermal	RE-1, RE-2, RE-3, RE-4, RE-5, RE-6, RE-7, RE-10, RE-11	2020	2024
ENRG-1.3a	Increased Non-Residential Solar Photovoltaic- Phase I	RE-1, RE-2, RE-3, RE-4, RE-5, RE-6, RE-7, RE-10, RE-11	2018	2022
ENRG-1.3b	Increased Non-Residential Solar Photovoltaic- Phase II	RE-1, RE-2, RE-3, RE-4, RE-5, RE-6, RE-7, RE-10, RE-11	2020	2024
ENRG-2.1a	EUC Whole Home Retrofit- Electricity Savings Phase I	GB-12, GB-15, GB-17, GB-19	2015	2019
ENRG-2.1b	EUC Whole Home Retrofit- Electricity Savings Phase II	GB-12, GB-15, GB-17, GB-19	2020	2029
ENRG-2.2a	EUC Whole Home Retrofit- Nat Gas Savings Phase I	GB-12, GB-15, GB-17, GB-19	2015	2019
ENRG-2.2b	EUC Whole Home Retrofit- Nat Gas Savings Phase II	GB-12, GB-15, GB-17, GB-19	2020	2029
ENRG-2.3a	Residential Energy Efficiency Education- Phase I	GB-12, GB-15, GB-19, WW-9, WW-10, CA-7	2020	2024
ENRG-2.3b	Residential Energy Efficiency Education- Phase II	GB-12, GB-15, GB-19, WW-9, WW-10, CA-7	2030	2032
ENRG-3	Residential Weatherization Programs	GB-15, GB-18, GB-19	2021	2025
ENRG-4.1a	Community Choice Aggregation- Residential Phase I	RE-7, RE-7.2, RE-7.1 through RE-7.4, RE-8, RE-9, RE-10	2020	2024
ENRG-4.1b	Community Choice Aggregation- Residential Phase II	RE-7, RE-7.2, RE-7.1 through RE-7.4, RE-8, RE-9, RE-10	2025	2029
ENRG-4.1c	Community Choice Aggregation- Residential Phase III	RE-7, RE-7.2, RE-7.1 through RE-7.4, RE-8, RE-9, RE-10	2030	2034
ENRG-4.2a	Community Choice Aggregation- Non-Residential Phase I	RE-7, RE-7.2, RE-7.1 through RE-7.4, RE-8, RE-9, RE-10	2020	2024
ENRG-4.2b	Community Choice Aggregation- Non-Residential Phase II	RE-7, RE-7.2, RE-7.1 through RE-7.4, RE-8, RE-9, RE-10	2025	2029
ENRG-4.2c	Community Choice Aggregation- Non-Residential Phase III	RE-7, RE-7.2, RE-7.1 through RE-7.4, RE-8, RE-9, RE-10	2030	2034
ENRG-5.1	AMBAG Energy Watch Energy Efficiency- Electricity Savings	GB-7.4, GB-11, GB-12, GB-13, GB-15, GB-19, GB-22, GB-24, CA-7	2013	2023
ENRG-5.2	PG&E Energy Efficiency Programs- Electricity Savings	GB-1 through GB-5, GB-7.4, GB-7.5, GB-7.6, GB-7.7, GB-11, GB-12, GB-13, GB-16, GB-19	2013	2023
ENRG-5.3	PG&E Energy Efficiency Programs- Natural Gas Savings	GB-1 through GB-5, GB-7.4, GB-7.5, GB-7.6, GB-7.7, GB-11, GB-12, GB-13, GB-16, GB-19	2013	2023
ENRG-5.4	Hospitality EE Campaign- Electricity Savings	GB-5, GB-13.1, GB-16	2015	2019
ENRG-5.5	Hospitality EE Campaign- Natural Gas Savings	GB-5, GB-13.1, GB-16	2015	2019
ENRG-5.6	Retail EE Campaign- Electricity Savings	GB-5, GB-13.2, GB-16	2020	2024
ENRG-5.7	Retail EE Campaign- Natural Gas Savings	GB-5, GB-13.2, GB-16	2020	2024
ENRG-6	Right Lights Energy Efficiency Program- Electricity Savings	GB-7.4, GB-7.7, GB-19	2013	2023
ENRG-7.1a	Green Business Certification- Certified To-date: Electricity	P-1.1, P-1.2, P-1.4, CA-2, CA-3, CA-4, CA-7	2014	2023
ENRG-7.1b	Green Business Certification- Expansion: Electricity	P-1.1, P-1.2, P-1.4, CA-2, CA-3, CA-4, CA-7	2017	2021
ENRG-7.2	Green Business Certification- Certified To-date: Water Savings	P-1.1, P-1.2, P-1.4, CA-2, CA-3, CA-4, CA-7	2014	2023

Solid Waste Reduction Measures				
SW-1a	Increased Community-wide Recycling- Phase I	SW-1, SW-2, SW-8, SW-9, SW-10, SW-14	2016	2017
SW-1b	Increased Community-wide Recycling- Phase II	SW-1, SW-2, SW-8, SW-9, SW-10, SW-14	2019	2020
SW-2a	Increased Community-wide Food Waste Diversion- Phase I	SW-6, SW-7, SW-14	2016	2017
SW-2b	Increased Community-wide Food Waste Diversion- Phase II	SW-6, SW-7, SW-14	2019	2020

VMT Reduction Measures				
VMT-1a	Careshare Program- VMT Reductions Phase I	TR-12.3, TR-12.6	2015	2019
VMT-1b	Careshare Program- VMT Reductions Phase II	TR-12.3, TR-12.6	2020	2024
VMT-2a	Increased Bus Ridership- Phase I	TR-7, TR-11, TR-11.1, TR-12.1, TR-14	2015	2019
VMT-2b	Increased Bus Ridership- Phase II	TR-7, TR-11, TR-11.1, TR-12.1, TR-14	2020	2024
VMT-3a	Improved Bike Infrastructure- Phase I	TR-12.5, TR-16, TR-16.1 through TR-16.9, TR-17, TR-18, TR-19, TR-20	2015	2024
VMT-3b	Improved Bike Infrastructure- Phase II	TR-12.5, TR-16, TR-16.1 through TR-16.9, TR-17, TR-18, TR-19, TR-20	2025	2034
VMT-4	Low-carbon Transportation Education	TR-4, TR-12.4, TR-12.2, TR-12.4, TR-12.5, TR-12.7, TR-2	2018	2020
VMT-5.1a	Support Local Uptake of Electric Vehicles- Phase I	TR-21, TR-22, TR-12.6	2020	2034
VMT-5.1b	Support Local Uptake of Electric Vehicles- Phase II	TR-21, TR-22, TR-12.6	2025	2039
VMT-5.2a	Electricity Consumed by New Electric Vehicles- Phase I	TR-21, TR-22, TR-12.6	2020	2034
VMT-5.2b	Electricity Consumed by New Electric Vehicles- Phase II	TR-21, TR-22, TR-12.6	2025	2039
VMT-6a	Light Passenger Rail- VMT Reduction Phase I	TR-13.1, TR-8, TR-13	2020	2050
VMT-6b	Light Passenger Rail- VMT Reduction Phase II	TR-13.1, TR-8, TR-13	2025	2035
VMT-7	Regional Transportation Plan/Sustainable Communities Strategy- VMT Reductions	LU-1 through LU-10, ED-1 through ED-10, TR-1, TR-2, TR-3, TR-5, TR-6, TR-9, TR-10, TR-11, TR-12, TR-13, TR-13.2, TR-13.3, TR-15, TR-15.1, TR-15.2, TR-17, TR-18, TR-19, TR-20	2016	2035

Water Conservation Measures				
WW-1	Water Efficiency Programs	WW-1 Thru WW-10	2035	2050

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Ref #	Name	Incremental Annual CO2e Reduction															
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
EMRG-1.1a	Increased Residential Solar Photovoltaic Phase I	0	0	0	0	-2	-2	-2	-2	-2	0	0	0	0	0	0	0
EMRG-1.1b	Increased Residential Solar Photovoltaic Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-1.2	Increased Residential Solar Thermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-1.3a	Increased Non-Residential Solar Photovoltaic- Phase I	0	0	0	0	0	0	0	0	0	-3	-3	-2	0	0	0	0
EMRG-1.3b	Increased Non-Residential Solar Photovoltaic- Phase II	0	0	0	0	0	0	0	0	0	0	0	-15	-14	-13	0	0
EMRG-2.1a	Energy Upgrade California Whole Home Retrofit Program- Electricity Savings Phase I	0	0	0	0	-2	-2	-2	-1	-1	0	0	0	0	0	0	0
EMRG-2.1b	Energy Upgrade California Whole Home Retrofit Program- Electricity Savings Phase II	0	0	0	0	0	0	0	0	0	-4	-4	-3	-3	0	0	0
EMRG-2.2a	Energy Upgrade California Whole Home Retrofit Program- Natural Gas Savings Phase I	0	0	0	0	-47	-47	-47	-47	-47	0	0	0	0	0	47	47
EMRG-2.2b	Energy Upgrade California Whole Home Retrofit Program- Natural Gas Savings Phase II	0	0	0	0	0	0	0	0	0	0	0	-117	-117	-117	-117	-117
EMRG-2.3a	Residential Energy Efficiency Education- Phase I	0	0	0	0	0	0	0	0	0	0	0	-54	-53	-53	-52	0
EMRG-2.3b	Residential Energy Efficiency Education- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-3	Residential Weatherization Programs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-4.1a	Community Choice Aggregation- Residential Phase I	0	0	0	0	0	0	0	0	0	0	0	-34	-34	-34	0	0
EMRG-4.1b	Community Choice Aggregation- Residential Phase II	0	0	0	0	0	0	0	0	0	0	0	-142	-133	-125	-117	-110
EMRG-4.1c	Community Choice Aggregation- Residential Phase III	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-4.2a	Community Choice Aggregation- Non-Residential Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-4.2b	Community Choice Aggregation- Non-Residential Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-4.2c	Community Choice Aggregation- Non-Residential Phase III	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-4.1c	AMBAG Energy Watch Energy Efficiency Programs- Electricity Savings	0	0	-7	-7	-6	-6	-5	-5	-5	-5	-4	-4	4	3	3	3
EMRG-5.2	PG&E Energy Efficiency Programs- Electricity Savings	0	0	-63	-60	-57	-53	-50	-47	-44	-42	-40	-38	0	34	31	28
EMRG-5.3	PG&E Energy Efficiency Programs- Natural Gas Savings	0	0	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	0	11	11	11
EMRG-5.4	Hospitality EE Campaign- Electricity Savings	0	0	0	0	-25	-24	-22	-21	-20	0	0	0	0	0	13	12
EMRG-5.5	Hospitality EE Campaign- Natural Gas Savings	0	0	0	0	-7	-7	-7	-7	-7	0	0	0	0	0	0	7
EMRG-5.6	Retail EE Campaign- Electricity Savings	0	0	0	0	0	0	0	0	0	0	0	-42	-39	-37	-36	0
EMRG-5.7	Retail EE Campaign- Natural Gas Savings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-6	Right Lights Energy Efficiency Program- Electricity Savings	0	0	0	-31	-29	-27	-26	-24	-23	-21	-20	-19	-18	0	16	15
EMRG-7.1a	Green Business Certification Program- Certified To-date: Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-7.1b	Green Business Certification Program- Certified To-date: Water Savings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-7.2	Green Business Program- Certified To-date: Water Savings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMR-6	Increased Community-wide Recycling- Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMR-6	Increased Community-wide Recycling- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMR-2a	Increased Community-wide Food Waste Diversion- Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMR-2a	Increased Community-wide Food Waste Diversion- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMR-2b	Increased Community-wide Food Waste Diversion- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-1.a	Carshare Program- VMT Reductions Phase I	0	0	0	0	-28	-28	-27	-27	-26	0	0	0	0	0	0	0
VMR-1.b	Carshare Program- VMT Reductions Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-2a	Increased Bus Ridership- Phase I	0	0	0	0	-43	-42	-41	-41	-40	0	0	0	0	0	0	35
VMR-2b	Increased Bus Ridership- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
VMR-3a	Improved Bike Infrastructure- Phase I	0	0	0	0	-21	-20	-20	-19	-19	-19	-18	-18	-18	-17	0	0
VMR-3a	Improved Bike Infrastructure- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-4	Low-carbon Transportation- Community Engagement & Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-5.1a	Support Local Uptake of Electric Vehicles- Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-5.1b	Support Local Uptake of Electric Vehicles- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-5.2a	Electricity Consumed by New Electric Vehicles- Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-5.2b	Electricity Consumed by New Electric Vehicles- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156	0
VMR-5a	Light Passenger Rail- VMT Reduction Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-5b	Light Passenger Rail- VMT Reduction Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VMR-7	Regional Transportation Plans/Sustainable Communities Strategy- VMT Reductions	0	0	0	0	0	-221	-217	-213	-210	-206	-201	-197	-193	-190	-186	-183
VMR-1	Water Efficiency Programs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ref #	Name	Peak Annual MTCO2e Reduction	Cumulative Net Annual MTCO2e Reduction by Year																										
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027										
EMRG-11a	Increased Residential Solar Photovoltaic Phase I	-10	0	0	0	0	-2	-4	-6	-8	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	
EMRG-11b	Increased Residential Solar Photovoltaic Phase II	-50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-12	Increased Residential Solar Thermal	-25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-13a	Increased Non-Residential Solar Photovoltaic- Phase I	-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-13b	Increased Non-Residential Solar Photovoltaic- Phase II	-66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-21a	Energy Upgrade California Whole Home Retrofit Program- Electricity Savings Phase I	-8	0	0	0	0	-2	-4	-6	-7	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
EMRG-21b	Energy Upgrade California Whole Home Retrofit Program- Electricity Savings Phase II	-28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-22a	Energy Upgrade California Whole Home Retrofit Program- Natural Gas Savings Phase I	-235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-22b	Energy Upgrade California Whole Home Retrofit Program- Natural Gas Savings Phase II	-1170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-23a	Residential Energy Efficiency Education- Phase I	-266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-23b	Residential Energy Efficiency Education- Phase II	-235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-3	Residential Weatherization Programs	-170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-41a	Community Choice Aggregation- Residential Phase I	-627	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-41b	Community Choice Aggregation- Residential Phase II	-850	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-41c	Community Choice Aggregation- Residential Phase III	-815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-42a	Community Choice Aggregation- Non-Residential Phase I	-968	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-42b	Community Choice Aggregation- Non-Residential Phase II	-1444	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-42c	Community Choice Aggregation- Non-Residential Phase III	-1661	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-51	AMBA Energy Watch Energy Efficiency Programs- Electricity Savings	-55	0	0	0	-7	-14	-20	-26	-32	-37	-42	-47	-51	-55	-55	-55	-55	-55	-55	-55	-55	-55	-55	-55	-55	-55	-55	-55
EMRG-52	PG&E Energy Efficiency Programs- Electricity Savings	-494	0	0	0	-63	-123	-180	-233	-283	-330	-374	-416	-456	-494	-460	-429	-401	-376	-346	-313	-279	-244	-208	-171	-134	-96	-58	
EMRG-53	PG&E Energy Efficiency Programs- Natural Gas Savings	-110	0	0	0	-11	-22	-33	-44	-55	-66	-77	-88	-99	-110	-110	-110	-110	-110	-110	-110	-110	-110	-110	-110	-110	-110	-110	-110
EMRG-54	Hospitality EE Campaign- Electricity Savings	-112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-55	Hospitality EE Campaign- Natural Gas Savings	-35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-56	Retail EE Campaign- Electricity Savings	-188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-57	Retail EE Campaign- Natural Gas Savings	-40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-6	Right Lights Energy Efficiency Program- Electricity Savings	-238	0	0	0	-31	-60	-87	-113	-137	-160	-181	-201	-220	-238	-238	-222	-207	-194	-182	-170	-157	-144	-131	-118	-105	-92	-79	
EMRG-71a	Green Business Certification Program- Certified To-date: Electricity	-138	0	0	0	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138
EMRG-71b	Green Business Certification Program- Expansion: Electricity	-189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMRG-72	Green Business Program- Certified To-date: Water Savings	-1	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
SM4a	Increased Community-wide Recycling- Phase I	-219	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SM4b	Increased Community-wide Recycling- Phase II	-393	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SM2a	Increased Community-wide Food Waste Diversion- Phase I	-129	0	0	0	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129
SM2b	Increased Community-wide Food Waste Diversion- Phase II	-181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SM2c	Increased Community-wide Food Waste Diversion- Phase III	-181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF1a	Careshare Program- VMT Reductions Phase I	-36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF1b	Careshare Program- VMT Reductions Phase II	-124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF2a	Increased Bus Ridership- Phase I	-207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF2b	Increased Bus Ridership- Phase II	-379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF3a	Improved Bike Infrastructure- Phase I	-189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF3b	Improved Bike Infrastructure- Phase II	-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF4	Low-carbon Transportation- Community Engagement & Education	-138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF5a	Support Local Uptake of Electric Vehicles- Phase I	-217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF5b	Support Local Uptake of Electric Vehicles- Phase II	-1971	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF5.2a	Electricity Consumed by New Electric Vehicles- Phase I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF5.2b	Electricity Consumed by New Electric Vehicles- Phase II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF5.2c	Electricity Consumed by New Electric Vehicles- Phase III	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF6a	Light Passenger Rail- VMT Reduction Phase I	-1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF6b	Light Passenger Rail- VMT Reduction Phase II	-767	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WMF7	Regional Transportation Plan/Sustainable Communities Strategy- VMT Reductions	-3742	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WM1	Water Efficiency Programs	-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ref #	Cumulative Net Annual MTCO2e Reduction by Year																			Total MTCO2e Reduced Over Life of Measure							
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046		2047	2048	2049	2050			
EMRG-11a	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-340	
EMRG-11b	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-49	-48	-47	-46	-45	-45	-45	-45	-45	-45	-45	-45	-45	-45	-1,441
EMRG-12	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-20	-15	-10	-5	0	0	0	0	0	0	0	0	0	0	-500
EMRG-13a	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-13	-406
EMRG-13b	-66	-66	-66	-66	-66	-66	-66	-66	-66	-66	-66	-64	-62	-60	-58	-56	-56	-56	-56	-56	-56	-56	-56	-56	-56	-56	-1,832
EMRG-21a	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-200
EMRG-21b	-26	-28	-27	-26	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-702
EMRG-22a	-47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2,350
EMRG-22b	-1053	-1170	-1053	-936	-819	-702	-585	-468	-351	-234	-117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-11,700
EMRG-23a	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-266	-4,569
EMRG-23b	0	0	0	-80	-138	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-235	-3,578
EMRG-3	-170	-170	-170	-170	-170	-170	-170	-170	-170	-170	-170	-137	-104	-71	-38	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-2,615
EMRG-41a	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-627	-18,263
EMRG-41b	-714	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-850	-20,580
EMRG-41c	0	0	-244	-439	-594	-717	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-815	-15,849
EMRG-42a	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-968	-28,219
EMRG-42b	-1193	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-1444	-34,839
EMRG-42c	0	0	-467	-855	-1176	-1440	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-1661	-32,175
EMRG-51	-40	-38	-37	-36	-35	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-1,370
EMRG-52	-354	-334	-318	-305	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-287	-11,884
EMRG-53	-55	-44	-33	-22	-11	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1,210
EMRG-54	-66	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-57	-2,491
EMRG-55	-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-350
EMRG-56	-188	-188	-172	-160	-150	-142	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-136	-4,459
EMRG-57	-40	-40	-32	-24	-16	-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-400
EMRG-6	-171	-161	-153	-147	-142	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-5,729
EMRG-71a	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-138	-4,764
EMRG-71b	-149	-132	-132	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108	-4,260
EMRG-72	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-19
SM-1a	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-7,665
SM-1b	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-12,183
SM-2a	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-4,515
SM-2b	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-181	-5,651
SM-2c	-136	-136	-115	-94	-73	-52	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-2,651
WFR-1a	-124	-124	-124	-124	-124	-124	-104	-84	-64	-44	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-2,201
WFR-1b	-69	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-36	-2,336
WFR-2a	-379	-379	-313	-248	-184	-121	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-59	-4,916
WFR-2b	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-189	-5,985
WFR-3a	-8	-10	-12	-14	-16	-18	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-413
WFR-4	-138	-138	-138	-138	-138	-138	-102	-67	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-32	-2,615
WFR-51a	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-217	-6,399
WFR-51b	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-1971	-51,246
WFR-52a	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	645
WFR-52b	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	4,056
WFR-53a	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-1005	-31,155
WFR-53b	-293	-363	-432	-500	-568	-635	-701	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-767	-16,210
WFR-7	-2572	-2745	-2916	-3085	-3252	-3417	-3580	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-3742	-97,563
WFR-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-128