



MEMO

To: Bill King
CITY OF MERCED

From: Jennifer Venema

Cc: Tammy Seale, Eli Krispi, Chris Read, Xico Manarolla, Pam Johns, and Jeanine Cavalli, PMC

Date: June 4, 2015

Re: Revised Draft Technical Memorandum 4: Climate Action Plan Monitoring Approach

We're happy to provide Draft Technical Memo 4 (TM-4), Climate Action Plan Monitoring Approach. We look forward to your input. We anticipate completing additional revisions to TM-4 following input from the Focus Group at the June 11, 2015, meeting.

Please contact me with any questions (jvenema@pmcworld.com or 916-517-4407).

Introduction

Achieving the Climate Action Plan (CAP) reduction goal by 2020 is a challenging task requiring a coordinated work effort. This memo presents the City's work plan to achieve emissions reduction goals, monitor implementation, and demonstrate progress. The City will implement the CAP using a work plan, which is sometimes referred to as the Programmatic Climate Action Plan (PCAP). Recognizing that the CAP is a strategic plan that may evolve over time, this work plan provides an initial framework and a means for City staff to revisit CAP measures and respond to new opportunities or successes. The memo includes the following sections:

- Section I: Implementation Approach
- Section II: Implementation Matrix
- Section III: Monitoring Tool
- Section IV: Performance-based Development

Section I: Implementation Approach

Recommended City Implementation Actions

The CAP work plan, or the PCAP, will include the following programs and action items to guide City staff's implementation.

Implementation Program 1: The City will integrate CAP measures and actions into existing policies and programs, including revising other local and regional plans, developing new programs, and initiating new activities together with local leaders and partners.

Actions to support Implementation Program I:

- Adhere to the CAP Implementation Matrix, including integration of CAP measures and action items into departmental work to guide CAP implementation (see Section II).
- As part of the annual monitoring process, update action priorities.
- Encourage and incentivize voluntary participation in programs to reduce greenhouse gas (GHG) emissions with implementation of CAP measures.
- Use the Project Options checklists to guide the design of new development projects for consistency with the CAP through the permitting process, including use of the visual guidance in the Unified Design Manual (UDM), which further illustrates key CAP concepts for new development.

Implementation Program 2: Seek and develop collaborative partnerships with agencies and community groups that support Climate Action Plan implementation.

Actions to support Implementation Program 2:

- Continue formal membership and participate in local and regional organizations that provide tools and support for energy efficiency, energy conservation, GHG emissions reductions, adaptation, public information, and implementation of this plan.
- Partner with community leaders and partners to track program successes, such as the San Joaquin Valley Air Pollution Control District, Merced Unified Public School District, UC Merced, PG&E, and Merced Irrigation District (MID).
- Ongoing collaboration may also yield new funding or staff resources that can be leveraged to provide regional benefit.

Implementation Program 3: Secure necessary funding to implement the Climate Action Plan.

Actions to support Implementation Program 3:

- Identify grant funding sources for priority CAP measures as part of annual reporting, and key staff responsible for identifying these funding sources.
- Include information on CAP program successes in department work planning, and other plans as appropriate.
- Identify and strategize regional, state, and federal programs that provide staff resources or funding for issues addressed by CAP measures.

Implementation Program 4: Monitor and report progress toward target achievement.

Actions to support Implementation Program 4:

- Identify key staff responsible for annual reporting and monitoring.
- Use the monitoring and reporting tool to assist with annual reports (see Section II).
- Monitor annual demographic changes in comparison to General Plan buildout expectations as included in the CAP, allowing staff to gauge actual growth in GHG emissions versus anticipated growth progress toward 2020 emission targets.
- Prepare a progress report for review and consideration by the City Manager.

Implementation Program 5: Update the baseline emissions inventory and Climate Action Plan every five years.

Actions to support Implementation Program 5:

- Prepare a 2014 emissions inventory or other recent year no later than 2016.

- Review and monitor evolving state guidance for post-2020 targets for 2030, 2050, or other horizon years identified by the state, as new legislation and guidance is available.
- By 2018, review and consider adoption of post-2020 reduction targets consistent with long-term state GHG reduction goals.
- Update the CAP no later than 2018 to incorporate new technologies and measures to reduce emissions.
- Update and amend the CAP, as necessary.

Section II: Implementation Matrix

Table I shows a framework for how reduction measures will be summarized in terms of implementation priority, time frame, potential reductions, responsible city departments, and applicability.

- **Implementation priority:** The relative importance of each measure to be implemented based on the following five criteria:
 - Annual GHG reduction (effectiveness)
 - Partnerships and programs
 - Consistency with CAP values
 - Financial impact to the community
 - Financial impact to the city

Each of these five criteria was scored on a scale of 1-5 (1 being least preferable, 5 being most preferable) and then averaged to yield a final score. Measures were ordered based on this implementation priority score. Note that some measures will have the same implementation prioritization rank.

- **Time frame:** The year by which a measure should be initiated to achieve targeted GHG reductions in 2020, support adaptation to climate change effects, or achieve long-term resilience. Time frames are described as follows:
 - Immediate (in 2015)
 - Near-term (by 2017)
 - Mid-term (by 2019)
 - Long-term (by 2020)
- **Potential reductions:** Estimated GHG reductions from the measure by 2020
- **Responsible city departments:** Lead city department(s) tasked with implementing the measure
- **Applicability:** The entity expected to implement the measure. Most measures are applicable to types of development and will be integrated. The different developments are as follows:
 - New development (performance-based approach): The measure is implemented through the development review process for new construction. The performance-based approach does not prescribe mandatory measures on new development, but instead provides options for projects

to demonstrate CAP compliance and achieve GHG reductions using various design features or by participating in key programs, as presented in the Project Options checklists (Section IV).

- New development: The measure will be implemented during the construction and/or occupancy phase of a new development, and is not a condition of the design and development review process. These types of actions are not included as performance-based options in the Project Options checklists, but would eventually be implemented by new development in a voluntary capacity.
- Existing development: The measure is implemented by individual building owners and occupants of existing buildings that are already constructed and in operation.
- City government: The measure is implemented through budgets, workflow planning, capital improvements, coordination of educational or program efforts, and other planning and construction activities for City facilities and operations.

Table I: Implementation Matrix

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Land Use and Transportation - Density and Connections	11	1	2,730	Immediate	Planning	- New development (performance-based approach) - Existing development	Yes
Land Use and Transportation - Alternative Transportation	9	2	180	Near-term	Planning	- New development (performance-based approach) - Existing development - City government	Yes
Land Use and Transportation - Alternative Transportation	6	3	510	Near-term	Planning; Economic Development	- New development (performance-based approach) - Existing development - City government	Yes

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Department s	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Land Use and Transportation - Alternative Transportation	11	Increase the feasibility and use of bicycles in Merced for commute and recreation through new bicycle infrastructure and education.	230	Near-term	Planning; Economic Development	- New development (performance-based approach) - Existing development	Yes
Land Use and Transportation - Alternative Transportation	26	Promote telecommuting as a viable commute alternative for 3% of Merced employees an average of 1.5 days per week by 2020.	160	Mid-term	Planning; Economic Development	- New development (performance-based approach) - Existing development - City government	Yes
Land Use and Transportation - Alternative Transportation	11	Work with UC Merced to establish a Transportation Demand Management (TDM) program for new student housing located within the city.	1,490	Mid-term	Planning; Housing	- New development	No

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Department s	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Land Use and Transportation - Density and Connections	17	Synchronize traffic signals along 10 miles of major roads, convert at-grade railroad crossings to underpasses, and replace 4-way stops in downtown with roundabouts to improve fuel efficiency.	1,680	Mid-term	Planning	- New development - Existing development	No
Land Use and Transportation - Alternative Fuels	20	Support the use of neighborhood electric vehicles (NEVs, such as lower-speed, street-safe golf carts) by 3% of households by 2020.	630	Near-term	Planning, Economic Development	- New development (performance-based approach) - Existing development	Yes

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Land Use and Transportation - Alternative Fuels	11	Support the increased use of passenger plug-in electric vehicles (EV) and other alternative fuels to 5% by 2020.	4,920	Near-term	Planning, Economic Development	- New development (performance-based approach) - Existing development	Yes
Energy Efficiency - New Construction	n/a	Encourage new buildings to exceed the minimum energy-efficiency requirements under the state CALGreen standards.	This measure is implemented entirely through the performance-based approach in Measure 31.	Near-term	Housing	- New development (performance-based approach)	Yes
Energy Efficiency - New Construction	n/a	Site new buildings to take advantage of natural solar resources for heating and cooling.	This measure is implemented entirely through the performance-based approach in Measure 31.	Immediate	Planning; Housing	- New development (performance-based approach)	Yes

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Energy Efficiency - Existing Buildings	9	Support improved energy efficiency in existing multifamily units, rental units, and affordable households through voluntary retrofits.	1,890	Near-term	Planning; Housing; Finance	- Existing development	No
Energy Efficiency - Existing Buildings	6	Facilitate energy efficiency through voluntary retrofits in 15% of single-family homes, and promote low-cost opportunities to reduce energy use in single-family households.	1,990	Immediate	Planning; Housing; Finance	- Existing development	No

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Energy Efficiency - Existing Buildings	2	14 Improve energy efficiency through voluntary retrofits in 16% of businesses and other energy-efficiency strategies in existing commercial and industrial facilities.	16,970	Immediate	Planning; Housing	- Existing development - City government	No
Energy Efficiency - Existing Buildings	20	15 Use cool roofs and shade trees to reduce the urban heat island effect in Merced.	140	Mid-term	Planning	- Existing development - City government	No
Energy Efficiency - Existing Buildings	5	16 Support retrofits to outdoor public lighting in Merced to reduce energy use.	540	Mid-term	Public Works: Operations	- Existing development - City government	No

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Energy - Renewable Energy	3	17 Increase the amount of renewable electricity generation for on-site residential use.	5,090	Near-term	Planning; Housing; Economic Development	- New development (performance-based approach) - Existing development	Yes
Energy - Renewable Energy	3	18 Facilitate renewable energy for on-site commercial and industrial uses.	2,630	Near-term	Planning; Economic Development	- New development (performance-based approach) - Existing development - City government	Yes
Energy - Renewable Energy	6	19 Support the use of solar energy to meet on-site water heating needs for domestic and nonresidential uses and swimming pools, exceeding minimum state CALGreen standards.	510	Mid-term	Planning; Housing; Economic Development; Finance	- New development (performance-based approach) - Existing development - City government	Yes

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Energy - Renewable Energy	17	20 Create a community-shared solar program to produce renewable energy for off-site use in Merced.	1,890	Long-term	Planning; Economic Development	- New development - New development (performance-based approach) - Existing development - City government	Yes
Water and Wastewater - Water Conservation	22	21 Install water meters on remaining unmetered housing units to promote awareness and conservation.	530	Mid-term	Housing	- Existing development	No
Water and Wastewater - Water Conservation	11	22 Promote indoor water conservation through retrofits to existing buildings.	80	Near-term	Housing	- Existing development - City government	No

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Water and Wastewater - Water Conservation	n/a	23 Improve indoor water efficiency in new buildings.	This measure is implemented entirely through the performance-based approach.	Mid-term	Housing; Economic Development	- New development (performance-based approach)	Yes
Water and Wastewater - Water Conservation	17	24 Reduce the amount of water used for landscaping, while continuing to allow lawn and turf installations.	20	Long-term	Planning	- New development (performance-based approach) - Existing development	Yes
Water and Wastewater - Alternative Water Sources	22	25 Promote individual greywater and rainwater catchment systems to reduce potable water demand.	70	Long-term	Public Works: Water Resources & Reclamation	- New development (performance-based approach) - Existing development	Yes

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Solid Waste - Increased Diversion	25	26 Reduce the amount of waste sent to landfills, excluding recyclables and construction and demolition (C&D) material, by 33%.	4,290	Mid-term	Public Works: Operations	- New development - Existing development	No
Solid Waste - Increased Diversion	11	27 Increase recycling in Merced with a goal of improving diversion of recyclables by 25%.	8,400	Mid-term	Public Works: Operations	- New development - Existing development	No
Solid Waste - Increased Diversion	22	28 Divert 50% of construction and demolition (C&D) waste from new construction projects and renovations.	4,500	Mid-term	Public Works: Operations	- New development - Existing development	No

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Off-road Equipment	26	Reduce emissions from lawnmowers and leaf blowers by 10%.	10	Near-term	Public Works: Operations; Economic Development	- New development (performance-based approach) - Existing development	Yes
Off-road Equipment	28	Use alternative-fuel and fuel-efficient construction equipment, and reduce construction equipment idling time.	150	Mid-term	Public Works: Operations; Economic Development	New development	No

Issue Area	Implementation Priority Rank	Measure Language	Potential 2020 GHG Reductions	Time Frame	Responsible City Departments	Applicability	Is This An Option for New Projects to Meet Performance-Based Approach in Project Options Checklists or UDM?
Performance-Based Approach	I	31	31,320	Immediate	Planning	- New development (performance-based approach)	This measure summarizes the total reduction potential to be achieved through new development through the performance-based approach, as administered through the Project Options checklists and the UDM.

Section III: Monitoring Tool

Monitoring Tool

Monitoring plan progress toward reduction targets is one of the required criteria for qualified GHG reduction plans as outlined by the California Environmental Quality Act (CEQA) Guidelines Section 15183.5. The City will conduct annual monitoring and reporting to track CAP measure progress on an annual basis through 2020. The tool will automatically calculate progress toward community-level GHG targets based on aggregate level data and reductions from individual measures. Using the same technical data that informed development of the CAP, the tool will allow City staff to evaluate CAP progress using quantitative data and qualitative progress information. The City will use this tool to track its progress reducing emissions, vehicle miles traveled (VMT), waste generation, and energy use over time with readily available data. The monitoring tool will provide examples and instructions on how to gather relevant inventory activity data for GHG tracking. The monitoring and reporting tool uses this data to estimate emissions changes in the city year-by-year using publicly available activity data, and tracks progress for each measure including initiation dates and key metrics. The tool will enable the City to sort measures based on timing, responsible department, and level of success, progress, or completion.

Annual updates created by the monitoring and reporting tool are not intended to be a replacement for a full reinventory. Annual monitoring allows for interim estimates of progress.

Monitoring Process

As part of annual progress reports, staff will evaluate the effectiveness of each measure to ensure that anticipated emissions reductions are occurring. For example, certain measures may exceed expectations and provide more cost-effective options to reduce emissions. Other measures may not meet anticipated reductions. City staff will use the monitoring and reporting tool to provide updates to decision-makers in order to reassess funding decisions and allocation of staff time. In the event that reductions do not occur as expected, the City can modify and add additional measures to the CAP to ensure the reduction target is achieved.

Monitoring Tool Outline

The tool will be organized into seven main sections or worksheet tabs, along with additional hidden worksheets that will perform calculations. A description of each tab contained in the monitoring tool is below.

TAB 1: Introduction

This tab will provide an overview of the tool's function and its purpose, including a brief description of tool and components, and links to other pages.

TAB 2: Activity Data

This is the main data entry sheet for the tool. This worksheet provides space for three types of data: key metrics, GHG inventory activity data, and measure data. Data points contained on this page can be tracked yearly and are all necessary to get an accurate picture of future GHG emissions.

This worksheet will also control emissions report outputs in later sections of the tool through the "GHG Analysis Year" drop-down menu at the top of the page. Use this button to select what you would like to highlight on the GHG Dashboard and Annual Report tab.

Data tracking tables will include:

Key metrics

- Population
- Jobs
- Households
- Residential Average
- City area (acres)
- City area (miles)

Values for residential acreage, city area (acres), and city area (miles) will be populated in this tool based on buildout assumptions from the City’s General Plan. All of these pre-populated values can be overwritten with updated data and future years will automatically update.

Activity Data

- Residential kWh – provided by PG&E and MID
- Nonresidential kWh – provided by PG&E and MID
- PG&E and MID CO₂e emission factor
- MID emission factor
- Renewables Portfolio Standard (RPS) – yearly renewable energy mix for MID and PG&E
- Residential therms – provided by PG&E and MID
- Nonresidential therms – provided by PG&E and MID
- On-road VMT – from Caltrans HPMS website
- Waste disposal and transform tonnage – obtained from MCWMD
- Off-road – number of households
- Off-road – number of residential building permits issued
- Water use in gallons of potable water delivered – provided by the City of Merced

Measure Data

Below is a list of indicators that will be used to track the implementation of each measure in the CAP.

Performance Indicator	Reduction Measures Applied
Housing density (households per residential acreage)	1: High density growth
Merced County Transit passenger miles	2. Transit use
Car share cars	3: Carpool and car share systems
Miles of bike lanes	4: Bicycle feasibility
Telecommute participants	5: Telecommuting
UC Merced TDM Housing Built? (Yes/No)	6: UC Merced TDM
Road miles with traffic synchronization	7: Synchronize traffic signals
Number of households with an NEV	8: NEVs

Performance Indicator	Reduction Measures Applied
Number of households with a full EV	9: EVs and Alternative Fuels
Number of homes built beyond CALGreen	10a: Energy-Efficient Retrofits - residential
Number of jobs in buildings exceeding state standards	10b: Energy-Efficient Retrofits - nonresidential
Homes (single and multifamily) built with passive solar	11a: Passive solar - residential
Number of jobs in buildings with passive solar	11b: Passive solar - nonresidential
Number of multifamily/rental low-income retrofitted homes	12: Multifamily/rental/low-income retrofits
Number of basic and advanced home retrofits	13: Single-family retrofits
Number of jobs in buildings with retrofits or that have been retrocommissioned	14: Commercial/industrial energy efficiency
Residential cool roofs	15: Urban heat island
Number of jobs in buildings with cool roofs	16: Outdoor lighting
Number of jobs in buildings with energy-efficient outdoor lighting	16: Outdoor lighting
Existing and new households with solar panels installed	17: Residential renewable
Number of jobs in buildings with solar PV arrays	18: Commercial/industrial renewables
Residential solar water heaters or solar heated pools	19a: Solar hot water - residential
Number of jobs in buildings with solar hot water	19b: Solar hot water - nonresidential
kW of shared solar	20: Community-shared solar
kW of Green Tariff power/number of Green Tariff program participants	20: Community-shared solar
Per capita water use (gallons)	21: Install water meters 22: Indoor water retrofits 23: Water efficiency in new buildings 24: Landscaping water efficiency 25: Individual greywater
Tons diverted material (non-C&D or recycling)	26: Reduce waste sent to landfills (not C&D or recycling)
Tons material recycled	27: Increase recycling
Tons C&D material diverted	28: C&D waste diversion
Pieces of equipment replaced	29: Lawnmowers and leafblowers
Maximum allowable idling time (minutes)	30: Alternative fuel and idling time in construction

Performance Indicator	Reduction Measures Applied
	equipment
Percent of performance-based approach implemented	31: Performance-based approach for new development

TAB 3: GHG Dashboard

This tab provides a snapshot of GHG reductions and assorted measures for the inventory year selected in the Activity Data tab. No data is entered by the user in the GHG Dashboard.

The dashboard will graphically show the GHG reductions achieved by focus area for the inventory year selected.

The dashboard will also provide a table with the following data points for the inventory year selected:

- Inventory year GHG emissions
 - This will list the GHG emissions for the inventory year selected in the Activity Data tab.
- Inventory year state reductions
 - This will list the amount of GHG reductions in the inventory year that can be attributed to state level programs or regulations such as Title 24, Pavley, RPS, and the Heavy-Duty Vehicle GHG Emission Reduction Regulation.
- GHG reduction from business as usual (BAU) due to service population adjustment
 - This will list the total amount of GHG reductions achieved in the inventory year as a result of updated service population estimates.
- Inventory year target MTCO₂e
 - This will list the target GHG emissions in the inventory year that can be used as a marker to verify that the City is on track with its reductions. This is not the final 2020 target, but rather an intermediary.
- Current year MTCO₂e gap between actual and target
 - This will list the reductions still needed in order to achieve the interim year target (not the 2020 target) for the current analysis year, as measured each year.
 - The gap to the interim reduction target will reflect actual annual demographic growth and identify estimated reductions in the CAP forecast based on interpolated changes, if current growth remains steady. This data will be calculated relative to the General Plan growth forecasts assumed by the CAP, recognizing that actual growth is likely to be far lower than the high growth forecasts identified in the General Plan.

TAB 4: Measure Progress

This worksheet will contain two tables:

- Top 5–10 high priority measures and their yearly GHG reductions and percent implementation.
- Complete list of all measures, percent implemented, expected GHG reductions, reductions to date, and ranking.

TAB 5: Priority Rankings

This worksheet will contain the priority scores for each measure and the measure’s overall rank based on priority score.

TAB 6: Annual Report

This tab is designed so that the City can print a narrative, graphical, and tabular summary of the CAP efforts and progress toward the 2020 goal. This worksheet includes open-ended fields for a description of the project as well as the following tables and figures:

Tables

- Baseline GHG emissions by sector
- Inventory year GHG emissions by sector
- Estimated progress toward 15% reduction target

Figures

- Estimated GHG emissions by sector
- Yearly community BAU, adjusted BAU, and target GHG emissions
- Inventory year GHG reductions by focus area
- Inventory year percent of target implementation by focus area
- Estimates progress toward 15% reduction target

TAB 7: Methods and Sources

This tab lists the main agencies and reports used to gather data for the GHG inventory. These data sources can be used for GHG updates in the monitoring tool.

Numerous calculation-related tabs will be included in the tool but hidden from view in order to simplify the tool’s use.

Section IV: Performance-based Development

This section discusses the new performance-based development approach and its role in implementing the measures in the CAP that apply to new development projects. The Residential and Nonresidential Project Options checklists summarize the criteria for a project to claim consistency with the CAP and thereby access CEQA permit streamlining for purposes of analyzing GHG emissions. Projects that demonstrate consistency with the CAP by meeting criteria on these checklists are eligible to rely on the City's analysis of GHG emissions for purposes of CEQA. Rather than prescribe a mandatory set of actions that all new projects must meet for CAP consistency, projects can choose from one of several options in the applicable checklist, also referred to as "performance measures." Where certain CAP performance measures also have a visual component, the City provides further guidance in the UDM. Together, the Project Options checklists and UDM use a performance-based approach to identify measures and performance requirements for new projects seeking consistency with the CAP. The minimum options a project must meet for CAP consistency are summarized in the Project Options checklists. Additional information and suggestions are provided in the UDM to help the City further communicate desired outcomes to project applicants.

If new projects are subject to CEQA but do not wish to comply with the CAP or UDM, they may elect to conduct an analysis of GHG emissions and climate change as required by CEQA. Such projects are expected to meet all requirements of CEQA.

The performance-based approach allows projects seeking CAP consistency to choose measures that best meets the project's needs. These measures have already been analyzed by the City and would result in new development collectively achieving reductions that would contribute toward the City's GHG reduction target. The Project Options checklists summarize the options for new projects to comply with CAP measures. The checklists also identify where the UDM provides additional guidance to support projects as they seek to meet the criteria in the Project Options checklists. City staff will use the Project Options checklists and UDM as a basis for identifying conditions of approval for new projects seeking to demonstrate CAP consistency.

Performance Approach

New development projects can demonstrate compliance with the CAP by implementing a selection of specific reduction measures. Projects can choose to implement one of the options outlined below, each of which contains design criteria based on reduction measures from the CAP and PCAP. Projects can demonstrate compliance with the CAP by implementing all reduction measures in the selected option. Each option shows the criteria that would reduce the project's GHG emissions 29% below baseline levels consistent with Air District's recommended CEQA Assessment Guidance. While new projects will implement these measures on a case-by-case basis, when the total impact of each new project's GHG reductions is aggregated, collectively new development would achieve a measureable reduction in GHG emissions that helps the City achieve its adopted GHG reduction target of returning to 1990 GHG emissions levels by 2020. Additionally, the measure options allow projects to achieve GHG reductions that also meet the requirements of the San Joaquin Valley Air Pollution Control District (SJVAPCD) Indirect Source Review Program for new development. The SJVAPCD's Indirect Source Review rule requires that most projects reduce emissions of other air pollutants below specified levels or pay mitigation fees. The measures in the Project Options checklists are intended to help facilitate compliance with the Indirect Source Review rule and other regulations; however, projects that fully comply with the CAP are not necessarily fully compliant with SJVAPCD rules.

As stated above, to demonstrate consistency with the CAP, each project must fully implement all measures in one of the applicable options. However, projects are not prohibited from implementing individual measures that enable the project to potentially achieve reductions beyond what the CAP requires.

The reduction measures in the options are not a complete list of City requirements applicable to new development that reduce GHG emissions. For example, if a project chooses to demonstrate consistency by selecting Option I, which only requires a renewable energy system of the specified size, the project may still be required to comply with existing City requirements that also help to reduce emissions. Reductions from these items have already been accounted for in the PCAP.

Residential and Nonresidential Project Options Checklists

The applicant will be asked to indicate the option the proposed project will include. Note that, in addition to the options for CAP consistency shown below, the City assumes credit for projects based on numerous regulations already under way. The following reductions from state-mandated actions are already attributed as credits toward the project for GHG reductions, and cannot be claimed as additional credits to meet the performance-based options below:

- Compliance with California's RPS, mandating that utilities procure 33% of their electricity from eligible renewable sources by the end of 2020.
- Vehicles with fuel efficiencies compliant with California's AB 1493 standards, and using fuel that meets the requirements of the state Low Carbon Fuel Standard.
- Compliance with the mandatory items of the California Building Standards Code, including all minimum energy efficiency requirements.

Projects cannot count these actions as additional credits for CAP consistency. Note that the performance-based approach also does not address reductions from water efficiency, reduced solid waste generation, and off-road equipment use; reductions from these items are achieved on a citywide basis year-by-year through other CAP implementation measures, which apply to both existing and new developments. The City implements these measures through other methods, rather than as conditions of approval on new development or remodels.

The options for performance-based compliance with the CAP are provided below in the Project Options checklists. The criteria for each option vary based on project type or the assumed level of participation. Each option provides a level playing field for new projects to select the types of GHG reduction measures that are most cost-effective or applicable to the project. While each option presents different criteria, each option would achieve a similar relative reduction of GHG emissions reductions. Based on analysis in the CAP, the City has determined that projects consistent with the criteria below are meeting the level of GHG reductions for new development identified in the CAP and contribute to the City's achievement of GHG reduction targets. Accordingly, the City will provide the opportunity for streamlining to projects that are consistent with one of the following options.

Note that each option for performance-based measures is further explained in the following tables and sections.

Project Options Checklists

Residential Project Options and Associated Measures					
#	GHG Reduction Measures	Option Set			
		1	2	3	4
1	Install a solar water heating system for indoor use for all units, and for any swimming pools included in the project.		✓	✓	
2	Construct all new buildings to CALGreen Tier I standards.				✓
3a	Establish an on-site renewable energy system: The system should be capable of producing at least 7,000 kWh annually for every residential unit (for a solar photovoltaic system, this is a 5 kW system per home).	✓			
3b	Establish an on-site renewable energy system: The system should be capable of producing at least 4,300 kWh annually per unit (for a solar photovoltaic system, this is a 3 kW system per home).		✓		
4a	Reduce vehicle trips (VMT) through measures that support alternative transportation options such as carpooling, walking and bicycling, and increased transit use. The project should use applicable designs from the UDM. A 15% reduction below average for project occupants should be 2,910 per person annually. *		✓		
4b	Reduce vehicle trips (VMT) through measures that support alternative transportation options such as carpooling, walking and bicycling, and increased transit use. The project should use applicable designs from the UDM. A 20% reduction below average for project occupants should be 2,730 per person annually. *			✓	
5	Utilize passive solar design techniques.			✓	
6	Be located in an area of moderate road connectivity with small block sizes, using concepts illustrated in the City's Unified Design Manual. †			✓	
7	Provide one EV charging station (Level 2 or Level 3) per unit.				✓
8	Plant trees to provide shade to building.				✓
<p>*Note: The per person average VMT for project occupants is based on the average VMT for residents and employees in Merced. Depending on the specific size and land use of the development projects, actual per person VMT for individual project occupants may be higher or lower than the target average presented here. This data would typically be available in the common types of project analysis that applicants must submit to the San Joaquin Valley Air Pollution Control District for compliance with the Indirect Source Rule.</p>					
<p>†Note: "Moderate road connectivity," as identified by the California Air Pollution Control Officers Association, is at least 45 intersections per square mile.</p>					

Residential Project: Applicant Selection of Option with Measures		
Option	Measure Set	Selection: The applicant signs here to denote which option and measures will be installed with the project
1	3a	
2	1, 3b, 4a	
3	1, 4b, 5, 6	
4	2, 7, 8	

Nonresidential Project Options and Associated Measures					
#	GHG Reduction Measures	Option Set			
		1	2	3	4
1	Install a solar water heating system for indoor use for all buildings.			✓	
2	Construct all new buildings to CALGreen Tier I standards.	✓	✓		
3a	Establish an on-site renewable energy system: The system should be capable of producing at least 14,400 kWh annually for every nonresidential building (for a solar photovoltaic system, this is a 10 kW system for every nonresidential building).				✓
3b	Establish an on-site renewable energy system: The system should be capable of producing at least 7,200 kWh annually for the average business (for a solar photovoltaic system, this is 5 kW for business).		✓		
4a	Reduce vehicle trips (VMT) through measures that support alternative transportation options such as carpooling, walking and bicycling, and increased transit use. The project should use applicable designs from the UDM. A 15% reduction below average for project occupants should be 2,910 per person annually. *		✓		
4b	Reduce vehicle trips (VMT) through measures that support alternative transportation options such as carpooling, walking and bicycling, and increased transit use. The project should use applicable designs from the UDM. A 25% reduction below average for project occupants should be 2,550 per person annually. *	✓			
5	Utilize passive solar design techniques.			✓	
6	Provide an EV charging station.			✓	

Nonresidential Project Options and Associated Measures					
#	GHG Reduction Measures	Option Set			
		1	2	3	4
7	Be located in a mixed-use residential/commercial building, with no less than 25% of floor space devoted to either type of use.	✓			
<p>*Note: The per person average VMT for project occupants is based on the average VMT for residents and employees in Merced. Depending on the specific size and land use of the development projects, actual per person VMT for individual project occupants may be higher or lower than the target average presented here. This data would typically be available in the common types of project analysis that applicants must submit to the San Joaquin Valley Air Pollution Control District for compliance with the Indirect Source Rule.</p>					

Nonresidential Project: Applicant Selection of Option with Measures		
Option	Measure Set	Selection: The applicant signs here to denote which option and measures will be installed with the project
1	2, 4b, 7	
2	2, 3b, 4a	
3	1, 5, 6	
4	3a	