MEMO

To: Bill King
CITY OF MERCED

From: Jennifer Venema
Pam Johns

Cc: Tammy Seale, Jeanine Cavalli, Chris Read, and Eli Krispi

Date: March 6, 2015

Re: Merced Programmatic Climate Action Plan: Unified Design Manual

We are pleased to submit a few preliminary materials for the Unified Design Manual per Task 7 of PMC's scope of work for the Programmatic Climate Action Plan. The following items are attached to this memo for the Focus Group.

1. Draft Table of Contents - unformatted
2. Draft Introduction Chapter - unformatted
3. Sample Chapter 6 (Solar) - formatted

This deliverable serves as an opportunity for the Focus Group to provide early comments about the planned content, approach, and design of the Unified Design Manual to inform additional work by PMC and staff. Next steps on this project will be to submit the complete draft Unified Design Manual to the Focus Group for consideration in June.

Merced Unified Design Manual
Draft Table of Contents 3-5-15

CHAPTER 1 INTRODUCTION

1.1 State Requirement and Alternative Permit Approach

The purpose of the Unified Design Manual (UDM) is to provide design-related guidance to projects seeking to demonstrate consistency with the City's adopted Programmatic Climate Action Plan (PCAP). When projects demonstrate consistency with the PCAP and UDM, they can benefit from permit streamlining. Ultimately, the PCAP is designed to streamline environmental review of future development projects in the City of Merced consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15183.5(b).

The California Environmental Quality Act requires applicant's to analyze their project's greenhouse gas (GHG) emissions and impacts, and to mitigate those impacts where necessary. This adds cost, time and uncertainty to the development review process. Projects that comply with the PCAP and applicable UDM measures, however, rely on its programmatic analysis and methods to reduce greenhouse gases which enables faster reviews, avoids consultant costs and establishes predictable standards and outcomes. With this UDM, the City seeks to provide visual guidance for key aspects of project design and siting related to reducing greenhouse gas emissions. As a result, the UDM is an implementation tool of the PCAP. Together with the PCAP, the UDM provides transparency by communicating options for applicants to address existing state requirements. Through a programmatic approach, the UDM and PCAP ultimately provide development project applicants with a streamlined alternative to the current practice of assessing impacts on a project-by-project basis.

1.2 Purpose and Intent of the UDM

The purpose of the Unified Design Manual (UDM) is to provide user-friendly design guidance to project applicants and City Staff pertaining to compliance with the state's mandate to minimize impacts to climate change. By answering the question, "How can my project be consistent with the City's PCAP," it is a stand-alone tool that informs City Staff and project applicants of site design features that are consistent with the PCAP. The UDM provides an integrated and visual representation of an assortment of existing regulations that achieve greenhouse gas reductions, among other community goals. Regulations already applied locally to site designs that reduce global warming impacts include: a) existing zoning codes; b) current General Plan policy; c) mitigation measures from the City's certified General Plan Environmental Impact Report; and d) strategies that would aid projects meeting the San Joaquin Air Pollution Control District's Rule 9410 (Indirect Source Review). To inform and encourage the local development community to build high-quality projects, "Design Best Practices" supplement these existing regulations. These design considerations provide design professionals, property owners, residents, staff, and decision-makers with a clear and common understanding of the City's expectations for the planning, design, and review of development proposals to implement Merced's Programmatic Climate Action Plan.

1.3 Applicability and Process

Applicability

While the City encourages all project applicants to utilize the Urban Design Manual (UDM) as a tool to design high-quality developments that support a variety of community goals, the UDM was crafted for projects that are subject to the California Environmental Quality Act (CEQA) in order to better inform applicants of desired project designs and to enable permit streamlining. The CEQA Guidelines allow for streamlining of the review of GHG emissions when new projects comply with a qualified GHG reduction plan that meets the CEQA criteria in Subsection 15183.5(b). With the PCAP and CAP Implementation Work Plan, the City has demonstrated the PCAP's consistency with CEQA Guidelines. Now, with this UDM, the City has developed another tool to help new development seeking to benefit from CEQA streamlining.

The UDM is designed to address the project-level impact of development projects, such as subdivisions and parcel maps, conditional use permits, site plan review and design review. Planning-level projects, such as community plans, specific plans, annexation, general plan amendments, site utilization plan revisions, and zone changes may not utilize the UDM for permit streamlining purposes, however. The potential greenhouse gas emissions impacts from these planning-level projects must be assessed through a separate environmental study consistent with the requirements of CEQA. These planning-level projects may be deemed self-mitigating consistent with City policy and State law, which emphasize development that results in a compact urban form, supports infill development concepts, and/or conserves natural open space features.

Process

The UDM was part of a comprehensive effort to establish a pre-qualified permitting program for purposes of GHG emissions through the identification of design and operation features that a project proponent elects to add to their project. These features derive from existing City policy, adopted mitigation measures of the General Plan's EIR, existing codes, and best practices that support consistency with the San Joaquin Valley Air Pollution Control Districts' requirements.

As a means to address a project's impact to climate change, project proponents seeking streamlining with the PCAP may choose to use the UDM as a tool. The UDM provides visual guidance to further simplify the task of demonstrating PCAP consistency. Project proponents that elect to not use the UDM, or which does not meet the guidance of the UDM, must demonstrate it's independent, project-level environmental review to meet CEQA requirements for GHG emissions.

In answering the question, "How can my project be consistent with the City's PCAP," the City has adopted a separate PCAP consistency checklist addressing topics both in and outside of the UDM. This comprehensive checklist includes specific references to items addressed in the UDM. The UDM checklist included in the Appendices (A.1) is intended to list which items in the UDM are applicable by land use and/or project type.

1.4 Organization and Use

This document is organized into different chapters based primarily on design topic. Specifically, design considerations are organized into the following chapters:

CHAPTER 1 – Introduction
This chapter describes the purpose, intent, applicability, organization, and use of the Unified Design Manual.

CHAPTER 2 – Community Design
This chapter includes design considerations for land use patterns and proximities, connectivity, and street design.

CHAPTER 3 – Site Design for Mobility
This chapter identifies design considerations for special parking provisions (e.g., electric vehicles and bicycles), and on-site connections and facilities for pedestrians, cyclists, and transit users.

CHAPTER 4 – Landscape Improvements
This chapter describes design considerations for water-efficient landscapes, tree canopies that provide shade on buildings and walkways, and storm-water features.

CHAPTER 5 – Renewable Energy Facilities and Resource Efficiency
This chapter includes design considerations for solar orientation and both building-mounted and ground-mounted solar design facilities, and cool pavements and roofs.

CHAPTER 6 – Recycling and Compost Facilities and Activities
This chapter describes design considerations for food/green waste and recyclable collection.

APPENDICES
The appendices includes a checklist to identify applicability of design provisions by land use and/or project type. It will also include a list of referenced policies and regulations.

Each chapter is then organized into the following sections:

- **Description** – broadly explains the purpose of the design guidance presented in the chapter.
- **Objectives** – describes the specific aims that the design considerations are intended to achieve.
- **Relationship to the Climate Action Plan** – identifies which of the four CAP themes are addressed by each chapter. The following four icons are used to depict these themes:

- **Specific Design Topics** – each design topic section is structured as follows:
  - Intent – explains the purpose of the design considerations
  - Design considerations – identifies recommended design guidelines, and a menu of design options for the physical design elements to be addressed. Design considerations are reiterations of General Plan policies and implementation measures existing development codes, adopted design standards or suggested best design practices. The following icons are used to identify where a design consideration is a reiteration of Zoning Code standards or General Plan Policies or Implementation Measures:

    ZC Zoning Code

    GP General Plan
  - Accompanying images or graphics – illustrate each design concept.

Design considerations may be in the form of recommended/encouraged design guidelines (should), design targets, and/ or a menu of design solutions from which to choose. This approach results in a greater measure of predictability to the development review process, while maintaining flexibility and the option for creative design solutions. Design standards are intended to reference existing development standards of the Zoning Code or to identify new standards to achieve the design objective.

1.5 Relationship to Other Plans and Policies

Development projects are currently subject to many plans, codes, standards and practices, for example, the City's General Plan, Municipal Code, and Standard Design Manual. As described in Section 1.2 above, the Unified Design Manual (UDM) displays design features from these documents that result in greenhouse gas emission reductions, thereby informing applicants about design features that could be included in their development projects to be consistent with the City's Programmatic Climate Action Plan (PCAP). Project's that are consistent with the City's PCAP are determined to satisfy CEQA requirements for purposes of GHG emissions to assess and mitigate GHG emissions and cumulative climate change impacts.

CHAPTER 6 SOLAR ORIENTATION AND SOLAR ENERGY FACILITIES

Description

This chapter provides design considerations for solar access and solar energy facilities. By following the suggestions outlined in this chapter, projects can be designed to reduce reliance on non-renewable energy sources while maintaining an aesthetically pleasing environment.

Chapter TOC

Objectives

- Design projects that conserve energy and minimize impacts on natural resources.
- Site buildings to take advantage of natural heating and cooling
- Site solar energy facilities to maximize solar access and minimize visual nuisance
- Enhance aesthetics of solar energy facilities

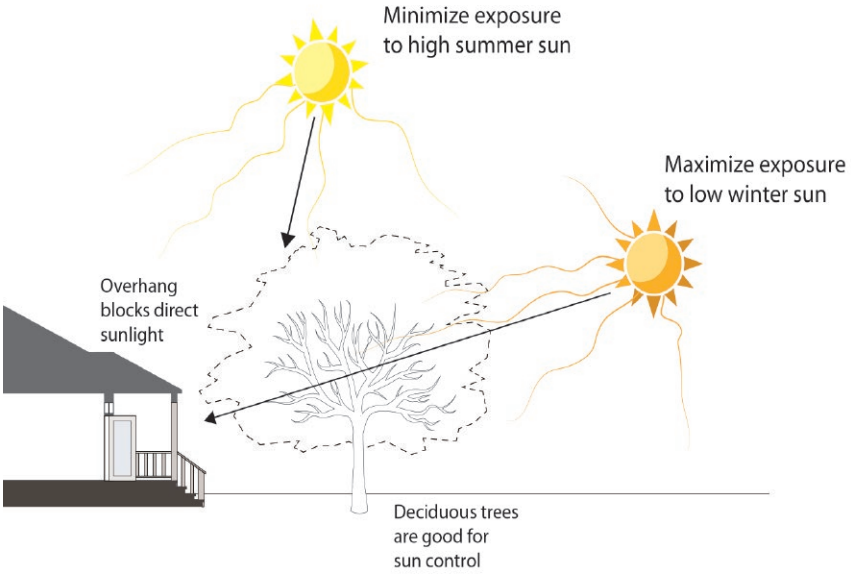
Relationship to CAP

Energy

6.1 Site Planning for Solar Orientation

A. Passive Solar Heating and Cooling

Buildings elongated on east-west axis



Intent

Design considerations for passive solar heating and cooling are intended to reduce energy consumption and to provide a comfortable environment.

Key

GP Reiteration of Zoning Code Regulation

ZC Reiteration of General Plan Design Guideline

Design Considerations

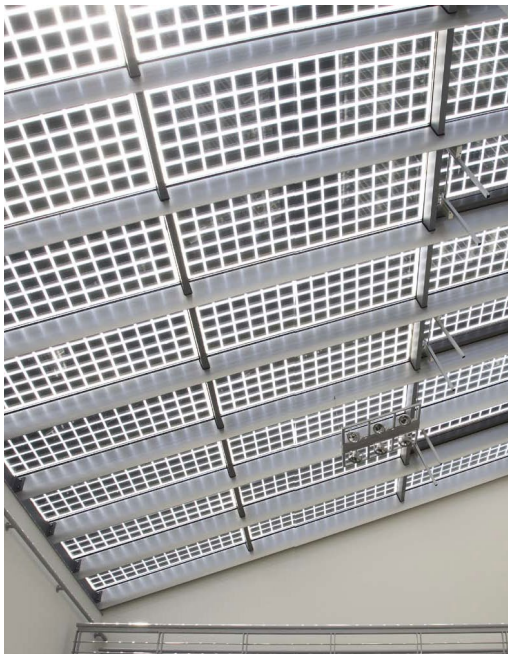
When orienting buildings and building features on a site, the following items should be incorporated into the project design as applicable:

GP 1. Orient buildings and windows to be south-facing and place buildings on the site to maximize winter sun exposure (per General Plan Sustainable Development Element).

2. Elongate the building on its east-west axis for increased winter sun exposure.
3. To minimize direct sun exposure in summertime, utilize exterior shading devices for southern- and western-facing windows. These devices may include trees, overhangs, awnings, and trellises to block direct light and heat before they pass through the building.
4. Arrange buildings and openings to allow cool air to enter and hot air to leave the building during summertime.
5. 5. Use light-colored reflective materials on rooftops, sometimes referred to as "cool roofs" to minimize heat gain in the building.

6.2 Building-Mounted Solar Energy Design and Siting

Solar panels integrated into roof tiles



Solar panels integrated into glazing

Design Considerations

When designing roof-mounted solar energy facilities, the following items should be incorporated into the project design as applicable.

ZC 1. Roof-mounted photovoltaic solar panels should meet the height requirement of the designated zoning district, but may be allowed to extend higher in accordance with the California Building Code.

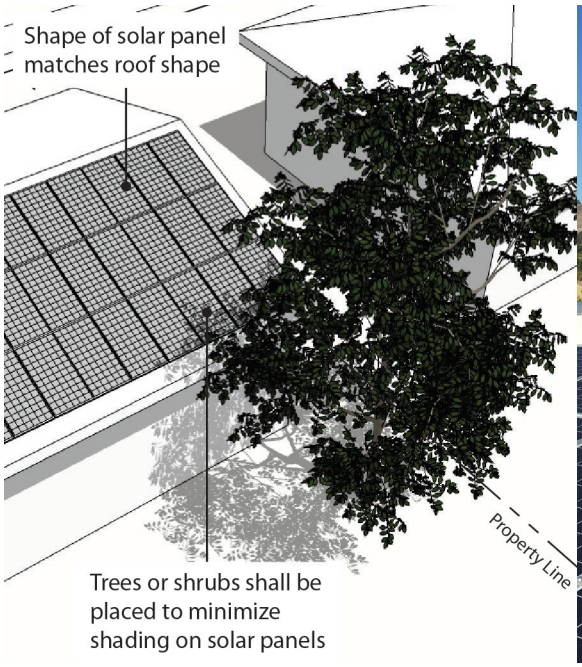
ZC 2. Whenever feasible, photovoltaic solar panels should be integrated into the structure design as one of its architectural elements. Building integrated photovoltaics are visually attractive and can be incorporated into roof tiles or glazing for awnings or glass roofs.

3. The City encourages the use of solar arrays or other types of solar-based energy generation into all new roofing structures.
4. Consider the pitch of roofs and orientation of the building when designing the project so as to maximize solar energy generation.
5. Select tree types and plant trees in locations that will minimize shade on solar energy systems.

Intent

Design considerations for energy design and siting are intended to encourage aesthetically designed solar energy facilities that protect and enhance the natural environment.

6.2 Building-Mounted Solar Energy Design and Siting



Brick tower element screens solar panels from the street

6. Design and locate structures on the property so that they will not shade the solar energy facility.
7. For flat roofs, consider architectural styles and features that can screen the solar energy facilities. A parapet or tower architectural feature can effectively and attractively screen solar energy system.
8. For sloped roofs, reduce visual clutter by avoiding breaking up the array into multiple irregular shaped areas. Instead, match the shape and proportions of the array with the shape and proportions of the roof.
9. Use panels with non-reflective coatings and non-reflective surfaces on exposed frames and components to minimize glare.
10. Solar panels should be angled and oriented to minimize glare on neighboring windows and, to the extent possible, away from public areas.
11. Allow for the future installation of solar facilities by designing one section of the roof with at least 300 square feet of space for solar installations that is south-facing, and where all mechanical equipment and skylights are absent.

6.3 Ground-Mounted Solar Energy Design and Siting

Building height panels serve as shade

Solar panels serve as shade structures in parking lots

Design Considerations

When installing ground-mounted solar energy systems, the following items should be incorporated into the project design as applicable:

ZC 1. Ground-mounted photovoltaic solar panels should be screened from public view.
2. The ground-mounted solar energy system should not be located within a building setback or front yard area.
3. Consider using the solar energy system to serve as a shade structure in parking lots (see photos above).
4. The ground-mounted solar energy structure should not exceed the height of the main structure on the parcel and must comply with all applicable height restrictions.
5. At maximum tilt, the ground-mounted solar energy structure should not exceed the maximum height allowed in that zoning district for accessory buildings.
6. Prevent glare on the adjacent public right-of-way as well as any adjacent inhabited structure.

Intent

Design considerations for ground-mounted solar energy design and siting are intended to minimize the visual impacts of solar panel shade facilities on adjacent properties and the streetscape environment.