CITY OF MERCED

PROGRAMMATIC CLIMATE ACTION PLAN FOCUS GROUP

JUNE 2015

BILL KING, CITY OF MERCED PRINCIPAL PLANNER
JENNIFER VENEMA, PMC

Agenda

- Welcome and introductions
- Project update and status
- Implementation tools
- Additional discussion
- Next steps
- Time for additional comments, questions, and discussion

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PROGRAMMATIC CLIMATE ACTION PLAN

PROJECT UPDATE

Project Outcomes

Tools to Streamline Regulations

- PCAP (stand-alone implementation plan)
- UDM
- Project options checklist
- Monitoring and reporting tools

Anticipated Timeline

GHG reduction strategy and feasibility analyses

UDM

Monitoring tool

PCAP

Project Options Checklist

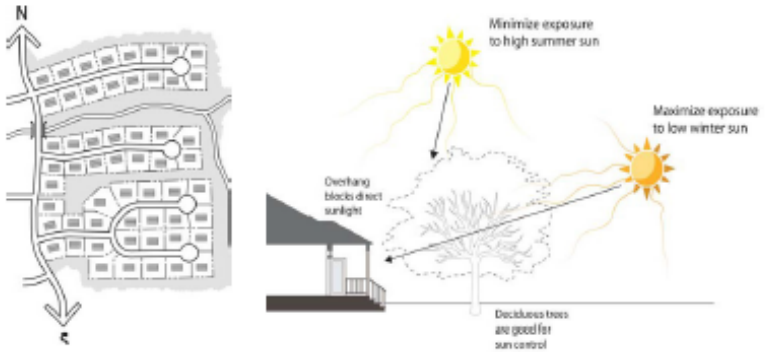
Next Focus Group Meeting: September 2015

Last Meeting

- Reviewed code and UDM options to implement CAP strategies
- Reviewed sample UDM chapters

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.

Design Considerations

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

Recommended:

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). GP
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. Use light-colored reflective materials on rooftops, sometimes referred to as "cool roofs" to minimize heat gain in the building.

Image by PMC

Last Meeting

Merced Unified Design Manual

Draft Table of Contents 3-5-15

Merced Unified Design Manual

Draft Table of Contents 3-5-15

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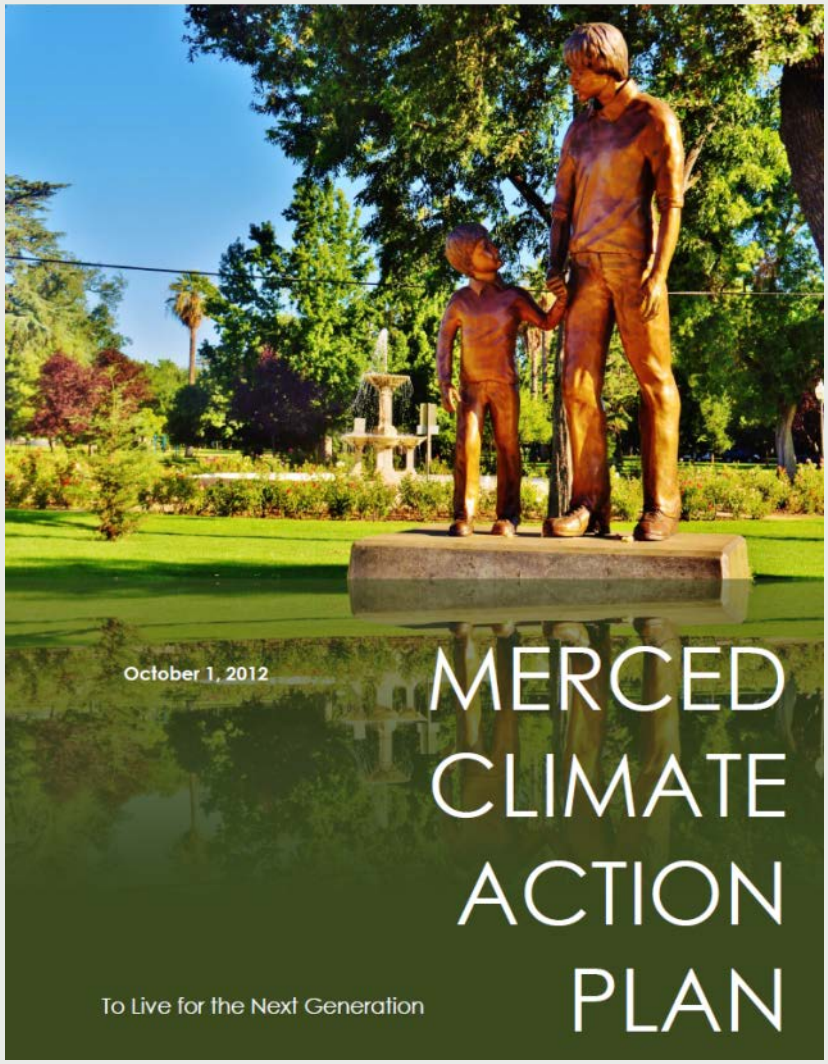
IMPLEMENTATION TOOLS

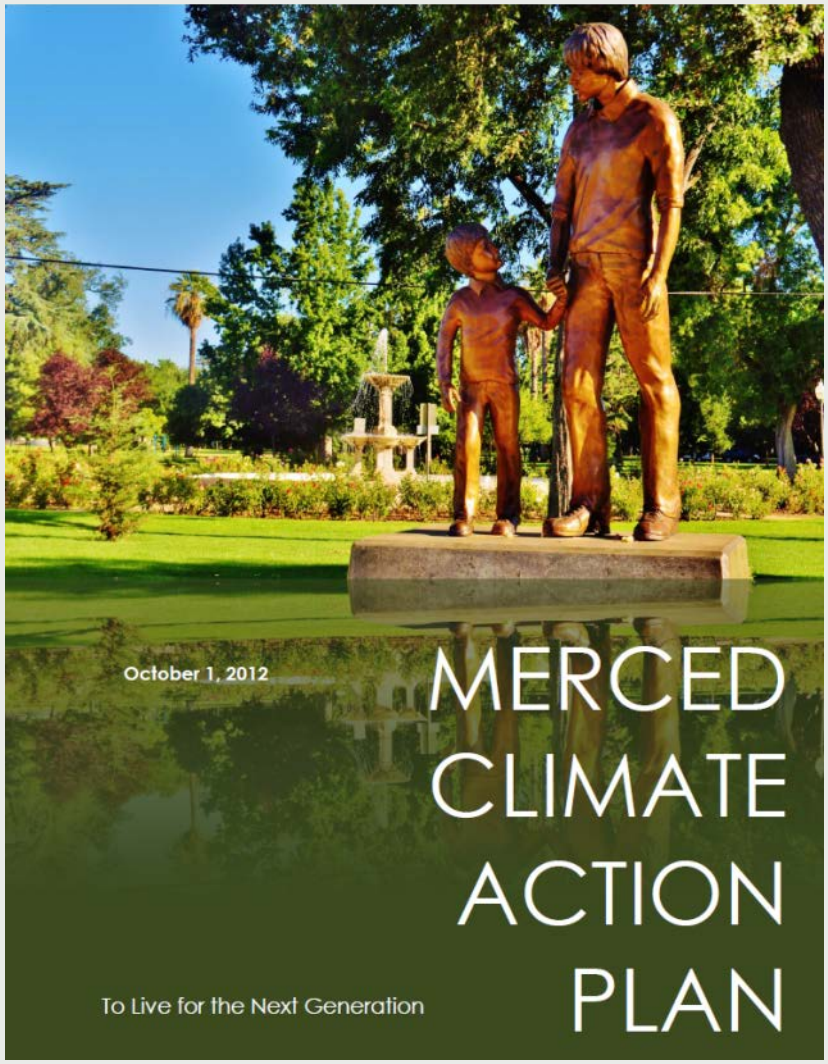
What is the intent of CAP tools?

- Follow adopted Council direction in the CAP
  - Maximize CAP utility
  - Simplify compliance with existing regulations



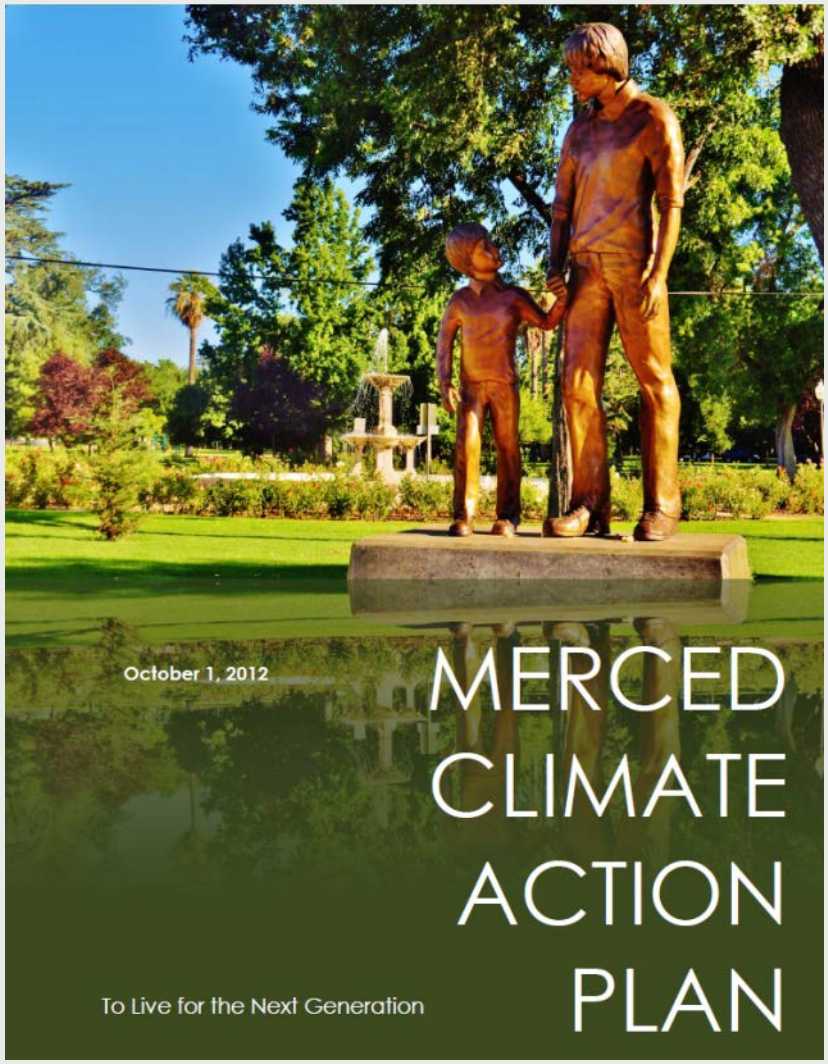
What are the CAP tools?

- PCAP
- Project options checklist
- UDM
- Monitoring tool



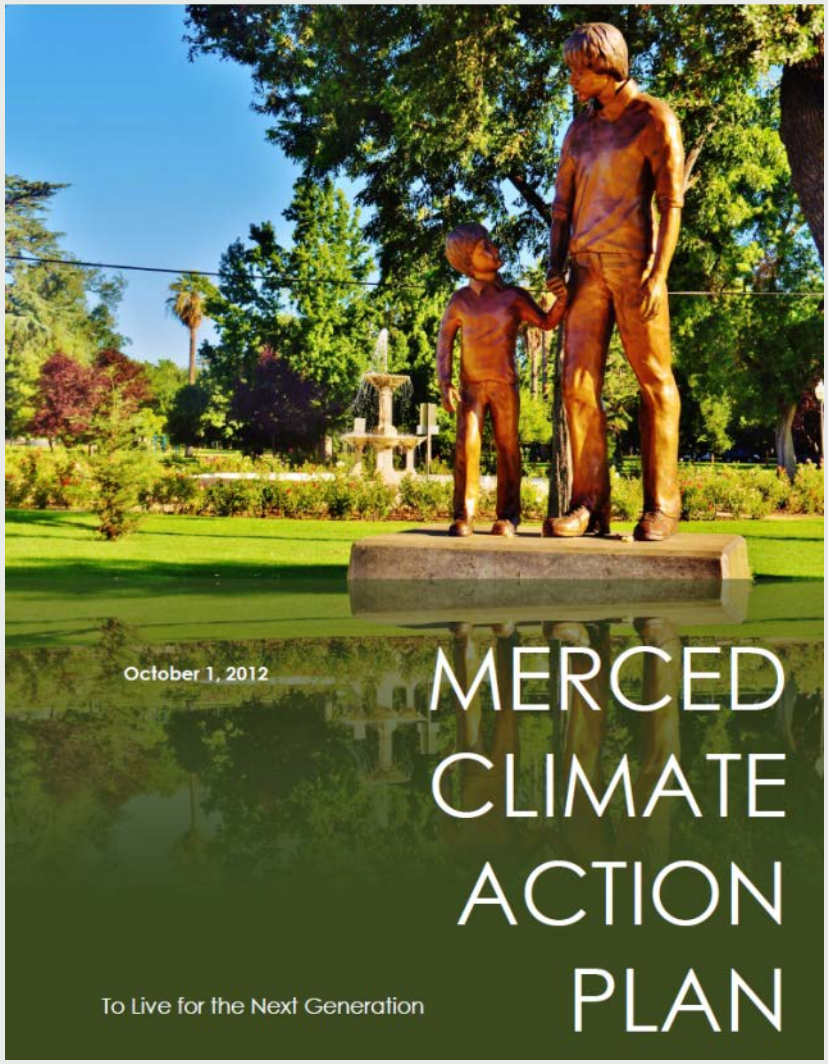
What are the benefits of CAP tools?

- The tools:
  - PCAP
  - Project options checklist
  - UDM
  - Monitoring tool
- The benefits:
  - Guidance
  - Information
  - Clarify implementation processes



What are the benefits of CAP tools?

- The tools:
  - PCAP
  - **Project options checklist**
  - UDM
  - **Monitoring tool**
- The benefits:
  - Guidance
  - Information
  - Clarify implementation processes



Project Options Checklist
Performance-Based Approach

- Eight options for projects
  - Four residential, four nonresidential
- Checklists used to confirm compliance
  - Easy for project applicants and City staff
  - Displays all options and actions for each
- Provides details on how to meet each option
  - Integration with UDM and state codes

Project Options Checklist
Performance-Based Approach

- Target: close the gap with new development
  - Requires a **29% reduction below BAU for emissions from new development**
  - Streamlined way of applying CAP measures
  - Provides developers with flexibility
- New projects select from a range of measures
- Certainty that projects will achieve CAP goals while supporting SJVAPCD regulations
  - 29% goal is consistent with SJVAPCD project-level guidance

Checklist Walk-Through

Checklist: Project Options

	Options			
Design Elements for New Residential Projects	**1**	**2**	**3**	**4**
Install an on-site solar water heating system		✓	✓	
Construct buildings to CALGreen Tier 1				✓
Install an on-site solar photovoltaic system (5 kW)	✓			
Install an on-site solar photovoltaic system (3 kW)		✓		
Reduce vehicle trips 15% below average		✓		
Reduce vehicle trips 20% below average			✓	
Use passive solar design techniques			✓	
Be located in an area of moderate connectivity			✓	
Provide an EV charging station				✓
Use trees to shade building				✓

Checklist: Project Options

	Options			
Design Elements for New Nonresidential Projects	**1**	**2**	**3**	**4**
Install an on-site solar water heating system			✓	
Construct buildings to CALGreen Tier 1	✓	✓		
Install an on-site solar photovoltaic system (10 kW)				✓
Install an on-site solar photovoltaic system (5 kW)		✓		
Reduce vehicle trips 15% below average		✓		
Reduce vehicle trips 25% below average	✓			
Use passive solar design techniques			✓	
Provide an EV charging station			✓	
Dedicate at least 25% of floor space to residences	✓			

Other Potential Options

- Residential projects:
  - 2 kW solar PV array
  - Passive solar design
  - Shade trees (average of 3 per unit)
  - 25% reduction in project VMT
- Nonresidential projects:
  - CALGreen Tier 1 energy efficiency standards
  - Publicly accessible EV charger
  - Shade trees (average of 3 per building)
  - 20% reduction in project VMT

Questions for Focus Group

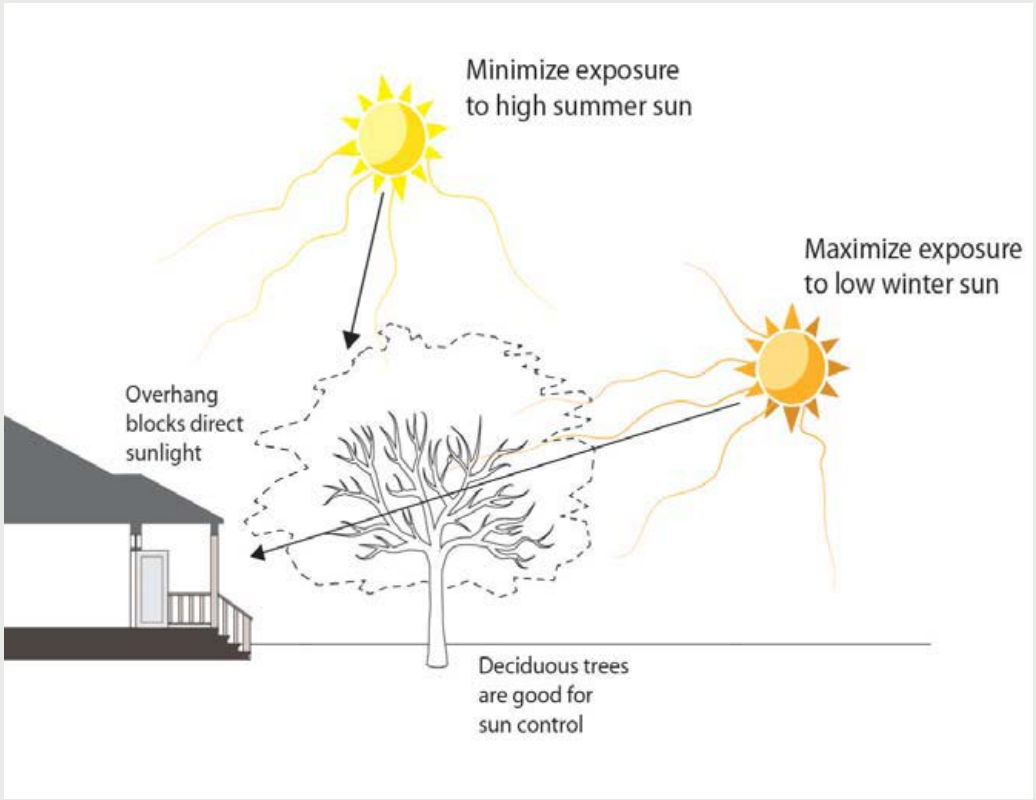
- What measures from the Project Options Checklists do you think new projects are most likely to implement?

Questions for Focus Group

- What other options for project streamlining should be considered in the Project Options Checklists?

Unified Design Manual

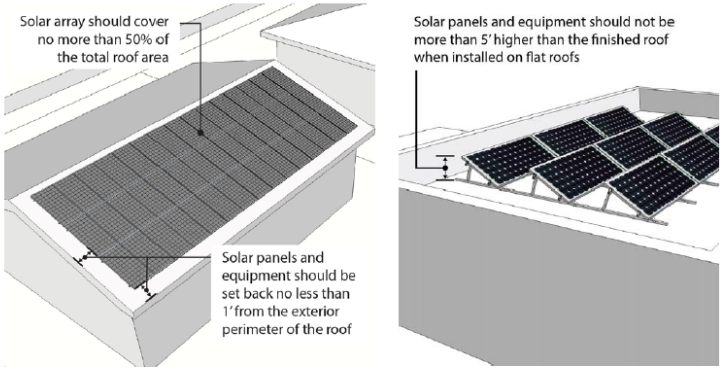
- Supports CAP checklist
- Shows desired development patterns
- Provides clarity and predictability



Unified Design Manual Progress

5.1 Solar Orientation and Solar Energy

B. Roof-Mounted Solar Energy Design and Siting (continued)



property so that they will not shade the solar energy facility.

11. For flat roofs, architectural styles and features should be incorporated to screen the solar energy facilities. A parapet or tower architectural feature can effectively and attractively screen solar energy system.
12. For sloped roofs, visual clutter should be reduced 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.
13. Solar panels should be designed with nonreflective coatings and nonreflective surfaces on exposed frames and components to minimize glare.
14. Solar panels should be angled and oriented to minimize glare on neighboring windows and, to the extent possible, away from public areas.
15. To allow the future installation of solar facilities, one section of the roof should be designed with at least 300 square feet of space for solar installations that is south-facing, and where all mechanical equipment and skylights are absent.

5.1 Solar Orientation and Solar Energy

C. Ground-Mounted Solar Energy Design and Siting

Building height panels serve as shade

Solar panels serve as shade structures in parking lots

Intent

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

Design Considerations

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

ZC. Ground-mounted photovoltaic solar panels should be screened from public view.
2. The ground-mounted solar energy system should not be located within a required front yard area.
3. The solar energy system is encouraged to serve as a shade structure in parking lots.
4. Ground-mounted solar energy structures 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. Solar panels should be designed and located to prevent glare on the adjacent public right-of-way as well as on any adjacent inhabited structure.

Unified Design Manual Progress

Common Roofing Materials and Cool Options

Roof Type	Roof Slope	Cool Roof Options
 Asphalt Shingle	Steep-Sloped	"white" (actually light gray) or cool color shingle
 Built-Up Roof	Low-Sloped	with white gravel white smooth coating
 Clay Tile	Steep-Sloped	terracotta (unglazed red tile) color with cool pigments white
 Concrete Tile	Steep-Sloped	color with cool pigments white
 Liquid Applied Coating	Low- or Steep-Sloped	smooth white
 Metal Roof	Low- or Steep-Sloped	white painted color with cool pigments
 Modified Bitumen	Low-Sloped	white coating over a mineral surface (SBS, APP)
 Single-Ply Membrane	Low-Sloped	white (PVC or EPDM) color with cool pigments
 Wood Shake	Steep-Sloped	bare

Monitoring Tool

- Identifies:
  - What information needs to be tracked
  - Where the information comes from (department, agency, etc.)
- Calculates:
  - Annual emissions estimate
  - Current progress to adopted 2020 target
  - Anticipated 2020 progress to adopted 2020 target, based on current growth
  - Implementation rate of CAP measures

Yearly Tracking with Monitoring Tool

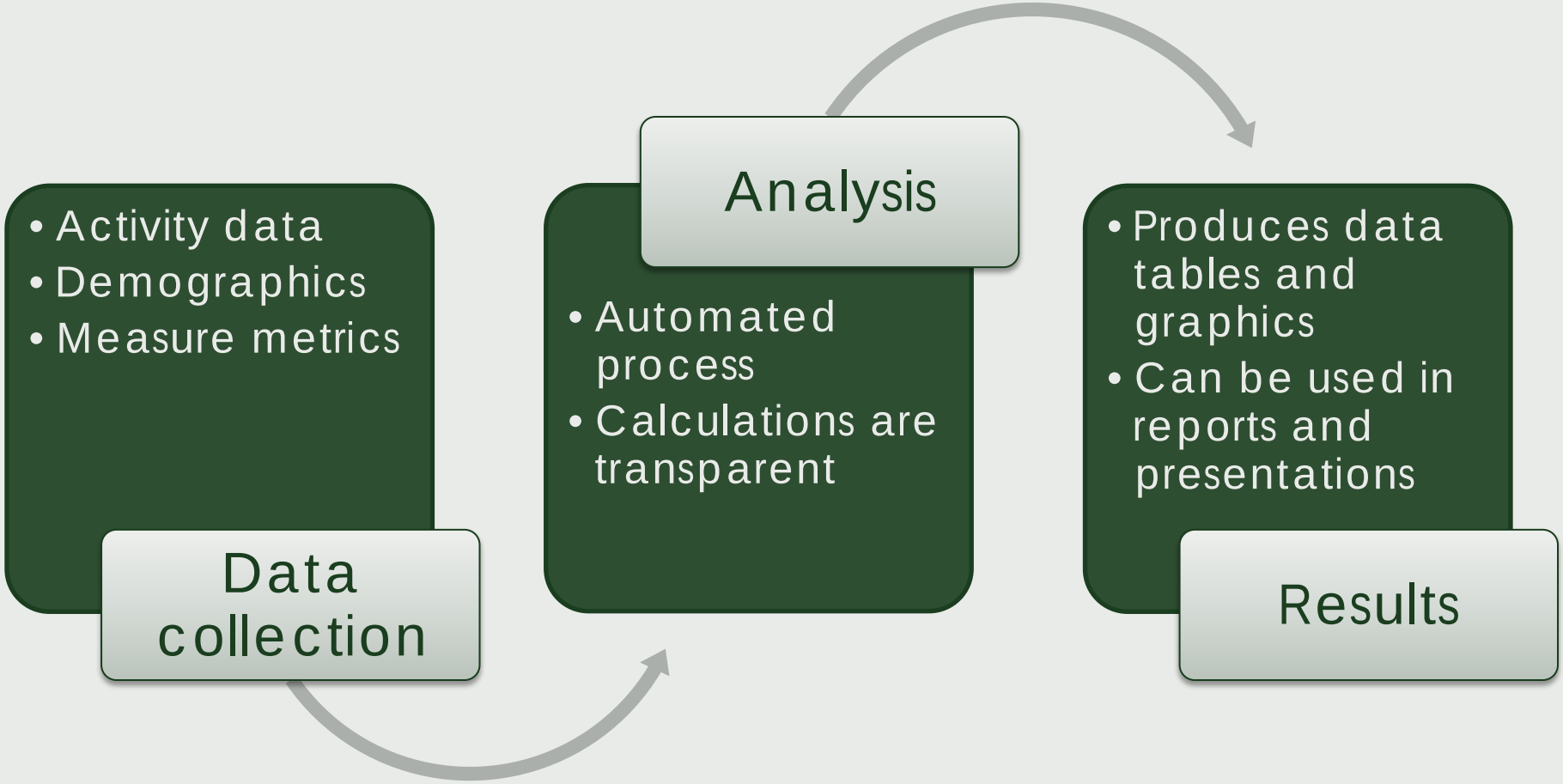
Measures Affected		Measure Indicator	Yearly Total
13: Single-family retrofits		Number of basic and advanced home retrofits	
14: Commercial/industrial energy efficiency		Number of jobs in buildings with retrofits or that have been retrocommissioned	
15a: Urban heat island - residential		Residential cool roofs	
15b: Urban heat island - nonresidential		Number of jobs in buildings with cool roofs	
16: Outdoor lighting		Number of jobs in buildings with energy-efficient outdoor lighting	
17: Residential renewables		Existing households with solar panels installed	

Data collected by New Development tables

Yearly Tracking with Monitoring Tool

- Ability to analyze current growth rates and changes in anticipated emissions by 2020
- Shows anticipated changes in progress to target prior to CAP implementation, based on:
  - Anticipated state reductions
  - Current growth rates

Monitoring Tool Process



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DISCUSSION AND ACTIVITIES

Questions for Focus Group

- Do you have any suggestions or feedback regarding the usability or functionality of the Project Options Checklists?

Questions for Focus Group

- Do you have specific expectations for what the PCAP (the CAP work plan) will consist of?

Questions for Focus Group

- Do you have other suggestions to ensure the success of CAP implementation?

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NEXT STEPS

Next Steps

- **Summer 2015:** Complete Draft CAP Tools
  - PCAP (contains 31 quantified measures and Project Options tables)
  - Draft UDM
  - Monitoring Tool
- **July 31, 2015:** Deliver Draft CAP Tools to Focus Group
- **September 3, 2015:** Next Focus Group meeting to review the complete Draft PCAP (including measures and Project Options tables), UDM, and Monitoring Tool
- **Late Fall 2015:** Final Focus Group meeting to review updated documents and tools and provide recommendations to Council
- **Early 2016:** Present documents to Council

Thank you

Please use comment cards for any additional thoughts you'd like to share. You can also provide any additional thoughts later by e-mail directly to Bill King.

For additional questions, please contact Bill King:

KingB@cityofmerced.org
(209) 385-4768

ADDITIONAL INFORMATION

Achieving the Target

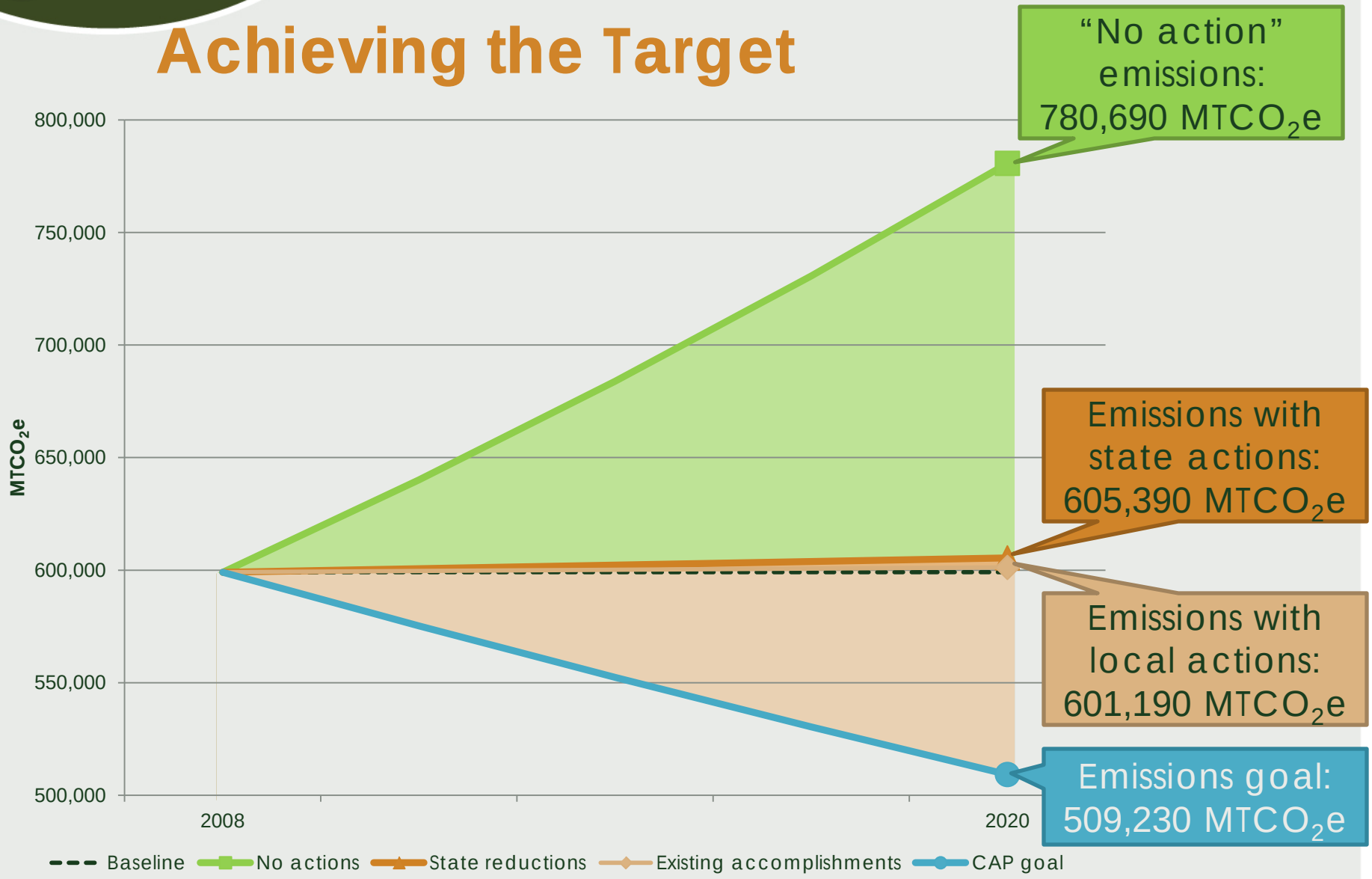
- At last meeting, CAP measures did not achieve adopted target:
  - Gap of 2,340 $MTCO_2e$
- Current suite of measures meets adopted target:
  - Excess of 1,590 $MTCO_2e$

Achieving the Target

- Updates to two measures
  - Increased solar energy systems on residences
  - PG&E's Green Tariff program (mandated by state, to begin late this year)

Image by Dennis Schroeder, NREL (22158)

Achieving the Target



STREAMLINING APPROACH AND PROCESS

How do we actually achieve the target?

City Staff

- Administer CAP checklist & UDM
- Track local progress & state actions

New Development

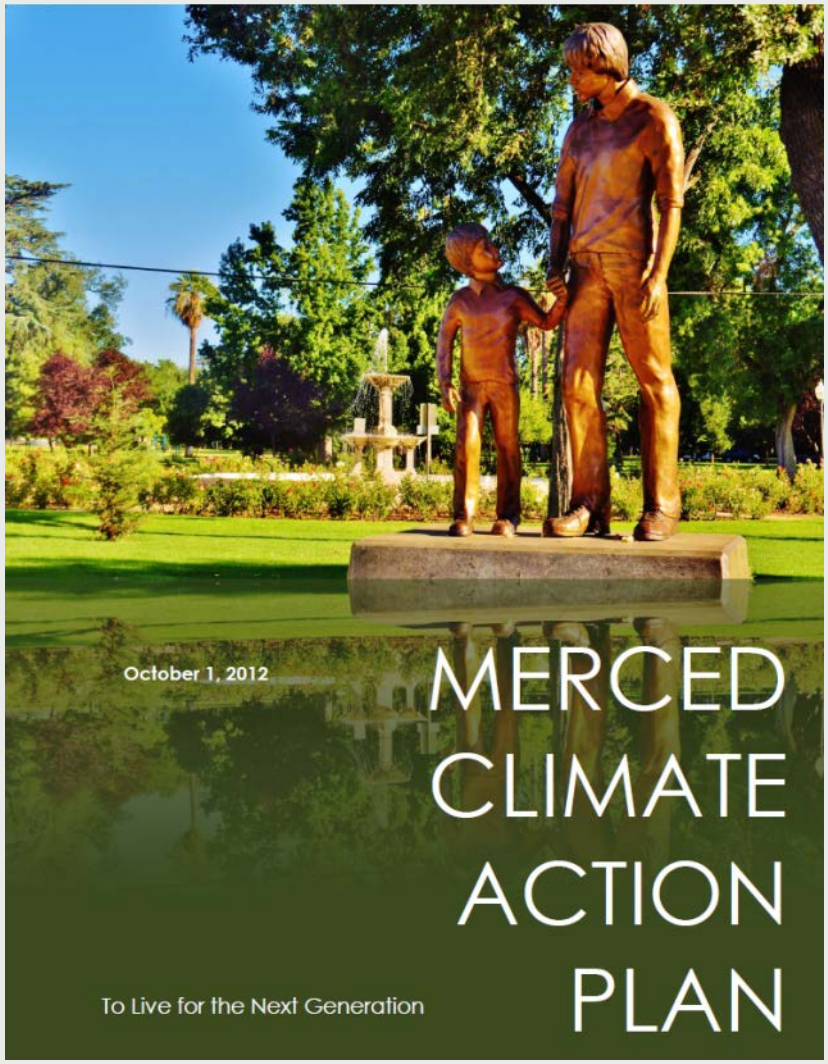
- Comply with CAP checklist, UDM, and existing codes, **OR**
- Complete separate project analysis

Residents and Businesses

- Participate in PCAP programs
- Support City staff

Rationale for CAP Streamlining Approach

- Follow adopted Council direction in the CAP
  - Maximize CAP utility
  - Simplify compliance with existing regulations



What is Streamlining?

Development Ready "Red-Carpet" Service

Merced's robust **Climate Action Plan can be the foundational document** upon which a "Programmatic Climate Action Plan" can be crafted to **create a streamlined and predictable greenhouse gas emission assessment development review process**. Senate Bill (SB) 97 acknowledges that climate change is an important environmental issue that requires analysis under the California Environmental Quality Act (CEQA). **CEQA requires that Lead Agencies analyze the greenhouse gas emissions** of proposed projects, and must reach a conclusion regarding the significance of those emissions, and, when a project's greenhouse gas emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions. These **assessments are highly technical, resulting in increased review time and financial costs to applicants of development projects, and legal exposure** when not prepared properly. **Lead Agencies may significantly streamline this analysis through adoption of a Programmatic Climate Action Plan**, which would follow adoption of a Climate Action Plan.

From City of Merced Climate Action Plan, page 1-5

What is Streamlining?

- Front-load requirements to analyze GHG emissions so new projects don't have to
  - Keep it simple
  - Programmatic (plan-level)
  - Maximize flexibility allowed by CEQA

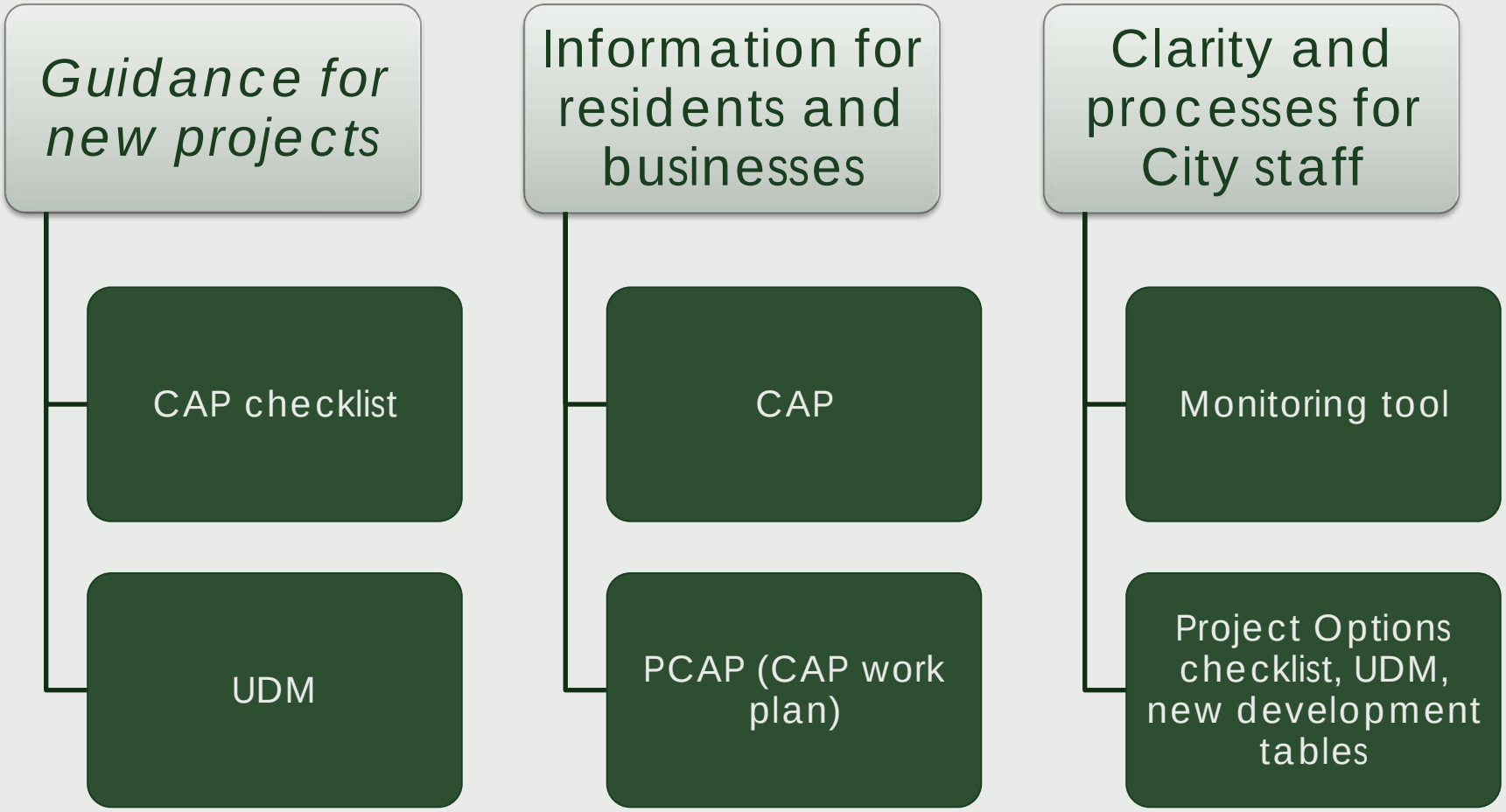
Project Options Checklist
Performance-Based Approach

- Helps comply with air district regulations
- Implements adopted General Plan EIR to mitigate buildout
- Measures support suggested ISR mitigations
- Advances CAP goal of streamlining development review

Image by PMC

What is the intent and benefit of CAP tools?

CAP tool benefits – show in 3 slides



How do we use the tools? - get to this point – partition out

Are you applying for a permit?

- Yes
  - Do CAP checklist
  - Refer to UDM
- No (business or resident)
  - Learn about and participate in CAP programs
- No (City staff)
  - Use tools to analyze and review projects
  - Monitor and track progress

New Development Tables

- Collect additional data to support CAP implementation
- Assist in tracking and reporting on CAP measure successes
- Provide detailed standards and connections to UDM, CAP measures

Image by PMC

New Development Tables

Measure		Selection	Notes
Renewable Energy			
Measures 17 and 18	Does the project have an on-site renewable energy system, not including any community-shared solar? All on-site renewable electricity systems should be consistent with the applicable standards in the Unified Design Manual, Section 5.1	☐ Yes ☐ No ☐ N/A	If yes, how much electricity will be produced? _____ kWh If yes, what type of system? ☐ Solar ☐ Wind ☐ Other