



SANBAG CAP Implementation Tools Final Report

CAP Implementation Strategies

OCTOBER 2015



SANBAG CAP Implementation Tools Final Reports On CAP Implementation Strategies

Prepared for:



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Acronyms and Abbreviations

AB 32	Assembly Bill 32
BAU	business-as-usual
CAP	Climate Action Plan
CAGR	compound annual growth rate
CARB	California Air Resources Board
CEC	California Energy Commission
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
FTE	full-time-equivalent
GHG	greenhouse gas
kWh	kilowatt-hour
LCFS	low carbon fuel standard
MDAQMD	Mojave Desert Air Quality Management District
MG	million gallons
MMBtu	million British thermal units
MT	metric tons
N ₂ O	nitrous oxide
SANBAG	San Bernardino County Associated Governments
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SCAQMD	South Coast Air Quality Management District
VMT	vehicle miles traveled

Chapter I Introduction

The San Bernardino County Regional Greenhouse Gas (GHG) Reduction Plan provided San Bernardino County Associated Governments (SANBAG) and the 21 Participating Cities with an inventory of GHG emissions, targets, and provided reduction strategies for each City, which are the first two steps in a six step process of climate action planning. The Climate Action Plan (CAP) Implementation Tools Project provided vital tools for the Participating Cities to use in the development, adoption, implementation, and monitoring of city specific CAPs, which will fulfill the remaining steps in the climate action planning process. This Final Report on Implementation Strategies is one of three Final Reports for the Project and summarizes the Implementation Strategies documents delivered to SANBAG and the Participating Cities during the execution of the Project. The purpose of this report is two-fold: provide SCAG and SANBAG with documentation of the deliverables, and provide additional guidance to SANBAG and the Participating Cities on the use of the documents and tools provided during this Project.

This Final Report is structured in the following way:

- **Preparing a CAP:** How to use the CAP templates in the development of a City Specific CAP
- **Administration and Staffing Guidance:** How to administer and staff implementation of a CAP
- **Funding and Budgeting Strategies:** How to fund the implementation of a CAP
- **Timelines and Phasing Strategies:** Advice on how the reduction strategies should be phased
- **Best Practices of Implementing a CAP:** Great advice on implementing a CAP
- **Regional Coordination:** Describes the coordination between the County, SANBAG, SCAG and the local jurisdictions concerning implementation of a CAP.



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Chapter 2 Preparing a Local CAP

The San Bernardino County Regional Greenhouse Gas (GHG) Reduction Plan provided SANBAG and the 21 Participating Cities with all the technical information needed to develop a local CAP. The purpose of the SANBAG CAP Implementation Tools Project was to take expand upon that technical information and provide the templates and tools needed to draft, adopt, and implement a local CAP tiered from the Regional Plan.

To assist in this process a live educational webinar was provided on October 29, 2014. This webinar provided the basics of why and how to develop a CAP. The recording of that webinar is still available on the SANBAG website and the PowerPoint used during that webinar is attached to this report as Appendix A-1.

The first step in preparing a CAP using the tools provided is to take the CAP template chapters and customize them to the needs of your local jurisdiction. The CAP template Chapters are as follows:

Cover and TOC: You only need to provide your City name, address and logo on the Cover to complete this template

Chapter 1-Introductiton: This chapter provides a brief description of the San Bernardino County Regional GHG Reduction Plan, how the local CAP is tiered from that Plan, describes SANBAG's role, and the intent of the CAP. All that is needed to customize this chapter is to insert the city name in the placeholders provided and highlighted in the template.

Chapter 2-Background: Provides the regulatory background related to climate action planning, regional coordination and utility incentives provided within the city, a brief description of climate change and GHGs, and the relationship of climate action plans to CEQA and local General Plans. This template is complete as is and does not require editing.

Chapter 3-City Profile: This chapter template provides all the technical data including social economic profiles, baseline GHG emission inventories, forecasts of business as usual (BAU) GHG emission in 2020, reduced GHG emissions associated with state and regional regulations and policies, reduced GHG emissions associated with local reduction strategies, reduction targets, and comparison of emissions to the targets for all 21 Participating Cities. To customize this template you need to keep your city profile and delete the other 20 profiles from the chapter.

Chapter 4-Reduction Strategies: Provides a description of all the reduction strategies within the San Bernardino County Regional GHG Reduction Plan. To customize this template delete any of the strategies not chosen by your local jurisdiction and keep only those that will be implemented by the local CAP.

Chapter 5-Implemantion: The CAP Implementation Chapter template provides information on Administration and Staffing of the CAP, funding and budgeting the reduction strategies, timing and phasing of the reduction strategies, the need for ongoing community outreach and education in order to be successful in implementation, a description of the monitoring and reporting program, regional

coordination, and continued GHG reductions after 2020. This chapter has placeholders you need to complete designating the person or people and departments responsible for reduction measure implementation and monitoring and reporting progress of the CAP.

Chapter 6-References: Cites all the appropriate documents referenced in the CAP. The only edits you need to make to this chapter is to cite your City's General Plan.

These CAP template chapters were provided to each City representative in MS Word format in February 2015.

To assist the 21 Participating Cities in taking these template chapters and customizing them to their local jurisdiction, a CAP Assembly Workshop was conducted on February 25, 2015. The PowerPoint presentation used for that workshop is provided in Appendix A-2 of this final report.

At the request of SANBAG, Atkins assembled the Yucaipa CAP using the templates in order to demonstrate how the templates are used and the Yucaipa CAP was provided as an example for other Participating Cities to use in developing their local CAPs. The Yucaipa CAP is provided in Appendix A-3.

Local CAP Adoption Process:

In addition, a CAP Resolution template was provided to the 21 Participating Cities to use during the adoption process of the CAP. The resolution described how the CAP is part of the San Bernardino County Regional GHG Reduction Plan, and that the Draft and Final Environmental Impact Report (EIR) for the Plan adequately evaluated the environmental impacts of the local CAP and that the City is tiering from the EIR and does not need to do additional CEQA analysis.

For some Cities, minor technical changes were made during the development of their local CAP and that required a CEQA Addendum to complete the CEQA process. The City of Yucaipa needed a CEQA Addendum during their adoption of the Yucaipa CAP. Yucaipa provided their CEQA Addendum to the 21 Participating Cities as an example to use if they need it.

Chapter 3 Administration and Staffing

In November 2014, Atkins provided a CAP Administration and Staffing chapter template for review (provided in Appendix B-1). Based upon SANBAG and Participating Cities staff comments, the chapter template was revised and provided in the CAP chapter templates (Chapter 5 of the CAP chapter templates), in February 2015. The following summarizes the administration and staffing needed to implement and monitor progress of a CAP.

Success in meeting the City's GHG emission reduction goal will depend on cooperation, innovation, and participation by the City and residents, businesses, and local government entities. This section outlines key steps that the City would follow for the implementation of this CAP. The City would implement the following key internal administration and staffing actions:

1. Create a CAP Implantation Team (CIT) to support and guide the City's efforts to conserve energy and reduce emissions.
2. Designate a CAP Implementation Coordinator (CIC) to oversee, direct and coordinate implementation of the CAP as well as monitor and report the energy efficiency and GHG reduction efforts.

The CIT would be responsible for the implementing this CAP, coordinating among all involved City departments, and recommending modifications and changes to the CAP over time. The team will include the following departments and divisions, but would be expanded as needed to ensure coordinated leadership in plan implementation: Public Works/Engineering, Planning, Community Development, and Redevelopment Successor Agency may all need to be part of the CIT in order to ensure implementation of reduction strategies by these departments.

Administration of CAP Monitoring and Reporting

Regular monitoring is important to ensure programs are functioning as they were originally intended. Early identification of effective strategies and potential issues would enable the City to make informed decisions on future priorities, funding, and scheduling. Moreover, monitoring provides concrete data to document the City's progress in reducing GHG emissions. The CIT or CIC would be responsible for developing a protocol for monitoring the effectiveness of emissions reduction programs as well as for undertaking emissions inventory updates.

Track Completion of GHG Reduction Measures—The CIT or CIC would keep track of measures implemented as scheduled in the CAP, including progress reports on each measure, funding, and savings. This will allow at least a rough attribution of gains when combined with regular GHG inventory updates.

More information on monitoring and reporting is provided the Final Report on CAP Monitoring and Reporting.

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Chapter 4 Funding and Budgeting Strategies

In August 2014 ICF provided a Funding and Budgeting Strategies Memorandum to assist the Participating Cities in understanding the grants and other funding mechanisms that can be used to finance the implementation of the CAP. This memorandum is provided in Appendix C-1 of this Final report. The following summarizes the funding and budgeting strategies that can be employed to implement a CAP.

Implementation of the local GHG reduction measures will require the City and other public agencies, local businesses, developers/builders, and existing commercial building owners and residential homeowners and individuals to incur increased costs for the capital improvements and other investments, and increased operations and maintenance costs. However, in some cases operating costs are anticipated to decrease, resulting in offsetting savings. This section presents a summary of funding and financing options (Table 5-1) available at the writing of this document. Some funding sources are not necessarily directed towards a City, but to a larger regional agency such as SANBAG, a JPA, or a waste services provider serving multiple jurisdictions. The City should continually monitor private and public funding sources for new grant and rebate opportunities and to better understand how larger agencies are accessing funds that can be used for GHG reductions in their area. Leveraging financing sources is one of the most important roles a local government can play in helping the community to implement many of the GHG reduction measures.

Table 4-1. Potential Funding Sources to Support GHG Reduction Measures

State and Federal Funds	
Federal Tax Credits for Energy Efficiency	<ul style="list-style-type: none">• Tax credits for energy efficiency can be promoted to residents.
Energy Efficient Mortgages (EEM)	<ul style="list-style-type: none">• An EEM is a mortgage that credits a home's energy efficiency in the mortgage itself.• Residents can finance energy saving measures as part of a single mortgage.• To verify a home's energy efficiency, an EEM typically requires a home energy rating of the house by a home energy rater before financing is approved.• EEMs are typically used to purchase a new home that is already energy efficient, such as an ENERGY STAR® qualified home.
California Department of Resources Recycling and Recovery (CalRecycle)	<ul style="list-style-type: none">• CalRecycle grant programs allow jurisdictions to assist public and private entities in management of waste streams.• Incorporated cities and counties in California are eligible for funds.• Program funds are intended to:<ul style="list-style-type: none">○ Reduce, reuse, and recycle all waste.○ Encourage development of recycled-content products and markets.○ Protect public health and safety and foster environmental sustainability.

California Air Resources Board (CARB)	<ul style="list-style-type: none"> • CARB offers several grants, incentives, and credits programs to reduce on-road and off-road transportation emissions. Residents, businesses, and fleet operators can receive funds or incentives depending on the program. • The following programs can be utilized to fund local measures: <ul style="list-style-type: none"> ○ Air Quality Improvement Program (AB 118) ○ Carl Moyer Program – Voucher Incentive Program ○ Goods Movement Emission Reduction Program (Prop 1B Incentives) ○ Loan Incentives Program ○ Lower-Emission School Bus Program/School Bus Retrofit and Replacement Account (Prop 1B and EPA Incentives) 																						
Existing Capital Improvement Program	<ul style="list-style-type: none"> • State and federal funds would most likely continue to local governments, builders, and homeowners in the following forms. <ul style="list-style-type: none"> ○ Grants ○ Transportation and transit funding ○ Tax credit and rebate programs • The Capital Improvement Program can be utilized for measures relating to traffic or transit. 																						
State Funding for Infrastructure	<ul style="list-style-type: none"> • The state’s Infill Infrastructure Grant Program may potentially be used to help fund measures that promote infill housing development. • Grants can be used for gap funding for infrastructure improvements necessary for specific residential or mixed-use infill development projects. 																						
Transportation-Related Federal and State Funding	<ul style="list-style-type: none"> • For funding measures related to transit, bicycle, or pedestrian improvements, the following funding sources may be utilized. <table> <tr> <td>Safe, Accountable, Flexible, Efficient Transportation Equity Act—Legacy for Users (SAFETEA-LU).</td><td>FTA Small Starts</td></tr> <tr> <td>Surface Transportation Program Fund, Section 1108 (STP)</td><td>FTA Section 5311(f)</td></tr> <tr> <td>Congestion Mitigation and Air Quality Improvement Program, Section 1110 (CMAQ)</td><td>California's Bicycle Transportation Account (BTA)</td></tr> <tr> <td>Transportation Enhancement Activities (TEA)</td><td>Environmental Enhancement and Mitigation (EEM) Program</td></tr> <tr> <td>National Recreational Trails Program</td><td>Safe Routes to School (SR2S)</td></tr> <tr> <td>National Highway System Fund (NHS)</td><td>Office of Traffic Safety (OTS)</td></tr> <tr> <td>National Highway Safety Act, Section 402</td><td>Transportation Development Act (TDA) Article III</td></tr> <tr> <td>Transit Enhancement Activity, Section 3003</td><td>Transportation Funds for Clean Air (TFCA, formerly AB 434)</td></tr> <tr> <td>Section 3 Mass Transit Capital Grants</td><td>Flexible Congestion Relief (FCR) Program</td></tr> <tr> <td>Bridge Repair & Replacement Program (BRRP)</td><td>State Highway Operations and Protection Program (SHOPP)</td></tr> <tr> <td>Federal Transit Administration (FTA) 5309</td><td></td></tr> </table> 	Safe, Accountable, Flexible, Efficient Transportation Equity Act—Legacy for Users (SAFETEA-LU).	FTA Small Starts	Surface Transportation Program Fund, Section 1108 (STP)	FTA Section 5311(f)	Congestion Mitigation and Air Quality Improvement Program, Section 1110 (CMAQ)	California's Bicycle Transportation Account (BTA)	Transportation Enhancement Activities (TEA)	Environmental Enhancement and Mitigation (EEM) Program	National Recreational Trails Program	Safe Routes to School (SR2S)	National Highway System Fund (NHS)	Office of Traffic Safety (OTS)	National Highway Safety Act, Section 402	Transportation Development Act (TDA) Article III	Transit Enhancement Activity, Section 3003	Transportation Funds for Clean Air (TFCA, formerly AB 434)	Section 3 Mass Transit Capital Grants	Flexible Congestion Relief (FCR) Program	Bridge Repair & Replacement Program (BRRP)	State Highway Operations and Protection Program (SHOPP)	Federal Transit Administration (FTA) 5309	
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Other Local/Regional Funding Sources

- SCAQMD has several grant programs related to air quality improvement, some of which may apply to various reduction measures.
- Bus Stop Sponsorships—Advertisement sponsorship of bus stops has been utilized as a revenue source.
- Transit Fare Increases—Transit fares could be increased to help fund capital improvements, though increases also have the potential to decrease ridership in the short term.
- Parcel Tax—An election consistent with Proposition 218 could serve to increase the existing level of taxation and provide additional funding for transit-related capital improvements. However, in the current economic climate, this may not be a likely financing source unless economic conditions improve and community support for such a taxation approach is favorable.

Utility Rebates

Energy Upgrade California

- SoCal Edison is one of the three utilities participating in the Go Solar initiative.
- A variety of rebates are available for existing and new homes.
- Photovoltaics, thermal technologies, and solar hot water projects are eligible.
- Single-family homes, commercial development, and affordable housing are eligible.
- Budget for new solar hot water systems for 2010–2017: \$250 million.
- Program is intended for home energy upgrades.
- Funded by the American Recovery and Reinvestment Act, California utility ratepayers, and private contributions.
- Utilities administer the program, offering homeowners the choice of one of two upgrade packages—basic or advanced.
- Homeowners are connected to home energy professionals.
- Rebates, incentives, and financing are available.
- Homeowners can receive up to \$4,000 back on an upgrade through the local utility.

Private Funding

- Private equity can be used to finance energy improvements, with returns realized as future cost savings.
- Rent increases can fund retrofits in commercial buildings.
- Net energy cost savings can fund retrofits in households.
- Power Purchase Agreements (PPA) involve a private company that purchases, installs, and maintains a renewable energy technology through a contract that typically lasts 15 years. After 15 years, the company would uninstall the technology or sign a new contract.
- Power produced from a PPA is sold to customers. SANBAG recently approved a contract for solar power site assessments, bringing together a number of cities and agencies to aggregate their solar sites.
- On-Bill Financing (OBF) can be promoted to businesses for energy-efficiency retrofits. Funding from OBF is a no-interest loan that is paid back through the monthly utility bill. Lighting, refrigeration, HVAC, and LED streetlights are all eligible projects.

Other Funding Mechanisms for Implementation

- Increased operating costs can be supported by grants from the Strategic Growth Council (SGC) or the State Department of Conservation (DOC) to fund sustainable community planning, natural resource conservation, and development, adoption, and implementation of Sustainable Community planning elements, including climate action plans and general plan amendments.

Future Funding Options: Funding Mechanisms for Capital and/or Implementation Costs

New Development Impact Fees	<ul style="list-style-type: none"> • These types of fees may have some potential to provide funding, but such fees are best implemented when the real estate market and overall regional economic conditions are strong.
General Obligation Bond	<ul style="list-style-type: none"> • A general obligation bond is a form of long term borrowing and could be utilized to fund municipal improvements.
AB 811 Districts Property-Assessed Clean Energy (PACE)	<ul style="list-style-type: none"> • AB 811 is intended to help municipalities accomplish goals outlined in AB 32. • The PACE finance program is intended to finance energy and water improvements within a home or business through a land-secured loan, and funds are repaid through property assessments. • Municipalities are authorized to designate areas where property owners can enter into contractual assessments to receive long-term, low-interest loans for energy and water efficiency improvements, and renewable energy installation on their property. • Financing is repaid through property tax bills. • AB 811 and the PACE program are currently on hold for residential properties due to potential violation of standard FHFA federally guaranteed (Fannie Mae/Freddie Mac) residential mortgage contracts. • The PACE program is not on hold for commercial properties. • SANBAG, as the COG, has implemented the Home Energy Renovation Opportunity (HERO; a PACE program) in the region to assist residents in financing residential energy efficiency and solar retrofits. This program will be the primary funding mechanism for reduction measure Energy-7: Solar Installation for Existing Housing. • SANBAG will structure a regional energy efficiency and water conservation improvement loan program for existing buildings (AB 181 and AB 474).

Please refer to Appendix C-1 for the full review of budgeting and financing strategies.

Chapter 5 Timelines and Phasing

All the inventory outputs can be exported. Choose an inventory and click on Export to save a copy of the report and make further analysis.

After taking into account the reductions in energy and water usage and the GHG emissions resulting from statewide measures, Participating Cities need to implement the local reduction measures to reach its reduction targets.

The SANBAG has developed an implementation schedule for the local reduction measures for the Participating Cities to consider when implementing their CAPs. Prioritization was based on the following factors:

- Cost effectiveness
- GHG reduction efficiency
- Availability of funding
- Level of City Control
- Ease of implementation
- Time to implement.

In general consideration of these factors, the following are the key phases starting in 2015 through 2020. In addition, Table 5-1 provides a list of criteria for prioritization.

- **Phase 1 (2015-2016):** During Phase 1, the City will develop key ordinances, programs, policies, and procedures required to support and enforce the local mandatory GHG reduction measures such as implementation of SBX7-7. Likewise, the City would create a planning framework that would guide implementation of the voluntary measures and performance standards. Measure funding would be secured and a detailed finance plan developed. The City would conduct an inventory for 2014 (in early 2015) to determine changes in emissions since 2008.
- **Phase 2 (2016-2017):** During Phase 2, the City would continue to implement measures that were begun in Phase 1. The City would evaluate the effectiveness of these measures and adapt management procedures accordingly. Likewise, the City will conduct an updated community GHG inventory to monitor emissions trends. The City would conduct an inventory for 2017 (in early 2018) to determine progress in implementing the CAP.
- **Phase 3 (2018-2020):** During Phase 3, the City would continue to implement and support measures begun in Phases 1 and 2, and encourage implementation of all remaining CAP measures (Phase 3 measures). An analysis of the effectiveness of Phase 1 and 2 measures would be conducted, as well as an updated community GHG inventory for 2019 (in early 2020). The

City could also begin developing plans for post-2020 actions during this period (see further discussion below)

To encourage implementation of all reduction measures, the CIC, with consultation from the planning commission, City council, City staff and/or other key stakeholders, would develop a CAP Implementation Timeline. Measure prioritization could be based on the following factors.

- **Cost/Funding**—How much does the measure cost? Is funding already in place for the measure?
- **Greenhouse Gas Reductions**—How effective is the measure at reducing greenhouse gases?
- **Other Benefits**—For example, does the measure improve water quality or conserve resources? Would it create jobs or enhance community well-being?
- **Consistency with Existing Programs**—Does the measure complement or extend existing programs?
- **Impact on the Community**—What are the advantages and disadvantages of the measure to the community as a whole?
- **Speed of Implementation**—How quickly can the measure be implemented and when would the City begin to see benefits?
- **Implementation Effort**—How difficult will it be to develop and implement the program?

A qualitative appraisal of implementation effort for the City is also provided. Measures can be categorized based on the convention of low, medium, or high, with low-level measures requiring the least level of effort by the City and being the most likely to be pursued immediately (i.e., the low hanging fruit).

Table 5-1. Implementation Matrix

Implementation Effort Level	Sample Criteria
LOW	<ul style="list-style-type: none"> • Requires limited staff resources to develop. • Existing programs in place to support implementation. • Required internal and external coordination is limited. • Required revisions to policy or code are limited.
MEDIUM	<ul style="list-style-type: none"> • Requires staff resources beyond typical daily level. • Policy or code revisions necessary. • Internal and external coordination (e.g., with stakeholders, other cities or agencies, or general public) is necessary.
HIGH	<ul style="list-style-type: none"> • Requires extensive staff time and resources. • Requires development of completely new policies or programs and potential changes to the general plan. • Robust outreach program required to alert residents and businesses of program requirements and eligibility. • Requires regional cooperation and securing long term funding.

The Action Priority Matrix shows an example of how different GHG reduction measures can be categorized and scheduled based on implementation effort and cost.

Figure 5-1. Activity Priority Matrix



A detailed description of reduction strategy timelines and phasing can be found in Chapter 5 of the CAP Chapter Templates and Appendix D-1 of this Final Report.

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Chapter 6 CAP Implementation Best Practices

In August 2014 ICF provided a Memorandum to SANBAG and the Participating Cities on Best Practices for Climate Action Plan Implementation. This memorandum is provided in Appendix E-1 of this Final Report. On August 27, 2014, Atkins and ICF presented the information to SANBAG and the Participating Cities during the Planning and Development Technical Forum (PDTF) meeting. The PowerPoint describing best practices is provided as Appendix E-2 of this Final Report.

The following summarizes the best practices for CAP implementation.

Many cities and counties throughout California have completed CAPs and are in the process of implementing measures to reduce GHG emissions. Coordinating and managing these efforts is often a complex and time-consuming process. A recent survey of 67 jurisdictions in California indicates that insufficient funding, resources, and monitoring of CAP performance are the most challenging obstacles to successful CAP implementation (Qin et al. 2014). The SANBAG CAP Tools Implementation Tools Project Consultant Team (SANBAG, Atkins and ICF) have reviewed programs and techniques employed by a number of local governments to identify 25 best practices to overcome common barriers to CAP implementation. These practices can be used by the Participating Cities to support management of their individual CAPs and accelerate implementation of selected GHG reduction measures.

Table 6-1 identifies each of the best practices, which are grouped into the following six categories:

Institutionalization: Integrating climate action planning and emissions reduction efforts into City internal processes.

Engagement: Empowering City staff and encouraging community participation in the CAP process.

Strategic Planning: Prioritizing measures and ensuring all mechanisms necessary to support the CAP are in place.

Monitoring: Tracking and periodically reassessing progress in meeting CAP goals.

Reporting: Remaining accountable through ongoing reporting of emissions reductions, costs, benefits, and challenges.

Adaptive Management: Remaining flexible and taking corrective actions to improve processes and programs.

Table 6-I Best Practices for CAP Implementation
<i>Institutionalization</i>
BP-1. Connect the CAP to Other Planning Documents
BP-2. Infuse Climate Action Planning into the City's Mission and Core Values
BP-3. Formalize the CAP through Law
<i>Engagement</i>
BP-4. Develop a Robust and Aligned Public Outreach Strategy
BP-5. Recruit Elected Officials to Support the CAP
BP-6. Engage Decision Makers Early and Often
BP-7. Establish an Integrated Internal Implementation Team
BP-8. Collaborate with Stakeholders
BP-9. Form Partnerships
<i>Strategic Planning</i>
BP-10. Develop Implementation Plans
BP-11. Identify Resource, Funding, and Data Needs Early
BP-12. Establish Processes to Facilitate Data Collection and Tracking
BP-13. Dedicate Funds to the CAP
BP-14. Start Implementation Early
BP-15. Develop Tools to Support Project-Level Compliance with the CAP
<i>Monitoring</i>
BP-17. Develop a Robust Monitoring Plan
BP-18. Track Environmental, Economic, and Social Indicators
BP-19. Perform Annual or Semi-Annual Inventory Updates
BP-20. Perform Independent Evaluation of Monitoring Results and Inventory Updates
<i>Reporting</i>
BP-21. Communicate Successes and Disappointments Internally and Externally
BP-22. Use Multiple Venues to Report Progress
<i>Adaptive Management</i>
BP-23. Complete After-Action Reviews
BP-24. Perform Ongoing Research and Analyses
BP-25. Remain Flexible

Chapter 7 Regional Coordination

In May 2015, ICF provided a memorandum describing the regional partnerships in CAP implementation. The Memorandum on Regional Coordination of CAP Implementation can be found in Appendix F-1 of this Final Report. The following summarizes the regional partnership opportunities.

There are substantial opportunities to enhance the effectiveness of individual city CAPs through regional collaboration. Cities can explore the potential to leverage resources through regional cooperation. Regional partnerships can:

- provide support and resources for program activities;
- generate revenue and funding;
- extend the reach and effectiveness of individual city CAP programs;
- provide credibility for city programs with a wider audience;
- allow for sharing of best practices;
- fill gaps in capacity and service;
- help with education and outreach efforts and provide access to new audiences;
- provide political clout or other types of leverage for program implementation; and
- reduce city staffing needs

Regional Partners include:

SANBAG: As the regional council of governments and the regional transportation agency, SANBAG is a logical hub of communication for Partnership cities on the progress of their CAPs. Further, SANBAG will be the responsible implementing agency for many transportation-related measures that result in local GHG reductions. SANBAG is also administering the Property-Assessed Clean Energy (PACE) program loans and a Power Purchase Agreement (PPA) for solar energy for participating cities. SANBAG also plays a supporting role in enabling transportation improvements, such as extension of the Metrolink line to Redlands and Bus Rapid Transit improvements in San Bernardino County.

Cities in San Bernardino County have already followed a partnership approach through SANBAG for development of the CAP implementation plan and for conducting the implementation support task for which this memorandum is being prepared. A regional partnership for implementation, including potential SANBAG CAP support staff could be a key strategy for implementation.

SCAG: is a Joint Powers Authority which was established as an association of local governments and agencies that voluntarily convene as a forum to address regional issues.⁷ SCAG is designated as a Metropolitan Planning Organization (MPO) and a Regional Transportation Planning Agency. SCAG is

responsible for developing long-range regional transportation plans including sustainable communities strategy and growth forecast components, regional transportation improvement programs, and regional housing needs allocations. San Bernardino County is part of the SCAG planning area.

SCAG will likely be responsible for implementing some transportation-related (including goods movement) measures that result in local GHG reductions in the County, and it is therefore important for cities to coordinate with SCAG as necessary to help implement their own local transportation related CAP programs. For example, Senate Bill (SB) 375 requires SCAG to develop a Sustainable Communities Strategy (SCS) to reduce GHG emissions from cars and light trucks through integrated transportation, land use, housing and environmental planning (Southern California Association of Governments 2015). The SCS is a plan for meeting GHG emission reduction targets set by the California Air Resources Board (ARB) for the SCAG region. Consequently, cities will need to work with SCAG to implement the SCS in their communities, and this process may involve a multitude of transportation- and land use-related actions to reduce emissions from on-road vehicles.

Air Districts: The South Coast and Mojave Desert Air Quality Management Districts (SCAQMD and MDAQMD) are the local agencies responsible for developing and implementing air quality plans. The agencies also sponsor various air quality programs that may support implementation of several energy-efficiency, transportation, and renewable energy measures.

Utilities: The energy utilities within the County are well established and have energy efficiency and environmental commitments. They will be key partners for the cities, especially for energy efficiency and renewable energy programs. Utilities can reach a wide audience and support city programs with their extensive energy use data. Partnering with utilities can add credibility to city programs and bolster their implementation with technical expertise.

The cities should work with utility staff to advance common goals. City staff should become familiar with demand-side management and renewable energy requirements because they are a major motivating factor for utilities to work with the cities and contribute to their local programs. Utility rebates should be bundled and incorporated into local City CAP programs, as feasible.

When working with utilities, city staff should be aware that utilities have well-established programs that may not have the flexibility to integrate with local city programs. Utilities also have obligations and constraints placed on them by state and public utility commissions and may have data confidentiality barriers.

Water Districts: Water and wastewater agencies are critical regional partners related to water conservation and wastewater efficiency and associated GHG emission reductions strategies.

Transit Agencies (Metrolink, Onmitrans, Mountain Area Regional Transit, and Foothill Transit Agency): Coordination with regional transportation agencies would be necessary to fully implement the transportation reduction measures that promote mixed use development. With SB 375 and its linkage to transportation funding, it is crucial for the cities and the transportation agencies to develop a shared vision of how land use and transportation can be consistent with the next Regional Transportation Plan (RTP) and the required Sustainable Communities Strategies (SCS).

A number of transit-related funding sources may be used by the cities in concert with regional transit providers, such as Bus Stop Sponsorships (advertisement sponsorship of bus stops has been used as a revenue source) and Transit Fare Increases (transit fares could be increased to help fund capital improvements, though increases also have the potential to decrease ridership in the short term). Challenges to these local funding sources include resistance to transit-fare increases. A parcel tax would also meet substantial resistance. The cities and regional transit providers would have to gauge public perception of both transit fare increases.

Coordination with Metrolink on service expansion and transit-oriented development around Metrolink stations should be continued and expanded. The region can also work with Caltrans on promoting roadway GHG efficiency in the form of high occupancy vehicle (HOV) lanes and park and ride facilities.

San Bernardino County Solid Waste Management Division: The County operates the landfills that receive most of the cities' waste and has committed as part of its own CAP to improve methane control for its landfills which will help reduce emissions associated with city landfilled waste. Coordination with the county to provide the necessary facilities, programs, and incentives would help ensure this goal can be achieved by 2020, as waste services are often shared across several jurisdictions, including the unincorporated portions of the county.

Corporations and Private Companies: Certain programs in a city's CAP will require the participation of private companies and corporations. For example, a trip reduction ordinance requires employers to reduce vehicle trips taken by employees by offering things like rideshare incentives, reduced cost transit passes, guaranteed ride home services, bicycle parking infrastructure, electric vehicle charging stations, etc. In order for these programs to be successful, it is important to form productive and working relationships with corporations as needed.

In addition, partnerships with corporations can be a good way to reach the local community at a broad level, as they can be a conduit to community members (i.e. employees). Partnerships with key corporations can ensure that nonresidential requirements are met, and voluntary actions are implemented as widely as possible. Corporations may also be willing to contribute resources to city programs, such as staff time, technical expertise, data and information, and funding. Corporations have broad customer and support networks which can be a valuable resource for a city.

Nonprofits: Nonprofits can provide critical outreach to the community and may bring relationships to neighborhoods that can be hard to reach. They often provide technical expertise through a network of experts and industry representatives. Nonprofits can also provide outreach, engagement, marketing services, and sector advice.

While environmental advocacy groups can sometimes take an adversarial approach to certain city initiatives, particularly as they relate to certain new development proposals, nearly all environmental-oriented nonprofit groups support local action to reduce GHG emissions. While some may desire that local city initiatives be more aggressive than currently proposed, environmental groups usually support local initiatives in emissions reductions. They can also provide useful outreach and feedback functions as local programs are developed, initiated, and expanded. GHG emission reduction efforts can be an opportunity for cities and environmental groups to find areas of common ground and

productive endeavors to balance the sometimes more challenging adversarial relationships associated with controversial environmental issues.

Universities: Partnerships with universities can advance research on CAP programs and strategies and provide technical expertise to cities. Many universities are conducting cutting-edge research and studies on topics that may advance CAP programs, such as energy efficiency strategies, renewable energy technologies, and alternative transportation development. Students also represent a volunteer workforce that can offer implementation resources for programs (such as labor), and they gain valuable hands-on learning experiences by working with cities. Students can bring creativity, technical expertise, energy, and enthusiasm.

There are many universities in the County, including California State University, San Bernardino, Loma Linda University, University of Redlands, National University, etc. The San Bernardino Community College District is pursuing a commitment to environmental stewardship through the development of a Sustainability Plan (San Bernardino Community College District 2012). This plan intends to foster sustainability across the County's community colleges. Thus there are many opportunities for partnerships with local colleges and universities and their student bodies.

Contractors and Developers: Contractors and developers are on the front-line of program implementation, as they are usually the ones on the ground doing the actual project work. Therefore, it is important to engage early and often with contractors and developers to ensure that they are implementing programs correctly and effectively, and that they understand the goals. Contractors are critical to the reputation, quality, and effectiveness of local GHG reduction programs.

Working with contractors and developers can also generate local jobs and encourage economic development. Like experts, contractors provide specialized knowledge, skills, and certifications to perform the work necessary for program implementation. They have access to wide networks and important contacts that can expand the reach of and opportunities available to local programs. There are many contractors in the County and cities will not be able to partner with all of them. Consequently, in order to make sure that collaboration efforts are efficient and effective, cities should identify large, particularly active, or regionally important contractors and developers to collaborate with.

SANBAG has coordinated periodically with the Building Industry Association of Southern California (BIA) during development of the GHG Reduction Plan and individual cities have worked with the BIA as well to ensure that new GHG emission reduction approaches (such as the GHG Performance Standard for new development and the associated screening tables) will be feasible for the development industry and will serve to streamline project GHG review where possible.²⁴ The Baldy View Chapter of the BIA, which oversees the San Bernardino County region, is an important partner in working on new GHG reduction initiatives for new development and can be an asset in seeking the support of the development industry overall.

APPENDIX A. I

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CAP IMPLEMENTATION Tools

Educational Webinar:
CAP Implementation Tools Basics

October 29, 2014

Michael Hendrix—Atkins

Brian Schuster—ICF International

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OVERVIEW

ATKINS



During this Webinar you will learn:

- Regulatory background (how we got here)
- What is required of local governments concerning GHG reductions
- How to satisfy those requirements
- SANBAG Efforts: The Regional GHG Reduction Plan
- How the SANBAG Regional GHG Reduction Plan helps local governments
- General Plan consistency is important
- Local Reduction Measure Implementation
- Monitoring Progress
- Post 2020
- What is needed from you to complete these tasks

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Regulatory Background

Entering A New Era of Environmental Planning



Background

The County's General Plan Update Final EIR was available for public review in October 2006.

AB-32 was signed into law in October 2006.

The Attorney General's Office sent a comment letter stating that the County needs to address Global Climate Change in the GP EIR(Oct 06).

Lawsuit filed Spring 2007.

Settlement Agreement reached in September 2007.

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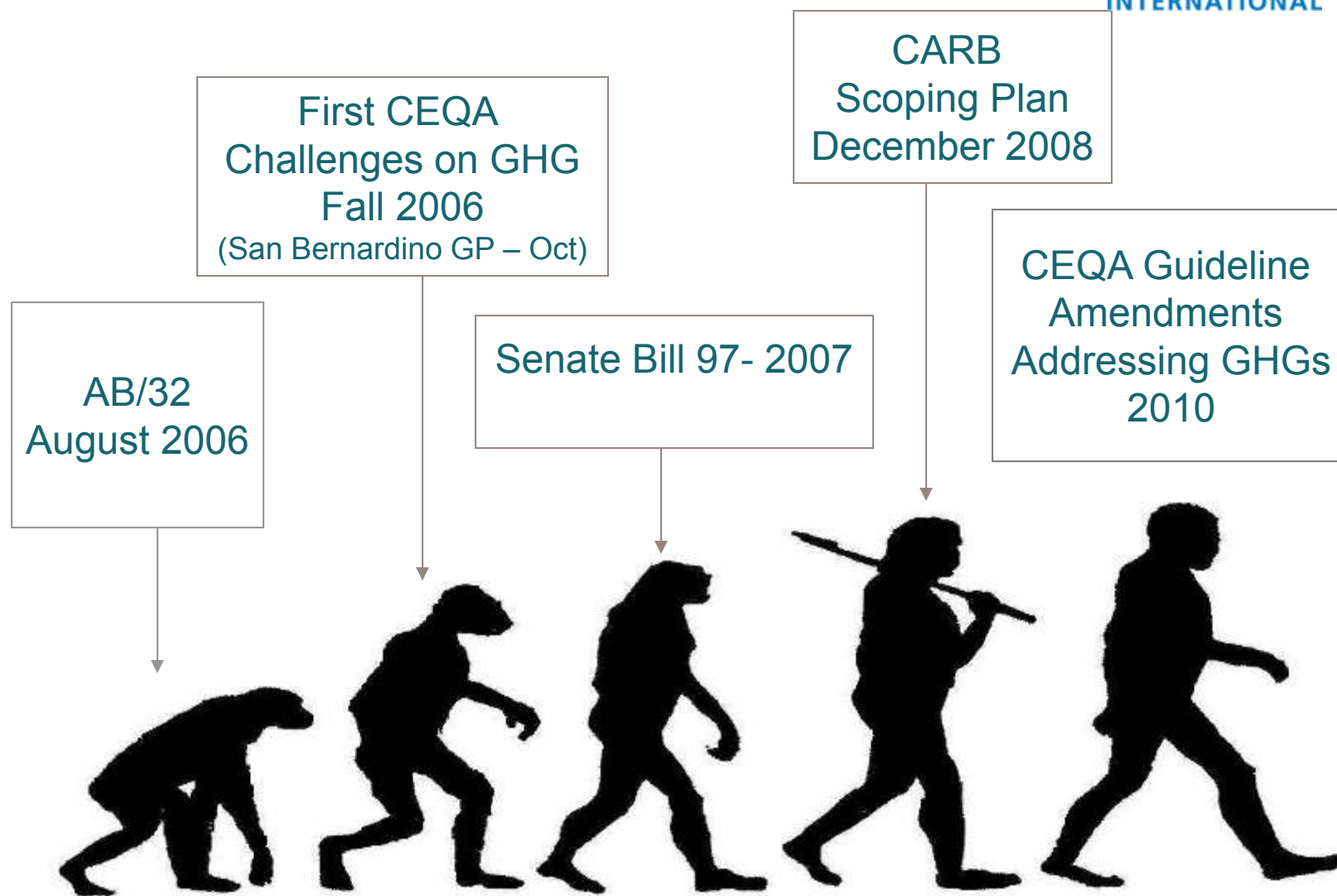
Settlement Agreement

- Amend GP with GHG Reduction Policy
- Adopt GHG Reduction Plan
 - Inventories
 - Reduction Target
 - Reduction Measures
- Adopt Plan through CEQA



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Sequence of regulations



Climate Action Planning Regulations

ATKINS

ICF
INTERNATIONAL

AB-32

State law to reduce GHG emissions to 1990 levels by 2020

CEQA Lawsuits, Lawsuits, Lawsuits

Numerous CEQA documents challenged on adequacy of GHG emissions analysis and mitigation

SB 375

Requires regional planning to consider light duty vehicle GHG emissions



Plan Design Enable

What is Required of Local Governments?

- CEQA requires local jurisdictions as Lead Agencies to evaluate environmental impacts of Project generated GHG emissions.
- OPR recommends GP policies addressing GHG emissions.
- CEQA allows local jurisdictions to analyze and mitigate GHG emissions at a programmatic level within a GHG reduction Plan.

GHG Reductions

Plan Elements

(CEQA Guidelines § 15183.5(b))

ATKINS



1. Quantify GHG emissions (existing and projected)
2. Establish a GHG Reduction Target that reduces impacts to less than significant
3. Identify GHG emissions from different GHG sectors
4. Identify & Quantify GHG Reduction Measures to achieve the Target
5. Monitor the plan's progress (require amendment if the plan is not achieving specified levels)
6. Be adopted in a public process following environmental review

Plan Design Enable

SANBAG Efforts

- Began in the Spring of 2009 built upon the inventories and context of the County GHG Reduction Plan
 - Inventories
 - Reduction Targets
 - Reduction Measures
- Adopt Plan through CEQA

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Why Prepare a Regional GHG Plan?

ATKINS



- Provide economy of scale through regional efforts.
- Assess all GHG emission sources comprehensively and consistently.
- Streamline project approvals and CEQA.
- Identify feasible means to reduce GHG emissions including some that can save the city/community money.
- Identify the local “role” in reducing GHGs in light of larger state efforts.
- Take “credit” for prior and ongoing city actions.

Goals of the Regional GHG Plan

ATKINS



- Plan consistent with the State and County efforts.
- Feasible, cost effective reductions of GHG emissions in the region.
- Consistent methodologies and approaches.
- Local control in identifying targets/actions.
- Cost efficiency through one combined effort
- Support local climate action plans that fulfill 15183.5 of the CEQA Guidelines
- Programmatic EIR for all participating cities

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SANBAG's Role

ATKINS



- In unique position to support coordinated city efforts and facilitate regional dialogue and cooperation.
- Transportation Commission and Council of Governments:
 - Worked with SCAG in development and adoption of SCAG's 2012–2035 RTP/SCS.
 - Supporting transit expansion such as extending Metrolink to Redlands and supporting BRT.
- Leading other regional efforts related to energy efficiency and renewable energy.

What is Unique about the Plan?

ATKINS



- First Regional GHG Reduction Plan in the Nation to be adopted in a public process after environmental review (CEQA).
- First Regional GHG Reduction Plan in the Nation that is comprehensive in reducing GHG emissions within a County of this size and includes 21 Participating Cities.
- Complements the County of San Bernardino GHG Reduction Plan with identical methodology and approach

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Components of the Plan **ATKINS**

Executive Summary

Chapter 1 - Introduction

Chapter 2 - Background information

Chapter 3 – City Chapters

- Emissions (2008 baseline and 2020 forecast)
- Reduction Target
- Reduction Measures
- General Plan Policies

Chapter 4 – Reduction Measure

Chapter 5 – Implementation/Regional Coordination

Chapter 6 - References

Appendix A - GHG emissions Inventories and Forecasts

Appendix B – Methodology



Targets in the Plan

Each City chooses their own Reduction Target:

- Consistent with Assembly Bill (AB) 32—The California Global Warming Solutions Act of 2006
- Consistent with the City's Adopted General Plan and Climate Action Plans
- Targets are achievable using feasible reduction measures

Reduction Measures

<i>Measure</i>	<i>Description</i>	<i># of Cities</i>
Building Energy		
Energy-1	Energy Efficiency for Existing Buildings	14
Energy-2	Outdoor Lighting	11
Energy-3	Green Building Ordinance	0
Energy-4	Solar Installation for New Housing	16
Energy-5	Solar Installation for New Commercial	12
Energy-6	Solar Energy for Warehouse Space	6
Energy-7	Solar Installation for Existing Housing	14
Energy-8	Solar Installation for Existing Commercial/Industrial	13
Energy-9	Co-Generation Facilities	7
On-Road Transportation		
Transportation-1	Sustainable Communities Strategy	12
Transportation-2	Smart Bus Technologies	14
Off-Road Equipment		
OffRoad-1	Construction Equipment	10
OffRoad-2	Idling Ordinance	11
OffRoad-3	Landscaping Equipment	9

Reduction Measures

<i>Measure</i>	<i>Description</i>	<i># of cities</i>
Solid Waste Management		
Waste-1	Waste Diversion	9
Water Conveyance		
Water-1	Require Tier 1 Voluntary CALGreen Standards for New Construction	9
Water-2	Renovate Existing Buildings to Achieve Higher Levels of Water Efficiency	8
Water-3	Water-Efficient Landscaping Practices	13
Water-4	Implement SB X7-7	21
Wastewater Treatment		
Wastewater-1	Methane Recovery	5
Wastewater-2	Equipment Upgrades	15
Wastewater-3	Recycled Water	8
Agriculture		
Agriculture-1	Methane Capture at Large Dairies	1
Agriculture-2	Utilize Methane Captured at Dairies	1
Land Use/Urban Forestry		
LandUse-1 (BE)	Urban Tree Planting	10
LandUse-2 (BE)	Promote Rooftop Gardens	4
GHG Performance Standard for New Development		
PS-1	Performance Standard	18

How the Regional Plan helps local governments

- Local City:
 - Uses technical information from Regional Plan
 - Uses City chapter and background info
 - Refine/adapt/elaborate measures (if necessary or desired)
 - Define local implementation steps
 - Compiles local CAP using the above information
 - Processes through local approval process

General Plan Consistency is Important

ATKINS



- Local City CAPs must be consistent with the General Plan
 - Population and economic growth forecasts in the CAP and GP must match.
 - Circulation Element VMT baselines and forecasts must match.
 - Reduction Measures in CAP cannot be contradictory to GP goals and policies
 - Adjustments in CAP and, if necessary GPAs can be made to gain consistency
 - CEQA review of these adjustments may be necessary

Local Reduction Measure Implementation

- Implementation is done through City adopted CAPs
 - Implementation chapter describes the process
 - Screening Tables tool assists local cities in the implementation of reduction measures associated with new development
 - HERO program assists local cities in the implementation of energy efficiency measures associated with existing buildings

Implementing Reduction Measures

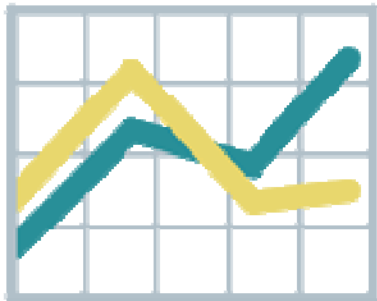
- Development Review Process Screening Tables Update

Feature	Description	Assigned Point Values	Project Points
Reduction Measure R2 E5: Energy Efficiency for Commercial Development			
Building Envelope			
Insulation	Title 24 standard (required)	0 points	
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Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage.		
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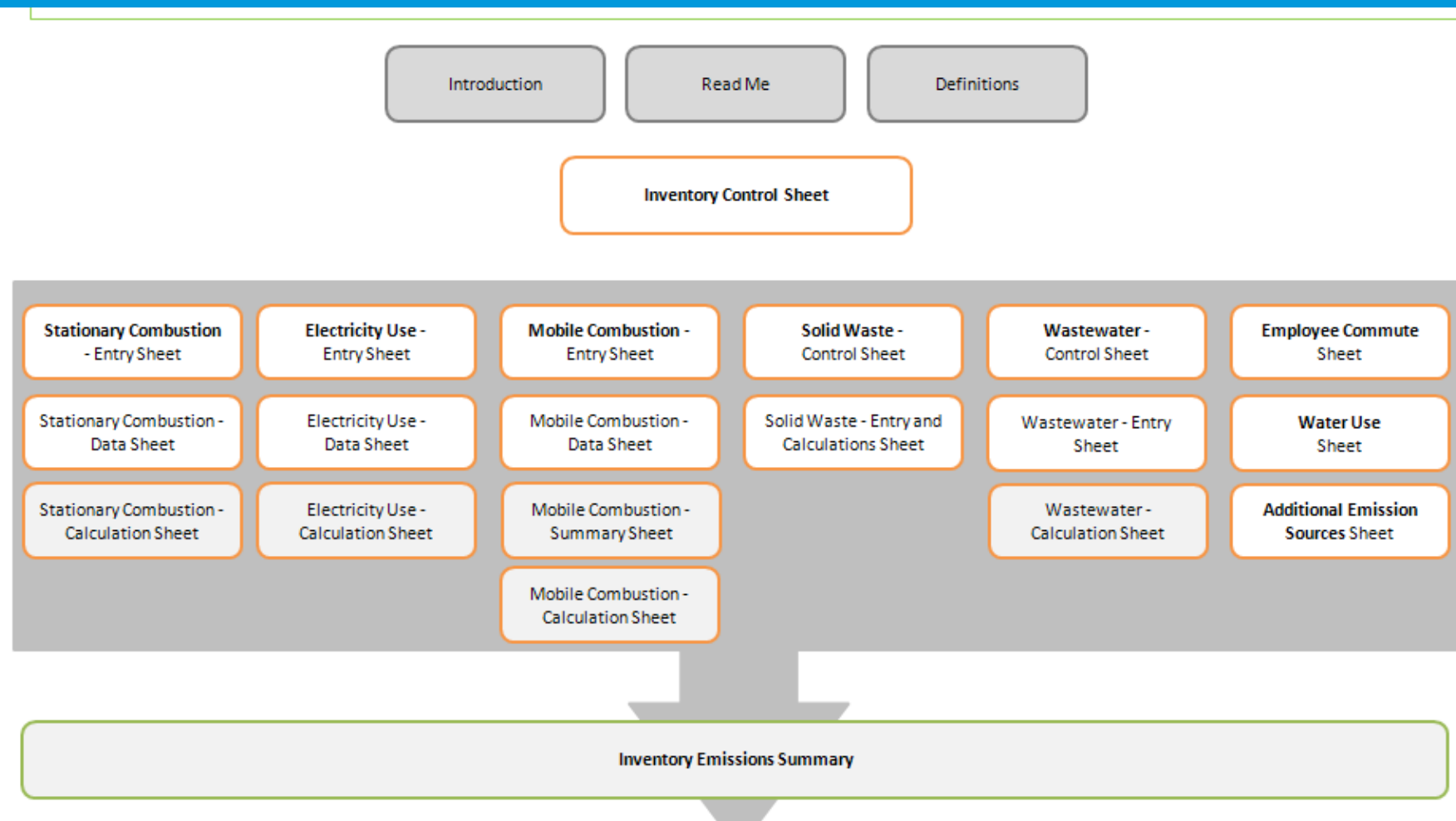
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Monitoring Progress

- An important and required part of a CAP
 - Two Components in monitoring progress
 - ❖ Tracking that allows adjustments to reduction measures to keep on target
 - ❖ Annual assessment of progress toward reduction goals



Monitoring Tools



Post 2020 Targets

- May be needed to match General Plan Horizon Year
 - Requires careful consideration
 - ❖ How far into the future do you need to go?
 - ❖ Ability to meet post 2020 target with current State regulations and local measures
 - ❖ Commitments can be made to review progress and determine post 2020 targets in 2017, 2018, or 2018



What is needed from you?

- We need you engaged in the process
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 - Review the Scoping of the Monitoring tools
 - ❖ Make sure the monitoring tool works for you
 - Review the CAP Implementation Chapter Template
 - ❖ Make edits or comments
 - Review Screening Tables
 - Ask for advice on the process

Questions



ATKINS



APPENDIX A. 2

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CAP IMPLEMENTATION Tools

CAP Assembly Workshop

February 25, 2015

Michael Hendrix—Atkins

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OVERVIEW

ATKINS



During this Workshop you will learn:

- Regulatory background (how we got here)
- What is required of local governments concerning GHG reductions
- How to satisfy those requirements
- SANBAG Efforts: The Regional GHG Reduction Plan
- How the SANBAG Regional GHG Reduction Plan helps local governments
- How to Assemble a City Specific Climate Action Plan from the work products
- General Plan consistency is important
- Local Reduction Measure Implementation
- Monitoring Progress
- Post 2020

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Background

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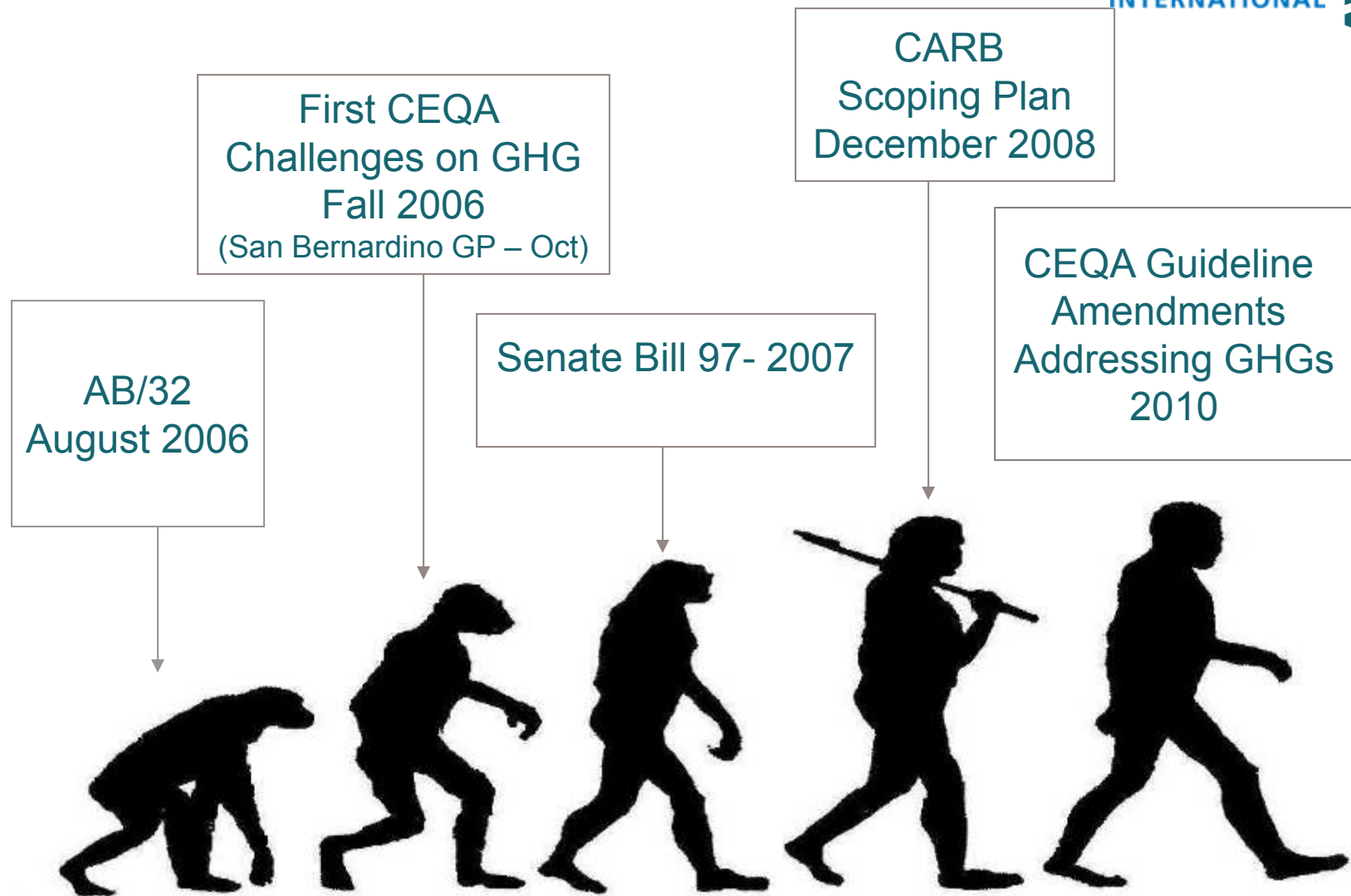
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Sequence of regulations



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Plan Design Enable

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GHG Reductions

Plan Elements

(CEQA Guidelines § 15183.5(b))

ATKINS



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Plan Design Enable

SANBAG Efforts

- Began in the Spring of 2009 built upon the inventories and context of the County GHG Reduction Plan
 - Inventories
 - Reduction Targets
 - Reduction Measures
- Adopt Plan through CEQA

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ATKINS



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ATKINS



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 - Compiles local CAP using the above information
 - Processes through local approval process

Assembly of a City Specific CAP

ATKINS



- Use the Regional Plan Chapters in MS Word Format to edit specific to the City CAP
- Processes through local approval process

General Plan Consistency is Important

ATKINS



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Implementing Reduction Measures

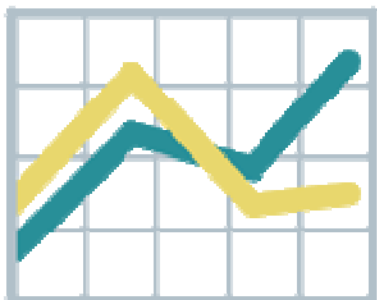
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Monitoring Progress

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 - ❖ Annual assessment of progress toward reduction goals



Monitoring Tools

Introduction

Read Me

Definitions

Inventory Control Sheet

Stationary Combustion -
Entry Sheet

Electricity Use -
Entry Sheet

Mobile Combustion -
Entry Sheet

Solid Waste -
Control Sheet

Wastewater -
Control Sheet

Employee Commute
Sheet

Stationary Combustion -
Data Sheet

Electricity Use -
Data Sheet

Mobile Combustion -
Data Sheet

Solid Waste - Entry and
Calculations Sheet

Wastewater - Entry
Sheet

Water Use
Sheet

Stationary Combustion -
Calculation Sheet

Electricity Use -
Calculation Sheet

Mobile Combustion -
Summary Sheet

Wastewater -
Calculation Sheet

Additional Emission
Sources Sheet

Mobile Combustion -
Calculation Sheet

Inventory Emissions Summary

Post 2020 Targets

- May be needed to match General Plan Horizon Year
 - Requires careful consideration
 - ❖ How far into the future do you need to go?
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 - Review the CAP Chapters Templates
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 - Review Screening Tables
 - Ask for advice on the process

Questions



ATKINS



APPENDIX A. 3

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ADMINISTRATIVE DRAFT

CITY OF YUCAIPA CLIMATE ACTION PLAN



PREPARED FOR:

City of Yucaipa
34272 Yucaipa Boulevard
Yucaipa, CA 92399
Contact: Joseph Lambert, Director of Planning

PREPARED BY:

San Bernardino Association of Governments (SANBAG)
ICF International
Atkins North America

July 2015



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Acronyms and Abbreviations

20X2020 goal	20% reduction in urban per capita use by December 31, 2020 (referred to as the
AB	Assembly Bill
ATVs	all-terrain vehicles
AVL	automatic vehicle location
BAPIS	Bus Arrival Prediction Information System
BAU	Business-as-Usual
BBARWA	Big Bear Area Regional Wastewater Agency
BRT	Bus Rapid Transit
BVES	Bear Valley Electric Service
CAA	Clean Air Act
CAFE	Corporate Average Fuel-Economy
Cal-EPA	California Environmental Protection Agency
CAP	climate action plan
CARB	California Air Resources Board
CCAs	Community Choice Aggregations
CCR	California Code of Regulations
CEC	California Energy Commission
CEEP	Community Energy Efficiency Program
CEQA	California Environmental Quality Act
CFL	compact fluorescent
CH ₄	methane
CIC	CAP Implementation Coordinator
CIT	CAP Implementation Team
CIM	California Institution for Men
CLEO	Custom Language Efficiency Outreach
CO ₂	carbon dioxide
CPUC	California Public Utilities Commission
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESPs	energy service providers
°F	degrees Fahrenheit
FED	Functional Equivalent Document
FY	fiscal year

GHG	greenhouse gas
GPS	global positioning system
GTFS	General Transit Feed Specification
GWh	gigawatt-hours
GWP	global warming potential
HERS	Home Energy Rating System
HFCs	hydrofleurocarbons
HQTA	High Quality Transit Areas
HVAC	heating/venting and air conditioning
I	Interstate
IEUA	Inland Empire Utilities Agency
IOU	investor-owned utilities
IPCC	Intergovernmental Panel on Climate Change
ITS	Intelligent Transportation Systems
IVR	Interactive Voice Response
kW	kilowatts
LCFS	Low Carbon Fuel Standard
LED	light emitting diode
LFGTE	landfill-gas-to-energy
L RTP	Long Range Transit Plan
MCAP	municipal inventory and reduction plan
MEU	Mobile Energy Unit
MMTCO ₂ e	million MTCO ₂ e
MPOs	metropolitan planning organizations
MTCO ₂ e	metric tons of carbon dioxide equivalent
MW	megawatt
N ₂ O	nitrous oxide
NPV	Net Present Values
ODS	ozone-depleting substances
PACE	Property Assessed Clean Energy
Partnership	San Bernardino Associated Governments and Participating San Bernardino County Cities Partnership
PFCs	perfluorinated carbons

Plan	San Bernardino County Regional Greenhouse Gas Reduction Plan
PPAs	Power Purchase Agreements
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
PS	GHG Performance Standard for New Development
QR	Quick Response
Reporting Rule	Greenhouse Gas Reporting Rule
RHNA	Regional Housing Needs Allocation
RPS	Renewable Portfolio Standard
RTPs	Regional Transportation Plans
SANBAG	San Bernardino Associated Governments
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCGC	Southern California Gas Corporation
SCS	sustainable communities strategy
SF ₆	sulfur hexafluoride
SMP	Sustainable Master Plan
TDM	Transportation Demand Management
TRP	trip reduction plan
TSM	Transportation Systems Management Plan
UC	University of California
UPRR	Union Pacific Railroad
VERA	Voluntary Emission Reduction Agreement
VMT	vehicle miles traveled
VVWA	Victor Valley Wastewater Agency
WWTPs	wastewater treatment plants

1.1 What Is This Document?

This Climate Action Plan (CAP) for the City of Yucaipa (City) presents the greenhouse gas (GHG) inventories, identifies the effectiveness of California initiatives to reduce GHG emissions, and identifies local measures that were selected by the City to reduce GHG emissions under the City's jurisdictional control to achieve the City's identified GHG reduction target. The City of Yucaipa participated in the San Bernardino County Regional Greenhouse Gas Reduction Plan (Plan) which presents the collective results of all local efforts to reduce GHG emissions consistent with statewide GHG targets expressed in Assembly Bill (AB) 32, the "Global Warming Solutions Act of 2006" and Senate Bill (SB) 375. Yucaipa used the technical information within the Plan in the development of the CAP.

This CAP builds on the regional work and refines it to provide City-specific information and to develop the local implementation plan for City-selected GHG reduction measures. This CAP identifies how the GHG reduction measures will be implemented and monitored by the City going forward to ensure that progress is being made toward the GHG reduction target.

1.2 Benefits of a Regional GHG Reduction Plan

Participating cities in the SANBAG effort, including the City of Yucaipa, chose to prepare GHG inventories and evaluate local GHG reduction measures in concert. SANBAG, Yucaipa and the other Partnership cities see several advantages to this approach.

Economies of Scale: Although many aspects of GHG planning and policy making are unique to each city, certain steps are standard and are conducted in exactly the same way by all cities. These steps include: GHG inventory data collection; GHG inventory calculations; forecast of 2020 GHG emissions; review of standard GHG reduction measures; quantification of the benefit of state level GHG reduction measures; and preparation of basic regulatory language and text common to GHG reduction plan documents in California. Completing these standard steps together saves both money and time for all Partnership cities.

Assurance of Standard Methods, Data, and Baseline Year: Even though GHG inventory protocols are standard and communities generally follow the recommended protocols, some subtle differences exist that can limit comparability between cities. Of particular importance to a comparison are the selection of baseline year, the type of data that was collected, methodologies, and boundaries. With a regional inventory and reduction plan, Partnership cities can be assured of an "apples to apples" comparison across all sectors for city-to-city comparisons as well as city-to-region comparisons.

Regional Communication and Education: Similar to most communities in California and across the U.S., San Bernardino cities are undertaking a GHG inventory and reduction plan for the first time.

As city staff, stakeholders, and residents go through this process, each learns lessons that can be shared with other communities. The ability to share information benefits all Partnership cities.

Regional View: Certain sectors of GHG emissions are the result of activity that occurs only within the boundary of a city, for example residential natural gas use. Other emissions, such as on-road transportation, are the result of activity that occurs across jurisdictional boundaries and both jurisdictions are responsible for the emission. For certain sectors, looking only at the GHG emissions of a single city is of limited utility and GHG reduction planning cannot be undertaken alone. This Plan supports both city-specific and regional planning.

Programmatic EIR to Simplify CEQA Compliance: The State California Environmental Quality Act (CEQA) Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions that would result from a project. CEQA Guidelines (Section 15183.5) also allow individual projects to tier off of a larger (and certified) GHG reduction plan. Thus, individual projects do not need to each conduct a GHG analysis as part of CEQA if they can demonstrate consistency with the larger plan. By completing a common basic plan and a subsequent programmatic EIR, all projects in the region can tier off the EIR and be considered less than significant under CEQA if they show consistency with the regional plan. The Program EIR was completed and certified by SANBAG in March 2014.

1.3 SANBAG's Role

The *San Bernardino County Regional Greenhouse Gas Reduction Plan* has been sponsored and facilitated by SANBAG, the regional transportation planning agency in San Bernardino County. SANBAG is leveraging its role as a transportation planning agency and the regional scope of its authority to reduce GHG emissions in several emissions sectors in the region. As a regional agency, SANBAG is in a unique position to support coordinated city efforts and facilitate regional dialogue and cooperation on GHG issues. As the transportation agency, SANBAG also has a critical role in reducing the region's GHG emissions. On-road transportation contributes 35% of the region's GHG emissions. SANBAG worked closely with Southern California Association of Governments (SCAG) in the development and adoption of SCAG's *2012–2035 Regional Transportation Strategy and Sustainable Communities Strategy*, the benefits of which are captured for the region in this analysis. SANBAG is also spearheading efforts to expand Metrolink and is leading other regional efforts related to energy efficiency and renewable energy. SANBAG is planning to implement a regional energy efficiency and water conservation improvement loan program (AB 181 and AB 474 - PACE) for retrofits to existing buildings and is participating in a regional joint solar power purchase agreement.

1.4 How Has the City Used the Regional Plan in Yucaipa's CAP?

The San Bernardino County Regional GHG Reduction Plan has been used for several purposes for the City of Yucaipa in the development of this CAP.

Reference Document: The Regional Plan established a baseline GHG inventory for the City and the region as a whole. This baseline is referenced for all future GHG analyses and planning. This

document contains basic terms and concepts and regulatory information that is useful for future planning (city-specific or regional) or in communicating to a larger audience.

Climate Action Plan Template: The Regional Plan provided the technical information to support the City's selection of appropriate targets and GHG emissions reduction measures that could be included in the City's CAP. The Regional Plan was provided in an electronic format that allowed more rapid preparation of the CAP. The City has develop its own schedule, funding, and implementation plan consistent with the City's existing infrastructure and procedures and in tune with the City's unique priorities and needs.

Outline for a Local Climate Action Plan: The CEQA guidelines adopted pursuant to SB 97 specify that a GHG reduction plan must include the following elements in order to allow for tiering under CEQA. Elements that have already been developed as part of the Regional Plan are identified and areas where local refinement was provided by the City are also noted.

- An inventory of GHG emissions (included in the Regional Plan).
- A forecast of future GHG emissions (included in the Regional Plan).
- An identified GHG reduction goal (included in the Regional Plan).
- Measures to reduce GHG emissions under the control of the jurisdiction (included in the Regional Plan).
- Implementation actions to ensure that the measures result in actual reductions (included in the Regional at a general level and then refined by the City to be specific to the City's procedures).
- Monitoring of the plan's success over time (included in the Regional Plan and then requires local refinement).
- Adaptation and revision of the plan over time as needed to meet the adopted goal (included as part of the implementation plan for this CAP).

The Regional Plan provided many of the required components of a GHG reduction plan, as listed above. Since the Regional Plan contained only basic implementation steps that would apply to all cities, the primary effort by the City of Yucaipa was to identify the specific schedule, funding, and implementation actions which are critical to the success of the GHG reduction effort.

1.5 Next Steps

SANBAG's adoption of the San Bernardino County Regional GHG Reduction Plan and certification of the Programmatic EIR for the Plan occurred in March 2014. The City of Yucaipa drafted this CAP based upon the information within the Plan and tiers from the Programmatic EIR for environmental review of the CAP. The City has developed its implementation and monitoring program to carry the GGH reduction measures forward and included those within this Draft CAP.

The Draft CAP will be made available for public review by City residents and stakeholders. A Final CAP will be developed in consideration of public comments. At that point, the Final CAP would be brought to the City Council for consideration for adoption.

Once adopted, the City of Yucaipa will begin working together with SANBAG, the other Partnership cities and with stakeholders, residents, and businesses within the community to implement GHG reduction measures and track success of the CAP.

2.1 Greenhouse Gas Reduction and Climate Action Planning In California

This section describes important laws, policies and documents related to GHG emissions, including AB 32, SB 375, the Renewable Portfolio Standard, Pavley fuel economy standards (AB 1493), and the Low Carbon Fuel Standard (LCFS). This section also briefly discusses pending national legislation and the challenges associated with GHG reduction and climate action planning at the state level. Figure 2-1 displays a timeline of key state and federal regulatory activity.

2.1.1 Federal Regulation

Although there is currently no comprehensive federal law specifically related to climate change or the reduction of GHGs, regulation under the federal Clean Air Act is being implemented with the U.S. Environmental Protection Agency (EPA) in a lead role. The following federal regulations are related to climate change and GHG emissions.

2.1.1.1 Mandatory Greenhouse Gas Reporting Rule (2009)

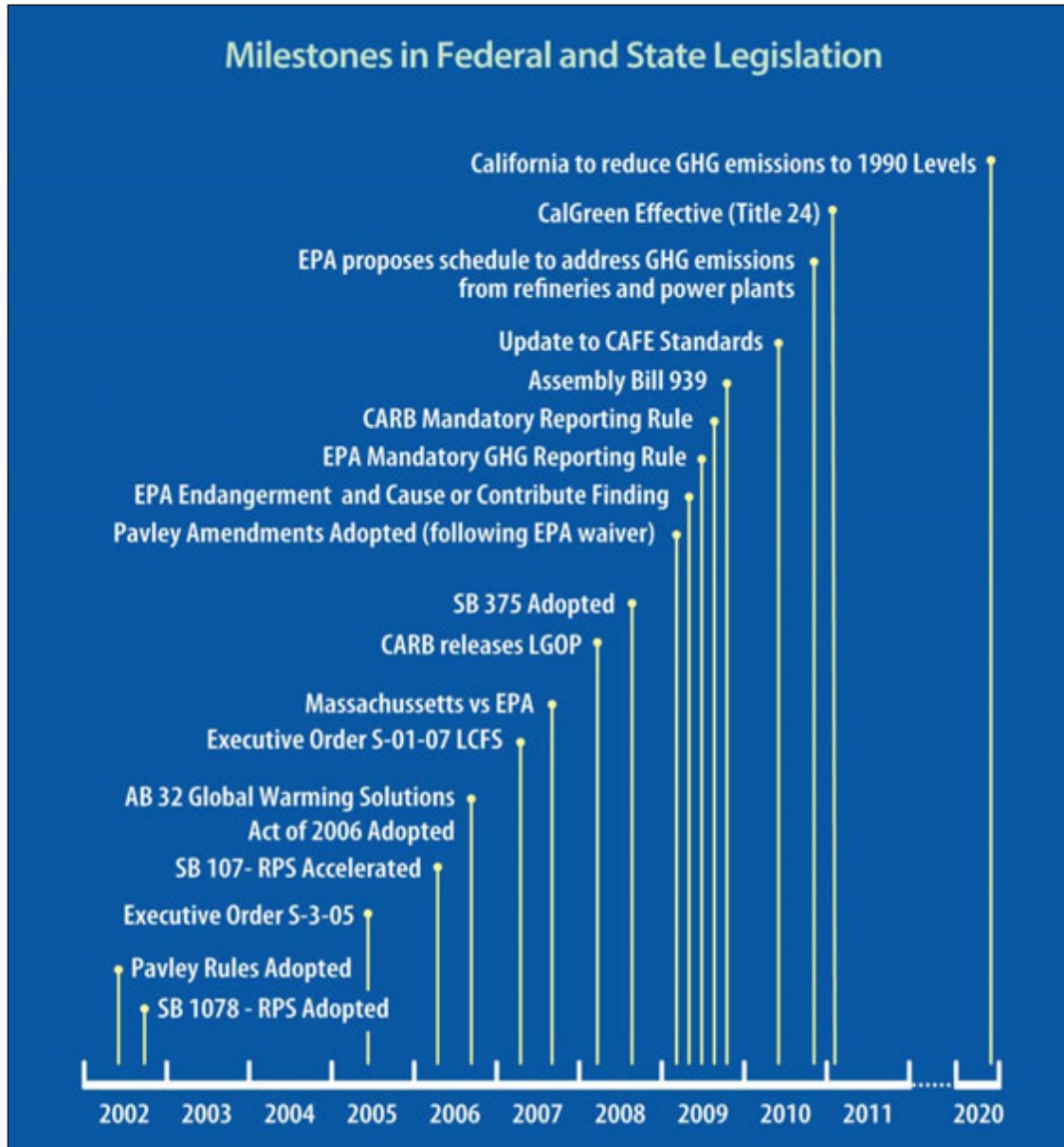
On September 22, 2009, EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), which required EPA to develop “mandatory reporting of greenhouse gasses above appropriate thresholds in all sectors of the economy...” The Reporting Rule applies to most entities that emit 25,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) or more per year. Starting in 2010, facility owners were required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for EPA to verify annual GHG emissions reports.

2.1.1.2 U.S. Environmental Protection Agency Endangerment and Cause and Contribute Findings (2009)

On December 7, 2009, EPA signed the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act (CAA.) Under the Endangerment Finding, EPA finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorinated carbons (PFCs), sulfur hexafluoride (SF₆), and hydrofluorocarbons (HFCs)—in the atmosphere threaten the public health and welfare of current and future generations. Under the Cause or Contribute Finding, EPA found that the combined emissions of these well-mixed GHGs from new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings did not by themselves impose any requirements on specific industries or other entities. However, this action was a prerequisite to finalizing EPA's corporate average fuel economy (CAFE) standards for light-duty vehicles for future years.

Figure 2-1. Milestones in Federal and State Legislation and Regulation



2.1.1.3 Updates to Corporate Average Fuel Economy Standards (2010/2012)

The current CAFE standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and the state of California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25% by 2016 (resulting in fleet average of 35.5 miles per gallon or mpg by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in summer 2012 for model years 2017–2025, which will require a fleet average in 2025 of 54.5 mpg.

2.1.2 State Regulation

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation is not directed at citizens or jurisdictions specifically, but rather establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. Several executive orders related to the state's evolving climate change policy have also been adopted. The following state regulations related to climate change and GHGs may apply to implementation of the climate change element.

2.1.2.1 Executive Order S-03-05 (2005)

Signed by Governor Arnold Schwarzenegger on June 1, 2005, Executive Order S-3-05 asserts that California is vulnerable to the effects of climate change. To combat this concern, Executive Order S-3-05 established the following GHG emissions reduction targets for state agencies.

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

Executive orders are binding only on state agencies. Accordingly, EO S-03-05 will guide state agencies' efforts to control and regulate GHG emissions but will have no direct binding effect on local government or private actions. The secretary of the California Environmental Protection Agency (Cal-EPA) is required to report to the governor and state legislature biannually on the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this executive order.

2.1.2.2 Assembly Bill 1493—Pavley Rules (2002, Amendments 2009)

Known as "Pavley I," AB 1493 standards were the nation's first GHG standards for automobiles. AB 1493 requires the California Air Resources Board (CARB) to adopt vehicle standards that will lower GHG emissions from new light-duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as "Pavley II", now referred to as the "Advanced Clean Cars" measure) has been proposed for vehicle model years 2017–2025. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020 (and more for years beyond 2020) and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, EPA granted California's

waiver request enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

EPA and CARB have worked together on a joint rulemaking to establish GHG emissions standards for model-year 2017–2025 passenger vehicles. As noted above, the federal government completed rulemaking in summer 2012 resulting in adoption of new standards that would lead to fleet average of 54.5 mpg in 2025.

2.1.2.3 Senate Bills 1078 (2002), Senate Bill 107 (2006) and Senate Bill 2 (2011)—Renewable Portfolio Standard

SB 1078 and SB 107, California’s Renewable Portfolio Standard (RPS), obligates investor-owned utilities (IOUs), energy service providers (ESPs), and Community Choice Aggregations (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The California Public Utilities Commission (CPUC) and California Energy Commission (CEC) are jointly responsible for implementing the program. Senate Bill 2 (2011) set forth a longer-range target of procuring 33% of retail sales by 2020.

2.1.2.4 Assembly Bill 32—California Global Warming Solutions Act (2006)

In September 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 establishes a cap on statewide GHG emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emission levels. Under AB 32, CARB is required to take the following actions.

- Adopt early action measures to reduce GHGs.
- Establish a statewide GHG emissions cap for 2020 based on 1990 emissions.
- Adopt mandatory reporting rules for significant GHG sources.
- Adopt a scoping plan indicating how emission reductions would be achieved through regulations, market mechanisms, and other actions.

Adopt regulations needed to achieve the maximum technologically feasible and cost-effective reductions in GHGs.

There is presently discussion by CARB and some members of the California legislature about establishing a reduction target in law for the period after 2020, including 2030 and possibly 2050, but the timing for potential legislation is uncertain.

2.1.2.5 Executive Order S-01-07—Low Carbon Fuel Standard (2007)

Executive Order S-01-07 mandates: (1) that a statewide goal be established to reduce the carbon intensity of California’s transportation fuels by at least 10% by 2020, and (2) that an LCFS for transportation fuels be established in California. The executive order initiated a research and

regulatory process at CARB. CARB developed the LCFS regulation pursuant to the authority under AB 32 and adopted it in 2009.¹

2.1.2.6 Senate Bill 375—Sustainable Communities Strategy (2008)

SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by metropolitan planning organizations (MPOs) to incorporate a sustainable communities strategy (SCS) in their regional transportation plans (RTPs). The goal of the SCS is to reduce regional vehicle miles traveled (VMT) through land use planning and consequent transportation patterns. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development.

SCAG is the MPO responsible for the southern California region that includes San Bernardino County and the City of Yucaipa. SCAG adopted an RTP/SCS in April 2012 designed to reduce passenger and light-duty vehicle per capita GHG emissions by 8% by 2020 and by 13% by 2035 compared to 2005 per capita GHG emissions levels. The RTP/SCS includes a combination of land use and transportation strategies to reduce VMT and associated GHG emissions. However, it should be noted the land use pattern in the SCS is not mandatory as local land use agencies retain their jurisdiction and authority over land use planning. The Regional Housing Needs Allocation (RHNA) must be consistent with the SCS and local cities must meet the RHNA for their city in their housing elements, but the RHNA does not specify the location or design of new housing, which is a prerogative of local planning.

2.1.2.7 California Energy Efficiency Standards for Residential and Nonresidential Buildings—Title 24 (2008), Green Building Code (2011), Title 24 Update (2014)

California has adopted aggressive energy efficiency standards for new buildings and has been continually updating them for many years. The latest updated standards were adopted in 2008. Also, in 2008, the California Building Standards Commission adopted the nation's first green building standards, which include standards for many other built environment aspects apart from energy efficiency. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code (24 California Code of Regulations [CCR]). Part 11 establishes voluntary standards that became mandatory in the 2010 edition of the code, including planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The voluntary standards took effect on January 1, 2011. The latest update of the Title 24 energy efficiency standards was adopted in mid-2012 and went into effect July 1, 2014.

¹ The CARB approved the LCFS on April 23, 2009 and the regulation became effective on January 12, 2010 (California Air Resources Board 2011). The U.S. District Court for the Eastern District of California ruled in December 2011 that the LCFS violates the Commerce Clause of the U.S. Constitution. The CARB appealed this ruling in 2012 and on September 18, 2013, a 9th U.S. Circuit Court of Appeals panel upheld the LCFS, ruling that the program does not violate the Commerce Clause, and remanded the case to the Eastern District.

2.1.2.8 California Air Resources Board Greenhouse Gas Mandatory Reporting Rule Title 17 (2009)

In December of 2007, CARB approved a rule requiring mandatory reporting of GHG emissions from certain sources, pursuant to AB 32. Facilities subject to the mandatory reporting rule started to report their emissions from the calendar year 2009 and had to have those emissions verified by a third party in 2010. In general the rule applies to facilities emitting more than 25,000 MTCO₂e in any given calendar year or electricity generating facilities with a nameplate generating capacity greater than 1 megawatt (MW) and/or emitting more than 25,000 MTCO₂e per year. Additional requirements also apply to cement plants and entities that buy and sell electricity in the state.

2.1.2.9 State CEQA Guidelines (2010)

The State CEQA Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions that would result from a project. Moreover, the State CEQA Guidelines emphasize the necessity to determine potential climate change effects of the project and propose mitigation as necessary. The State CEQA Guidelines confirm the discretion of lead agencies to determine appropriate significance thresholds, but require the preparation of an environmental impact report (EIR) if “there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements” (Section 15064.4).

The guidelines were updated in 2010 to address GHG emissions. State CEQA Guidelines section 15126.4 includes considerations for lead agencies related to feasible mitigation measures to reduce GHG emissions, which may include, among others, measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency’s decision; implementation of project features, project design, or other measures which are incorporated into the project to substantially reduce energy consumption or GHG emissions; offsite measures, including offsets that are not otherwise required, to mitigate a project’s emissions; and, measures that sequester carbon or carbon-equivalent emissions.

2.1.2.10 Greenhouse Gas Cap-and-Trade Program (2011)

On October 20, 2011, CARB adopted the final cap-and-trade program for California. The California cap-and-trade program will create a market-based system with an overall emissions limit for affected sectors. The program is currently proposed to regulate more than 85% of California’s emissions and will stagger compliance requirements according to the following schedule: (1) electricity generation and large industrial sources (2012); (2) fuel combustion and transportation (2015). The first auction was in late 2012 with the first compliance year was in 2013.

2.1.3 Local Governments

The AB 32 Scoping Plan lays out California’s plan for achieving the GHG reductions required by AB 32. Specifically the Scoping Plan describes a list of measures that the state will undertake, and the expected GHG reductions associated with these measures before 2020. Because the state does not have jurisdictional control over many of the activities that produce GHG emissions in California, the AB 32 Scoping Plan articulates a unique role for local governments in achieving the state’s GHG reduction goals. The AB 32 Scoping Plan recommends local governments reduce GHG emissions from both their municipal operations and the community at large to a level that is 15% below

current levels. The 15% recommendation was based on CARB's estimate of 2005–2008 emissions at the time of the scoping plan because at that time CARB had not yet completed actual inventories for those years. In subsequent years, CARB completed the inventories for the 2005–2008 years. In order to meet the AB 32 target of 1990 levels, the state would have to reduce its emissions by 9 to 11% below 2005–2008 levels. CARB has not updated its recommendations to local governments since the 2008 adoption of the Scoping Plan.

In response to the AB 32 and the AB 32 Scoping Plan, many jurisdictions across California have completed a GHG Inventory and Reduction Plan, commonly called a Climate Action Plan or CAP. These plans generally address two types of emissions:

- The “community inventory”—emissions that arise from the community at large (residents, businesses, and their associated activities within the jurisdictional boundary).
- The “municipal inventory”—emissions that arise from the county/city's operations only (county/city buildings, vehicle fleet, activities required to provide services to the jurisdiction).

More than 50 jurisdictions in southern California have completed a community or municipal CAP, or both, including the City of Los Angeles, San Bernardino County, Anaheim, Beverly Hills, Pasadena, Hesperia, Apple Valley, and many others.

2.2 What Are We Already Doing?

This section describes large scale GHG planning efforts in southern California, including regional transportation planning; utility programs; SANBAG; and efforts in unincorporated San Bernardino County and several cities in San Bernardino County.

2.2.1 Regional Transportation Planning

On April 4, 2012, the Regional Council of SCAG adopted the *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): Towards a Sustainable Future*. The RTP/SCS is the culmination of a multi-year effort involving stakeholders from across the SCAG Region. SCAG has prepared RTPs for the southern California region for over 30 years, with the primary goal of increasing mobility for the region's residents and visitors.

The 2012–2035 RTP/SCS includes the following key points.

- A strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the National Ambient Air Quality Standards as set forth by the federal Clean Air Act. As such, the 2012–2035 RTP/SCS contains a regional commitment for the broad deployment of zero- and near-zero criteria pollutant emission transportation technologies in the 2023–2035 time frame and clear steps to move toward this objective. This strategy will have many co-benefits, including energy security, cost certainty, increased public support for infrastructure, GHG reduction, and economic development.
- A transportation infrastructure investment strategy that will benefit southern California, the state, and the nation in terms of economic development, competitive advantage, and overall competitiveness in the global economy in terms of attracting and retaining employers in the southern California region.

- A blueprint for improving quality of life for southern California residents by providing more choices for where they will live, work, and play, and how they will move around. It emphasizes transit and active transportation to allow residents to lead healthier, more active lifestyles.
- It is important to note that the land use pattern adopted in the SCS is not a mandatory land use pattern and no local government is obligated to amend their general plans to be consistent with the assumed land use pattern in the SCS if there are differences between a city's general plan and the land use pattern assumed in the SCS. SB 375 gave no authority to MPOs for local land use planning which is reserved for the authority of local cities and counties.

2.2.2 Utility Incentive Programs

Local and regional utility providers, including Southern California Edison, Southern California Gas Company, Southwest Gas Corporation, and Bear Valley Electric Service, have a wide range of incentive programs aimed at promoting energy efficiency and renewable energy use. These are summarized below.

2.2.2.1 Southern California Edison Programs

- **Income Qualified Programs—Energy Management Assistance Program:** This program helps income-qualified households conserve energy and reduce their electricity costs. Southern California Edison (SCE) pays all the costs of purchasing and installing energy-efficient appliances and equipment, which are free to eligible customers.
- **Mobile Energy Unit:** The Mobile Energy Unit (MEU) promotes energy-efficiency solutions and energy management for both residential and business customers.
- **Energy Solutions:** SCE provides their customers with a home energy survey, residential energy guides, and energy saving tips.
- **Energy Management Solutions:** SCE provides its commercial customers with energy management solutions by industry sector in order to cut costs and greenhouse gas emissions.
- **Refrigerator & Freezer Recycling Program:** SCE hauls away old refrigerators and freezers for free and provides a \$50 incentive to customers.
- **Home Energy Efficiency Survey:** SCE provides its residential customers a 15-minute survey and helps them find tips to maximize savings, and useful information about rebates that they can qualify for. The results are customized for each household.
- **Incentives For Home Energy Upgrades:** SCE provides home energy-efficiency product rebates on products such as compact fluorescent (CFL) and energy efficiency lighting, Energy Star® refrigerators, energy efficiency water heaters, Energy Star air conditioners, whole-house fans, and energy-efficient evaporative cooling systems.
- **Plug-In Electric Vehicle Survey & Checklist:** SCE provides a survey and checklist to help customers with electric vehicles set up their homes.
- **Renewables Standard Contract Program:** SCE provides a standardized procurement process (for renewable power generation projects not to exceed 20MW) that leads to quicker execution of the project, relative to other procurement processes.
- **New Solar Homes Partnership:** The New Solar Homes Partnership program, part of the California Solar Initiative, provides financial incentives and other support for installing eligible

solar generating systems on new residential buildings—single family, income-eligible, and multifamily housing.

- **California Solar Initiative Thermal Program:** SCE offers incentive rebates for electric-displacing solar water heating systems in its service territory.
- **Multifamily Affordable Solar Housing:** This program is part of the California Solar Initiative. It offers incentives for installing eligible photovoltaic systems for qualifying multifamily affordable housing. It is designed to subsidize photovoltaic systems in multifamily housing, which will offset electricity loads and provide economic benefits for housing property owners and managers as well as building tenants.
- **Solar Training Classes:** Through the California Solar Initiative, SCE provides multiple solar training classes for homeowners, contractors, commercial entities, and thermal contractors.
- **Solar Rooftop Program:** SCE incurs photovoltaic installation costs and leases rooftop space from building owners in this solar rooftop program.
- **Self-Generation Incentive Program:** SCE customers with a demand of 30 kilowatts (kW) or more can receive a cash incentive from \$0.60 to \$4.50 per watt for installing qualifying electricity generating equipment under SCE's Self Generation Incentive Program.
- **Green Jobs Education Initiative:** The Green Jobs Education Initiative helps students pursue education in green jobs fields. SCE's commitment of \$1 million provides grants of \$100,000 each to ten California community colleges that offer green jobs training programs.

2.2.2.2 Southern California Gas Company Programs

- **Direct Assistance Program:** Southern California Gas Corporation (SCGC) offers no-cost energy-saving home improvements and furnace repair or replacement services for qualified limited-income renters and homeowners.
- **Conservation Tips:** SCGC provides useful tips for residential customers to conservation energy.
- **Instant Rebate Program:** Customers may receive instant rebates for energy efficient products.
- **Residential Rebates:** SCGC offers money-saving rebates on qualifying energy-efficient appliances or upgrades for residential customers. Qualified appliances include clothes washers, dishwashers, low-flow showerheads, furnaces, insulation, natural gas storage water heaters, and natural gas tankless water heaters.
- **Rebates for Property Managers:** The Multifamily Rebate Program offers rebates for the installation of qualified energy-efficient products in apartment dwelling units and common areas of apartments, condominium complexes, and mobile home parks.
- **Energy Efficiency Starter Kit:** The kit includes three faucet aerators and a low-flow showerhead to help save energy and water.
- **Home Energy Efficiency Survey:** Customers may save money and resources by taking a free Home Energy Efficiency Survey. When customers take the survey, they get customized gas, electricity, and water saving tips on the best ways to use appliances in their homes.
- **Financing for Energy Efficiency Upgrades:** Customers can qualify for \$2,500 to \$20,000 to purchase and install energy-efficient upgrades with the Home Energy Upgrade Financing program.

- **Comprehensive Mobile Home Program:** Qualifying mobile home customers are provided with no-cost energy conservation evaluations, installations of low-flow showerheads and faucet aerators, and gas energy-efficiency improvements, such as duct test and seal of heating/venting and air conditioning (HVAC) systems.
- **LivingWise® School Program:** This program combines classroom learning and home retrofit/audit projects completed by sixth grade students and their parents. It provides a LivingWise® Activity Kit for each customer.
- **Upstream High Efficiency Gas Water Heater Rebate Program:** This program offers rebates to distributors and wholesalers for high-efficiency gas water heaters to reduce or remove the price differential between these appliances and standard gas water heaters.
- **On-Demand Efficiency (Recirculation Loops for Central Domestic Hot Water Heaters):** This program installs on-demand intelligent pumps in central domestic hot water systems with recirculation loops in multifamily buildings to help reduce unnecessary natural gas consumption.
- **High Efficiency Hot Water Distribution Program (Solar):** This program helps customers install new solar pool heating systems to augment an existing gas pool heater. This program is for qualified apartment complexes that heat swimming pools throughout the year.
- **Multifamily Direct Installation Programs:** Qualifying owners and managers of multifamily buildings are provided with no-cost energy audits, products, and their installation. No-cost products include super low-flow energy-efficient showerheads, kitchen aerators, bathroom aerators, and pipe wrap for hot water distribution systems.
- **CoolGas Replacement Program:** This program provides incentives, based on calculated energy savings, for the replacement of smaller (50 tons or less), older, inefficient natural gas air conditioning systems with new energy-efficient units and quality installation procedures.
- **Domestic Hot Water Controls Project:** This program installs domestic hot water controller technology on the hot water systems in hotels and motels to reduce natural gas consumption by a minimum of 25 therms per hotel room, per year.
- **Energy Challenger:** This program offers business customers an interactive online assessment to develop practical energy-efficiency recommendations.
- **Home Energy Rating System (HERS) Rater Advanced Training Program:** This program will provide advanced training and education delivered both in the classroom and online. Training is for currently certified HERS raters and energy analysts involved in new construction.
- **Program for Resources Efficiency in Private Schools:** This program is to help private grade schools, colleges and universities, preschools, and trade and technical schools reduce energy use and energy costs. Program activities and services will include customer screening, comprehensive energy audit reports, rebates, bonuses, and installation support services.
- **Small Industrial Facility Upgrades:** The program is targeted at small industrial customers to deliver natural gas savings. Program offerings include, but are not limited to, improvements for heat recovery; process equipment replacement and equipment modernization; furnace and oven improvements and excess air reduction; onsite audits to identify energy savings opportunities; and design assistance to help customers understand the best ways to achieve energy savings.

- **Steam Trap and Compressed Air Survey:** This program will provide comprehensive compressed air and steam surveys and evaluations to small through large industrial customers. Survey activities carried out onsite will include a baseline of the customer's current energy consumption; field analysis of energy-consuming equipment; application of best practices; use of standard engineering protocols for design; identification of alternate methods of accomplishing the same task with less energy input; and methods to maintain quality, reliability, and safety of plant operations while achieving the energy-savings objectives.
- **Custom Language Efficiency Outreach (CLEO) Program:** This program promotes SCGC energy-efficiency programs and education/training to customers in SCGC's service territory who speak Chinese, Korean, Vietnamese, and Indian languages. The program will also address the needs of the African American community. Offerings include interactive workshops, community booths and energy surveys, and low-cost and no-cost recommendations.
- **Property Assessed Clean Energy (PACE) Energy Savings Project:** This program promotes energy-efficiency programs in the SCGC service area. The primary focus is ethnic minority communities (Vietnamese, Indian, Chinese, Korean, and Hispanic) for customers with historically low participation in SCGC energy-efficiency programs.
- **California Sustainability Alliance Program:** This program includes public and private organizations dedicated to increasing and accelerating adoption of sustainability best practices in the planning, design, construction, and operations of new and existing facilities and communities to increase efficient utilization of resources and develop self-sustaining community initiatives and capabilities.
- **Portfolio of the Future Program:** This program is designed to identify the market commercialization of emerging technologies that can improve energy efficiency and reduce reliance on natural gas supplies in the southern California market at a quick pace.
- **Vendor Participation Program:** Suppliers and installers of insulation, steam traps, boilers and other qualifying products can apply for rebates on behalf of their customers.
- **Seminars & Training at the Energy Resource Center:** SCGC teaches the latest in energy-efficient equipment and technologies. SCGC also sponsors seminars about energy-efficient equipment, kitchen ventilation, food safety, equipment maintenance, industry trends, and more.
- **Zero Percent On-Bill Financing:** Working in conjunction with rebate and incentive programs, SCGC offers qualified customers purchasing qualified natural gas equipment 0%, unsecured financing.
- **Energy Efficiency Benchmarking:** SCGC benchmarking allows building owners and managers to track and assess the energy performance of their buildings at no charge.

2.2.3 SANBAG's Long Range Transit Plan

SANBAG's *Long Range Transit Plan* (LRTP) (San Bernardino Associated Governments 2009) addresses San Bernardino County's current and future travel challenges, including addressing growing travel demand. The goal of the LRTP is to provide transit facilities and services to support this demand. The LRTP prioritizes goals and projects for transit growth and connects land use and transportation strategies. The draft LRTP considers four major alternatives to transit mobility, one of which will be designated the "final alternative." The LRTP identifies premium transit routes and station locations that helped to develop the SCS for areas in the County.

2.3 Basic Terms and Concepts

This section defines terms and explains basic concepts inherent to understanding GHG inventories and reductions, as well as the basics of climate change science. Important terms like *community inventory* and *business-as-usual* are defined below, along with a description of global warming and major greenhouse gases.

2.3.1 Basic Terms

Assembly Bill 32 (AB 32): The California Global Warming Solutions Act of 2006, widely known as AB 32, requires CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. The heart of the bill is the requirement that statewide GHG emissions must be reduced to 1990 levels by the year 2020 of the AB 32 Scoping Plan.

AB 32 Scoping Plan: The Scoping Plan for AB 32 was developed by CARB and approved in December 2008. The plan has a range of GHG reduction actions, which include direct regulations, compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. CARB has already adopted numerous regulations and rulemaking for reducing GHG emissions to achieve the emissions cap by 2020. In August 2011, the Scoping Plan was reapproved by the Board, and includes the Final Supplement to the Scoping Plan Functional Equivalent Document (FED). The Scoping Plan was updated in 2014 to track progress toward meeting the AB-32 target.

Business-as-Usual (BAU): BAU represents a future scenario that does not consider the possible reduction of GHG emissions that may result from any legislation or regulation that would go into effect after the baseline year. The BAU projections are estimates of future emissions based on energy and carbon intensity in the existing economy with the expected increases in population and economic growth in the future.

Community Inventory: The community inventory includes GHG emissions occurring in association with the land uses within the jurisdictional boundaries of the City's planning areas, and generally consists of emissions sources that the City can influence or control. The inventory includes emissions that occur both inside and outside the jurisdictional boundaries, but only to the extent that such emissions are due to land uses and activities within the City.

Emissions Type: GHG emissions can be defined as either direct (emissions that occur at the end use location, such as natural gas combustion for building heating) or indirect (emissions that result from consumption at the end use location but occur at another location, such as emissions that occur at the power plant itself but result from residential electricity use of in-home appliances or other uses). This report addresses both types of emissions. In this report, the term emission refers to GHG emissions and not to emissions of air quality pollutants.

Unit of Measure: The unit of measure used throughout this GHG inventory is MTCO_{2e}. Presenting inventories in CO₂ equivalence allows characterization of the complex mixture of GHG as a single unit taking into account that each gas has a different global warming potential (GWP). A million MTCO_{2e} is abbreviated as MMTCO_{2e}.

2.3.2 Emissions Sectors Explained

GHG emissions and reductions presented in this document are done so in terms of “sectors.” The term sector refers to the type of emissions or the type of activity that produces the emission. For example, the on-road transportation sector includes emissions from the cars and trucks driven on the region’s roads and freeways. A brief description of each sector considered in this document follows in Table 2-1, with a list of the GHG reduction measures included in this CAP that work in that sector. Chapter 4 contains a glossary of all GHG reduction measures and Appendix B contains a detailed description of the methods used to calculate the associated GHG reductions.

Table 2-1. Emissions Sectors and Reduction Measures

Sector	How GHG emissions are avoided through State or Local measures in this CAP	Associated Reduction Measures
Building Energy Emissions result from the use of electricity and natural gas by residential and commercial buildings.	New construction built to a high energy-efficiency standard; retrofits to existing buildings to make them more energy efficient; changes in behavior or building management to be more efficient; and the increased use of renewable energy to power buildings.	State-1, State-2, State-3, State-4, State-5; Energy-7, Energy-8;; PS-1.
On-road Transportation Emissions result from the burning of gasoline and diesel fuel by light, medium and heavy duty vehicles that travel on the region's roads and freeways.	Increased fuel economy of all vehicles; reduced carbon content of the fuel; reduced vehicle miles traveled (increased use of alternative modes of transportation, carpooling, alternative work schedules and smart growth).	State-6, State-7, State-8; On-Road-2; PS-1.
Off-Road Transportation Emissions result from the burning of gasoline and diesel fuel by off-road equipment and vehicles.	Increased fuel economy of all vehicles and equipment; reduced carbon content of the fuel; idling limitations, and increased use of electric or alternatively fueled vehicles and equipment.	State-7;
Agriculture Emissions result from the application of fertilizer and the management of manure. Emissions also result from the burning of gasoline and diesel fuel by agricultural equipment, but these emissions are captured in the Off-Road equipment sector.	N/A	N/A
Solid Waste Management Emissions result from the decay of garbage under the anaerobic conditions present in landfills. This sector captures both the waste that is generated by San Bernardino County residents in the inventory year and the waste that was historically generated by any person or business that has sent waste to a landfill located within San Bernardino County.	Waste reduction and increased methane capture at relevant landfills.	State-9; County-1; PS-1.

Sector	How GHG emissions are avoided through State or Local measures in this CAP	Associated Reduction Measures
Wastewater Treatment Emissions result from the energy used to power plants and pump water and also from the chemical and biological breakdown of the waste.	Increased energy efficiency at wastewater treatment plants, water conservation and installation of biogas capture and gas to energy technologies.	Wastewater-3.
Water Conveyance Emissions result from the energy used to bring water from outside the jurisdiction to the border of a jurisdiction, including deliveries from the state water project or Colorado River.	More efficient water pumping equipment and both indoor and outdoor water conservation.	Water-3, Water-4; PS-1.

2.3.3 Climate Change and Global Warming

Climate change is a term used to describe large-scale shifts in existing (i.e., historically observed) patterns in earth's climate system. Although the climate has historically responded to natural drivers, recent climate change has been unequivocally linked to increasing concentrations of GHGs in earth's lower atmosphere and the rapid timescale on which these gases have accumulated (Intergovernmental Panel on Climate Change 2007a). The rapid loading of GHGs into the atmosphere is primarily due to the burning of fossil fuels since the industrial revolution.

Higher concentrations of heat-trapping GHGs in the atmosphere result in increasing global surface temperatures, a phenomenon commonly referred to as *global warming*. In absence of anthropogenic (i.e., manmade) emissions, GHGs play a critical role in maintaining the earth's temperature for successful habitation by humans and other forms of life.

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the industrial revolution. Rising atmospheric concentrations of GHGs in excess of natural levels have increased global surface temperatures, which in turn result in changes to the earth's climate system. Warming of the earth's lower atmosphere induces large-scale changes in planetary systems, including ocean circulation patterns, precipitation patterns, global ice cover, and biological distributions (Intergovernmental Panel on Climate Change 2007a, 2007b). Some of those changes would result in specific impacts at the state and local level.

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC identifies the following compounds as key anthropogenic GHGs: CO₂, CH₄, N₂O, PFCs, SF₆, and HFCs (Intergovernmental Panel on Climate Change 2007a). Each is discussed in detail below.

To simplify reporting and analysis, methods have been established to describe emissions of GHGs in terms of a single gas. The most commonly accepted method to compare GHG emissions is the GWP methodology defined in IPCC reference documents (Intergovernmental Panel on Climate Change

1996, 2001:241–280). IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO₂e, which compares the gas in question to that of the same mass of CO₂ (CO₂ has a GWP of 1 by definition).

Table 2-2 lists the global warming potential of CO₂, CH₄, N₂O, PFCs, SF₆, and HFCs; their lifetimes; and abundances in the atmosphere.

Table 2-2. Lifetimes and Global Warming Potentials of Several Greenhouse Gases

Greenhouse Gases	Global Warming Potential (100 years)	Lifetime (years)	2005 Atmospheric Abundance
CO ₂ (ppm) ^a	1	50–200	379
CH ₄ (ppb)	21	9–15	1,774
N ₂ O (ppb)	310	120	319
CF ₄ (ppt) ^a	6,500	50,000	74
C ₂ F ₆ (ppt) ^a	9,200	10,000	2.9
SF ₆ (ppt)	23,900	3,200	5.6
HFC-23 (ppt)	11,700	264	18
HFC-134a (ppt)	1,300	14.6	35
HFC-152a (ppt)	140	1.5	3.9

Sources: Intergovernmental Panel on Climate Change 1996, 2001:388–390.

Notes: ppm = parts per million

ppb = parts per billion

ppt = parts per trillion

^a CF₄ and C₂F₆ are PFCs

2.3.4 Principal Greenhouse Gases

2.3.4.1 Carbon Dioxide

CO₂ is the most important anthropogenic GHG and accounts for more than 75% of all GHG emissions caused by humans. Its atmospheric lifetime of 50–200 years ensures that atmospheric concentrations of CO₂ will remain elevated for decades, even after mitigation efforts to reduce GHG concentrations are promulgated (Intergovernmental Panel on Climate Change 2007a). The primary sources of anthropogenic CO₂ in the atmosphere include the burning of fossil fuels (including motor vehicles), gas flaring, cement production, and land use changes (e.g., deforestation, oxidation of elemental carbon). CO₂ can be removed from the atmosphere by photosynthetic organisms (e.g., plants and certain bacteria).

Atmospheric CO₂ has increased from a preindustrial concentration of 280 parts per billion (ppb) to 391 parts per million (ppm) in 2005 (Carbon Dioxide Information Analysis Center 2012).

2.3.4.2 Methane

CH₄, the main component of natural gas, is the second most abundant GHG and has a GWP of 21 (Intergovernmental Panel on Climate Change 1996). Sources of anthropogenic emissions of CH₄ include growing rice, raising cattle, using natural gas, landfill outgassing, and mining coal (National

Oceanic and Atmospheric Administration 2005). Certain land uses also function as both a source and sink for CH₄. For example, the primary terrestrial source of CH₄ are wetlands, whereas undisturbed, aerobic soils act as a CH₄ sink (i.e., they remove CH₄ from the atmosphere).

Atmospheric CH₄ has increased from a pre-industrial concentration of 715 ppb to 1,871 ppb in 2005 (Carbon Dioxide Information Analysis Center 2012).

2.3.4.3 Nitrous Oxide

N₂O is a powerful GHG, with a GWP of 310 (Intergovernmental Panel on Climate Change 1996). Anthropogenic sources of N₂O include agricultural processes (e.g., fertilizer application), nylon production, combustion of fossil fuel by power plants, nitric acid production, and vehicle emissions. N₂O also is used in rocket engines, racecars, and as an aerosol spray propellant. Natural processes, such as nitrification and denitrification, can also produce N₂O, which can be released to the atmosphere by diffusion. In the United States more than 70% of N₂O emissions are related to agricultural soil management practices, particularly fertilizer application.

N₂O concentrations in the atmosphere have increased 19%, to 319 ppb in 2008 from pre-industrial levels of 270ppb to 322 ppb (World Meteorological Association, 2008).

2.3.4.4 Perfluorinated Carbons

The most abundant PFCs are CF₄ (PFC-14) and C₂F₆ (PFC-116). These human-made chemicals are emitted largely from aluminum production and semiconductor manufacturing processes. PFCs are extremely stable compounds that are destroyed only by very high-energy ultraviolet rays, which results in very long lifetimes. They have high GWPs ranging from 6,500 for CF₄ to 9,200 for C₂F₆ (Intergovernmental Panel on Climate Change 1996)

2.3.4.5 Sulfur Hexafluoride

SF₆ is a human-made chemical used as an electrical insulating fluid for power distribution equipment, in the magnesium industry, semiconductor manufacturing, and also as a tracer chemical for the study of oceanic and atmospheric processes (U.S. Environmental Protection Agency 2006). In 2005, atmospheric concentrations of SF₆ were 7.4 parts per trillion (ppt) and steadily increasing (Carbon Dioxide Information Analysis Center 2012). SF₆ is the most powerful of all GHGs listed in IPCC studies, with a GWP of 23,900 (Intergovernmental Panel on Climate Change 1996).

2.3.4.6 Hydrofluorocarbons

HFCs are human-made chemicals used in commercial, industrial, and consumer products and have high GWPs ranging from 140 to 11,700 (U.S. Environmental Protection Agency 2006). HFCs are generally used as substitutes for ozone-depleting substances (ODS) in automobile air conditioners and refrigerants. As seen in Table 2-2, the most abundant HFCs, in descending order, are HFC-134a, HFC-23, and HFC-152a.

2.3.5 Greenhouse Gas Inventories and Emissions Sources

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person). Although many processes are

difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources.

The majority (83%) of GHG emissions in the United States result from burning fossil fuels. Fossil fuels are burned to create electricity, which powers homes, commercial buildings, and vehicles. Energy used to power buildings is the primary source of GHGs in California and the nation. Vehicle emissions are a close second, comprising approximately 30% of total national emissions and 37% of total statewide emissions (U.S. Environmental Protection Agency 2010; California Air Resources Board 2010). Other sources of GHG emissions include agriculture, land clearing, the landfilling of waste, refrigerants, and certain industrial processes.

Table 2-3 outlines the most recent global, national, and statewide GHG inventories to help contextualize the magnitude of San Bernardino County's GHG emissions.

Table 2-3. Global, National, State, and Local GHG Emissions Inventories

Emissions Inventory	CO ₂ e (metric tons)
2011 IPCC Global GHG Emissions Inventory	45,913,000,000
2012 EPA National GHG Emissions Inventory	6,526,000,000
2012 CARB State GHG Emissions Inventory	458,680,000
Sources: World Resources Institute 2014; U.S. Environmental Protection Agency 2014; California Air Resources Board 2014.	

2.3.6 Impacts of Climate Change on Southern California

Increases in the globally averaged atmospheric concentration of GHGs would cause the lower atmosphere to warm, in turn inducing a myriad of changes to the global climate system. These large scale changes would have unique and potentially severe impacts in the western United States, California, and the region surrounding the county. Current research efforts coordinated through CARB, CEC, Cal-EPA, University of California (UC) system, and others are examining the specific changes to California's climate that would occur as the earth's surface warms.

Existing evidence indicates that climate change could impact the natural environment in the following ways, among others.

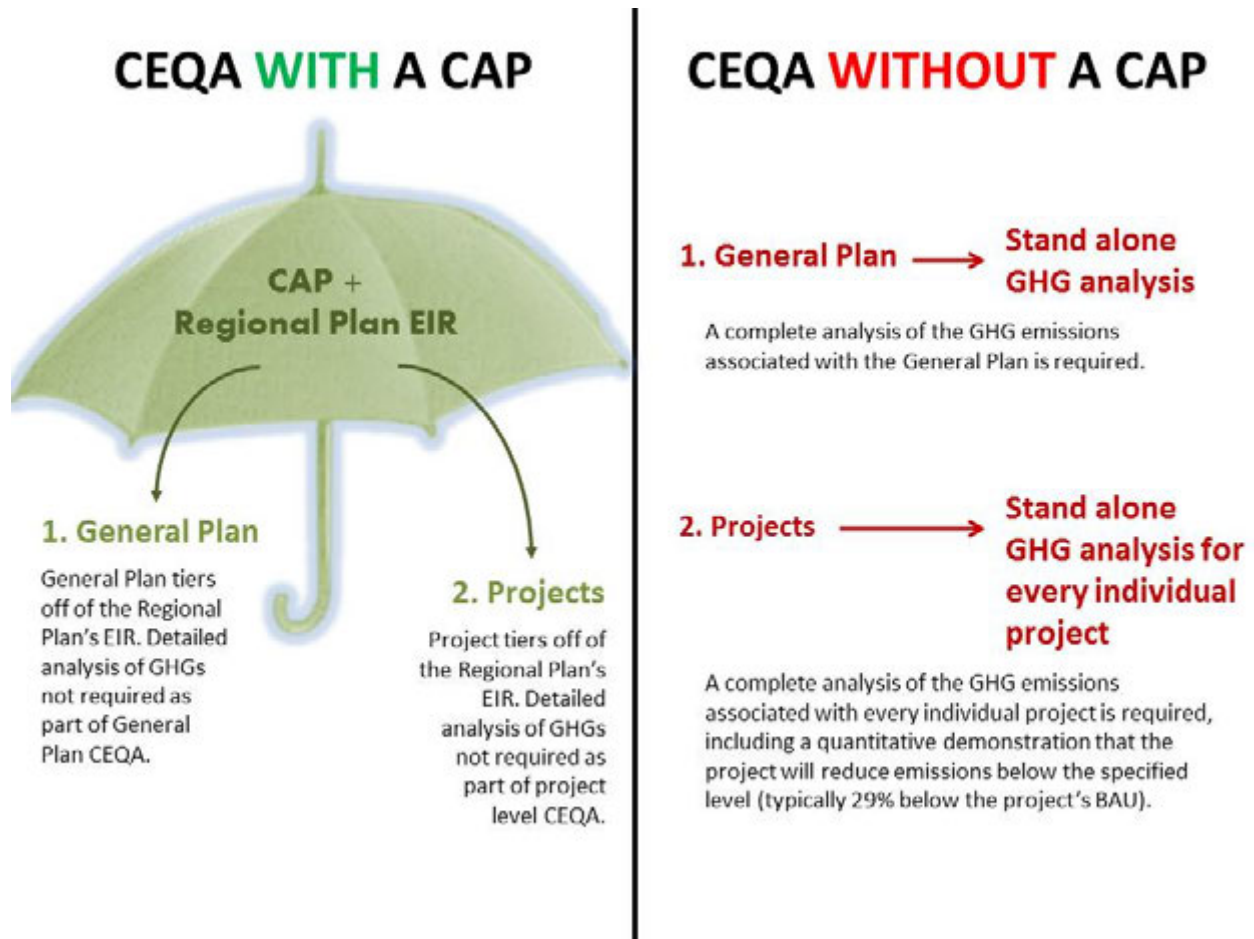
- Rising sea levels along the coastline.
- Extreme-heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent.
- An increase in the frequency, intensity, and duration of conditions that are conducive to forming air pollution, further exacerbating air quality issues.
- An increase in heat-related human deaths, infectious diseases, and a higher risk of respiratory problems caused by deteriorating air quality.
- Reduced water supplies (all end uses).
- Potential increase in the severity of winter storms, affecting peak stream flows and flooding.
- Changes in growing season conditions that could affect agriculture, causing variations in crop quality and yield.

- Changes in distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.
- Decreased Sierra snowpack and altered timing and amount of snowmelt; effects on California water supplies and water management including those serving southern California.
- Increased frequency and intensity of wildfires.

2.4 Relationship of Climate Action Plans to CEQA and Local General Plans

This section describes the general relationship of CAPs to CEQA and the local general plans, including legal requirements and evolving practice throughout California. Figure 2-2 illustrates these relationships.

Figure 2-2. CAP, General Plans and CEQA



As a discretionary action, prior to adoption of the GHG reduction plan by local cities, CEQA review is required. SANBAG has prepared an EIR that analyzes the physical impacts of the measures selected

by the Partnership cities on the environment. This analysis will be used to complete CEQA compliance prior to consideration of adopting of the portions of the plan applicable to SANBAG and to each individual city.

Amendments to the CEQA guidelines in March 2010 describe that CEQA project evaluation of GHG emissions can tier off a programmatic analysis of GHG emissions provided that the GHG analysis (or CAP) includes the following (CEQA Guidelines Section 15183.5).

- *Quantify greenhouse gas emissions*, both existing and projected over a specified time period, resulting from activities within a defined geographic area. This Plan has quantified all primary sectors of GHG emissions within each city for 2008 and 2020. Partnership cities may choose to adopt portions of this document as their individual CAP or build upon the information here to develop a more comprehensive CAP document.
- *Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by a CAP would not be cumulatively considerable.* This Plan includes the different proposed reduction targets of each of the Partnership cities. The collective measures proposed by the Partnership cities, in combination with state measures, would reduce emissions by 16% below 2008 levels and by 27% below 2020 BAU levels, which are roughly consistent with the recommendations in the AB 32 Scoping Plan for municipalities to support the overall AB 32 reduction targets
- *Identify and analyze the GHG emissions* resulting from specific actions or categories of actions anticipated within the geographic area. This Plan analyzes community emissions for each Partnership city as a whole and includes predicted growth expected by 2020.
- *Specify measures or a group of measures, including performance standards* that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level. This Plan identifies both specific measures and project-level reduction standards (where selected by individual cities) to achieve the overall reduction target.
- *Monitor the plan's progress.* This Plan outlines general monitoring steps. Individual CAPs that utilize this Plan as a base would include locally-specific identification of monitoring actions..
- *Adopt the GHG Reduction Strategy in a public process following environmental review.* For each city that chooses to do so, a CAP would be adopted in a public process. The EIR prepared for this Plan can be used to support local city compliance with CEQA.

Once adopted, subsequent project-level CEQA evaluations of greenhouse gas emissions can tier off of the adopted city CAP, provided that they are being fully implemented by the Partnership city where the project is located, and that the specific project is consistent with all applicable requirements from the relevant adopted city CAP.

The South Coast Air Quality Management District (SCAQMD) adopted an interim GHG significance threshold for stationary source projects where the SCAQMD is the lead agency. SCAQMD does not currently have GHG significance thresholds for development projects. SCAQMD encourages local governments to adopt a qualified GHG reduction strategy consistent with AB 32 goals and the new statewide CEQA guidelines described above. SCAQMD recommends that stationary source projects, consistent with an adopted qualified GHG reduction plan that meets the standards described in the CEQA guidelines, can be presumed to have no significant GHG emissions and do not need to be evaluated against SCAQMD's recommended mass emissions thresholds. For stationary source projects not consistent with an adopted qualified GHG reduction plan, if they exceed a screening

significance threshold level of 10,000 MTCO₂e of emissions per year, then the project must demonstrate design features and/or other measures to mitigate GHG emissions to the maximum extent feasible, or implement offsite mitigation (GHG reduction projects) to reduce GHG emission impacts to less than the proposed screening level. SCAQMD has draft thresholds for land use projects (residential and commercial development) that similarly allow for tiering off a qualified GHG reduction plan and use of numeric thresholds where a qualified plan has not been adopted.

As noted above, CEQA Guidelines Section 15183.5 establishes opportunities for tiering for qualified GHG reduction plans. Accordingly, emissions associated with projects that are consistent with the city-adopted GHG reduction plans can be considered less than significant and their contributions to cumulative emissions are not considered cumulatively considerable. Clearly, projects that are consistent with the city-adopted plans would still create emissions; however, they can be approved knowing that overall emissions projected to occur in 2020 would be less than the emissions that would occur in 2020 under BAU. This determination only relies on an individual city's actions relative to its GHG emissions. Provided that a project is within a jurisdiction with a qualified GHG reduction plan that is being implemented in full, tiering can be used. If some of the Partnership cities choose not to adopt CAPs or choose to adopt different targets or measures than described in this Plan, this would not affect the ability of other cities to tier their project analysis from their adopted plans, provided the plans are being implemented.

3.1 Introduction

This chapter presents the GHG inventory, 2020 BAU forecast, and GHG emission reductions for the City of Yucaipa. The following information is presented in this chapter.

1. **City Summary**—Presents background information including location, socioeconomics, and key points of interest. Demographic information consistent with the 2010 U.S. Census is summarized. An overview of the City's emissions and selected reduction measures is also provided.
2. **Emission Reductions Graphics**—Three graphics are presented here: 1) a bar chart showing the City's 2008 inventory, state/county reductions, local reductions, and unmitigated emissions in 2020, along with the 2020 emissions goal identified by the City; 2) a bar chart showing the 2020 BAU emissions by sector and the 2020 emissions with full implementation of the Plan; and 3) pie charts showing reductions by controlling entity and by sector.
3. **Emissions and Reductions Table**—This table presents the same information as shown in the graphics, including the City's 2008 inventory, 2020 BAU forecast, and reductions by sector.
4. **Reduction Measures Table**—This table presents all reduction measures considered by the City for this plan, along with GHG reductions and simple descriptions of each measure.
5. **Relevant General Plan Policies**—A summary of general plan policies that are relevant to avoiding or reducing GHG emissions in general, or support specific reduction measures in the Plan. General Plan policies are listed in reference to the specific GHG reduction measures they support. Refer to Chapter 1 for an explanation of the main goal of each reduction category and to Chapter 4 for a definition of each individual reduction measure listed.

The City has selected a goal to reduce their community GHG emissions by 15% below 2008 baseline levels by the year 2020. The City has selected this goal based on what the City considers feasible given the local conditions.

The City has selected these measures independently of other cities' selections within the San Bernardino County Regional GHG Reduction Plan. Selections include both the measure itself and the participation rate associated with each measure. For example, the City chose Solar Installation for Existing Housing (Energy-7) and also chose the specific percentage of homes that are assumed to be retrofitted with solar roofs by the year 2020. The measure selections were based on the City's best judgment about what is feasible for Yucaipa, and depend on the specific emissions source profile (i.e. inventory) and the anticipated growth within the city.



3.2 City of Yucaipa

3.2.1 City Summary

The City of Yucaipa is located in the foothills of the San Bernardino Mountains, at the far eastern end of the San Bernardino Valley. Yucaipa is located 10 miles east of San Bernardino, and just southeast of Redlands along the I-10 freeway before it ascends over the San Geronio Pass. Yucaipa's altitude of 2,600 feet provides for a more moderate climate than other Valley cities. The city has access to state parks in the San Bernardino Mountains. Yucaipa contains some of the oldest dwellings in the county, including the Yucaipa Rancheria and Yucaipa Adobe.

Yucaipa covers approximately 28 square miles and is largely residential, with only 665 of 17,763 acres devoted to commercial and industrial uses and more than 1,000 acres devoted to agriculture within the city limits, according to the City's general plan. Because commercial and industrial activity in the city is limited, residents typically commute to other areas of San Bernardino and Riverside counties for work. These land uses are reflected in the city's GHG profile, with primary emissions sources in the on-road transportation, residential building energy use, and commercial energy use sectors.

The population of Yucaipa in 2010 was 51,367 (51,217 in 2008) and is expected to increase to 55,821 by 2020, an increase of 9% over 2008, one of the smallest in the county. Yucaipa's demographic composition in 2010 was 79.5% White, 1.6% Black, 0.9% American Indian and Alaska Native, 2.8% Asian, 0.1% Native Hawaiian and Other Pacific Islander, 10.9% from other races, and 4.1% from two or more races. Persons of Hispanic or Latino origin were 27.1%. The majority of the population in Yucaipa is White (80% compared to the state average of 58%), but nearly 27% of residents are of Hispanic or Latino origin. The city also has a high homeownership rate of 78% (U.S. Census Bureau 2012). Employment is expected to increase by a comparable amount before 2020.

Table 3-1 presents socioeconomic data for Yucaipa, including population, housing (single-family and multifamily), and employment (agricultural, industrial, retail, and nonretail) (Southern California Association of Governments 2012).

Table 3-1. Socioeconomic Data for Yucaipa

Category	2008	2020
Population	51,217	62,822
Housing	18,176	21,822
<i>Single-Family</i>	<i>11,987</i>	<i>14,493</i>
<i>Multifamily</i>	<i>6,189</i>	<i>7,319</i>
Employment	9,761	13,640
<i>Agricultural</i>	<i>107</i>	<i>188</i>
<i>Industrial</i>	<i>1,837</i>	<i>3,008</i>
<i>Retail</i>	<i>2,078</i>	<i>2,631</i>
<i>Non-Retail</i>	<i>5,739</i>	<i>7,813</i>



3.2.2 Emission Reductions

The City of Yucaipa selected a goal to reduce its community GHG emissions to a level that is 15% below its 2008 GHG emissions level by 2020. The City will meet and exceed this goal subject to reduction measures that are technologically feasible and cost-effective. The City will meet this goal through a combination of state (~81%) and local (~19%) efforts. The Pavley vehicle standards, the state's low carbon fuel standard, the RPS, and other state measures will reduce GHG emissions in Yucaipa's on-road and building energy sectors in 2020. An additional reduction of 17,126 MTCO_{2e} will be achieved primarily through the following local measures, in order of importance: Implement SB X7-7 (Water-4); GHG Performance Standard for New Development (PS-1); and Solar Installations for Existing Housing (Energy-7). Yucaipa's Plan, including both state and local measures has the greatest impacts on GHG emissions in the on-road transportation, building energy, and water conveyance sectors.

The bars in Figure 3-1 show Yucaipa's 2008 GHG emissions total, 2020 BAU emissions forecast total, and the total emissions remaining after meeting the city's emissions reduction target (i.e., 15% below the 2008 emissions level). The contribution of state/county and local reductions are overlaid on the 2020 BAU emissions forecast total ("2020 Plan"), representing the total emissions reductions achieved in 2020. As stated above, state/county reductions account for the majority (~81%) of the total reductions needed to achieve the 2020 target.

Figure 3-2 presents emissions by sector, for both the 2020 BAU and the 2020 reduction or "Plan" scenarios. The largest emissions contributions are in the on-road transportation, building energy, and off-road equipment emissions sectors.

Table 3-2 summarizes the 2008 inventory, 2020 BAU forecast, and GHG reduction ("Plan") results by sector. It shows the percent reduction in each sector's emissions in 2020 and demonstrates that Yucaipa exceeds its emissions reduction goal. Emissions sectors with the greatest percent reduction include the on-road transportation, building energy, and water conveyance sectors.

Figure 3-3 presents emission reductions by sector and by control (i.e., state/county control versus local or city control). As stated previously, the majority of emissions reductions are due to state/county measures. Of the state/county measures, the majority of reductions are in the building energy and on-road transportation sectors. Of the local measures, the majority of reductions are in the building energy sector due to the implementation of SB X7-7 (Water-4).

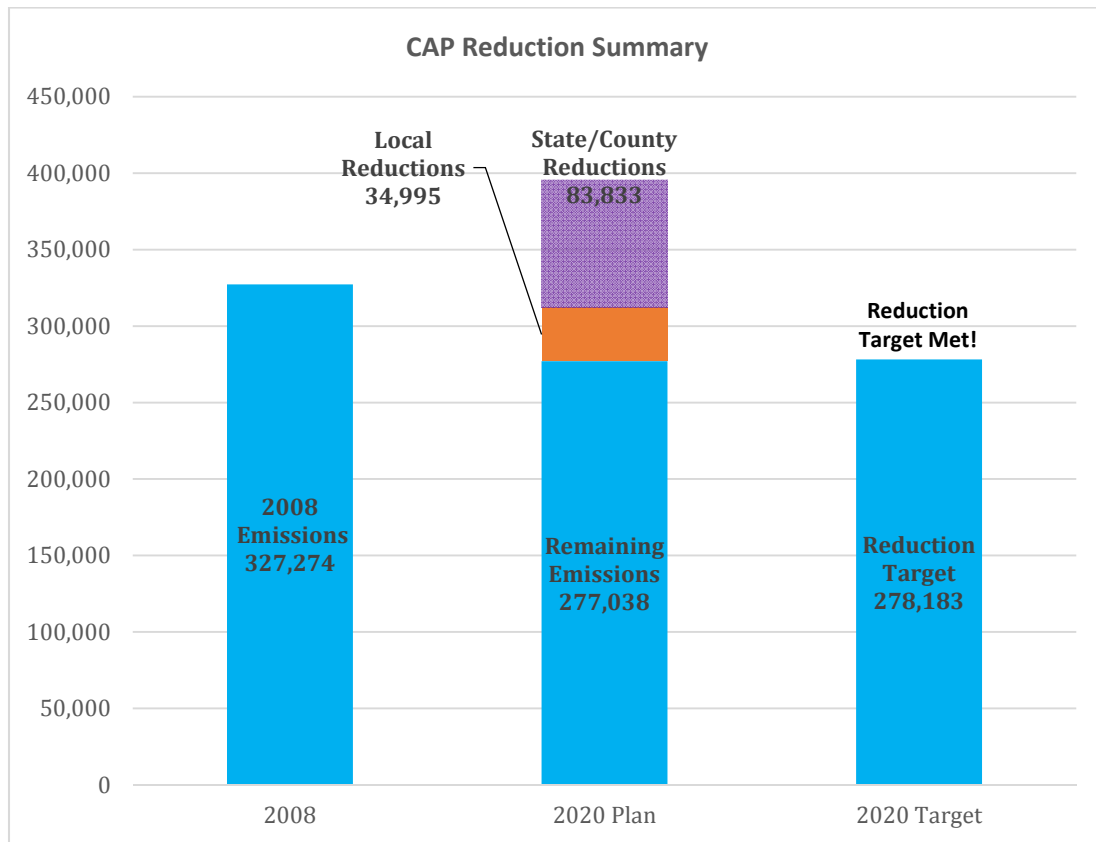
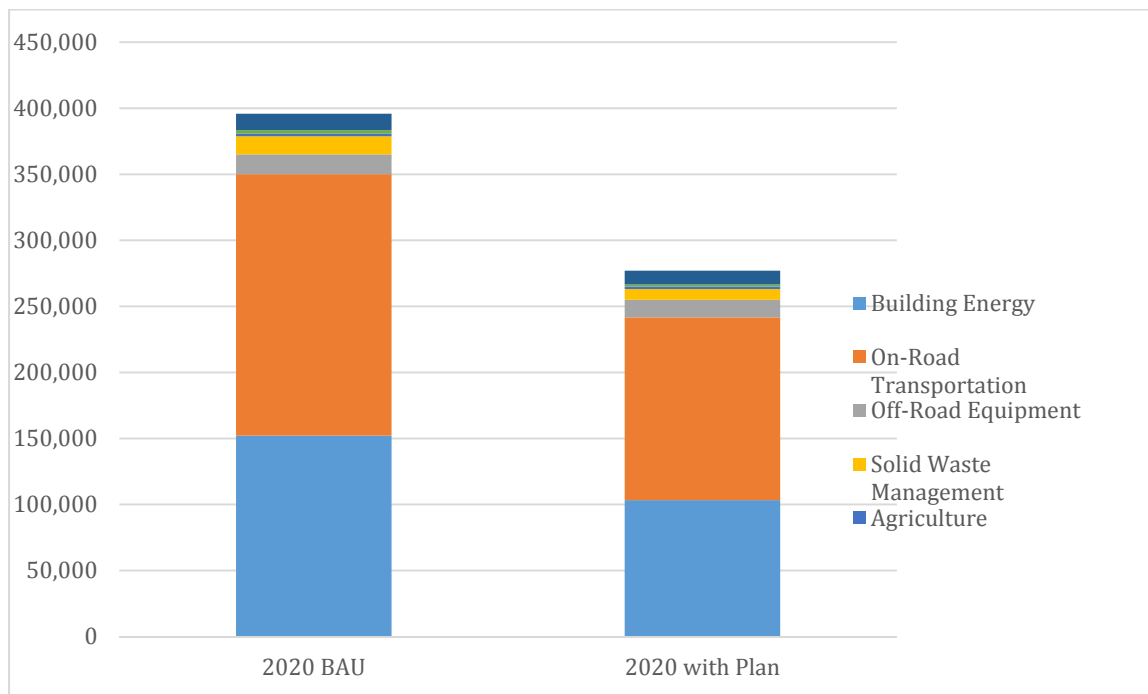
Figure 3-1. Emissions Reduction Profile for Yucaipa**Figure 3-2. Emissions by Sector for Yucaipa**

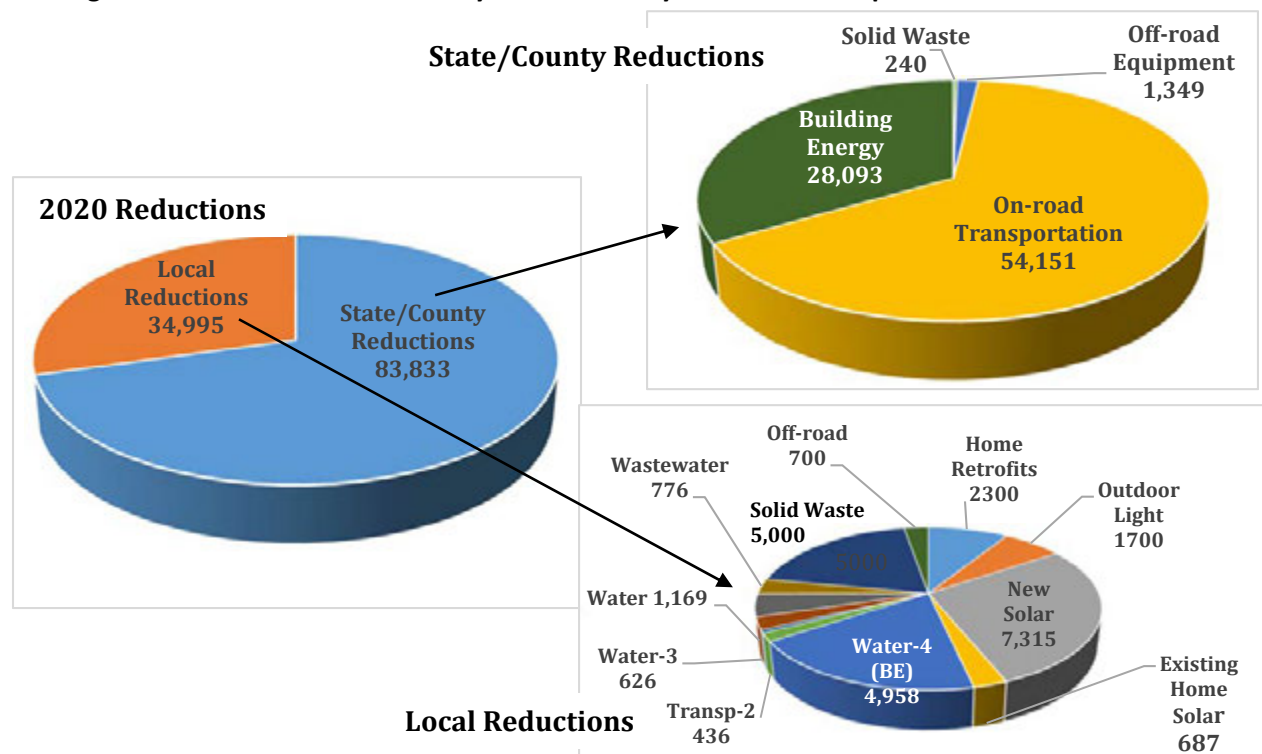
Table 3-2. Emission Reductions by Sector for Yucaipa

Sector	2008	2020 BAU	Reductions	2020 Emissions with Plan	% Reduction
Building Energy	122,591	152,149	45,053	107,096	29.61%
On-Road Transportation	168,613	197,859	54,587	143,272	27.59%
Off-Road Equipment	12,035	15,096	1,349	13,747	8.93%
Solid Waste Management	11,875	13,638	5,240	8,398	38.42%
Agriculture	3,967	2,022	0	2,022	0.0%
Wastewater Treatment	2,071	2,557	926	1,631	36.21%
Water Conveyance	6,122	12,545	1,795	10,750	14.31%
GHG Performance Standard*	-	-	9,878	-9,878	-
Total Emissions	327,274	395,866	118,828	277,038	30.02%
<i>Reduction Goal</i>	-	-	117,683	278,183	29.73%
<i>Goal Met?</i>	-	-	Yes	Yes	Yes
<i>Reductions Beyond Goal</i>	-	-	1,245	-	-
Per-Capita Emissions	6.4	6.3	-	4.8	-
Per-Job Emissions	33.5	29.0	-	22.2	-
<i>Excluded Emissions: Stationary Sources</i>	<i>23,188</i>	<i>32,910</i>	-	-	-

Notes:

Values may not sum due to rounding.

* The GHG Performance Standard for New Development is not a sector of the inventory, but it contributes toward the City's reduction goal by promoting reductions in multiple sectors. Please see Chapter 4 for a complete description of this measure.

Figure 3-3. Emission Reductions by Control and by Sector for Yucaipa

3.2.3 Reduction Measures

Table 3-3 presents each reduction measure evaluated for Yucaipa. For each measure, the short title and estimated GHG reductions in 2020 are listed. Measures are organized by state/county control and local control and listed by sector.

Table 3-3. GHG Reduction Measures and Estimated 2020 Reductions for Yucaipa

Measure Number	Measure Description	Reductions
State/County Measures		
State-1	Renewable Portfolio Standard	17,356
State-2	Title 24 (Energy Efficiency Standards)	5,777
State-3	AB 1109	4,574
State-4	Solar Water Heating	181
State-5	Industrial Boiler Efficiency	205
State-6	Pavley plus LCFS	49,765
State-7	AB 32 Transportation Reduction Strategies	4,386
State-8	LCFS: Off-Road	1,349
State-9	AB 32 Methane Capture	0
County-1	San Bernardino County GHG Plan Landfill Controls	240
Local Measures		
Building Energy		
Energy-1	Existing Residential Energy Efficiency Retrofits	2,300
Energy-2	Outdoor Lighting Efficiency	1,700
Energy-7	Solar Installation for Existing Housing	1,073
Energy-8	Solar Installation for Existing Commercial / Industrial	102
Water-4 (BE)	Implement SB X7-7	4,958
On-Road Transportation	Smart Bus Technologies	436
Off-Road Equipment	25% of Construction equipment is electric	700
Wastewater Treatment		
Wastewater- (WC)	Wastewater Equipment Upgrades	776
Water-4 (WT)	Implement SB X7-7	150
Water Conveyance		
Water-3	Water-Efficient Landscaping Practices	626
Water-4	Implement SB X7-7	1,169
Wastewater-3 (WC)	Recycled Water	776
Solid Waste		
Waste-1	75% Waste Diversion Rate	5,000
GHG Performance Standard for New Development		
PS-1	GHG Performance Standard for New Development	9,878
Total Reductions		118,828

Notes: Values may not sum due to rounding.

The Low Carbon Fuel Standard (LCFS) reduces emissions in both the on-road transportation and off-road equipment sectors.

Measures in italics result in GHG reductions in multiple sectors. For example, Water-1 reduces the amount of water consumed in the city, which reduces emissions for conveying that water (water conveyance sector), the energy needed to heat that water (building energy sector), and the energy required to treat the associated wastewater (wastewater treatment sector). The abbreviations are: BE = Building Energy; WT = Wastewater Treatment; WC = Water Conveyance

3.2.4 Relevant General Plan Policies

This section summarizes key Yucaipa General Plan policies that support the GHG reduction measures included in the CAP or would contribute to GHG reductions and sustainable practices in the city. All policies listed below are from the Yucaipa 2004 General Plan unless otherwise noted (Yucaipa 2004). In addition to state level measures, the City of Yucaipa GHG reduction measures related to residential and commercial solar installations, SmartBus Technologies, wastewater treatment, a Landscape Ordinance and a Performance Standard for new development (Table 3-3). However, the City's General Plan includes policies and programs that broadly support energy efficiency and sustainability across all sectors, even if the City did not select a specific GHG reduction measure within the sector as part of this plan. Relevant General Plan policies for the specific reduction measures the City selected are listed under the measure name (e.g., Wastewater-1). Policies not tied to a specific GHG reduction measure are listed only by sector (e.g., Off-Road).

3.2.4.1 Building Energy

- **Program 6. a. b. i. (a):** Implement plans and programs to phase in energy conservation improvement through the annual budget process.
- **Goal UD 4 Policy C Action 1:** In conjunction with the Beautification Committee establish specific tree preservation priorities.

3.2.4.2 On-Road

Transportation-1. Sustainable Communities Strategy

- **Goal T-2 Policy A:** Promote the establishment and development of a City bicycle lane program Use transportation right of ways for multiple transportation modes including recreation.
- **Goal T-6 Policy C:** Design land use patterns in new developments that minimize the number of automobile trips by providing neighborhood shopping facilities and pedestrian and bicycle paths.
- **Goal T-6 Policy D:** Encourage the design and implementation of land uses development standards and capital improvement programs which maximize the use of public transit.
- **Goal T-6 Policy F:** Designate existing Park and Ride Facilities on the General Plan Circulation Maps work with Caltrans to identify appropriate Future Park and Ride Facilities and develop a program to acquire and develop sites for such facilities in areas where there is an identified need.
- **Program 2.d.i.(c):** Plan for commuter and main line rail service development including convenience facilities at rail stops through the intensification of planned land uses in the vicinity of transit stops and the consolidation of parking facilities to support transit as well as adjacent uses.
- **Program 2.d.ii.(b):** Influence the expansion of regional commuter and main line rail services particularly those linking with destinations in Yucaipa and the surrounding area.
- **Program 2.e.i.(a):** Develop standards and guidelines for support facilities to incorporate into development plans for increased bicycle and pedestrian routes to link appropriate activity centers to nearby residential development.
- **Goal LU 4 Policy A:** Concentrate higher density residential land uses close to employment and commercial centers to help reduce the use of energy.

- **Goal LU-4 B:** Provide for additional commercial and employment opportunities within the city to maintain a better housing balance and reduce the number of vehicle trips made out of the city for employment purposes.

Transportation-2. Smart Bus Technologies

- **Goal T-6 Policy E:** SCAG Caltrans SANBAG Commuter Computer to develop ridesharing programs and public transit.
- **Goal T-6 Policy G Action 2:** Urge the timely extension of public transit between residential areas and industrial employment centers.
- **Program 2.d.i.(c):** Coordinate with public transit providers to increase funding for transit improvements to supplement other means of travel.

3.2.4.3 Wastewater Treatment

- **Program 6. a. b. i. (a):** Implement plans and programs to phase in energy conservation improvement through the annual budget process.

Chapter 4

Reduction Measures

4.1 Introduction

This section contains a detailed description of all reduction measures discussed in the CAP. Measures are organized below into state, county, and local categories. For local measures, the following sectors are included: building energy; on-road transportation; wastewater; water conveyance; and performance standard. An overview of each sector, including a summary of each sector's results, its relative importance (compared to other sectors), and major opportunities for reductions, is also provided.

For each measure, the following information is provided.

Measure Description: A description of the measure.

Entity Responsible for Implementation: The entity that would be implementing the measure.

Measure Implementation Details: More information on how and when the measure would be implemented, including actions, programs and funding sources.

Level of Commitment: The assumed level of commitment for each measure.

Co-Benefits: Possible co-benefits of each measure are included.

The full methods for the reduction measure calculations are included in Appendix B to the CAP.

4.2 State Measures

Actions undertaken by the state would contribute to GHG reductions in Yucaipa. For example, the state requires electric utility companies to increase their procurement of renewable resources by 2020. Renewable resources, such as wind and solar power, produce the same amount of energy as coal and other traditional sources, but do not emit any GHGs. By generating a greater amount of energy through renewable resources, electricity provided to Yucaipa would be cleaner and less GHG intensive than if the state hadn't required the renewable standard. Even though state measures do not always require local government action, emissions reductions achieved by this and other state measures would help lower GHG emissions in Yucaipa. This CAP includes ten statewide initiatives that would contribute to GHG reductions in Yucaipa. The majority of these programs would improve building energy efficiency and renewable energy generation. Specifically, Title 24 energy efficiency standards for new residential and nonresidential buildings would require building shells and components be designed to conserve energy and water. Similarly, energy efficiency strategies required by AB 1109 would reduce electricity consumption lighting. Finally, the state's RPS would increase the amount of electricity generated by renewable resources.

Over the past several decades, California has become a leader in establishing initiatives to reduce fuel consumption and on-road vehicle emissions and this continues in combination with federal efforts on the CAFE standards. CARB has also adopted the LCFS, which requires a 10% reduction in

the carbon intensity of California's transportation fuels by 2020 and outlined several efficiency measures in the AB 32 Scoping Plan. Together, these measures would reduce light- and heavy-duty vehicle emissions.

A complete list of state programs included in the Plan, as well as anticipated GHG reductions, is presented in this chapter. Appendix B provides more description of each state measure.

4.2.1 State-1: Senate Bill 1078 (2002)/Senate Bill 107 (2006) and Senate Bill 2 (2011) Renewable Portfolio Standard

Measure Description: Obligates IOUs, ESPs, and CCAs to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010 and sets forth a longer-range target of procuring 33% of retail sales by 2020.

Entity Responsible for Implementation: IOUs, ESPs, and CCAs are responsible for implementing this measure.

Measure Implementation Details: The responsible entities will procure incremental amounts of retail sales each year from renewable sources. By 2020, 33% of retail sales will be procured from renewable sources.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, and public health improvements.

4.2.2 State-2: Title 24 Standards for Non-Residential and Residential Buildings (Energy Efficiency Standards and CALGreen)

Measure Description: Requires that building shells and building components be designed to conserve energy and water. Mandatory and voluntary measures became effective on January 1, 2011, and the guidelines will be periodically updated. Local governments are responsible for adoption and enforcement of the standards. The latest energy efficiency update of standards took effect in July 2014 and the CEC intends to update them approximately every 3 years in future years.

Entity Responsible for Implementation: Local governments are responsible for implementation and enforcement of the standards.

Measure Implementation Details: This measure would be implemented gradually as new homes are built.

Co-Benefits: Reduced energy use, reduced air pollution, resource conservation, increased property value, public health improvements, and increased quality of life.

4.2.3 State-3: AB 1109 (Huffman) Lighting Efficiency and Toxics Reduction Act

Measure Description: Structured to reduce statewide electricity consumption in the following ways: 1) At least 50% reduction from 2007 levels for indoor residential lighting, and 2) At least 25% reduction from 2007 levels for indoor commercial and outdoor lighting, by 2018.

Entity Responsible for Implementation: The State of California is responsible for implementing this measure.

Measure Implementation Details: By 2018, reductions of 50% and 25%, compared to 2007 levels would be achieved.

Co-Benefits: Reduced energy use, reduced air pollution, increased property values, and increased quality of life.

4.2.4 State-4: AB 1470 (Huffman) Solar Water Heating

Measure Description: Creates a \$25 million per year, 10-year incentive program to encourage the installation of solar water heating systems that offset natural gas use in homes and businesses throughout the state.

Entity Responsible for Implementation: The State of California is responsible for implementing this measure.

Measure Implementation Details: This measure would be implemented gradually as residents replace their heaters with solar water heating systems.

Co-Benefits: Reduced energy use, reduced air pollution, increased property values.

4.2.5 State-5: Industrial Boiler Efficiency

Measure Description: This measure evaluated by CARB would require one or more of the following: annual tuning of all boilers, the installation of an oxygen trim system, and/or a noncondensing economizer to maximize boiler efficiency. A facility could also replace an existing boiler with a new one that is equipped with these systems.

Entity Responsible for Implementation: The State of California is responsible for implementing this measure.

Measure Implementation Details: This measure would be implemented gradually as industrial facilities replace their boilers.

Co-Benefits: Reduced energy use and reduced air pollution.

4.2.6 State-6a: AB 1493 (Pavley I and II) Greenhouse Reductions from New Passenger Vehicles

Measure Description: AB 1493, (Pavley I) requires CARB to adopt vehicle standards that will lower GHG emissions from new light-duty autos in 2009. Additional strengthening of the Pavley standards (Pavley II or Advanced Clean Cars measure) has been proposed for vehicle model years 2017–2025. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%.

Entity Responsible for Implementation: The State of California, EPA and NHTSA, and vehicle manufacturers are responsible for implementing the Pavley standards.

Measure Implementation Details: The 2011—2016 standards would be implemented through 2016 and the 2017—2025 standards would be implemented through 2020. Implementation would be gradual through 2016 and 2020 as older vehicles are replaced with more fuel efficient vehicles.

Co-Benefits: Reduced energy use, reduced air pollution, public health improvements, and energy security.

4.2.7 State-6b (On-Road) and State-8 (Off-Road): Executive Order S-1-07 Low Carbon Fuel Standard

Measure Description: Mandates the following: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020, and (2) that a LCFS for transportation fuels be established in California.

Entity Responsible for Implementation: The State of California and vehicle fuel manufacturers are responsible for implementing this measure.

Measure Implementation Details: The standard would be fully implemented by 2020. Implementation would occur as fuel is improved statewide.

Co-Benefits: Reduced air pollution, public health improvements, energy security, reduced price volatility, and economic development.

4.2.8 State-7: Assembly Bill 32 (AB 32) Transportation Reduction Strategies

Measure Description: The AB 32 Scoping Plan includes vehicle efficiency measures (in addition to Pavley and LCFS) that focus on maintenance practices. The following AB 32 reduction strategies and/or programs are recommended.

- Tire Pressure Program (assures vehicle tire pressure is maintained to manufacturer specifications).
- Low Rolling Resistance Tires (creates an energy efficiency standard for automobile tires to reduce rolling resistance).
- Low Friction Engine Oils (mandates the use of engine oils that meet certain low friction specifications).
- Cool Paints and Reflective Glazing (reduces the engine load for cooling the passenger compartment with air conditioning through the use of solar reflective paints and window glazing).
- Goods Movement Efficiency (targets system-wide efficiency improvements in goods movement to achieve GHG reductions from reduced diesel combustion).
- Heavy-Duty Vehicle GHG Emission Reduction (requires installation of best available technology and/or CARB approved technology to reduce aerodynamic drag and rolling resistance).
- Medium-and Heavy-Duty Vehicle Hybridization (adopts a regulation and/or incentive program that reduces the GHG emissions of new vehicles sold in California by replacing them with hybrids).

Entity Responsible for Implementation: The State of California is responsible for implementing this measure.

Measure Implementation Details: Implementation would occur gradually through 2020 as the statewide strategies and programs are put into effect.

Co-Benefits: Reduced energy use, reduced air pollution, public health improvements, and energy security.

4.2.9 State-9: AB 32 Methane Capture

Measure Description: The Landfill Methane Rule requires gas collection and control systems on landfills with greater than 450,000 tons of waste-in-place. The measure also establishes statewide performance standards to maximize methane capture efficiencies.

Entity Responsible for Implementation: Landfill owners and operators are responsible for complying with the landfill regulation.

Measure Implementation Details: This measure would be implemented gradually by 2020 as landfill operators comply.

Co-Benefits: Reduced air pollution, resource conservation, and increased quality of life.

4.3 County Measures

The San Bernardino County plans to install methane capture systems at a number of county-owned and operated landfills. Since these landfills serve Yucaipa, the City would see emission reductions from their solid waste management sector, as fewer fugitive methane emissions from the decomposition of City-generated waste would be released into the atmosphere.

4.3.1 County-1: San Bernardino County GHG Reduction Plan Landfill Controls

Measure Description: San Bernardino County, through their adopted GHG Reduction Plan, would install landfill gas controls on the following County-owned and operated landfills.

- 95% capture at Mid-Valley landfill
- 85% capture at Milliken and Colton landfills
- 75% capture at Barstow and Landers landfills

Since these landfills serve several of the cities of San Bernardino County including Yucaipa, the City would realize GHG reductions from the county's installation of landfill gas controls.

Entity Responsible for Implementation: The County of San Bernardino is responsible for implementing this measure.

Measure Implementation Details: San Bernardino County would need to upgrade and install equipment as necessary to increase and utilize the captured methane gas. The installation of

equipment is a one-time event, and implementation would be complete once the equipment begins operating.

Level of Commitment: San Bernardino County would install methane capture technology and associated monitoring systems on the landfills listed above.

Co-Benefits: Reduced energy use and reduced air pollution.

4.4 Building Energy

Building energy use from residential, commercial, and industrial buildings is a large component of the regional GHG inventory, accounting for 40% of the total regional emissions in 2008 and 2020. Building energy consumption includes electricity and natural gas usage. Electricity use in buildings results in indirect emissions from the power plants that produce electricity outside of city boundaries. Natural gas consumption by furnaces and other appliances in buildings results in direct emissions where the natural gas is combusted.

The building energy sector is the second largest contributor of GHG emissions to the City's GHG inventory. Consequently, building energy-related reduction measures can yield substantial reductions.

The City's selected reduction measures to address GHG emissions from building energy use by promoting solar energy measures to change the carbon content of electricity.

Improving energy performance are therefore vital to this CAP. Solar energy retrofits have upfront costs, but can result in savings over the long term. In this sector, private residents, businesses, and the municipal governments would incur costs to install solar roofs but would also realize the resulting energy cost savings. Costs to the city governments would mainly be associated with staff time for development of the incentive programs, as well as costs of retrofits to existing municipal buildings and upfront costs for building new city facilities.

The building energy measures would also result in other benefits for both small and large businesses, as well as households in Yucaipa. The generation of renewable energy from clean technologies (e.g., wind, solar) would contribute to reductions of regional criteria pollutants. Less combustion of natural gas may also produce local air quality and public health benefits. Overall, increase in renewable energy generation would enhance the ability of homeowners and business to withstand unexpected surges in future energy costs. Energy retrofits would also improve home values and likely contribute to economic growth by providing new jobs within the community.

4.4.1 Renewable Energy

4.4.1.1 Energy-7: Solar Installations for Existing Housing

Measure Description: Establish a goal for solar installations on existing single-family homes to be achieved before 2020 (California Air Pollution Control Officers Association 2009, 2010). The goal for this measure is for 5% of existing single-family homes to install solar.

These goals could be supported through nonfinancial incentives or streamlined permitting through the City. Primary funding would likely be through state- or utility-level programs or through private

funding such as a PPA. The City may also act as a resource for connecting project proponents with funding opportunities.

Entity Responsible for Implementation: The City in coordination with various private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the City can work with private companies to provide funding for solar energy projects. Implementation of this measure would be gradual through 2020 as new commercial and industrial developments are constructed and equipped with solar installations.

Level of Commitment: Yucaipa has set a 5% percentage goal of existing single-family homes to install solar.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values.

4.4.1.2 Energy-8: Solar Installations for Existing Commercial/Industrial Buildings

Measure Description: Establish a goal for solar installations on existing commercial/industrial buildings to be achieved before 2020 (California Air Pollution Control Officers Association 2009, 2010). The goal for this measure is for 5% of existing buildings to install solar installations.

The selected goal could be achieved in part through private funding from SunRun, SolarCity, or other solar lease PPAs. Additionally, nonfinancial incentives and streamlined permitting at the local level can support this goal. The City may also act as resources for connecting property owners with funding opportunities. This measure could complement voluntary CALGreen measures related to solar photovoltaic systems.

Entity Responsible for Implementation: The City, in coordination with external funding programs and/or private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the City can work with building owners, state funding programs, and private companies to provide funding for solar energy projects. Implementation of this measure would be gradual through 2020 as solar is installed on existing buildings.

Level of Commitment: The City's established goal is for 5% of existing commercial and industrial buildings (private and/or public buildings) to install solar to provide a minimum of 15% of the building's onsite energy needs.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values.

4.5 On-Road Transportation

On-road transportation emissions include emissions from light- and medium-duty vehicles and heavy-duty trucks associated with land use activity in Yucaipa. Emissions originate from the

combustion of fossil fuels (such as diesel, gasoline, compressed natural gas, etc.) to power the vehicles. These emissions are direct emissions and accounted for approximately 52% of the City's emissions in 2008.

The total VMT by residents and employees in Yucaipa is expected to increase by the year 2020 under business as usual conditions as new housing units are developed and new jobs are created. The transportation represents the largest source of GHG emissions in Yucaipa's future community GHG inventory. As a result, transportation related reduction measures need to be a part of reducing the City's overall GHG emissions in 2020.

On-road state and local transportation measures can achieve significant benefits for both individual residents and the region as a whole. Reductions in VMT and traffic congestion would reduce smog-forming emissions, toxic air contaminants, and diesel particulate matter (California Air Resources Board 2008). Community well-being and quality of life may also be improved as individuals spend less time commuting, waiting for the bus, and/or sitting in heavy congestion.

4.5.1.1 On Road-2: "Smart Bus" Technologies (Regional)

Measure Description: Collaborate with Omnitrans to implement "Smart Bus" technology, global positioning system (GPS), and electronic displays at all transit stops by 2020 to provide customers with "real-time" arrival and departure time information¹ (California Air Pollution Control Officers Association 2009).

Smart Bus Technologies include Automatic Vehicle Location (AVL) systems and real-time passenger information at bus stations. Omnitrans plans to implement these technologies system-wide on all bus routes serving San Bernardino Valley (Omnitrans service area) to enable information sharing, enhance rider services, and attract potential riders. The AVL system has already been implemented. The Bus Arrival Prediction Information System (BAPIS) would be installed in two phases. In Phase I, real-time rider information would be available via text messaging, Quick Response (QR), website, Interactive Voice Response (IVR), and mobile phone devices. Completed implementation is slated for December 2012. In Phase II, Omnitrans will install electronic signs at all major transit hubs and provide General Transit Feed Specification (GTFS) data to the general public to build apps for mobile devices like smartphones and tablet computers. Phase II completion is slated for December 2013.

GHG emissions are expected to decrease because the AVL technologies could lead to more fuel-efficient bus operations for Omnitrans and the BAPIS technologies could potentially attract more transit riders who may switch modes from automobiles. Omnitrans' Demand Response Services, OmniLink and Access, do not operate on a fixed schedule or route and are not included in this analysis.

Entity Responsible for Implementation: Omnitrans is primarily responsible for this measure. Yucaipa would coordinate with Omnitrans as appropriate.

Measure Implementation Details: To implement this measure, Yucaipa would coordinate with Omnitrans in the region to utilize "Smart Bus" and similar technology. Implementation of this

¹ These systems not only allow riders to know exactly when the next vehicle will be arriving, but also enable the system operator to track, schedule, and repair vehicles in service. Providing better information to passengers about scheduled arrivals can result in dramatic increases in passengers' perceptions of the service, even if the actual service provided is the same in terms of frequency and on-time arrivals.

measure would most likely be achieved in increments as the technology is expanded throughout the region.

Level of Commitment: Omnitrans plans to implement these technologies system-wide on all bus routes serving San Bernardino Valley. Therefore, no local action is required from the City.

Co-Benefits: Reduced air pollution, public health improvements, and increased quality of life.

4.6 Wastewater Treatment and Discharge

Total emissions from wastewater treatment account for approximately 1% of the City's emissions in 2008. The City of Yucaipa has an individual WWTP. GHG emissions result from electricity and/or natural gas used to power the facility. Additional emissions of CH₄ and N₂O result from the treatment and breakdown of waste in the facility.

Reduction measures in the wastewater treatment and discharge sector typically provide modest GHG reductions relative to other sectors. Some of the water measures, like Water-4 (discussed in the next section) produce reductions in the wastewater sector.

4.6.1 Wastewater-3: Recycled Water

Measure Description: Establish a goal that a certain percentage of all water used for non-potable sources (such as landscaping irrigation, dust control, or fire suppression) be recycled (and treated) wastewater. Consider requiring all new parks, schools, and other public facilities to use 100% recycled water for non-potable outdoor uses as a first step, as feasible depending on existing and planned recycled water infrastructure. Develop public education materials that support and encourage the use of recycled water. Adopt a municipal goal of 100% use of recycled water for non-potable sources (California Air Pollution Control Officers Association 2010). Implementation will likely require coordination with WWTPs and recycled water providers. This measure would also include development of an inventory of non-potable uses of water in the City for potential to substitute recycled water.

Entity Responsible for Implementation: To implement this measure, the City would coordinate with regional water providers and the WWTPs, as appropriate.

Measure Implementation Details: This measure would most likely be implemented in incremental steps as the City utilizes recycled water for its municipal purposes. Recycled water would also be gradually employed through 2020 as new parks and schools are constructed and as recycled water distribution systems expand.

Level of Commitment: The City's selected goal is that 50% of all water used for non-potable sources (such as landscaping irrigation, dust control, or fire suppression) to be recycled (and treated) wastewater.

Co-Benefits: Reduced energy use, reduced air pollution, and resource conservation.

4.7 Water Conveyance

Water conveyance emissions accounted for approximately 2% of City emissions in 2008. However, water consumption includes the following indirect emissions by activity: electricity consumption for water supply and conveyance, water treatment, water distribution, and wastewater treatment. Water is not only an important resource with limited supplies, but the treatment, distribution, and conveyance of water requires considerable amounts of electricity. The generation of this electricity consumes fossil fuels and releases GHGs. Reducing water demand and conserving water can therefore save energy and avoid future emissions.

Yucaipa has identified the following strategies to enhance community-wide water and resource conservation. These strategies would collectively reduce water consumption, which would likewise contribute to reductions in building energy use. For example, efficient faucets that use less water would require less electricity and natural gas for hot water heating. Additionally, energy required to transport, distribute, and treat water would be reduced. The consumption of less electricity and natural gas would ultimately translate to reductions in regional and local criteria pollutants, which may improve community health and well-being. Water measures that encourage building retrofits also have an additional benefits of enhancing building value and resale.

It is important to note that the water conservation measures would achieve reductions in the building energy sector that can be greater than their reductions in the water conveyance sector. However, the emissions savings are reported as part of the water sector because they are a direct result of implementation of water conservation measures.

4.7.1 Water-3: Encourage Water-Efficient Landscaping Practices

Measure Description: Encourage water-efficient landscaping practices. Adopt a landscaping water conservation ordinance that exceeds the requirements in the Model Landscape Ordinance (AN 1881). The conservation plan could include provisions for any of the following.

- Further reducing the ET Adjustment factor listed in the Model Ordinance.
- Limiting turf grass areas.
- Providing approved plant lists.
- Implement a public education and outreach campaign to promote water conservation. The program should highlight specific water-wasting activities to discourage, such as the watering of nonvegetated surfaces and using water to clean sidewalks and driveways, as well as educate the community about the importance of water conserving techniques. Water efficiency training and certification for irrigation designers, installers, and property managers should also be offered.
- Encourage alternatives to lawns and turf uses, except for parks, playing fields, children's play areas, and other specialized uses.
- Promote underground irrigation techniques.
- Encourage extensive use of mulch in landscape areas to improve the water-holding capacity of the soil by reducing evaporation and soil compaction.
- Require drought-tolerate landscape plantings for all municipal buildings.

- Establish landscape maintenance districts along streets for water conservation purposes.
- Promote installation of dual plumbing in all new development, allowing gray water to be used for landscape irrigation.

Entity Responsible for Implementation: The City is responsible for implementing this measure in concert with water retailers.

Measure Implementation Details: The City can adopt water conservation plans that surpass the requirements of the Model Landscape Ordinance. Implementation would be gradual through 2020 as residents adopt new water conservation behaviors, and as new developments utilize less water-demanding plants, alternatives to lawns, and gray water infrastructure.

Level of Commitment: The City would adopt a landscaping water conservation plan that exceeds the requirements in the Model Landscape Ordinance (AN 1881) to achieve outdoor water use reductions for a certain percentage of residential and nonresidential buildings.

Co-Benefits: Reduced energy use, reduced air pollution, and resource conservation.

4.7.2 **Water-4: Senate Bill X7-7 The Water Conservation Act of 2009**

Measure Description: SB X7-7 was enacted in November 2009 and requires urban water agencies throughout California to increase conservation to achieve a statewide goal of a 20% reduction in urban per capita use by December 31, 2020 (referred to as the “20X2020 goal”). Each urban water retailer in the county has established a 2020 per-capita urban water use target to meet this goal. Implementation of SB X7-7 will not only reduce GHG emissions through water conservation but also reduce the amount of wastewater entering WWTPs.

Entity Responsible for Implementation: The Yucaipa Valley Water District is the urban water retailers in the City, and is responsible for implementing this measure in cooperation with the City of Yucaipa.

Measure Implementation Details: The Yucaipa Valley Water District will implement water conservation measures according to their 2010 Urban Water Management Plans. The City will need to work with the District as necessary to reduce per-capita water use by 2020. Implementation would be gradual through 2020 as new buildings are constructed with water-efficient fixtures and other conservation measures are put into place.

Level of Commitment: Yucaipa Valley Water District would have to meet the SB X7 7 goal to reduce per-capita water use by 2020.

Co-Benefits: Reduced energy use, reduced air pollution, resource conservation, and increased property values.

4.8 GHG Performance Standard for New Development

4.8.1 PS-1: GHG Performance Standard for New Development

Measure Description: The City proposed to adopt a GHG Performance Standard for New Development (PS) that would provide a streamlined and flexible program for new residential and nonresidential projects to reduce their emissions. The PS would be a reduction standard for new private developments as part of the discretionary approval process under CEQA. Under the PS, new projects would be required to quantify project-generated GHG emissions and adopt feasible reduction measures to reduce project emissions to a level that is a certain percent below BAU project emissions. The PS does not require project applicants to implement a pre-determined set of measures. Rather, project applicants are allowed to choose the most appropriate measures for achieving the percent reduction goal, while taking into consideration cost, environmental or economic benefits, schedule, and other project requirements.

SCAQMD does not have CEQA significance thresholds for new nonindustrial development at this time. One potential PS reduction goal could be 29%, based on San Joaquin Air Pollution Control District's recommended CEQA significance threshold and based on the calculations of reductions necessary at the state level to meet AB 32 at the time of the Scoping Plan (29% below forecasted 2020 levels = 1990 levels based on data available at that time).

The City has selected a **25 %** reduction goal for this measure.

Entity Responsible for Implementation: The City is responsible for implementing this measure.

Measure Implementation Details: Implementation of the performance standard would reduce GHG emissions attributable to new discretionary development projects at least 29% by 2020. Measurable reductions of GHG emissions would be achieved through the City's review and discretionary approval of residential, commercial, and industrial development projects. It is expected that project proponents would often include energy-efficiency and alternative energy strategies to help reduce their project's GHG emissions because these are often the most cost-effective approach to reducing GHG emissions, but are free to propose any valid measures that would achieve the overall reduction goal.

In order to calculate the reductions from this measure, state measures and local mandatory measures were quantified for new development for the City. These measures achieve a certain portion of the PS goal. The PS contributes the remaining percent reduction required to achieve the PS goal in new developments. The reduction amounts for each individual project from state or other local measures would vary; however, state and local mandatory measures are still expected to result in the largest share of the burden in meeting the PS reduction target.

Level of Commitment: The City would adopt the GHG Performance Standard for New Development, requiring a **XX percent reduction** in new development emissions within the City.

Co-Benefits: Co-benefits would depend on the exact measures selected by individual project proponents, but would be the same as the corresponding strategies described for the other measures (e.g., if a project proponent were to select energy efficiency measures as part of meeting

project reductions, the benefits would be similar in character to those described for energy-efficiency retrofits).

Implementation of the CAP and Regional Coordination

5.0 Implementation of the Climate Action Plan

This section describes implementation steps for the CAP to support achievement of the GHG reduction goals for the community at large. Success in meeting the City's GHG emission reduction goal will depend on cooperation, innovation, and participation by the City and residents, businesses, and local government entities. This section outlines key steps that the City would follow for the implementation of this CAP.



Successful implementation of the CAP will require the following components. These are described in more detail below

- Administration and/or staffing
- Financing and budgeting
- Timelines for measure implementation
- Community outreach and education
- Monitoring, reporting, and adaptive management
- Regional coordination

The steps above are not specific to any one Partnership City but are basic steps that any City might take or that other California communities have taken to implement a GHG reduction plan. These are suggested, not required, and are intended to guide a City in its implementation planning.

5.1 Administration and Staffing

The City has designated the Director of Development Services as the CAP Implementation Coordinator (CIC) to oversee the successful implementation and tracking of all selected GHG reduction strategies. The CIC will primarily be responsible for coordinating with contacts across departments to gather data, report on progress, track completed projects, and ensure that scheduling and funding of upcoming projects is discussed at key City meetings.

In addition, the CIC could have the following responsibilities.

- Secure long-term financing for GHG reduction measures (i.e., grant application primary contact).
- Coordinate CAP implementation related meetings.
- Serve as the external communication hub to local and regional climate action organizations including SANBAG.
- Conduct public outreach to inform the community of the City's reduction planning efforts.

- Investigate methods to utilize existing resources and harness community support to better streamline implementation of the local climate action plan.
- Monitor implementation of reduction measures and success of the CAP using the monitoring tools provided by SANBAG
- Develop a protocol for monitoring the effectiveness of emissions reduction programs.
- Establish guidelines for reporting and documenting emissions reduction progress.
- Submit annual reports to the City council.
- Develop a protocol for utilizing the real-time information collected through the verification process to modify and revise existing reduction programs.
- Track state and federal legislation and its applicability to the City.

In general, the goal in implementing the CAP is not to create new administrative tasks or new staff positions necessarily, but rather to leverage existing programs and staff to the maximum extent feasible. Cities should seek to fold GHG planning and long term reduction into their existing procedures, institutional organization, reporting and long-term planning; a process that will be unique to each City.

5.2 Financing and Budgeting

5.2.1 Funding Mechanisms

Implementation of the local GHG reduction measures will require the City and other public agencies, local businesses, developers/builders, and existing commercial building owners and residential homeowners and individuals to incur increased costs for the capital improvements and other investments, and increased operations and maintenance costs. However, in some cases operating costs are anticipated to decrease, resulting in offsetting savings. This section presents a summary of funding and financing options (Table 5-1) available at the writing of this document. Some funding sources are not necessarily directed towards a City, but to a larger regional agency such as SANBAG, a JPA, or a waste services provider serving multiple jurisdictions. The City should continually monitor private and public funding sources for new grant and rebate opportunities and to better understand how larger agencies are accessing funds that can be used for GHG reductions in their area. Leveraging financing sources is one of the most important roles a local government can play in helping the community to implement many of the GHG reduction measures.

Table 5-1. Potential Funding Sources to Support GHG Reduction Measures

State and Federal Funds	
Federal Tax Credits for Energy Efficiency	<ul style="list-style-type: none"> • Tax credits for energy efficiency can be promoted to residents.
Energy Efficient Mortgages (EEM)	<ul style="list-style-type: none"> • An EEM is a mortgage that credits a home's energy efficiency in the mortgage itself. • Residents can finance energy saving measures as part of a single mortgage. • To verify a home's energy efficiency, an EEM typically requires a home energy rating of the house by a home energy rater before financing is approved.

California Department of Resources Recycling and Recovery (CalRecycle)	<ul style="list-style-type: none"> • EEMs are typically used to purchase a new home that is already energy efficient, such as an ENERGY STAR® qualified home. • CalRecycle grant programs allow jurisdictions to assist public and private entities in management of waste streams. • Incorporated cities and counties in California are eligible for funds. • Program funds are intended to: <ul style="list-style-type: none"> ○ Reduce, reuse, and recycle all waste. ○ Encourage development of recycled-content products and markets. ○ Protect public health and safety and foster environmental sustainability.
California Air Resources Board (CARB)	<ul style="list-style-type: none"> • CARB offers several grants, incentives, and credits programs to reduce on-road and off-road transportation emissions. Residents, businesses, and fleet operators can receive funds or incentives depending on the program. • The following programs can be utilized to fund local measures: <ul style="list-style-type: none"> ○ Air Quality Improvement Program (AB 118) ○ Carl Moyer Program – Voucher Incentive Program ○ Goods Movement Emission Reduction Program (Prop 1B Incentives) ○ Loan Incentives Program ○ Lower-Emission School Bus Program/School Bus Retrofit and Replacement Account (Prop 1B and EPA Incentives)
Existing Capital Improvement Program	<ul style="list-style-type: none"> • State and federal funds would most likely continue to local governments, builders, and homeowners in the following forms. <ul style="list-style-type: none"> ○ Grants ○ Transportation and transit funding ○ Tax credit and rebate programs • The Capital Improvement Program can be utilized for measures relating to traffic or transit.
State Funding for Infrastructure	<ul style="list-style-type: none"> • The state’s Infill Infrastructure Grant Program may potentially be used to help fund measures that promote infill housing development. • Grants can be used for gap funding for infrastructure improvements necessary for specific residential or mixed-use infill development projects.

Transportation-Related Federal and State Funding

- For funding measures related to transit, bicycle, or pedestrian improvements, the following funding sources may be utilized.
- | | |
|---|--|
| Safe, Accountable, Flexible, Efficient Transportation Equity Act—Legacy for Users (SAFETEA-LU). | FTA Small Starts |
| Surface Transportation Program Fund, Section 1108 (STP) | FTA Section 5311(f) |
| Congestion Mitigation and Air Quality Improvement Program, Section 1110 (CMAQ) | California's Bicycle Transportation Account (BTA) |
| Transportation Enhancement Activities (TEA) | Environmental Enhancement and Mitigation (EEM) Program |
| National Recreational Trails Program | Safe Routes to School (SR2S) |
| National Highway System Fund (NHS) | Office of Traffic Safety (OTS) |
| National Highway Safety Act, Section 402 | Transportation Development Act (TDA) Article III |
| Transit Enhancement Activity, Section 3003 | Transportation Funds for Clean Air (TFCA, formerly AB 434) |
| Section 3 Mass Transit Capital Grants | Flexible Congestion Relief (FCR) Program |
| Bridge Repair & Replacement Program (BRRP) | State Highway Operations and Protection Program (SHOPP) |
| Federal Transit Administration (FTA) 5309 | |

Other Local/Regional Funding Sources

- SCAQMD has several grant programs related to air quality improvement, some of which may apply to various reduction measures.
- Bus Stop Sponsorships—Advertisement sponsorship of bus stops has been utilized as a revenue source.
- Transit Fare Increases—Transit fares could be increased to help fund capital improvements, though increases also have the potential to decrease ridership in the short term.
- Parcel Tax—An election consistent with Proposition 218 could serve to increase the existing level of taxation and provide additional funding for transit-related capital improvements. However, in the current economic climate, this may not be a likely financing source unless economic conditions improve and community support for such a taxation approach is favorable.

Utility Rebates

- SoCal Edison is one of the three utilities participating in the Go Solar initiative.
- A variety of rebates are available for existing and new homes.
- Photovoltaics, thermal technologies, and solar hot water projects are eligible.
- Single-family homes, commercial development, and affordable housing are eligible.
- Budget for new solar hot water systems for 2010–2017: \$250 million.

Energy Upgrade California	<ul style="list-style-type: none"> • Program is intended for home energy upgrades. • Funded by the American Recovery and Reinvestment Act, California utility ratepayers, and private contributions. • Utilities administer the program, offering homeowners the choice of one of two upgrade packages—basic or advanced. • Homeowners are connected to home energy professionals. • Rebates, incentives, and financing are available. • Homeowners can receive up to \$4,000 back on an upgrade through the local utility.
Private Funding	<ul style="list-style-type: none"> • Private equity can be used to finance energy improvements, with returns realized as future cost savings. • Rent increases can fund retrofits in commercial buildings. • Net energy cost savings can fund retrofits in households. • Power Purchase Agreements (PPA) involve a private company that purchases, installs, and maintains a renewable energy technology through a contract that typically lasts 15 years. After 15 years, the company would uninstall the technology or sign a new contract. • Power produced from a PPA is sold to customers. SANBAG recently approved a contract for solar power site assessments, bringing together a number of cities and agencies to aggregate their solar sites. • On-Bill Financing (OBF) can be promoted to businesses for energy-efficiency retrofits. Funding from OBF is a no-interest loan that is paid back through the monthly utility bill. Lighting, refrigeration, HVAC, and LED streetlights are all eligible projects.
Other Funding Mechanisms for Implementation	<ul style="list-style-type: none"> • Increased operating costs can be supported by grants from the Strategic Growth Council (SGC) or the State Department of Conservation (DOC) to fund sustainable community planning, natural resource conservation, and development, adoption, and implementation of Sustainable Community planning elements, including climate action plans and general plan amendments.
Future Funding Options: Funding Mechanisms for Capital and/or Implementation Costs	
New Development Impact Fees	<ul style="list-style-type: none"> • These types of fees may have some potential to provide funding, but such fees are best implemented when the real estate market and overall regional economic conditions are strong.
General Obligation Bond	<ul style="list-style-type: none"> • A general obligation bond is a form of long term borrowing and could be utilized to fund municipal improvements.
AB 811 Districts Property-Assessed Clean Energy (PACE)	<ul style="list-style-type: none"> • AB 811 is intended to help municipalities accomplish goals outlined in AB 32. • The PACE finance program is intended to finance energy and water improvements within a home or business through a land-secured loan, and funds are repaid through property assessments. • Municipalities are authorized to designate areas where property owners can enter into contractual assessments to receive long-term, low-interest loans for energy and water efficiency improvements, and renewable energy installation on their property. • Financing is repaid through property tax bills.

- AB 811 and the PACE program are currently on hold for residential properties due to potential violation of standard FHFA federally guaranteed (Fannie Mae/Freddie Mac) residential mortgage contracts.
 - The PACE program is not on hold for commercial properties.
 - SANBAG, as the COG, has implemented the Home Energy Renovation Opportunity (HERO; a PACE program) in the region to assist residents in financing residential energy efficiency and solar retrofits. This program will be the primary funding mechanism for reduction measure Energy-7: Solar Installation for Existing Housing.
 - SANBAG will structure a regional energy efficiency and water conservation improvement loan program for existing buildings (AB 181 and AB 474).
-

5.2.2 Additional Considerations

In addition to pursuing the funding options above and monitoring the availability of others, The City would need to take the following steps in order to best inform decisions related to the cost of GHG reductions measures.

- **Perform and Refine cost estimates.** Cost estimates for local reduction measures should be performed to identify the cost-effectiveness of each measure to inform and guide the implementation process. This analysis will likely be based on a variety of participation, per-unit, and other assumptions. As programs are developed, cost estimates should be refined and updated over time with more precise implementation-level data.
- **Integrate GHG measures into existing City budget and CIP.** Certain capital improvements may need to be added to the City's CIP and facility master plan programs, as well as those of the City utility enterprises and other public agencies that have control for project implementation. For CIPs completely under the City's control, new projects would need to be assessed for consistency with the CAP.
- **Adopt or update ordinances and/or codes.** Some local reduction measures may require new or revised ordinances (e.g., Wastewater-3: recycled water may require ordinance support for new development). Staff would need to coordinate these efforts in conjunction with planning departments, planning commissions, and City councils.
- **Pursue outside funding sources.** A range of funding from state and federal agencies has been identified. The City would need to pursue these (and other emerging) funding sources as a part of implementation efforts.
- **Implement and direct preferred City funding sources.** While City funding sources are limited, the City, when financially able, as a part of its budget process, could appropriate funding from general sources or make changes in its fee schedules, utility rates, and other sources as needed to support funding the implementation of the GHG reduction measures.
- **Create monitoring/tracking processes.** Local reduction measures will require program development, tracking, and/or monitoring. For example, Energy-7 (Promote Solar Installation for Existing Housing) would necessitate staff time to promote solar installations; the City may also want to track the number of households that participate in the program and the amount of electricCity and cost saving over time.

- **Identify economic indicators to consider future funding options.** Economic recovery may occur rapidly or slowly. Whatever the timeframe, the City would need to determine the point at which certain additional funding sources may become feasible and/or favorable. Identification and monitoring of economic indicators and trends, such as home prices, energy prices cost per kWh on solar installations, unemployment rates, or real wage increases, can help the City decide when to further explore the potential for funding local reduction measures through different financing mechanisms.

5.3 Timelines for Measure Implementation

After taking into account the reductions in energy and water usage and the GHG emissions resulting from statewide measures, the City would need to implement the local reduction measures to reach its reduction targets.

The City has developed an implementation schedule for the local reduction measures. Prioritization was based on the following factors:

- Cost effectiveness
- GHG reduction efficiency
- Availability of funding
- Level of City Control
- Ease of implementation
- Time to implement.

In general consideration of these factors, the following are the key phases starting in 2015 through 2020. In addition, Table 5-2 provides a list of criteria for prioritization and Table 5-3 provides a list of measures implemented in each phase.

- **Phase 1 (2015-2016):** During Phase 1, the City will develop key ordinances, programs, policies, and procedures required to support and enforce the local mandatory GHG reduction measures such as implementation of SBX7-7. Likewise, the City would create a planning framework that would guide implementation of the voluntary measures and performance standards. Measure funding would be secured and a detailed finance plan developed. The City would conduct an inventory for 2014 (in early 2015) to determine changes in emissions since 2008.
- **Phase 2 (2016-2017):** During Phase 2, the City would continue to implement measures that were begun in Phase 1. The City would evaluate the effectiveness of these measures and adapt management procedures accordingly. Likewise, the City will conduct an updated community GHG inventory to monitor emissions trends. The City would conduct an inventory for 2017 (in early 2018) to determine progress in implementing the CAP.
- **Phase 3 (2018-2020):** During Phase 3, the City would continue to implement and support measures begun in Phases 1 and 2, and encourage implementation of all remaining CAP measures (Phase 3 measures). An analysis of the effectiveness of Phase 1 and 2 measures would be conducted, as well as an updated community GHG inventory for 2019 (in early 2020). The

City could also begin developing plans for post-2020 actions during this period (see further discussion below)

To encourage implementation of all reduction measures, the CIC, with consultation from the planning commission, City council, City staff and/or other key stakeholders, would develop a CAP Implementation Timeline. Measure prioritization could be based on the following factors.

- **Cost/Funding**—How much does the measure cost? Is funding already in place for the measure?
- **Greenhouse Gas Reductions**—How effective is the measure at reducing greenhouse gases?
- **Other Benefits**—For example, does the measure improve water quality or conserve resources? Would it create jobs or enhance community well-being?
- **Consistency with Existing Programs**—Does the measure complement or extend existing programs?
- **Impact on the Community**—What are the advantages and disadvantages of the measure to the community as a whole?
- **Speed of Implementation**—How quickly can the measure be implemented and when would the City begin to see benefits?
- **Implementation Effort**—How difficult will it be to develop and implement the program?

A qualitative appraisal of implementation effort for the City is also provided. Measures can be categorized based on the convention of low, medium, or high, with low-level measures requiring the least level of effort by the City and being the most likely to be pursued immediately (i.e., the low hanging fruit).

Table 5-2. Implementation Matrix

Implementation Effort Level	Sample Criteria
LOW	<ul style="list-style-type: none"> • Requires limited staff resources to develop. • Existing programs in place to support implementation. • Required internal and external coordination is limited. • Required revisions to policy or code are limited.
MEDIUM	<ul style="list-style-type: none"> • Requires staff resources beyond typical daily level. • Policy or code revisions necessary. • Internal and external coordination (e.g., with stakeholders, other cities or agencies, or general public) is necessary.
HIGH	<ul style="list-style-type: none"> • Requires extensive staff time and resources. • Requires development of completely new policies or programs and potential changes to the general plan. • Robust outreach program required to alert residents and businesses of program requirements and eligibility. • Requires regional cooperation and securing long term funding.

The Action Priority Matrix shows an example of how different GHG reduction measures can be categorized and scheduled based on implementation effort and cost.

Figure 5-1. Activity Priority Matrix

Table 5-3 translates the implementation matrix shown in Table 5-2 and Figure 5-1 and designates the phasing of the local reduction measures for the City of Yucaipa.

Table 5-3. GHG Reduction Measure Timeline and Phasing Schedule

Reduction Measure	Phase
Energy 7: Existing Residential Renewable Energy Retrofits	1, 2, 3
Energy 8: Existing Commercial Renewable Energy Retrofits	1, 2, 3
Water 4 (BE): Senate Bill X7-X Water Conservation	1, 2, 3
On-Road 2: Smart Bus Technologies	1, 2, 3
Water 3: Water Efficient Landscaping	1, 2, 3
Water 4: Senate Bill X7-X Water Conservation	1, 2, 3
Wastewater 3 (WC) Recycled Water	2, 3
PS-1 GHG Performance Standard for New Development	1, 2, 3

5.4 Community Outreach and Education

The citizens and businesses in Yucaipa are integral to the success of the CAP and to overall reductions in GHG emissions for the region. Their involvement is essential, considering that several measures depend on the voluntary commitment, creativity, and participation of the community.

The City would educate stakeholders, such as businesses, business groups, residents, developers, and property owners, about the GHG reduction measures that require their participation, encourage participation in these programs, and alert them to program requirements, incentives and/or rebate availability, depending on the measure. The CIC would schedule periodic meetings to facilitate formal community involvement in CAP implementation and adaptation over time. This could include focused meetings for a specific measure or program such as the PACE program and/or agenda items at planning commission, City Council, or other public meetings. These meetings would be targeted to particular stakeholder groups and provide information on CAP implementation progress as well as the implementation of a specific program or new policy. Alternatively, periodic written updates could be provided in City newsletters, SANBAG's newsletter, on City websites, or through other media communications with the general public such as press releases and public service announcements. Stakeholders would be provided an opportunity to comment on potential improvements or changes to the CAP. The CIC would also sponsor periodic outreach events to directly inform and solicit the input, suggestions, and participation of the community at large.

5.5 Monitoring and Reporting

Regular monitoring is important to ensure programs are functioning as they were originally intended. Early identification of effective strategies and potential issues would enable the City to make informed decisions on future priorities, funding, and scheduling. Moreover, monitoring provides concrete data to document the City's progress in reducing GHG emissions. The CIT or CIC would be responsible for developing a protocol for monitoring the effectiveness of emissions reduction programs as well as for undertaking emissions inventory updates.

- **Update GHG Inventory**—The City would inventory emissions for 2014, 2017, and 2019, including regular data collection in each of the primary inventory sectors (utility, regional VMT, waste, wastewater, and water), and compare to the City's baseline GHG emissions in 2008. If SANBAG Participating Cities are interested, a combined inventory effort could be conducted through SANBAG similar to the inventory preparation that was done for this Regional Plan. The CIT or CIC would consolidate information in a database or spreadsheet that can be used to evaluate the effectiveness of individual reduction measures.
- **Track State Progress**—The CAP will rely heavily on state-level measures. The CIT or CIC would be responsible for tracking the state's progress on implementing state-level programs. Close monitoring of the real gains being achieved by state programs would allow the City to adjust its CAP, if needed.
- **Track Completion of GHG Reduction Measures**—The CIT or CIC would keep track of measures implemented as scheduled in the CAP, including progress reports on each measure, funding, and savings. This will allow at least a rough attribution of gains when combined with regular GHG inventory updates.

- **Regular Progress Reports**—The CIT or CIC may report annually (or semi-annually or at other assigned intervals) to the City Council on CAP implementation progress. If annual reports, periodic inventories, or other information indicates that the GHG reduction measures are not as effective as originally anticipated, the CAP may need to be adjusted, amended, or supplemented. At a minimum, the City will conduct a 3-year review of CAP effectiveness as part of annual reporting in 2017, which would allow making mid-course adjustments in the CAP if needed to effect change prior to 2020.

5.6 Regional Cooperation

There are substantial opportunities to enhance the effectiveness of the CAP through regional collaboration. The City would explore the potential to leverage resources through regional cooperation. Potential opportunities and partners include the following.

- **SANBAG:** As the regional council of governments and the regional transportation agency, SANBAG is a logical hub of communication for Participating cities on the progress of their CAPs. Further, SANBAG will be the responsible implementing agency for many transportation-related measures that result in local GHG reductions. SANBAG is also administering the PACE program loans and a PPA for energy efficiency and solar energy for participating cities.
- **Air Districts:** The South Coast Air Quality Management District is the local agency responsible for developing and implementing air quality plans. The agencies also sponsor various air quality programs that may support implementation of several energy-efficiency, transportation, and renewable energy measures.
- **Energy Providers:** SCE offers numerous incentives and rebate programs to encourage energy efficiency. Resources offered by the energy providers may reduce the costs of program implementation and administration. There may also be opportunities for cooperation on community-scale alternative energy installations (e.g., wind, solar).
- **Transportation Agencies (Omnitrans):** Continued coordination with regional transportation agencies would be necessary to fully implement the transportation reduction measures that promote mixed use development. With SB 375 and its linkage to transportation funding, it would also be crucial for the City and transportation agencies to develop a shared vision of how land use and transportation can be consistent with the next RTP and the required SCS.
- **San Bernardino County:** The County operates the landfills that receive most of the local waste in the County and has committed as part of its own CAP to improve methane control for its landfills which will help reduce emissions associated with City landfilled waste. Coordination with the county to provide the necessary facilities, programs, and incentives would help ensure this goal can be achieved by 2020, as waste services are often shared across several jurisdictions, including the unincorporated portions of the county.
- **Local Water Providers:** The City can work with the both the wholesalers and retailers of water in the City to promote reductions in indoor and outdoor water use from existing developments and achieve the goals set forth by SB X7-7.

5.7 Reducing GHG Emissions after 2020

In order to assess whether implementing this Plan achieves the state's long-term climate goals, one must look beyond 2020 to see whether the emissions reduction measures included for the 2020 milestone set the region on the trajectory toward future greater reductions in the post-2020 period.

To date, there is no state or federal mandate requiring reduction of GHG emissions after 2020. AB 32 contains no post-2020 reduction target nor provides CARB with the authority to mandate compliance with a post-2020 target. SB 375, while it contains requirements for transportation planning for the MPO (SCAG in this region) to promote reductions in the passenger and light duty vehicle sector, does not contain mandatory requirements for local jurisdictions to reduce their GHG emissions overall. However, CARB and the legislature are currently (as of later 2014) contemplating new legislation to adopt post-2020 GHG reduction targets, so it is likely that during implementation of this CAP there will be post-2020 targets established in law in California.

Governor Schwarzenegger's Executive Order S-3-05 calls for an 80% reduction below 1990 greenhouse gas emission levels by 2050. However, as noted earlier in this report, an executive order is only binding on state agencies, and does not represent a legal mandate for local governments or the private sector. Nevertheless, S-03-05 contains a reduction target that is based on a rough agreement on the basis of scientific understanding of the level of reduction needed in developed countries of the world in order to avoid the more catastrophic effects of climate change that could result from unabated rise in anthropogenic GHG emission. The 2050 target in S-03-05 is equivalent to a 2050 statewide target of about 85 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) (total emissions), as compared to the 1990 level of 427 MMTCO_{2e}. However, there is currently (as of fall 2012), no state or federal plan as to how to achieve such ambitious reductions for 2050. The CARB 2008 AB 32 Scoping Plan did discuss a general scenario of potential reductions that would be needed by 2050 to meet these targets. Similar to the AB 32 Scoping Plan, this Regional Plan shows a potential trajectory of GHG emissions reductions due to expansion of measures after 2020.

Assuming that emissions of 15% below 2008 levels (equal to 10.9 MMTCO_{2e} for the region), excluding stationary sources) is roughly equivalent to 1990 levels, a 2050 regional goal to match the S-3-05 goals would be to achieve a level of emissions of 2.2 MMTCO_{2e} in 2050, excluding stationary sources. Full implementation and expansion of the CARB's Scoping Plan to increase efforts beyond 2020 and expansion of the City-identified strategies included in this CAP could help to put the region on a path toward achieving these required long-term reductions. Figure 5-3 depicts what an emissions trajectory might look like, assuming the region follows a linear path from the 2020 reduction target to a 2050 goal matching that in S-03-05. While the specific measures needed to meet the 2050 goal are too far in the future to define in detail, one can examine the level of achievement that would be needed to keep the region on track through 2030. Table 5-4 examines a continuation and strengthening of measures already identified through 2020.

To stay on course toward the 2050 target, the region's greenhouse gas emissions need to be reduced to approximately 6.3 MMTCO_{2e} by 2030. This translates to an average reduction of 5.25% per year between 2020 and 2030, or an additional 4.4 MMTCO_{2e} in reductions during the period 2020 to 2030. An additional challenge comes from the fact that the population in the region (sum of participating cities considered in the Regional Plan) will continue to grow between 2020 and 2030 (a growth from approximately 1.73 million in 2020 to 1.96 million in 2030). Taking into account population growth, per-capita emissions would need to decrease at an average rate of approximately 0.5 MTCO_{2e} per person per year during the 2020 to 2030 period. These reductions

are possible. The measures needed are logical expansions of the programs recommended in the CARB Scoping Plan at the state level and the measures included in the Regional Plan at the local level (and the local measures included in Yucaipa's CAP). By building on planned state efforts during this period and ramped up efforts in the local building energy and transportation (and other) sectors on the part of the local governments, the region can be on track to reach a 2050 goal.

The state can help the cities in San Bernardino County, including Yucaipa, to keep on track through 2030 by extending state action in the following ways, as described in the Scoping Plan (California Air Resources Board 2008).

- Expand vehicle efficiency regulations to achieve a 40% fleet-wide passenger vehicle reduction by 2030 (approximately double the almost 20% expected in 2020).
- Increase California's use of renewable energy in electricity generation (beyond the 33% planned for 2020).
- Reduce the carbon intensity of transportation fuels by 25% (a further decrease from the 10% level set for 2020).
- Increase energy efficiency and green building efforts (so that the savings achieved in the 2020 to 2030 timeframe are approximately double those accomplished in 2020).
- Using a regional or national cap-and-trade system to further limit emissions from the 85% of greenhouse gas emissions in capped sectors (Transportation Fuels and other fuel use, Electricity, Residential/Commercial Natural Gas, and Industry).

This Regional GHG Reduction Plan and this CAP have not assumed any benefit from a cap-and-trade system by 2020, but when implemented, such a system will result in reductions beyond those currently anticipated in the Plan for 2020, and in additional reductions for 2030. The California Cap and Trade system will particularly affect large stationary sources, which are excluded from local measures in the Regional Plan and the CAP to avoid duplication of state and federal regulatory efforts. In addition, the Cap and Trade system will also affect electricity generation and transportation fuels, which may change energy prices, which may in turn change energy use and transportation behavior beyond that assumed for the various City measures included in this Regional Plan.

It is reasonably foreseeable that as California approaches its first milestone in 2020, focus would shift to the 2050 target. A detailed plan for how the state would meet this target is expected prior to 2020 accordingly. Yucaipa and the Partnership cities will monitor developments at the national and state levels.

Beginning in Phase 3 (2018), Yucaipa will update the CAP to include post-2020 reduction targets and reduction measures to achieve the post 2020 reduction targets in compliance with EO S-3-05. The City of Yucaipa will encourage the other Partnership cities, and SANBAG to collaborate in planning for the post-2020 period. At this point, the Partnership cities would have implemented the first two phases of their local CAPs and would have a better understanding of the effectiveness and efficiency of different reduction strategies and approaches. The new post-2020 reduction plan should include a specific target for GHG reductions for at least 2030 and if supported by long-term planning at the state level, should also include preliminary planning for 2040 and 2050. The targets should be consistent with broader state and federal reduction targets and with the scientific understanding of the reductions needed by 2050. It is recommended that partnership cities,

including Yucaipa adopt the post-2020 reduction plan by January 1, 2020, which would require cities to start a new inventory/assessment process by 2017 or 2018 at the latest.

The City will continue to update the CAP and provide post 2020 reduction targets to keep on track through 2030 to meet the 2050 goal by implementing the following.

- Increase energy efficiency and green building efforts (for City municipal buildings as well as private buildings in the region) so that the savings achieved in the 2020 to 2030 timeframe are far greater those accomplished in 2020.
- Continue to implement land use and transportation measures to lower VMT and shift travel modes
- Capture more methane from landfills receiving regional waste, move beyond local waste diversion goal for 2020, and utilize landfill gas further as an energy source.
- Continue to improve local water efficiency and conservation.
- Continue to support and leverage incentive and rebate and other financing programs for residential and commercial energy efficiency and renewable energy installations to shorten payback period and costs and to develop programs that encourage increased use of small-scale renewable power as it becomes more economically feasible.

The conceptual effects of these strategies regionally are presented in Table 5-4 and would represent an approximate doubling of effort for most cities from that planned at the state and City level for 2020. In total, the measures described above would produce reductions to bring the region's GHG emissions to an estimated 8.4 MMTCO₂e. While the potential mix of future GHG reduction measures presented in this section is only an example, it serves to demonstrate that the current measures in the CARB Scoping Plan and the Regional Plan can not only move the region to its 2020 goal, but can also provide an expandable framework for much greater long-term greenhouse gas emissions reductions.

Figure 5-3. Required GHG Reductions in the Region to Meet the State's 2050 Target

Table 5-4. Potential Regional Reduction Measures to Reach 2030 Goal

	Reductions by 2020 (This Plan)				Scenario for Reductions by 2030		
	State	Local	TOTAL	% below 2008	Total Additional Reductions 2020–2030	Effort Relative to 2008–2020	Notes
	MTCO ₂ e	MTCO ₂ e	MTCO ₂ e	%	MTCO ₂ e	%	
Building Energy (Residential, Commercial, Industrial)	1,361,486	783,954	2,145,440	39%	1,486,205	69%	CARB Scoping Plan calls for doubling of energy efficiency reductions between 2020 and 2030 (i.e., 100% effort relative to the period 2008–2020). The region would have to do 5% more in this sector to be on target. Additional GHG reductions during this period will come from a continued de-carbonization of electricCity at the public utility level, more aggressive retrofitting of existing buildings and greatly increased use of small scale renewables.
On-Road Transportation	1,839,799	54,258	1,894,057	31%	1,713,327	90%	CARB Scoping Plan calls for a doubling of GHG reductions from vehicle fleet by 2030 compared to 2020 and more than doubling reduction of carbon intensity of transportation fuels (i.e., 100% effort relative to the period 2008–2020). The region would need to do about 8% more in this sector to stay on target. SCAG assumes between 8% and 12% in GHG reductions after 2020 for 2035 for VMT reduction. This analysis assumes 8% for local reductions.
Off-Road Transportation and Equipment	78,930	37,613	116,543	15%	53,671	46%	CARB Scoping Plan calls for more than double the reduction of carbon intensity of transportation fuels (i.e., equivalent level of effort to 2008–2020 period).

	Reductions by 2020 (This Plan)				Scenario for Reductions by 2030		
	State	Local	TOTAL	% below 2008	Total Additional Reductions 2020–2030	Effort Relative to 2008–2020	Notes
	MTCO ₂ e	MTCO ₂ e	MTCO ₂ e	%	MTCO ₂ e	%	
Solid Waste Management	163,191	6,240	169,430	50%	23,733	14%	Assumed cities in the County and the County continue further efforts at methane control, waste diversion, and potential waste to energy projects to result in modest further reductions in sector (7%). Once capture technology is installed, additional reductions in this sector are somewhat limited.
Agriculture	0	79,939	79,939	16%	0	0%	No assumed change.
Wastewater Treatment	0	6,017	6,017	9%	2,115	35%	Assumed additional 3% in reduction in sector due to continued installation of fugitive emission capture technology and additional water conservation.
Water Conveyance	0	58,768	58,768	24%	12,023	20%	Assumed additional 5% in reduction in sector due to continued effort to conserve water at a similar rate as 2020-2030.
GHG Performance Standard for New Development	0	121,418	121,418	NA	0	0%	No assumed change.
TOTAL			4,591,613		3,291,074		

Chapter 6

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APPENDIX B. I

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Chapter 5 **Implementation**

This section describes implementation steps for the CAP to support achievement of the GHG reduction goals for the community at large. Success in meeting the City's GHG emission reduction goal will depend on cooperation, innovation, and participation by the City and residents, businesses, and local government entities. This section outlines key steps that the City would follow for the implementation of this CAP.



5.1 STEP 1—Administration and Staffing

The City would implement the following key internal administration and staffing actions:

1. Create a CAP Team to support and guide the City's efforts to conserve energy and reduce emissions.
2. Designate an Implementation Administrator to oversee, direct and coordinate implementation of the CAP as well as monitor and report the energy efficiency and GHG reduction efforts.

The City CAP Team would be responsible for the implementing this CAP, coordinating among all involved City departments, and recommending modifications and changes to the CAP over time. The team will include the following departments and divisions, but would be expanded as needed to ensure coordinated leadership in plan implementation: Public Works/Engineering, Planning, Community Development, and Redevelopment Successor Agency.

5.2 STEP 2—Financing and Budgeting

Successful implementation of the CAP will require a strong commitment from the City and community. Local, regional, state, and federal public sources of funding will be needed along with the substantial involvement of the private sector. The following different financing options would be explored by the City:

- **State and Federal Grants and Low-interest Loans** — A variety of grant and loan programs exist in various sectors.
- **Support from Local Businesses, Non-Profits, and Agencies** — Opportunities for public/private partnerships (like the SCE partnerships) exist to provide cooperation on many aspects of the CAP including energy and water efficiency retrofits and raising public awareness regarding conservation strategies.
- **Self-Funding and Revolving Fund Programs** — Innovative programs to fund renewable energy investments.
- **Agreements with Private Investors** — Energy service companies and other private companies can finance up-front investments in energy efficiency and then be reimbursed through revenues from energy savings.

- **Local Funding** — Various local governments have used targeted finance instruments for renewable energy resource development and energy efficiency improvement projects.

Given that financing is the key to implementing many measures, a review of current and potential funding sources was completed for the different sectors covered in this CAP and is presented below to help early phase implementation of the CAP. Whether at the federal, western regional or state level, it appears likely that there will be stronger legislation and/or regulations aimed at additional energy efficiency and renewable energy generation that will further curb GHG emissions. Such requirements are likely to influence energy prices (for electricity and natural gas), and may make currently cost-ineffective measures more economically feasible and allow the financing of a broader range of plan measures.

Energy Efficiency and Renewable Energy Financing

Home Energy Renovation Opportunity (HERO). SANBAG, in partnership with Renovate America, Inc. is offering homeowners and businesses in SANBAG participating jurisdictions and opportunity to finance energy and water efficiency projects in their properties. The HERO program is a Property Assessed Clean Energy (PACE) financing program. The PACE program allows property owners to finance energy efficiency improvement projects and to repay the financing through special assessments on their property taxes. A wide range of products are eligible under the HERO program. Lighting upgrades, building insulation improvements, water efficiency enhancement, renewable energy production, water heating technologies, and mechanical system upgrades are a few to name. For a complete list of eligible products under the HERO program, visit the website at

<https://www.heroprogram.com/>.

U.S. Department of Housing and Urban Development (HUD) PowerSaver Program. The HUD PowerSaver program insures loans to finance small or moderate improvements to a home, such as a solar energy upgrade. The HUD PowerSaver pilot will provide lender insurance for secured and unsecured loans up to \$25,000 to single family homeowners specifically targeting residential energy efficiency and renewable energy improvements. For more information visit the website at

http://www.portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/title/ti_home

Federal Tax Credits for Energy Efficiency. On October 3, 2008, former President Bush signed into law the “Emergency Economic Stabilization Act of 2008.” This bill extended the Production Tax Credit for solar energy systems and fuel cells to 2016. New tax credits were established for small wind energy systems. Tax deductions for owners and designers of energy efficient commercial buildings were also extended.

See http://www.energystar.gov/index.cfm?c=products.pr_tax_credits

Southern California Edison Energy Efficiency/Renewable Energy Incentives.

- Residential and commercial customers can qualify for a variety of rebate programs through SCE. SCE offers savings to customers who purchase qualified energy efficient appliances, heating and

cooling systems, pool pumps, Energy Star, CFLs lighting fixtures and other energy efficient technologies.

- Multifamily residential developments can benefit from a variety of SCE's rebate programs. Using energy efficient products and technologies such as high-performance dual-pane windows, Energy Star labeled ceiling fans; Energy Star CFLs, proper insulation, energy efficient electric storage water heaters, refrigerators, LED lights, and cold vending machine controls would save both money and energy.
- SCE will provide free evaluation of mobile homes and provides free supply and installation of the energy upgrades that is recommended by their energy specialist.
- SCE and SCG residents can benefit from incentives up to \$4,000 for detached single-family residential energy upgrades.
- SCE offers incentives, through utility rebate programs, for non-residential customers. This rebate is regardless of size and energy usage. Express efficiency rebates for lighting, refrigeration, and air conditioning technologies are available. In addition, SCE has a Custom Contracting program in which non-residential users have the option of designing an energy retrofit conservation measure. Incentives are based on the type of measure installed and the reduction in energy usage over a 12-month period. The maximum incentive is \$2.4 million annually, per customer site.

See <http://energy.gov/savings/sce-non-residential-energy-efficiency-programs>

- SCE's Self-Generation Incentive Program (SGIP) provides financial incentives for the installation of new, qualifying customer self-generation equipment for their own on-site usage. Technologies currently eligible for SGIP incentives are generation related to wind, fuel cell, waste heat capture, and conventional CHP. The SGIP program is designed with business and large institutional customers in mind. Rebates for renewable generation—such as wind turbines or fuel cell—that generate less than 30 kilowatts of energy are available through the California Energy Commission's Emerging Renewables Program. Fuel cells of any size using non-renewable fuels may receive incentives under the SGIP program.

See <http://www.sce.com/b-rs/sgip/about-the-program.htm>

Southern California Gas Company. SCG offers a variety of incentives for its customers.

- The SGIP offers savings based on GHG emissions reductions and energy efficiency audits. Eligible technologies include but are not limited to renewable and waste energy capture technologies, conventional combined heat and power systems, emerging technologies such as fuel cells, biogas, and advanced energy storage.
- SCG On-Bill Financing program offers qualified business customers zero percent financing from \$5,000 to \$100,000 per meter for qualifying electric and natural gas equipment. All government customers may receive from \$5,000 to \$250,000 per meter, and Government can borrow up to \$1,000,000 for one service account. The funds may be used for a wide variety of efficiency improvement projects, and the monthly loan payments will be added directly to the customer's bill. Monthly energy savings help to offset the monthly loan charges.

- SCG offers rebates on various types of energy efficient equipment such as pipe insulation, steam traps, boilers, and other equipment. A full list of the eligible equipment can be found at SCG's website below.

See <http://www.socalgas.com/for-your-business/rebates/industry/government/>

- Commercial customers can benefit from rebates and incentives for energy efficient equipment such as pipe and tank insulation, water heaters, steam traps, pool heaters, boilers, commercial cooking equipment, and other technologies.
- Single-family residential solar water heating systems qualify for up to \$1,875 and commercial/multi-family customers can save up to \$500,000 under the California Solar Initiative – Thermal Program. For a complete list and up-to-date savings, visit the SCG website.

See <http://www.socalgas.com/for-your-business/rebates/>

California Energy Commission Energy Efficiency Financing. The CEC offers up to \$3 million per application in energy efficiency financing and low interest loans to cities and counties for installing energy-saving projects. Examples of projects include lighting systems, pumps and motors, streetlights and LED traffic signals, automated energy management systems/controls, building insulation, energy generation including renewable and combined heat and power projects, heating and air conditioning modifications, and wastewater treatment equipment.

See <http://www.energy.ca.gov/efficiency/financing/>

California Energy Commission Bright Schools Program. This is a collaborative project of the CEC, California Conservation Corps, local utility companies and other qualifying energy service companies to assist schools in undertaking energy efficiency projects. Project staff will guide schools through identifying and determining a project's feasibility, securing financing for the project, and purchasing and installing the new energy efficient equipment.

See <http://www.energy.ca.gov/efficiency/brightschoools/index.html>

California Solar Initiative (CSI). In January 2006, the California Public Utilities Commission adopted the CSI to provide more than \$3 billion in incentives for solar-energy projects with the objective of providing 3,000 megawatts of solar capacity by 2016. In December 2011, the Commission increased the CSI budget by \$200 million in order to cover a budget shortfall. The action implements SB 585 signed by former Governor Jerry Brown on Sept. 22, 2011. The CSI program is administered by Pacific Gas & Electric, Southern California Edison, and CCSE for the SDG&E territory. The CSI incentive for non-residential buildings includes a transition to performance-based and expected performance-based incentives, with the aim of promoting effective system design and installation. The applicable rebate programs for municipal facilities include: (1) the general CSI Program of solar rebates for public agencies; (2) the CSI-Thermal Program for solar hot water rebates for municipal facilities; and (3) the CSI Research, Development, Demonstration, and Deployment Program.

See <http://energycenter.org/csi>

Water Conservation and Treatment Financing

Clean Water State Revolving Funds (CWSRF). CWSRFs fund water quality protection projects for wastewater treatment, nonpoint source pollution control, and watershed and estuary management. CWSRFs have funded over \$74 billion, providing over 24,688 low-interest loans to date.

CWSRF's offer:

- **Low Interest Rates, Flexible Terms**—Nationally, interest rates for CWSRF loans average 2.3 percent, compared to market rates that average 5 percent. For a CWSRF program offering this rate, a CWSRF funded project would cost 22 percent less than projects funded at the market rate. CWSRFs can fund 100 percent of the project cost and provide flexible repayment terms up to 20 years.
- **Funding for Nonpoint Source Pollution Control and Estuary Protection**—CWSRFs provided more than \$167 million in 2009 to control pollution from nonpoint sources and for estuary protection, more than \$3 billion to date.
- **Assistance to a Variety of Borrowers**—The CWSRF program has assisted a range of borrowers including municipalities, communities of all sizes, farmers, homeowners, small businesses, and nonprofit organizations.
- **Partnerships with Other Funding Sources**—CWSRFs collaborate with banks, nonprofits, local governments, and other federal and state agencies to provide the best water quality-financing source for their communities.

See <http://www.epa.gov/owm/cwfinance/cwsrf/index.htm>

SoCal Water Smart. The SoCal Water Smart program offers rebates to customers of the Metropolitan Water District's member agencies for installing water-saving appliances. Qualifying products include high-efficiency clothes washers, rotating nozzles, and weather-based irrigation controllers.

See <http://socalwatersmart.com/home>

Recycling and Waste Management Financing

California Department of Resources Recycling and Recovery (CalRecycle) grant, payment, and loan programs. CalRecycle grant programs allow jurisdictions to assist public and private entities in the management of waste streams. The program funds are intended to reduce, reuse, and recycle all waste; encourage development of recycled-content products and markets; protect public health and safety; and foster environmental sustainability. wide range of grants and loans are available from CalRecycle, with each having its own application and eligibility requirements. Many of the grants and loans apply to cities, counties, universities, and regional waste agencies or Joint Powers Authorities. Each opportunity should be assessed individually for specific requirements.

See: <http://www.calrecycle.ca.gov/grants/>

Low and Zero Emission Vehicle Financing

South Coast Air Quality Management District (SCAQMD) Clean Vehicle Investment Program. This program is a voluntary incentive program to support clean vehicle equipment projects and clean fuel research. Employers investment money into an SCAQMD fund based on how many employees they employ. The funds collected in the fund are then used to implement projects that reduce emissions. The cities could participate in this program by submitting proposals to SCAQMD to implement the GHG reduction measures. According to the program website, proposals submitted to SCAQMD “should demonstrate that emissions reductions/air quality improvements are real, surplus, quantifiable, and contain appropriate methodologies”.¹⁴ These guidelines for proposals are met in the GHG Reduction Plan, which should facilitate the preparation of proposals for this program associated with each city’s CAP.

See: <http://www.aqmd.gov/home/programs/business/business-detail?title=air-quality-investment-program>

5.3 STEP 3—Measure Implementation

After taking into account the reductions in energy and water usage and the GHG emissions resulting from statewide measures, the City would need to implement the local (R2) measures to reach its reduction targets.

The City would develop an implementation schedule for the R2 reduction measures. Prioritization would be based on the following factors:

- Cost effectiveness
- GHG reduction efficiency
- Availability of funding
- Level of City Control
- Ease of implementation
- Time to implement

In general consideration of these factors, the following is an outline of key priorities for two phases starting in 2015 through 2020.

- **Phase 1 (2015-2017)** — Development of key ordinances, completion of key planning efforts, implementation of most cost-effective measures (Phase 1 measures), and support of voluntary efforts.
- **Phase 2 (2017–2020)** — Continued implementation of first phase measures, implementation of second phase measures.

Success in meeting the goals and Reduction Target of the CAP depends on some flexibility in the GHG reduction actions. The City is committed to flexibility in implementing the reduction measures and meeting the goals of this CAP. The goals of each reduction measure can often be achieved through a

variety of means, especially those related to building energy efficiency. For example, the City would adopt energy efficient design requirements for new development (measures R2-E1 and R2-E2). Compliance with the energy efficient design programs can be achieved through many combinations of actions including, but not limited to, installing energy efficient appliances, lighting, and HVAC systems; installing solar water heaters; siting and orienting buildings to optimize conditions for natural heating, cooling, and lighting; installing top-quality windows and insulation; and incorporating natural shading, skylights, and reflective surfaces. Possible sources of funding to implement these measures are presented in Chapter 4 of this CAP. Table 5-1 presents the potential timeline and phasing schedule for the GHG reduction measures. (Note: Table 5-1 below will need to be customized for each jurisdiction)

Table 5-1 GHG Reduction Measure Timeline and Phasing Schedule	
Reduction Measure	Phase
Energy 1: Energy Efficiency Retrofits for Existing Buildings	1, 2
Energy 2: Outdoor Lighting	1, 2
Energy 4: New Residential Renewable Energy Installations	2
Energy 5: New Commercial Renewable Energy Installations	2
Energy 6: Onsite Solar Energy for New and Existing Warehouse Space	2
Energy 7: Existing Residential Renewable Energy Retrofits	1, 2
Energy 8: Existing Commercial Renewable Energy Retrofits	1, 2
Land Use 1: Tree Planting Programs	
Agriculture 1: Methane Capture at Large Dairies	
Agriculture 2: Utilize Methane Capture at Dairies	
Water 1: Voluntary CALGreen Water Efficiency for New Construction	
Water 2: Water Conservation for Existing Buildings	
Water 3: Water Efficient Landscaping	1, 2
Water 4: Senate Bill X7-X Water Conservation	1, 2
Wastewater 3: Recycled Water Systems	
On-Road 1.4: Transit Oriented Development (TOD)	2
On-Road 1.5: Non motorized Zones	
On-Road 1.6 Traffic Calming	
On-Road 1.7 Traffic Signal Synchronization	
On-Road 1.8 Parking Policy	
On-Road 1.9 Trip Reduction Ordinance	2
On-Road 1.10 Telecommuting and Alternative Work Schedules	2
On-Road 1.11 12 Pedestrian and Bicycle Lanes	2
On-Road 1.12 Pedestrian and Bicycle Network Improvements	1,2
On-Road 2: Smart Bus Technologies	1,2
Off-Road 2: Idling Ordinance	1,2
Off-Road 3: Electric Landscaping Equipment	2
Waste 1: Increased Waste Diversion	1,2
PS-1 GHG Performance Standard for New Development	1, 2

5.4 STEP 4—Public Participation

The citizens and businesses in The City are integral to the success of GHG reduction efforts. Their involvement is essential in order to reach the reduction goals because the CAP depends on a combination of state and local government efforts, public and private sources of finance, and the voluntary commitment, creativity, and participation of the community at large. The City will need to strike a balance between development and environmental stewardship to keep the economy strong and, at the same time, protect the environment. Education programs should be developed for stakeholders such as businesses, business groups, residents, developers, and property owners outlining the benefits of the CAP's cost-saving measures to encourage participation in efforts to reduce GHG emissions in all possible sectors.

5.5 STEP 5—Monitoring and Inventorying

The City would use a system for monitoring the reductions in energy use from statewide measures. If promising new strategies emerge, the City would evaluate how to incorporate these strategies into the CAP. Further, state and federal action would also result in changes that would influence the level of the City's GHG emissions. SANBAG through Task 11 of the SCE administered grant fund is providing the City qualitative and quantitative metrics by which the City can track progress in energy savings. A customized emissions inventory software package will be provided for City use in tracking emissions based upon energy consumption data. To provide periodic updates to the City inventory of GHG emissions, the City would use a Microsoft Excel format emissions inventory worksheet. This worksheet would include all the emission factors and emission sources specific to City. The worksheet would be designed such that City staff can input water use and energy consumption data and the worksheet would quantify emissions for the community. The CAP Implementation Coordinator would be responsible for maintaining records of reduction measure implementation and insuring that the periodic updates to the emissions inventory are completed using the emission inventory worksheet. A simple energy efficiency measure-tracking tool will be provided to track the implementation of the measures. In this way, the City qualitatively and quantitatively predicts the reductions that should be achieved based upon the energy efficiency-tracking tool and tracks emissions using the customized emissions inventory software package.

5.6 STEP 6—Beyond 2020

The 2020 target is only a milestone in GHG reduction planning. Executive Order S-03-05 calls for a reduction of GHG emissions to a level 80 percent below 1990 levels by 2050, and this level is consistent with the estimated reductions needed to stabilize atmospheric levels of carbon dioxide at 450 parts per million. Thus, there will be a need to start planning for the post-2020 period.

Because state and federal strategies for post-2020 are speculative at this point, it is recommended that the City commence planning for the post-2020 period in 2017, at the approximate midway point between plan implementation and the reduction target. By that time, the City would have a better understanding of the effectiveness and efficiency of the reduction strategies and approaches. The

State's regulations under AB 32 would have been fully in force; federal programs and policies for the near term are likely to be well underway; market mechanisms that influence energy and fuel prices would likely be in effect; and technological advances are anticipated in the fields of energy efficiency, alternative energy generation, fuels, and other areas. The City would then be able to take the local, regional, state, and federal context into account. Further, beginning the post-2020 plan preparation in 2017 would allow enough time so that the plan could be ready for full implementation, including potential new policies, revisions to the plan (as necessary), programs, ordinances, and financing by 2020.

APPENDIX C. I

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Memorandum

Date:	August 1, 2014
To:	Steve Smith, SANBAG Josh Lee, SANBAG Michael Hendrix, Atkins
Cc:	Cory Matsui, ICF International
From:	Rich Walter, ICF International Brian Schuster, ICF International
Subject:	SANBAG Climate Action Plan Implementation Tools: Draft Funding and Budgeting Strategies

Introduction

This purpose of this memorandum is to provide an overview of the funding sources and budgeting strategies that the SANBAG cities can use to maximize the funding the cities can receive for implementing their local Climate Action Plans (CAPs). The SANBAG cities began the CAP process with the *San Bernardino County Regional Greenhouse Gas Reduction Plan (GHG Reduction Plan)*. The next step for the cities is to develop their own CAPs using this plan as a framework.

This memorandum contains three sections:

1. **Funding Sources:** a list of programs, grants, incentives, tax credits, and other funds that can be used to finance or pay for implementation of the CAP.
2. **Monitoring Funding Sources:** strategies that the SANBAG cities can use to ensure that new funding opportunities are identified as they arise.
3. **Leveraging Funding Sources and Coordinating with Funding Providers:** ways that SANBAG cities and community members can increase the likelihood of procuring funding for their CAP programs.

Funding Sources

Funding sources that are available to local governments, businesses, and individuals are presented and discussed in this section. Funding sources included in Table 5-1 of the GHG Reduction Plan as well as additional funding sources within the County are provided below.

Federal

U.S. Department of Housing and Urban Development (HUD) PowerSaver Program

Introduction

The HUD PowerSaver program insures loans to finance small or moderate improvements to a home, such as a solar energy upgrade. The HUD PowerSaver pilot will provide lender insurance for secured and unsecured loans up to \$25,000 to single family homeowners specifically targeting residential energy efficiency and renewable energy improvements¹

Requirements for the Cities

This program is designed for homeowners in the community who would apply to the program on an individual basis. There are no direct requirements on the part of SANBAG or the cities.

Challenges & Next Steps

A potential challenge associated with this program could arise for the SANBAG cities if homeowners do not show interest in the program, or if a large proportion of homeowners are unaware of the program. To deal with these challenges, next steps for the SANBAG cities should include conducting outreach efforts to single family households, which would spread awareness of this program and bring solar and energy efficiency to single family homes in the County. Outreach should include conveying the potential energy savings and environmental benefits associated with home energy improvements.

Federal Solar Incentives

Introduction

Solar incentives from the federal government will help incentivize homeowners and businesses in the County to transition to solar energy. These incentives include:

- Residential Renewable Energy Tax Credit: A taxpayer may claim a credit of 30% of qualified expenditures for a solar system that serves a residence located in the United States that is owned and used as a residence by the taxpayer.²
- Business Energy Investment Tax Credit (ITC): This federal tax credit is equal to 30% of expenditures on a solar system, with no maximum credit.³

¹ More information: http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/title/ti_home

² See: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US37F&re=1&ee=1.

³ See: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F&re=1&ee=1.

Requirements for the Cities

This incentive is designed for homeowners and businesses in the community who would apply on an individual basis. There are no direct requirements on the part of SANBAG or the cities.

Challenges & Next Steps

The SANBAG cities should ensure that eligible homeowners and businesses are aware of this incentive by conducting outreach efforts. The cities should also assist homeowners and businesses to the extent possible as they apply for solar incentives.

Federal Tax Credits for Energy Efficiency

Introduction

Federal government tax credits are available to San Bernardino County residents through 2016. The tax credits provide a discount of 30% of cost with no upper limit for geothermal heat pumps, small wind turbines (residential), and solar energy systems. The 2016 tax credits also include 30% of the cost up to \$500 per 0.5 kilowatt (kW) of power capacity for fuel cells in a principal residence.

Requirements for the Cities

This program is designed for individual homeowners in the community who can apply when submitting taxes to the IRS. There are no direct requirements on the part of SANBAG or the cities.

Challenges & Next Steps

Challenges for implementation of this tax credit could arise if homeowners in the County are unaware of the tax credit or are unwilling to participate. The SANBAG cities should engage in outreach efforts to homeowners to inform them of this tax credit.

Transportation-Related Federal and State Funding

Introduction

A number of federal and state funding sources for transportation improvements are available and may be used by the cities. Projects may include transit, bicycle, or pedestrian improvements. Funding sources include the following:

- Safe, Accountable, Flexible, Efficient Transportation Equity Act—Legacy for Users (SAFETEA-LU).
- Surface Transportation Program Fund, Section 1108 (STP)
- Congestion Mitigation and Air Quality Improvement Program, Section 1110 (CMAQ)
- Transportation Enhancement Activities (TEA)
- National Recreational Trails Program

- National Highway System Fund (NHS)
- National Highway Safety Act, Section 402
- Transit Enhancement Activity, Section 3003
- Section 3 Mass Transit Capital Grants
- Bridge Repair & Replacement Program (BRRP)
- Federal Transit Administration (FTA) 5309
- FTA Small Starts
- FTA Section 5311(f)
- California's Bicycle Transportation Account (BTA)
- Environmental Enhancement and Mitigation (EEM) Program
- Safe Routes to School (SR2S)
- Office of Traffic Safety (OTS)
- Transportation Development Act (TDA) Article III
- Transportation Funds for Clean Air (TFCA, formerly AB 434)
- Flexible Congestion Relief (FCR) Program
- State Highway Operations and Protection Program (SHOPP)

Requirements for the Cities

Incentives that apply to individual residents, businesses or fleet operators do not present any direct requirements for the cities. Other sources, such as the California Bicycle Transportation Account that are awarded to cities or counties, require the city or county to apply through the California Department of Transportation (Caltrans).

Challenges & Next Steps

The cities should evaluate the transportation funding options listed above and assess which options are best suited for their community. The cities should pursue those funding sources, completing the application process through Caltrans, FTA, or other transportation agency. Challenges that the cities may face while procuring transportation funding could include lengthy application processes, and a competitive funding environment. The cities should sign up for Caltrans' Division of Local Assistance listserv to continually monitor state funding opportunities for local government transportation projects. A link to the listserv is included below in the Monitoring Funding Sources section.

State

California Air Resources Board Grants, Incentives, and Credits Programs

Introduction

The California Air Resources Board (ARB) offers several grants, incentives, and credits programs to reduce on-road and off-road transportation emissions. Residents, businesses, and fleet operators can receive funds or incentives depending on the program. The following programs can be used to fund local measures:

- Air Quality Improvement Program (AB 118): Voluntary incentive program to support clean vehicle equipment projects and clean fuel research.⁴
- Carl Moyer Program – Voucher Incentive Program: An incentive program with the goal of replacing older heavy duty diesel vehicles.⁵
- Goods Movement Emissions Reduction Program (Prob 1B Incentives): A program targeting emissions from freight throughout the state. Local agencies can apply for funding who, in turn, offer funding to equipment owners to upgrade to lower-emitting equipment⁶. No funding is currently available, but opportunities for future funding can be discovered through signing up to the program's listserv at the following link:
http://www.arb.ca.gov/listserv/listserv_ind.php?listname=gmbond
- Enhanced Fleet Modernization Program (Assembly Bill 118): This program incentivizes individual consumers with older vehicles to retire their vehicles for \$1,000, or \$1,500 for low-income participants.⁷
- California Capital Access Program (CalCAP): A state program that supports financial institutions in providing loans to businesses that may not be able to get financing through other means. Loans through the ARB's On-Road Heavy-Duty Vehicle Program (see below) can be used to purchase lower-emitting heavy-duty equipment, and retrofits to older equipment. If the business defaults on the loan, the CalCAP and ARB could cover the entire remaining loan balance.⁸ A list of available lenders can be found at the following link:
<http://www.treasurer.ca.gov/cpcfa/calcap/arb/lenders.pdf>
- Providing Loan Assistance for California Equipment (PLACE) Program: The PLACE Program is an incentive program that assists heavy-duty on-road vehicle owners to purchase lower-emitting equipment. This program applies to small businesses (100 or fewer employees and less

⁴ <http://www.arb.ca.gov/msprog/aqip/aqip.htm>

⁵ <http://www.arb.ca.gov/msprog/moyer/voucher/voucher.htm>

⁶ <http://www.arb.ca.gov/bonds/gmbond/gmbond.htm>

⁷ <http://www.arb.ca.gov/msprog/aqip/efmp/efmp.htm>

⁸ <http://www.treasurer.ca.gov/cpcfa/calcap/>

than \$10 million or less in annual revenue, averaged over three years) and businesses that have their primary effect in California.⁹

- Clean Vehicle Rebate Project: The CVRP program applies to individual vehicle buyers and offers rebates of up to \$2,500 for individuals to purchase zero-emission vehicles, hybrid electric vehicles, electric vehicles, or zero-emission motorcycles.¹⁰
- Lower-Emissions School Bus Program: This program seeks to replace older, polluting buses with new, lower-emissions buses, or to install retrofit devices on older buses to reduce emissions.¹¹

Requirements for the Cities

These programs apply primarily to individual residents or businesses. There are no direct requirements on the part of SANBAG or the cities.

Challenges & Next Steps

Successful utilization of these ARB programs requires participation from local agencies, community members and businesses in the cities and County. SANBAG cities should continue their efforts to ensure that the local agencies, community members and businesses are aware of these programs, and provide assistance to the extent feasible during the application process. The cities can stay up-to-date on the funding situations for each program by signing up for each program's listserv. A link to each listserv is included in the monitoring funding sources discussion below.

California Solar Incentives

Introduction

The state provides two solar financing options:

- CEC New Solar Homes Partnership (NSHP): This program provides financing incentives for new homes to encourage solar in new homes.
- California Solar Initiative (CSI): This program includes financing incentives for a variety of solar applications for residential and non-residential properties. CSI has dedicated programs for low-income and multi-family housing.

Requirements for the Cities

This incentive applies primarily to individual residents or businesses. There are no direct requirements on the part of SANBAG or the cities.

⁹ <http://www.arb.ca.gov/ba/loan/on-road/on-road.htm>

¹⁰ <http://www.arb.ca.gov/msprog/aqip/cvrp.htm>

¹¹ <http://www.aqmd.gov/home/programs/business/lower-emission-school-bus-funding-criteria>

Challenges & Next Steps

The SANBAG cities should ensure that eligible homeowners and businesses are aware of these incentives by conducting outreach efforts. The cities should also assist homeowners and businesses to the extent possible as they apply for solar incentives. The cities should conduct special outreach towards low-income housing and multi-family housing, which are not as frequently included in solar financing programs.

Energy Upgrade California

Introduction

The Energy Upgrade California Program is intended for home energy upgrades and is funded by the American Recovery and Reinvestment Act, California utility ratepayers, and private contributions. Utilities administer the program, offering homeowners the choice of one of two upgrade packages—basic or advanced. Rebates, incentives, and financing are available, and homeowners are connected to home energy professionals through the program.

Requirements for the Cities

This program is designed for individual homeowners in the community who would apply through SoCal Edison (SCE). There are no direct requirements on the part of SANBAG or the cities.

Challenges & Next Steps

Challenges may arise if homeowners in the community are resistant to the program. SANBAG cities should engage in outreach efforts to homeowners who qualify for the program to increase awareness and encourage program participation. The cities can also coordinate with SoCal Edison and support or enhance any existing outreach efforts by SCE.

California Department of Resources Recycling and Recovery (CalRecycle) Grant, Payment, and Loan Programs

Introduction

CalRecycle grant programs allow jurisdictions to assist public and private entities in the management of waste streams. The program funds are intended to reduce, reuse, and recycle all waste; encourage development of recycled-content products and markets; protect public health and safety; and foster environmental sustainability. In total, San Bernardino County, the incorporated cities, and private businesses have been awarded over \$32 million through over 500 grants since 1990.

Requirements for the Cities

A wide range of grants and loans are available from CalRecycle, with each having its own application and eligibility requirements. Many of the grants and loans apply to cities, counties, universities, and

regional waste agencies or Joint Powers Authorities. Each opportunity should be assessed individually for specific requirements.

Challenges & Next Steps

The cities should continue to monitor the open applications on the CalRecycle grants page¹², apply for local government targeted grants, and recommend commercial-targeted grants to private businesses through outreach efforts.

Regional

Home Energy Renovation Opportunity (HERO)

Introduction

In 2013, the HERO program was initiated in San Bernardino County by extending PACE funding to residential customers. SANBAG also offers the HERO program for commercial properties. HERO provides low-interest, long-term, tax-deductible financing that is repaid through property taxes. HERO financing supports residents in the County to implement energy efficiency, renewable energy, and water efficiency projects in their homes. The program addressed the FHFA's requirements by giving homeowners two cautionary messages. The first message tells homeowners they should review their mortgages for any provisions that may be triggered by the assessment. The second message says they may have to pay off their assessments when they sell or refinance their homes.

Requirements for the Cities

In San Bernardino County, the current residential HERO program has the following requirements:

- All mortgage-related debt must not exceed 90% of the value of the property.
- Mortgage payments must be current at the time of application, and property owner(s) must not have had more than (1) 30-day mortgage late payment over the past twelve months.
- Property taxes for the prior twelve-month period must have been paid on time and no more than one late payment within the past three years.
- No outstanding involuntary liens, such as tax liens or mechanic's liens.
- The property owner(s) must not have filed for bankruptcy in the past two years. If they have a bankruptcy record between two and seven years old, they the property owner(s) must not have had any additional late payments more than (60) days past due in the last (24) months.
- Mobile homes must be permanently attached to the property and the owner of the underlying property must be the applicant and be subject to real property taxes

The following qualifications are associated with the commercial HERO program¹³:

¹² <http://www.calrecycle.ca.gov/grants/>

- Existing debt plus new HERO Financing cannot exceed 90% of the property value.
- Must be current on property taxes.
- Must be current on all property debt for the past six months.
- No bankruptcy proceedings for the past seven years.
- Proposed improvements must not exceed 15% of the property value.
- Senior mortgage debt lender must acknowledge placement of the assessment

Property taxes typically stay with the property when it is sold. Under the HERO Program, when one sells or refinances the property, the remaining payments may stay with the property. However, lenders may require owners to pay off the remaining balance when refinancing or selling the home.

Challenges & Next Steps

The requirements presented above may be restrictive to a portion of homeowners or businesses in the cities. The SANBAG cities should continue to promote the HERO program through outreach efforts to potentially eligible homeowners, contractors, and businesses.

South Coast Air Quality Management District Air Quality Investment Program

Introduction

This program is a voluntary incentive program to support clean vehicle equipment projects and clean fuel research. Employers investment money into a South Coast Air Quality Management District (SCAQMD) fund based on how many employees they employ. The funds collected in the fund are then used to implement projects that reduce emissions.

Requirements for the Cities

The cities could participate in this program by submitting proposals to SCAQMD to implement the GHG reduction measures. According to the program website, proposals submitted to SCAQMD “should demonstrate that emissions reductions/air quality improvements are real, surplus, quantifiable, and contain appropriate methodologies”.¹⁴ These guidelines for proposals are met in the GHG Reduction Plan, which should facilitate the preparation of proposals for this program associated with each city’s CAP.

Challenges & Next Steps

The cities should review the SCAQMD Air Quality Investment Program details and prepare a proposal to implement one or more of their CAP reduction measures.

¹³ <http://sanbag.herocommercial.com/index.php?page=index>

¹⁴ <http://www.aqmd.gov/home/programs/business/business-detail?title=air-quality-investment-program>

Regional Transit-Related Funding Sources

Introduction

A number of transit-related funding sources may be used by the cities in concert with regional transit providers:

- **Bus Stop Sponsorships:** Advertisement sponsorship of bus stops has been used as a revenue source.
- **Transit Fare Increases:** Transit fares could be increased to help fund capital improvements, though increases also have the potential to decrease ridership in the short term.

Requirements for the Cities: Bus stop sponsorships would be a more straightforward strategy, while increasing transit fares would be potentially controversial subjects.

Challenges & Next Steps: As discussed above, challenges to these local funding sources include resistance to transit-fare increases. A parcel tax would also meet substantial resistance. The cities and regional transit providers would have to gauge public perception of both transit fare increases. Implementing or increasing bus stop sponsorships would be relatively straightforward.

Utilities

Utility On-Bill Financing

Introduction

On-bill financing (OBF) allows a consumer to receive an energy upgrade at no up-front cost and pay back the cost of the project through an added charge assessed on the consumer's energy bill every month. On-bill repayment is currently available for commercial organizations in San Bernardino County and provides zero percent loans for energy upgrades,¹⁵ but there is no such option for residential consumers. There is currently no residential OBF offering from Socal Edison in San Bernardino County, but it may be available in the future. The CPUC approved a pilot for a master metered multifamily OBF program in September 2013.¹⁶ Smaller utilities that serve the County or individual cities do not yet offer OBF for commercial or residential consumers.

Requirements for the Cities

The cities should help municipal utilities set up OBF systems. Default rates on utility bills tend to be far lower than for other debts, such as mortgages and credit card balances.¹⁷ By utilizing this

¹⁵ https://www.sce.com/wps/portal/home/business/tools/on-bill-financing/!ut/p/b1/hc9NCslwEAXgs3gAnWkjtS7T0p8ENWrF1mykSowFTSWWgrc3gitBnd0M34N51KECaeq-0XXXtKa-vHYZ7L0wozkrklkiT5FFPsvmfEnCCXFg5wB-GYr_8iXIDxKxwJGYxkIwDPn4E2TriY-Mb50ZiDwfx_4bTDNMci4c2KwIMrLCRUepQQze4MeTHKS-tAdXulxA9utCxfpVjZoDCTVIq07KKjs6t_cOKmWU1Y-jMp07tVbD7Vphw4Yy1YPBE8TM2VI!/dl4/d5/L2dBIS9nQSEh/#/

¹⁶ See: http://switchboard.nrdc.org/blogs/lettenson/2013-09-19_EE%20Financing%20CPUC%20Press%20Release.pdf

¹⁷ P. 6, <http://www.edf.org/sites/default/files/On-Bill%20Repayment-Unlocking-the-Energy-Efficiency-Puzzle-in-California.pdf>

attribute of utility bills, money lent through OBFs can offer substantially lower rates, longer maturities and better terms for an OBF loan relative to conventional EE loans.

In San Bernardino County, further exploratory work would be required to determine whether the small utilities serving the County¹⁸ would be willing to extend their services to offer OBF.

Challenges & Next Steps

Some of the challenges associated with OBF include:

- The consumer lending laws around residential lending are more prohibitive than commercial lending.
- Third-party financiers are less interested in financing OBF compared to conventional loans/leases. Lenders want that monthly contact with the customer through the loan servicing, which can often bring further business (e.g., opening a bank account or taking out another type of loan). Another reason cited is the relative limited history of OBF programs, which makes OBF seem risky and unproven for lenders.
- Utility billing software/processes are rigid and do not accept change easily.
- Not all utilities are viewed favorably by their customers, which could slow adoption.
- Utilities still worry that OBF will increase the risk of non-payment, even though in the case of partial payment, the generation and transmission & distribution charges are senior and paid off first before OBF debts.

As a first step, SANBAG cities could engage the smaller municipal utilities participating that serve the County and assess whether they would be willing to participate in this service if SANBAG or the cities arrange the financing. If utilities were interested, The cities could then proceed to determining a reasonable source of funding. The most likely answer would be existing credit facilities that have participated in energy efficiency and renewable energy financing.

Other Utility Funding Sources

Introduction

A number of other utility funding sources may be used by the cities:

- Inland Empire Utility Agency (IEUA) and Metropolitan Water District of Southern California (Water District) Water Rebates: Both the IEUA and Water District¹⁹ offer a number of rebates for water-conserving upgrades and actions for the residential²⁰ and commercial²¹ sectors.

¹⁸ Small utilities serving the County include Bear Valley Electric Services (BVES), Colton Public Utilities (CPU), Needles Public Utility Authority (Needles PUA), and Victorville Municipal Utility Services (VMUS).

¹⁹ <http://www.bewaterwise.com/rebates01.html>

²⁰ <http://www.ieua.org/conservation/residential.html>

²¹ <http://www.ieua.org/conservation/commercial.html>

Requirements for the Cities: Rebates from utility districts do not present any direct requirements to the cities.

Challenges & Next Steps: Spreading awareness of utility rebates should involve outreach efforts by the cities.

Local

Green Revolving Fund for Municipal and Non-Municipal Buildings

Introduction

An external Green Revolving Fund (GRF) would offer loans to the general public, while an internal fund would provide a financing mechanism to upgrade city or county-owned facilities. The external Green Revolving Fund would introduce some additional risks and complexities, and the following factors would need to be considered by the implementing entity:

- **Contract law:** Capital lease agreements, loans, or other means to disbursing GRF funding can be drafted fairly easily based on existing templates in many cases. However, the cities will likely need to have these documents generated or at least reviewed by a legal team to ensure they are legally robust in the event of default or litigation.
- **Credit risk analysis:** When issuing loans to outside parties, the issue of default becomes a greater risk. Funding recipients may cease to make their required repayments due to bankruptcy, relocation, poor project performance, disagreement with the County, or other factors. Conducting a complete credit risk analysis before approving each loan can help to mitigate this risk. A complete assessment would likely include credit score as well as other factors such as location and likelihood to relocate and standing in the community. Credit risk could be conducted internally or by contractors.
- **Payment collection:** Collecting and processing payments from loan recipients is also an important consideration. In particular, a secure but streamlined payment process would be needed to minimize transaction costs and ensure that GRF financing is user-friendly. The SANBAG cities may also want to examine contingencies for reclaiming funding or assets in the event of default.
- **Repayment rules:** Repayments to an outward-facing GRF can be structured in a few different ways. First, savings can be measured directly²² to determine repayments, ensuring that repayments do not exceed actual savings. However, this approach can be costly, as it required annual application of an agreed-upon measurement methodology. Second, repayments can be set according to expected savings determined through upfront engineering estimate, with no connection to actual measured savings. Third, repayments can be structured without any relationship to savings—for example, requiring loans to be repaid within a fixed period of time.

²² Renewable electricity generation can typically be metered on-site. Measurement of savings from energy efficiency must be conducted using a measurement and verification (M&V) approach. The International Performance Measurement and Verification Protocol has standardized these approaches: <http://www.nrel.gov/docs/fy02osti/31505.pdf>

Requirements for the Cities

If the SANBAG cities have capacity or can easily contract the necessary capacity, an external facing GRF may be possible. However, the Energy Upgrade California loans may fill the same niche that an external GRF seeks to fill.

Challenges & Next Steps

Potential challenges to setting up a GRF include:

- Banking Expertise: To execute a GRF, the cities would have to obtain all of the capacities of a commercial bank or contract out for these capacities.
- The existing \$5 million revolving loan program may not be sufficient to run an effective campaign. More capital may need to be raised.
- Similar financing options already exist and are used by installers/contractors.

SANBAG cities should develop an internal GRF offering for municipal buildings, as the benefits are well documented.²³ With regard to an external GRF, the cities should consider whether a management-intensive external GRF would fulfill an unmet financing need, and whether easier alternatives may exist that do not require setting up a new lending/collection section of municipal government.

Tax Exempt Lease Purchase Agreements (TELP)

Introduction

Tax Exempt Lease Purchase Agreements are lease agreements that can be used for energy efficiency projects by any tax-exempt organizations. This includes government and educational entities and non-profit organizations. Government entities include cities, counties, special purpose districts, agencies, and others. Upfront equipment or project costs are amortized over the duration of the leasing period. The advantage of a TELP is that the interest payments made to the financing entity are not subject to federal taxes.

This type of financing is often used to purchase equipment but can be used for other purposes, such as implementing a specific project.²⁴

Requirements for the Cities

SANBAG cities and other government and educational entities, and non-profit organizations in the County would be eligible to participate in this type of financing.

²³ <http://www.aashe.org/blog/guest-blogger-revolve-or-not-revolve>

²⁴ More information at: <http://www.aglf.org/faq>

Challenges & Next Steps

A potential challenge to using this method of financing includes credit worthiness: if an entity has less than investment grade credit. In addition, the lease terms are dependent on the conditions of the market, and there are a limited range of lenders.

The SANBAG cities should promote TELPs to agencies who will be implementing GHG reduction strategies. These agencies may include any applicable water, waste, or other city or county government agency.

Carbon Fees and Carbon Taxes

Introduction

Carbon fees, and more prominently carbon taxes, are often discussed, but are not as widely used. As of 2013, Boulder, Colorado is the only municipality in the United States that has an operational carbon tax. The province of British Columbia in Canada has a carbon tax. Other municipalities around the world have levied internal carbon fees, in which municipal owned entities pay a fee based on their carbon emissions and the money is used to help the municipality reduce its carbon footprint.

Revenue from a carbon tax is typically used to help an institution meet its energy/carbon reduction goals, both internal and county-wide, though some have proposed a “revenue neutral” tax in which carbon taxes replace income taxes and spending levels remain the same.

Requirements for the Cities

An internal price on carbon is an excellent way to galvanize a community around reducing energy, saving money, and achieving carbon reduction goals. An external carbon tax is not impossible in San Bernardino County, but new taxes are always highly controversial and thus it would be beneficial to study the San Bernardino constituents with polling or some alternative method of determining interest before pursuing such a program. Ultimately, a carbon tax would create a strong incentive system for carbon reductions in line with the GHG Reduction Plan and the cities’ own CAPs.

Challenges & Next Steps

Taxes are highly unpopular and their acceptance is tied to the base of constituents. The progressive citizens of Boulder, Colorado voted to extend their carbon tax in 2012, after six years of success. However, this example is the exception to the rule.

The cities should begin by determining the feasibility of an internal carbon fee to test the concept and improve the efficiency of internal operations. Revenues could be added to a revolving loan fund program or could be used to make up any budget shortfalls.

A next step could be for SANBAG cities to begin to assess the public’s perception of a price on carbon. If residents might be open to an additional tax based on preventing climate change, the cities could start exploring how such a tax would be assessed.

Other Tax and Fee Funding Approaches

Introduction

A number of tax and fee-based funding mechanisms for municipal capital and implementation costs could be used by the SANBAG cities:

- **New Development Impact Fees:** These types of fees may have some potential to provide funding, but such fees are best implemented when the real estate market and overall regional economic conditions are strong.
- **Utility User Tax Increase:** Increasing this tax could help fund ongoing implementation, operations, and maintenance efforts. Any increase of tax rates will need to be highly sensitive to current local economic conditions and overall local, state, and national economic and financial context.
- **Additional Local Sales Parcel Tax:** Increasing local sales or parcel taxes would require voter approval and could provide funding for measures related to transit improvements or retrofit programs. Any increase of tax rates will need to be highly sensitive to current local economic conditions and overall local, state, and national economic and financial context.
- **Community Facilities District (CFD) Special Taxes:** Creating this special tax would require voter approval and could be best directed towards measures with broad benefits for the community (e.g., transit, pedestrian and bicycle facilities, safe routes to schools). Any increase of tax rates will need to be highly sensitive to current local economic conditions and overall local, state, and national economic and financial context.
- **General Obligation Bond:** A general obligation bond is a form of long term borrowing and could be used to fund municipal improvements.
- **Other taxes and/or fees.** For the City of Boulder's 2006 Climate Action Plan ((City of Boulder 2006), a number of other tax/fee funding options were considered. These options included:
 - an Energy Efficiency and Renewable Energy enterprise and fee;
 - an annual County-wide or City-wide vehicle sticker fee;
 - an extension of a pre-existing trash tax;
 - a renewable energy mitigation program; and
 - a development excise tax.

Requirements for the Cities

The options above for tax increases and/or new fees, or establishing a municipal bond is not a negligible effort. Indeed, the above options could likely require a potentially lengthy and controversial political process.

Challenges & Next Steps

Because tax and fee increases are generally very unpopular, it will likely be challenging to implement any of the options discussed above. SANBAG cities should assess the public's perception of fees or taxes discussed above before taking action. To deal with potentially negative public perception of a new tax or fees, the cities should conduct outreach efforts to explain the purpose of the new tax/fee and make it clear that the revenue generated by the tax/fee would be restricted to implementing the CAP strategies. Strategies should focus on funding approaches that would "net neutral" for the community as a whole (e.g. that all derived revenue would be spent back in the community itself and/or result in overall no net adverse economic effect to the community as a whole). Outreach should focus on conveying tangible benefits to the community and the environment if specific projects are implemented (i.e. pedestrian improvements will make streets safer, water efficiency improvements will lessen the impact of the drought, etc.).

Private

Leasing and Power Purchase Agreements

Introduction

Under a power purchase agreement (PPA), a third-party developer owns and operates a solar photovoltaic system installed on a host customer's building. The customer agrees to site the system on their property in exchange for purchasing the electricity produced by the system, typically at lower-than-market rates.²⁵ Leasing is a similar model in which a third-party company owns the solar and leases it to the host which then makes regular lease repayments to the company. The Energy Upgrade California guide describes PPAs and solar leases ²⁶.

Requirements for the Cities

This program is designed for individual homeowners and business owners in the community. There are no direct requirements on the part of SANBAG or the cities.

Challenges and Next Steps

SANBAG recently approved a contract for solar power site assessments, bringing together a number of cities and agencies to aggregate their solar sites.

One additional opportunity for SANBAG cities is to support neighborhood associations as they try to disseminate information and bundle solar installations. When a group of homes or a community act together to seek contractors, the solar installers can offer discounted rates because of the larger size of the bid. Bundled installations also allow a broader diversity of customers to receive financing (e.g., good credit scores offset bad ones). Some communities have already recognized the benefits of having their municipal government aid in the organizing of bundled household bids. For example,

²⁵ <http://www.epa.gov/greenpower/buygp/solarpower.htm>

²⁶ http://tools.energyupgradeca.org/county/san_bernardino/about_solar_financing

the City of Portland's Bureau of Planning and Sustainability, Energy Trust of Oregon, and Solar Oregon offer strategic and technical assistance to neighborhood organizations that are interested in pursuing a "Solarize" project. The City helps to bring the groups together, determine who to hire and when to start, and has provided discounts of 15% to 20% to the community (for both financed and non-financed projects)²⁷.

Some of the challenges associated with widespread adoption of PPA and leasing agreements to finance solar installations include:

- **Marketing:** Lack of consumer awareness of PPA and leasing options in San Bernardino County is still the main limiting factor. National polls indicate that the vast majority of Americans favor solar power adoption, but there is an information disconnect.²⁸ Deepest solar market penetration is achieved when homeowners and neighborhoods organize and bid/sign up for projects as a group.²⁹
- **Minimum Credit Score:** Consumers with low credit scores are not eligible. Typically, a minimum credit score of 680 is needed by most offerings.³⁰

Energy Service Company Contracts

Introduction

An Energy Service Company (ESCO) is a business that develops, installs, and finances projects designed to improve the energy and water usage of buildings. The ESCO remains a partner for the life of the project and is responsible for all aspects of the project, including associated technical and performance risks. The ESCO typically conducts an investment grade energy audit, designs the project, obtains bids from subcontractors, manages the construction, guarantees energy savings, obtains financing and often maintains the equipment. The ESCO bills the property owner for a share of the energy-cost savings (Center for Sustainable Energy California 2013).

Requirements for the Cities

ESCOs are designed for residences and businesses, so there are no direct requirements on the part of SANBAG or the cities.

Challenges & Next Steps

The residential sector does not represent a core market for the nation's larger energy services companies, and ESCOs that do participate in the residential market typically target larger multi-family and public housing facilities.³¹ The SANBAG cities should assess the number of residential-sector properties that would be suitable for ESCO agreements and identify ESCOs that might be interested in such agreements.

²⁷ <http://www.portlandoregon.gov/bps/article/405686>

²⁸ <http://phys.org/news/2013-08-leasing-solar-cost-saving-option-homeowners.html>

²⁹ <http://www.portlandoregon.gov/bps/article/405686>

³⁰ <http://www.solarcity.com/residential/solar-lease.aspx>

³¹ <http://emp.lbl.gov/sites/all/files/REPORT%20lbl-3479e.pdf>

The potential for ESCO agreements in the municipal government sector is large, according to a Lawrence Berkeley Laboratory study.⁴⁰ **Error! Bookmark not defined.** Thus, the cities could focus on securing municipal government ESCO agreements in parallel to assessing the residential ESCO potential in the County.

Community Investment Notes and Impact Investing

Introduction

There are significant pools of capital in the form of low interest concessional and semi-concessional loans available to non-profits and community organizations from impact focused investment firms. These sources of capital can be used for financing building construction, retrofits and other capital projects, including renewable energy and energy efficiency projects. Community Investment Notes are large loans that become part of portfolios that socially responsible investment firms offer to clients. There are also increasing opportunities in emerging forms of smaller scale impact investing.

Requirements for the Cities

Funding from Community Investment Notes is typically reserved for companies/institutions that are making a "positive social impact." Energy work in San Bernardino County may fall into this category, however, that is mostly up to the issuer of the loan. While most of these lending institutions seek poverty-related international projects, some like the Calvert Foundation target CDFIs, loan funds, microfinance institutions, affordable housing developers, and social enterprises both domestically and abroad. To get social impact investing dollars into San Bernardino County through a Community Investment Note, the SANBAG cities would likely have to partner with a non-profit institution trying to execute the desired energy upgrades. Calvert issues loans of \$1 million to \$5 million with interest rates based on Calvert's present cost of capital.³²

Smaller scale impact investing may have less stringent guidelines and terms that more closely resemble a solar lease, performance contract, or PPA.

Challenges & Next Steps

There may not be any reasonable partnerships or areas for allocation of Community Investment Note financing in San Bernardino County.

The cities should determine whether any non-profit organizations within the County might benefit from Community Investment Notes, and then provide assistance with their application or determine which social impact investing organizations have made similar investments. Organizations receiving financing would have to be well established and already funded, so the most likely partner would be an energy-related non-profit that is looking to finance a new campaign.

³² <http://www.calvertfoundation.org/lending/criteria>

Energy Efficient Mortgages

Introduction

Energy efficient mortgages enable homeowners/buyers to finance the cost of adding energy efficiency features to new or existing housing as an add-on to a home purchase or refinancing mortgage. Currently, energy efficient mortgages are insured by Fannie Mae, Freddie Mac, the Federal Housing Administration (FHA), and Department of Veteran Affairs.

EEMs allow a mortgage recipient to borrow more capital (for the purposes of buying energy upgrades) because the energy upgrades will effectively increase the available income of the borrower. EEMs are not a second mortgage—they are “tacked on” when conventional mortgages are undertaken, and the loan is then insured by one of a few different federal agencies (typically the FHA). FHA Energy Efficient Mortgages are for \$4,000 or 5% of the property value up to \$8,000, require no additional down payment, and do not affect interest rates (as shown below).

Table 1: Example of Conventional Mortgage and EEM Payments³³

	Mortgage without EEM	With EEM
Base Loan Amount	\$160,000	\$160,000
Energy Improvements	\$0	\$8,000
Total Loan Amount	\$160,000	168,000
Down Payment	\$5,600	\$5,600
Interest Rate	4.75%	4.75%
Monthly Mortgage Payment	\$1,301	\$1,367
Average Utility Bills	\$265	\$135
Total of Mortgage + Utility Payments	\$1,566	\$1,501
Monthly Savings	-	\$65
Yearly Savings	-	\$779

Requirements for the Cities

It is not suggested that SANBAG cities would actively issue or insure energy efficient mortgages; federal programs through FHA and other agencies should offer the necessary insurance. Instead, one possible role for the cities could be to promote energy efficient mortgage applications and to make local mortgage issuers aware of EEM opportunities and more comfortable with writing EEMs.

³⁴ A handful of state governments have even experimented with rate buy-downs and other ways of financially supplementing EEMs.³⁵

³³ <http://www.structuredenergies.com/energy-efficient-mortgages>

³⁴ This new study quantifies EEM default risks and provides lenders much needed data-- <http://www.imt.org/resources/detail/home-energy-efficiency-and-mortgage-risks-executive-summary>

³⁵ <http://aceee.org/energy-efficiency-sector/state-policy/Colorado/179/all/201>

Challenges & Next Steps

SANBAG cities should study local mortgages and determine what percent are EEMs and what types of consumers are applying for them—with the goal of determining where promotional efforts around EEM would be most effective. The largest barrier to more pervasive EEM adoption is making sure consumers and real estate agents know about EEMs and know which mortgage lenders are willing to issue them.

The cities could also determine the prevalence of mortgage lenders that are aware of EEMs and can actually execute one. Further research could elucidate whether lenders have specific difficulties or misunderstandings that prevent them from promoting EEMs, and the cities might consider developing materials and incentives for lenders to overcome these hurdles.

Lastly, the cities should consider financially incentivizing EEMs. This assessment would likely take into account whether funds are currently available or if they would need to be raised, as well as the type of financial support that would be most beneficial for the cities.

Mortgage lenders find EEMs difficult for a number of reasons, including:

- EEMs require more paperwork and processing time for lenders.
- EEMs are harder to sell in the secondary mortgage market.
- Money must sit in escrow while energy options are shopped/installed. This adds complexity and length to mortgage sales process.
- Borrowers rarely request EEMs and often don't want to add additional complexity to an already monumental financial decision. This is especially true for lower income buyers who require the use of a first time home buyer program.
- Real-estate agents are largely unfamiliar with EEMs and don't propose them when discussing mortgages for a real-estate transaction.

Monitoring Funding Sources

This section discusses strategies and resources for the cities to ensure that they stay up-to-date on available CAP funding opportunities.

Air Resources Board Listservs

The ARB offers a number of email distribution lists, or listservs, for local governments or other entities to stay informed of funding opportunities for ARB programs. By signing up for the email listservs, the cities can be made aware of newly available funds almost immediately. The link for each program's listserv is found below. City staff should sign up for each list and monitor emails from ARB.

- Air Quality Improvement Program (AB 118):
http://www.arb.ca.gov/listserv/listserv_ind.php?listname=aqip

- Carl Moyer Program: http://www.arb.ca.gov/listserv/listserv_ind.php?listname=moyer
- Goods Movement Emissions Reduction Program (Prob 1B Incentives):
http://www.arb.ca.gov/listserv/listserv_ind.php?listname=gmbond
- Enhanced Fleet Modernization Program:
http://www.arb.ca.gov/listserv/listserv_ind.php?listname=efmp
- PLACE Program: http://www.arb.ca.gov/listserv/listserv_ind.php?listname=loan
- Clean Vehicle Rebate Project: http://www.arb.ca.gov/listserv/listserv_ind.php?listname=aqip
- Lower-Emission School Bus Program:
http://www.arb.ca.gov/listserv/listserv_ind.php?listname=schoolbus

California Department of Transportation Listserv

Caltrans has a division of local assistance, which authorizes over 1,000 new projects per year for local agencies, cities and counties. The Division of Local Assistance listserv automatically notifies participants when new funding opportunities arise. The SANBAG cities should sign up for the listserv at the following link to easily monitor new funding opportunities from Caltrans:
<http://www.dot.ca.gov/hq/LocalPrograms/sub.htm>

CoolCalifornia.org Funding Wizard

CoolCalifornia.org is an online tool developed by a number of state agencies, universities, and a non-profit organization. The Funding Wizard component of the tool³⁶ allows users to search for grants, incentives, and rebates for sustainable projects in a range of sectors. The results include an external link to the specific funding program, a brief description of the program, the timeline for applying, and the amount of funding available. The types of actions eligible for funding that the Funding Wizard searches for include energy efficiency improvements, residential solar installation, water-heating upgrades, and many others. The Funding Wizard also allows users to input zip codes to search for local results, and to filter results by Federal, State, or local funding sources. Other filters that can be used in the Funding Wizard tool include funding amount, eligible applicants (or target markets), and application submittal deadline.

The cities should use the Funding Wizard tool as a first step in developing a list of funding sources when implementing specific CAP reduction measures or projects. The Funding Wizard provides a broad overview of the potential funding sources available in a single easy-to-use tool. This will allow the cities to continually monitor the available funding sources during implementation of the reduction plan and beyond by periodically conducting simple searches using the tool. A dedicated staff person could be assigned to monitoring for new funding opportunities through the tool.

³⁶ <http://www.coolcalifornia.org/funding-wizard-home>

South Coast Air Quality Management District

SCAQMD offers funding and incentives through a variety of programs targeting communities, businesses, and local governments. SCAQMD has assigned public-affairs staff to each local government to serve as a liaison between the air district and the local governments. For San Bernardino County, this staff person is Todd Warden (909-396-3370, twarden@aqmd.gov). The cities should maintain periodic communication with Todd Warden to keep informed on clean air programs and funding opportunities that the cities or other entities in the County may qualify for.

Other Monitoring Strategies

In addition to the resources above, the cities can use several additional strategies to continually monitor CAP funding. The cities should maintain regular communication with their existing funding contacts and any new contacts introduced through this memorandum. Assigning staff to create and maintain a master contact list of funding providers would make regular communication an easier task. In addition, recording all correspondence with potential and existing funding providers in a central location would allow the cities to easily track discussions of funding.

Leveraging Funding Sources and Coordinating with Funding Providers

The SANBAG cities should help facilitate coordination when funding may be granted to multiple cities or agencies. If two or more cities (or a group of cities) work together to secure funding, this could increase the likelihood of the cities being awarded the funds. Funding providers may view multiple cities working together as having a larger impact and may consider this approach a more efficient way to distribute funds. If the 21 cities participating in the SANBAG regional GHG reduction plan were to join together, such leverage would be amplified.

Organizing energy efficiency, renewable energy or other programs on a neighborhood or community-level could also be used to leverage funding sources. If a city were to strategize at the neighborhood level by encouraging multiple houses to install solar panels or grey water systems, for example, SANBAG and the cities could work with funding providers or the contractors to lower prices for the community.

Similarly, SANBAG and the cities could arrange forums for community members to share information, ask questions, or coordinate directly with one another to secure funding as a group. These forums could be through each city's website or an external website, weekly or monthly in-person meetings at a community center, or another format. The meetings or forums could be targeted towards all homeowners, specific neighborhoods or residential communities, small businesses, schools, etc.

Coordination between other municipal entities, such as Joint Powers Authorities, waste management agencies, water agencies, etc. could also be used to leverage funding. From a funding

provider's perspective, as discussed above, coordinating with multiple agencies might appear to make a bigger impact and be a more efficient use of funds.

For many of the funding sources discussed above, the cities should conduct outreach efforts to spread awareness among residents and businesses of the programs, grants, incentives, and tax credits that are available within their communities. It is important for the cities to conduct outreach efforts to allow residents and businesses independently leverage funds for solar installations, energy efficiency retrofits, water conservation efforts, vehicle replacements, etc. Outreach could include websites, social media, symposiums, fliers, email groups, webinars, or other community events, such as "open street" events, where a street or streets in an urban center are temporarily closed to automobile traffic to allow pedestrians and bicyclists to fully utilize the street. These events could occur weekly, monthly, or annually, depending on the location. SANBAG and the city governments could set up booths at these events with information on programs, grants, incentives and tax credits that target individual community members to participate in the CAP reduction measures. Vendors or contractors could also be invited to set up booths to discuss financing and incentives for community members to participate in CAP-related programs such as solar energy system installations, energy efficiency retrofits, purchasing water efficient fixtures, etc.

References

- Center for Sustainable Energy California. 2013. Southern California Solar Finance Guide. February. Available:
<http://energycenter.org/sites/default/files/docs/nav/buildings/businesses/solar_pv/SoCal%20Solar%20Finance%20Guide.pdf>. Accessed: July 25, 2014.
- City of Boulder. 2006. Climate Action Plan. Available: < <https://www-static.bouldercolorado.gov/docs/city-2006-climate-action-plan-1-201305081127.pdf> >. Accessed: July 25, 2014.

APPENDIX D. I

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Implementation of the CAP and Regional Coordination

5.0 Implementation of the Climate Action Plan

This section describes implementation steps for the CAP to support achievement of the GHG reduction goals for the community at large. Success in meeting the City's GHG emission reduction goal will depend on cooperation, innovation, and participation by the City and residents, businesses, and local government entities. This section outlines key steps that the City would follow for the implementation of this CAP.



Successful implementation of the CAP will require the following components. These are described in more detail below

- Administration and/or staffing
- Financing and budgeting
- Timelines for measure implementation
- Community outreach and education
- Monitoring, reporting, and adaptive management
- Regional coordination

The steps above are not specific to any one Partnership City but are basic steps that any City might take or that other California communities have taken to implement a GHG reduction plan. These are suggested, not required, and are intended to guide a City in its implementation planning.

5.1 Administration and Staffing

The City has designated the Director of Development Services as the CAP Implementation Coordinator (CIC) to oversee the successful implementation and tracking of all selected GHG reduction strategies. The CIC will primarily be responsible for coordinating with contacts across departments to gather data, report on progress, track completed projects, and ensure that scheduling and funding of upcoming projects is discussed at key City meetings.

In addition, the CIC could have the following responsibilities.

- Secure long-term financing for GHG reduction measures (i.e., grant application primary contact).
- Coordinate CAP implementation related meetings.
- Serve as the external communication hub to local and regional climate action organizations including SANBAG.
- Conduct public outreach to inform the community of the City's reduction planning efforts.

- Investigate methods to utilize existing resources and harness community support to better streamline implementation of the local climate action plan.
- Monitor implementation of reduction measures and success of the CAP using the monitoring tools provided by SANBAG
- Develop a protocol for monitoring the effectiveness of emissions reduction programs.
- Establish guidelines for reporting and documenting emissions reduction progress.
- Submit annual reports to the City council.
- Develop a protocol for utilizing the real-time information collected through the verification process to modify and revise existing reduction programs.
- Track state and federal legislation and its applicability to the City.

In general, the goal in implementing the CAP is not to create new administrative tasks or new staff positions necessarily, but rather to leverage existing programs and staff to the maximum extent feasible. Cities should seek to fold GHG planning and long term reduction into their existing procedures, institutional organization, reporting and long-term planning; a process that will be unique to each City.

5.2 Financing and Budgeting

5.2.1 Funding Mechanisms

Implementation of the local GHG reduction measures will require the City and other public agencies, local businesses, developers/builders, and existing commercial building owners and residential homeowners and individuals to incur increased costs for the capital improvements and other investments, and increased operations and maintenance costs. However, in some cases operating costs are anticipated to decrease, resulting in offsetting savings. This section presents a summary of funding and financing options (Table 5-1) available at the writing of this document. Some funding sources are not necessarily directed towards a City, but to a larger regional agency such as SANBAG, a JPA, or a waste services provider serving multiple jurisdictions. The City should continually monitor private and public funding sources for new grant and rebate opportunities and to better understand how larger agencies are accessing funds that can be used for GHG reductions in their area. Leveraging financing sources is one of the most important roles a local government can play in helping the community to implement many of the GHG reduction measures.

Table 5-1. Potential Funding Sources to Support GHG Reduction Measures

State and Federal Funds	
Federal Tax Credits for Energy Efficiency	<ul style="list-style-type: none"> • Tax credits for energy efficiency can be promoted to residents.
Energy Efficient Mortgages (EEM)	<ul style="list-style-type: none"> • An EEM is a mortgage that credits a home's energy efficiency in the mortgage itself. • Residents can finance energy saving measures as part of a single mortgage. • To verify a home's energy efficiency, an EEM typically requires a home energy rating of the house by a home energy rater before financing is approved.

California Department
of Resources Recycling
and Recovery
(CalRecycle)

- EEMs are typically used to purchase a new home that is already energy efficient, such as an ENERGY STAR® qualified home.
- CalRecycle grant programs allow jurisdictions to assist public and private entities in management of waste streams.
- Incorporated cities and counties in California are eligible for funds.
- Program funds are intended to:
 - Reduce, reuse, and recycle all waste.
 - Encourage development of recycled-content products and markets.
 - Protect public health and safety and foster environmental sustainability.

California Air
Resources Board
(CARB)

- CARB offers several grants, incentives, and credits programs to reduce on-road and off-road transportation emissions. Residents, businesses, and fleet operators can receive funds or incentives depending on the program.
- The following programs can be utilized to fund local measures:
 - Air Quality Improvement Program (AB 118)
 - Carl Moyer Program – Voucher Incentive Program
 - Goods Movement Emission Reduction Program (Prop 1B Incentives)
 - Loan Incentives Program
 - Lower-Emission School Bus Program/School Bus Retrofit and Replacement Account (Prop 1B and EPA Incentives)

Existing Capital
Improvement Program

- State and federal funds would most likely continue to local governments, builders, and homeowners in the following forms.
 - Grants
 - Transportation and transit funding
 - Tax credit and rebate programs
- The Capital Improvement Program can be utilized for measures relating to traffic or transit.

State Funding for
Infrastructure

- The state's Infill Infrastructure Grant Program may potentially be used to help fund measures that promote infill housing development.
- Grants can be used for gap funding for infrastructure improvements necessary for specific residential or mixed-use infill development projects.

Transportation-Related Federal and State Funding	<ul style="list-style-type: none"> For funding measures related to transit, bicycle, or pedestrian improvements, the following funding sources may be utilized. <table> <tr> <td>Safe, Accountable, Flexible, Efficient Transportation Equity Act—Legacy for Users (SAFETEA-LU).</td><td>FTA Small Starts</td></tr> <tr> <td>Surface Transportation Program Fund, Section 1108 (STP)</td><td>FTA Section 5311(f)</td></tr> <tr> <td>Congestion Mitigation and Air Quality Improvement Program, Section 1110 (CMAQ)</td><td>California's Bicycle Transportation Account (BTA)</td></tr> <tr> <td>Transportation Enhancement Activities (TEA)</td><td>Environmental Enhancement and Mitigation (EEM) Program</td></tr> <tr> <td>National Recreational Trails Program</td><td>Safe Routes to School (SR2S)</td></tr> <tr> <td>National Highway System Fund (NHS)</td><td>Office of Traffic Safety (OTS)</td></tr> <tr> <td>National Highway Safety Act, Section 402</td><td>Transportation Development Act (TDA) Article III</td></tr> <tr> <td>Transit Enhancement Activity, Section 3003</td><td>Transportation Funds for Clean Air (TFCA, formerly AB 434)</td></tr> <tr> <td>Section 3 Mass Transit Capital Grants</td><td>Flexible Congestion Relief (FCR) Program</td></tr> <tr> <td>Bridge Repair & Replacement Program (BRRP)</td><td>State Highway Operations and Protection Program (SHOPP)</td></tr> <tr> <td>Federal Transit Administration (FTA) 5309</td><td></td></tr> </table>	Safe, Accountable, Flexible, Efficient Transportation Equity Act—Legacy for Users (SAFETEA-LU).	FTA Small Starts	Surface Transportation Program Fund, Section 1108 (STP)	FTA Section 5311(f)	Congestion Mitigation and Air Quality Improvement Program, Section 1110 (CMAQ)	California's Bicycle Transportation Account (BTA)	Transportation Enhancement Activities (TEA)	Environmental Enhancement and Mitigation (EEM) Program	National Recreational Trails Program	Safe Routes to School (SR2S)	National Highway System Fund (NHS)	Office of Traffic Safety (OTS)	National Highway Safety Act, Section 402	Transportation Development Act (TDA) Article III	Transit Enhancement Activity, Section 3003	Transportation Funds for Clean Air (TFCA, formerly AB 434)	Section 3 Mass Transit Capital Grants	Flexible Congestion Relief (FCR) Program	Bridge Repair & Replacement Program (BRRP)	State Highway Operations and Protection Program (SHOPP)	Federal Transit Administration (FTA) 5309	
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Bridge Repair & Replacement Program (BRRP)	State Highway Operations and Protection Program (SHOPP)																						
Federal Transit Administration (FTA) 5309																							
Other Local/Regional Funding Sources	<ul style="list-style-type: none"> SCAQMD has several grant programs related to air quality improvement, some of which may apply to various reduction measures. Bus Stop Sponsorships—Advertisement sponsorship of bus stops has been utilized as a revenue source. Transit Fare Increases—Transit fares could be increased to help fund capital improvements, though increases also have the potential to decrease ridership in the short term. Parcel Tax—An election consistent with Proposition 218 could serve to increase the existing level of taxation and provide additional funding for transit-related capital improvements. However, in the current economic climate, this may not be a likely financing source unless economic conditions improve and community support for such a taxation approach is favorable. 																						
Utility Rebates	<ul style="list-style-type: none"> SoCal Edison is one of the three utilities participating in the Go Solar initiative. A variety of rebates are available for existing and new homes. Photovoltaics, thermal technologies, and solar hot water projects are eligible. Single-family homes, commercial development, and affordable housing are eligible. Budget for new solar hot water systems for 2010–2017: \$250 million. 																						

Energy Upgrade California	<ul style="list-style-type: none"> • Program is intended for home energy upgrades. • Funded by the American Recovery and Reinvestment Act, California utility ratepayers, and private contributions. • Utilities administer the program, offering homeowners the choice of one of two upgrade packages—basic or advanced. • Homeowners are connected to home energy professionals. • Rebates, incentives, and financing are available. • Homeowners can receive up to \$4,000 back on an upgrade through the local utility.
Private Funding	<ul style="list-style-type: none"> • Private equity can be used to finance energy improvements, with returns realized as future cost savings. • Rent increases can fund retrofits in commercial buildings. • Net energy cost savings can fund retrofits in households. • Power Purchase Agreements (PPA) involve a private company that purchases, installs, and maintains a renewable energy technology through a contract that typically lasts 15 years. After 15 years, the company would uninstall the technology or sign a new contract. • Power produced from a PPA is sold to customers. SANBAG recently approved a contract for solar power site assessments, bringing together a number of cities and agencies to aggregate their solar sites. • On-Bill Financing (OBF) can be promoted to businesses for energy-efficiency retrofits. Funding from OBF is a no-interest loan that is paid back through the monthly utility bill. Lighting, refrigeration, HVAC, and LED streetlights are all eligible projects.
Other Funding Mechanisms for Implementation	<ul style="list-style-type: none"> • Increased operating costs can be supported by grants from the Strategic Growth Council (SGC) or the State Department of Conservation (DOC) to fund sustainable community planning, natural resource conservation, and development, adoption, and implementation of Sustainable Community planning elements, including climate action plans and general plan amendments.
Future Funding Options: Funding Mechanisms for Capital and/or Implementation Costs	
New Development Impact Fees	<ul style="list-style-type: none"> • These types of fees may have some potential to provide funding, but such fees are best implemented when the real estate market and overall regional economic conditions are strong.
General Obligation Bond	<ul style="list-style-type: none"> • A general obligation bond is a form of long term borrowing and could be utilized to fund municipal improvements.
AB 811 Districts Property-Assessed Clean Energy (PACE)	<ul style="list-style-type: none"> • AB 811 is intended to help municipalities accomplish goals outlined in AB 32. • The PACE finance program is intended to finance energy and water improvements within a home or business through a land-secured loan, and funds are repaid through property assessments. • Municipalities are authorized to designate areas where property owners can enter into contractual assessments to receive long-term, low-interest loans for energy and water efficiency improvements, and renewable energy installation on their property. • Financing is repaid through property tax bills.

- AB 811 and the PACE program are currently on hold for residential properties due to potential violation of standard FHFA federally guaranteed (Fannie Mae/Freddie Mac) residential mortgage contracts.
 - The PACE program is not on hold for commercial properties.
 - SANBAG, as the COG, has implemented the Home Energy Renovation Opportunity (HERO; a PACE program) in the region to assist residents in financing residential energy efficiency and solar retrofits. This program will be the primary funding mechanism for reduction measure Energy-7: Solar Installation for Existing Housing.
 - SANBAG will structure a regional energy efficiency and water conservation improvement loan program for existing buildings (AB 181 and AB 474).
-

5.2.2 Additional Considerations

In addition to pursuing the funding options above and monitoring the availability of others, The City would need to take the following steps in order to best inform decisions related to the cost of GHG reductions measures.

- **Perform and Refine cost estimates.** Cost estimates for local reduction measures should be performed to identify the cost-effectiveness of each measure to inform and guide the implementation process. This analysis will likely be based on a variety of participation, per-unit, and other assumptions. As programs are developed, cost estimates should be refined and updated over time with more precise implementation-level data.
- **Integrate GHG measures into existing City budget and CIP.** Certain capital improvements may need to be added to the City's CIP and facility master plan programs, as well as those of the City utility enterprises and other public agencies that have control for project implementation. For CIPs completely under the City's control, new projects would need to be assessed for consistency with the CAP.
- **Adopt or update ordinances and/or codes.** Some local reduction measures may require new or revised ordinances (e.g., Wastewater-3: recycled water may require ordinance support for new development). Staff would need to coordinate these efforts in conjunction with planning departments, planning commissions, and City councils.
- **Pursue outside funding sources.** A range of funding from state and federal agencies has been identified. The City would need to pursue these (and other emerging) funding sources as a part of implementation efforts.
- **Implement and direct preferred City funding sources.** While City funding sources are limited, the City, when financially able, as a part of its budget process, could appropriate funding from general sources or make changes in its fee schedules, utility rates, and other sources as needed to support funding the implementation of the GHG reduction measures.
- **Create monitoring/tracking processes.** Local reduction measures will require program development, tracking, and/or monitoring. For example, Energy-7 (Promote Solar Installation for Existing Housing) would necessitate staff time to promote solar installations; the City may also want to track the number of households that participate in the program and the amount of electricCity and cost saving over time.

- **Identify economic indicators to consider future funding options.** Economic recovery may occur rapidly or slowly. Whatever the timeframe, the City would need to determine the point at which certain additional funding sources may become feasible and/or favorable. Identification and monitoring of economic indicators and trends, such as home prices, energy prices cost per kWh on solar installations, unemployment rates, or real wage increases, can help the City decide when to further explore the potential for funding local reduction measures through different financing mechanisms.

5.3 Timelines for Measure Implementation

After taking into account the reductions in energy and water usage and the GHG emissions resulting from statewide measures, the City would need to implement the local reduction measures to reach its reduction targets.

The City has developed an implementation schedule for the local reduction measures. Prioritization was based on the following factors:

- Cost effectiveness
- GHG reduction efficiency
- Availability of funding
- Level of City Control
- Ease of implementation
- Time to implement.

In general consideration of these factors, the following are the key phases starting in 2015 through 2020. In addition, Table 5-2 provides a list of criteria for prioritization and Table 5-3 provides a list of measures implemented in each phase.

- **Phase 1 (2015-2016):** During Phase 1, the City will develop key ordinances, programs, policies, and procedures required to support and enforce the local mandatory GHG reduction measures such as implementation of SBX7-7. Likewise, the City would create a planning framework that would guide implementation of the voluntary measures and performance standards. Measure funding would be secured and a detailed finance plan developed. The City would conduct an inventory for 2014 (in early 2015) to determine changes in emissions since 2008.
- **Phase 2 (2016-2017):** During Phase 2, the City would continue to implement measures that were begun in Phase 1. The City would evaluate the effectiveness of these measures and adapt management procedures accordingly. Likewise, the City will conduct an updated community GHG inventory to monitor emissions trends. The City would conduct an inventory for 2017 (in early 2018) to determine progress in implementing the CAP.
- **Phase 3 (2018-2020):** During Phase 3, the City would continue to implement and support measures begun in Phases 1 and 2, and encourage implementation of all remaining CAP measures (Phase 3 measures). An analysis of the effectiveness of Phase 1 and 2 measures would be conducted, as well as an updated community GHG inventory for 2019 (in early 2020). The

City could also begin developing plans for post-2020 actions during this period (see further discussion below)

To encourage implementation of all reduction measures, the CIC, with consultation from the planning commission, City council, City staff and/or other key stakeholders, would develop a CAP Implementation Timeline. Measure prioritization could be based on the following factors.

- **Cost/Funding**—How much does the measure cost? Is funding already in place for the measure?
- **Greenhouse Gas Reductions**—How effective is the measure at reducing greenhouse gases?
- **Other Benefits**—For example, does the measure improve water quality or conserve resources? Would it create jobs or enhance community well-being?
- **Consistency with Existing Programs**—Does the measure complement or extend existing programs?
- **Impact on the Community**—What are the advantages and disadvantages of the measure to the community as a whole?
- **Speed of Implementation**—How quickly can the measure be implemented and when would the City begin to see benefits?
- **Implementation Effort**—How difficult will it be to develop and implement the program?

A qualitative appraisal of implementation effort for the City is also provided. Measures can be categorized based on the convention of low, medium, or high, with low-level measures requiring the least level of effort by the City and being the most likely to be pursued immediately (i.e., the low hanging fruit).

Table 5-2. Implementation Matrix

Implementation Effort Level	Sample Criteria
LOW	<ul style="list-style-type: none"> • Requires limited staff resources to develop. • Existing programs in place to support implementation. • Required internal and external coordination is limited. • Required revisions to policy or code are limited.
MEDIUM	<ul style="list-style-type: none"> • Requires staff resources beyond typical daily level. • Policy or code revisions necessary. • Internal and external coordination (e.g., with stakeholders, other cities or agencies, or general public) is necessary.
HIGH	<ul style="list-style-type: none"> • Requires extensive staff time and resources. • Requires development of completely new policies or programs and potential changes to the general plan. • Robust outreach program required to alert residents and businesses of program requirements and eligibility. • Requires regional cooperation and securing long term funding.

The Action Priority Matrix shows an example of how different GHG reduction measures can be categorized and scheduled based on implementation effort and cost.

Figure 5-1. Activity Priority Matrix

Table 5-3 translates the implementation matrix shown in Table 5-2 and Figure 5-1 and designates the phasing of the local reduction measures for the City of Yucaipa.

Table 5-3. GHG Reduction Measure Timeline and Phasing Schedule

Reduction Measure	Phase
Energy 7: Existing Residential Renewable Energy Retrofits	1, 2, 3
Energy 8: Existing Commercial Renewable Energy Retrofits	1, 2, 3
Water 4 (BE): Senate Bill X7-X Water Conservation	1, 2, 3
On-Road 2: Smart Bus Technologies	1, 2, 3
Water 3: Water Efficient Landscaping	1, 2, 3
Water 4: Senate Bill X7-X Water Conservation	1, 2, 3
Wastewater 3 (WC) Recycled Water	2, 3
PS-1 GHG Performance Standard for New Development	1, 2, 3

5.4 Community Outreach and Education

The citizens and businesses in the City are integral to the success of the CAP and to overall reductions in GHG emissions for the region. Their involvement is essential, considering that several measures depend on the voluntary commitment, creativity, and participation of the community.

The City would educate stakeholders, such as businesses, business groups, residents, developers, and property owners, about the GHG reduction measures that require their participation, encourage participation in these programs, and alert them to program requirements, incentives and/or rebate availability, depending on the measure. The CIC would schedule periodic meetings to facilitate formal community involvement in CAP implementation and adaptation over time. This could include focused meetings for a specific measure or program such as the PACE program and/or agenda items at planning commission, City Council, or other public meetings. These meetings would be targeted to particular stakeholder groups and provide information on CAP implementation progress as well as the implementation of a specific program or new policy. Alternatively, periodic written updates could be provided in City newsletters, SANBAG's newsletter, on City websites, or through other media communications with the general public such as press releases and public service announcements. Stakeholders would be provided an opportunity to comment on potential improvements or changes to the CAP. The CIC would also sponsor periodic outreach events to directly inform and solicit the input, suggestions, and participation of the community at large.

5.5 Monitoring and Reporting

Regular monitoring is important to ensure programs are functioning as they were originally intended. Early identification of effective strategies and potential issues would enable the City to make informed decisions on future priorities, funding, and scheduling. Moreover, monitoring provides concrete data to document the City's progress in reducing GHG emissions. The CIT or CIC would be responsible for developing a protocol for monitoring the effectiveness of emissions reduction programs as well as for undertaking emissions inventory updates.

- **Update GHG Inventory**—The City would inventory emissions for 2014, 2017, and 2019, including regular data collection in each of the primary inventory sectors (utility, regional VMT, waste, wastewater, and water), and compare to the City's baseline GHG emissions in 2008. If SANBAG Participating Cities are interested, a combined inventory effort could be conducted through SANBAG similar to the inventory preparation that was done for this Regional Plan. The CIT or CIC would consolidate information in a database or spreadsheet that can be used to evaluate the effectiveness of individual reduction measures.
- **Track State Progress**—The CAP will rely heavily on state-level measures. The CIT or CIC would be responsible for tracking the state's progress on implementing state-level programs. Close monitoring of the real gains being achieved by state programs would allow the City to adjust its CAP, if needed.
- **Track Completion of GHG Reduction Measures**—The CIT or CIC would keep track of measures implemented as scheduled in the CAP, including progress reports on each measure, funding, and savings. This will allow at least a rough attribution of gains when combined with regular GHG inventory updates.

- **Regular Progress Reports**—The CIT or CIC may report annually (or semi-annually or at other assigned intervals) to the City Council on CAP implementation progress. If annual reports, periodic inventories, or other information indicates that the GHG reduction measures are not as effective as originally anticipated, the CAP may need to be adjusted, amended, or supplemented. At a minimum, the City will conduct a 3-year review of CAP effectiveness as part of annual reporting in 2017, which would allow making mid-course adjustments in the CAP if needed to effect change prior to 2020.

5.6 Regional Cooperation

There are substantial opportunities to enhance the effectiveness of the CAP through regional collaboration. The City would explore the potential to leverage resources through regional cooperation. Potential opportunities and partners include the following.

- **SANBAG:** As the regional council of governments and the regional transportation agency, SANBAG is a logical hub of communication for Participating cities on the progress of their CAPs. Further, SANBAG will be the responsible implementing agency for many transportation-related measures that result in local GHG reductions. SANBAG is also administering the PACE program loans and a PPA for energy efficiency and solar energy for participating cities.
- **Air Districts:** The South Coast Air Quality Management District is the local agency responsible for developing and implementing air quality plans. The agencies also sponsor various air quality programs that may support implementation of several energy-efficiency, transportation, and renewable energy measures.
- **Energy Providers:** SCE offers numerous incentives and rebate programs to encourage energy efficiency. Resources offered by the energy providers may reduce the costs of program implementation and administration. There may also be opportunities for cooperation on community-scale alternative energy installations (e.g., wind, solar).
- **Transportation Agencies (Omnitrans):** Continued coordination with regional transportation agencies would be necessary to fully implement the transportation reduction measures that promote mixed use development. With SB 375 and its linkage to transportation funding, it would also be crucial for the City and transportation agencies to develop a shared vision of how land use and transportation can be consistent with the next RTP and the required SCS.
- **San Bernardino County:** The County operates the landfills that receive most of the local waste in the County and has committed as part of its own CAP to improve methane control for its landfills which will help reduce emissions associated with City landfilled waste. Coordination with the county to provide the necessary facilities, programs, and incentives would help ensure this goal can be achieved by 2020, as waste services are often shared across several jurisdictions, including the unincorporated portions of the county.
- **Local Water Providers:** The City can work with the both the wholesalers and retailers of water in the City to promote reductions in indoor and outdoor water use from existing developments and achieve the goals set forth by SB X7-7.

5.7 Reducing GHG Emissions after 2020

In order to assess whether implementing this Plan achieves the state's long-term climate goals, one must look beyond 2020 to see whether the emissions reduction measures included for the 2020 milestone set the region on the trajectory toward future greater reductions in the post-2020 period.

To date, there is no state or federal mandate requiring reduction of GHG emissions after 2020. AB 32 contains no post-2020 reduction target nor provides CARB with the authority to mandate compliance with a post-2020 target. SB 375, while it contains requirements for transportation planning for the MPO (SCAG in this region) to promote reductions in the passenger and light duty vehicle sector, does not contain mandatory requirements for local jurisdictions to reduce their GHG emissions overall. However, CARB and the legislature are currently (as of later 2014) contemplating new legislation to adopt post-2020 GHG reduction targets, so it is likely that during implementation of this CAP there will be post-2020 targets established in law in California.

Governor Schwarzenegger's Executive Order S-3-05 calls for an 80% reduction below 1990 greenhouse gas emission levels by 2050. However, as noted earlier in this report, an executive order is only binding on state agencies, and does not represent a legal mandate for local governments or the private sector. Nevertheless, S-03-05 contains a reduction target that is based on a rough agreement on the basis of scientific understanding of the level of reduction needed in developed countries of the world in order to avoid the more catastrophic effects of climate change that could result from unabated rise in anthropogenic GHG emission. The 2050 target in S-03-05 is equivalent to a 2050 statewide target of about 85 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) (total emissions), as compared to the 1990 level of 427 MMTCO_{2e}. However, there is currently (as of fall 2012), no state or federal plan as to how to achieve such ambitious reductions for 2050. The CARB 2008 AB 32 Scoping Plan did discuss a general scenario of potential reductions that would be needed by 2050 to meet these targets. Similar to the AB 32 Scoping Plan, this Regional Plan shows a potential trajectory of GHG emissions reductions due to expansion of measures after 2020.

Assuming that emissions of 15% below 2008 levels (equal to 10.9 MMTCO_{2e} for the region), excluding stationary sources) is roughly equivalent to 1990 levels, a 2050 regional goal to match the S-3-05 goals would be to achieve a level of emissions of 2.2 MMTCO_{2e} in 2050, excluding stationary sources. Full implementation and expansion of the CARB's Scoping Plan to increase efforts beyond 2020 and expansion of the City-identified strategies included in this CAP could help to put the region on a path toward achieving these required long-term reductions. Figure 5-3 depicts what an emissions trajectory might look like, assuming the region follows a linear path from the 2020 reduction target to a 2050 goal matching that in S-03-05. **While the specific measures needed to meet the 2050 goal are too far in the future to define in detail, one can examine the level of achievement that would be needed to keep the region on track through 2030. Table 5-4 examines a continuation and strengthening of measures already identified through 2020.**

To stay on course toward the 2050 target, the region's greenhouse gas emissions need to be reduced to approximately 6.3 MMTCO_{2e} by 2030. This translates to an average reduction of 5.25% per year between 2020 and 2030, or an additional 4.4 MMTCO_{2e} in reductions during the period 2020 to 2030. An additional challenge comes from the fact that the population in the region (sum of participating cities considered in the Regional Plan) will continue to grow between 2020 and 2030 (a growth from approximately 1.73 million in 2020 to 1.96 million in 2030). Taking into account population growth, per-capita emissions would need to decrease at an average rate of approximately 0.5 MTCO_{2e} per person per year during the 2020 to 2030 period. These reductions

are possible. The measures needed are logical expansions of the programs recommended in the CARB Scoping Plan at the state level and the measures included in the Regional Plan at the local level (and the local measures included in the City's CAP). By building on planned state efforts during this period and ramped up efforts in the local building energy and transportation (and other) sectors on the part of the local governments, the region can be on track to reach a 2050 goal.

The state can help the cities in San Bernardino County, including Yucaipa, to keep on track through 2030 by extending state action in the following ways, as described in the Scoping Plan (California Air Resources Board 2008).

- Expand vehicle efficiency regulations to achieve a 40% fleet-wide passenger vehicle reduction by 2030 (approximately double the almost 20% expected in 2020).
- Increase California's use of renewable energy in electricity generation (beyond the 33% planned for 2020).
- Reduce the carbon intensity of transportation fuels by 25% (a further decrease from the 10% level set for 2020).
- Increase energy efficiency and green building efforts (so that the savings achieved in the 2020 to 2030 timeframe are approximately double those accomplished in 2020).
- Using a regional or national cap-and-trade system to further limit emissions from the 85% of greenhouse gas emissions in capped sectors (Transportation Fuels and other fuel use, Electricity, Residential/Commercial Natural Gas, and Industry).

This Regional GHG Reduction Plan and this CAP have not assumed any benefit from a cap-and-trade system by 2020, but when implemented, such a system will result in reductions beyond those currently anticipated in the Plan for 2020, and in additional reductions for 2030. The California Cap and Trade system will particularly affect large stationary sources, which are excluded from local measures in the Regional Plan and the CAP to avoid duplication of state and federal regulatory efforts. In addition, the Cap and Trade system will also affect electricity generation and transportation fuels, which may change energy prices, which may in turn change energy use and transportation behavior beyond that assumed for the various City measures included in this Regional Plan.

It is reasonably foreseeable that as California approaches its first milestone in 2020, focus would shift to the 2050 target. A detailed plan for how the state would meet this target is expected prior to 2020 accordingly. The City of XX and the Partnership cities will monitor developments at the national and state levels.

Beginning in Phase 3 (2018), the City will update the CAP to include post-2020 reduction targets and reduction measures to achieve the post 2020 reduction targets in compliance with EO S-3-05. The City of Yucaipa will encourage the other Partnership cities, and SANBAG to collaborate in planning for the post-2020 period. At this point, the Partnership cities would have implemented the first two phases of their local CAPs and would have a better understanding of the effectiveness and efficiency of different reduction strategies and approaches. The new post-2020 reduction plan should include a specific target for GHG reductions for at least 2030 and if supported by long-term planning at the state level, should also include preliminary planning for 2040 and 2050. The targets should be consistent with broader state and federal reduction targets and with the scientific understanding of the reductions needed by 2050. It is recommended that partnership cities,

including Insert you City name here adopt the post-2020 reduction plan by January 1, 2020, which would require cities to start a new inventory/assessment process by 2017 or 2018 at the latest.

The City will continue to update the CAP and provide post 2020 reduction targets to keep on track through 2030 to meet the 2050 goal by implementing the following.

- Increase energy efficiency and green building efforts (for City municipal buildings as well as private buildings in the region) so that the savings achieved in the 2020 to 2030 timeframe are far greater those accomplished in 2020.
- Continue to implement land use and transportation measures to lower VMT and shift travel modes
- Capture more methane from landfills receiving regional waste, move beyond local waste diversion goal for 2020, and utilize landfill gas further as an energy source.
- Continue to improve local water efficiency and conservation.
- Continue to support and leverage incentive and rebate and other financing programs for residential and commercial energy efficiency and renewable energy installations to shorten payback period and costs and to develop programs that encourage increased use of small-scale renewable power as it becomes more economically feasible.

The conceptual effects of these strategies regionally are presented in Table 5-4 and would represent an approximate doubling of effort for most cities from that planned at the state and City level for 2020. In total, the measures described above would produce reductions to bring the region's GHG emissions to an estimated 8.4 MMTCO₂e. While the potential mix of future GHG reduction measures presented in this section is only an example, it serves to demonstrate that the current measures in the CARB Scoping Plan and the Regional Plan can not only move the region to its 2020 goal, but can also provide an expandable framework for much greater long-term greenhouse gas emissions reductions.

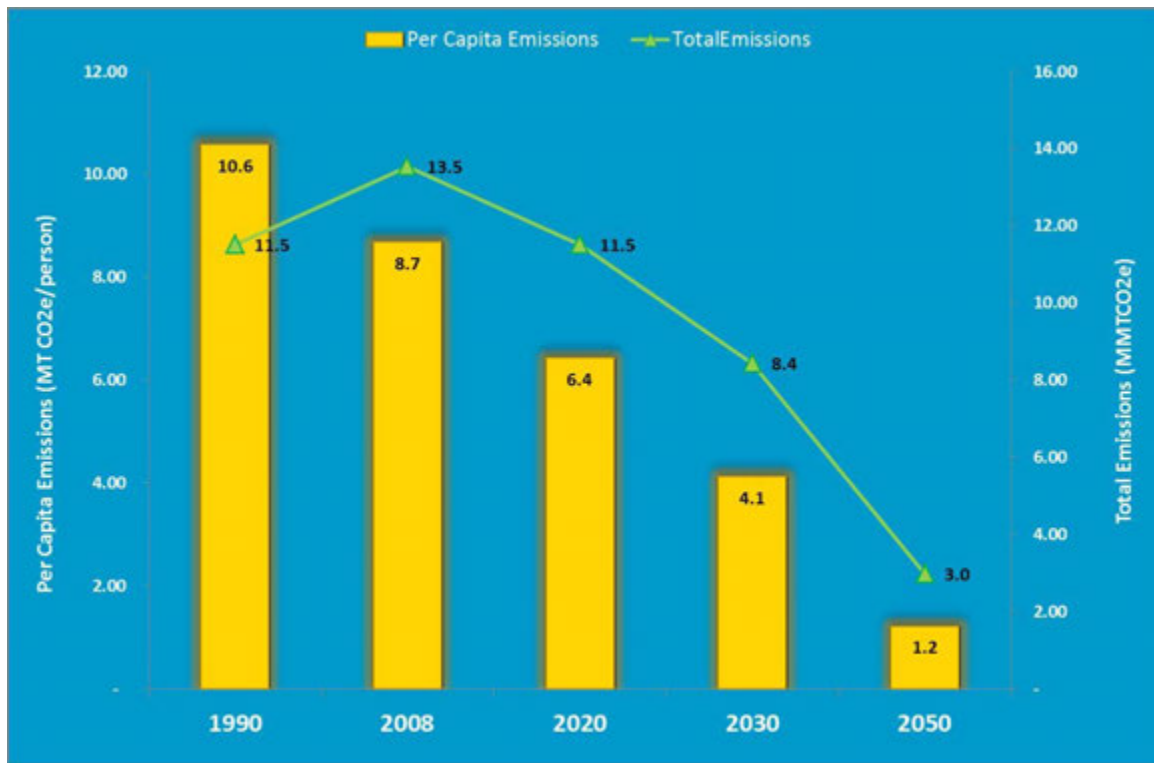
Figure 5-3. Required GHG Reductions in the Region to Meet the State's 2050 Target

Table 5-4. Potential Regional Reduction Measures to Reach 2030 Goal

	Reductions by 2020 (This Plan)				Scenario for Reductions by 2030		
	State	Local	TOTAL	% below 2008	Total Additional Reductions 2020–2030	Effort Relative to 2008–2020	Notes
	MTCO ₂ e	MTCO ₂ e	MTCO ₂ e	%	MTCO ₂ e	%	
Building Energy (Residential, Commercial, Industrial)	1,361,486	783,954	2,145,440	39%	1,486,205	69%	CARB Scoping Plan calls for doubling of energy efficiency reductions between 2020 and 2030 (i.e., 100% effort relative to the period 2008–2020). The region would have to do 5% more in this sector to be on target. Additional GHG reductions during this period will come from a continued de-carbonization of electriCity at the public utility level, more aggressive retrofitting of existing buildings and greatly increased use of small scale renewables.
On-Road Transportation	1,839,799	54,258	1,894,057	31%	1,713,327	90%	CARB Scoping Plan calls for a doubling of GHG reductions from vehicle fleet by 2030 compared to 2020 and more than doubling reduction of carbon intensity of transportation fuels (i.e., 100% effort relative to the period 2008–2020). The region would need to do about 8% more in this sector to stay on target. SCAG assumes between 8% and 12% in GHG reductions after 2020 for 2035 for VMT reduction. This analysis assumes 8% for local reductions.
Off-Road Transportation and Equipment	78,930	37,613	116,543	15%	53,671	46%	CARB Scoping Plan calls for more than double the reduction of carbon intensity of transportation fuels (i.e., equivalent level of effort to 2008–2020 period).

	Reductions by 2020 (This Plan)				Scenario for Reductions by 2030		
	State	Local	TOTAL	% below 2008	Total Additional Reductions 2020-2030	Effort Relative to 2008-2020	Notes
	MTCO ₂ e	MTCO ₂ e	MTCO ₂ e	%	MTCO ₂ e	%	
Solid Waste Management	163,191	6,240	169,430	50%	23,733	14%	Assumed cities in the County and the County continue further efforts at methane control, waste diversion, and potential waste to energy projects to result in modest further reductions in sector (7%). Once capture technology is installed, additional reductions in this sector are somewhat limited.
Agriculture	0	79,939	79,939	16%	0	0%	No assumed change.
Wastewater Treatment	0	6,017	6,017	9%	2,115	35%	Assumed additional 3% in reduction in sector due to continued installation of fugitive emission capture technology and additional water conservation.
Water Conveyance	0	58,768	58,768	24%	12,023	20%	Assumed additional 5% in reduction in sector due to continued effort to conserve water at a similar rate as 2020-2030.
GHG Performance Standard for New Development	0	121,418	121,418	NA	0	0%	No assumed change.
TOTAL			4,591,613		3,291,074		

APPENDIX E. I

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Memorandum

Date:	August 1, 2014
To:	Steve Smith, SANBAG Josh Lee, SANBAG Michael Hendrix, Atkins
Cc:	Laura Yoon, ICF International
From:	Rich Walter, ICF International Brian Schuster, ICF International
Subject:	SANBAG Climate Action Plan Implementation Tools: Best Practices for Climate Action Plan Implementation

Executive Summary

Numerous cities and counties throughout California and the United States have completed climate action plans (CAP) and are in the process of implementing measures to reduce greenhouse gas (GHG) emissions. Coordinating and managing these efforts is often a complex and time-consuming process. A recent survey of 67 jurisdictions in California indicates that insufficient funding, resources, and monitoring of CAP performance are the most challenging obstacles to successful CAP implementation (Qin et al. 2014). ICF has reviewed programs and techniques employed by a number of local governments to identify 25 best practices to overcome common barriers to CAP implementation. These practices can be used by the SANBAG cities to support management of their individual CAPs and accelerate implementation of selected GHG reduction measures.

Table 1 identifies each of the best practices, which are grouped into the following six categories:

- **Institutionalization:** Integrating climate action planning and emissions reduction efforts into City internal processes.
- **Engagement:** Empowering City staff and encouraging community participation in the CAP process.
- **Strategic Planning:** Prioritizing measures and ensuring all mechanisms necessary to support the CAP are in place.
- **Monitoring:** Tracking and periodically reassessing progress in meeting CAP goals.

- **Reporting:** Remaining accountable through ongoing reporting of emissions reductions, costs, benefits, and challenges.
- **Adaptive Management:** Remaining flexible and taking corrective actions to improve processes and programs.

Table 1. Best Practices for CAP Implementation
<u><i>Institutionalization</i></u>
BP-1. Connect the CAP to Other Planning Documents
BP-2. Infuse Climate Action Planning into the City's Mission and Core Values
BP-3. Formalize the CAP through Law
<u><i>Engagement</i></u>
BP-4. Develop a Robust and Aligned Public Outreach Strategy
BP-5. Recruit Elected Officials to Support the CAP
BP-6. Engage Decision Makers Early and Often
BP-7. Establish an Integrated Internal Implementation Team
BP-8. Collaborate with Stakeholders
BP-9. Form Partnerships
<u><i>Strategic Planning</i></u>
BP-10. Develop Implementation Plans
BP-11. Identify Resource, Funding, and Data Needs Early
BP-12. Establish Processes to Facilitate Data Collection and Tracking
BP-13. Dedicate Funds to the CAP
BP-14. Start Implementation Early
BP-15. Develop Tools to Support Project-Level Compliance with the CAP
BP-16. Encourage Friendly Competition and Recognition throughout Implementation
<u><i>Monitoring</i></u>
BP-17. Develop a Robust Monitoring Plan
BP-18. Track Environmental, Economic, and Social Indicators
BP-19. Perform Annual or Semi-Annual Inventory Updates
BP-20. Perform Independent Evaluation of Monitoring Results and Inventory Updates
<u><i>Reporting</i></u>
BP-21. Communicate Successes and Disappointments Internally and Externally
BP-22. Use Multiple Venues to Report Progress
<u><i>Adaptive Management</i></u>
BP-23. Complete After-Action Reviews
BP-24. Perform Ongoing Research and Analyses
BP-25. Remain Flexible

Introduction

Implementing a CAP is a challenging endeavor that requires a cohesive and informed management approach. CAPs typically provide a broad view of GHG reduction measures selected by a jurisdiction to reduce and avoid local emissions. Developing policies and procedures to physically implement these measures often requires jurisdictions to juggle conflicting agendas and perspectives, stakeholder concerns, multiple datasets with highly technical information, and the need to remain transparent and accountable to the goals established in the original CAP. Despite these challenges, many jurisdictions have successfully implemented a CAP and are realizing long-term GHG reductions.

The SANBAG cities began the CAP process with the *San Bernardino County Regional Greenhouse Gas Reduction Plan (GHG Reduction Plan)*. The next step for the cities is to develop their own CAPs using this plan as a framework. This memorandum identifies best practices adopted by jurisdictions that have already begun to implement a CAP or are developing a CAP in the near future. ICF compiled the list of best practices based on a literature review and telephone interviews with local government staff directly involved with management of a CAP and ICF's experience working with California jurisdictions on climate action planning. The best practices included in this memorandum can be used by the SANBAG cities to support early planning efforts and accelerate implementation of selected GHG reduction measures.

The memorandum begins with a summary of common barriers to CAP implementation, followed by recommended best practices to help the SANBAG cities mitigate these challenges and streamline CAP implementation. Attachment A lists the sources and local government staff contacted to prepare this memo.

Common Barriers to CAP Implementation

Managing a CAP and implementing GHG reduction measures is often a time-consuming and resource-intensive process. According to a recent study conducted by Qin et al. (2014), local governments across California are currently facing a number of challenges to implementing and monitoring CAP progress. The study is based on a survey of 67 California jurisdictions and characterizes factors that have resulted in barriers to successful CAP implementation. The three most common barriers to CAP implementation identified by Qin et al. (2014) are briefly summarized below.

- **Insufficient funding:** Nearly 80% of the surveyed cities identified lack of funding as the primary barrier to CAP implementation. Insufficient funds can stall program development and constrain implementation of GHG reduction measures.
- **Insufficient staff and training resources:** Insufficiently trained staff was the second most significant barrier. This barrier is linked to funding challenges, as insufficient funding often leads to staff and training restrictions. CAP responsibilities are also often assigned to staff in

addition to their normal duties. When resources are limited, staff time is almost always prioritized to the department's primary mission and CAP duties are viewed as secondary.

- **Insufficient monitoring and reporting of CAP performance:** Only half of the cities stated that they regularly track CAP implementation progress, despite the fact that most CAPs in California outline a monitoring strategy. Primary factors limiting monitoring and reporting are high costs, lack of time, and technical complexity.

Similar challenges to climate action planning have been reported by the Association of Climate Change Officers (ACCO) (Cote 2011). A recent study by Moser & Ekstrom (2010) also identified accountability, scope definition, and measure feasibility as common barriers. The challenges noted by Qin et al. (2014), ACCO (Cote 2011), and Moser & Ekstrom (2010) were echoed by local government staff interviewed by ICF. In addition, consultation with the City of Portland also identified lack of a cohesive and dedicated management team as a barrier to CAP implementation (Crim pers. comm.). Staff stated that without a network to connect staff, CAP duties can be forgotten or rushed at the last minute, leading to poor data quality or project delays.

The following section identifies best practices that can be used by the SANBAG cities to help anticipate and mitigate these common barriers to CAP implementation.

Recommended Best Practices

Jurisdictions throughout California and the nation have found ways to manage and overcome common challenges to climate action planning. ICF has reviewed programs and techniques employed by several local governments to identify best practices for CAP implementation. Many of the recommended practices are interrelated and build on one another to comprehensively manage a CAP and associated GHG reduction measures. With this said, adoption of every identified best practices should not be seen as mandatory for successful CAP implementation. Likewise, additional strategies not included in this memorandum may be pursued by the SANBAG cities to support their individual climate action planning efforts.

This memo outlines 25 best practices, which are grouped into six categories: institutionalization, engagement, strategic planning, monitoring, reporting, and adaptive management. Best practices within each category are discussed below. Specific tools and techniques used by jurisdictions to support the practices are provided as examples, where applicable.

Institutionalization

BP-1. Connect the CAP to Other Planning Documents

Incorporating the CAP into City guiding documents, such as the General Plan, prioritizes the GHG reduction measures and can leverage internal organization efficiencies to minimize staffing barriers. Linking the CAP and General Plan also provides an opportunity to establish California Environmental Quality Act (CEQA) streamlining benefits for project-level environmental analyses. The State CEQA Guidelines allow project-specific environmental documents that incorporate

applicable CAP actions to “tier off” a programmatic analysis of GHG emissions, provided that the analysis meets the criteria outlined in CEQA Guidelines Section 15183.5, which includes adoption of the CAP in a public process following environmental review. Incorporating the CAP into the environmental analysis conducted for the General Plan would ensure the CAP meets the public review requirements of CEQA Guidelines Section 15183.5.

Several jurisdictions within California have integrated their CAP and General Plans, including Los Angeles County, the City of Mountain View, and the City and County of San Francisco. Establishing CEQA streamlining benefits potentially eliminates the need to prepare a quantitative assessment of project-level GHG emissions. Rather, project-specific environmental documents that rely on the CAP can qualitatively evaluate GHG impacts by identifying all applicable CAP measures and describing how those measures have been incorporated into the project design and/or identified as mitigation. This type of “tiered” analysis can reduce project costs and streamline the City permit process.

BP-2. Infuse Climate Action Planning into the City’s Mission and Core Values

Implementing successful programs to reduce GHG emissions is dependent on the support and hard work of dedicated City employees. Climate action planning must be seen as a priority and a regular component of daily tasks. Infusing climate action planning into a City’s operations and core values will help increase environmental awareness and reduce the potential for environmental commitments to be sidelined when resources are limited.

The City of Berkeley has taken steps to integrate sustainability throughout its operations and daily staff responsibilities. The City recently created an “Environmental Sustainability” section in all reports to the City Council that describes linkages between specific subjects of the report and the City’s environmental goals. All departments are also required to identify practices designed to integrate environmental sustainability into departments operations as part of the fiscal year 2015 Work Plan.

BP-3. Formalize the CAP through Law

While adoption of a CAP provides the necessary authority to create policies needed to implement GHG reduction measures, jurisdictions can increase this momentum by formalizing the CAP through local laws. One such example is the City of New York’s Local Law 17, which was enacted to facilitate implementation of *PlaNYC*. The law established the Office of Long-Term Planning and Sustainability (OLTPS) to manage the plan and identified a timeframe for reporting progress and periodic updates. Local Law 17 has been recognized as a key contributing factor to the successful implementation of *PlaNYC* (ICLEI 2010a).

Engagement

BP-4. Develop a Robust and Aligned Public Outreach Strategy

Citizens and businesses are integral to the success of individual CAPs. Their involvement in the CAP process is essential, considering that GHG reduction measures often depend on voluntary action. The SANBAG cities are widespread geographically and their populations are diverse. These factors can make public outreach challenging and require comprehensive and adaptable outreach efforts.

An integral component to the success of any outreach effort is sustained transparency and a commitment to being proactive. Transparency refers to a publicly open and accessible process, whereas proactive refers to the provision of upfront and continuous information. Prioritizing these two efforts will enable the SANBAG cities to consider the interests of the community. It will also engage individuals, build trust, and help identify hot-topic issues early in the process. Prudent identification and resolution of these concerns will help avoid project delays and budget overages due to community opposition.

The public outreach strategy should provide consistent and clear messaging. It is recommended that multiple communication platforms be pursued, including public meetings, social media, festivals, community events, email, community display boards, and websites. Websites can be a particularly effective tool and serve as a repository for program information, including data on incentives for voluntary GHG reduction measures. Providing a convenient location for the public to learn about incentives may help with overcoming personal funding obstacles and facilitate adoption of voluntary actions (see BP-13). It is important to keep in mind that while communication with the public will be ongoing through CAP development, specific details on program development should occur after priorities have been chosen to better target communication and avoid inconsistent messaging.

The outreach plan should emphasize community co-benefits to better connect the CAP with more immediate public priorities. The City of Chicago outreach plan has been particularly effective because it focuses on quality of life benefits and cost savings. Rather than providing exhaustive technical details, Chicago uses co-benefits to tell the “CAP story.” GHG reductions are communicated, but the City recognizes that the public often sees GHG reductions as secondary to quality of life benefits.

Given the importance of public outreach, it may be helpful to establish a separate working group or committee dedicated to outreach. For example, the City of Chicago has a “Communication Committee” to help with market segmentation, messaging, and outreach plans.

BP-5. Recruit Elected Officials to Support the CAP

Strong support from elected officials will help communicate key messages to the public and prioritize environmental commitments among other City leaders. Support from Mayor Richard Daley is recognized by the City of Chicago as essential to its climate action planning efforts (Parzen 2009). Former New York City Mayor Michael Bloomberg’s strong, visible commitment to emissions reduction helped champion *PlaNYC*.

BP-6. Engage Decision Makers Early and Often

City decision makers should be briefed early and regularly on upcoming policy changes and programs. This is particularly important for programs that require approval from the City Council or other authority (e.g., tax initiatives) or may even require support from the state legislature or state administration. The City of New York recognized this need and sent a 500-page bill with all new initiatives to the State Capital immediately following approval of the *PlaNYC*. New York City staff currently implementing *PlaNYC* also maintains regular contact with City officials through a bi-weekly electronic newsletter.

BP-7. Establish an Integrated Internal Implementation Team

Successful CAP implementation requires cities to make a serious commitment to staffing. Qin et al. (2014) found that the majority of interviewed California cities have at least 0.8 full-time equivalent (FTE) employees dedicated to the CAP, and 16 cities have at least 1 FTE.¹ Smaller cities may find funding additional positions (or even 0.5 FTE) challenging and may be limited to using existing staff.

Given the regional approach followed with SANBAG and the participating cities to date, a cost-efficient approach may be two-pronged, where the cities establish internal implementation team and external support is provided by SANBAG with 1 to 2 FTEs. These SANBAG CAP support staff could help with common program development, partnership creation, funding pursuits, and technical support. Since many of the GHG reduction measures pursued by the cities are similar, there could be regional development of model ordinances, programs, and outreach strategies by the SANBAG CAP support staff that could then be efficiently tailored by the internal City implementation teams. By each City sharing a portion of the costs for SANBAG regional staff, the cities could lower their overall net implementation costs.

The internal City-specific CAP implementation teams should be composed of representatives from multiple departments. This type of team is identified as the “CIT” in Chapter 5 of the *GHG Reduction Plan*. All assignments for team representatives must be clearly defined as part of their designated work roles. For example, New York has a project manager within each City department to manage implementation of assigned CAP initiatives. Regular communication among the team is also essential. New York’s OLTPS meets bi-weekly to review the status of each initiative. Chicago’s Climate Action Leadership Group hosts monthly meetings where a staff person representing one of the departments reports on progress of its green work plan.

The implementation team will ultimately be one of many groups that support and manage the CAP (see, for example, BP-8 and BP-9). The City of Chicago has a particularly robust organization chart for the *Chicago Climate Action Plan*, which is presented in Attachment B. The Chicago Climate Change Task Force is the City’s lead implementation team.

BP-8. Collaborate with Stakeholders

Each jurisdiction is home to dozens of stakeholders with unique values, objectives, and resources. Key stakeholders in the San Bernardino area include the South Coast and Mojave Air Districts, Southern California Edison (SCE), Southern California Gas (SCG), Omnitrans, Mountain Area Regional Transit, Foothill Transit Agency, local waste and wastewater service providers, schools, businesses, developers, and residents. Engaging stakeholders in the CAP can bolster a sense of ownership and commitment throughout the community. It also provides an opportunity to leverage resources, including support for funding, outreach, and policy/legislative changes. Several jurisdictions throughout California and the nation have established stakeholder working groups, including the New York Sustainability Advisory Board, Chula Vista Climate Change Working Group, Berkeley Climate Action Coalition, and Chicago Climate Action Task Force.

¹ The City of Chicago has 2 FTE, but based on experience, recommends a three-part management team, including a project manager, an internal processes manager, and a communications director (Parzen 2009). This structure may only be affordable for larger cities.

A stakeholder working groups should consist of representatives from businesses, schools, faith based organizations, environmental and community advocates, labor leaders, planners, and real estate developers, non-profit groups, and various community organizations. The purpose of the group should be to provide advice and external ideas to the CAP implementation team. Regular communication with the stakeholder working group is essential and can occur through meetings, briefings, or even novel communication methods—for example, Chicago has a PBWiki site where stakeholders can post comments in real-time.

BP-9. Form Partnerships

Partnering with public and nonprofit organizations facilitates CAP implementation and can reduce City staffing needs. Cities in San Bernardino County have already followed a partnership approach through SANBAG for development of the implementation plan and for conducting the implementation support task for which this BPS review is being prepared. A regional partnership for implementation, including potential SANBAG CAP support staff (as described above) could be a key strategy for implementation.

Other examples of partnership include the Global Philanthropy Partnership (GPP), a nonprofit partner to the City of Chicago, routinely staffs committees, crafts work plans, coordinates with consultants, and fill gaps among City staff. Partnerships with external agencies and universities can also advance research and technical expertise. The City of Portland is currently collaborating with a local university to develop a series of heat island mitigation maps to target tree planting measures (Crim pers. comm.). The City of Chula Vista formed the San Diego Regional Climate Collaborative, which is a regional forum for public agencies to share expertise and leverage resources to support GHG reduction efforts.

Strategic Planning

BP-10. Develop Implementation Plans

The *GHG Reduction Plan* has a brief section on implementation that the cities can use as a starting point for their own local implementation plan. Implementation actions for each GHG reduction measure must be identified so that the goals and actions are clear. These “mini-plans” (which need not be terribly long) can be done in the form of a matrix and should include an implementation timeline, responsible department/ organization, key milestones, and available funding. As an example, *PlaNYC* contains an implementation plan matrix that is used in day-to-day management of the document (see Attachment C). An overview of Chicago’s implementation plan for their energy retrofit strategy is also [available online](#). It is important that City staff responsible for implementation of the measure be involved in preparation of these plans. This will help empower staff champions and better connect the CAP to their daily responsibilities.²

² ICF and Atkins will be providing additional implementation guidance to the cities through a number of memorandums, tools, and resources as part of the current technical support effort through SANBAG.

BP-11. Identify Resource, Funding, and Data Needs Early

The *GHG Reduction Plan* includes an initial assessment of costs and funding sources. These estimates should be refined to better reflect project-specific costs. City staff should also determine the types of data that will be needed to track reduction progress. Identifying resource needs early in the implementation process will help ensure the CAP does not fall behind on its implementation schedule.

ICF has developed a set of funding and inventory quantification strategies to support this practice. Please refer to the memorandums entitled “SANBAG Climate Action Plan Implementation Tools: Draft and Final Funding and Budgeting Strategies” and “SANBAG Climate Action Plan Implementation Tools: Strategies and Best Practices for Greenhouse Gas Inventory Updates”.

BP-12. Establish Processes to Facilitate Data Collection and Tracking

Processes to collect data from City departments and external agencies should be established prior to implementation of the GHG reduction measures. Data collection tasks should be carefully constructed and quality data should be emphasized. The City of Chicago recommends providing incentives to staff and agencies that prepare valid data. Similarly, both Chicago and the City of Berkeley recommended establishing consistent and easily accessible method for data transfer. For example, Chicago maintains a web platform where key agencies can enter energy consumption data along with other important indicators. The City of Berkeley also uses an online energy portal created by Pacific Gas & Electric (PG&E). Given the number of SANBAG cities that will require utility data, it is recommended that Southern California Edison (SCE) and Southern California Gas (SCG) be consulted and the development of a regional data collection portal be pursued.

ICF has developed a set of inventory best practices strategies to support data collection and emissions tracking. Please refer to the memorandum entitled “SANBAG Climate Action Plan Implementation Tools: Strategies and Best Practices for Greenhouse Gas Inventory Updates”.

BP-13. Dedicate Funds to the CAP

As noted above, insufficient funding is the most commonly cited barrier to successful CAP implementation. Proper funds must therefore be dedicated to *each* of the GHG reduction measures early in the planning process. For example, one of the factors that contributed to the early success of *PlaNYC* was the fact that the City programmed \$199 million worth of projects in their 2008 budget to kick-start implementation (ICLE 2010).

Communicating private funding opportunities to the general public is also critical to CAP success. Several GHG reduction measures depend on voluntary adoption throughout the community. Accordingly, publicizing incentive information and facilitating personal financing programs should also be prioritized in addition to securing City funds (see BP-4).

Given the importance of funding and the complexity of proper financing, ICF has prepared a list of potential public and private funding sources to support GHG reduction measures; these recommendations are not repeated here. Please refer to the memorandum entitled “SANBAG Climate Action Plan Implementation Tools: Draft and Final Funding and Budgeting Strategies”.

BP-14. Start Implementation Early

The *GHG Reduction Plan* identifies a 2020 GHG reduction target for the SANBAG cities. Individual measures must be implemented immediately after CAP adoption to ensure sufficient reductions are achieved by 2020 to meet this short-term goal. To gain momentum and build credibility, focus initially on promising measures or strategies with relatively low barriers to implementation. A method for prioritizing measures is outlined in Table 5-2 of the regional reduction plan. Be sure to begin administrative work on more conversational measures while the high priority actions are geared for implementation.

BP-15. Develop Tools to Support Project-Level Compliance with the CAP

Once adopted, the CAP can serve as a tool for new projects to streamline CEQA compliance, especially if the CAP is incorporated into the General Plan or evaluated through separate environmental review (consistent CEQA Guidelines Section 15183.5) (see BP-1). Project applicants should be provided direction on how best to use the CAP and comply with applicable GHG reduction measures.

Atkins will provide development review screening tables for the SANBAG cities to evaluate the consistency of new projects with the CAP. These tables will provide developers with some flexibility in complying with applicable GHG reduction measures.

Other jurisdictions have incorporated similar screening tables and compliance mechanisms into their CAP planning. For example, San Bernardino County developed screening tables to determine consistency of new projects to the CAP. Similarly, the cities of Mountain View, San Francisco, and Sacramento have been applying CAP consistency tables for CEQA project review for numerous development projects. The City of Livermore has also developed model language for project-level CEQA findings. Examples of these tools are provided in Attachment D. Establishing robust tools will not only benefit developers, but can also standardize the document review process for City staff.

BP-16. Encourage Friendly Competition and Recognition throughout Implementation

Competition can be an effective tool to encourage behavior change. Friendly challenges among the SANBAG cities can accelerate CAP measures by creating a sense of community pride. Internal competitions and recognition programs can also increase staff participation and sense of ownership. For example, the City of Berkeley has an Environmental Achievement Award program to celebrate and recognize City staff for environmental leadership. Incentives for quality data submissions can also be effective (see BP-12).

Monitoring

BP-17. Develop a Robust Monitoring Plan

Regular monitoring is important to ensure programs are functioning as they were originally intended. The most successful implementation efforts are ones that include a high-quality monitoring plan. Monitoring plans should contain, at minimum, the following items (Jones 2012):

- Time period for implementation

- Clearly defined actor to perform actions
- Funding mechanism
- Description of monitoring technique
- Provisions for tracking change
- Indicators to assess progress

As part of Task 3.2.4, ICF will prepare an implementation tracking tool that will allow the SANBAG cities to monitor progress of their CAP programs, track GHG emission reductions, and prepare progress reports. Key parameters to include in the tracking tool, such as those described above, will be further defined by ICF as part of a subsequent scoping memo. Keep in mind that staff responsible for data collection and use of the tracking tool should be trained to ensure accuracy and accountability.

BP-18. Track Environmental, Economic, and Social Indicators

While the primary focus of the CAP is GHG emissions reduction, its implementation will achieve a number of economic and community co-benefits. As discussed in BP-4, these “quality of life” improvements are often more important to the general public than emissions reduction. Tracking costs is also essential for resource prioritization and to ensure the CAP remains on budget. Economic data can also be used to communicate cost savings to the public. The GHG Reduction Plan includes an initial assessment of program costs for many of the GHG reduction measures. These analyses should be refined and updated over time with more precise implementation-level data. Accurately tracking measure costs provides information on whether actions are cost effective and can help prioritize and direct City funds.

As an example, the City of New York tracks 10 “sustainability indicators” to provide quantifiable metrics for each *PlaNYC* goal. These indicators are presented in Attachment E for reference.

BP-19. Perform Annual or Semi-Annual Inventory Updates

Regular updates to a City’s GHG inventory are necessary to evaluate progress, relative to baseline emissions and the future reduction target. The inventory updates also provide a “big-picture” view of progress achieved to-date, and should contain an analysis of GHG emissions trends from year to year to isolate the effect of GHG reduction measures from other external factors that may affect emissions levels. The City of Chula Vista updates their inventory on a semi-annual basis, whereas the cities of New York and Portland update their inventories annually. ICF has identified best practices for preparing inventory updates as part of Task 3.2.4; please refer to the memorandum entitled “SANBAG Climate Action Plan Implementation Tools: Strategies and Best Practices for Greenhouse Gas Inventory Updates”.

BP-20. Perform Independent Evaluation of Monitoring Results and Inventory Updates

Monitoring community emissions and tracking sustainability indicators involves a considerable amount of data and calculations. It is prudent to assume that unintentional errors will occur throughout the process. The City of Chicago acknowledged this as part of their CAP review in 2009,

noting that errors were found in their original GHG reduction calculations (Prazen 2009). The City states that careful review of each calculation to ensure it is accurate and valid is worth the resource investment.

As discussed in the memorandum entitled “SANBAG Climate Action Plan Implementation Tools: Strategies and Best Practices for Greenhouse Gas Inventory Updates”, SANBAG cities should update their data sources and calculation methods to be consistent with the latest state-of-practice for conducting GHG inventories.

Reporting

BP-21. Communicate Successes and Disappointments Internally and Externally

The best-in-class reporting processes emphasize transparency, emerging trends, big-picture results, and corrective actions, as needed. Internal reporting to City staff feeds program momentum and can encourage competition among peers (see BP-16). Likewise, external reporting to the community provides accountability and demonstrates the City’s commitment to excellence.

Jurisdictions through California and the nation use a variety of reporting techniques to communicate program results. For example, the City of Chula Vista identifies actions as either “completed”, “ongoing”, “in progress”, or “on-hold”. Berkeley includes the performance metric, key takeaway messages, and an overview of the measure status. New York reports similar information, but also identifies milestones that will be completed during the next reporting year. In addition to measure specific information, all jurisdictions reviewed by ICF also quantitatively document achieved emissions reductions and evaluate progress towards meeting their GHG reduction and sustainability targets.

ICF will prepare a progress report template that the SANBAG cities can use to report their CAP progress as part of Task 3.2.4. The progress reports will be informed by the implementation tracking tool that ICF will prepare. Attachment F includes measure-specific reporting examples from the cities of Chula Vista, Berkeley, and New York.

BP-22. Use Multiple Venues to Report Progress

As noted above, the SANBAG cities have diverse populations with unique interests and needs. Utilizing multiple reporting methods increases accessibility to information. Distributing materials through a variety of media outlets may also capture a wider range of audiences. New York has a particularly diverse reporting system. The Mayor reports on CAP progress in both his semi-annual *Management Report* and *Citywide Performance Report*. The performance report is updated monthly and available online so that the public can monitor progress in real-time. The OLTPS also produces an annual *PlaNYC Progress Report*, which provides updates on the 127 *PlaNYC* initiatives, and an annual GHG inventory update. The City of Berkeley has an interactive website where interested parties have access to the progress summaries (see Attachment F), as well as detailed case studies and quantitative reports. In addition to their City-sponsored reporting, Chicago’s “Green Ribbon Committee”, which is an external stakeholder group, releases an annual report to showcase progress and energize the community.

Adaptive Management

BP-23. Complete After-Action Reviews

After-action reviews for completed measures and initiatives provide valuable information on positive and negative outcomes. An after-action review analyzes the implementation process and identifies how the process can be improved in the future. Individuals responsible for specific measures, including City staff and stakeholders, should participate in the review, which can be structured as small group discussions. Key questions to ask during the reviews include the following:

- What was supposed to happen?
- What actually happened?
- What caused the process to deviate from the intended plan (if applicable)?
- What can we learn from the process?
- What can be done to improve the process next time?

Critically analyzing completed actions through after-action reviews often yields valuable insights that can inform best management practices and corrective actions. Lessons-learned through the after-action reviews can be incorporated into ongoing or new measures to increase the likelihood of success.

BP-24. Perform Ongoing Research and Analyses

Climate science is a dynamic field and data, methods, and best practices for quantifying emissions are constantly changing. It is important remain well-informed of these changes to ensure the CAP and GHG reduction measures remain grounded in science. Stakeholder coordination (see BP-8) and external partnerships (see BP-9) are excellent ways to keep on top of the latest science and technical understandings. Another option is to create a dedicated research team. For example, the City of Chicago formed the Research Advisory Committee to support initial development of the CAP. The City also turns to the Center for Neighborhood Technology (CNT) through retainer for ongoing research and technical expertise.

BP-25. Remain Flexible

Implementing a CAP can be challenging. Insight from jurisdictions with active CAPs reveals that program development can take longer than expected, while raising sufficient funds often requires navigating political and economic roadblocks. Some GHG reduction measures identified in the original CAP may also prove to be infeasible, requiring other measures to be ramped up to increase overall GHG reductions. Understanding that complications are inevitable, remaining flexible, and being open to change will help facilitate CAP implementation and better prepare you to address challenges as they arise.

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Attachment A. Literature Review and Interviews

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Climate Action Plans, Progress Updates, and Websites

- City of Chula Vista
- City of Berkeley
- City of Boston
- City of Chicago
- City of Mountain View
- City of New York
- City of Portland

- San Bernardino County
- City of San Francisco

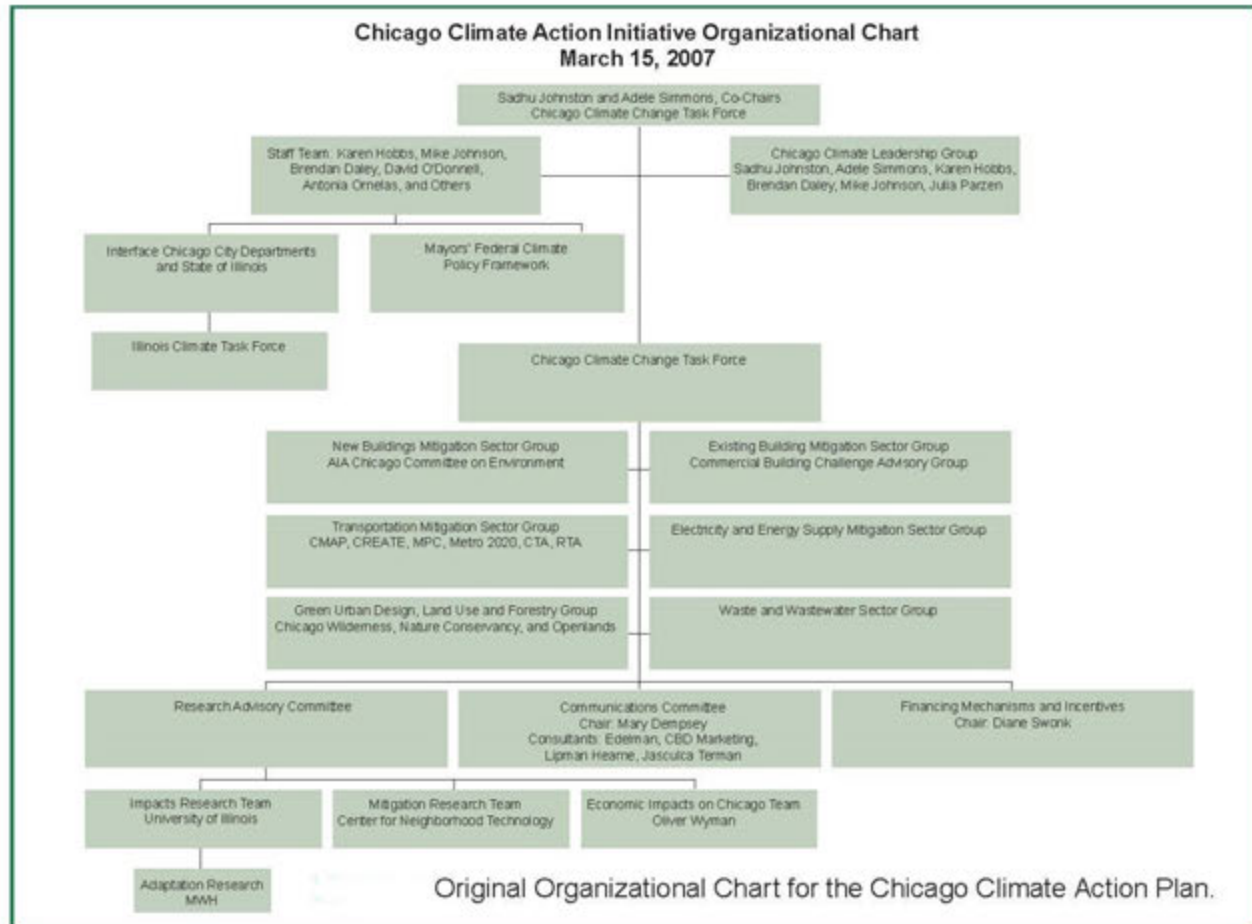
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Roman, Billie. Planner. Berkeley, California. July 21, 2014—telephone call with Laura Yoon, ICF International.

Attachment B. Chicago CAP Organizational Chart



Attachment C. *PlaNYC* Implementation Matrix

Initiative		Lead City Agency	Milestones for Completion, Assuming Funding		10-Year Capital / Study Cost (Preliminary Estimate, in \$ Millions, Nominal)	Funding Source	
			By End of 2014	By End of 2020			
Improve coastal design and governance							
COASTAL PROTECTION	27	Continue to work with the USACE to complete its comprehensive flood protection study of New York Harbor	OLTPS	Complete draft study, recommending projects ready for authorization by Congress	Subject to study results	10–20	USACE
	28	Implement the WAVES Action Agenda	DCP	Complete scheduled projects	--	N/A	N/A
	29	Implement citywide waterfront inspections to better manage the City's waterfront and coastal assets	NYCEDC	Implement program	--	1–10	TBD
	30	Study design guidelines for waterfront and coastal assets to better mitigate the effects of flooding	DPR	Complete study	Subject to study results	N/A	N/A
	31	Evaluate soft infrastructure as flood protection and study innovative coastal protection techniques	OLTPS	Partner with the planned Jamaica Bay Science and Resilience Center and others to begin studies	--	1–10	TBD
	32	Evaluate the city's vulnerability to drainage pipe flooding and identify appropriate solutions to minimize those risks	OLTPS	Complete study as part of other coastal protection projects	Subject to study results	10–20	TBD
	33	Evaluate strategies to fund wetland restoration and explore the feasibility of wetland mitigation banking structures	NYCEDC	Complete study of mitigation banking	Subject to study results	10–20	TBD
	34	Work with agency partners to improve the in-water permitting process	NYCEDC	Launch website	--	<1	ESDC
	35	Enhance waterfront construction oversight by strengthening the City's waterfront permit and dockmaster units	SBS	Explore options to enhance waterfront permitting and dockmaster function	--	N/A	N/A
	36	Identify a lead entity for overseeing the collaboration on the USACE comprehensive study and for overseeing the implementation of coastal flood protection projects	OLTPS	Identity lead entity	--	N/A	N/A
37	Call on and work with the USACE and FEMA to collaborate more closely on flood protection project standards	OLTPS	Identify risk reduction standards	--	N/A	N/A	
Strengthen new and substantially rebuilt structures to meet the highest resiliency standards moving forward							
BUILDINGS	1	Improve regulations for flood resiliency of new and substantially improved buildings in the 100-year floodplain	OLTPS	Adopt changes to Construction Codes and zoning	Complete analysis of additional freeboard	N/A	N/A
	2	Rebuild and repair housing units destroyed and substantially damaged by Sandy	HRO	Disburse funds to rebuild and repair 500 buildings	Disburse funds to rebuild and repair 100% of eligible buildings	950–1000	CDBG (Partial)/ TBD
	3	Study and implement zoning changes to encourage retrofits of existing buildings and construction of new resilient buildings in the 100-year floodplain	DCP	Begin studies for 5-10 neighborhoods and citywide strategies	Complete all studies and implement zoning changes per study findings	20–40	CDBG (Partial)/ TBD
	4	Launch a competition to encourage development of new, cost-effective housing types to replace vulnerable stock	HPD	Launch and award Phase I of competition and launch Phase II	Complete Phase II RFP for Phase I winners and complete resilient designs	10–20	TBD
	5	Work with New York State to identify eligible communities for the New York Smart Home Buyout Program	HRO	Identify all projects and complete transactions	--	150–175	CDBG (NYS)
	6	Amend the Building Code and complete studies to improve wind resiliency for new and substantially improved buildings	OLTPS	Implement initial Building Code changes	Complete wind studies	1–10	TBD

Note: As used herein, TBD means that a specific source has not yet been secured for the identified use; potential sources are described in Chapter 19 (Funding)

Attachment D. Example CEQA Tools

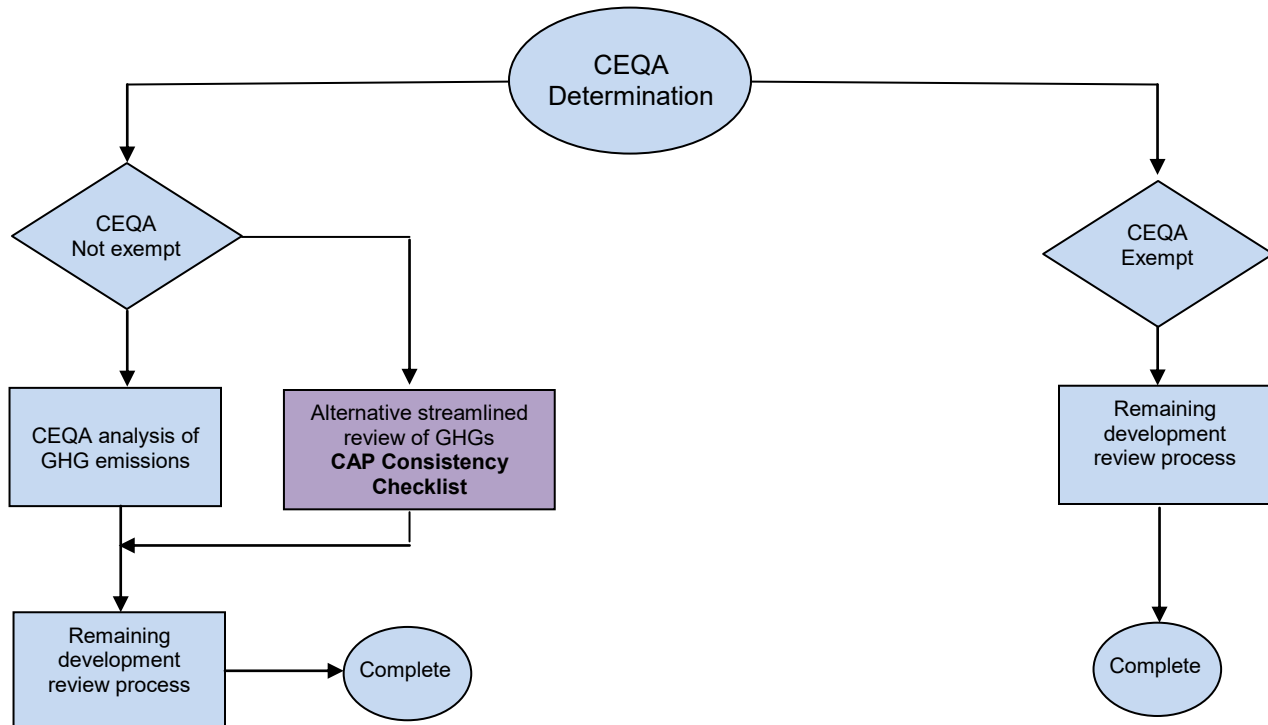
CLIMATE ACTION PLAN – CONSISTENCY REVIEW CHECKLIST

The purpose of the Climate Action Plan Consistency Review Checklist (CAP Consistency Review Checklist) is to provide a streamlined review process for proposed new development projects which are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA)..

CEQA Guidelines require the analysis of greenhouse gas (GHG) emissions and potential climate change impacts from new development. The Sacramento Climate Action Plan qualifies under section 15183.5 of the CEQA Guidelines as a plan for the reduction of GHG emissions for use in cumulative impact analysis pertaining to development projects. This allows projects that demonstrate consistency with the CAP to be eligible for this streamlining procedure. Projects that demonstrate consistency with the CAP and the Sacramento 2030 General Plan may be able to answer “No additional significant environmental effect” in the City’s initial study checklist. Projects that do not demonstrate consistency may, at the City’s discretion, prepare a more comprehensive project-specific analysis of GHG emissions consistent with CEQA requirements. (See FAQ about the CAP Consistency Review Checklist for more details.)

The diagram below shows the context for the CAP Consistency Review Checklist within the planning review process framework.

Streamlined Review of GHG Emissions in Development Projects



CLIMATE ACTION PLAN – CONSISTENCY REVIEW CHECKLIST

Application Submittal Requirements

1. The CAP Consistency Review Checklist is required only for proposed new development projects which are subject to CEQA review (non-exempt projects)
2. If required, the CAP Consistency Review Checklist must be submitted in addition to the basic set of requirements set forth in the Universal Application and the Planning Application Submittal Matrix.
3. The applicant shall work with staff to meet the requirements of this checklist. These requirements will be reflected in the conditions of approval and/or mitigation measures.
4. All conditions of approval and mitigation measures from this checklist shall be shown on full-size sheets for building plan check submittals.

Application Information

Project Number: _____

Address of Property: _____

Was a special consultant retained to complete this checklist? ☐ Yes ☐ No. If yes, complete following

Consultant Name*: _____

Company: _____

Phone: _____ E-Mail: _____

CAP Consistency Checklist Form for Projects that are Not Exempt from CEQA

Checklist Item (Check the appropriate box, and provide explanation for your answer).		Yes	No*
1. Is the proposed project substantially consistent with the City's over-all goals for land use and urban form, allowable floor area ratio (FAR) and/or density standards in the City's 2030 General Plan, as it currently exists?			
Please explain how proposed project compares to 2030 General Plan with respect to density standards, FAR, land use and urban form. (See directions for filling out CAP Checklist)			
2. Would the project reduce average vehicle miles traveled (VMT) per capita of the proposed residents, employees, and/or visitors to the project by a minimum of 35% compared to the statewide average?		Yes	No*
		NA	
Please explain how proposed project meets this requirement. If "not applicable", explain why this was not required. If project does not meet this requirement, see Directions for filling out CAP Consistency Review Checklist for alternatives to meeting checklist requirements.			
(Attach a copy of the VMT model <u>input</u> and output. Record the model and version here _____)			

*If "No", equivalent or better GHG reduction must be demonstrated as part of the project, and incorporated into conditions of approval.

Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

Checklist Item (Check the appropriate box, and provide explanation for your answer).	Yes	NA
<p>3. Would the project incorporate traffic calming measures? <i>(Examples of traffic calming measures include, but are not limited to: curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers.)</i></p>		
<p>Please explain how the proposed project meets this requirement (list traffic calming measures). If "not applicable", explain why traffic calming measures were not required.</p>		
<p>4. Would the project incorporate pedestrian facilities and connections to public transportation consistent with the City's Pedestrian Master Plan?</p>	Yes	NA
<p>Please explain how the proposed project meets this requirement. If "not applicable", explain why this was not required.</p>		

*If "No", equivalent or better GHG reduction must be demonstrated as part of the project and incorporated into the conditions of approval.

Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

*If “No”, equivalent or better GHG reduction must be demonstrated as part and incorporated into the conditions of approval.
Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability and that the facts, statements and information presented are true and correct to the best of my knowledge and belief.

Signature: _____ Date: _____

Attachment E. *Pla*NYC Sustainability Indicators

CATEGORY	METRIC	2030 TARGET	FIGURE FOR MOST RECENT YEAR	TREND SINCE BASE YEAR
HOUSING AND NEIGHBORHOODS	Create homes for almost a million more New Yorkers while making housing and neighborhoods more affordable and sustainable			
	Increase in new housing units since January, 2007	314,000	125,837 ₂	↗
	% of new units within a 1/2 mile of transit	> 70%	82.7% ₁	NEUTRAL
	Affordable housing units preserved or added (cumulative since 200	165,000	156,351 ₂	↗
PARKS AND PUBLIC SPACE	Ensure all New Yorkers live within a 10-minute walk of a park			
	% of New Yorkers that live within a 1/4 mile of a park	85%	76.5% ₁	↗
	Cumulative number of trees planted through Million Trees initiative	1,000,000	834,015 ₁	↗
ENERGY	Reduce energy consumption and make our energy systems cleaner and more reliable			
	Greenhouse gas emissions per unit of electrical power (lbs CO ₂ e/MWh)	DECREASE	674.911 ₂	↗
AIR QUALITY	Achieve the cleanest air quality of any big U.S. city			
	City ranking in average PM _{2.5} (3 yr rolling avg) compared to other large U.S. cities	#1 (cleanest air)	#4 ₁	NEUTRAL
	Change in average PM _{2.5} (year-on-year % change in 3 yr rolling avg)	DECREASE	-0.5% ₁	↘
CLIMATE CHANGE	Reduce greenhouse gas emissions by over 30%			
	Increase the resiliency of our communities, natural systems, and infrastructure to climate risks			
	Greenhouse gas emissions (MTCO ₂ e)	DECREASE 30% ₃	47,939,030 (19%) ₂	↘
SOLID WASTE	Achieve the cleanest air quality of any big U.S. city			
	Percentage of waste diverted from landfills (includes fill)	75%	52% ₁	↘

1 Results are for FY or CY 2013

2 Results are for FY or CY 2012

3 From 2005 levels

 Not on Track

 On Track

Attachment F. Reporting Examples

MITIGATION MEASURE #4 GREEN BUILDING STANDARD

Overview

Measure #4 directed staff to adopt regulations mandating new and renovated residential and non-residential projects to incorporate early the requirements of the Housing and Community Development's California Green Building Standards Code (CalGreen) and to be more energy efficient than the 2008 Building Energy Efficiency Standards (Title 24) by a specific percentage. In addition, the measure directed staff to implement a green building awareness program and update/establish design and regulatory provisions that incorporate sustainable practices at a community-scale.

#	COMPONENTS	STATUS	PROGRESS
CLIMATE MITIGATION MEASURE #4: Green Building Standard	1 Adopt a citywide Green Building Standard	Completed	In fall 2009, the City adopted the 2010 CA Green Building Standards Code early with local amendments. In fall 2011, a voluntary Green Building Plus program offering expedited permitting was launched.
	2 Adopt a citywide Enhanced Energy Efficiency Standard	Completed	In fall 2009, the City adopted an Enhanced Energy Efficiency Code. This "reach" code will expire in July 2014, when the new statewide Energy Code becomes effective.
	3 Launch a Green Building Awareness program for builders, permit applicants, & the general public	Ongoing	In the last 6 months, two workshops were organized for developers and City staff to better understand opportunities to incorporate LEED-ND concepts into new projects.
	4 Develop design guidelines for sustainable development	Completed	In 2011, the City incorporated sustainability criteria into its updated Air Quality Improvement Plan Guidelines and Design Manual for large and small-scale development, respectively.

Next Steps

City staff continues to investigate options for revising Chula Vista's Enhanced Energy Efficiency standard in July 2014, when the new statewide Title-24 code is updated. The City has determined that the cost-effectiveness analysis software (which is required for proposing increased standards) has only recently become available and is still pending California Energy Commission approval. Therefore, staff expects to bring forward recommendations to City Council on a new Enhanced Energy Efficiency standard in the next 6 months.

Source: City of Berkeley. 2014. Climate Action Plan Goals & Metrics for Building Energy Use. Available: <<http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=70982>>.

Goal 2: Enhance energy services & standards for existing residential properties

Electricity and natural gas consumption in residential buildings accounts for 26% of Berkeley's greenhouse gas emissions. Click here for more information and programs on [energy efficiency for homes](#).

Performance Metric	Key Takeaway	Status
Annual residential energy consumption (pdf)	13% reduction in energy use 2000-2012	Off target
Annual energy saved through CYES program (pdf)	Annual savings on energy bills exceeds \$184,000; over 2.3 million kWh saved annually	No target

Goal 3: Enhance energy services & standards for existing commercial properties

Energy consumption in commercial buildings accounts for 28% of community-wide greenhouse gas emissions. Click here for more information and programs on [energy efficiency for commercial buildings](#).

Performance Metric	Key Takeaway	Status
Annual commercial energy consumption (pdf)	Commercial electricity use decreased by 7% Commercial natural gas use increased 17%	Off target
Annual energy saved with Smart Lights Program (pdf)	Achieved 105% of its 3-year reduction target	On target

Goal 4: Increase residential and commercial renewable energy use

The Climate Action Plan not only seeks to remove barriers to increased energy efficiency, but also to "green" the energy supply we consume through increased utilization of renewable energy sources, such as solar. Click here for more information about [solar programs](#).

Performance Metric	Key Takeaway	Status
Annual solar photovoltaic installations (pdf)	1,000+ installations; 33% of 2020 target	On target
Annual solar thermal installations (pdf)	Solar thermal is at 35% of the current target. It will require exponential growth to meet the 2020 target	Off target
Annual clients served by SmartSolar Program (pdf)	Exceeded its 2012 goals by achieving 176% of its green energy production goals	On target

PROGRESS SINCE APRIL 2013		MILESTONES TO COMPLETE BY DECEMBER 31, 2014	STATUS
TRANSPORTATION	7 Enhance pedestrian access and safety		
	<p>"Sustainable Streets: 2013 and Beyond" charts DOT's progress in making streets safer, improving mobility, and maintaining and enhancing infrastructure since 2007. Bus Stops under the El construction will start in Spring 2014 at 6 intersections, with an additional 15 locations to follow by 2015. Planning has begun for subsequent locations. In 2013, DOT launched WalkNYC with wayfinding maps at all 330 Citibike stations and 75 standalone panels in Midtown, Lower Manhattan, Long Island City and Prospect Heights. In addition, WalkNYC iconography was integrated into BusTime countdown signs on the new Nostrand Ave SBS route.</p>	Install countdown pedestrian signals at 1,500 intersections	Completed
		Adopt new guidelines for public parking garages that promote pedestrian safety	In progress
		Continue to implement Safe Routes to Transit projects, including nine "Bus Stops Under the Els"	In progress
		Implement 32 Safe Routes to School projects	In progress
		Design a standardized, consistent pedestrian wayfinding system	Not started
	REDUCE CONGESTION ON OUR ROADS, BRIDGES, AND AT OUR AIRPORTS		
	8 Pilot technology and pricing-based mechanisms to reduce traffic congestion		
	<p>ParkSmart was successfully introduced in two areas (Jackson Heights and Cobble Hill) in 2013. DOT plans to launch the program in two new neighborhoods in 2014.</p>	Expand ParkSmart program to three new neighborhoods	In progress
		Install 4,500 Muni-Meters	Completed
		Install Intelligent Transportation Systems (ITS) approach to reducing congestion in selected areas	Completed
	9 Modify parking regulations to balance the needs of neighborhoods		
	<p>In May 2013, Manhattan Core Text Amendment was adopted, enacting improvements to off-street parking regulations to ensure that the right amount of parking spaces is being provided to support Manhattan Core businesses, residents and visitors while also addressing the city's sustainability objectives to encourage public transit and reduce energy use and greenhouse gas emissions.</p>	Explore modifications to Manhattan Core parking regulations	Completed
		Explore revisions to off-street parking requirements in areas close to the Manhattan Core	Completed
	10 Reduce truck congestion on city streets		
	<p>DOT have installed 8 delivery windows all over the city, with many more to come. DOT has continued to expand paid commercial parking in the Manhattan core and high-demand areas in the outer boroughs. New York Container Terminal, which has undergone approximately \$32 million in renovations, has the capability of handling 425,000 containers annually, and can work three vessels simultaneously along its 2,500 linear feet (760 meters) of berth accessed via a modern truck entry complex.</p>	Implement new peak and off-peak delivery windows in congested areas	In progress
		Implement commercial paid parking at high-demand loading zones citywide	In progress
		Improve landside access to the New York Container Terminal	In progress
	11 Improve freight movement		
	<p>The Department of City Planning (DCP), the Department of Transportation (DOT), Economic Development Corporation (NYCEDC), Housing Preservation and Development (HPD) and the Mayor's Office of Long Term Planning and Sustainability (OLTPS) released The Sheridan Expressway Study: Reconnecting the Neighborhoods Around the Sheridan Expressway and Improving Access to Hunts Point. Last year, NYCEDC achieved two milestones for improving rail operations at the Hunts Point Produce Market food distribution pathway. (1) We obligated a \$10m federal TIGER grant to be deployed as part of an overall \$22m rail infrastructure project; and (2) we completed conceptual design of the improvements. The first major set of improvements – rehabilitating rail spurs at the Produce Market – is slated to begin construction this summer. The second major set of improvements – installing new rail infrastructure – has moved into the next stage of design. Environmental Assessment for the 65th Street transload project will kickoff shortly. NYCEDC is in the process of establishing new rail transfer hubs in Brooklyn and Staten Island.</p>	Study the Sheridan Corridor in the Bronx	Completed
		Launch a study of New York City's food distribution pathways	In progress
		Accommodate more inbound freight trains at Hunts Point	In progress
		Establish new rail transfer hubs in Brooklyn and Staten Island	In progress
		Increase rail and waterborne freight deliveries to the South Brooklyn Marine Terminal	Completed
	12 Improve our gateways to the nation and the world		
	<p>While the FAA reauthorization bill includes policy language that is supportive of investing Next Generation Air Traffic Control system upgrades in areas where the capacity is most constrained and demand is the greatest, much of the infrastructure and procedures have been implemented outside the very complex and busy New York region airspace. Funding in Federal FY 2014 was constrained by the sequester and the government shutdown. The Obama administration, in its FY 2015 budget, has proposed less funding than the year before. The greatest benefits from this technology upgrade will come from improvements in the New York region and the City should advocate for continued investments.</p>	Advocate for federal investment in NE Corridor passenger rail and improved aviation traffic control	In progress
		Launch study of JFK air cargo industry	Completed
	<p>Last year, EDC in conjunction with City DOT and the Port Authority of New York and New Jersey conducted a study on the specific truck access routes that air cargo related trucks use to access JFK International Airport. The study showed that most trucks entered and exited the City on a handful of major interstate routes, and that the vast majority of these trucks used the Van Wyck Expressway to access JFK, as opposed to using local arterials. Results of the study are being shared with leadership at each of agencies, with a goal of informing a potential access rule change recommendation this spring 2014.</p>	Improve truck access to JFK Airport	In progress
	MAINTAIN AND IMPROVE THE PHYSICAL CONDITION OF OUR ROADS AND TRANSIT SYSTEM		
	13 Seek funding to maintain and improve our mass transit network		
	<p>City will continue to work with the MTA, State, and regional jurisdictions that rely on commuter rail to identify stable funding to renew, improve, and expand transit in the metropolitan area.</p>	Fund MTA Capital Program beyond 2011	In progress
	14 Maintain and improve our roads and bridges		
	<p>DOT has completed Manhattan Bridge contract 14, which included replacement of 628 bridge suspenders, rewrapped cables and upgraded necklace lighting. On the Brooklyn Bridge, rehabilitation is moving towards completion later in 2014. Progress as of November 2013 includes completion of 78% of total painting. During the worst winter in 20 years, DOT has filled over 140,000 potholes as of March 25, 2014. The City continues to pursue legislation for joint bidding of public works.</p>	Seek opportunities to improve bridge conditions	In progress
		Seek opportunities to improve the state of repair of the city's streets	In progress
		Seek legislation for joint bidding of public works projects	In progress

CAP IMPLEMENTATION Tools

Regional GHG Reduction Plan
Phase 2
Task 3 Deliverables

August 27, 2014

Michael Hendrix—Atkins

Rich Walter--ICF

Plan Design Enable



OVERVIEW

Task 3: Technical work

- Best Practices for CAP Implementation Memorandum
 - Institutionalization
 - Engagement
 - Strategic Planning
 - Monitoring
 - Reporting
 - Adaptive Management



OVERVIEW

Task 3: Technical work (continued)

- Funding and Budgeting Strategies
 - Recommendations for creative budgeting and funding
 - List of potential public and private funding sources
 - Strategies for coordinating with funding entities for maximum funding
 - Strategies to continually monitor private and public funding sources for new grant and rebate opportunities
 - Understand how larger agencies are accessing funds that can be used for GHG reductions in their area.



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OVERVIEW

Task 3: Technical work (continued)

- Strategies & Best Practices for GHG Inventory Updates
 - Data collection and GHG emission data organization
 - Spreadsheet development and emissions calculations
 - Emissions reporting
 - Best practices for analyzing emission trends

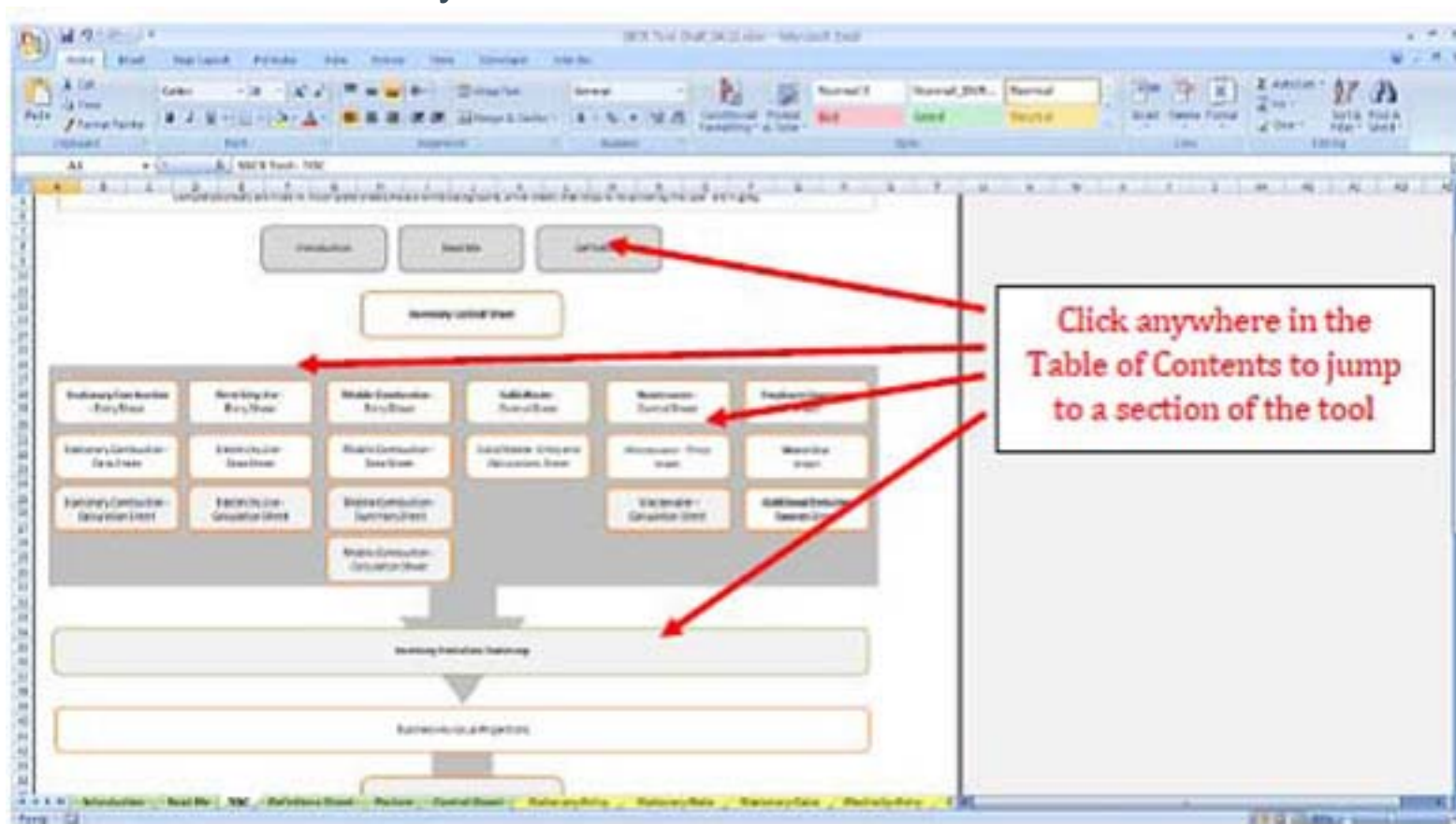


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OVERVIEW

Task 3: Technical work (continued)

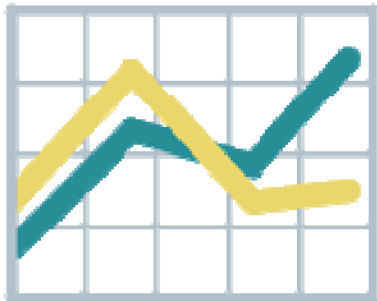
- Scoping of the Implementation Tracking Tool
 - Functionality and interface



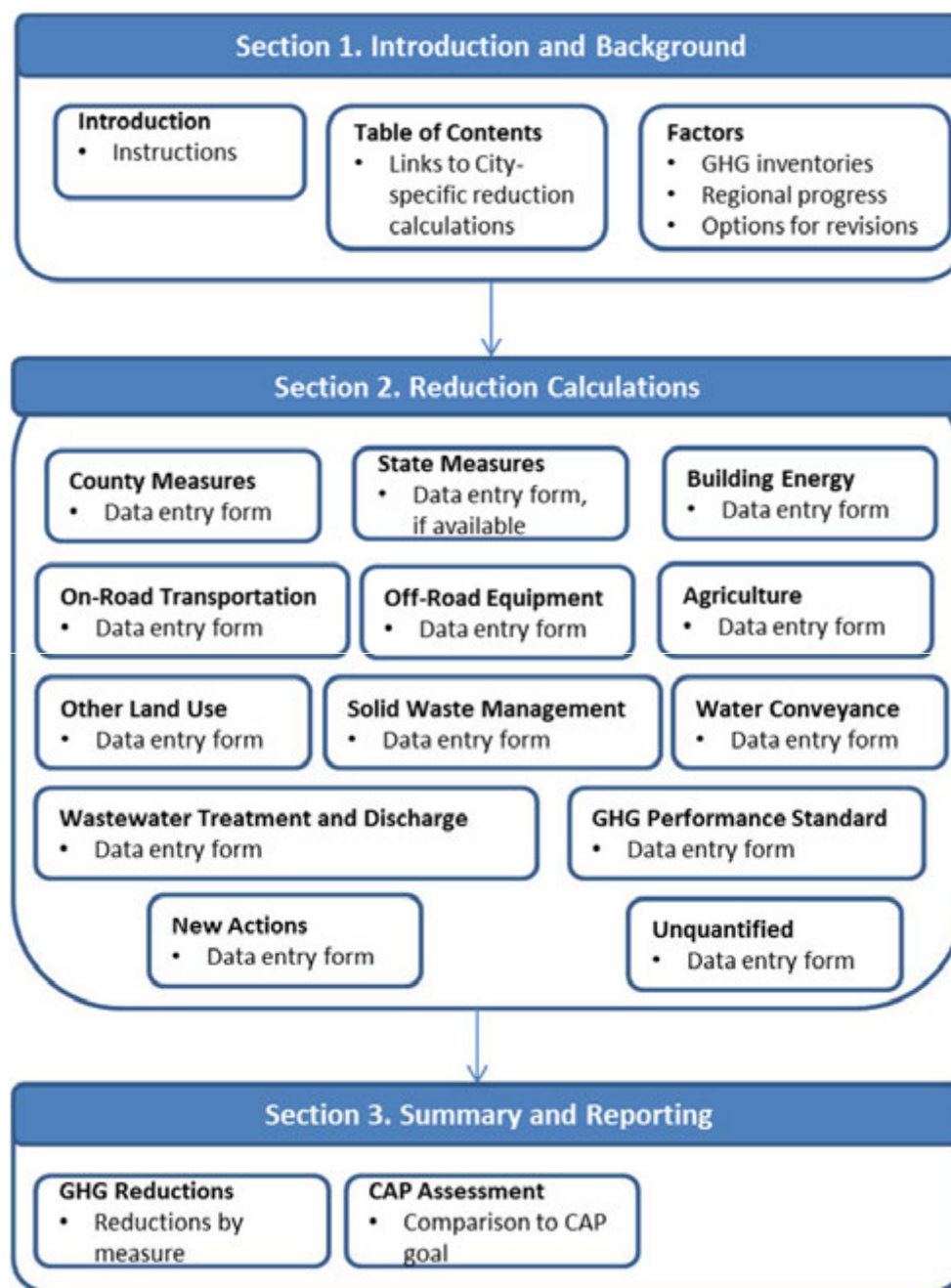
OVERVIEW

Task 3: Technical work (continued)

- Scoping of the Implementation Tracking Tool
 - Components and outline
 - ❖ Tracking that allows adjustments to reduction measures to keep on target
 - ❖ Annual assessment of progress toward reduction goals



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OVERVIEW

Task 3: Technical work (continued)

- Development Review Process
Screening Tables
Update

Feature	Description	Assigned Point Values	Project Points
Reduction Measure R2 E5: Energy Efficiency for Commercial Development			
Building Envelope			
Insulation	Title 24 standard (required)	0 points	
	Modestly Enhanced Insulation (5% > Title 24)	3 points	
	Enhanced Insulation (15% > Title 24)	7 points	
	Greatly Enhanced Insulation (20% > Title 24)	11 points	
Windows	Title 24 standard (required)	0 points	
	Modestly Enhanced Window Insulation (5% > Title 24)	3 points	
	Enhanced Window Insulation (15% > Title 24)	7 points	
	Greatly Enhanced Window Insulation (20% > Title 24)	11 points	
Doors	Title 24 standard (required)	0 points	
	Modestly Enhanced Insulation (5% > Title 24)	3 points	
	Enhanced Insulation (15% > Title 24)	7 points	
	Greatly Enhanced Insulation (20% > Title 24)	11 points	
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage.		
	Title 24 standard (required)	0 points	
	Modest Building Envelope Leakage (5% > Title 24)	3 points	
	Reduced Building Envelope Leakage (15% > Title 24)	7 points	
	Minimum Building Envelope Leakage (20% > Title 24)	11 points	

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Conclusion



ATKINS



APPENDIX F. I

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Memorandum

Date:	May 29, 2015
To:	Steve Smith, SANBAG Josh Lee, SANBAG Michael Hendrix, Atkins
From:	Rich Walter, ICF International Brian Schuster, ICF International
Subject:	SANBAG Climate Action Plan Implementation Tools: Regional Coordination

Executive Summary

Implementing a Climate Action Plan (CAP) is a challenging endeavor that requires a cohesive and informed management approach. CAPs typically provide a broad view of greenhouse gas (GHG) reduction measures selected by a jurisdiction to reduce and avoid local emissions. Developing policies and procedures to physically implement these measures requires collaboration with regional agencies and stakeholders.

21 cities (Partnership cities) in San Bernardino County (County) formed a partnership with the San Bernardino Associated Governments (SANBAG) to begin the CAP process with the *San Bernardino County Regional Greenhouse Gas Reduction Plan (GHG Reduction Plan)*. The next step for the cities is to develop their own CAPs using this plan as a framework. Once the CAPs are developed, the cities will need to engage with the regional community to ensure successful implementation of their CAP measures.

This memorandum identifies important regional partners in the San Bernardino region and collaboration opportunities with these regional partners. It provides roles and responsibilities of individual stakeholders regarding implementation of the CAP programs. Finally, it identifies strategies that the cities can use to coordinate effectively with these stakeholders to implement and improve their CAP programs.

Introduction

There are substantial opportunities to enhance the effectiveness of individual city CAPs through regional collaboration. Cities can explore the potential to leverage resources through regional cooperation. Regional partnerships can:

- provide support and resources for program activities;
- generate revenue and funding;
- extend the reach and effectiveness of individual city CAP programs;
- provide credibility for city programs with a wider audience;
- allow for sharing of best practices;
- fill gaps in capacity and service;
- help with education and outreach efforts and provide access to new audiences;
- provide political clout or other types of leverage for program implementation; and
- reduce city staffing needs.

Regional Partners

The following is a list of regional partners within the County that may help implement individual city CAP programs, policies, and measures. The list also identifies potential opportunities for each partnership.

SANBAG

As the regional council of governments and the regional transportation agency, SANBAG is a logical hub of communication for Partnership cities on the progress of their CAPs. Further, SANBAG will be the responsible implementing agency for many transportation-related measures that result in local GHG reductions. SANBAG is also administering the Property-Assessed Clean Energy (PACE)¹ program loans and a Power Purchase Agreement (PPA)² for solar energy for participating cities (see additional discussion in the sections below). SANBAG also plays a supporting role in enabling transportation improvements, such as extension of the Metrolink line to Redlands and Bus Rapid Transit improvements in San Bernardino County.

Cities in San Bernardino County have already followed a partnership approach through SANBAG for development of the CAP implementation plan and for conducting the implementation support task for which this memorandum is being prepared. A regional partnership for implementation, including potential SANBAG CAP support staff could be a key strategy for implementation.

¹ The Property-Assessed Clean Energy (PACE) finance program is intended to finance energy and water improvements within a home or business through a land-secured loan, and funds are repaid through property assessments. Municipalities are authorized to designate areas where property owners can enter into contractual assessments to receive long-term, low-interest loans for energy and water efficiency improvements and renewable energy installation on their property. For more information on the PACE program, see: <http://energy.gov/eere/slsc/property-assessed-clean-energy-programs>

² Power purchase agreements (PPAs) involve a private company that purchases, installs, and maintains a renewable energy technology through a contract that typically lasts 15 years. After 15 years, the company would uninstall the technology, sign a new contract, or sell the system at fair market value.

Home Energy Renovation Opportunity

A good example of regional implementation is the Home Energy Renovation Opportunity (HERO) program, wherein SANBAG has created a property-assessment based funding opportunity that cities in San Bernardino can participate in to allow their residents and businesses to fund energy efficiency, renewable energy, water conservation and other GHG reduction strategies.³ In 2013, the HERO program was initiated in San Bernardino County by extending PACE funding to residential customers. SANBAG also offers the HERO program for commercial properties. HERO provides low-interest, long-term, tax-deductible financing that is repaid through property taxes. HERO financing supports residents in the County to implement energy efficiency, renewable energy, and water efficiency projects in their homes.

HERO requirements may be restrictive to some homeowners or businesses in the cities. The cities should continue to promote the HERO program through outreach efforts to potentially eligible homeowners, contractors, and businesses.

Joint Solar Power Purchase

This program provides an opportunity for local governments to reduce GHG emissions, improve air quality and reduce utility costs by collectively entering into a Joint Solar Power Purchase. This would allow the region to aggregate and capitalize the costs for installing photovoltaic solar panels to generate electricity.

SANBAG held an educational forum for local governments on the proposed joint solar procurement. Twenty-two agencies identified 82 potential solar sites that were evaluated for their physical and financial feasibility. After this analysis, 48 sites in 19 different agencies were selected to continue on to final analysis and consideration for construction.

SANBAG is currently completing an analysis of potential solar power sites among government agencies in San Bernardino County. The analysis includes the following elements:

1. Prepare necessary legal documents and agreements among participating agencies.
2. Prepare detailed final analysis of sites and prepare bid documents.
3. Send out an *Invitation for Bid* for firms to finance and install solar sites.
4. Prepare all legal documents and resolutions necessary to enter into Joint Power Purchase Agreements or construction agreements for the solar installations.

The result of this project will be the installation of solar power sites throughout the County to generate renewable electricity. This will result in the offset of GHG emissions and the reduction of utility bills for public agencies. SANBAG is expecting to receive over \$600,000 from participating agencies to fund this task (San Bernardino Associated Governments 2014).

³ For more information on the HERO program, see: <https://www.heroprogram.com/>

Potential Future Roles of SANBAG

SANBAG has coordinated the preparation of the GHG Reduction Plan with the Partnership cities and is presently supporting the cities through the implementation support project including preparation of monitoring and tracking tools as well as screening tables to help with CEQA level project reviews. If the member agencies of SANBAG were to support it, there are future potential roles for SANBAG to continue to support GHG reduction planning in the County beyond its past and present efforts that could include the following:

- *Regional GHG Inventory “Hub”*: SANBAG could serve as the County’s regional “hub” for GHG emissions inventory for the cities in the County and could coordinate and prepare periodic GHG inventories for all cities in the County. Like in the GHG Reduction Plan, all inventories would use a common methodology that would allow for emissions in all cities to be tracked on the same basis. This would result in efficiencies of scale for individual cities in GHG inventory updates. All inventories could be entered into a common cloud-based platform (like the Statewide Energy Efficiency Collaborative [SEEC] ClearPath California suite of online tools⁴) that could be accessible by City staff. Updates could be on a periodic basis, such as every three years, or as determined appropriate by the member cities.
- *Regional GHG Emissions Reduction Reporting*: SANBAG could coordinate and support annual or periodic reporting on GHG emissions reduction efforts in the County by collecting data on individual city efforts and then publicizing periodic reports on the collective efforts. This could involve leveraging City use of the monitoring/tracking tools prepared by SANBAG. Member cities could determine whether it is more useful to have their own staff collecting the data and reporting or whether SANBAG staff would be more efficient to do this more multiple cities.
- *GHG Reduction Plan/Local Plan Update Process*: SANBAG could coordinate periodic updating of the GHG Reduction Plan to help support local CAP updating. As described in the GHG Reduction Plan, routine monitoring and inventory updates may indicate the need to update GHG emissions reduction approaches to stop inefficient or ineffective GHG reduction approaches, expand successful initiatives to their full potential, or explore new initiatives. In addition, with the state starting to shift the focus of GHG reduction planning from 2020 to 2030 (and beyond), there will be a need to update the GHG Reduction Plan and Local CAPs to focus on the next planning horizon in time. SANBAG could coordinate this update effort to provide the same efficiencies and coordination benefits resultant from the current GHG Reduction Plan.
- *Continued support of Land Use/Transportation Coordination with the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016-2040 RTP/SCS) and beyond*: SANBAG will continue to coordinate transportation planning with the cities, the Southern California Association of Governments (SCAG), and other transportation agencies. With the 2016-2040 RTP/SCS⁵ now in development, SANBAG will continue to leverage local agency participating in finding the ways to best harmonize local land use planning, transportation planning, and GHG reduction efforts.

⁴ For more information on SEEC ClearPath California, see: <http://californiaseec.org/software-tools>

⁵ For more information on the 2016-2040 RTP/SCS, see: <http://transfin.scag.ca.gov/Pages/2016-RTP-Development.aspx>

- *Regional GHG Reduction Authority:* A more ambitious step beyond the potential approaches described above would be for SANBAG to be constituted as a regional GHG reduction authority, if the member jurisdictions desired SANBAG to serve in such a role and supported such an approach. In Sonoma County, for example, the local jurisdictions created the Regional Climate Protection Authority (RCPA) in 2009 to improve coordination on climate change issues and establish a clearinghouse for efforts to reduce GHG emissions.⁶ The RCPA is made up of the same Board of Directors as the Sonoma County Transportation Agency (SCTA) and includes representatives from each of the nine cities in Sonoma County and the Board of Supervisors. The RCPA has several dedicated staff that support its work that develop regional initiatives, coordinate their implementation, and seek grant and other funding to support GHG reduction efforts. The RCPA is presently supporting the preparation of a regional climate action plan (Climate Action 2020) with the cities in Sonoma County similar to the GHG Reduction Plan prepared by SANBAG. A regional authority would be able to pursue all of the current SANBAG initiatives and the potential initiatives described above, but could also have greater authority of action if the Partnership cities desired to convey such responsibilities to a regional agency. This may or may not be a desired approach for San Bernardino County, but it is an example of a more structured approach to regional cooperation.
- *Regional Climate Action Outreach:* SANBAG could organize and coordinate outreach programs across the county to spread the word about local CAP programs and provide information and education to the public. SANBAG could create a clearinghouse for incentives, rebates, and things community members can do to reduce their emissions and participate in local CAP programs. Community involvement is essential to successful implementation of the emissions reduction measures, especially considering that many strategies depend on voluntary commitment, creativity, and participation. SANBAG could work with the cities to collaborate with local businesses, community groups, residents, developers, and property owners to establish partnerships and encourage active involvement CAP programs. SANBAG could help the cities organize periodic meetings to provide information and inform each community on progress toward attaining emissions reduction targets. These meetings would provide an opportunity for collaboration and a mechanism for the cities and the county to receive feedback on potential improvements or changes to the emissions reduction measures. SANBAG could also pursue other outreach activities, such as by creating a public website and email flyers, to engage the public and solicit input, suggestions, and participation.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a Joint Powers Authority which was established as an association of local governments and agencies that voluntarily convene as a forum to address regional issues.⁷ SCAG is designated as a Metropolitan Planning Organization (MPO) and a Regional Transportation Planning Agency. SCAG is responsible for developing long-range regional transportation plans including sustainable communities strategy and growth forecast components,

⁶ For more information on the RCPA, see: <http://www.sctainfo.org/rcpa.htm>

⁷ For more information on SCAG, see: <http://www.scag.ca.gov/Pages/default.aspx>

regional transportation improvement programs, and regional housing needs allocations. San Bernardino County is part of the SCAG planning area.

SCAG will likely be responsible for implementing some transportation-related (including goods-movement) measures that result in local GHG reductions in the County, and it is therefore important for cities to coordinate with SCAG as necessary to help implement their own local transportation-related CAP programs. For example, Senate Bill (SB) 375 requires SCAG to develop a Sustainable Communities Strategy (SCS) to reduce GHG emissions from cars and light trucks through integrated transportation, land use, housing and environmental planning (Southern California Association of Governments 2015). The SCS is a plan for meeting GHG emission reduction targets set by the California Air Resources Board (ARB) for the SCAG region. Consequently, cities will need to work with SCAG to implement the SCS in their communities, and this process may involve a multitude of transportation- and land use-related actions to reduce emissions from on-road vehicles.

Air Districts

The South Coast and Mojave Desert Air Quality Management Districts (SCAQMD and MDAQMD) are the local agencies responsible for developing and implementing air quality plans. The agencies also sponsor various air quality programs that may support implementation of several energy-efficiency, transportation, and renewable energy measures.

For example, SCAQMD has established a Local Government Relations Program to assist cities, counties, special districts, and other local government agencies with air quality issues. The AB 2766 Motor Vehicle Subvention Program provides funding for cities and counties to implement projects that result in the reduction of motor vehicle emissions.⁸ The Carl Moyer program, supported by both SCAQMD and MDAQMD, provides funding for cost-effective projects to upgrade heavy-duty diesel equipment to reduce emissions.⁹

The SCAQMD Air Quality Investment Program is a voluntary incentive program to support clean vehicle equipment projects and clean fuel research.¹⁰ Employers invest money into a SCAQMD fund based on how many people they employ. The funds collected are then used to implement projects that reduce emissions. The cities could participate in this program by submitting proposals to SCAQMD to implement the GHG reduction measures. According to the program website, proposals submitted to SCAQMD “should demonstrate that emissions reductions/air quality improvements are real, surplus, quantifiable, and contain appropriate methodologies”. These guidelines for proposals are met in the GHG Reduction Plan, which should facilitate the preparation of proposals for this program associated with each city’s CAP.

Cities can take advantage of programs like these through partnerships with the air districts.

⁸ For more information on the AB 2766 Motor Vehicle Subvention Program, see: <http://www.aqmd.gov/home/programs/local-government/local-government-detail?title=ab2766-motor-vehicle-subvention-program>

⁹ For more information on the Carl Moyer program see: <http://www.aqmd.gov/home/programs/business/carl-moyer-program-additional-information> and <http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>

¹⁰ For more information on the SCAQMD Air Quality Investment Program, see: <http://www.aqmd.gov/home/programs/business/business-detail?title=air-quality-investment-program>

Energy Utilities

The energy utilities within the County are well established and have energy efficiency and environmental commitments. They will be key partners for the cities, especially for energy efficiency and renewable energy programs. Utilities can reach a wide audience and support city programs with their extensive energy use data. Partnering with utilities can add credibility to city programs and bolster their implementation with technical expertise.

The cities should work with utility staff to advance common goals. City staff should become familiar with demand-side management and renewable energy requirements because they are a major motivating factor for utilities to work with the cities and contribute to their local programs. Utility rebates should be bundled and incorporated into local City CAP programs, as feasible.

When working with utilities, city staff should be aware that utilities have well-established programs that may not have the flexibility to integrate with local city programs. Utilities also have obligations and constraints placed on them by state and public utility commissions and may have data confidentiality barriers.

Southern California Edison

Southern California Edison (SCE) offers numerous incentives and rebate programs to encourage energy efficiency within their service area. Some rebate and incentive programs offered by SCE include refrigerator recycling and rebates for refrigerators, pool pumps and motor, evaporative coolers, air conditioners, and hybrid electric heat pump water heaters. SCE is also currently distributing smart meters to their customers. Resources offered by SCE may reduce the costs of CAP measure implementation and administration, especially for energy efficiency and renewable energy programs. There may also be opportunities for cooperation on community-scale alternative energy installations (e.g., wind, solar).

Southern California Gas Company

The Southern California Gas Company (SoCalGas) offers also many incentives and rebate programs to encourage energy efficiency within their service area. The utility provides residential and commercial rebates for water heaters, clothes washers, showerheads, insulation, furnaces, and other appliances. Resources offered by SoCalGas may reduce the costs of CAP measure implementation and administration, especially for energy efficiency and renewable energy programs.

Other Local Utilities

The cities can form partnerships with other energy providers in the County, including Southwest Gas, Bear Valley Electric Service, Colton Public Utility, and other municipal energy providers to implement energy efficiency and renewable energy programs included in their CAPs. These utilities offer rebate and incentive programs, energy expertise, and energy use data that will be valuable to CAP implementation.

Utility On-Bill Financing

Utility on-bill financing (OBF) allows a utility consumer to receive an energy upgrade at no up-front cost and pay back the cost of the project through an added charge assessed on the consumer's energy bill every month. On-bill repayment is currently available for commercial organizations in San Bernardino County and provides zero percent loans for energy upgrades,¹¹ but there is no such option for residential consumers. There is currently no residential OBF offering from SCE in San Bernardino County, but it may be available in the future. The California Public Utilities Commission approved a pilot for a master metered multifamily OBF program in September 2013.¹² Smaller utilities that serve the County or individual cities do not yet offer OBF for commercial or residential consumers. The cities can work with utilities to promote OBF through outreach efforts to potentially eligible homeowners, contractors, and businesses.

Transportation Agencies (Metrolink, Omnitrans, Mountain Area Regional Transit, Foothill Transit Agency, Caltrans, etc.)

Coordination with regional transportation agencies would be necessary to fully implement the transportation reduction measures that promote mixed use development. With SB 375 and its linkage to transportation funding, it is crucial for the cities and the transportation agencies to develop a shared vision of how land use and transportation can be consistent with the next Regional Transportation Plan (RTP) and the required Sustainable Communities Strategies (SCS).¹³

A number of transit-related funding sources may be used by the cities in concert with regional transit providers, such as Bus Stop Sponsorships (advertisement sponsorship of bus stops has been used as a revenue source) and Transit Fare Increases (transit fares could be increased to help fund capital improvements, though increases also have the potential to decrease ridership in the short term). Challenges to these local funding sources include resistance to transit-fare increases. A parcel tax would also meet substantial resistance. The cities and regional transit providers would have to gauge public perception of both transit fare increases.

Coordination with Metrolink on service expansion and transit-oriented development around Metrolink stations should be continued and expanded. The region can also work with Caltrans on promoting roadway GHG efficiency in the form of high occupancy vehicle (HOV) lanes and park and ride facilities.

¹¹ For more information on OBF, see: https://www.sce.com/wps/portal/home/business/tools/on-bill-financing/!ut/p/b1/hc9NCsIwEAXgs3gAnWkjtS7T0p8ENWrf1mykSowFTSWWgrc3gitBnd0M34N5IKECaeq-0XXxtKa-vHYZ7L0wozkrklkiT5FFPsvmfEnCCXfg5wB-GYr_8iXIDxKxwJGYxkJwDPn4E2TriY-Mb5OZiDwfx_4bTDNMci4c2KwIMrLCRUepQQze4MeTHKS-tAdXulxA9utCxfpVjZoDCTVIq07KKjs6t_cOKmWU1Y-jMp07tVbD7Vphw4Yy1YPBE8TM2VI!/dl4/d5/L2dBISevZ0FBIS9nQSEh/#/

¹² For more information on OBF, see: http://switchboard.nrdc.org/blogs/lettenson/2013-09-19_EE%20Financing%20CPUC%20Press%20Release.pdf

¹³ For more information on the County's RTP and SCS, see: <http://rtpscs.scag.ca.gov/Pages/default.aspx>

San Bernardino County Solid Waste Management Division

The County operates the landfills that receive most of the cities' waste and has committed as part of its own CAP to improve methane control for its landfills which will help reduce emissions associated with city landfilled waste. Coordination with the county to provide the necessary facilities, programs, and incentives would help ensure this goal can be achieved by 2020, as waste services are often shared across several jurisdictions, including the unincorporated portions of the county.

Water and Wastewater Agencies

Water and wastewater agencies are critical regional partners related to water conservation and wastewater efficiency and associated GHG emission reductions strategies.

Inland Empire Utilities Agency

The Inland Empire Utilities Agency (IEUA) is a regional wastewater treatment agency and wholesale distributor of imported water in the County. IEUA provides three key services: (1) treating wastewater and developing recycled water, local water resources, and conservation programs to reduce the region's dependence on imported water supplies and drought-proof the service area; (2) converting biosolids and waste products into a high-quality compost made from recycled materials; and (3) generating electrical energy from renewable sources (Inland Empire Utilities Agency 2015).

Cities can partner with IEUA to promote the reduction of emission associated with wastewater treatment plant (WWTP) operations. Cities can also work with the IEUA to reduce wastewater generation through the reduction of stormwater runoff by land use measures promoting infiltration and other non-WWTP treatment methods.

The IEUA also has a comprehensive water conservation strategy to reduce water use in the County. The cities can work with IEUA to ensure successful implementation of these strategies to support the water reduction programs within their own CAPs.

The IEUA also offers rebates for the residential¹⁴ and commercial¹⁵ sectors. Forming a partnership with the IEUA will help cities secure these rebates and also help spread community awareness of the rebates to encourage conservation efforts. IEUA has also been active in piloting methane digester energy production as part of an overall strategy to manage water quality issues associated with dairy manure waste in Chino and Ontario. Since 2008, IEUA has also installed 3.5 megawatts (MW) of solar power, a 1 MW wind turbine, and a 2.8 MW biogas fuel cell.¹⁶ IEUA plans to achieve "peak power independence" by 2020 by implementing additional renewable projects, energy management agreements, and operational efficiencies.

¹⁴ For more information on IEUA residential rebates, see: <http://www.ieua.org/use-water-wisely/rebates/residential/>

¹⁵ For more information on IEUA commercial rebates, see: <http://www.ieua.org/use-water-wisely/rebates/commercial/>

¹⁶ For more information on IEUA's renewable energy projects, see: <http://www.ieua.org/about-us/programs/renewable-energy/>

Metropolitan Water District of Southern California

The Metropolitan Water District of Southern California (MWD) is a cooperative of 26 cities and water agencies serving 19 million people in six counties. The MWD helps its members to develop water conservation, recycling, storage, and other resource-management programs. For example, the district offers a number of rebates for water-conserving upgrades, such as for High-efficiency toilets, clothes washers, and plumbing fixtures.¹⁷ Reducing water use directly reduces wastewater generation, which in turn reduces associated emissions from WWTPs. Forming a partnership with the MWD will help cities secure these rebates, reduce water use and wastewater generation, and help spread community awareness to encourage conservation efforts.

Local Water Service Providers

The cities can work with both the wholesalers and retailers of water in each city to promote reductions in indoor and outdoor water use from existing and new development and achieve the goals set forth by SB X7-7, which requires water retailers to reduce per capita urban water use by 20% by 2020,¹⁸ and Executive Order (EO) B-29-15, which requires cities and towns across California to reduce potable urban water usage by 25 percent by 2016.¹⁹

The water retailers in the County offer many demand management measures (DMM) to increase water conservation within their service areas. For example, the City of Chino has committed to numerous DMMs including system water audits, leak detection, and repairs; conservation pricing, plumbing retrofits; low-flow appliance rebate programs; landscape irrigation conservation programs; and water use education programs (City of Chino 2011). Programs like these are very common among the County's water suppliers. Partnerships with the local water providers can help take advantage of these existing programs and incentives to reduce water use, and are very important for implementing the water conservation measures that are a part of each local CAP.

Local Wastewater Agencies

The cities can collaborate with other local wastewater service providers to promote wastewater treatment emission reductions and reduce wastewater generation. These service providers operate the WWTPs and therefore have the ability to change WWTP operations to reduce GHG emissions (such as upgrade equipment and capture biogas generated through wastewater processing). They may also be able to help the cities work with the community to reduce wastewater generation through water conservation efforts.

¹⁷ For more information on MWD rebates, see: <http://www.bewaterwise.com/rebates01.html>

¹⁸ For more information on SB X7-7, see: <http://www.water.ca.gov/wateruseefficiency/sb7/>

¹⁹ For more information on EO B-29-15, see:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/emergency_mandatory_regulations.shtml

The U.S. Green Building Council

The U.S. Green Building Council (USGBC) is a diverse group of builders, environmentalists, corporations, nonprofits, teachers, students, lawmakers, and citizens that share a vision for a sustainable built environment. The USGBC is made up of tens of thousands of member organizations, chapters and student and community volunteers to make buildings more sustainable. The USGBC offers trainings that may assist participants in achieving their environmental performance goals. By partnering and working with the USGBC, the cities can take advantage of the USGBC's huge knowledge base to aid in CAP program implementation. For example, the USGBC can assist in incorporating Leadership in Energy & Environmental Design (LEED) criteria into the cities' program goals which can bolster programs geared toward creating more sustainable homes and businesses.²⁰

Other Regional Organizations and Entities

Forming partnerships with the following general types of organizations and groups can also aid in CAP implementation.

Corporations and Private Companies

Certain programs in a city's CAP will require the participation of private companies and corporations. For example, a trip reduction ordinance requires employers to reduce vehicle trips taken by employees by offering things like rideshare incentives, reduced cost transit passes, guaranteed ride home services, bicycle parking infrastructure, electric vehicle charging stations, etc. In order for these programs to be successful, it is important to form productive and working relationships with corporations as needed.

In addition, partnerships with corporations can be a good way to reach the local community at a broad level, as they can be a conduit to community members (i.e. employees). Partnerships with key corporations can ensure that nonresidential requirements are met, and voluntary actions are implemented as widely as possible. Corporations may also be willing to contribute resources to city programs, such as staff time, technical expertise, data and information, and funding. Corporations have broad customer and support networks which can be a valuable resource for a city.

Nonprofits

Nonprofits can provide critical outreach to the community and may bring relationships to neighborhoods that can be hard to reach. They often provide technical expertise through a network of experts and industry representatives. Nonprofits can also provide outreach, engagement, marketing services, and sector advice.

While environmental advocacy groups can sometimes take an adversarial approach to certain city initiatives, particularly as they relate to certain new development proposals, nearly all environmental-oriented nonprofit groups support local action to reduce GHG emissions. While some may desire that local city initiatives be more aggressive than currently proposed, environmental

²⁰ For more information on the USGBC and the LEED program, see: <http://www.usgbc.org/leed>

groups usually support local initiatives in emissions reductions. They can also provide useful outreach and feedback functions as local programs are developed, initiated, and expanded. GHG emission reduction efforts can be an opportunity for cities and environmental groups to find areas of common ground and productive endeavors to balance the sometimes more challenging adversarial relationships associated with controversial environmental issues.

For example, the San Bernardino County Capacity Building Consortium is a partnership of organizations and networks that provide funding, services, training, or technical assistance for nonprofit organizations to become more effective, responsive, innovative and sustainable.²¹ Other examples of partnership include the Global Philanthropy Partnership (GPP), a nonprofit partner to the City of Chicago, routinely staffs committees, crafts work plans, coordinates with consultants, and fill gaps among City staff.²²

Other Jurisdictions Inside and Outside San Bernardino County

The 21 Partnership Cities are all implementing GHG reduction measures in their communities; some may be developing local CAPs of their own. There are many opportunities for collaboration among jurisdictions, since most will be implementing the same or very similar CAP programs.

There are many instances where individual city CAP programs will overlap, and economies of scale can be realized through coordination and collaboration. Other jurisdictions in the County can be valuable resources for what works and what doesn't. Jurisdictions should work together on similar programs to reduce overall staff time spent on implementation and can help prevent an individual city from re-inventing the wheel on its own local programs. Each jurisdiction can offer unique opportunities for engaging residents in sustainability initiatives, and can help provide solutions to challenges related to funding, access, and capacity.

Other jurisdictions outside San Bernardino County could also be potential partners. For example, the Western Riverside Council of Governments (WRCOG) has been playing a similar role as SANBAG for cities in western Riverside County in promoting local GHG emissions reduction planning and cooperation. The San Gabriel Valley Council of Governments (SGVCOG) has also been supporting GHG inventories and energy action plans in cities in the eastern part of Los Angeles County.²³

Universities and Students

Partnerships with universities can advance research on CAP programs and strategies and provide technical expertise to cities. Many universities are conducting cutting-edge research and studies on topics that may advance CAP programs, such as energy efficiency strategies, renewable energy technologies, and alternative transportation development. Students also represent a volunteer workforce that can offer implementation resources for programs (such as labor), and they gain

²¹ For more information on the San Bernardino County Capacity Building Consortium, see: <http://www.iecapaciteria.org/consortium>

²² For more information on the Global Philanthropy Partnership, see: <http://www.global-philanthropy.org/>

²³ For more information on WRCOG's and SGVCOG's climate actions, see: <http://www.wrcog.cog.ca.us/community/sustainability> and <http://www.sgvkog.org/#!environment/c16fn>

valuable hands-on learning experiences by working with cities. Students can bring creativity, technical expertise, energy, and enthusiasm.

There are many universities in the County, including California State University, San Bernardino, Loma Linda University, University of Redlands, National University, etc. The San Bernardino Community College District is pursuing a commitment to environmental stewardship through the development of a Sustainability Plan (San Bernardino Community College District 2012). This plan intends to foster sustainability across the County's community colleges. Thus there are many opportunities for partnerships with local colleges and universities and their student bodies.

For example, the City of Portland is currently collaborating with a local university to develop a series of heat island mitigation maps to target tree planting measures (Crim pers. comm.). The City of Chula Vista formed the San Diego Regional Climate Collaborative, which is a regional forum for public agencies to share expertise and leverage resources to support GHG reduction efforts (City of Chula Vista 2015).

Contractors and Developers

Contractors and developers are on the front-line of program implementation, as they are usually the ones on the ground doing the actual project work. Therefore, it is important to engage early and often with contractors and developers to ensure that they are implementing programs correctly and effectively, and that they understand the goals. Contractors are critical to the reputation, quality, and effectiveness of local GHG reduction programs.

Working with contractors and developers can also generate local jobs and encourage economic development. Like experts, contractors provide specialized knowledge, skills, and certifications to perform the work necessary for program implementation. They have access to wide networks and important contacts that can expand the reach of and opportunities available to local programs. There are many contractors in the County and cities will not be able to partner with all of them. Consequently, in order to make sure that collaboration efforts are efficient and effective, cities should identify large, particularly active, or regionally important contractors and developers to collaborate with.

SANBAG has coordinated periodically with the Building Industry Association of Southern California (BIA) during development of the GHG Reduction Plan and individual cities have worked with the BIA as well to ensure that new GHG emission reduction approaches (such as the GHG Performance Standard for new development and the associated screening tables) will be feasible for the development industry and will serve to streamline project GHG review where possible.²⁴ The Baldy View Chapter of the BIA, which oversees the San Bernardino County region, is an important partner in working on new GHG reduction initiatives for new development and can be an asset in seeking the support of the development industry overall.

²⁴ For more information on the BIA, see: <http://www.biasc.org/> and <http://www.biabuild.com/>

Elected Officials

Recognition from the City or County government is one of the few incentives that local governments can provide to their constituents at low or no cost. Cities should collaborate with local government representatives and other elected officials to spur the implementation of local CAP programs. Officials have useful resources to offer cities, such as the ability to reach out to the community at large and provide credibility to and support for local programs.

City staff should communicate with elected officials to ensure that they are committed to CAP programs. Partnerships can also help progress program and participant recognition, provide resources for municipal annual reporting on the progress of CAP programs, and garner support for future ordinances and requirements to reduce GHG emissions as technology and CAP strategies evolve and improve in the future.

Volunteers

Volunteers can boost organizational capacity and encourage civic engagement. They can help extend the reach of local programs through one-time commitments or long-term involvement. They can help implement local programs by engaging with communities. Working with volunteers is a cost-effective way to aid in the implementation of local programs and may be necessary for grant requirements. Engaging with volunteers can strengthen community fabric and improve the relationship with the local community. Working with volunteers also demonstrates that the city is interested in engaging with the local community.

Early Adopters

Early adopters may be a wide range of organizations, including businesses, community organizations, utilities, regional agencies, etc. These groups participate in a program early in its development. Their feedback can provide useful information for improving program implementation and help get a jump-start on local programs. Early adopters can help cities identify and solve problems early in the process before the program reaches its full potential. They can also lend credibility to city programs by showing that the program actually works in a practical setting. City staff can ask early adopters to “sell the program” by calling nonparticipating businesses or organizations and encouraging them to participate.

Make sure that early adopters can serve as effective “program ambassadors” by relating to a wider community audience. Focus on ambassadors who can represent city CAP program well and stay on message. Many of the aforementioned regional partners and groups may already be early adopters.

Experts

Experts can help provide knowledge and experience that a city may not have, and may contribute toward program design, implementation, and evaluation. Experts can aid in the design of city programs to make sure they are effective and efficient and can provide technical and other useful resources. They can help implement city programs by providing expert review of monitoring data. They can help cities evaluate program resources, opportunities, assets, effectiveness, and reach.

Engaging experts also adds credibility to city programs, and can help ensure that the city isn't re-inventing the wheel and is using the latest and greatest information available.

Experts comprise many of the groups already identified in this memo, including existing regional partners, universities, private companies, contractors, nonprofits, etc.

Coordination Strategies

The following is a list of strategies that the cities can use to coordinate effectively with stakeholders to implement and improve their CAP programs. The strategies are in no particular order. Many of these strategies were adapted from the U.S. Environmental Protection Agency's (U.S. EPA) Climate Showcase Communities Program (U.S. Environmental Protection Agency 2015a).

Create a Partner Map

A partner map can help generate ideas about how partners can play a role in local programs, whether certain partnerships should be maintained, or where new partners should be added. The map should include existing and potential partners, their roles and responsibilities, the unique opportunities that each partnership can offer, areas where the partner can excel compared to other partners. The following is an example partner map provided by the U.S. EPA (U.S. Environmental Protection Agency 2015b).

PARTNER	CURRENT ROLE	UNIQUE OPPORTUNITIES	AREAS OF EXCELLENCE
Private Company #1	<ul style="list-style-type: none">• Provides advisory services and call center operations for city-wide participants.• Provides data evaluation and systems/process updates and improvements.• Provides regional services.	Maintains core operations and customer management system. Staffs call center and provides efficiency due to the scale of operations.	Provides services at a lower cost due to the scale of operations. Possesses the flexibility to cover off-and-on tasks.
Nonprofit #1	<ul style="list-style-type: none">• Provides critical outreach in selected neighborhoods.• Provides participants for both income-qualifying and non-income-based programs.	Has existing ties to neighborhoods that have traditionally been hard to reach, and possesses bilingual ability.	Ensures city-wide coverage of services.
City Agency #1	<ul style="list-style-type: none">• Provides coordination among various nonprofits and channels participants into income-based programs.	Maintains funds for income-based program.	Provides a point of contact for dissemination of program information to city-wide contacts. Manages income-based program.
Nonprofit #2	<ul style="list-style-type: none">• Provides technical advisement.• Provides historic property assessments.	N/A	Has the ability to serve as a technical advisor on complicated cases.

City Agency #2	<ul style="list-style-type: none"> • Provides grant coordination. • Provides program work plans. • Provides advisor services. • Collectively represents the interests of the group to the public utilities commission and other governing bodies. • Provides program evaluation. • Provides data management. 	Able to receive and manage limited grant opportunities. Has standing in certain governing bodies.	Has the capacity to build consensus with authority.
Nonprofit #3	<ul style="list-style-type: none"> • Provides outreach and engagement. • Provides marketing services. • Provides energy advisement. 	N/A	N/A

Source: U.S. Environmental Protection Agency 2015b

Build Networks and Relationships

Building networks and relationships with potential and current partners will make any partnership more effective. In-person meetings and social events will help build and strengthen relationships between staff. This will also help cities identify people in organizations who have the time, resources, and interest to work together on projects. Start small by working on one project together to see how effective the partnership is, and then work up to multiple projects and larger collaborative efforts if the relationship is successful. Show appreciation for the efforts of partners; positive feedback and recognition go a long way. Create opportunities, not competition, among partners.

Form a Stakeholder Working Group

Each jurisdiction is home to dozens of stakeholders with unique values, objectives, and resources. Key stakeholders in the San Bernardino area include the South Coast and Mojave Air Districts, SCE, SoCalGas, Metrolink, Omnitrans, Mountain Area Regional Transit, Foothill Transit Agency, local waste and wastewater service providers, schools, businesses, developers including the BIA, nonprofits and environmental groups and residents. Engaging stakeholders in the CAP can bolster a sense of ownership and commitment throughout the community. It also provides an opportunity to leverage resources, including support for funding, outreach, and policy/legislative changes. Several jurisdictions throughout California and the nation have established stakeholder working groups, including the New York Sustainability Advisory Board, Chula Vista Climate Change Working Group, Berkeley Climate Action Coalition, and Chicago Climate Action Task Force.

A stakeholder working groups should consist of representatives from businesses, schools, faith based organizations, environmental and community advocates, labor leaders, planners, and real estate developers, nonprofit groups, and various community organizations. The purpose of the group should be to provide advice and external ideas to the CAP implementation team. Regular communication with the stakeholder working group is essential and can occur through meetings,

briefings, or even novel communication methods—for example, Chicago has a PBWiki site where stakeholders can post comments in real-time.

Convene a “Green Business Council”

A Green Business Council can bring together corporate leaders interested in promoting sustainability through outreach and partnerships. A council can maximize the contribution of local businesses to CAP programs and promote economic competitiveness within the commercial sector by strengthening environmental performance. Forming a Green Business Council requires advance planning and outreach, but there are many resources available to aid in this process.

For example, ICLEI’s Green Business Challenge is a leading nationally-recognized model for community-led private sector engagement in local sustainability priorities and provides tools for local governments to engage the business community in sustainability and climate protection.²⁵ Programs like this can help improve the environmental performance of commercial buildings through CAP programs. In order to create a successful Green Business Challenge, cities must conduct initial planning to determine program costs and staffing, develop goals and strategies for businesses, create a baseline survey and scorecard that businesses can compete in to earn points, engage partners and recruit participants, conduct trainings and events, keep participants engaged, and provide recognition and awards to participants.

For example, the City of Chicago’s Green Office Challenge involved 150 participants (including commercial property managers and tenant companies) to save \$17.5 million in energy costs, reduce energy use by 124 million kilowatt hours, reduced over 85,000 metric tons of carbon dioxide, and diverted 43% of their waste from landfills. Chicago’s strategy was a major contributor in helping the City reach its Chicago Climate Action Plan goals.

Identify Sponsors

Sponsors can help CAP programs grow in scope and impact through contributions to the program budget. Many regional partners may be sponsors for local programs. Some organizations may participate in a sponsorship capacity only, some may also wish to provide financial or significant in-kind support. Examples of major in-kind support include covering costs for awards, events, food, printing, or product giveaways. Recognize these contributions by featuring sponsor logos at events, include logos in communication mediums such as a program or municipal website, and invite sponsors to speak at press conferences or major ceremonies with other high-profile speakers.

Identify Shared Goals

Understand the goals, skills, and constraints of partners and their staff. Identifying motivations and shared goals makes sure that everyone is on the same page and has the same desired outcomes for the partnership. If all are working toward the same goals, local programs are much more likely to be effective.

²⁵ For more information on ICLEI’s Green Business Challenge, see:
http://www.icleiusa.org/climate_and_energy/green-business-challenge

Identify Constraints and Limitations

Each regional partner may have limitations, including staff availability and time, technical expertise, availability of data and information, community influence, political viability, financial resources, etc. Identifying the constraints and limitations of regional partners will help focus efforts and work toward attainable goals. Competing agendas and priorities may derail program implementation, so identifying these issues early and following up on them frequently is important to keep things on track. Regional partners may already have well-established programs that have limited flexibility to accommodate program goals and needs. Also understand that successful partnerships can be time consuming and require lots of staff time and resources on both sides.

Determine What Partners Can Offer

Make sure that partners can offer support for efforts on an ongoing basis as programs are implemented. What expertise do they have that the city may not have? What funding and revenue sources do they have access to? What datasets and information can they provide? Identify what gaps need filling and whether partners can help fill these gaps to ensure successful implementation of programs. Many partners may also offer volunteer or pro-bono resources, such as universities or utility programs that offer free services. Provide training to partners where necessary to improve efficiency. Ensure that partners have the right skills and a proven record of reliable and effective service.

For example, contractors may be able to provide discounts for large volumes of work.

Determine What the City Can Offer Partners

Identify what the city's local programs can offer regional partners, and where city expertise can help fill gaps in partners' capacity, information, and services. Offering where the city can fill partners' gaps can produce a productive and effective relationship. The city needs to offer value to partners; if they do not see what the city can offer, their interest and involvement in local programs may wane. Cities should keep track of how partner's needs and roles are evolving over time.

Set Clear Expectations, Goals, and Milestones

Setting clear expectations is important for ensuring that both parties understand what each is expected to contribute toward the relationship and the development of CAP programs. Setting clear goals ensures that everyone is working toward the same outcome and time is not wasted. This will improve the efficiency of the partnership and help streamline and reduce staff time commitments. Manage the scope of projects to ensure that goals are realistic and achievable. Provide oversight and guidance where needed, but also give partners ownership and accountability where feasible. Set obtainable schedules and milestones. Be realistic about the skills needed from partners. Formalize commitments and collaborations in writing. In addition, it is important to be flexible and able to adapt as needed.

Create action checklists to help organize and codify milestones and responsibilities for partners. Such checklists would be updated frequently so that the city and their partners are moving in the

same direction toward program goals and objectives. Quality assurance is also integral for effective program management and implementation. Create a quality assurance program that the city and the partners can both participate in.

Communicate Frequently

It is essential to communicate with regional partners on a regular basis. This is necessary to make sure that the program is progressing as planned and to take advantages of all opportunities for program implementation. Hold regular check-in calls or meetings with partners to discuss program implementation, identify successes and failures, strategize staff time and resources, share results and data, and plan for future tasks and actions. Be open and candid with partners to foster trust and strengthen relationships.

Create Award and Certificate Programs

Award and certificate programs provide public recognition and rewards for organizations that meet criteria for achieving CAP program goals or win a competition among organizations or regional partners. Recognition programs create valuable motivation for partners and communities, make participants feel appreciated, create opportunities for public engagement, provide outlets for media coverage, and inspire healthy competition.

To create a successful award and certificate program, identify categories of action that are meaningful and effective for CAP program implementation, create a set of clearly defined criteria for awards, develop consistent procedures for nominating participants and determining winners, announce award recipients in public settings with media coverage, highlight winners on a regular basis to the community, ask local organizations to donate prizes, and hold networking events for recognized groups to share information.

Monitor Progress

Regular monitoring is important to ensure programs are functioning as they were originally intended. The most successful implementation efforts are ones that include a high-quality monitoring plan. Monitoring plans should contain, at minimum: time period for implementation, clearly defined actor to perform actions, funding mechanism, description of monitoring technique, provisions for tracking change, and indicators to assess progress. Cities should also track environmental, economic, and social indicators. These “quality of life” improvements are often more important to the general public than emissions reduction. Tracking costs is also essential for resource prioritization and to ensure the CAP remains on budget. Economic data can also be used to communicate cost savings to the public. Accurately tracking program costs provides information on whether actions are cost effective and can help prioritize and direct City funds.

SANBAG has prepared a CAP Progress Report Template that the Partnership cities can use to report their CAP progress. The progress reports will be informed by the *Climate Action Plan Implementation Tracking Tool* (CAPITT) that is also being developed by SANBAG for the cities.

An example existing annual report is the *San Bernardino County Community Indicators Report*, which “provides a broad perspective of life in San Bernardino County and the many factors that contribute to sustaining a healthy economy, environment and populace” (The Community Foundation 2014). This report identifies trends and measures performance on a wide range of topics from the economic and business climate to environmental programs (such as renewable energy use, water conservation, and waste generation and disposal).

For more information on monitoring best practices, refer to the *SANBAG Climate Action Plan Implementation Tools: Best Practices for Climate Action Plan Implementation* memorandum.

Report Results

Any successful partnership must involve presenting program results to both the community and to its partners to illustrate progress and success. The best reporting processes emphasize transparency, emerging trends, big-picture results, and corrective actions, as needed. Internal reporting to both City staff and regional partners feeds program momentum and can encourage competition among peers and other regional partners. Likewise, external reporting to the community provides accountability and demonstrates the City’s commitment to excellence and sustainability. Make sure to use multiple venues to report progress; distributing materials through a variety of media outlets may capture a wider range of audiences and increase accessibility to information. Examples include annual municipal performance reports, interactive websites with program results and tracking information, community-based social marketing, multimedia (such as videos, fact sheets, and FAQ brochures), newspaper stories, radio interviews, and podcasts.

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