# ECONOMIC PROSPERITY ACTION PLAN AND CLIMATE ACTION PLAN

Public Review Draft | June 2015

Riverside
RESTORATIVE GROWTHPRINT

This is a project for the City of Riverside with funding provided by the Southern California Association of Governments (SCAG) Sustainability Program. The Sustainability Program is a key SCAG initiative for implementing the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), combining Compass Blueprint assistance for integrated land use and transportation planning with new Green Region Initiative assistance aimed at local sustainability and Active Transportation assistance for bicycle and pedestrian planning efforts. Sustainability Projects are intended to provide SCAG-member jurisdictions the resources to implement regional policies at the local level, focusing on voluntary efforts that will meet local needs and contribute to implementing the RTP/SCS, reducing greenhouse gas (GHG) emissions, and providing the range of local and regional benefits outlined in the RTP/SCS.

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SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

sustainability PROGRAM

Riverside RESTORATIVE GROWTHPRINT

Office of the Mayor
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CITY OF RIVERSIDE
*City of Arts & Innovation*

My fellow Riversiders,

It gives me great pleasure to present the Riverside Restorative Growthprint (RRG) - two interrelated plans, the Economic Prosperity Action Plan (EPAP) and Climate Action Plan (CAP) - that embody the City of Riverside's shared commitment to environmental stewardship and a culture of innovation.

Early on, when sustainability and climate change were not even on most peoples' radar, the City made a commitment to sustainable practices with the creation of the Clean & Green Taskforce and the 2007 Sustainability Policy Statement (SPS). The SPS gave way to the Task Force's Green Action Plan, a robust strategy designed to show city officials and residents how to go green in the areas of Energy, Greenhouse Gas Emissions, Waste, Urban Design, Urban Nature, Transportation and Water. This impressive work led to the formation of the Green Accountability Performance (GAP) Committee, a group of dedicated volunteers that ensures the successful implementation of the Green Action Plan and most recently contributed to the development of the Climate Action Plan.

A primary goal of the RRG is to maximize the economic benefits inherent to addressing climate change, and to do this by cultivating opportunities for entrepreneurial growth that contribute to a thriving, prosperous, and sustainable community. Implementation of the RRG will result in economic benefits for individuals, businesses, and institutions in Riverside, while also providing public health benefits, environmental benefits, a variety of feasible transportation modes, the protection and preservation of valuable resources, and enhanced resource efficiency.

The RRG will create a prosperous future for Riverside, through a shared commitment of the City's leaders working together to creatively tackle climate change, implement innovative solutions, and promote Riverside's clean and green economy. This will ensure that Riverside remains a place attractive to dynamic and diverse families, businesses, students and visitors. I believe there is no city better equipped to lead the way than Riverside.

The time to act is now. The Riverside Restorative Growthprint cannot be a vision that sits on a shelf. The City is committed to getting to work immediately on the actions in this Plan and to lead the way for other cities. I hope that Riverside's residents and businesses will join us in taking action to ensure Riverside remains at the forefront of sustainability and seize our destiny for future generations.

Sincerely,

Rusty

Riverside Pride!

Rusty Bailey
Mayor, City of Riverside
Chair, Green Accountability Performance Committee

# ACKNOWLEDGEMENTS


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# Executive Summary

The City of Riverside (City) is dedicated to environmental quality, equity and opportunity, and economic prosperity for all. Over the past decade, the City has progressively demonstrated its commitment to taking action on the pressing issue of climate change, reducing greenhouse gas (GHG) emissions and supporting the transition to a low-carbon economy. It is the City's view that actions to reduce GHG emissions represent opportunities to inspire economic development through investment in urban development, infrastructure, mobility systems, and entrepreneurship.

The Riverside Restorative Growthprint (RRG) combines two plans: the Economic Prosperity Action Plan (RRG-EPAP) and the Climate Action Plan (RRG-CAP), which work in conjunction to spur entrepreneurship and smart growth while advancing the City of Riverside's GHG emission reduction goals. The adoption of the RRG will result in actions to reduce GHG emissions that align with the City's planning priorities and its vision of a future "green" economy based on sustainable businesses. The RRG-EPAP identifies the measures and strategies in the RRG-CAP with the greatest potential to drive local economic prosperity through clean-tech investment, entrepreneurship, and expansion of local green businesses.

The City's efforts began in 2005 with the creation of the **Clean & Green Taskforce** whose mission was to develop a policy statement that would highlight Riverside's need for sustainable practices. The task force responded with the 2007 Sustainability Policy Statement (SPS), a seminal document with eight categories: Save Water, Keep it Clean, Make it Solar, Make it Shady, Clean the Air, Save Fuel, Make it Smart and Build Green. Later that year, the SPS was officially adopted by Riverside's city council. The SPS gave way to the task force's **Green Action Plan**, a robust strategy designed to show city officials and residents how to "go green" in the areas of Energy, GHG Emissions, Waste, Urban Design, Urban Nature, Transportation and Water. This important work led to the formation of the **Green Accountability Performance (GAP) Committee**, a group of dedicated volunteers that together ensure the successful implementation of the Green Action Plan.

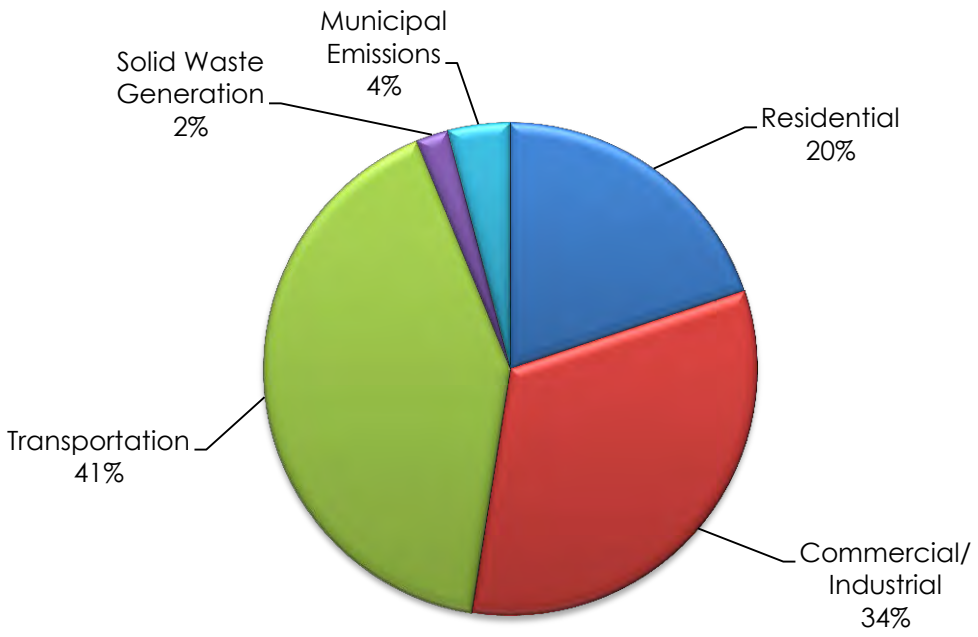
In 2014 Riverside was one of twelve cities that collaborated with the Western Riverside Council of Governments (WRCOG) on a Subregional Climate Action Plan (Subregional CAP) that includes 36 measures to guide Riverside's GHG reduction efforts through 2020. The RRG-CAP expands upon the Subregional CAP and provides a path for the

City to achieve deep reductions in GHG emissions through 2035, while the RRG-EPAP provides a framework for smart growth and low-carbon economic development. By using energy more efficiently, harnessing renewable energy to power buildings and vehicles, improving access to sustainable transportation modes, recycling more waste, conserving water, and building local food systems, the City can keep dollars in the local economy, create new green jobs, and improve public health and community quality of life.

# MEASURING RIVERSIDE'S EMISSIONS

The City's baseline GHG emissions inventory (2007) is a benchmark for tracking the City's progress in achieving future reductions. The community-wide inventory identifies the quantity of GHG emissions produced by residents, businesses, and municipal government operations. The inventory reflects the emissions generated within the City that result from the operation of motor vehicles, use of electricity and natural gas, and disposal of solid waste. **Figure ES-1** illustrates these emissions by source.

**Figure ES-1: Baseline Greenhouse Gas Emissions by Source**




In 2007, the City's total community-wide emissions were estimated at 3,024,066 metric tons of carbon dioxide equivalent ($CO_2e$); while emissions resulting from municipal operations were responsible for approximately 122,525 MT $CO_2e$.[1] In 2010, the City

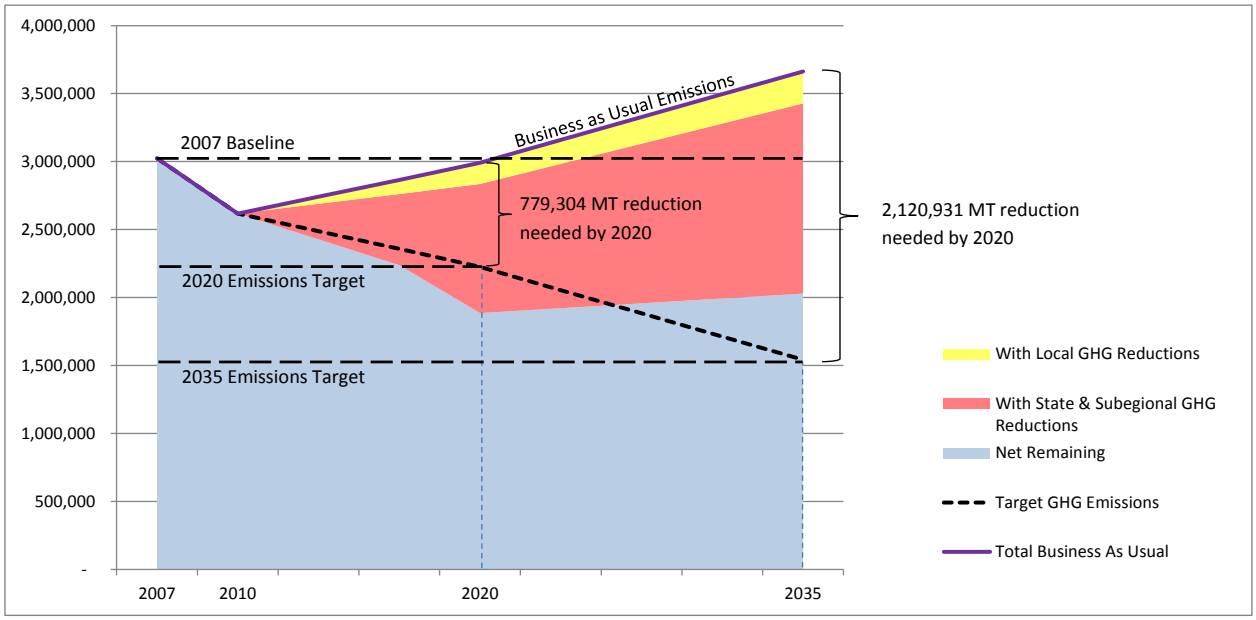
[1] This excludes emissions associated with the City's electric utility, which are included in the community inventory under the residential and commercial/industrial sectors that the utility serves.

conducted a second inventory that indicated the City's emissions had decreased by approximately 13.4 percent over the three year time period. That reduction is largely attributed to the City's actions to reduce the carbon intensity of its electricity portfolio, as supplied by municipally-owned Riverside Public Utilities (RPU). In addition, the City's energy efficiency and renewable energy incentive programs have helped reduce energy use by residential, commercial, and industrial customers; while solid waste diversion efforts have helped decrease emissions that result from landfill disposal.

# REDUCING RIVERSIDE'S EMISSIONS

Through the WRCOG Subregional CAP process, the City has committed to a 2020 emissions target of 2,224,908 MT $CO_2e$, which is 26.4% below the City's 2007 baseline and 15% below 2010 emissions. This represents a reduction of 779,304 MT $CO_2e$ from the City's 2020 business-as-usual (BAU) forecast (see **Figure ES-2**). The City is aiming for a 2035 emissions target of 1,542,274 MT $CO_2e$, which is 49% below the 2007 baseline and represents a reduction of 2,120,931 MT $CO_2e$ from the 2035 BAU forecast.

**Figure ES-2: City of Riverside GHG Reduction Targets for 2020 and 2035**




Through state and regional measures implemented at the subregional level, the City of Riverside anticipates significant reductions from the City's 2020 and 2035 BAU emissions forecasts (949,572 MTCO2e and 1,398,918 MTCO2e, respectively). Figure ES-2 shows the impact that the state and subregional measures have on reducing GHG reductions from business-as-usual projections.

# TAKING ACTION

The RRG-CAP expands upon the efforts of the WRCOG Subregional CAP, employing local measures to help the City achieve deep GHG reductions through the year 2035. To further develop local GHG reduction measures for the RRG-CAP, the City conducted a detailed assessment of local strategies and actions related to the measures identified in the Subregional CAP, and expanded the discussion and analysis with respect to implementation (particularly post-2020), costs and funding, performance metrics, and local co-benefits. Importantly, the discussions identify local economic and entrepreneurship opportunities that can be integrated with local, regional, and global GHG reductions, such as the development of green enterprise zones.

The RRG-CAP contains GHG reduction measures organized into four primary sectors, as defined by the following policy goals:

## ENERGY

Energy measures will increase community-wide building and equipment efficiency and renewable energy use, and promote energy efficiency and renewable energy generation for use supporting municipal operations that support the community.

## TRANSPORTATION AND LAND USE

Transportation and land use measures will reduce single-occupancy vehicle travel, increase non-motorized travel, improve public transit access, increase motor vehicle efficiency, encourage alternative fuel vehicles and promote sustainable growth patterns.

## WATER

Water measures will conserve potable water and reduce water demand by the community and municipal operations.

## SOLID WASTE

Solid waste measures will reduce solid waste sent to landfills that is generated by the community and municipal operations.

Through locally-implemented measures, the City of Riverside anticipates reductions of 189,399 $MTCO_2e$ and 275,273 $MTCO_2e$ from the City's 2020 and 2035 BAU emissions forecasts, respectively. Successful implementation of the RRG-CAP will enable the City to surpass its community-wide GHG emissions target for 2020, but more aggressive action by the City, the WRCOG subregion, and the state is needed to reach the 2035 target. In addition to the measures in the RRG-CAP, reductions of nearly half a million

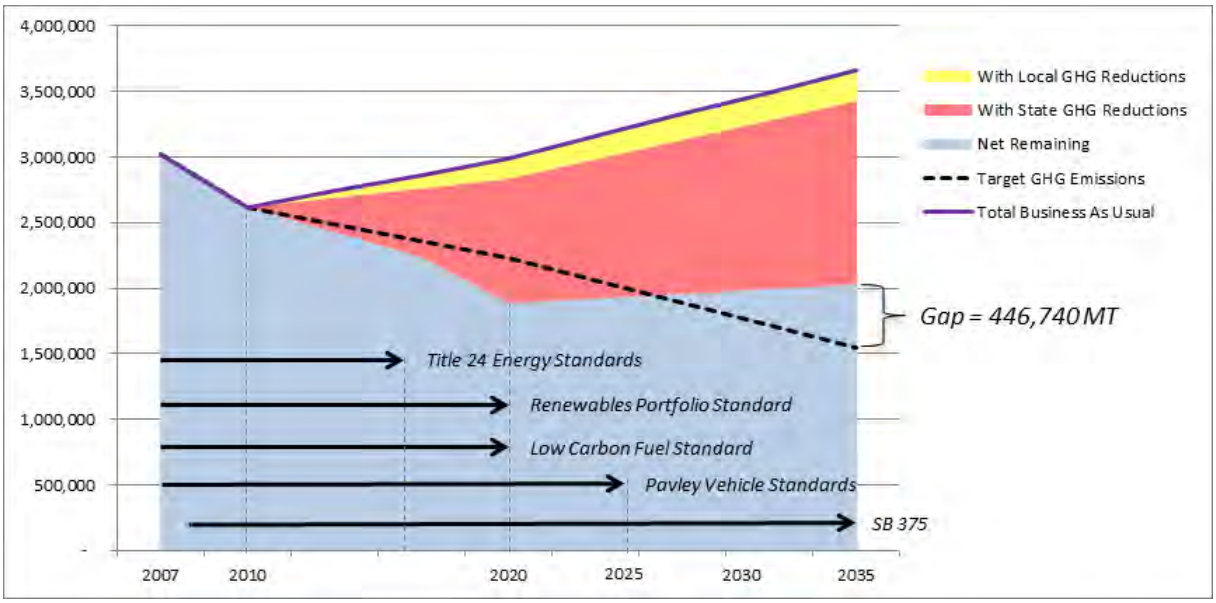



**Figure ES-3: Impact of Chapter 3 Reduction Measures on GHG Targets**

metric tons of CO2e will be needed to close the gap. **Figure ES-3** depicts graphically the expected impact of current RRG-CAP measures through the year 2035, showing that the measures are sufficient to keep the City on track with meeting its long-term GHG reduction goal until approximately 2026. After that point, a gap emerges between needed reductions and expected reductions, which steadily grows until reaching a deficit of approximately 446,740 MT CO2e by 2035.

As Figure ES-3 shows, state and subregional measures provide the bulk of GHG emission reductions in the RRG-CAP through 2020 and beyond. Recent policy developments and pronouncements by the Governor indicate the state of California will continue to expand its regulations and GHG reduction programs in the coming years to strengthen the ability of the state as a whole to reach its long-term climate protection targets. Meanwhile, the City will continue to expand programs and identify new opportunities to further reduce emissions beyond 2020. The RRG encourages a business environment that supports and nurtures innovative practices and investments that can lead to the deep reductions needed for the City to achieve its ambitious 2035 target.

# CREATING ECONOMIC OPPORTUNITIES

Together, the RRG- EPAP and RRG-CAP identify opportunities to link economic development with GHG emissions reduction activities. The RRG-EPAP puts forth policies and strategies that support sustainable infrastructure, increase community connections, and foster smart growth. The EPAP's top 10 **Entrepreneurial Opportunity Areas (EOAs)**,

outlined below, directly support RRG-CAP implementation by identifying areas where the City can stimulate economic development and entrepreneurship while reducing GHG emissions. They are key to the success of the RRG as a whole.

1. ENERGY AND WATER UPGRADES FOR HOME OR BUSINESS - Provide financing for property owners (residential and commercial) to make energy efficient, renewable energy, and water conservation improvements.
2. GREEN BUILDING STANDARDS - Increase energy efficiency standards for residential, commercial, and municipal buildings.
3. CLEAN VEHICLES AND CHARGING/FUELING STATIONS - Facilitate alternative and renewable fuels and advanced transportation technologies and infrastructure.
4. RIVERSIDE PUBLIC UTILITY CLEAN TECHNOLOGY FUNDING - Provide financing and incentives to develop and deploy energy technologies that reduce GHG emissions.
5. WASTE REDUCTION AND DIVERSION - Create or tap into existing markets for recycling and re-purposing of materials to promote diversion of food and other solid waste from landfills.
6. EXPAND BICYCLE INFRASTRUCTURE - Expand on-street and off-street bicycle infrastructure including bicycle lanes, parking, facilities/amenities (showers, lockers) and bike sharing.
7. ECO BUSINESS ZONE - Create a geographically defined area featuring best practices in sustainable urban design and green building focused on supporting both clean-tech and green businesses through a dedicated Green Business Program, enterprise zone incentives, and special showcasing opportunities.
8. CLEAN-TECH INCUBATOR - Develop a physical incubator office location to offer counsel, funding resources, office space and R&D lab space to clean-tech companies looking to launch and grow with Riverside as their base.
9. BUY AND PRODUCE LOCAL INITIATIVE - Support local businesses and reduce vehicle miles traveled (VMT) for shopping, entertainment, etc. by encouraging residents and employees to patronize local establishments via the bike infrastructure plan, Grow Riverside efforts and the City's existing Shop Riverside Community Card program.
10. GLOBAL MARKETS – support local businesses and investment that serves the global need for reducing GHG emissions.

# THE RIVERSIDE ADVANTAGE

The RRG-EPAP provides an analysis of efforts and activities by other cities across the nation focused on developing clean-tech ecosystems that are also tied to entrepreneurial growth. Riverside's current activities are analyzed in comparison with other U.S. metro areas in four categories: 1) Green Buildings; 2) Advanced Transportation; 3) Clean Electricity & Carbon Management; and 4) Clean Tech Investment, Innovation and Workforce. Riverside is ranked within the top fifty cities in the 22nd place with a score of 30.6 and Riverside placed in the top 50 Metro areas for the four major categories used by the Clean Tech Leadership Metro Index. The Clean Tech Leadership Index research and analysis further supports the need to focus on all of the **EOAs**, as they will lead to greater visibility and higher rankings for Riverside.

# THE PATH FORWARD

The City of Riverside, with this coordinated RRG-CAP and RRG-EPAP effort, is well-positioned to leverage opportunities created by emerging state and regional policies and programs. Riverside can meet its 2035 GHG emissions target through various combinations of state, sub-regional, and local actions, while opening up new opportunities for local business growth. Once the state has adopted a mid-term target (e.g., 2030) and released its plan for reaching that target, the role of local action will be more defined, and Riverside will be well-positioned to take advantage of state assistance and emerging funding opportunities.

The RRG-CAP contains the framework for measuring GHG emissions, tracking the success of the reduction measures contained within this plan, and establishes measures that will enable the City to exceed its 2020 GHG reduction target, and achieve substantial progress toward meeting the much more aggressive 2035 GHG reduction target. The RRG-EPAP is a plan for smart growth that establishes five overarching strategies aimed at effectively and efficiently facilitating economic development, and stimulating more sustainable infrastructure investment. These smart growth strategies outlined below, align with the **EOAs** best suited to achieve each strategy and reduce GHG emissions.

## PLACEMAKING

Support the development of a sustainable "place" for Riverside to thrive by utilizing the community's assets to improve upon or create public spaces that actively benefit and empower the local community, strengthen social ties, create a sense of "belonging", and spur economic activity.

## RRG POLICY LENS

Analyze policy decisions through an RRG Policy Lens – a sustainability lens that examines whether future policies achieve both GHG reductions and support smart growth. Assessing environmental benefits in conjunction with economic benefits at the policy-making stage will allow for more collaboration between key stakeholders – the business community, building industry, and the City.

## SMART GROWTH INFRASTRUCTURE

Accommodate growth and development while reducing per capita land consumption, saving open space, revitalizing neighborhoods, helping cool the planet and improving access to alternative modes of transportation. Developing intelligently will spark an explosion of sustainable development in the City.

## COMMUNITY CONNECTIONS

Create livable and connected communities by bridging sectors of the community that would not otherwise interact. Majority of the EOAs help to create those connections – from bike infrastructure, to the buy local campaign, to EV infrastructure. By getting people out of their cars, shortening commutes, encouraging money to stay within the local business community, and creating pathways from colleges to local employers/ businesses for residents, the RRG encourages stronger community connections. The onset of new services to encourage the sharing economy (car sharing, bike sharing, co-working spaces) will also provide additional opportunity to create stronger community bonds.

## FUTURE LEADERS

Build out channels to secure talent from with the Riverside community by linking college students interested in sustainability with the local clean-tech community and future employers within the City. The City's efforts to develop an employment base with skills that are in demand by local industry and small businesses will, in turn, yield additional taxable income, stabilized property values, and increase rates of homeownership.

A primary goal of the RRG is to maximize the economic benefits inherent to addressing climate change, and to do this by cultivating opportunities for entrepreneurial growth that contribute to a thriving, prosperous, and sustainable community. Furthermore, implementation of the RRG will result economic benefits for individuals, businesses, and institutions in Riverside, while also providing public health benefits, environmental benefits, a variety of feasible transportation modes, the protection and preservation of valuable resources, and enhanced resource efficiency.

Both the City's decision makers and community members will need to maintain concerted efforts to implement the RRG. Through implementation of the strategies in the RRG as well as the adoption of new strategies that will emerge with technology advancements and business opportunities, the City can move deliberately toward a more sustainable and economically prosperous future.

Riverside
RESTORATIVE GROWTHPRINT

# ECONOMIC PROSPERITY ACTION PLAN

RRG-PART A
PUBLIC REVIEW DRAFT
June 2015

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# CHAPTER A.1
# EPAP INTRODUCTION

## INNOVATIVE APPROACH

Over the past decade, the City of Riverside (City) has progressively demonstrated its commitment to environmental quality, equity and opportunity, and economic prosperity for all. This commitment is evident in the policies and programs that have been developed by the City to support a transition to a low-carbon economy and to reduce the City's overall environmental impact. The City also regularly engages with other government agencies and regional efforts focused on developing infrastructure and policies which will lead to a more sustainable future for its residents, businesses and community members.

In response to the adoption of the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), the Southern California Association of Governments (SCAG) designed a grant program to work with city governments to implement the dynamic regional growth vision based on the principles of mobility, livability, prosperity and sustainability. The program's work focuses on implementing the region's SCS, the state-mandated plan for reducing greenhouse gas (GHG) emissions from cars and light trucks through integrated transportation, land use, housing and environmental planning, at the local level. Early on, the City of Riverside expressed its vision to couple leadership in climate action planning with economic development into local planning process. Working with SCAG, the City of Riverside took the opportunity to create a proposal calling for the development of a two-plan project, entitled the Riverside Restorative Growthprint (RRG). The RRG combines two plans, the Riverside Restorative Growthprint Economic Prosperity Plan (RRG-EPAP) and the Climate Action Plan (RRG-CAP), that work in conjunction to spur entrepreneurship and smart growth while meeting the City of Riverside's GHG emission reduction goals. The development of these two RRG plans will result in strategies, measures, and actions for reducing emissions that align with the City's planning priorities and its vision of a future economy based on sustainable businesses and business practices.

The RRG-EPAP serves to identify the reduction measures and strategies proposed in the RRG-CAP that have the greatest potential to drive economic prosperity by supporting a local ecosystem that inspires entrepreneurship and supports existing clean-tech businesses.

## RRG PROJECT TEAM

The innovative design of the dual-pronged RRG required a diverse and nimble project team. The team's capabilities needed to include comprehensive analysis and technical guidance on climate action planning and experience in the creation of economic development strategies tied to the clean-tech industry. Additionally, the team approach involved working closely with City staff, including staff from the Riverside Public Utilities', and the City's Office of Economic Development. The RRG project development team included environmental engineers, urban planners, transportation planners, public policy analysts, marketing strategists, and sustainability consultants. This unique blend of expertise allowed for vibrant team discussions and a joint plan development process, which allowed for greater collaboration than more traditional climate planning activities that are often completed within a particular silo.

## RRG-EPAP ORGANIZATION

The RRG-EPAP is organized by chapters that describe the plan development process from inception through to recommendations for implementation.

The RRG-EPAP is organized into five chapters:

- **Chapter 1, Introduction:** provides the framework for the RGG-EPAP and highlights local partners.
- **Chapter 2, Plan Development Process:** provides an overview of the process utilized to engage a diverse set of stakeholders from within Riverside and beyond City borders to gather ideas and feedback about the RRG-EPAP.
- **Chapter 3, Competitive Landscape:** describes the City of Riverside's competitive advantages and provides an overview of similar activities designed to spur entrepreneurial growth tied to GHG emission reductions in other cities across the state.
- **Chapter 4, The Path Forward:** provides recommendations and resources for implementing the RRG-EPAP.
- **Appendix:** provides further details about the feedback received during the outreach and engagement process.

# LOCAL SUPPORT AND INFRASTRUCTURE

The development of the RRG-EPAP would not have been possible without the contributions from a wide variety of stakeholders from within the Riverside community. The following partners and regional initiatives either participated during the plan development process or indicated their desire to be involved during the implementation stage.

### California Baptist University

California Baptist University (CBU) is a private Christian University located within Riverside and has a total undergraduate enrollment of 5,797. CBU offers bachelor's, master's and credential programs in Riverside, San Bernardino and online.

### Greater Riverside Chamber of Commerce

As one of the most influential chambers in the state, the Riverside Chamber works closely with local government and other entities to strengthen the local economy. The Chamber is pro-actively involved in every important issue facing Riverside business. One of the largest Chambers in Southern California, the Riverside Chamber is comprised of nearly 1,300 business enterprises, civic organizations, education institutions, and individuals.

### Green Action Plan – Green Accountability Performance Committee

The 2012 Green Action Plan is a product of the City's Clean & Green Task Force, which was created to: build upon the policies of the City's General Plan 2025; ensure that the green design guidelines would be developed and followed; provide a framework for sustainability pilot projects; and initiate partnerships among regional agencies and nearby cities. The Task Force first created the Sustainability Policy Statement (SPS), a document featuring eight main categories: Save Water, Keep it Clean, Make it Solar, Make it Shady, Clean the Air, Save Fuel, Make it Smart and Build Green. Once the SPS was adopted, the Green Action Plan was created to serve as a guidebook that would tie specific tasks to the policies of the SPS. The Green Action Plan focuses on seven key areas of city life: Energy, GHG Emissions, Waste, Urban Design, Urban Nature, Transportation, and Water.

The City formed a Green Accountability Performance (GAP) Committee to carry out the tasks and within just two years nearly each of the plan's 38 tasks had been accomplished. The GAP Committee has since been reimagined to focus on healthy communities. Healthy Communities is the GAP's eighth focus area, with 19 goals and over 50 additional tasks. The Healthy Communities strategies strengthen the Green Action Plan as setting a clear path to sustainability and serving as a living document that reflects the growth of the green movement, the progression of renewable energy, and the fresh ideas of the GAP Committee.

### GrowRIVERSIDE

The GrowRIVERSIDE program is a movement to revitalize agriculture and the development of local food systems with the principal goal of fostering the growth of a sustainable local food and agriculture system that benefits the community, environment and economy of Riverside. In fall of 2013, under the leadership of Councilmember Chris MacArthur, Former Mayor Ron Loveridge and the Community Development Dept., an outcomes-based conference program was developed to help Riverside reconnect to its agricultural roots and galvanize the citizens, growers, advocates, government officials and other major stakeholders around the economic opportunities that can result from increasing sustainable agricultural solutions in the city and on its fringes.

### Healthy Communities

Western Riverside Council of Governments (WRCOG) and its member jurisdictions are engaged in numerous efforts and initiatives to promote healthy communities, including participating in the Riverside County Health Coalition (RCHC). The RCHC is a collaboration of public and private sectors, school districts, community businesses, local and regional organizations, and community members committed to policy development and advocacy, environmental change, and community empowerment for healthy lifestyles in Riverside County. This initiative includes a focused partnership effort with local governments to integrate healthy communities into the local planning and policy-making process.

### HERO Program

Established under the guidance of AB 811 (2008) and AB 474 (2009), WRCOG's HERO Program is a Property Assessed Clean Energy (PACE) program that provides financing to residential and commercial property owners for the installation of energy efficient, renewable energy, and water conservation improvements on existing properties. Financing provided through the HERO Program is repaid through an assessment on property tax bills over 5-, 10-, 15-, 20-, and 25-year terms, based on the useful life of the products, and upon sale of the property, the balance generally stays with the property.

### Inland SoCal Link iHub

The Inland Southern California region plays a critical role in the economic prosperity of the state of California. The Inland SoCal Link iHub is anchored by an innovative partnership between the Port of Los Angeles and Inland Southern California. The overarching goal of this iHub is to maximize economic development opportunities within the transportation corridor which links the Port with the Inland Southern California region. This will be accomplished through the establishment of an advanced manufacturing iHub that seeks to innovate and refine logistics in an effort to maximize the state's exports. The iHub will promote economic development and innovation based opportunities in the Inland SoCal Link corridor. It will also boost the area's effort to create additional programs and institutions that will foster new research and knowledge centers with a focus on advanced logistics.

### La Sierra University

Affiliated with the Seventh-day Adventist Church, La Sierra University is acclaimed for its academic quality, opportunities for research at the undergraduate and graduate level, community service emphasis, and demographically diverse student body. The University offers undergraduate and graduate curricula in applied and liberal arts, sciences, business and management, religion, and programs for professional education in fulfillment of requirements for teaching credentials.

### Los Angeles Cleantech Incubator (LACI)

LACI is a non-profit organization funded by the Community Redevelopment Agency of the City of Los Angeles (CRA) and the Los Angeles Department of Water and Power (LADWP). In partnership with the City of Los Angeles' exceptional educational and research organizations – UCLA, USC, Caltech and Jet Propulsion Laboratory – LACI helps accelerate the commercialization of their clean technologies in addition to accelerating new products developed by independent entrepreneurs. LACI is a result of the Clean Tech Los Angeles (CTLA) alliance among the Mayor's office, the universities within the City of Los Angeles, the Los Angeles County Economic Development Corporation, the Los Angeles Business Council, the Los Angeles Area Chamber of Commerce, LADWP and the CRA/LA.

### Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional plan to conserve sensitive species and their associated habitats in the subregion. Created in 2004 by the Western Riverside County Regional Conservation Authority (RCA), the MSHCP provides subregional transportation and green infrastructure benefits to local agencies and allows WRCOG jurisdictions to make land use decisions and maintain a strong economy in a context that comprehensively addresses federal and state Endangered Species Acts (ESA and CESA) requirements.

### Riverside City College

Riverside City College is a community college located in downtown Riverside and a member of the Riverside Community Colleges System. Serving more than 19,000 students each semester, Riverside City College provides students with a wide range of choices including associate's degree programs, transfer to a four-year college or university, or career certificates that prepare them to enter the workforce. Riverside City College is home to strong programs in liberal arts, science, performing arts, nursing, and athletics.

### Riverside ExCITE

Riverside ExCITE is a unique incubation/acceleration program created in collaboration between business leaders, local government with representatives from both the City and County of Riverside, and the local research university at UC Riverside. Riverside ExCITE is organized for the purpose of facilitating the successful incubation and acceleration of start-up companies engaged in entrepreneurial research and development of advanced technologies with the intent to create high technology jobs in the County of Riverside. By providing a location for business synthesis, mentorship and

management; access to financial resources and information; access to marketing and professional services; and technology transfer from domestic and foreign universities, organizations and governments, this unique operation will increase successful start-ups in the region.

### Riverside Public Utilities

The City of Riverside Public Utilities (RPU) Department provides water and electric services to the residents and businesses of Riverside. Through Green Riverside, the City supports and implements the various tasks of the Green Action Plan and other sustainability initiatives, offering multiple energy efficiency programs that reduce consumption, while promoting the City's sustainability goals. Blue Riverside includes multiple water conservation programs that reduce water consumption.

### Riverside Technology CEO Forum

The Riverside Technology CEO Forum provides an arena for Technology CEOs to network, discuss relevant topics and issues, and develop and deploy programs and action items of importance to the growth and prosperity of the technology industry and community.

### Seizing Our Destiny

Seizing Our Destiny is creating a prosperous future for Riverside, California, through a shared commitment of community, business and civic leaders working together to creatively tackle local issues, implement innovative solutions, and promote Riverside success stories. Seizing Our Destiny works as a guide, built around the need for a strong economy, welcoming places to gather and be entertained, an able workforce, art in all its forms, opportunities to learn, quality health care and respect for the earth and one another. Civic leaders, nonprofits, neighborhood and faith-based organizations, local businesses, City government and elected officials are working together to make this a reality through the collaboration on a number of initiatives and projects.

### Southern California Association of Governments

SCAG is the nation's largest metropolitan planning organization, representing six counties, 191 cities and more than 18 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future. Since 2000, SCAG has worked actively with the people and institutions of Southern California to create a dynamic regional growth vision based on these four principles: mobility, livability, prosperity, and sustainability.

#### Sustainable Communities Strategy

California's Sustainable Communities and Climate Protection Act, or 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. The SCS is a plan for meeting GHG emission reduction targets set by the California Air Resources Board (ARB) for the SCAG region. The 2012-2035 RTP/SCS achieves a 9 percent per capita GHG reduction for 2020 and a 16 percent per capita reduction for 2035. The successful implementation of the RTP/SCS allows future residents to enjoy a better quality of life than we do today, including the ability to lead a healthy and prosperous lifestyle, enjoy clean air and water, and ample

opportunities for recreation. It will have direct and substantial benefits to public health by reducing pollutant emissions and expanding the opportunities for active transportation. It also demonstrates how we can transition from things we know to be unsustainable over the long term and beyond the term of the current RTP/SCS, such as reliance on fossil fuels, to new technologies and practices for the future.

### Regional Housing Needs Assessment

The Regional Housing Needs Assessment (RHNA) is mandated by State Housing Law as part of the periodic process of updating local housing elements of the General Plan. The RHNA quantifies the need for housing within each jurisdiction during specified planning periods. Communities use the RHNA in land use planning, prioritizing local resource allocation, and in deciding how to address identified existing and future housing needs resulting from population, employment and household growth. The RHNA does not necessarily encourage or promote growth, but rather allows communities to anticipate growth, so that collectively, the region and subregion can grow in ways that enhance quality of life, improve access to jobs, promotes transportation mobility, and addresses social equity, fair share housing needs.

### Active Transportation Program

The California Active Transportation Program (ATP) was created by Senate Bill 99 (Chapter 359, Statutes 2013) and Assembly Bill 101 (Chapter 354, Statutes 2013), to encourage increased use of active modes of transportation, such as biking and walking, as well as to ensure compliance with the federal transportation authorization Moving Ahead for Progress in the 21st Century (MAP-21) Sustainability Framework for Western Riverside County. WRCOG's Sustainability Framework (Framework) is a subregional planning effort that establishes, implements, and continuously refines an overarching sustainability plan for the communities in Western Riverside County. The Framework aims to: initiate a dialogue about the importance of sustainability in the region; provide a vision and goals to guide local action and regional collaboration; define more immediate short-term goals that can contribute to the longer-term vision of the Framework; and define indicators, benchmarks, and targets that provide a measure of the effectiveness of Framework programs and policies. The Framework acts as a "living" document and contains goals and actions applying to economic development, education, public health, transportation, water and wastewater, energy, and the environment.

## Transportation Uniform Mitigation Fee

WRCOG's Transportation Uniform Mitigation Fee (TUMF) was implemented in 2003 as one of the largest multi-jurisdictional fee programs in the nation. TUMF makes improvements to the regional transportation system and provides transportation demand management through funds from new development, ensuring that development mitigates for increases in traffic volumes. TUMF is a 32-year program that provides subregional transportation and infrastructure benefits to local agencies in Western Riverside County. The program is expected to raise $4.2 billion, and 1.64% is allocated to the Riverside Transit Agency (RTA) for transit improvements. To mitigate the impacts of transportation construction projects, WRCOG allocates 1.59% of TUMF funds collected to the RCA to purchase habitat for the MSCHP.

### University of California, Riverside

The University of California, Riverside (UCR) is one of 10 universities within the University of California system. Widely recognized as one of the most ethnically diverse research universities in the nation, UCR's current enrollment is more than 21,000 students, with a goal of 25,000 students by 2020. The campus is in the midst of a tremendous growth spurt with new and remodeled facilities regularly coming on-line. UCR is also home to the Center for Environmental Research and Technology (CE-CERT). The center is a vital source of research into renewable fuel development, advanced electric, hybrid, and fuel cell vehicles, and smart grid technologies.

### Western Riverside County Clean Cities Coalition

The Western Riverside County Clean Cities Coalition (Coalition) is a voluntary local government and industry partnership that aims to reduce the consumption of petroleum fuels and improve air quality in the WRCOG sub-region. The Coalition works to mobilize local stakeholders toward expanding the use of alternative fuel vehicles (AFV) and advanced technology vehicles, promoting local idle reduction measures, and strengthening local AFV fueling infrastructure. The governments of Western Riverside County have taken leadership roles in the Coalition, coordinating efforts between government and industry to recognize the value of partnership in achieving air quality, energy efficiency, economic development, and transportation goals, while advancing the clean air and energy efficiency goals of the national Clean Cities program administered by the U.S. Department of Energy.

With the generous contributions made by members of the above stakeholders, the RRG project team was able to gather feedback and suggestions about the City of Riverside's smart growth strategies. Chapter 2 of this report provides a comprehensive summary of their responses.

# CHAPTER A.2
# PLAN DEVELOPMENT

## OVERVIEW

The development of the Riverside Restorative Growthprint Econonmic Prosperity Action Plan(RRG-EPAP) consisted of a detailed analysis of the Climate Aciton Plan (RRG-CAP) emission reduction targets and proposed measures. In addition to analyzing the RRG-CAP, there was a comprehensive public engagement strategy to involve key stakeholders and solicit feedback on Riverside's competitive advantages and entrepreneurial prospects.

The City of Riverside (City) conducted public outreach that included a number of public presentations and workshops to inform and involve City residents and influencers in the plan development and decision-making process. The outreach activities involved a diverse set of key stakeholder groups with particular interests in the focus areas of the RRG – the business community, academic institutions, community groups, religious organizations, student representatives, sustainability groups, and many others. Additionally, the project was exposed to a broader global audience via online crowdsourcing resources to gather feedback from beyond the borders of Riverside to learn about the successes and experiences of smart growth strategies around the world.

### ECONOMIC DEVELOPMENT APPROACH

While the primary goal of the RRG-CAP is to measure current GHG emissions and identify areas for potential reductions so that the City can meet future environmental goals, the goal of the RRG-EPAP is to unveil opportunities to link economic development activities with those focused on reducing GHG emissions. In order to accomplish these parallel goals, the RRG project team worked to analyze the emission reduction measures through an entrepreneurial lens tied to economic development.

With this unique approach, Riverside is able to create a holistic plan that accomplishes *both* environmental stewardship and economic growth.

As a starting off point, the RRG project team analyzed the RRG-CAP and identified the top ten measures that show the most promise for emission reductions as well as stimulating economic development and entrepreneurship within the City of Riverside. These have been labeled **Entrepreneurial Opportunity Areas (EOAs)** and are key to the success of the RRG.

The ten EOAs are outlined below with their associated GHG reduction measure(s) from the RRG-CAP:

1. **Energy and Water Upgrades for Home or Business**
   Provide financing for property owners (residential and commercial) to make energy efficient, renewable energy, and water conservation improvements.
   - HERO Programs (Measures SR-3 and SR-4)
   - Local Utility Programs - Electricity (Measure E-3)
   - Water Efficiency and Conservation (Measure W-1)

2. **Green Building Standards**
   Increase energy efficiency standards for residential, commercial, and municipal buildings.
   - California Building Energy Efficiency Standards - Title 24, Part 6 (Measure SR-2)

3. **Clean Vehicles and Charging/Fueling Stations**
   Facilitate alternative and renewable fuels and advanced transportation technologies and infrastructure.
   - Clean Vehicle and Low Carbon Fuel Standards (Measure SR-6)
   - Electric Vehicle Plan and Infrastructure (SR-12)
   - Neighborhood Electric Vehicle Programs (T-14)
   - Alternative Fuel and Vehicle Technology and Infrastructure (Measure T-19)

4. **Riverside Public Utility Clean Technology Funding**
   Provide financing and incentives to develop and deploy energy technologies that reduce GHG emissions.
   - Renewables Portfolio Standard (Measure SR-1)
   - Riverside Public Utilities Technology Grants (Supporting Measure E-6)

5. **Waste Reduction and Diversion**
   Create or tap into existing markets for recycling and re-purposing of materials to promote diversion of food and other solid waste from landfills.
   - Food Scrap and Paper Diversion (Measure SW-2)

6. **Expand Bicycle Infrastructure**
   Expand on-street and off-street bicycle infrastructure including bicycle lanes, parking, facilities/amenities (showers, lockers) and bike sharing.
   - Bicycle Programs (Measures T-1, T-2, T-3, T-12 and T-16)

7. **Eco Business Zone**
   Create a geographically defined area featuring best practices in sustainable urban

design and green building focused on supporting both clean-tech and green businesses through a dedicated Green Business Program, enterprise zone incentives, and special showcasing opportunities.

- Increase Development Densities (Measure T-6)
- Mixed Use Development (Measure T-7)
- Eco-corridor (Measure T-20)

8. **Clean-Tech Incubator**
   Develop a physical incubator office location to offer counsel, funding resources, office space and R&D lab space to clean-tech companies looking to launch and grow with Riverside as their base.
   - Eco-corridor (Measure T-20)

9. **Buy and Produce Local Initiative**
   Support local businesses and reduce vehicle miles traveled (VMT) for shopping, entertainment, etc. by encouraging residents and employees to patronize local establishments via the bike infrastructure plan, Grow Riverside efforts and the City's existing Shop Riverside Community Card program.
   - Represents a potential new RRG-CAP measure

10. **Wild Card**
    Allows for additional suggestions for entreprenuerial opportunity areas.
    - Represents a potential new RRG-CAP measure

# OUTREACH & ENGAGEMENT

The next step in plan development focused on launching a comprehensive outreach and engagement campaign to collect feedback for each EOA and identify the local resources, incentives and funding sources available to implement these initiatives. The City's innovative approach to the plan development process called for both in-person outreach activities within the Riverside community and an online effort focused on using the internet to "crowdsource" ideas via web sites designed to elicit feedback on community planning efforts. The results of the outreach and engagement efforts have been summarized below according to each individual activity.

## GAP COMMITTEE PLAN INTRODUCTION

The RRG project was first presented to the Green Accountability Performance (GAP) Committee during the June 25th, 2014 meeting. The plan for the development of the project was announced to the group and participants were able to provide feedback and sign up for future plan updates. The meeting was attended by the City of Riverside Mayor Rusty Bailey along with a diverse cross-section of local representatives from faith-based, student, university, senior, and other groups. Attendees were provided with an overview of the project plan and had the opportunity to discuss the plan's goals with the RRG project team. During the meeting, the Committee showed strong interest and support for the project and discussions among members provided valuable insight into existing programs and opportunities for improvement.

Additional local outreach included a follow-up presentation during the GAP Committee meeting on October 8th, 2014. At this meeting, the Committee was provided with a progress report outlining the status of the plan and future outreach and engagement efforts.

## INFLUENCER WORKSHOPS

One of the main outreach efforts involved a targeted approach to engage the local community and collect specific feedback for each EOA. During a workshop series hosted by the City of Riverside and the RRG project team, a curated list of active and influential members of the Riverside community were convened to discuss GHG emissions reduction efforts and the opportunities to inspire economic development through investment in urban development, infrastructure, and entrepreneurship.

The workshop participants included a diverse group of stakeholders in an effort to provide feedback that represented a well-rounded understanding of Riverside's competitive advantages and interests within each sector. Workshop participants represented a variety of sectors including city and government representatives, local businesses, sustainability groups, neighborhood councils, universities and schools, and faith-based organizations.

Participants were divided between two workshops hosted at the local Casa Blanca Library on the afternoons of November 19th and 20th, 2014. The workshops presented attendees with an overview of the RRG program and provided a deeper look into the clean-tech innovation landscape, featuring case studies from other cities engaged in supporting clean-tech entrepreneurial efforts. Workshop participants also engaged in facilitated activities and discussions to provide feedback on the "Top 10 EOAs," as well as, to identify potential resources available to implement and support the objectives within each EOA.

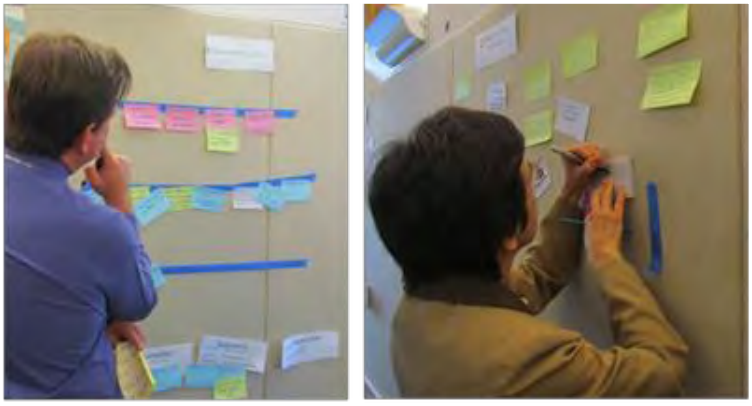

**Figure A.2-1: Photos from RRG-EPAP Influencer Workshops**

### CLEAN-TECH INNOVATION LANDSCAPE PRESENTATION

In a deeper exploration of the local and regional clean-tech industry, the workshop series featured a guest presentation by Erik Steeb, the Executive Director of LACI@CSUN, which is the first satellite incubator on a college campus related to the Los Angeles Cleantech Incubator (LACI). His presentation provided an overview of the regional clean-tech landscape and its formation as an economic driver in the Los Angeles region. He explained that although the clean-tech industry was relatively new to the area and arose out of necessity, the resulting transition to increased innovation and efficiency within business is vital to the success of all growing companies. Mr. Steeb

also provided background on the importance of incubating new businesses. He noted that the Kauffman Foundation recently credited new companies with the creation of three million jobs, while older companies lost one million during the same period.

Beyond working to simply attract clean-tech companies to the Los Angeles region, Mr. Steeb encouraged the utilization of an incubator program and claimed that it has been shown to be "a proven model" for success in building strong companies with a goal of providing long-term jobs and a lasting economic impact. The presentation included references to the U.S. Economic Development Administration (EDA) study which found that incubators create twenty times more jobs than community infrastructure projects. The EDA also found that the public return on investment in incubator programs is substantial with an almost 300% payback. Research from this organization continues to support the incubator model, stating that 87% of participating companies were still in business after five years and 84% of companies remain local.

The presentation also highlighted LACI's successful track record, calling out the 36 months of company traction by the incubator's portfolio companies that showed over $50 million of total investment. Mr. Steeb explained that the 27 active and graduated companies from LACI's program have created 417 direct and indirect jobs, which translate to over 100 million dollars in economic impact over five years. LACI was recently awarded a grant from the Department of Energy National Incubator Initiative for Clean Energy, is ranked as a Global Top 10 Incubator from among 800 candidates across 67 countries, and is recognized as the "most advanced small business cluster" by JPMorgan Chase.

The presentation also focused on the methods of support LACI provides to its program participants and portfolio companies. Primarily, they offer startup clean-tech companies a physical office space or temporary production facilities, which include conference and meeting rooms, all furniture, utilities, and parking. The portfolio companies also receive high-level executive coaching and mentorship support through a network of 60 expert advisors, access to business boot-camps, and "C-level" seminars on venture financing, county purchasing, B2B sales management, social networking, and presentation skills.

Additionally, LACI leverages its network to provide entrepreneurs with access to investors, corporate relationships, management teams, government associations, and academic intuitions. LACI's on-site support team includes advisors as well as staff, including general managers, technical analysts, and an operational support and marketing team. The presentation emphasized the importance of providing access to investors and strong professional networks, as many developing companies may not qualify for traditional loans and must seek private investment to fund their development.

The presentation also described LACI's efforts to develop a clean-tech corridor, a four-mile long strip between the Los Angeles River and Alameda in the eastern part of Downtown Los Angeles. The LACI CleanTech Corridor is the cornerstone of the City's green economy strategy and offers a range of incentives for clean-tech companies to locate and develop within the area. One highlight of the Corridor will be a new La Kretz Innovation Campus, a 60,000 square foot facility complete with R&D labs, conference facilities and office space for companies in every stage of development. The project will not only impact the Corridor itself but will transform industry in the

surrounding neighborhoods including Boyle Heights, East Los Angeles, and South Central.

Lastly, Mr. Steeb described the development of the LACI partnership with California State University Northridge (CSUN) as an effort to utilize the economic potential and existing networks within both institutions. LACI viewed CSUN's educational history, alumni network, and 4,000 annual graduating engineers as strong assets, while CSUN saw potential to attract new students, increase entrepreneurship, attract research funding, as well as engage new stakeholders and staff through the partnership. Following on the success of the CSUN campus incubator, LACI pursued the establishment of another incubator at Otis College of Art and Design with a focus on commercialization of sustainable design.

Mr. Steeb concluded his presentation by encouraging the formation of a Riverside clean-tech incubator and emphasizing the opportunity for lasting economic impact and regional partnerships with LACI and others throughout the State.

**WORKSHOP FINDINGS**

During the workshop activities and group discussions, participants showed strong support for the EOAs and offered a number of innovative wildcard suggestions. For all EOAs, participants emphasized the need to seek funding and develop local programs to support EOA objectives in addition to increasing awareness of existing and future programs through educational materials. The feedback from the workshop participants also showed strong interest and need for the creation of "place," improved local communication channels, and the development of partnerships and infrastructure to promote Riverside as a leader in sustainability and clean-tech.

<u>Summary of Resources Available to Support EOA Implementation:</u>

The participants identified a wide range of existing programs and resources available to the Riverside community to help with the implementation of the activities covered within each EOA. Below is a summary of the resources identified by workshop participants:

Incentive & Rebate Programs

- Property Assessed Clean Energy (PACE) program
- Home Energy Renovation Opportunity (HERO) program
- Electric vehicle (EV) rebates

Local Government

- City of Riverside Planning Department
- Riverside Public Utilities (RPU)
- Riverside-Corona Resource Conservation District (RCRCD)

Local Initiatives

- Green Riverside
- Transportation Uniform Mitigation Fee (TUMF)
- Recycling Market Development Zone (RMDZ)
- Downtown Business Improvement District (BID)
- Small Business Development Center (SBDC)
- Community Supported Agriculture (CSA)
- City of Riverside Master Bike Plan

- Shop Riverside Campaign
- GrowRIVERSIDE
- Neighbor Fest Event
- Riverside Community Garden Project

Funding Platforms & Partnership Opportunities

- Southern California Association of Governments (SCAG)
- Western Riverside Council of Governments (WRCOG)
- South Coast Air Quality Management District (AQMD)
- U.S. Environmental Protection Agency (EPA)
- California Air Resources Board (CARB)
- Southern California Gas Company
- Riverside Public Utilities (RPU)
- Active Transportation Grant Program
- Clean Cities Coalition
- CalRecycle
- U.S. Green Building Council (USGBC) Inland Empire Chapter

Local Universities & Cooperatives

- University of California, Riverside (UCR)
- Cal Baptist University (CBU)
- La Sierra University (LSU)
- Riverside Community College (RCC)
- University of California Global Food Initiative
- University of California Cooperative Extension Program

Summary of Program Ideas By EOA Category:

Workshop attendees brainstormed a number of programs and ideas, outlined below, that both support EOA objectives as well as future sustainability goals for the City of Riverside.

## Energy and Water Upgrades for Home or Business

The top 5 ideas identified by workshop participants included:

1) Develop marketing materials to promote the value of energy and water upgrades to residents and businesses;
2) Provide funding for grey water and wind project installations;
3) Develop programs to support solar installations for businesses and homes;
4) Adopt and promote new water-saving technologies; and,
5) Create and promote weatherproof/insulation enhancement programs.

## Green Building Standards

The top 5 ideas identified by workshop participants included:

1) Provide green building training programs and information to the public;
2) Provide rate incentives for lowered utility usage;
3) Require solar installations for all new construction;

4) Support construction of Net Zero homes; and,
5) Promote mixed-use development to create walkable communities.

### Clean Vehicles and Charging/Fueling Stations

The top 5 ideas identified by workshop participants included:

1) Develop a vehicle to grid (V2G) system;
2) Provide additional charging stations in central locations such as grocery stores, parks, libraries, etc. that have a variety of fuel types;
3) Develop awareness campaigns on the benefits of electric vehicles (EVs) and existing infrastructure;
4) Promote employer incentive programs for using clean vehicles; and,
5) Incentivize private property owners to install public charging stations.

### RPU Clean Technology Funding

The top 5 ideas identified by workshop participants included:

1) Enhance existing renewable portfolio standards;
2) Create marketing plan and raise visibility of existing RPU grant programs via workshops;
3) Provide monetary awards for technology competitions at local universities;
4) Seek funding for technology research and partnerships with technology companies through University of California, Riverside (UCR); and,
5) Enhance existing RPU technology grants.

### Waste Reduction and Diversion

The top 5 ideas identified by workshop participants included:

1) Enhance recycling and compost collection systems;
2) Create sustainable purchasing programs and training for city/public/private;
3) Undertake local waste audit;
4) Create and promote a green business program; and,
5) Develop public education programs.

### Expand Bicycle Infrastructure

The top 5 ideas identified by workshop participants included:

1) Create additional bike lanes and enhance safety systems;
2) Develop a bike path along the Gage Canal;
3) Provide bike lockers, racks, showering facilities, service stations and bike share programs;
4) Establish and promote local bike events (e.g. CicLAvia); and,
5) Link bicycle routes to local transit corridors (trains and buses).

## Eco Business Zone

The top 5 ideas identified by workshop participants included:

1) Provide skill-building workshops on sustainability for local employees;
2) Develop green job training and internships for high school and college students;
3) Develop smart growth development initiatives that incorporate live and work design with mixed-use buildings;
4) Provide incentives for incubator participants and businesses within the zone such as reduced permitting and fees and loan/grant programs; and,
5) Create zones in conjunction with Restore Riverside (one zone could be between Jurupa Ave. and the Santa Ana River from Martha McLean-Anza Narrows Park to Van Buren Blvd.).

## Clean-Tech Incubator

The top 10 ideas (this EOA invoked the highest amount of responses) identified by workshop participants included:

1) Develop a pilot project to engage the community around the idea of a clean-tech incubator;
2) Attract investment and business capital to support new clean-tech companies locally;
3) Create programs to retain and recruit graduates from UCR and other colleges;
4) Staff a clean-tech "idea" booth at public events to initiate public dialogue and spark new ideas;
5) Develop innovation think-tank opportunities to engage thought leaders;
6) Provide training programs for clean-tech startups to ensure their success;
7) Partner with the Chamber of Commerce to support the growth of clean-tech businesses;
8) Develop partnerships with academic institutions similar to the LACI satellite campus idea;
9) Develop partnerships with regional incubators to share lessons learned and co-promote events; and,
10) Create flex office space for the community and local businesses.

## Buy Local Initiative

The top 5 ideas identified by workshop participants included:

1) Provide financial incentives for local purchasing;
2) Establish local co-operatives and permanent farmers markets;
3) Develop a farm-to-table and farm-to-school program and educational resource guides and online platforms (website and social media);
4) Develop a public awareness campaign and nutritional education programs; and,
5) Enhance the community garden program.

**Wild Card**

This EOA was designed to encourage out-of-the-box thinking and participants suggested new ideas that were not covered by the other EOAs. The top ideas identified by workshop participants included:

1) Develop an enhanced rideshare program;
2) Preserve/restore native grasslands for carbon sequestration;
3) Promote green roofs and walls;
4) Include resilience and adaptation focus in city planning;
5) Promote a sharing economy;
6) Promote a life cycle approach to everything; and,
7) Create climate adaptation and mitigation programs.

The findings from the influencer workshops were used to shape the next steps in the outreach and engagement strategy and allowed the RRG project team to tailor future activities and surveys to collect more focused feedback.

## CROWDSOURCING CAMPAIGN

The next step in the development of the RRG-EPAP was to launch a crowdsourcing campaign using a variety of public platforms with the goal of leveraging collective knowledge and soliciting feedback on the "Top 10 EOAs." The crowdsourcing plan was developed to engage a global audience in idea sharing and provide a perspective from beyond the borders of the Riverside community. The intention of this broader campaign was to learn about the successes and experiences of similar programs around the world and how these might be incorporated into the RRG-EPAP strategy.

After researching a variety of crowdsourcing platforms, the RRG project team concluded that the MindMixer platform was the best suited to solicit feedback about the types of programs featured within each EOA. The WRCOG and City of Riverside MindMixer pages would act as the primary sites and anchor the responses for the crowdsourcing campaign. Weekly topics about the "Top 10 EOAs" were posted to both MindMixer sites.

Topic posts were designed to tease out ideas for new business ventures, innovative program designs and success stories about clean-tech projects in cities across the globe. A "description" section also allowed viewers to learn more about the topic area and provide additional context about the local environment in Riverside.

Sample questions included:

- *Is a zero-waste community possible? Which cities and communities are leading the way, and how?*
- *How have cities utilized improvements in bicycle infrastructure for economic gains?*
- *How can we encourage businesses to adopt sustainability initiatives and locate within an Eco Business Zone?*
- *If you drove a plug-in electric vehicle, where would you charge your electric vehicle on a regular basis?*

**Figure A.2-2: Screenshot of an EOA topic posting on the MindMixer**

To drive traffic to the crowdsourcing sites, a comprehensive social media campaign was launched to push out the inquiries across a number of outlets to maximize the project's exposure. This campaign targeted online communities and interest groups focused on areas covered by the EOAs (i.e. online bike-sharing discussion groups were targeted for Bicycle Infrastructure inquiries). The RRG project team conducted research and assembled a targeted social media plan covering the three major outlets: LinkedIn, Facebook, and Twitter. A summary of the outreach plan is provided below:

### LinkedIn Outreach

The LinkedIn outreach strategy consisted of posting weekly discussion threads to the largest LinkedIn groups relating to each EOA. All discussion posts were initiated by a team member from the RRG project team via his/her LinkedIn profile (in order to post to a LinkedIn group, you must have an active profile and be a member of the group prior to posting). This portion of the social media campaign reached over 1.7 million professionals, students, and global citizens.

Below is a sampling of the groups that were included within the LinkedIn campaign:

**Table A.2-1: Sampling of LinkedIn Outreach**

| Group | Description | Members |
|---|---|---|
| Linked Energy Group | Includes all of the industries involved the ENERGY Industry including production and sale of energy, including fuel extraction, manufacturing, refining and distribution. | 208,278 |
| Green | Green is for those who want to share ideas on environment, climate change, renewable energy, clean tech, sustainability, CSR and Green issues. | 185,299 |
| Sustainability Professionals | This group is intended to be a resource for those who work in jobs pertaining to social or environmental responsibility and for those who are seeking employment or information on careers in these areas. | 100,485 |
| US Green Building Council | Members of the U.S. Green Building Council community. | 62,527 |
| Waste Management and Recycling Professionals | The Waste Management and Recycling Professionals group (the largest LinkedIn group of its kind) is an informal networking and discussion group for those in the solid waste and recycling industries. | 44,592 |
| Cleantech | Think of us as a virtual incubator for clean tech, green business, energy and sustainability. | 32,315 |
| Green Cities: Smart Growth and Sustainability | For those interested in Smart Growth and Sustainability, Green Design, Green Infrastructure, Compact Development, Densification, reducing automobile dependency and increasing livability and quality of life... | 20,000 |

### Facebook Outreach

The Facebook outreach strategy consisted of weekly postings to the largest Facebook groups relating to each EOA. All discussion posts were initiated by a team member from the RRG consultant team via his/her Facebook profile (in order to post to a Facebook group, you must have an active profile and be a follower of the group prior to posting).

This portion of the social media campaign reached over 3 million professionals, students, and global citizens.

Below is a sampling of the groups that were included in the Facebook campaign:

**Table A.2-2: Sampling of Facebook Outreach**

| Group | Description | Followers |
|---|---|---|
| I Support Farmers Markets | There are 7864 local Farmers Markets in the US. There are only 4100 Walmarts. | 597,716 |
| TreeHugger | TreeHugger.com is devoted to sustainability, design, food, culture, transportation, energy, fashion, politics, health and other environmental issues. | 473,532 |
| Attainable Sustainable | Reviving the lost art of self-reliance, one small change at a time. | 434,380 |
| Environmental Working Group | EWG is a national public interest group dedicated to using the power of information to protect public health and the environment. | 402,460 |
| Natural Resources Defense Council (NRDC) | NRDC's mission is to safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends | 278,370 |
| Green on Facebook | This Page is a resource for people interested in learning more about Facebook's commitment to environmental stewardship. | 181,831 |

### Twitter Outreach

The Twitter outreach strategy consisted of posting regularly to the largest Twitter groups relating to each EOA. All discussion posts were initiated by a Twitter ID from the RRG project team. This portion of the social media campaign reached over 5.6 million professionals, students, and global citizens.

Below is a sampling of the groups that were included in the Twitter campaign:

**Table A.2-3: Sampling of Twitter Outreach**

| Twitter Account | Description | Followers |
|---|---|---|
| Tech Crunch | Breaking technology news, analysis, and opinions from TechCrunch. The number one guide for all things tech. | 4,340,000 |
| TreeHugger | Links, Ideas and Conversation from the TreeHugger hive mind, the latest in modern green. | 309,000 |
| U.S. EPA | News, links, tips, and conversation from the U.S. Environmental Protection Agency. Neither RT nor @mentions imply endorsement. | 251,000 |
| Planet Green | Planet Green offers practical, everyday tips on how to live a greener lifestyle. | 200,000 |
| Climate Reality | Founded by @algore, we're bringing the world together to cut carbon pollution & create a healthy & prosperous future powered by clean energy. | 186,000 |
| Friends of the Earth | We see the wellbeing of people and planet as one and the same. | 112,000 |

The RRG project team worked closely with the Riverside Office of Economic Development and Information Technology Department to administer and oversee the campaign. MindMixer posts were kept live from January to March of 2015 and project team members were actively involved in discussions, encouraging participation, and collecting responses on all platforms.

## CAMPAIGN FINDINGS

At the conclusion of the campaign, all feedback was collected and organized to create a comprehensive review of commentary within each EOA. The campaign reached a broad audience with posts originating from 16 countries around the world and participants representing a range of ages, experience and education levels.

**Figure A.2-3: World Map of Crowdsourcing Campaign Reach**

A common theme among each discussion topic, which also mirrored the response from the workshop findings, was the need for increased awareness and public engagement within the Riverside community. A number of comments highlighted the lack of educational materials and informational events focused on the City's sustainability efforts and resources available to residents and businesses. Similarly, many participants encouraged the creation of coalitions to engage and inform community members in both new and existing sustainability initiatives.

Outlined below are specific responses related to each EOA:

## Energy and Water Upgrades for Home or Business

Crowdsourcing Feedback Summary:

> While participants noted the success of these programs, many commented on the potential for an increased impact through additional solar incentives and improved public awareness campaigns. Participants suggested developing partnerships with solar providers to bring their businesses to Riverside. Similarly, topic discussions highlighted the need to promote these incentives and businesses among the community.

*"The public awareness needs to be increased. I for one have never known about any of these conservation improvements nor do any of my friends or coworkers." - Nannette B.*

## Green Building Standards

Crowdsourcing Feedback Summary:

Overall, support was shown for promoting green building systems and informing the community of the value added by incorporating green building designs and technologies. One participant suggested the City establish a "Green Academy" that educates individuals about incentive programs, green technology suppliers, and highlights city sustainability programs. Comments also implied that there was a strong need for Riverside to not only sanction grey water systems but also streamline the integration of these systems into residential and commercial systems.

## Clean Vehicles and Charging/Fueling Stations

Crowdsourcing Feedback Summary:

Many respondents urged the importance of educating the community on the benefits of EVs and the location of charging stations. One discussion highlighted the importance of connecting all stakeholders and pointed to the Phoenix-based EV group, AZEV as an example of a group that is successfully promoting the development of EV infrastructure in Arizona. When asked where participants would charge their EV vehicles, many called out the need for visible, well-marketed charging stations in public locations such as grocery stores, shopping centers and within parking stations for mass transit systems.

*"Education is the best tool we have…"*
*- Jim Stack, President, PHX Electric Auto Association*

## RPU Clean Technology Funding

Crowdsourcing Feedback Summary:

Responses focused on the fact that additional financing and incentive programs have the ability to further reduce emissions and support the development of a strong clean-tech sector. Feedback gathered showed continued interest in the need to fund technologies to improve electricity storage and grid system enhancements.

## Waste Reduction and Diversion

Crowdsourcing Feedback Summary:

The campaign feedback points to the need for enhanced waste collection and diversion systems with mandated recycling and compost collection throughout the City. Many participants also saw the topic area as a potential stimulus for the creation of "place" through community projects that develop green space and educate residents on sustainable living. A popular suggestion was the creation of a centralized "Food Education Hub" that demonstrates composting techniques and emerging technologies within this industry. Similarly, participants suggested utlizing empty lots throughout the City to establish additional community gardens that benefit from city-wide compost collection. Idea submissions also pointed to the potential business opportunities in solving "end-of-life" challenges for e-waste including collection, recycling and recovery of rare earth metals.

*"We just need the right person or group to connect the dots, breath new life into the need to reuse, and make it an increased part of Riversiders' daily activities. The timing could not be more perfect."*
*-Jane B.*

## Expand Bicycle Infrastructure

Crowdsourcing Feedback Summary:

This EOA received the most responses from the crowdsourcing campaign with a great amount of support shown for the plan to increase ridership within the Riverside Community. Many local residents praised the existing bicycle plan but called out popular routes that lacked safe, maintained paths with frequent access points. These routes include the Santa Ana Trail, Central Avenue (Canyon Crest to the Riverside Plaza), and Riverside City College to University of California, Riverside. Many responses also pointed to the need for routes designed to link with transit centers, local destinations for entertainment, shopping, and employment.

*"If you want to encourage cycling in an area make places worth cycling to and through. That means higher land use density, diversity, and proximity, enabling people to bike where they are going. "*

*- Alan Cunningham, LEED-AP, AICP, Project Planner, Lea+Elliott, Inc.*

Much of the feedback also echoed the support for the infrastructure enhancements outlined within the EOA, with special emphasis placed on increased safety measures.

Suggested safety measures included:

- Reduced speed near bike lanes;
- Shared auto & bicycle lanes in downtown areas;
- Physical separation along arterial streets; and,
- Improved bicycle lane visibility.

Participants also called out the impact of shared knowledge and creation of advocacy groups/coalitions on behalf of bicyclists.

*"Better bike infrastructure is the one single measure to boost cycling - but in case you're on a budget, here are some examples of low-cost interventions to increase cycling."*
*Web Site Link: http://cycletraveller.com.au/australia/news/15-low-cost-innovations-that-boost-cycling*

*- Alessio Punzi, Advocacy & Mass Participation at Union Cycliste Internationale*

## Eco Business Zone

Crowdsourcing Feedback Summary:

Many participants supported the EOA objectives with specific focus on incentivizing sustainability initiatives (building and operations) while creating a prominent location for the community to thrive with meeting places, car-free zones, etc. Participants also called for the need to address the social impact of these zones through employee-owned cooperatives and job training centers.

*"I feel that the improved shopping center design is the key to making the city more bike friendly. If you go to the Riverside Plaza or Galleria they are so focused on parking for cars with very little pedestrian or bike friendly infrastructure at all. We need to focus on better parking for bikes and nicer avenues for walking rather than just a sea of parked cars on blacktop."*
*- Anonymous*

## Clean-tech Incubator

Crowdsourcing Feedback Summary:

The goal for developing an incubator program is to bolster Riverside's standing as a leader in clean-tech and attract new companies and investment to the City. Campaign responses showed support for investment in a variety of clean technologies including fuel cells, wind power, enhanced street lighting systems, green/white roofs, and solar energy.

**Buy Local Initiative**

Crowdsourcing Feedback Summary:

Many responses for this topic pushed for increased promotion of the Shop Riverside Community Card incentive program. Similarly, participants suggested highlighting local businesses within news publications and social media outlets to provide a "personal story" linked to the business.

Commentary also focused on the need for improved access to local markets through public transportation, walkable shopping areas, and increased parking.

**Wild Card**

Crowdsourcing Feedback Summary:

The "wild card" was designed to seek "out-of-the-box" solutions and ideas to foster business growth around clean technology solutions. Participants were asked to provide feedback on experiences with entrepreneurship and successful sustainable development projects in other cities.

Wild Card ideas submitted through the outreach platform included:

"Join (or establish) a Materials Innovation Exchange to support buy-sell-trade of industrial materials and share innovative materials reuse success stories."
Web Site Link: http://nbis.org/programs/by-product-synergy-nw-2/
*- Mary R., Vashon, WA*

"Designers with their design mindset hold the ability to use specific creative skills, tools and methods that can improve the way we try and work with complex problem solving. I recommend using a Human-Centered Design Approach that also works to tap the creative community for solutions. The most interesting challenges today are partly hidden in innovating inside the public sector. By including designers into different levels of decision making processes, you will access alternative perspectives which can result in very different planning efforts. Incorporate system thinkers, concept developers and other creatives within the decision-making processes. Examples from Finland (such as Design Lab Helsinki) or from Slovenia (Design Biotop) both use a design mindset to create a cross-sector dialogue and inspire the different levels of society to work together for societal change. What we are proposing is to include designers into the complex problem solving processes allowing them to mediate and guide workshops related to specific issues related to the RRGP. In that way, fresh perspectives could show potential new solutions on how to create a change. Sustainability is a huge topic and understanding

individual sustainability and social sustainability by using creative methods to widen the views could help spread new ideas and potential new solutions."
*-Sasa Kerkos, M.F.A., Slovenia*

## FINANCIAL INCENTIVES & FUNDING SOURCES

Building upon the crowdsourcing plan developed for the "Top 10 EOAs", the RRG project team utilized the established WRCOG and City of Riverside MindMixer platforms, as well as an additional crowdsourcing site, Quora, to investigate possible funding resources and financial incentives for EOA implementation. New topics and inquiries were posted to all three crowdsourcing platforms as well as follow-up questions and commentary on existing posts to develop discussions and expand the conversation to include funding sources and incentive packages.

Many participants strongly supported the idea of offering rebates and incentives to encourage adoption of the various EOA objectives, citing successful programs offered within their municipalities and often managed by the local utilities. These programs include financial incentive packages for energy and water retrofits, green building, and shop local programs.

Much of the feedback related to funding resources pointed to federal and state agency grant programs, tax revenue increases, municipal bonds, project-based financing through capital markets, and joint ventures or public – private partnerships.

Highlighted idea submissions include:

- Third Party and Other Financing Options

  Property Assessed Clean Energy Programs (financed through property taxes), Qualified Clean Energy Bonds, utility on-bill financing (debt-free), Energy Efficient Mortgages and third party financing of solar and energy efficiency.

- U.S. Department of Energy Research Grants

  The Department of Energy has a Transportation Electrification Initiative that aims to put the infrastructure in place across the United States to adopt electric vehicles.

- Adjusted Waste Disposal Rates

  Modify municipal and commercial waste disposal fee structure to incentivize increased recycling and composting rates.

- Public-Private Partnerships

  Develop a public-private partnership with a company that will assist in funding a local infrastructure project (i.e. a Citibank funded bicycle-sharing program).

## RIVERSIDE BUSINESS LEADER INTERVIEWS

The RRG project team also engaged in individual interviews with business leaders from the City of Riverside to gather additional insight on the "Top 10 EOAs," ideas for incentive programs and recommendations for funding sources. Business leaders were

identified by the Riverside Economic Development Office and included representatives from local engineering and clean-tech firms that were involved with municipal groups, local universities, and planning efforts for the City.

Many of the participants had positive responses to the RRG and saw great promise in the EOAs and their economic impact on the region. During the discussions, interviewees highlighted the need to support the local universities in their efforts to develop job-training programs and recruit talent locally. Interviewees also noted the importance of continued assistance from the economic development office and local utilities in terms of rebate and incentive programs for residents and businesses. Interviewees explained that these programs had been helpful in driving business in the past and would make Riverside more attractive to innovative and "next generation" companies within the clean-tech industry.

On the other hand, a common concern among participants was the potential controversy with the implementation of mandatory energy efficiency standards for buildings outlined in the Green Building Standards EOA. Interviewees instead suggested focusing efforts on incentivizing green building designs for private companies.

## GAP COMMITTEE PLAN UPDATE

The RRG project team participated in a GAP Committee meeting held on February 11th, 2015 to provide both an update on the development of the RRG-EPAP and collect additional feedback on potential financial incentives and funding resources. After a presentation on the plan development highlights, the Committee participated in a facilitated discussion focused on leveraging their local knowledge of resources within the City that fall within the areas of technology, policy, and capital.

### TECHNOLOGY

Within each EOA, Committee members pointed to the importance of using technologies to enhance communication channels and connectivity within the community. Some examples include social media outlets, establishing a community broadband service, resource listings for local businesses, and the development of a mobile app. Committee members noted that these sources would provide information related to each EOA's objectives, such as bicycle routes and bicycle sharing programs, energy and water conservation incentive and rebate programs, local business highlights, and tips for waste reduction and management. Increased awareness will lead to more engaged citizens that will work towards supporting the City's sustainability and development goals.

Additionally, participants called out the numerous research centers and university programs within and around Riverisde. Some examples include the Center for Environmental Research and Technology (CE-CERT), Waste Transfer Station, Composting Systems, and Master Gardener's program, all hosted at UC Riverside. These programs are exploring a variety of technologies such as waste to energy and other renewable fuels, grey water systems, advanced electric, hybrid, and fuel cell vehicles, and smart grid technologies. Similarly, the Agricultural Research Service and US Salinity Laboratory is investigating technologies linked to agriculture, water, and soil management.

Committee members also noted the many engineering and technology firms that reside within the city limits such as SolarMax and Bourns. These firms are seen as strong resources to both develop new technologies and support the local universities and Riverside workforce.

The Committee also suggested building upon the existing infrastructure by increasing the number of solar installations and EV charging stations. The City could learn from these structures and assess the feasibility and impact for additional development.

**POLICY**

Throughout the policy discussions, Committee members highlighted the need to create a sense of "place" to attract both businesses and new residents to the area. Suggestions included adjustments in zoning and public space usage to allow for increased green spaces, community gardens, bicycle infrastructure, and public transit options.

Additional suggestions focused on raising the visibility of the City of Riverside as a green community via public safety laws that protect cyclists and policies to support local organizations and existing programs such as Grow Riverside, Shop Riverside Community Card Program, and local farmers markets.

**CAPITAL**

During the discussions related to capital and resources to support the EOA objectives, many participants focused on the potential for developing and encouraging local talent and curating local leaders through incubator and mentorship programs. Mentorship programs can take advantage of local business and university representatives to guide students through apprenticeship and job training programs. Similarly, these mentors will be key in supporting an incubator program for new companies.

Many Committee members also called out the local universities and clean-tech businesses as resources for pushing forward technologies within green building, alternative fuels, and transportation. Participants discussed focusing technology grants and funding programs on grey water, solar, "smart house", waste to energy, and alternative fuel infrastructure (EV charging stations).

For support on the infrastructure and development side, Committee members called out potential federal and state grants and funds from regional groups such as the South Coast Air Quality Management District (AQMD) to support projects with targeted goals (i.e. reduced transportation emissions, EV infrastructure, etc.). Participants also suggested the City consider partnering with private companies or establishing fee structures for infrastructure development and programs such as bike sharing and bike lockers/storage.

Between the influencer workshops, business leader interviews, and online feedback, it became apparent to the RRG project team that there are many engaged members of the Riverside community who are excited about growing the clean tech sector in the City. Throughout the team's research, many of these members provided innovative and useful insights about how the city might go about this. In order to identify which suggestions would have the greatest impact, it is important to understand the

landscape in which clean tech companies would view these city programs. Therefore, the following chapter provides a detailed outline of the California green business environment.

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# CHAPTER A.3 COMPETITIVE LANDSCAPE

## OVERVIEW

In order to set Riverside up for success with the implementation of the Riverside Restorative Growthprint Economic Prosperity Action Plan (RRG-EPAP) and to provide a path for establishing Riverside as a leader amongst cities in the global clean-tech arena, it is important to be able to analyze Riverside's current activities in comparison with other metro areas. This chapter provides an analysis of efforts and activities by other cities across the nation focused on developing clean-tech ecosystems that are also tied to entrepreneurial growth.

Gaining an understanding of what the industry analysts use to rate cities in this area will also help inform decisions as to what types of programs might be best suited for additional external promotion efforts. Raising Riverside's profile externally will allow for additional exposure to the clean-tech investment community, potential partnerships with other cities or programs, and showcase more opportunities for the City of Riverside's (City's) initiatives and clean-tech businesses. Additionally, being able to track Riverside's progress from year to year via these industry rating systems will help serve as a monitoring tool to gauge the ongoing adoption efforts related to the RRG-EPAP.

### CLEAN-TECH DEFINED

While there is no standard definition of *clean-tech* or *clean technology*, it has been described by Clean Edge, a clean technology research firm, as "a diverse range of products, services, and processes that harness renewable materials and energy sources, dramatically reduce the use of natural resources, and cut or eliminate emissions and waste;" and that "clean technologies are competitive with, if not superior to, their conventional counterparts. Many also offer significant additional benefits, notably their ability to improve the lives of those in both developed and developing

countries." This definition matches the reasoning behind the development of EOAs focused on energy savings, water conservation, reduction of transportation fuel usage, waste diversion and those designed to tie human resources to further developing these technologies.

# THE U.S. CLEAN TECH LEADERSHIP INDEX

In order to focus the analysis on the "best of the best," the team turned to Clean Edge, the main industry index for rating clean-tech activities across the nation. The U.S. Clean Tech Leadership Index report contains findings from the 2014 editions of Clean Edge's State and Metro Indexes, which track activity in the U.S. based on a diverse set of underlying indicators. The State Index offers scores for all 50 states, derived from more than 70 state-based indicators. The Metro Index uses 20 metro-based indicators to calculate scores for the 50 largest U.S. metropolitan statistical areas. The Index was designed to serve as a tool for regional comparative research and as a source for aggregated industry data. The information in the Index helped to inform the RRG-EPAP team about the current ranking of the City of Riverside across the various categories and to provide a snapshot of the current landscape for clean-tech activities within U.S. cities.

At the state level, the researchers looked at the three areas of support for clean-tech initiatives and grouped indicators by these three divisions: Technology, Policy, and Capital. When they drilled down into research at the metro or city level, the researchers narrowed their focus into four categories of clean tech:

- Green Buildings;
- Advanced Transportation;
- Clean Electricity & Carbon Management; and,
- Clean Tech Investment, Innovation and Workforce.

It is encouraging that the state of California is a leader, earning top ranking for the fifth consecutive year on the 2014 State Index and also claimed five of the top ten slots in the Metro Index (as illustrated in **Figure A.3-1**). Additionally, the cities of San Francisco and San Jose have repeated their #1 and #2 rankings for the second year in a row.

**2014 STATE INDEX TOP 10**

| STATE | RANK | SCORE |
|---|---|---|
| CALIFORNIA | 1 | 93.7 |
| MASSACHUSETTS | 2 | 79.4 |
| OREGON | 3 | 67.0 |
| COLORADO | 4 | 66.8 |
| NEW YORK | 5 | 64.8 |
| NEW MEXICO | 6 | 61.9 |
| WASHINGTON | 7 | 61.6 |
| ILLINOIS | 8 | 61.5 |
| VERMONT | 9 | 58.6 |
| CONNECTICUT | 10 | 57.3 |

*Source: Clean Edge, Inc.*

**2014 METRO INDEX TOP 10**

| METRO AREA | RANK | SCORE |
|---|---|---|
| SAN FRANCISCO, CA | 1 | 94.4 |
| SAN JOSE, CA | 2 | 79.7 |
| SAN DIEGO, CA | 3 | 66.3 |
| PORTLAND, OR | 4 | 62.9 |
| SACRAMENTO, CA | 5 | 61.0 |
| BOSTON, MA | 6 | 56.2 |
| LOS ANGELES, CA | 7 | 56.0 |
| WASHINGTON, DC | 8 | 53.6 |
| AUSTIN, TX | 9 | 51.3 |
| DENVER, CO | 10 | 49.7 |

*Source: Clean Edge, Inc.*

**Figure A.3-1: 2014 U.S. Clean Tech Leadership Index – State Index Top 10 and Metro Index Top 10**

# STATE INDEX - CALIFORNIA'S LEADERSHIP POSITION

In looking at the City of Riverside's competitive advantages, it is important to note the benefits of being supported by California's existing lead in the clean-tech marketplace. For the fifth consecutive year, California leads the State Index by a wide margin, scoring 93.7 overall (with Massachusetts in second place with a score of 79.4). The State's clean-tech prominence is evident across all of the study's key indicators:

- California leads the Technology category and ranks a very close second in both Policy and Capital.
- With existing solar, wind, and geothermal resources, a supportive voting populace, and effective policy levers at every level of government, California places #1 in all three subcategories of clean technology deployment: Electricity, Transportation, and Energy Efficiency/Green Buildings.

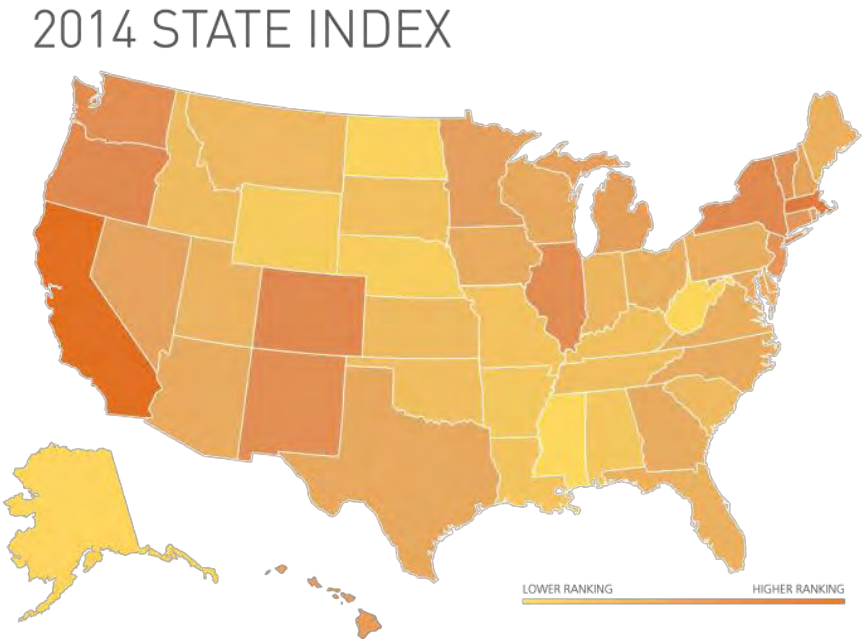



**Figure A.3-2: 2014 U.S. Clean Tech Leadership State Index**

# CALIFORNIA'S SCORECARD - POLICY

In looking at specific State legislation that helped propel several California cities into the top ten list, the study credited the following green building policies for maintaining the State's leadership position: California Green Building Standards Code (CALGreen) and voluntary building code provisions, Tier 1 and Tier 2 requirements. These policies worked to provide greater energy savings, emission reductions, and support for local clean-tech business growth. In addition to the green building standards, the Water Conservation Act of 2009, known as SB X7-7, requires the State to reduce urban per

capita water use by 20% by 2020. This legislation has spurred the development of Regional Urban Water Management Plans, which provide strategies and create incentives to achieve these targets. Cities have had to initiate measures related to tiered pricing and enforce water-efficient landscape requirements for water and irrigation management, and a variety of other conservation measures often tied to water saving technologies. The subcategory to evaluating state-level efforts to combat climate change also tracks states that have established climate action plans, GHG reduction targets, and are participating in an active regional climate initiative. To date, 34 states have established climate action plans, which identify the most cost-effective strategies with the greatest impact to reduce local GHG emissions and 19 states have actually established a specific GHG reduction target. The Regional Greenhouse Gas Initiative (RGGI), which includes nine northeastern states, was the first active cap-and-trade program of its kind in the U.S. and California's emissions trading program brings the number of states active in cap-and-trade markets to 10.

## CALIFORNIA'S SCORECARD - TECHNOLOGY

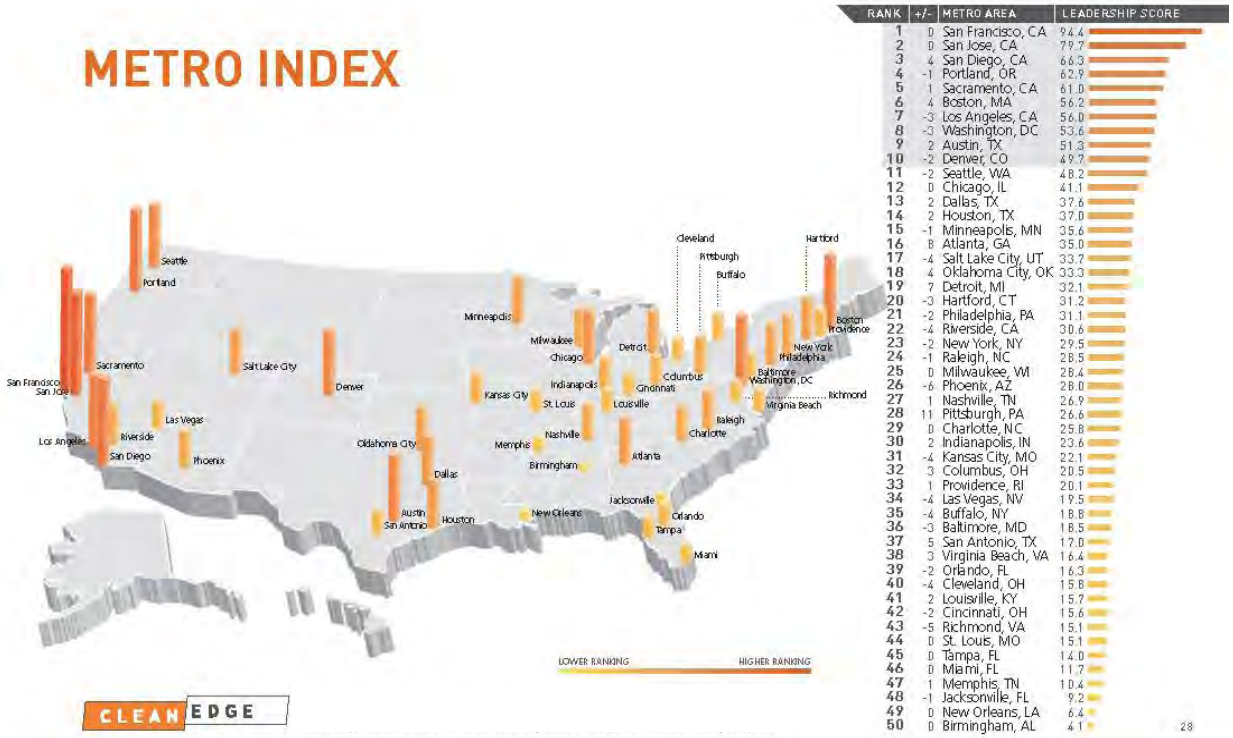
California also demonstrated market leadership in the Technology arena. The State's dominance of the Clean Electricity subcategory can be attributed to robust deployment in the solar photovoltaic (PV), wind, and geothermal sectors. California added 2.62 gigawatts (GW) of new PV capacity during the 2014 year – accounting for 55 percent of the record 4.75 GW installed throughout the U.S. California also leads in hybrid and electric vehicles per million people, with approximately 80,000 EVs (including plug-in hybrids) on California's roads. There is clearly a link between policies that support the growth and, in some cases, subsidize the growth of these clean technologies and cities that are rated higher on the Metro Index. Riverside is able to add on local policies as an overlay to the State's efforts to further grow localized efforts in the adoption of PV, clean vehicles, and the development of energy efficiency technologies.

## CALIFORNIA'S SCORECARD - CAPITAL

California ranked second on the list of states in the Capital category, which measures both clean-tech investment activity and indicators such as: patent activity, the presence of top-rated educational, research, and incubator institutions, and activities in the areas of Human and Intellectual Capital. California's dollars invested per capita figure increased slightly from 2012 to 2013, from $58.51 to $58.67, and total venture capital deals grew from 143 to 207. Massachusetts placed first in the Capital category for the fifth straight year, although its lead over second-place California narrowed from more than four points last year to just 1.2 points. Massachusetts, the biggest hub of clean-tech venture capital outside of California, takes top honors in Financial Capital (normalized for population), while New York, a center of educational and research prowess, is #1 in the Human and Intellectual Capital subcategory.

# METRO INDEX – THE RIVERSIDE ADVANTAGE

When looking at the growth potential for the City of Riverside in the clean-tech arena, there are several existing competitive advantages that will support the City's ability to continue to expand their clean-tech ecosystem. As noted earlier, there is a clear benefit of being supported by California's existing lead in the clean-tech marketplace. The State's clean-tech prominence is evident across all of the study's key indicators, which also correlates with the fact that five of the top ten cities listed in the Metro Index are from California. **Riverside is ranked within the top fifty cities in the 22nd place with a score of 30.6.** San Francisco and San Jose have remained in the first and second place positions, respectively, for the past two years.




| RANK | +/- | METRO AREA | LEADERSHIP SCORE |
|---|---|---|---|
| 1 | 0 | San Francisco, CA | 94.4 |
| 2 | 0 | San Jose, CA | 79.7 |
| 3 | 4 | San Diego, CA | 66.3 |
| 4 | -1 | Portland, OR | 62.9 |
| 5 | 1 | Sacramento, CA | 61.0 |
| 6 | 4 | Boston, MA | 56.2 |
| 7 | -3 | Los Angeles, CA | 56.0 |
| 8 | -3 | Washington, DC | 53.6 |
| 9 | 2 | Austin, TX | 51.3 |
| 10 | -2 | Denver, CO | 49.7 |
| 11 | -2 | Seattle, WA | 48.2 |
| 12 | 0 | Chicago, IL | 41.1 |
| 13 | 2 | Dallas, TX | 37.6 |
| 14 | 2 | Houston, TX | 37.0 |
| 15 | -1 | Minneapolis, MN | 35.6 |
| 16 | 8 | Atlanta, GA | 35.0 |
| 17 | -4 | Salt Lake City, UT | 33.7 |
| 18 | 4 | Oklahoma City, OK | 33.3 |
| 19 | 7 | Detroit, MI | 32.1 |
| 20 | -3 | Hartford, CT | 31.2 |
| 21 | -2 | Philadelphia, PA | 31.1 |
| 22 | -4 | Riverside, CA | 30.6 |
| 23 | -2 | New York, NY | 29.5 |
| 24 | -1 | Raleigh, NC | 28.5 |
| 25 | 0 | Milwaukee, WI | 28.4 |
| 26 | -6 | Phoenix, AZ | 28.0 |
| 27 | 1 | Nashville, TN | 26.9 |
| 28 | 11 | Pittsburgh, PA | 26.6 |
| 29 | 0 | Charlotte, NC | 25.8 |
| 30 | 2 | Indianapolis, IN | 23.6 |
| 31 | -4 | Kansas City, MO | 22.1 |
| 32 | 3 | Columbus, OH | 20.5 |
| 33 | 1 | Providence, RI | 20.1 |
| 34 | -4 | Las Vegas, NV | 19.5 |
| 35 | -4 | Buffalo, NY | 18.8 |
| 36 | -3 | Baltimore, MD | 18.5 |
| 37 | 5 | San Antonio, TX | 17.0 |
| 38 | 3 | Virginia Beach, VA | 16.4 |
| 39 | -2 | Orlando, FL | 16.3 |
| 40 | -4 | Cleveland, OH | 15.8 |
| 41 | 2 | Louisville, KY | 15.7 |
| 42 | -2 | Cincinnati, OH | 15.6 |
| 43 | -5 | Richmond, VA | 15.1 |
| 44 | 0 | St. Louis, MO | 15.1 |
| 45 | 0 | Tampa, FL | 14.0 |
| 46 | 0 | Miami, FL | 11.7 |
| 47 | 1 | Memphis, TN | 10.4 |
| 48 | -1 | Jacksonville, FL | 9.2 |
| 49 | 0 | New Orleans, LA | 6.4 |
| 50 | 0 | Birmingham, AL | 4.1 |

**Figure A.3-3: 2014 U.S. Clean Tech Leadership Metro Index**

## RIVERSIDE'S SCORECARD – AT A GLANCE

Riverside placed in the top 50 Metro areas for the four major categories used by the Clean Tech Leadership Metro Index.

- Green Buildings #41
- Advanced Transportation #10
- Clean Electricity & Carbon Management #13
- Clean Tech Investment, Innovation & Workforce #45

## RIVERSIDE'S SCORECARD – GREEN BUILDINGS #41

Riverside placed in the top 50 Metro areas for the four major categories used by the Clean Tech Leadership Metro Index. In the Green Buildings category, the Index considers LEED certified projects and U.S. Environmental Protection Agency Energy Star-qualified buildings (by number of projects and square feet per capita) in each metro area. Given Riverside's focus on green building standards and RPU's programs to encourage energy savings, the City is positioned to move ahead in this category, especially if there are increased efforts to promote the adoption of both LEED and Energy-Star certifications.

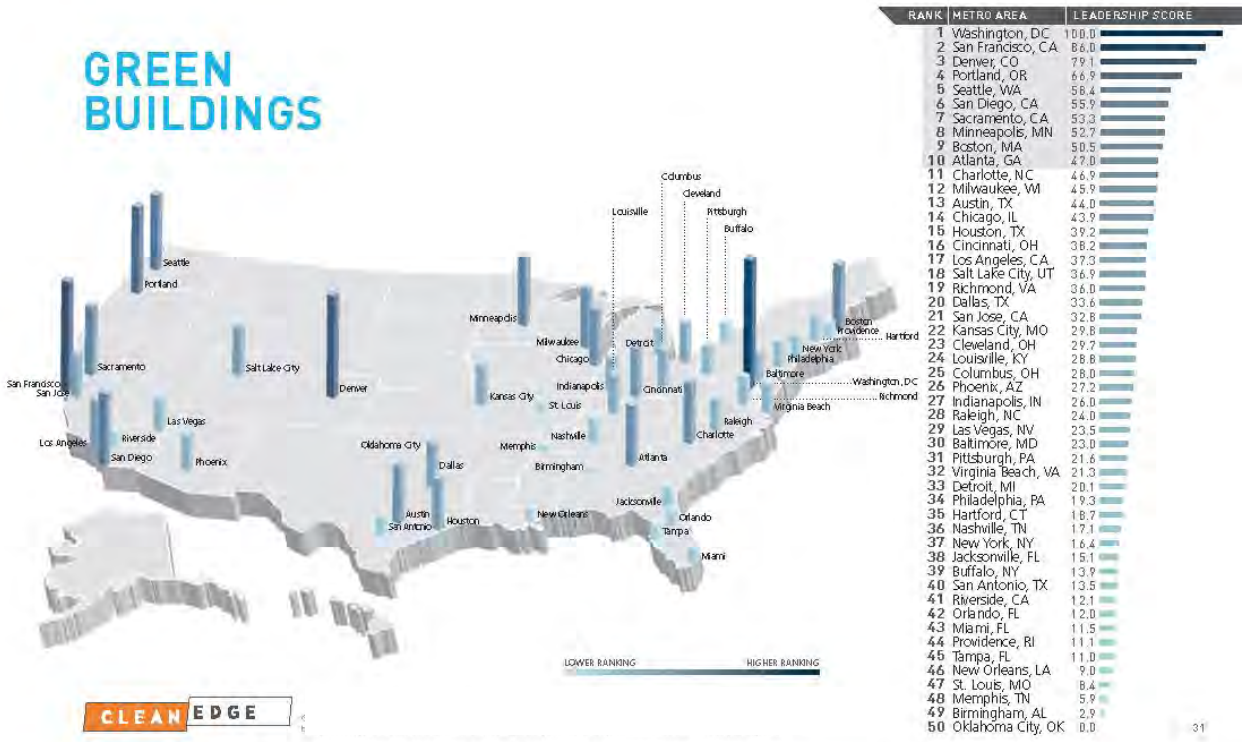



**Figure A.3-4: 2014 U.S. Clean Tech Leadership Metro Index – Green Buildings**

## RIVERSIDE'S SCORECARD – ADVANCED TRANSPORTATION #10

Riverside demonstrated leadership in the Advanced Transportation category with placement in the number 10 slot. This category measures three types of advanced vehicles, their related charging or fueling infrastructure, and public transportation ridership. All six of California's largest metro areas make up the top 10 in this category which coincides with the State ranking first in the comparable Clean Transportation subcategory in the State Index. This is one of Riverside's strongest areas from both a policy perspective and analysis showing that the members of the Riverside community support advanced transportation. For example, Riverside ranks 7th in the nation for the

number of registered Hybrid Electric Vehicles (282,401). However, in looking at EV charging infrastructure rankings, the cities of Portland and Seattle take the lead by a wide margin over other cities. Given the focus on EV charging and fueling infrastructure as one of the EOAs in the RRG-EPAP, Riverside has the potential to increase its ranking in this area in the future.

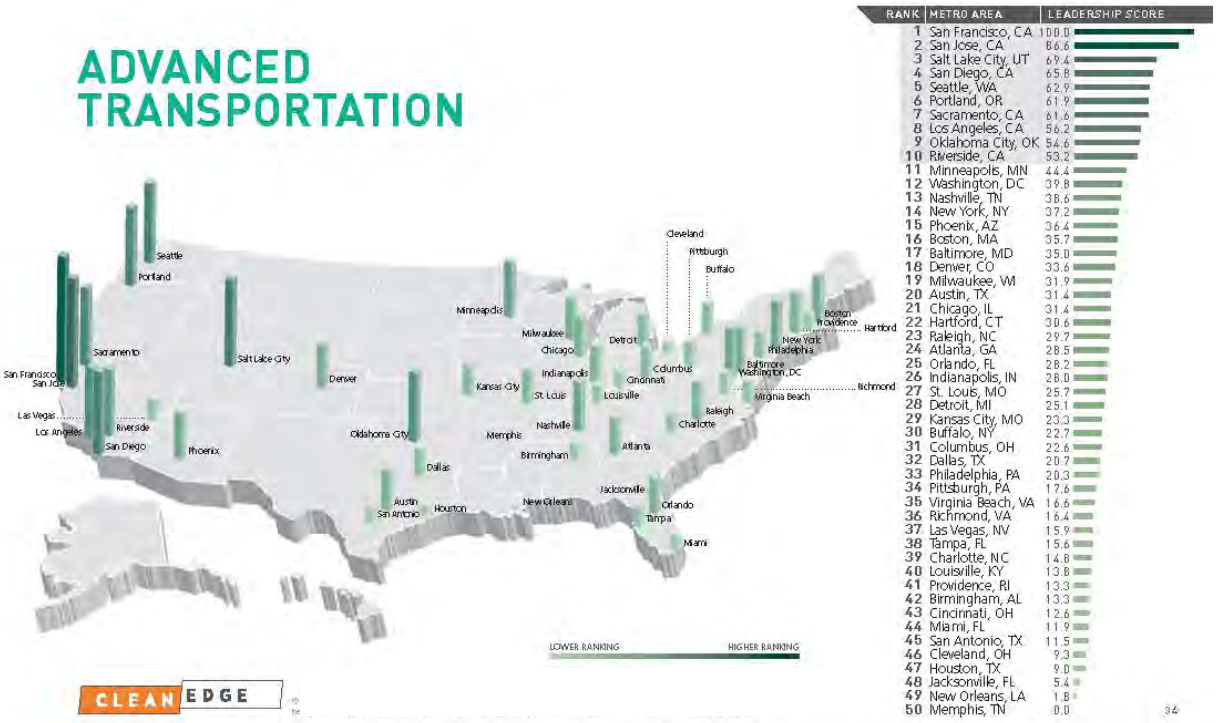



**Figure A.3-5: 2014 U.S. Clean Tech Leadership Metro Index – Advanced Transportation**

## RIVERSIDE'S SCORECARD – CLEAN ELECTRICITY & CARBON MANAGEMENT #13

This category considers three main indicators – the electricity makeup of each metro region, local government participation in voluntary green power purchasing programs, and the carbon intensity of local economies. Again, California's cities dominated this category with the top five cities including Sacramento, San Diego, San Jose, Los Angeles, and San Francisco. Given RPU's policies and focus on clean electricity and energy saving technologies, Riverside's performance in this category is impressive at 13th place. Nevertheless, many of the strategies outlined in the Riverside Restorative Growthprint Climate Action Plan (RRG-CAP) and RRG-EPAP will help the City move up in this category

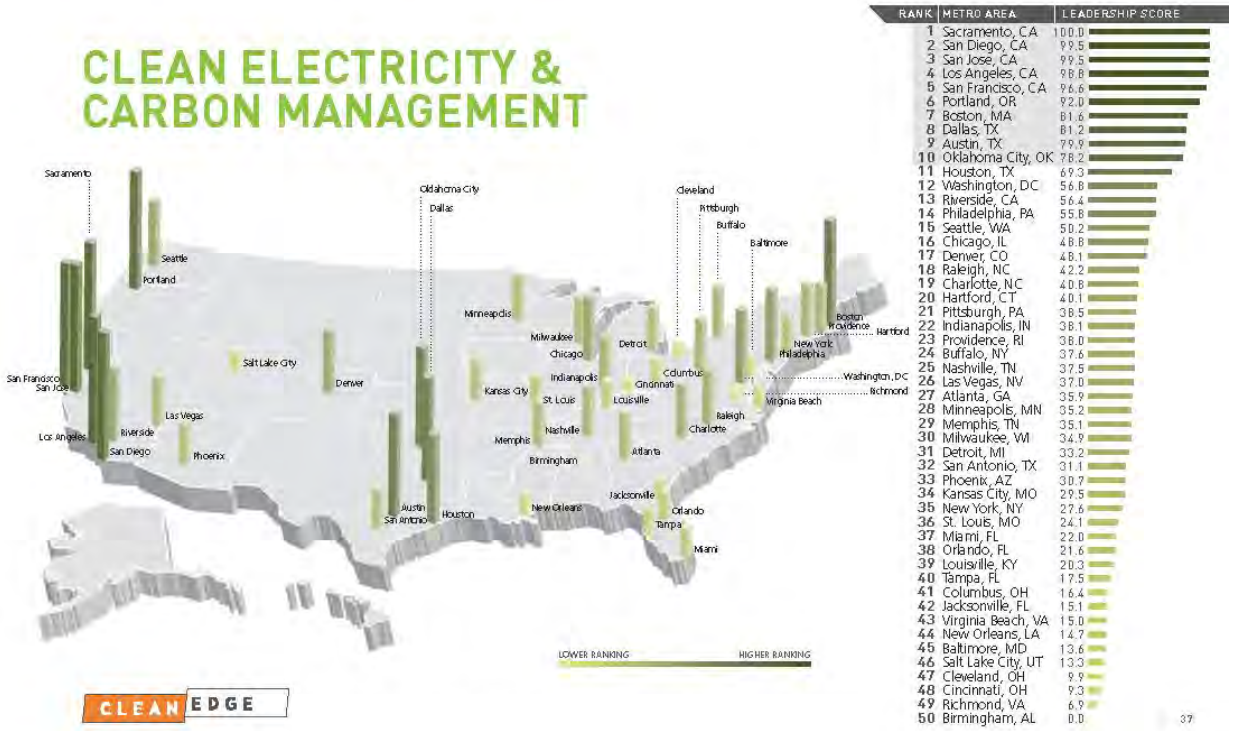



**Figure A.3-6: 2014 U.S. Clean Tech Leadership Metro Index – Clean Electricity & Carbon Management**

## RIVERSIDE'S SCORECARD – CLEAN TECH INVESTMENT, INNOVATION & WORKFORCE #45

The Clean Tech Investment, Innovation and Workforce category measures a metro area's financial, human, and intellectual capital with indicators such as venture capital investments in clean-tech, clean-energy patent activity, and the presence of U.S. Department of Energy labs, incubators or accelerators, and top-rated Green MBA programs. Riverside's position at #45 in this category demonstrates the need for many of the efforts outlined in the EOAs, including the Clean-Tech Incubator, the Eco District Corridor, and other linked initiatives such as building relationships between the universities and local clean-tech businesses. With the development of a Clean-Tech Incubator and an Eco District, Riverside will be able to create showcase opportunities for local clean-tech companies, attract more interest from the investment community, and, ideally, be able to take credit for registered patent activity in the area.

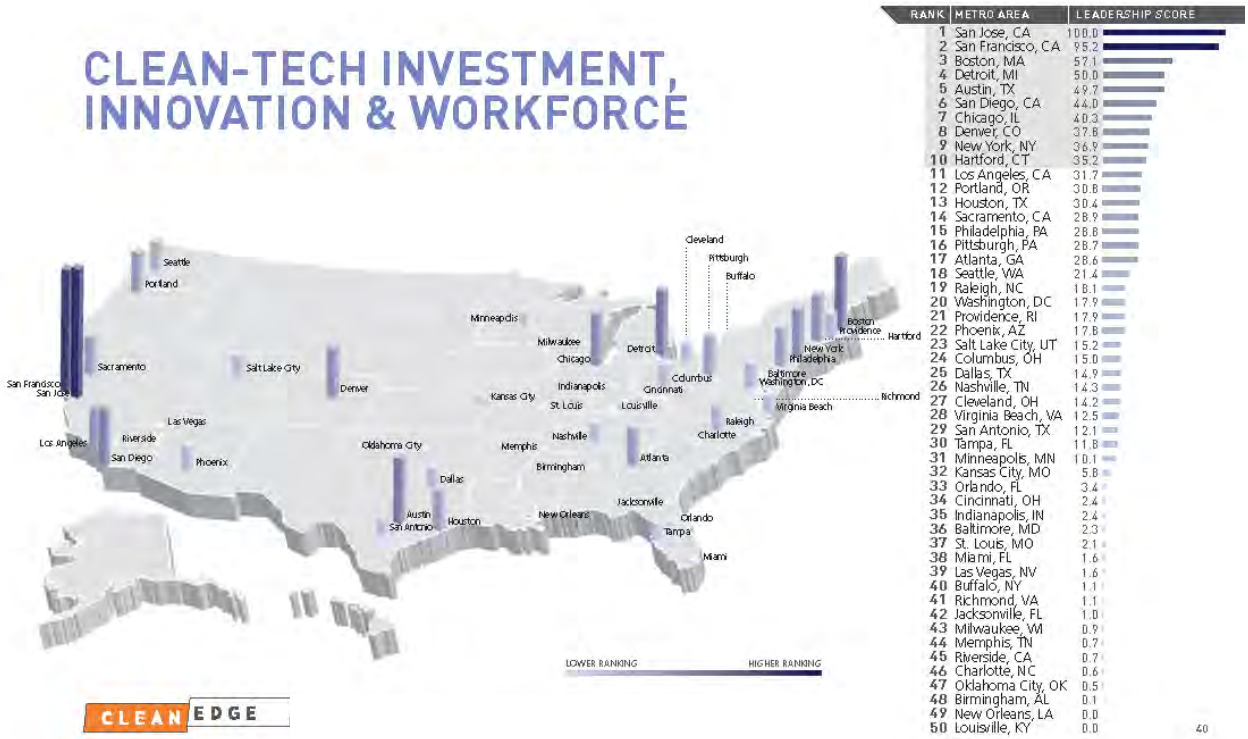



**Figure A.3-7: 2014 U.S. Clean Tech Leadership Metro Index – Clean-Tech Investment, Innovation & Workforce**

## THE PATH FORWARD

The Clean Tech Leadership Index research and analysis further supports the need to focus on all of the EOAs outlined in Chapter 2, as they will lead to greater visibility and higher rankings for Riverside. Gaining recognition by the industry for the City's efforts to grow a thriving clean-tech ecosystem will only lead to additional financial and non-financial support: more clean-tech companies will look to locate in Riverside, more talented students will want to engage in university clean-tech programs, more entrepreneurs will enroll in the Incubator or Accelerator programs, and more residents will feel engaged and be able to benefit from the increase in EV charging stations, public transit options, bicycle infrastructure, and RPU incentive programs for their homes.

# GREEN BUSINESS INCENTIVE PROGRAMS

To assess the City of Riverside's competitiveness in attracting green businesses, it is important to analyze the landscape of other green business incentive programs throughout the State. The RRG project team conducted one-on-one interviews with economic development and clean-tech incubator staff to gather a comprehensive list of the financial and non-financial incentives offered by the top five California cities from the 2014 Metro Index within the U.S. Clean Tech Leadership Index. Financial incentives help to strengthen the business case for setting up a headquarters operation or factory within city limits, while non-financial incentives can promote the business, place the business within a supportive ecosystem or community of like-minded businesses, and set the business on more solid footing for future growth by creating linkages to human capital and other key relationship capital.

A summary of the incentive packages offered by each city is provided below:

## CITY OF SAN FRANCISCO, CA

### Financial Incentives

Solar Rebate: The City of San Francisco offers an incentive program, GoSolarSF, which covers part of the cost of installing solar panels for residents and businesses.

Water Conservation Rebate: Businesses are eligible for rebates if they replace their old commercial toilets, washers, and other water intensive machinery with new, water efficient models.

### Non-Financial Incentives

Certification: San Francisco businesses can gain recognition for their sustainability efforts by becoming certified green businesses through the San Francisco Green Business Program. Once certified, businesses receive a decal that they can display on their windows and the city will promote them in online and print communications.

Green Building Incentives: Pacific Gas and Electric Company provides free energy surveys and recommendations for energy efficiency improvements for commercial buildings in San Francisco. Furthermore, the San Francisco Public Utilities Commission provides commercial customers with a free water-wise evaluation, a free review of property operations and management, and recommendations for water conservation.

Recycling Assistance: Businesses receive recycling assistance in the form of multi-lingual training for staff and managers, container stickers, and signs.

# CITY OF SAN JOSÉ, CA

### Financial Incentives

Home-Based Business Efficiency Incentives: The RightLights Energy Efficient Lighting Program provides home-based businesses in San José with energy efficiency direct installation, rebates, and education.

Lighting Upgrade Incentives: Silicon Valley Energy Watch and the RightLights Energy Efficient Lighting Program provide small to medium-size businesses rate-payer-funded lighting upgrades and free expert assistance to lower energy bills.

Retrofit Incentives: Pacific Gas and Electric Company provides incentives and rebates for San José businesses that install high-efficiency equipment.

### Non-Financial Incentives

None.

# CITY OF SAN DIEGO, CA

### Financial Incentives

Energy Efficiency Incentives: San Diego Gas & Electric provides evaluations of small- to mid-sized San Diego business facilities and installs energy efficient replacement equipment at no cost. They also offer rebates for retrofitting or installing new high-efficiency equipment and 0% financing on energy efficient improvements for eligible businesses.

Lighting Upgrade Incentives: Businesses can receive rebates from San Diego Gas & Electric for upgrading to energy efficient lighting.

Water Conservation Rebates: Businesses can receive rebates for upgrading to water saving equipment.

### Non-Financial Incentives

Certification: San Diego businesses can gain recognition for their sustainability efforts by becoming certified green businesses through the San Diego Area Green Business Project. Once certified, businesses receive a decal they can display in their windows and the city promotes them in online and print communications.

## CITY OF SACRAMENTO, CA

### Financial Incentives

Recycling Market Development Zones: The City of Sacramento offers financial, technical, and marketing incentives to small and mid-sized manufacturers who locate in specified geographic areas and incorporate recycled materials into their production process.

### Non-Financial Incentives

Certification: Sacramento businesses can gain recognition for their sustainability efforts by becoming certified green businesses through the Sacramento Area Sustainable Business Program. Once certified, businesses receive a placard they can display in their stores and the city promotes them in online and print communications.

## CITY OF LOS ANGELES, CA

### Financial Incentives

Electric Vehicle Charger Rebate: Commercial customers receive cash rebates for installation of electric vehicle charging stations.

Energy Efficiency Rebates: The Los Angeles Department of Water and Power offers rebates for investments in projects that reduce energy usage in commercial buildings.

Green Building Incentives: The City's New Constructions Program offers new commercial building projects analysis tools, training, and information about efficient technologies and design, as well as incentives to offset costs of energy efficient building.

Lighting Upgrade Incentives: The Los Angeles Department of Water and Power provides rebates on the installation of energy efficient commercial lighting.

Refrigeration Upgrade Incentives: The Los Angeles Department of Water and Power provides rebates on the installation of energy efficient commercial refrigeration equipment.

Solar Incentives: Businesses that install solar photovoltaic systems receive incentive payments. The city also allows businesses to sell renewable energy produced from their own systems.

Water Conservation Incentives: Businesses can receive rebates for upgrading to water saving equipment. The Los Angeles Department of Water and Power also provides commercial customers with efficient aerators and showerheads at no cost.

Water Wise Landscaping Rebate: Los Angeles businesses are eligible for a rebate if they replace turf with California friendly plants, mulch, or permeable pathways.

### Non-Financial Incentives

Certification: Los Angeles businesses can gain recognition for their sustainability efforts by becoming certified green businesses through the LA Green Business Program. Once certified, businesses receive a placard they can display in their stores and the City promotes them in online and print communications.

Los Angeles Cleantech Incubator: This program offers clean-tech start-ups flexible office space, CEO coaching and mentoring, and access to a network of local experts.

# HOW RIVERSIDE STACKS UP

The following are the financial and non-financial incentives the City of Riverside currently offers businesses.

### Financial Incentives

Air Conditioning Incentives: Riverside Public Utilities offers incentives to offset the costs of upgrading to energy efficient air conditioning systems.

Energy Star Product Rebate: Businesses receive a rebate when they purchase Energy Star appliances.

Energy Technologies Grants: Through the Custom Energy Technology Grant program, businesses can request funds for the advancement of renewable energy and utility industry solutions.

Energy Management System Incentives: The City of Riverside helps businesses cover the cost of upgrading their energy management systems.

Green Building Incentives: The City's Commercial Building Construction Incentives offer rebates for new construction and retrofitting projects that incorporate energy-saving designs and equipment.

Green Tech and Manufacturing Energy Discount: Businesses that relocate their research, technology, green technology, or green manufacturing companies to Riverside can receive discounted energy rates.

Lighting Upgrade Incentives: Riverside Public Utilities provides rebates on the installation of energy efficient commercial lighting.

Personal Computer Power Management Incentives: The City provides rebates to offset the cost of purchasing power management software for personal computers.

Premium Motor Incentives: Businesses receive incentives to offset the costs of switching to energy efficient commercial motors.

Solar Incentives: Businesses that install solar photovoltaic systems can receive rebates.

Thermal Energy Storage Incentives: Riverside businesses can earn rebates when they install thermal energy storage systems.

Water Conservation Incentives: Businesses can receive rebates for upgrading to water saving equipment.

Water Wise Landscaping Rebate: Riverside businesses are eligible for a rebate if they replace existing lawns with California friendly plants.

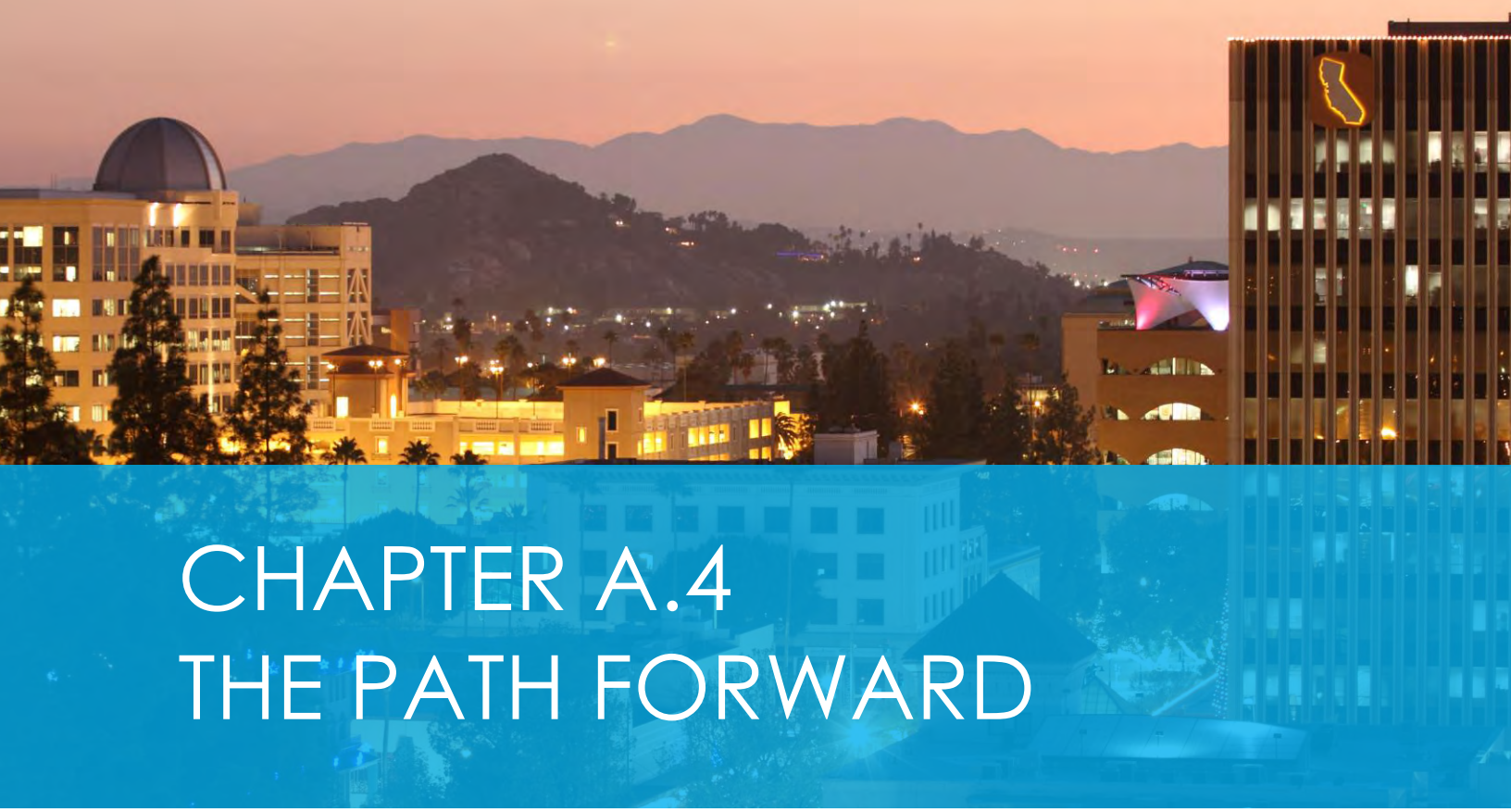
Weatherization Rebate: The Weatherization Rebate Program offers rebates to businesses that install attic and exterior wall insulation, whole building fans, attic fans, window film, and Cool Roof coatings or products.

### Non-Financial Incentives

Audit Services: The City of Riverside provides free online energy audits for businesses.

Load Profiles: Businesses can receive data on energy spikes, historical data, and short and long-term energy trends.

Riverside has a comprehensive offering of programs for homeowners and businesses to help them with their overall sustainability efforts. Being able to group together packages for clean-tech businesses, which include location-based advantages (either in the Eco District or Clean-Tech Incubator), will help in marketing Riverside as a location designed for clean-tech business success. Chapter 4 will include recommendations for implementation of the RRG-EPAP as well as additional ways of packaging financial and non-financial incentives.



# CHAPTER A.4
# THE PATH FORWARD

## COMPLETING THE PUZZLE

The RRG concept presented an ambitious challenge to build *two* complementary plans for the City of Riverside in an effort to achieve *two* important goals – reaching citywide GHG emission reduction targets and setting the City on a growth path that marries economic prosperity with environmental stewardship. Other cities have embarked on similar efforts, but the development of an economic plan *in conjunction* with a climate action plan is an innovative approach that sets Riverside apart from other cities across the nation.

The comprehensive outreach and engagement efforts detailed in Chapter 2 produced hundreds of valuable suggestions on ways to strengthen Riverside's economy by focusing on impact areas that also yield GHG emission reductions. In order to synthesize this data and present a clear path forward for implementation, the RRG project team has established "smart growth" categories to organize the action plan into focused areas.

### DEFINING SMART GROWTH

'Smart growth' is a theory of land development that accepts that growth and development will continue to occur and seeks to direct that growth in an intentional, comprehensive way, typically by creating more compact, walkable urban centers. In recent years, cities and regions alike have incorporated sustainable development goals into smart growth plans. The Natural Resources Defense Council (NRDC) published case studies of 70 communities across the U.S. that are embracing smart growth as a better solution to meet the needs of their growing populations. The NRDC defines smart growth principles as those that accommodate growth and development while saving open space, revitalizing neighborhoods and helping cool the planet."

In addition to incorporating a focus on sustainable development practices, smart growth policies have also helped facilitate community support of growth initiatives in general. The U.S. Environmental Protection Agency defines smart growth as "development that serves the economy, the community, and the environment. It changes the terms of the development debate away from the traditional growth/no growth question to how and where should new development be accommodated." Smart growth can provide various economic, social, and environmental benefits, as summarized in **Table A.4-1**. These benefits result from various features of smart growth, including reduced per capita land consumption, less dispersed development, and more diverse transportation systems.

**Table A.4-1: Smart Growth Benefits**

| ECONOMIC | | SOCIAL | ENVIRONMENTAL |
|---|---|---|---|
| Infrastructure cost savings | | Improved transport options, particularly for non-drivers | Greenspace & habitat preservation |
| Public service cost savings | | Increased housing options | Energy savings |
| Transportation efficiencies | | Community cohesion | Air pollution reductions |
| Economic resilience | | Cultural resource preservation (historic sites, traditional neighborhoods, etc.) | Water pollution reductions |
| Economies of scale | | Increased physical exercise and health | Reduced "heat island" effect |
| Supports industries that depend on high quality environments (tourism, higher education, farming, etc.) | Mentorship and apprenticeship programs to develop future generations | Greater adoption of clean technologies | |

The RRG-EPAP is a plan for smart growth in Riverside. All of the efforts during the plan development stages, as captured within the pages of this report, provide the necessary puzzle pieces to map out a bright future for the City. The recommendations listed below help to assemble the puzzle in a way that is easily implemented through an inclusive planning process.

# RECOMMENDATIONS

The feedback provided through the outreach and stakeholder engagement process has been synthesized into five overarching strategies. These strategies are aimed at effectively and efficiently facilitating smart growth development, and stimulating more sustainable infrastructure investment.

The five smart growth strategies include:

1. Placemaking
2. RRG Policy Lens
3. Smart Growth Infrastructure
4. Community Connections
5. Future Leaders

These smart growth strategies are outlined below, with a special focus on the EOA(s) best suited to achieve each strategy.

## PLACEMAKING

The concept of "placemaking" aims to utilize and transform the planning, design and management of public spaces in an effort to empower local communities and create a sense of "belonging." The process behind placemaking utilizes a community's assets to improve upon or create public spaces that actively benefit the community, strengthen social ties, and spur economic activity.

> *"'Placemaking' is both an overarching idea and a hands-on tool for improving a neighborhood, city or region. It has the potential to be one of the most transformative ideas of this century." – Project for Public Spaces*

There are many successful examples of placemaking projects across the country and abroad. One example is the Boston Innovation District, which has transformed the South Boston waterfront into a hub for collaboration and entrepreneurship that is changing the way residents, workers, and visitors interact with the area. Since inception, the effort has successfully added over 5,000 jobs and 200 new companies. Technology companies (including clean-tech) have contributed to over a third of this job growth.

As we progress towards a knowledge-based economy, strategies for economic development must increasingly take into account the importance of place. Placemaking strategies can result in quality places, tax revenues, job creation, livability, sustainability, and competitiveness. Quality places retain and attract skilled and talented people. Talented people like places with natural, community, social, leisure, creative, and cultural activities for themselves and their families. These characteristics are important in allowing smaller and medium-sized cities such as Riverside to attract and retain the talent and investment in business necessary to compete with larger urban centers.

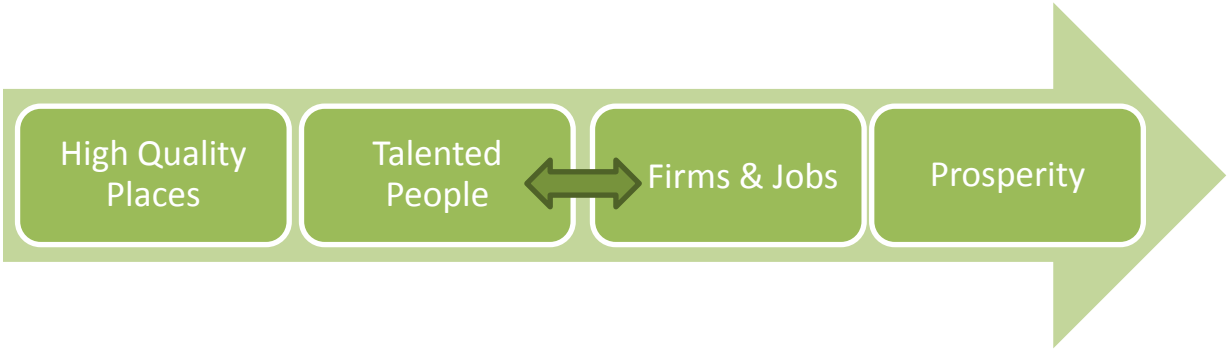



**Figure A.4-1: How Placemaking Can Work**

A number of placemaking principles address sustainability and incorporate methods to promote economic development of the local community while simultaneously reducing environmental impact. The following EOAs fall within this model and support the development of a sustainable "place" for the Riverside community to thrive:

**Bicycle Infrastructure Expansion**

The expansion of on-street and off-street bicycle infrastructure includes the creation of bicycle lanes, parking, facilities/amenities (such as showers, lockers) and bicycle sharing programs. By providing both recreational and commuting cyclists with improved infrastructure and amenities, the City will encourage increased ridership and enjoy the associated economic benefits. Examples of these benefits include the development of businesses and new jobs to support bicycling infrastructure facilities and the creation of bicycle sharing programs. Additionally, local businesses along bicycle paths will see increased patronage.

Another significant opportunity is for the City to create a bike friendly district. This bike friendly district would have extensive bicycle facilities, bike shops, and other businesses which support cycling. Local businesses could also advertise discounts and provide bicycle parking options. A bike friendly district would serve as a proving ground and support for more innovative bicycling concepts, such as bike corrals, "bike boulevards" or pedcab rickshaws. This bike friendly district would also create additional foot traffic, which would be conducive to having more patrons at restaurants, café's, and shops. One likely application would be in the Downtown area, where a synergy of bicycle facilities and supportive land uses could be easily achieved.

**Eco Business Zone**

An Eco Business Zone is a geographically defined area featuring best practices in sustainable urban design and green building with a focus on supporting both clean-tech and green businesses through a dedicated Green Business Program, enterprise zone incentives, and special showcasing opportunities. Similar to Boston's Innovation District, the Eco Business Zone is designed to encourage economic development by attracting new, innovative businesses and rewarding existing businesses for adopting sustainable practices. In order to reinforce a sense of community and sense of

belonging for Riverside's clean-tech businesses, the Eco Business Zone and the correlating support programs will encourage interaction, networking, and showcasing of Riverside's eco-entrepreneurs. Supporting the Riverside Food Systems Alliance, the Eco Business Zone would also work to provide resources and showcase opportunities to engage local food and agriculture stakeholders focused on building an environmentally sustainable and economically viable community of farmers, inside and outside the City.

**Clean-Tech Incubator**

In addition to an Eco Business Zone, the creation of a Clean-Tech Incubator would provide a physical location to offer counsel, funding resources, office space, and R&D lab space to local clean-tech companies looking to launch and grow within Riverside. Incubator programs across the country and specifically in Southern California have demonstrated great success in creating a community environment for entrepreneurs to thrive and share lessons learned. The Clean-Tech Incubator will support a variety of clean technologies, including those that are directly tied to Riverside's existing industries like food and agriculture.

**Urban Form/Built Environment**

Recent studies show that some individuals and companies prioritize housing and employment locations within higher-density, multi-use centers that are more walkable. Such development reduces both vehicle miles traveled (VMT) and GHGs, as individuals can accomplish many tasks in a single mixed-use area. This centrality of uses also can improve community health by encouraging bicycling and walking, improve air quality by reducing tailpipe emissions, and increase the community's sense of place. Within the City of Riverside, there are significant opportunities for mixed-use, particularly within the Downtown area and University and Magnolia corridors. There is already a mix of retail, housing, and office space within the Downtown area and additional mixed-use development will only improve the current use diversity.

## RRG POLICY LENS

The City of Riverside is perfectly positioned to analyze policy decisions through an RRG Policy Lens – a sustainability lens that examines whether future policies achieve both GHG reductions and support smart growth. Being able to assess environmental benefits in conjunction with economic benefits at the policy-making stage will allow for more collaboration between key stakeholders – the business community, building industry, and the City.

The following EOAs are examples of using this dual-pronged RRG Policy Lens to achieve smart growth:

**Energy and Water Upgrades for Home or Business**
By providing financing for property owners (residential and commercial) to make energy efficient, renewable energy, and water conservation improvements, the City will demonstrate its support of greening the building inventory while encouraging clean-tech business activities focused on energy and water efficiency.

**Green Building Standards**
As part of California's demonstrated leadership in the policy arena, Riverside's implementation of the State's mandatory energy efficiency standards for residential, commercial, and municipal buildings will help pave the way for green building solutions providers. While the State's green building standards are mandatory, the City can consider optional Code language that increase green building solutions that are beneficial, flexible and provide tangible incentives to the builder industry.

**RPU Clean Technology Funding**
Riverside Public Utilities' (RPU) offers a number of programs to provide financing and incentives to develop and deploy energy technologies that reduce GHG emissions. The Custom Energy Technology Grant program provides RPU electric business customers with the opportunity to request funds for the advancement of renewable energy and utility industry solutions. These include benefits to California electricity ratepayers and target utility related categories such as distributed generation and energy efficiency. Such solutions will address changes the utility industry has seen in the last five years with the advancement of technology and its impact on the utility space.

Additionally, the Energy Innovations Grant (EIG) Program was developed for the funding of research, development and demonstration programs for the public interest to advance science or technology in electric related projects in the institutions of higher education within the City of Riverside. Funding from the program has helped post-secondary institutions look for new ways to advance science and technology in energy-related fields.

Furthermore, RPU provides Economic Development rates for relocating or expanding manufacturing companies pursuing green technology and manufacturing in Riverside. Customers may qualify to receive a four-year contract with a 40% discount per month the first year and 20% discount per month the second year. Qualifying companies are defined by the North American Industrial Classification System (NAICS) codes.

Lastly, the Green Power Premium is a voluntary program available to all RPU electric customers interested in helping Riverside achieve and surpass its renewable energy goals. Customers who opt into this voluntary program agree to contribute an additional two cents ($0.02) per kilowatt hour (kWh) of electricity used, at their current per-kWh rate. Funds raised through this program will go directly toward the purchase of renewable energy for the city of Riverside.

RPU is looking to continue its partnerships to explore ways to utilize technologies available today to make cleaner energy more reliable.

# SMART GROWTH INFRASTRUCTURE

Smart growth improves accessibility to alternative modes of transportation, discourages single occupancy vehicle ridership, and encourages more movement on foot. By improving the connectedness of the city overall, the benefits will lead to a reduction in direct and indirect transportation costs. Smart growth policies have provided various savings and benefits for other cities, including:

- Fewer impervious surfaces reduce storm water management costs and heat island effects (increased ambient temperatures on sunny days), and leaves more land for other productive uses, including farming and wildlife habitat; Compact development reduces the capital and operating costs of providing public infrastructure and services such as roads, utility lines, garbage collection, and emergency services;
- Enhanced transportation systems improve overall accessibility (people's ability to reach desired goods and services). This increases the efficiency of activities that involve distribution (products delivered to a destination) or interaction (people and materials brought together); and,
- Alternative transportation options reduce overall transportation costs, including the per capita costs to consumers to own and operate vehicles, road and parking facility costs, traffic accidents, and pollution emissions. Within Riverside County, the average household spends upwards of $1,000 per month on all transportation related costs. The majority of the Riverside City residents spend upwards of 45% of their household income on housing plus transportation costs, which are some of the highest in the State.

Transportation infrastructure tied to smart growth principles is a particularly important part of economic development. Transportation drives development and the transportation system a city selects dictates the shape of real estate. For the past three generations, U.S. transportation investment policy focused primarily on building roads, as the market wanted. However, this resulted in an over-supply of "drivable suburban" development. In today's real estate market, particularly among members of the Millennial generation, demand is rapidly rising for "walkable urban" development, which is denser and mixes infrastructure uses within walking distance. By improving access to rail and developing a convenient transit infrastructure, biking and pedestrian systems will spark an explosion of sustainable development in the City.

The following EOAs support the development of Smart Growth Infrastructure for Riverside:

**Clean Vehicles and Charging/Fueling Stations**
Providing clean vehicle charging and fueling infrastructure will encourage those who drive within the City to move toward alternative and renewable fuels and other clean transportation technologies.

**Expand Bicycle Infrastructure**
As mentioned earlier in the 'Placemaking' section, creating a successful bike friendly district relies heavily on infrastructure plans to ensure safe transit for bicyclists and provides the amenties necessary to make daily rides possible. Expanding on-street and off-street bicycle infrastructure, including bicycle lanes, parking, facilities/amenities (showers, lockers), and bike sharing, will provide the foundation for a successful bike friendly district.

Other supporting RRG-CAP measures and smart growth planning strategies include:

**Transit Infrastructure**
Increasing ridership on public transit will also help to support local businesses while reducing vehicle miles traveled within the City limits. Efforts include expanding transit infrastructure including bus rapid transit services and fixed guideway transit; subsidized transit passes and expanding the accessibility of transit to all users; increasing service hours where feasible; and expanding Metrolink service hours.

**Waste Reduction and Diversion**
In order to increase waste diversion rates and encourage more recycling and composting of waste, businesses and residents need the infrastructure to collect and properly dispose of these materials. A first step includes creating or tapping into existing markets for recycling and re-purposing of materials to promote diversion of food and other solid waste from landfills. Building out the recycling and composting infrastructure is necessary before an education and engagement program can be created to raise awareness about a waste reduction initiative.

## COMMUNITY CONNECTIONS

Smart growth planning also focuses on creating livable and connected communities. As is evident by the diverse group of stakeholders who participated in the RRG-EPAP outreach activities, the richness of the City lies in the interest and involvement of the City's residents, employees, business owners and students. Ultimately, the ideas, technologies, and business models needed to transition the local economy must come from the people who live and work in Riverside. The real opportunity for the City lies in the leaders and innovators who call Riverside home, and in the fertile ground the City provides for inspiring entrepreneurial activity. The City can serve to articulate a vision

and provide a clear policy framework for a low-carbon future, and engaged citizens of Riverside can be involved with setting the community's governance structure, economic base, culture, values, and social foundation.

Smart growth also considers the ability to create linkages to further Community Connections by bridging sectors of the community that would not otherwise interact. Most of the EOAs help to create those connections – from bike infrastructure, to the buy local campaign, to EV infrastructure. By getting people out of their cars, shortening commutes, encouraging money to stay within the local business community, and creating pathways from colleges to local employers/local businesses to residents, the plan encourages stronger community connections. The onset of new services to encourage the sharing economy (car sharing, bike sharing, co-working spaces) will also provide additional opportunity to create stronger community bonds. Younger generations and college students will help to embed these types of services as part of the Riverside lifestyle, as they have been the biggest users of the "sharing economy" businesses in cities across the globe.

Monitoring and measuring the progress of initiatives to increase the connectivity of the community is always a difficult task. Riverside has been selected (as one of 25 U.S. cities) to participate in the Sustainability Tools for Assessing & Rating (STAR) Communities Program, which was created through a partnership of the U.S. Green Building Council (USGBC), the National League of Cities, the Center for American Progress, and the ICLEI Governments for Sustainability. The STAR program was designed as a way to help cities rank and evaluate their ongoing sustainability efforts. As one of the pilot program participants, Riverside will be able to test out the STAR Communities rating system and have access to new technical guides, and online reporting tools. The feedback from the STAR program will help to evaluate current programs to connect community groups and provide tools to assess which areas may need additional resources.

**Buy Local Initiative**

This EOA initiative works to support local businesses and reduce vehicle miles traveled for shopping, entertainment, and errands by encouraging residents and employees to patronize local establishments. It also reduces the vehicle miles traveled of the products created in Riverside, and goods brought in from elsewhere. This program would be integrated with the transit infrastructure efforts, clean vehicles and charging/fueling stations, bike infrastructure plan, Grow Riverside efforts and the City's existing Shop Riverside Community Card program.

## FUTURE LEADERS

Careers in clean-tech and sustainability-focused areas are on the rise. As the City builds out programs to retain college students interested in sustainability post-graduation, the local clean-tech community will continue to develop organically with stronger ties to those who have already established roots in Riverside. The City's efforts to develop an employment base with skills that are in demand by local industry and small businesses will, in turn, yield additional taxable income, stabilized property values, and increase rates of homeownership.

Feedback from the business community has emphasized the importance of building out channels to secure talent from with the Riverside community by linking college students with future employers within the City. One example is SolarMax Technology Inc., which sources engineering talent from local universities. The ability to recruit from local universities was cited as one of the main reasons why SolarMax decided to base their headquarters within the City of Riverside.

**Clean-Tech Apprenticeship/Internship Program**

The large student population in Riverside provides a unique opportunity for businesses in the area to draw new talent and encourage more young people to enter the industry. A city-sponsored apprenticeship program could pair green businesses with aspiring sustainability professionals from the University of California, Riverside (UCR), Riverside City College (RCC), California Baptist University, and La Sierra University. A program such as this would act as an incentive for businesses to locate in the area because it would give them access to high quality interns and a skilled labor pool.

One example of a successful apprenticeship program is UCR's Bourns College of Engineering IMPACT program that places undergraduate students with mentors. IMPACT stands for Industrial Mentorship for Professional Advancement and Career Training. The program has garnered support from an impressive list of partners, including the current participating IMPACT mentors:

- County of Riverside
- Fluor Corporation
- Kaiser Permanente Information Technology
- TIAX, LLC.
- Western Digital
- Western Municipal Water District
- U.S. Department of Navy, Naval Surface Warfare Center
- Verizon Communications

Another example is Riverside City College's comprehensive career training programs. RCC supports the local economy through critical vocational and apprenticeship programs in fields such as engineering, high technology, healthcare, culinary arts, international trade, auto tech, and other services.

**Satellite Incubator Programs**

In addition to providing introductions to Riverside's established clean-tech businesses through the apprenticeship programs, the City can also develop branches of its clean-tech incubator in the form of satellite incubator programs on the college campuses. Encouraging entrepreneurial activity within the undergraduate and graduate student populations is also in alignment with the other smart growth areas. This partnership model has already proven to be a success in Riverside with the Excite incubator – a partnership between the County of Riverside, City of Riverside and University of California, Riverside.

An example of the satellite approach is the Los Angeles Cleantech Incubator's recent expansion efforts, namely LACI@CSUN. The LACI@CSUN business incubator is collaboration between California State University, Northridge (CSUN) and the Los Angeles Cleantech Incubator (LACI), designed to help startups from CSUN and the San Fernando Valley discover new opportunities, create outstanding enterprises and connect with our global network of businesses and investors. Located on the campus of California State University Northridge, the LACI@CSUN business incubator links LACI's best practices in developing robust companies with CSUN's ongoing teaching and research in the areas of technology, manufacturing, education, health and human development, and more. This partnership brings innovative marketing, unique facilities, private funding and other necessary support to students, faculty and the entire San Fernando Valley community.

# IMPLEMENTATION OF THE RRG-EPAP

To implement the RRG-EPAP smart growth strategies, we have outlined a 4-step action plan that can be used to jumpstart the project planning process. The action plan structure below includes the same focus on stakeholder engagement and ongoing outreach activities as was implemented during the creation of the RRG-EPAP. Maintaining an inclusive planning process for each of these areas will lead to greater adoption by those within the Riverside community and allow for increased awareness of Riverside's commitment to environmental stewardship and economic prosperity by those outside of the City.

In addition to the recommended action plan structure above, the Appendix (A-1 through A-4) contains starter action plans categorized by EOA. Ths will enable entities working on specific areas to focus on the most relevant recommendations collected during the RRG-EPAP outreach campaign.

**Table 4-2: Implementation of the RRG-EPAP**

| STEP 1 | STEP 2 | STEP 3 | STEP 4 |
|---|---|---|---|
| **OWNERSHIP** | **RESOURCES** | **PLAN TIMELINE** | **ENGAGEMENT** |
| Establish desired outcomes.<br><br>Define org chart for successful project rollout.<br><br>Establish partnerships to align personnel.<br><br>Set regular meeting schedule.<br><br>Create protocol to document planning process. | Develop list of Riverside resources for project (see RRG-EPAP resources in Chapter 2).<br><br>Analyze external resources (federal, state, public/private partnerships).<br><br>Review needs for physical space (if required).<br><br>Assess whether new policies are needed for project's success. | Create draft timeline for project rollout.<br><br>Set targets and milestone goals.<br><br>Determine measurement tools and success metrics.<br><br>Initiate policy development process (if needed). | Develop outreach and engagement plan.<br><br>Create communications plan for the project with online and offline materials.<br><br>Activate web presence to encourage feedback and suggestions from the community. |

## COMPREHENSIVE CLEAN-TECH INCENTIVE PACKAGE

In addition to developing individual action plans for each smart growth area and their associated EOAs, the RRG-EPAP calls for the development of a comprehensive incentive package to further attract and support local clean-tech businesses. After comparing the incentives that the City of Riverside offers to existing businesses with those offered by other leading California cities, it is recommended that Riverside

institute the following additional incentive programs. These programs will further promote sustainable and clean-tech businesses to relocate to or expand their operations in Riverside.

## Financial Incentives

Offer a rebate on electric vehicles purchased as company cars: These rebates will encourage companies to provide environmentally friendly transportation for their staff and products.

Offer a rebate on electric vehicle charger installation: By offering these rebates, Riverside will promote the installation of electric vehicle chargers in commercial parking areas. Greater availability of chargers will encourage more city residents to buy and drive electric vehicles.

Green roof incentives for commercial buildings: Green roofs provide benefits for both cities and individual businesses. They help filter pollutants in the air and provide energy-saving insulation for buildings. Washington, D.C. has developed an acclaimed green roof program, and provides base funding for green roofs of $10 per square foot, and up to $15 per square foot in targeted subwatersheds. To learn more about their incentive program, visit http://green.dc.gov/greenroofs.

Subsidize recycled and eco-friendly materials for manufacturers: The City can encourage manufacturing companies to use recycled materials in their production by subsidizing recycled and eco-friendly materials. Sacramento has a Recycling Market Development Zone, administered by the Department of Resources Recycling and Recovery (CalRecycle), which offers loans (a total of about $3 million in FY 2014-2015), technical assistance, and free product marketing to companies that use materials from the waste stream to manufacture their products. To learn more about their program, visit http://www.calrecycle.ca.gov/RMDZ/.

## Non-Financial Incentives

Create a green business certification program: Four of the five California cities listed on the Metro Index's 2014 U.S. Clean Tech Leadership Index have green business certification programs. These programs are low-cost and provide recognition and marketing opportunities as incentives for businesses to reduce their environmental impact. The Los Angeles Green Business Program, administered by the Los Angeles Bureau of Sanitation and the Los Angeles Community College District, has now granted certification to 228 businesses. The program has been highlighted in publications such as the Los Angeles Times and Discover Los Angeles. Businesses in the city typically seek certification to use as a marketing tool and to incentivize eco-minded citizens to become customers. The City of Santa Monica Green Business Certification Program is administered by an environmental nonprofit organization, Sustainable Works, that is under an annual service contract with the city. The Green Business Certification Program is a voluntary program that encourages businesses to implement proactive actions that are good for their bottom line and the environment. For the past 20 years, the City of Santa Monica has recognized a select group of local businesses in an award

ceremony called the "Sustainable Quality Awards" or SQA The Santa Monica Chamber of Commerce, the City of Santa Monica, and Sustainable Works developed the SQA to identify and recognize businesses in the Santa Monica area that are successfully incorporating sustainable practices into their operations. The SQA is an annual event that promotes the efforts of local businesses that have made significant achievements in the areas of sustainable economic development, social responsibility, and stewardship of the natural environment. By recognizing these achievements, this awards program educates and inspires other businesses to adopt their own sustainable practices, thus helping Santa Monica become a model sustainable community, providing its residents and visitors with a healthy economy and environment.

Create a clean-tech incubator: A physical incubator office location can offer counsel, funding resources, office space and R&D lab space to clean-tech companies looking to launch and grow with Riverside as their base. An incubator also draws attention to local businesses from Venture Capital and Private Equity investors.

Develop an inter-college sustainability apprenticeship program: The large student population in Riverside provides a unique opportunity for businesses in the area to draw new talent and encourage more young people to enter the industry. A city-sponsored or university-sponsored apprenticeship program could pair green businesses with aspiring sustainability experts from the University of California, Riverside, Riverside City College, California Baptist University, and La Sierra University. A program such as this would act as an incentive for businesses to locate in the area because it would give them access to high quality interns and a skilled labor pool. Many college programs require capstone projects and field study internships and others offer structured apprenticeship programs (like Los Angeles Trade Tech College – see http://college.lattc.edu/cmu/program/apprenticeship-programs/). Developing a program that specifically focuses on building the talent pipeline for Riverside's clean-tech industry will allow the City to further demonstrate its desire to build community connections that contribute to sustainable community growth.

Incorporate a local agriculture showcase for local food vendors into the annual Grow Riverside conference: The Grow Riverside conference, which works to foster growth of a sustainable local food and agriculture system in the community, attracted a sold-out audience of over 420 to its inaugural event in 2013. By incorporating into this conference a showcase of seasonal foods available from local farmers and ranchers specifically for Riverside food vendors, restaurants, and supermarkets, businesses in the community would be encouraged to source locally grown food. The practice of sourcing locally both supports local farmers and reduces transportation-related carbon emissions.

Institute a clean-tech mentorship program: An inter-business mentorship program similar to the Los Angeles Cleantech Incubator program would foster cooperation among Riverside businesses and encourage connections between entrepreneurs.

Provide a business and/or staff training program on recycling: By training business managers and staff on recycling best practices, the city can create a better-informed

business population that is capable of using Riverside's recycling system to its fullest potential.

Sponsor a clean-tech investor series: An annual or biannual clean-tech investor series, similar to GloSho Los Angeles and the Clean Tech LA Investor Series, would showcase local clean-tech companies and connect them to Venture Capital and Private Equity investors.

## PROMOTING RIVERSIDE'S COMPETITIVE ADVANTAGE

The RRG project team is developing an outreach plan to showcase Riverside's competitive advantages and these additional incentives will serve as great additions to the overall offering. The outreach plan will include presentation materials to allow Riverside representatives to raise awareness and encourage participation in the development of the RRG-EPAP initiatives from key stakeholders - entrepreneurs, business owners, academic community, students, community members, clean-tech investment community, and the clean-tech industry at-large.

The outreach plan will also identify speaking opportunities at local, regional and national clean-tech conferences and seminars. These targeted outreach activities will work to position Riverside as a top city for clean-tech businesses and highlight the City on the national stage as an example of a sustainable community.

## ONGOING PROJECT SUPPORT

The final recommendation is to continue to assign resources to support the RRG on an ongoing basis by maintaining the project headquarters in the City's Community Development Department. The outreach efforts were promoted from the City's Community Development Department - Planning Division web page and many of the stakeholder groups will continue to look to the Planning page for project updates. Even though some of the initiatives may be housed or owned by other areas within the City, having a central hub to maintain consistency of the mission of the RRG across all projects moving forward will be key to the overall success of this plan.

Through its existing sustainable community programs, the City of Riverside has already established its commitment to improving the health of its residents and its environment. Nevertheless, in order to demonstrate its sustained support for its citizens and environment, it must continually grow its existing programs and look for new, innovative approaches to city development. The above recommendations, compiled over the course of the RRG project team's 10 months of research, present pathways for Riverside to do just this. If implemented, the team is confident that the recommendations would encourage the City's existing residents and businesses to lower their environmental impacts and draw attention of up-and-coming clean tech startups, aspiring college students, and citizens looking for a modern, livable city to call home.

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Riverside
RESTORATIVE GROWTHPRINT

# CLIMATE ACTION PLAN

RRG-PART B

PUBLIC REVIEW DRAFT

June 2015

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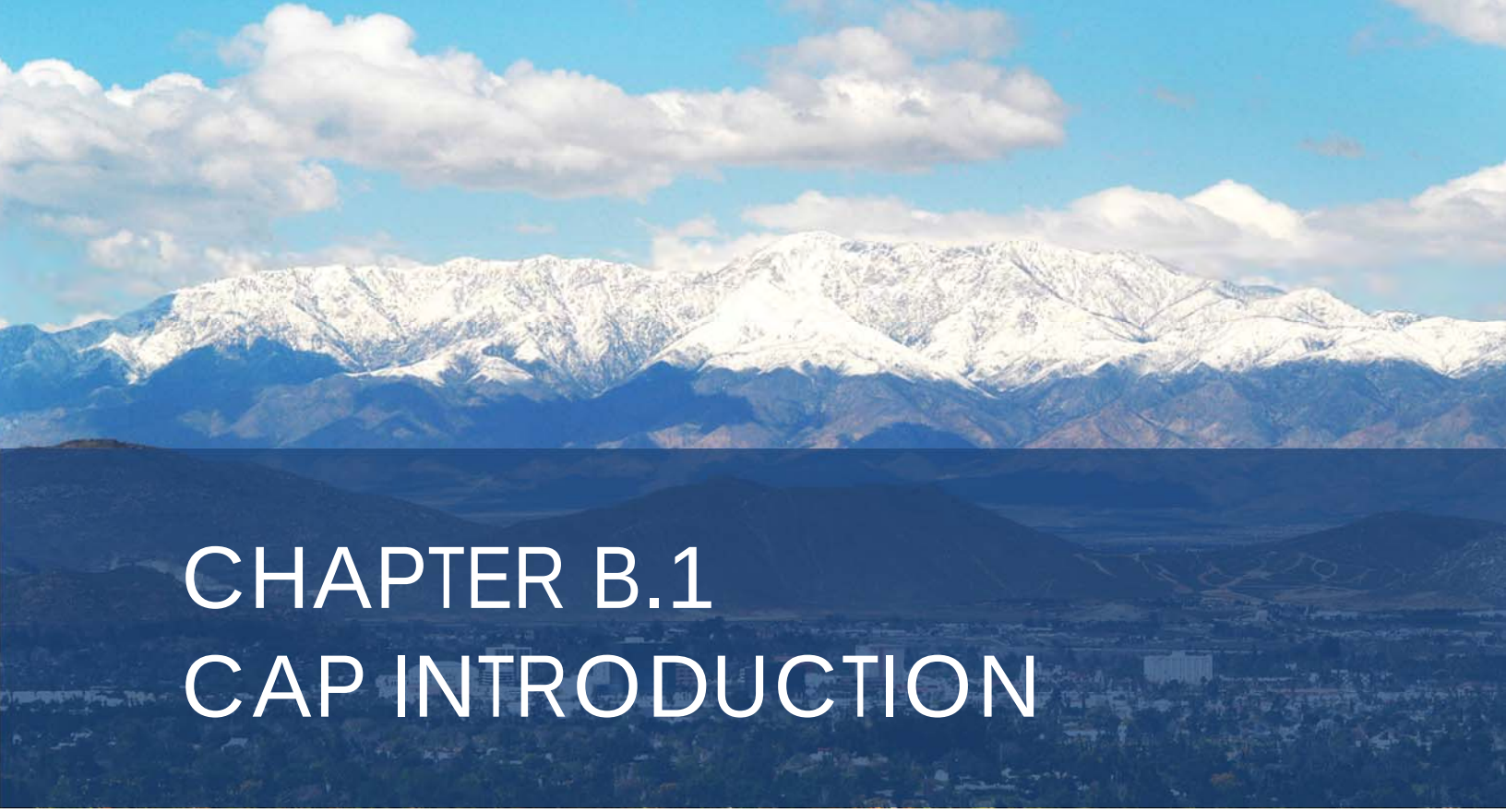


# CHAPTER B.1
# CAP INTRODUCTION

## PURPOSE

Over the past decade, the City of Riverside has progressively demonstrated its commitment to environmental quality, social equity, and economic prosperity for all. The Riverside Restorative Growthprint (RRG) embodies the City of Riverside's commitment to be an engaged and responsible steward of its natural resources (both locally and regionally); reflects the City's dedication to address climate change by reducing greenhouse gas (GHG) emissions; and defines the City's view that actions to reduce GHG emissions are opportunities to inspire economic development through investment in urban development, infrastructure, mobility systems, and entrepreneurship.

This document represents the cumulative result of three separate but integrated planning efforts, including:

- **Western Riverside Council of Governments (WRCOG) Subregional Climate Action Plan (Subregional CAP):** in 2014 Riverside was one of twelve cities that collaborated with WRCOG on the Subregional CAP, which set forth a subregional emissions reduction target, emissions reduction measures, and action steps to assist each community in the region to demonstrate consistency with California's Global Warming Solutions Act of 2006 (AB 32). The City committed to reducing its GHG contribution by adopting 36 reduction measures from the Subregional CAP that would guide the City's GHG reduction efforts through 2020. The Subregional CAP serves as the foundation for this document, which expands upon those subregional commitments and provides a path for the City's GHG reduction goals beyond 2020.
- **Riverside Restorative Growthprint - Economic Prosperity Action Plan (RRG-EPAP)**: Section One of this document showcases those opportunities where GHG reduction measures also advance economic growth and provide meaningful benefit to the residents, employees, investors and visitors of the City. The RRG-

EPAP identifies those measures and strategies that have the most potential to spur economic development and inspire entrepreneurship, which are illustrated through the "Top 10 Entrepreneurial Opportunity Areas" list. Furthermore, the EPAP identifies key implementation recommendations for the City to facilitate Smart Growth development and stimulate sustainable infrastructure investment.

- **Riverside Restorative Growthprint - Climate Action Plan (RRG-CAP):** Section 2 of this document provides a roadmap for the City of Riverside to achieve deep GHG emissions reductions through the year 2035. The RRG-CAP prioritizes the implementation of policies that enable the City to fulfill the requirements of state initiatives, Assembly Bill [AB] 32 and Senate Bill [SB] 375. The RRG-CAP includes a baseline GHG inventory for local government operations and for the community as a whole, and establishes emission reduction targets consistent with state law. Through stakeholder engagement and cost-benefit analysis, the RRG-CAP resulted in strategies, measures, and actions for reducing emissions that align with the City's planning priorities and its vision of a future economy based on "clean, green businesses and business practices."

The following five chapters of this document represent the RRG-CAP, which identifies strategies for reducing GHG emissions that, in turn, inspire entrepreneurial opportunities captured and promoted through the RRG-EPAP, found in chapters one through four of Section One.

AB 32 directs California to reduce statewide GHG emissions to 1990 levels by 2020. To achieve these reductions, the California Air Resources Board (CARB) recommends that local governments target their 2020 emissions at 15% below "current"[1] levels, consistent with the statewide commitment, to account for emissions growth that has occurred since 1990. Several initiatives at the state level will help the City reduce GHG emissions, but they alone will not be sufficient to meet the 2020 and 2035 targets. The RRG-CAP provides a roadmap for the City to reduce GHG emissions through local actions.

The release of GHGs into the atmosphere is the direct and indirect result of everyday activities as residents and businesses use energy in their homes and office, travel to work, generate waste, and use water. Local governments also emit GHGs as they perform essential services and operate buildings, vehicles, street lights, traffic signals, water systems, and wastewater plants. Strategies in this CAP to reduce such emissions include increasing energy efficiency in buildings and facilities, utilizing renewable energy sources, increasing vehicle fuel efficiency, supporting alternative modes of transportation, reducing waste generation, and reducing water consumption. In addition to addressing climate change, reducing GHG emissions often provides co-benefits such as reducing energy and transportation costs for residents, businesses, and local governments; creating green jobs and supporting advancement of green technologies and industries; improving air quality and the overall health of residents; and making the community a more attractive place to live and locate a business.

## CAP ORGANIZATION

The RRG-CAP expands upon the GHG reduction programs and policies that the City has already implemented, the Subregional CAP measures the City has already

[1] "Current" is a term used by CARB in its Climate Change Scoping Plan of September 2008, but is undefined. It is generally taken to mean emissions for a year between 2005 and 2008, although other years have been used by local communities.

committed to, and best practices and innovative programs that have been successful in other cities, all of which creates a tailored suite of measures for the City of Riverside. The measures in the RRG-CAP were chosen not only for their GHG reduction potential, but also for their potential to spur local business opportunities and encourage local economic development. Other factors that contributed to the measure selection process include cost-benefit characteristics, funding availability, implementation feasibility and associated co-benefits, such as public health.

The RRG-CAP is organized into five chapters:

- **Chapter 1, Introduction:** provides the framework for the RGG-CAP, places the CAP in the context of current climate change science and policy, describes existing regional and local sustainability efforts and accomplishments.
- **Chapter 2, Emissions Inventory, Projections, and Goals:** describes the emissions inventory process and results, forecasted business-as-usual emissions for the City, and the City's adopted emissions reduction target.
- **Chapter 3, Reduction Measures and Actions:** contains the anticipated state and federal emissions reductions, and the local reduction measures and actions that will be implemented to meet the City's reduction target.
- **Chapter 4, Closing the Gap:** discusses the potential for existing and future state legislation to reduce emissions beyond 2026 and allow the City to achieve their 2035 target.
- **Chapter 5, Implementation and Monitoring:** provides best practices and specific resources for implementing reduction and adaptation/resiliency measures, the role of measure-specific evaluations, periodic updates to the inventories, use of indicators to monitor the City's progress, and the need for future iterations of the CAP to incorporate new data and measures as they become available.

# GREENHOUSE GAS EMISSIONS IMPACTS

Naturally occurring gases dispersed in the atmosphere determine the Earth's climate by trapping infrared radiation (heat). This phenomenon is known as the greenhouse effect and without it the Earth would be about -2ºF. Overwhelming evidence shows that human activities are increasing the concentration of GHGs in the atmosphere, trapping more heat, and changing the global climate. The most significant contributor is the burning of fossil fuels for transportation, electricity generation, and other purposes, which introduces large amounts of carbon dioxide and other GHGs into the atmosphere. Collectively, these gases intensify the natural greenhouse effect, causing global average surface and lower atmospheric temperatures to rise, a phenomenon known as global climate change.

The most important GHGs to reduce are carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$), which constitute over 98% of human-released GHGs in the U.S.[2] Other important GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$).

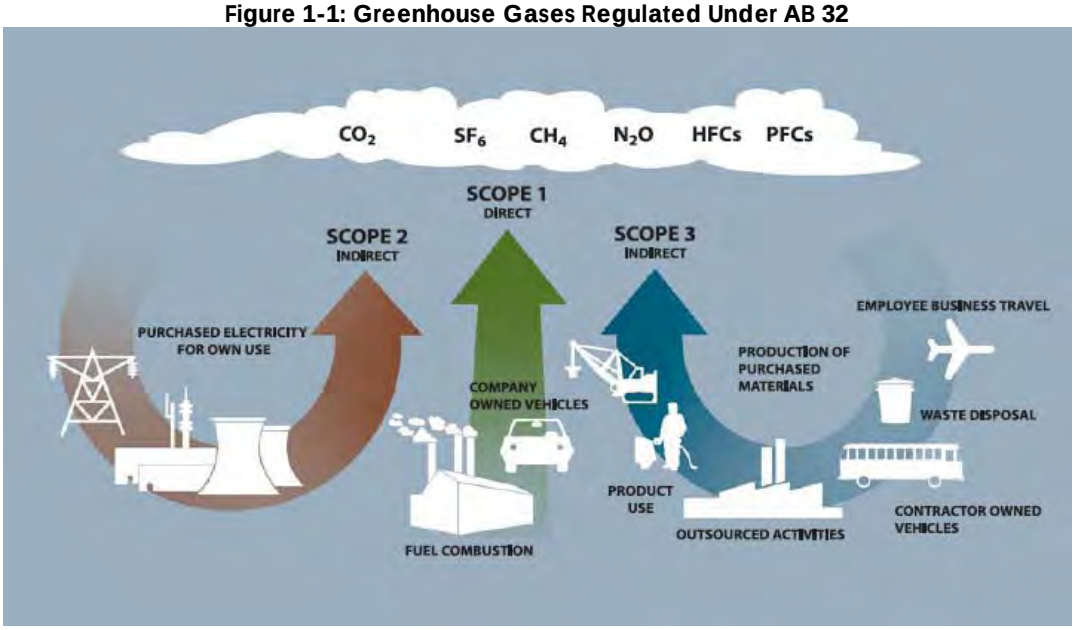
These gases are emitted through a variety of natural processes and human activities, including:

[2] U.S. Environmental Protection Agency, 2011, http://www.epa.gov/climatechange/ghgemissions/gases.html

- Fossil fuel combustion ($CO_2$, $N_2O$, and $CH_4$);
- Agricultural operations, such as fertilization of crops ($N_2O$), livestock production, and rice cultivation ($CH_4$);
- Anaerobic composting and landfill off-gassing ($CH_4$);
- Refrigeration and cooling (HFCs); and
- Industrial manufacturing, including aluminum production (PFCs), semi-conductor manufacturing ($SF_6$), and cement production ($CO_2$).

Global Warming Potential (GWP) is a quantitative measurement that expresses the relative warming potency of each GHG over a specific period of time. $CO_2$ is assigned a GWP value of 1 and the other GHGs are assigned GWPs relative to $CO_2$. For GHG emission inventories, the amount of each gas emitted is multiplied by its GWP and presented in units of carbon dioxide equivalents ($CO_2e$). **Table 1-1** and **Figure 1.1** show the six primary GHGs as defined in AB 32, their chemical formula, the lifetime of the compound, and their GWPs relative to $CO_2$. Although $CO_2$ has a lower GWP than other GHGs, it is the largest contributor to human-caused global warming, constituting about 84% of U.S. emissions.[3]

**Figure 1-1: Greenhouse Gases Regulated Under AB 32**




While the anticipated effects of climate change are likely to vary regionally, it is anticipated to have the following global effects[4]:

- Higher maximum temperatures and more hot days over most land areas;
- Higher minimum temperatures, fewer cold days, and frost days over most land areas;
- Reduced diurnal temperature range over most land areas;
- Increased heat index over land areas; and
- More intense precipitation events.

[3] Ibid.
[4] IPCC Fourth Assessment Report: Climate Change 2007 (AR4). Available at: http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm

Many secondary effects are anticipated to result from climate change in California, including: loss in snow pack; sea level rise and inundation of coastal areas; increased flooding of low-lying areas; more extreme heat days per year; high ozone days; increased incidence of large forest fires; and more frequent and severe drought years.

**Table 1-1 – Primary Greenhouse Gases, as defined by AB 32.**

| GREENHOUSE GAS | CHEMICAL FORMULA | LIFETIME (YEARS) | GLOBAL WARMING POTENTIAL FOR 100-YEAR HORIZON |
|---|---|---|---|
| Carbon Dioxide | $CO_2$ | Variable | 1 |
| Methane | $CH_4$ | 12 | 21 |
| Nitrous Oxide | $N_2O$ | 114 | 310 |
| Sulfur Hexafluoride | $SF_6$ | 3,200 | 23,900 |
| Hydrofluorocarbons | HFCs | 1.4 – 270 | 140 – 11,700 |
| Perfluorocarbons | PFCs | 1,000 – 50,000 | 6,500 – 9,200 |

**Source:** International Panel on Climate Change (IPCC) Second Assessment Report: Climate Change 1995 (SAR). Available at: http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

**Note:** According to the Local Government Operations Protocol (LGO Protocol) and the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol), the GWP values in Table 1-2 were applied in this CAP. Since the SAR was published in 1995, the IPCC has published updated GWP values in its Third Assessment Report (TAR) and Fourth Assessment Report (AR4) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of $CO_2$. However, GWP values from the SAR are still used by international convention to maintain consistency in GHG reporting. For GWP values that were not quantified in the SAR, GWP values from the TAR were used.

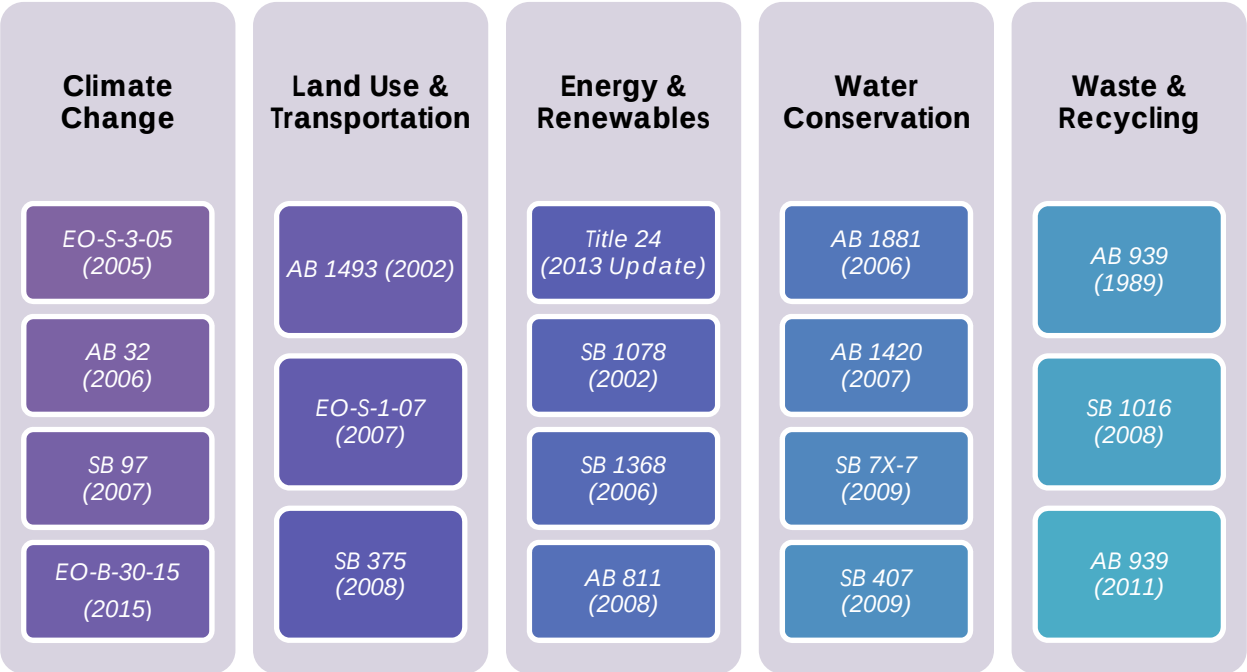
# REGULATORY CONTEXT

Many strategies for monitoring and addressing climate change have emerged at the international, national, and state levels. California remains a leader in the effort to reduce GHG emissions through mitigation and adaptation strategies. With AB 32, California is the first state in the U.S. to mandate GHG emissions reductions across its entire economy. To support AB 32, California has been developing policy and passing legislation that seeks to control emissions of gases that contribute to climate change. These have included regulatory approaches such as mandatory reporting for significant sources of GHG emissions and caps on emission levels, as well as market-based mechanisms, such as cap-and-trade. Voluntary local actions are also increasing, such as conducting emissions inventories, implementing practices to reduce emissions, and purchasing offsets and renewable energy certificates. While many local actions are currently voluntary, there is more emphasis being placed on monitoring and reporting emissions to demonstrate the effectiveness of policies and local consistency with state reduction goals. The following section highlights the primary state legislation and guidance related to the RRG-CAP.

## STATE LEGISLATION AND GUIDANCE

AB 32, also known as the Global Warming Solutions Act of 2006, directs public agencies in California to support the statewide goal of reducing GHG emissions to 1990 levels by 2020. Preparing a CAP supports AB 32 at the local level. The CAP provides a policy framework for how the City can do its part to reduce emissions. While compliance with AB 32 is not a requirement for local jurisdictions, demonstrating consistency with statewide reduction goals can significantly assist jurisdictions to qualify for incentives such as grant funding. Efforts to address climate change, reduce consumption of resources, and improve energy efficiency led by state legislation or programs are identified in **Figure 1-2** and briefly described below.

**Figure 1-2: Regulatory Framework for Climate Change**




### Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05, which established the following GHG emission reduction targets:

- by 2010 California shall reduce GHG emissions to 2000 levels;
- by 2020 California shall reduce GHG emissions to 1990 levels; and
- by 2050 California shall reduce GHG emissions to 80 percent below 1990 levels.

EO-S-3-05 created the California Climate Action Team (CAT), which is tasked with the preparation of biennial science assessment reports on climate changes and adaptation options for California. The first CAT Report to the Governor and Legislature was published in 2006, and contains recommendations and strategies to help meet the targets in EO-S-3-05. These were expanded upon in the 2009 CAT Biennial Report to the Governor and Legislature. The new information includes revised climate and sea-level projections, and an evaluation of climate change within the context of broader social

changes, such as land-use changes and demographic shifts[5]. The action items in the report focus on the preparation of the Climate Change Adaptation Strategy, required by EO-S-13-08.

### Assembly Bill 32 – California Global Warming Solutions Act of 2006

AB 32 was approved by the legislature and signed by Governor Schwarzenegger in 2006. The landmark legislation requires CARB to develop mechanisms that will reduce GHG emissions to 1990 levels by 2020. Mandatory actions under the legislation to be completed by CARB include:

- Identification of early action items that can be quickly implemented to achieve GHG reductions. These early action items were adopted by CARB in 2007 and include regulations affecting landfill operations, motor vehicle fuels, car refrigerants, and port operations, among other regulations.
- Creation and adoption of regulations to require the state's largest industrial emitters of GHGs to report and verify their emissions on an annual basis.
- Development of a scoping plan[6] to identify the most technologically feasible and cost-effective measures to achieve the necessary emissions reductions to reach 1990 levels by 2020. The Scoping Plan, adopted in 2008, identifies a variety of GHG reduction measures that include direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based cap-and-trade program. Key elements of the Climate Change Scoping Plan are:
  - Expanding and strengthening existing energy efficiency programs;
  - Achieving a statewide renewables energy mix of 33 percent for electricity generation;
  - Developing a California cap-and-trade program affecting all GHG-emitting power plants in the state as well as companies that import power from other states for sale in California;
  - Establishing targets for transportation-related GHGs for regions throughout California and pursuing policies and incentives to achieve those targets;
  - Adopting measures pursuant to existing laws including clean car standards and low carbon fuel standards;
  - Creating targeted fees on high global warming potential gases and a fee to fund the administrative costs of the state's long term commitment to AB 32 implementation; and
  - Adopting measures to increase commercial recycling.

  The Scoping Plan identifies local governments and municipal-owned utilities as strategic partners to achieving the state reduction goal, which is translated to a 15% reduction from 2008 emissions by 2020. AB 32 implementing activities directly affecting Riverside Public Utilities include expansion of energy efficiency programs, renewable portfolio standards and the cap-and-trade program.

### Senate Bill 97 – California Environmental Quality Act Guideline Amendments of 2007

Senate Bill (SB) 97 was adopted in 2007 and directed the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to address GHG emissions. The

[5] California EPA - Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006. Available at: http://www.climatechange.ca.gov/climate_action_team/reports/index.html
[6] CARB 2008 Scoping Plan. Available at http://arb.ca.gov/cc/scopingplan/scopingplan.htm

CEQA Guidelines, as amended by OPR, were adopted in December 2009 and went into effect March 18, 2010. Local governments may use adopted plans consistent with the CEQA Guidelines to assess the cumulative impacts of projects on climate change, if the plan for the reduction of GHG emissions accomplishes the following:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.
- 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.
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require an amendment if the plan is not achieving specified levels.
- Be adopted in a public process following environmental review.

### SB 375 – Sustainable Communities and Climate Protection Act of 2008

SB 375, also known as the Sustainable Communities and Climate Protection Act of 2008, builds off of AB 32 and aims to reduce GHG emissions by linking transportation funding to land use planning. It requires the state's metropolitan planning organizations (MPO) to create a sustainable communities strategy (SCS) in their regional transportation plan (RTP) for the purpose of reducing urban sprawl. Under SB 375, CARB established regional targets for GHG emissions reductions from passenger vehicle use for each MPO. The regional reduction targets for the Southern California Association of Governments (SCAG) region, which is the MPO with jurisdiction over the WRCOG subregion, are 8% per capita by 2020, and a conditional target of 13% per capita by 2035 from 2005 levels. In April 2012, SCAG adopted its first SCS, which demonstrates how the region will achieve the GHG emissions reduction targets set by CARB.

### Executive Order B-30-15

On April 29, 2015, Governor Jerry Brown signed Executive Order (EO) B-30-15, which establishes a new interim GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030. The EO requires the CARB to express the 2030 target in terms of million metric tons of carbon dioxide equivalent. The EO also requires state agencies consider "full life-cycle cost accounting" when making future planning and investment decisions. To help state agencies incorporate climate change impacts into planning and investment decisions, the EO requires the Governor's Office of Planning and Research to establish a technical, advisory group on the issue.

# PLANNING CONTEXT

## REGIONAL PROGRAMS

The regional initiatives described below contribute to the development and success of this CAP. Many of these programs are administered by WRCOG while others are conducted by other regional entities in partnership with WRCOG.

### Southern California Association of Governments Regional Transportation Plan and Sustainable Communities Strategy

SCAG is the regional planning agency for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated MPO for the Southern California region and is the largest MPO in the U.S. With respect to air quality planning, SCAG has prepared the *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (2012 RTP/SCS): Towards a Sustainable Future*, to fulfill federal planning requirements contained in the *Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU)*, which calls for regions to consider urban form and natural resources as part of the transportation planning process. Under SB 375, all of California's MPOs must prepare an SCS as a component of their RTP. The RTP serves as a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for the development of transportation facilities throughout the region based on growth forecasts and economic trends projected over a 20-year period. The SCS expands upon transportation strategies in the RTP to analyze growth patterns and establish future land use strategies that aid the region in meeting its GHG reduction targets. The SCS does not mandate future land use policies for local jurisdictions, but rather provides a foundation of regional policy upon which local governments can build. WRCOG and its member jurisdictions partner with SCAG and are active members in the development and implementation of the RTP/SCS.

### Sustainability Framework for Western Riverside County

WRCOG's Sustainability Framework (Framework) is a subregional planning effort that establishes, implements, and continuously refines an overarching sustainability plan for the communities in Western Riverside County. The Framework aims to: initiate a dialogue about the importance of sustainability in the region; provide a vision and goals to guide local action and regional collaboration; define more immediate short-term goals that can contribute to the longer-term vision of the Framework; and define indicators, benchmarks, and targets that provide a measure of the effectiveness of Framework programs and policies. The Framework acts as a "living" document and contains goals and actions applying to economic development, education, public health, transportation, water and wastewater, energy, and the environment.

### Western Riverside County Clean Cities Coalition

The Western Riverside County Clean Cities Coalition (Coalition) is a voluntary local government and industry partnership that aims to reduce the consumption of petroleum fuels and improve air quality in the WRCOG subregion. The Coalition works to mobilize local stakeholders toward expanding the use of alternative fuel vehicles (AFV) and advanced technology vehicles, promoting local idle reduction measures, and strengthening local AFV fueling infrastructure. The governments of Western Riverside County have taken leadership roles in the Coalition, coordinating efforts between government and industry to recognize the value of partnership in achieving air quality, energy efficiency, economic development, and transportation goals, while advancing the clean air and energy efficiency goals of the national Clean Cities program administered by the U.S. Department of Energy.

### Healthy Communities

WRCOG and its member jurisdictions are engaged in numerous efforts and initiatives to promote healthy communities, including participating in the Riverside County Health Coalition (RCHC). The RCHC is a collaboration of public and private sectors, school districts, community businesses, local and regional organizations and community members committed to policy development and advocacy, environmental change and community empowerment for healthy lifestyles in Riverside County. This initiative includes a focused partnership effort with local governments to integrate healthy communities into the local planning and policy-making process.

### Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional plan to conserve sensitive species and their associated habitats in the subregion. Created in 2004 by the Western Riverside County Regional Conservation Authority (RCA), the MSHCP provides subregional transportation and green infrastructure benefits to local agencies and allows WRCOG jurisdictions to make land use decisions and maintain a strong economy in a context that comprehensively addresses federal and state Endangered Species Acts (ESA and CESA) requirements.

### Transportation Uniform Mitigation Fee

WRCOG's Transportation Uniform Mitigation Fee (TUMF) was implemented in 2003 as one of the largest multi-jurisdictional fee programs in the nation. TUMF makes improvements to the regional transportation system and provides transportation demand management through funds from new development, ensuring that development mitigates for increases in traffic volumes. TUMF is a 32-year program that provides subregional transportation and infrastructure benefits to local agencies in Western Riverside County. The program is expected to raise $4.2 billion, and 1.64% is allocated to the Riverside Transit Agency (RTA) for transit improvements. To mitigate the impacts of transportation construction projects, WRCOG allocates 1.59% of TUMF funds collected to the RCA to purchase habitat for the MSCHP.

### HERO Program

Established under the guidance of AB 811 (2008) and AB 474 (2009), WRCOG's HERO Program is a Property Assessed Clean Energy (PACE) program that provides financing to residential and commercial property owners for the installation of energy efficient, renewable energy, and water conservation improvements on existing properties. Financing provided through the HERO Program is repaid through an assessment on property tax bills over 5-, 10-, 15-, 20-, and 25-year terms, based on the useful life of the products, and upon sale of the property, the balance generally stays with the property.

## EXISTING SUBREGIONAL AND LOCAL ACCOMPLISHMENTS

### WRCOG Subregional Climate Action Plan

The WRCOG Subregional CAP was developed with the objectives of creating more livable, equitable, and economically vibrant communities. Twelve cities in the subregion, including Riverside, participated in the development of a Subregional CAP, which sets forth subregional emissions reduction targets, emissions reduction measures, and action steps to assist each community in demonstrating consistency with AB 32. The Subregional CAP includes feasible strategies that will help the WRCOG subregion advance toward GHG emissions reduction goals, while affording each community additional economic, public health and environmental benefits.

### General Plan 2025

The adoption of the City's General Plan 2025 Program in November of 2007 included the seven Elements mandated by state law, as well as several optional Elements. The Air Quality Element, which recognizes Riverside as a leader in clean air and a healthy environment, provides the scientific and regulatory context describing the importance of improving air quality and reducing GHG emissions. The Air Quality Element describes city programs and regional initiatives that had been implemented at the time the plan was adopted, and outlines programs and partnerships that the City would pursue in the future. Policies in the Air Quality Element help to set the framework for the air quality and climate change initiatives the City is pursuing today. As required by state law, as part of the General Plan 2025, the Implementation Plan includes tools, or action items, that address the Objectives and Policies of the Elements. In addition, there are Overarching Tools in the Implementation Plan that addressed the more significant Objectives and Policies of the General Plan 2025.

### Proposition R and Measure C

In addition to the City's General Plan, the City has two major voter approved initiatives to preserve the City's natural resources. With the passage of Proposition R in 1979 and Measure C in 1987, voters expressed serious community resolve to protect the Arlington Heights Greenbelt and Rancho La Sierra area's agricultural heritage and prevent urban sprawl thereby preserving them as community treasures. These measures serve to

protect natural hillsides, arroyos and other important topographical features and ensure Riverside's greenbelt provides a buffer between urban and rural land uses.

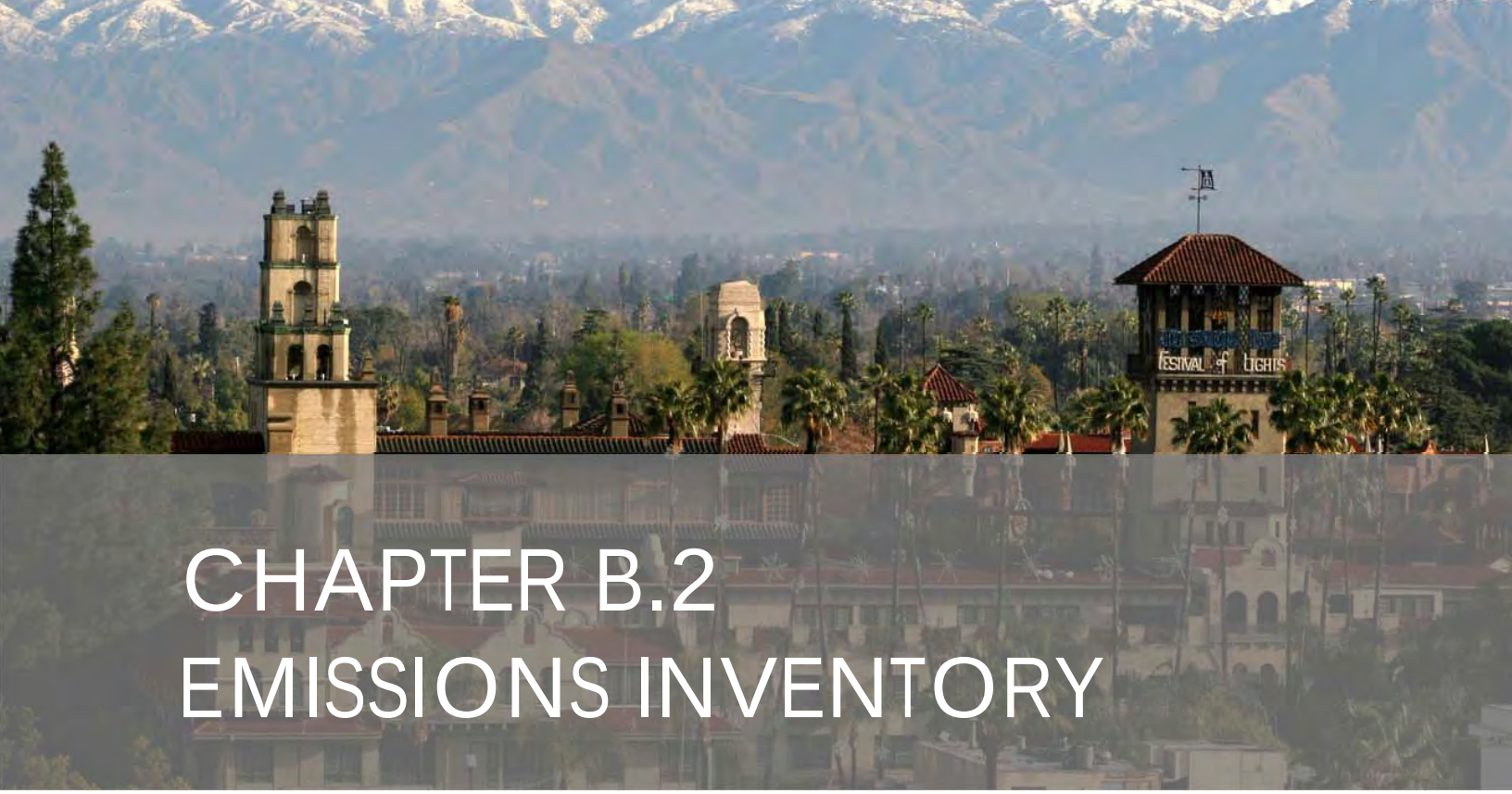
### Green Action Plan

The 2012 Green Action Plan is a product of the City's Clean & Green Task Force, which was created to: build upon the policies of the City's General Plan 2025; ensure that the green design guidelines would be developed and followed; provide a framework for sustainability pilot projects; and initiate partnerships among regional agencies and nearby cities. The Task Force first created the Sustainability Policy Statement (SPS), a document featuring eight main categories: Save Water, Keep it Clean, Make it Solar, Make it Shady, Clean the Air, Save Fuel, Make it Smart and Build Green. Once the SPS was adopted, the Green Action Plan was created to serve as a guidebook that would tie specific tasks to the policies of the SPS. The Green Action Plan focuses on seven key areas of city life: Energy, GHG Emissions, Waste, Urban Design, Urban Nature, Transportation and Water.

The City formed a Green Accountability Performance (GAP) Committee to carry out the tasks and within just two years nearly each of the plan's 38 tasks had been accomplished. The GAP Committee was reimagined to focus on healthy communities, and Riverside was awarded its designation by the Unites States Center for Disease Control and Prevention (CDC) as an Emerald City, an honor that has gained the City national acclaim. Healthy Communities is the GAP's eighth focus area, with 19 goals and over 50 additional tasks. The Heathy Communities strategies strengthen the Green Action Plan as setting a clear path to sustainability and serving as a living document that reflects the growth of the green movement, the progression of renewable energy, and the fresh ideas of the GAP Committee.

### Riverside Public Utilities

The City of Riverside Public Utilities (RPU) Department provides water and electric services to the residents and businesses of Riverside. Through **Green Riverside**, the City supports and implements the various tasks of the Green Action Plan and other sustainability initiatives, offering multiple energy efficiency programs that reduce consumption, while promoting the City's sustainability goals. **Blue Riverside** includes multiple water conservation programs that reduce water consumption.




# CHAPTER B.2 EMISSIONS INVENTORY

## OVERVIEW

The City of Riverside (City) GHG inventory serves multiple purposes. It quantifies the GHG emissions resulting from activities taking place throughout the City of Riverside, caused by it's residents, businesses, and local government (i.e., the Community Inventory), as well as emissions attributed to local government operations (i.e., the Municipal Inventory). The inventory provides an understanding of where GHG emissions are originating, and creates an emissions baseline against which the City can set reduction targets and measure future progress. The inventory further allows the City to develop effective policies, strategies, and programs to reduce emissions.

The Community Inventory encompasses the GHG emissions resulting from activities taking place within the City's boundaries, where the local government has jurisdictional authority, in addition to some activities taking place outside the City boundaries that support activities in the jurisdiction. The Community Inventory includes emissions from the following sectors: residential energy, commercial/industrial energy, transportation, solid waste, and wastewater. The City's Municipal Inventory includes emissions from municipal sources including buildings and facilities, fleet vehicles, streetlights, water conveyance, wastewater treatment, airport operations, solid waste disposal, employee commuting, and municipally-owned power generation.

The City has developed inventories for the calendar years 2007 and 2010 that breakdown GHG emissions by sector, illustrating the contribution of various sources in the community and from municipal operations. The City of Riverside GHG Inventories report issued in January 2014 (included as Appendix C) presents the results of the 2007 and 2010 inventories, which were developed using ICLEI's Clean Air and Climate Protection (CACP) Software, and various emissions accounting protocols for assessing emissions from the community and municipal operations.

The City is a participant in the Western Riverside Council of Governments (WRCOG) Subregional Climate Action Plan (Subregional CAP), whereby Riverside and 11 additional local jurisdictions prepared baseline inventories to quantify GHG emissions from community contributors and government operations. 2010 was chosen as the inventory base year for 10 of the 12 participating jurisdictions within the WRCOG subregion, including the City of Riverside.

The Riverside Restorative Growthprint – Climate Action Plan (RRG-CAP), while consistent with the WRCOG subregional CAP, is customized to meet the specific needs of the City and designed to be integreated with the many planning projects that are currently underway. In order to show a more comprehensive and locally-focused picture of the City's emissions profile, 2007 is used as the baseline emissions year for the RRG-CAP. Selecting 2007 as the baseline year recognizes important accomplishments the City has already taken to reduce community-wide GHG emissions, most notably the shift from coal-generated electricity to renewable sources, and it ensures that those accomplishments are accounted for in assessing progress toward future goals.

Also influencing the selection of 2007 as the baseline year is the established set of standard elements required for a "qualified" climate action plan (or GHG reduction strategy) that can be used to streamline the analysis of GHG emissions under the streamlining provisions of California Environmental Quality Act (CEQA) Guidelines Section §15183.5. Those standard elements include a provision that the baseline inventory should include one complete calendar year of data for 2008 or earlier (see Section 2.7.2 of the CEQA Guidelines, under Standard Elements of a GHG Reduction Strategy for further guidance). Additional regulatory guidance from California Air Resources Board (CARB),[1] and the precedent set by dozens if not hundreds of communities across California, has established the years 2005 through 2008 as the most commonly used baseline years for community-wide climate action plans and as the basis for setting a significance threshold for CEQA.

This chapter forecasts future GHG emissions using growth factors for population, households, motor vehicles, and job growth that are consistent with the Southern California Association of Governments (SCAG) 2016-2040 Draft Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which is currently being developed for the region. The City's GHG reduction targets for future years (2020 and 2035) are based on regulatory guidance and best practices established by other local jurisdictions across California, including those participating in the WRCOG Subregional CAP.

# COMMUNITYWIDE INVENTORY

The emission sources and activities chosen for inclusion in the City of Riverside Community Inventory are based on the local government reporting framework developed by ICLEI in their *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*. As such, emissions in the Community Inventory are derived from sources located within the jurisdiction and from activities by community members

[1] In its Climate Change Scoping Plan of September 2008, CARB recommends that local governments adopt a GHG reduction target consistent with the State's commitment to reach 1990 levels by 2020. This was identified as equivalent to 15% below "current" levels at the time of writing (2008), and is generally interpreted as including the years 2005 through 2008.

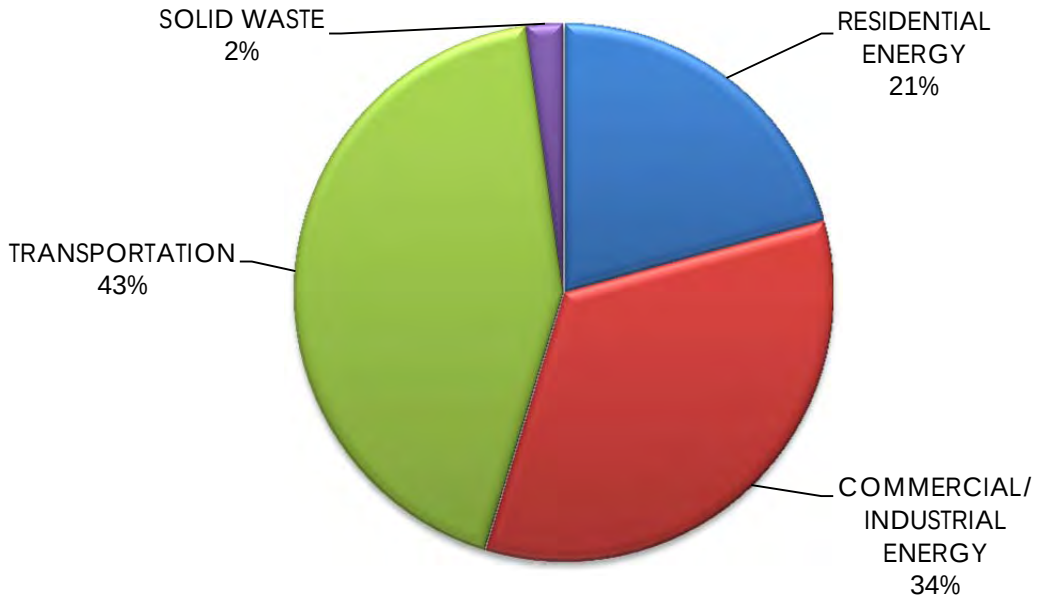
for which the local government has significant influence to mitigate over time. This includes activities taking place within the City's geopolitical boundary where the local government has jurisdictional authority, as well as community-related activities taking place outside of City limits that are attributable to community activities (e.g., landfill waste from City residents). Emissions from sources not subject to significant influence by the City were not included within the inventory, since the local government has limited means to influence material uses and consumption by the community itself. The inventory estimates current emissions using the best available data and methods at the time the inventory was completed. As data collection and estimation methodologies evolve, future inventories may incorporate emission sources that were not captured previously, or may use newer approaches to estimate emissions.

## INVENTORY RESULTS

The Community Inventory includes emissions from residential, commercial, and industrial activities, as well as municipal operations, broken into 4 sectors: Residential, Commercial/Industrial, Transportation, and Solid Waste. Results are further broken down by energy source (e.g., electricity) and solid waste composition (e.g., paper products).

The results of the 2007 Baseline GHG Inventory are summarized in **Table B.2-1** and **Figure B.2-1**. Total community emissions in 2007 were 3,024,066 metric tons (MT) of carbon dioxide equivalent ($CO_2e$[2]). Transportation is the biggest contributor to community emissions, followed by Commercial/Industrial operations, Residential activities, and Solid Waste disposal to landfill.

**Figure B.2-1: Communitywide Baseline Emissions (2007)**



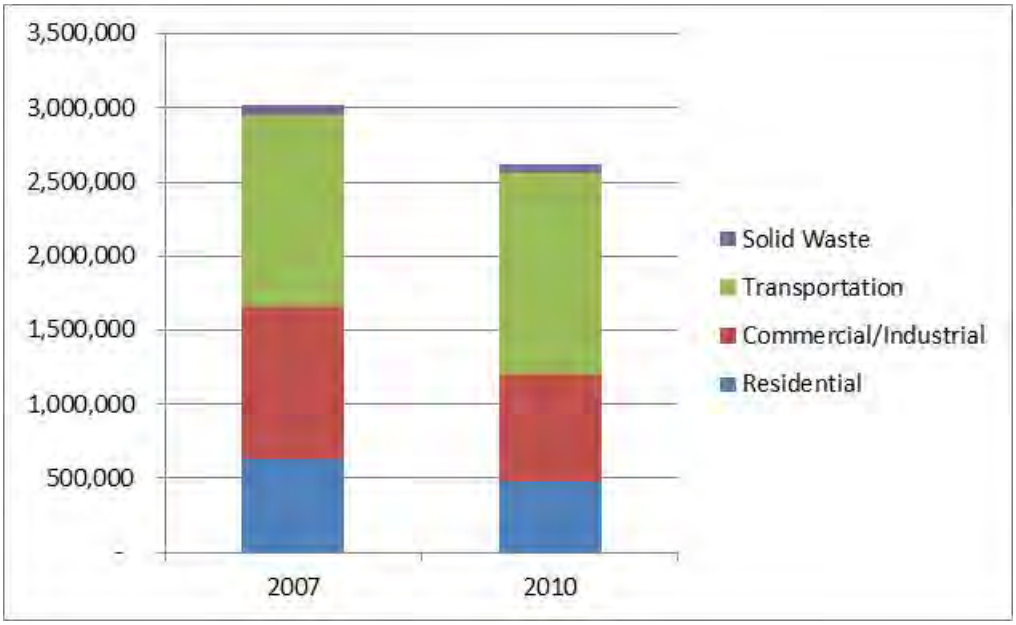

[2] Carbon dioxide equivalent (CO2e) includes carbon dioxide, methane (CH4 and/or nitrous oxide (N2O).

**Table B.2-1 – Communitywide Baseline Emissions (2007)**

| SECTOR | 2007 (MT $CO_2e$/yr) | Percent of Total |
|---|---|---|
| Residential Energy Use | 626,136 | 20.7% |
| Commercial/ Industrial Energy Use | 1,028,804 | 34.0% |
| Transportation | 1,301,784 | 43.0% |
| Solid Waste Generation | 67,342 | 2.2% |
| **Total Inventory** | **3,024,066** | **100%** |

**Figure B.2-2** compares the 2010 emissions inventory (quantified for the WRCOG Subregional CAP) with the 2007 baseline. Communitywide emissions decreased by approximately 13.4 percent, with three of the four sectors experiencing a decrease; only transportation emissions increased. The primary reason for the large drop in Residential and Commercial/Industrial emissions from 2007 to 2010 was a reduction in the carbon intensity of the City's electricity portfolio, as supplied by municipally-owned Riverside Public Utilities (RPU). The underlying reason for the significant decrease is described in more detail in the following section on the Municipal Inventory. The resulting impact on the wider community was a 23% reduction in Residential emissions and a 30% reduction in Commercial/Industrial emissions. Overall, community-wide emissions fell by 13% from 2007 to 2010.

**Figure B.2-2: 2007 and 2010 Communitywide GHG Emissions by Sector (MT CO2e)**



Use of a 2007 baseline year in the RRG-CAP captures these important reductions in GHG emissions that were the direct result of City policy and related actions. The City's Residential and Commercial/Industrial sectors also used less energy, likely as a result of the economic downturn experienced over the period along with the City's ongoing energy efficiency and renewable energy programs. Solid Waste emissions decreased slightly due to a higher percentage of the City's waste being diverted from the landfill (i.e., increased recycling).

# GOVERNMENT OPERATIONS INVENTORY

Emissions from municipal operations are included in the Community Inventory, but a separate Municipal Inventory is included to provide the City with the detail needed to target reductions in these emissions. The emission sources and activities included in the Municipal Inventory are consistent with the Local Government Operations Protocol (LGOP), which was developed by the California Air Resources Board (CARB), the California Climate Action Registry (CCAR), and Local Governments for Sustainability (ICLEI) in collaboration with The Climate Registry (TCR). The LGOP provides a standardized set of guidelines and methodologies to assist local governments with quantifying and reporting GHG emissions associated with their operations. ICLEI's CACP Software was used to generate GHG emissions estimates based on conversion factors for electricity and natural gas consumption, as well as conversion factors for liquid fuel consumption and modeling of emissions from solid waste disposed in landfills.

The Municipal Inventory includes emissions from all sources of GHGs under the direct control of the City, including Buildings and Facilities, Streetlights, Fleet Vehicles, Water Conveyance (both within the City boundary and upstream of the City), Wastewater Treatment, the City-operated Airport, government-generated Solid Waste, Employee Commuting, and most significantly, emissions from Municipal Power Generation by RPU[3].

## INVENTORY RESULTS

As shown in **Table B.2-2**, municipal operations were responsible for approximately 1,362,587 MT $CO_2e$ in 2007. Indirect GHG emissions associated with RPU operations have an outsized impact on the Municipal Inventory, representing approximately 91% of the 2007 inventory. **Figure B.2-3** shows graphically how much influence RPU has on municipal emissions. The primary sources constituting the rest of the inventory are government-generated Solid Waste and Water Transport (both within the City and upstream of the City from original sources), followed by roughly equal contributions from Buildings and Facilities, Streetlights, and Employee Commuting, Vehicle Fleet, and Wastewater Treatment. Airport facilities provide a relatively small contribution to total emissions.

[3] RPU is a city-owned local electric and water utility with more than 107,000 metered electric customers and 64,000 metered water customers

**Figure B.2-3: Government Operations Baseline Emissions (2007)**

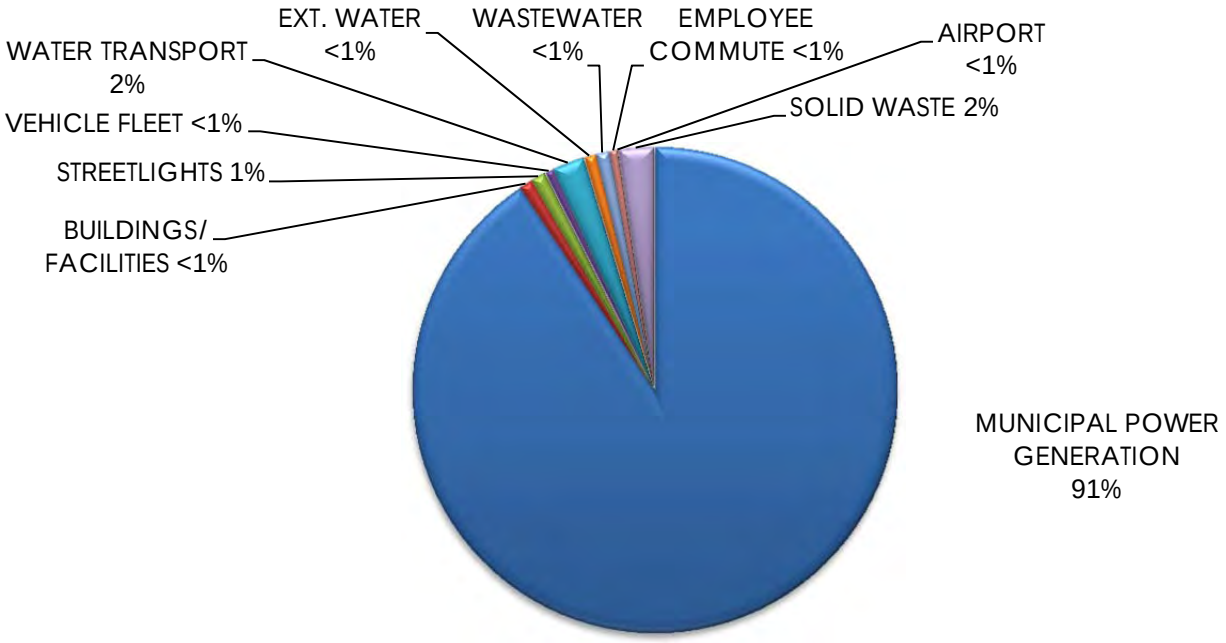



**Table B.2-2 – Government Operations Baseline Emissions (2007)**

| SECTOR | 2007 (MT $CO_2e$/yr) | Percent of Total |
|---|---|---|
| Buildings and Facilities | 12,734 | 0.9% |
| Streetlights | 13,523 | 1.0% |
| Vehicle Fleet | 7,700 | 0.6% |
| Water Transport (within City) | 29,167 | 2.1% |
| External Water Transport (upstream of City) | 11,227 | 0.8% |
| Wastewater | 12,717 | 0.9% |
| Employee Commute | 7,413 | 0.5% |
| Airport | 304 | 0.0% |
| Municipal Solid Waste | 32,465 | 2.4% |
| Municipal Power Generation | 1,235,337 | 90.7% |
| **Total Inventory** | **1,362,587** | **100.0%** |

**Figure B.2-4** compares the 2010 municipal operations inventory (quantified for the WRCOG Subregional CAP) with the 2007 baseline. During the period, emissions associated with RPU fell by more than 32%, primarily due to a shift from purchasing coal-produced electricity to more low-carbon electricity sources over that time period.

**Figure 2-4: 2007 and 2010 Municipal Operations GHG Emissions by Sector (MT CO2e)**

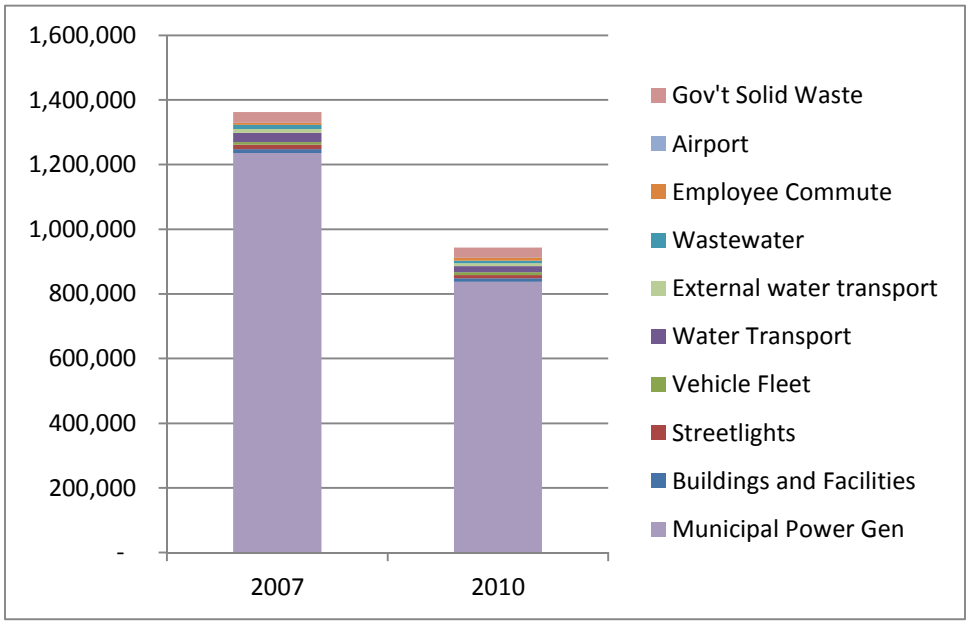
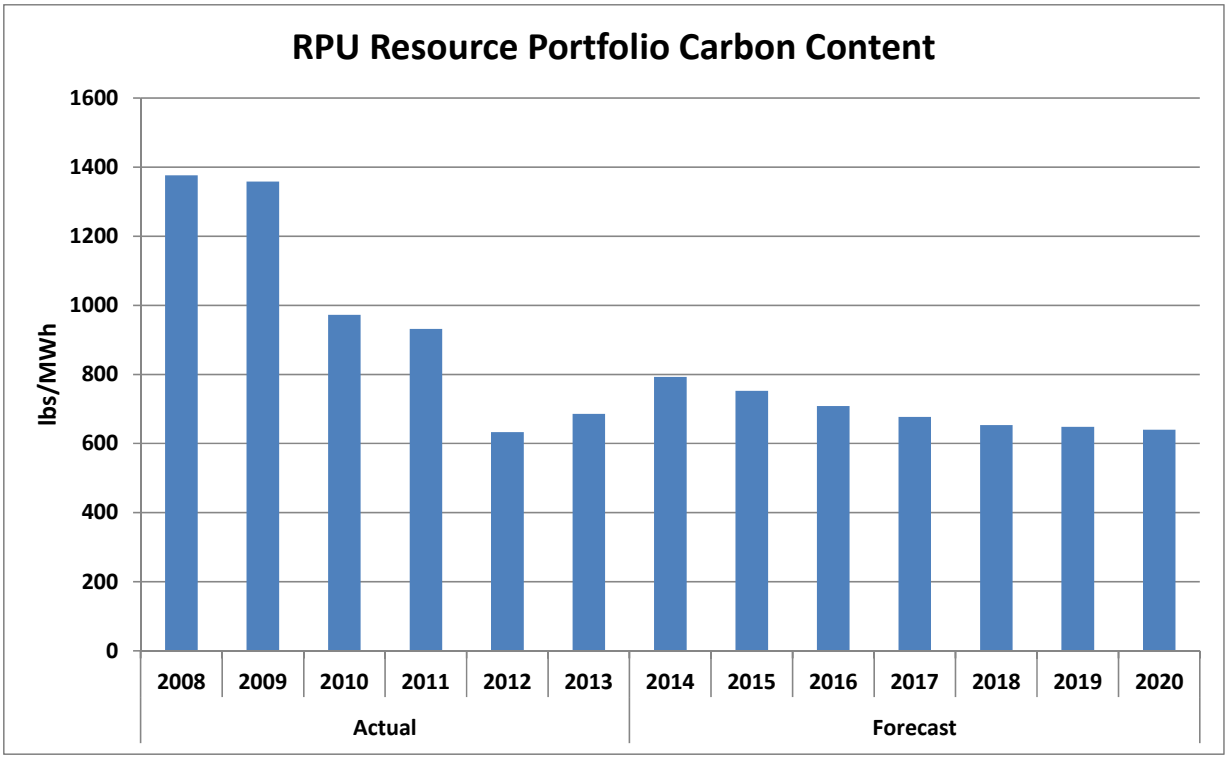


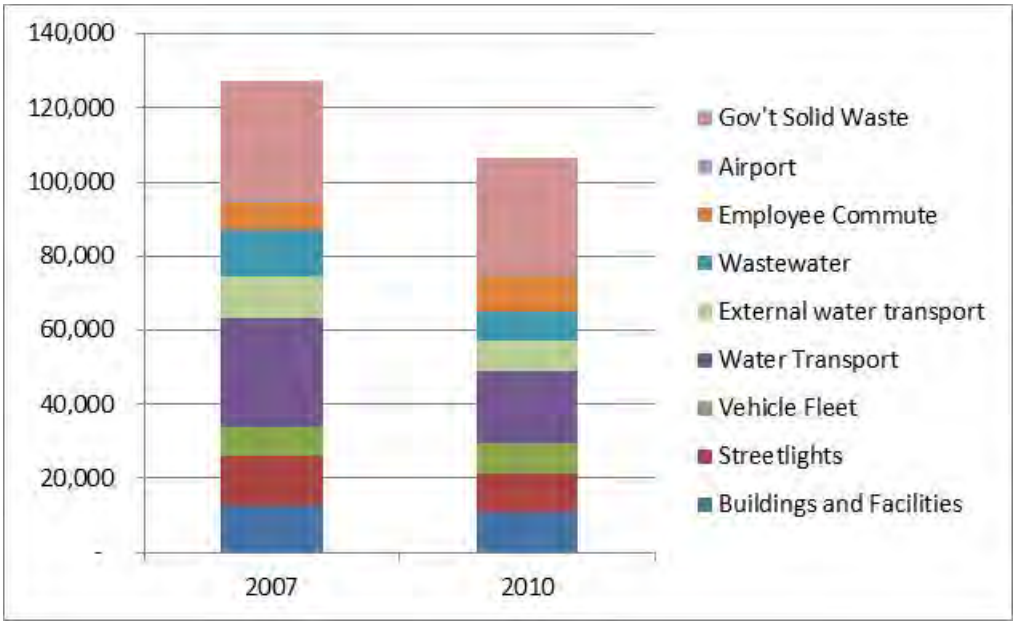

**Figure B.2-5** shows how the carbon content of RPU's electricity decreased between 2007 and 2010. Although not shown in the figure, the carbon content continued to decrease thorugh 2012. Prior to 2007, RPU began positioning itself to achieve significant reductions in GHG emissions associated with its electricity portfolio by shifting its resource mix from carbon intensive sources to renewable sources. In 2003, RPU was one of the first electric utilities in California to voluntarily procure renewable resources (the Salton Sea geothermal resource in Imperial Valley and the Wintec wind resource in Palm Springs) to meet a portion of Riverside's electric power needs. This commitment accelerated in 2005 when RPU amended its contract with Salton Sea geothermal resource to more than double its procurement of renewable energy. To further its commitment to clean power, RPU terminated its power purchase agreement with Deseret Generation and Transmission Cooperative for Hunter and Bonanza coal generating plants in Utah at the end of 2009. The impact of these changes in the City's electricity portfolio, which occurred primarily in the 2009-2010 timeframe, is clearly observed in Figure B.2-5. These changes in Riverside's electricity portfolio are also the primary reason that community-wide emissions fell by more than 13% from 2007 to 2010, as illustrated in Figure B.2-2.

**Figure B.2-5: City of Riverside Public Utilities – Portfolio Carbon Content Over Time**




Since emissions associated with the electricity provided by RPU represent such a large percentage of emissions from municipal operations, it is useful to analyze the Municipal Inventory excluding the RPU-related emissions, to provide a clearer picture of the relative contributions from other municipal sectors. **Figure B.2-6** shows the 2007 and 2010 Municipal Inventories without the RPU-related emissions. Over this period, the emissions reductions associated with Water Transport, Buildings and Facilities, Streetlights, and Wastewater Treatment, and Airport facilities are largely the result of the lower carbon intensity of the City's electricity supply.

**Figure B.2-6: Municipal GHG Emissions by Sector (MT CO2e), Excluding RPU**




# EMISSIONS FORECASTS

GHG emissions forecasts for 2020 and 2035 were developed under a business-as-usual (BAU) scenario (i.e., a scenario that does not include regulatory actions or GHG reduction measures that were not in place by the 2007 base year), and then adjusted for the expected impact of state-wide emissions reduction measures, such as updates to building energy standards, and implementation of state-wide programs to decrease emissions from on-road vehicles.

## BUSINESS-AS-USUAL SCENARIO

BAU GHG emissions forecasts for 2020 and 2035 were developed using growth factors that are consistent with the 2016 RTP/SCS being developed for the SCAG region. Anticipated growth rates for population, households, and employment in the City of Riverside were used to derive emissions growth factors for the Residential, Commercial/Industrial, Transportation, and Solid Waste sectors of the Community Inventory, to forecast emissions in 2020 and 2035. These factors differ slightly from those used for the WRCOG Subregional CAP, with the primary difference being relatively slower residential and commercial growth forecasts by the RTP/SCS through 2020.

## COMMUNITY-WIDE FORECASTS

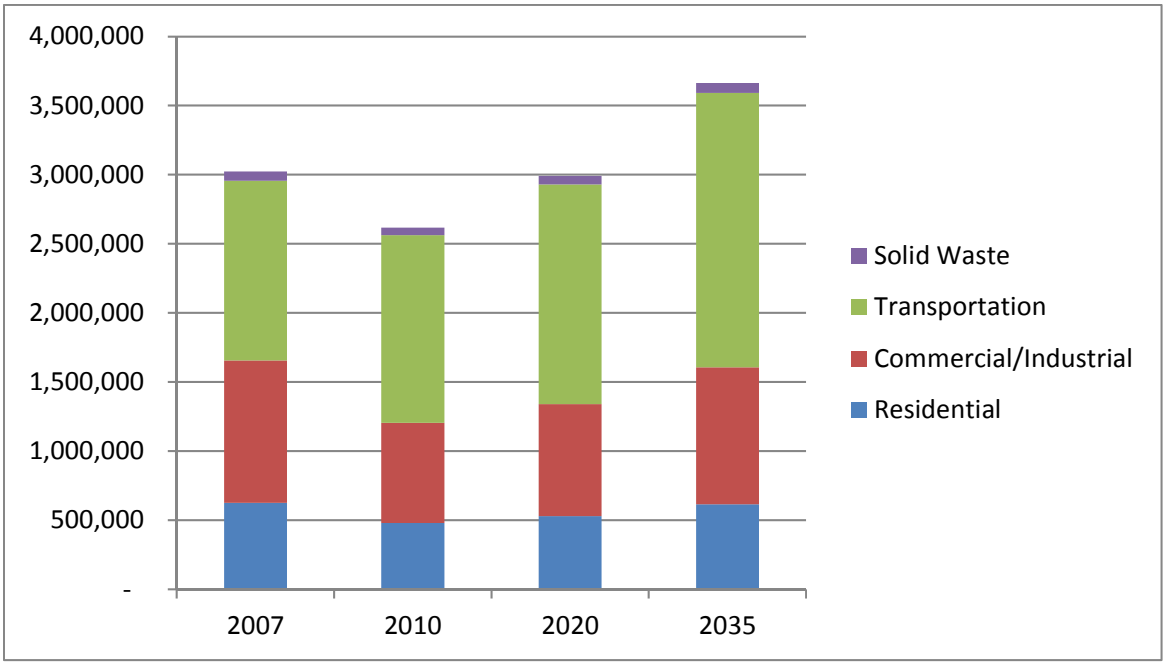
**Table B.2-3** provides a summary of emissions forecasts for the four community sectors. For purposes of comparison, Table B.2-3 also includes the results from the 2010 inventory. Household numbers were used as a growth proxy for Residential emissions; Commercial employment was used to represent Commercial/Industrial emissions growth; Transportation (vehicle miles traveled and associated emissions) growth was taken directly from the modeling results using the County's traffic model (known as RIVTAM); Service population (residents plus numbers employed) was used as a proxy for Solid Waste emissions.

**Figure B.2-7** shows how community emissions are projected to increase by 2020 and 2035 using the BAU forecasts. Looking forward from the latest inventory (2010) total community-wide GHG emissions are expected to grow 14.3% by 2020 and 40.4% by 2035.

**Table B.2-3 – Communitywide Business-As-Usual Emissions Forecast**

| SECTOR | 2007 Baseline (MT $CO_2e$/yr) | 2010 Baseline (MT $CO_2e$/yr) | 2020 Forecast (MT $CO_2e$/yr) | Growth Rate 2007-2020 | 2035 Forecast (MT $CO_2e$/yr) | Growth Rate 2007-2035 |
|---|---|---|---|---|---|---|
| Residential Energy Use | 626,136 | 481,903 | 543,134 | 10.1% | 617,156 | 28.1% |
| Commercial/ Industrial Energy Use | 1,028,804 | 722,321 | 809,594 | 12.1% | 989,264 | 37.0% |
| Transportation | 1,301,784 | 1,358,647 | 1,590,544 | 17.1% | 1,985,260 | 47.0% |
| Solid Waste Generation | 67,342 | 54,669 | 60,939 | 11.5% | 71,525 | 30.8% |
| **TOTAL INVENTORY** | **3,024,066** | **2,617,540** | **3,004,212** | **14.3%** | **3,663,205** | **40.4%** |

**Figure B.2-7: Communitywide Business-As-Usual Emissions Forecast**




## MUNICIPAL FORECASTS

For projecting municipal emissions it was assumed that emissions from Municipal Power Generation, Water Transport, Streetlights, and Wastewater Treatment will grow commensurate with the City's service population (residents plus numbers employed locally), whereas other municipal operations sectors would grow in proportion to municipal employment trends. Municipal employment is anticipated to grow at a slower rate than the City population from 2010 to 2020 and 2035. **Table B.2-4** provides a summary of emissions forecasts for the ten local government sectors. **Figure B.2-8** shows how emissions from municipal operations are projected to increase by 2020 and 2035 using the BAU forecasts.

From 2010 onwards, total GHG emissions from municipal operations are expected to grow 10.8% by 2020 and 29.1% by 2035. Excluding emission from RPU electricity, GHG emissions from municipal operations are expected to grow 5.6% by 2020 and 15.3% by 2035. **Figure B.2-9** shows municipal emissions forecasts that exclude the RPU-related emissions to provide a clearer picture of how the other sectors influence the inventory and forecasts over time.

**Table B.2-3 – Municipal Business-As-Usual Emissions Forecast**

| SECTOR | 2007 Baseline (MT $CO_2e$/yr) | 2010 Baseline (MT $CO_2e$/yr) | 2020 Forecast (MT $CO_2e$/yr) | Growth Rate 2007-2020 | 2035 Forecast (MT $CO_2e$/yr) | Growth Rate 2007-2035 |
|---|---|---|---|---|---|---|
| Buildings and Facilities | 12,734 | 10,939 | 11,065 | 1.2% | 11,324 | 3.5% |
| Streetlights | 13,523 | 10,155 | 11,320 | 11.5% | 13,286 | 30.8% |
| Vehicle Fleet | 7,700 | 8,402 | 8,499 | 1.2% | 8,698 | 3.5% |
| Water Transport | 29,167 | 19,471 | 21,704 | 11.5% | 25,475 | 30.8% |
| External water transport | 11,227 | 8,164 | 9,100 | 11.5% | 10,681 | 30.8% |
| Wastewater | 12,717 | 7,927 | 8,836 | 11.5% | 10,371 | 30.8% |
| Employee Commute | 7,413 | 10,045 | 10,161 | 1.2% | 10,399 | 3.5% |
| Airport | 304 | 293 | 296 | 1.2% | 303 | 3.5% |
| Municipal Solid Waste | 32,465 | 30,900 | 31,256 | 1.2% | 31,988 | 3.5% |
| Municipal Power Gen | 1,235,337 | 837,170 | 933,190 | 11.5% | 1,095,295 | 30.8% |
| **TOTAL INVENTORY** | **1,362,587** | **943,466** | **1,045,427** | **10.8%** | **1,217,821** | **29.1%** |
| Excluding Power Gen | 127,250 | 106,296 | 112,237 | 5.6% | 122,525 | 15.3% |

**Figure B.2-8: Municipal Business-As-Usual Emissions Forecast**

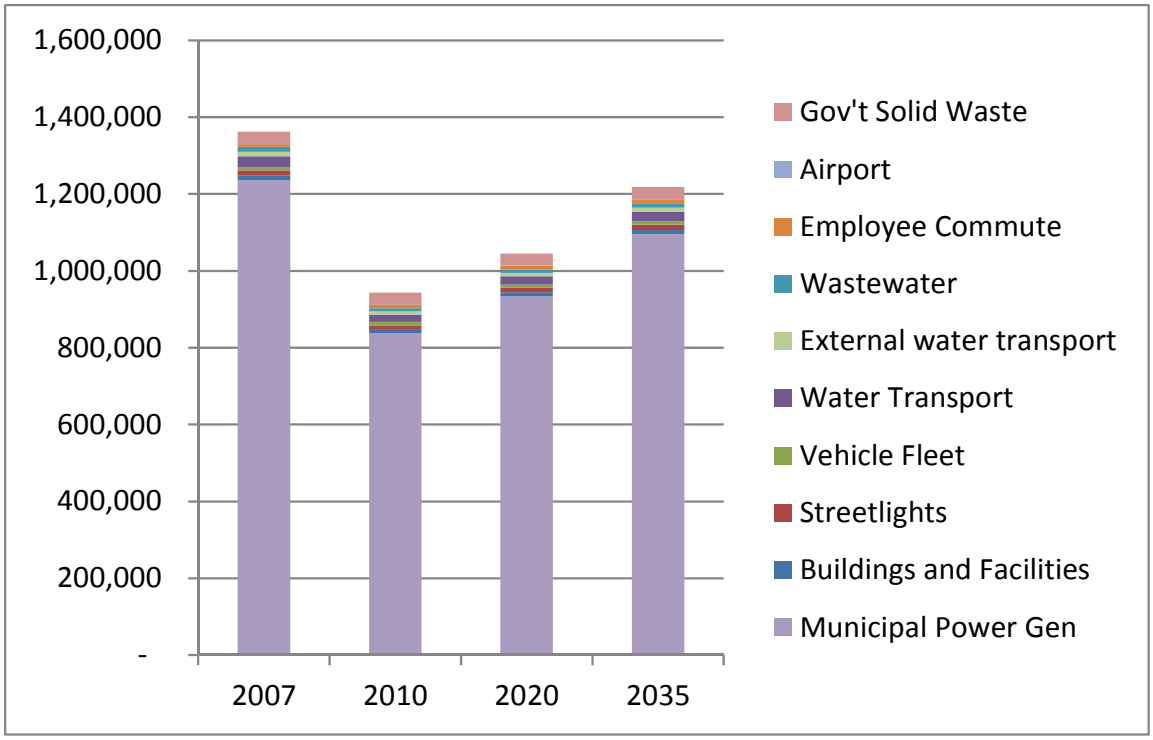



**Figure B.2-9: Municipal Business-As-Usual Emissions Forecast, Excluding RPU**

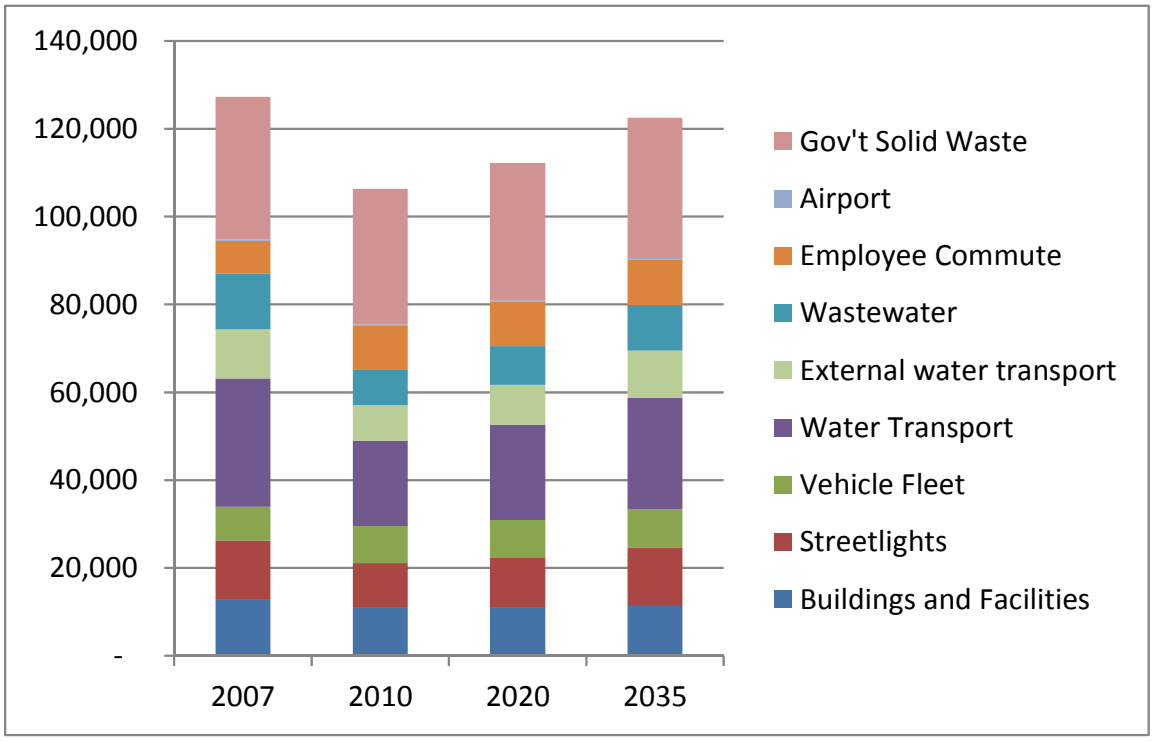
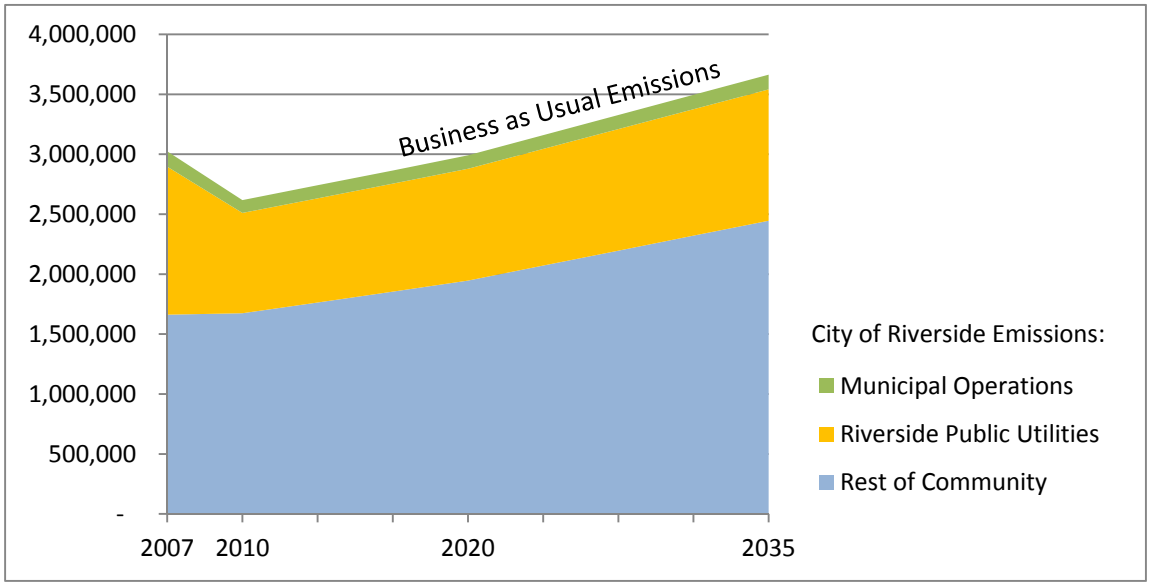


**Figure B.2-10** shows the contribution to overall emissions from municipal operations, RPU electricity, and from the rest of the community, starting in 2007, continuing through 2010 and forecasted out to 2035 using business-as-usual assumption.

**Figure B.2-10: City of Riverside GHG Emissions Forecast through 2035 (values in metric tons $CO_2e$)**




# EMISSIONS REDUCTION TARGETS

Through participation in the WRCOG Subregional CAP, the City of Riverside has adopted a 2020 community-wide emissions target of 2,224,908 MT $CO_2e$, representing a 15% reduction from the City's 2010 emissions inventory. A 15% reduction target is deemed by CARB and the California Attorney General to be consistent with the state-wide AB 32 goal of reducing emissions to 1990 levels[4] and is in line with current best practice for developing climate action plans. The Subregional CAP does not establish a reduction target for 2035 or future years; however the Subregional CAP identifies a reduction goal of 49% below baseline emissions levels to set the WRCOG subregion on a trajectory to meet targets identified in SB 375 and Executive Order (EO) S-3-05 recognizing that information, methodologies, and data availability may change between now and 2035.

[4] In its Climate Change Scoping Plan of September 2008, CARB recommends that local governments adopt a GHG reduction target consistent with the State's commitment to reach 1990 levels by 2020. This is identified as equivalent to 15% below "current" levels at the time of writing (2008).

# COMMUNITY EMISSIONS

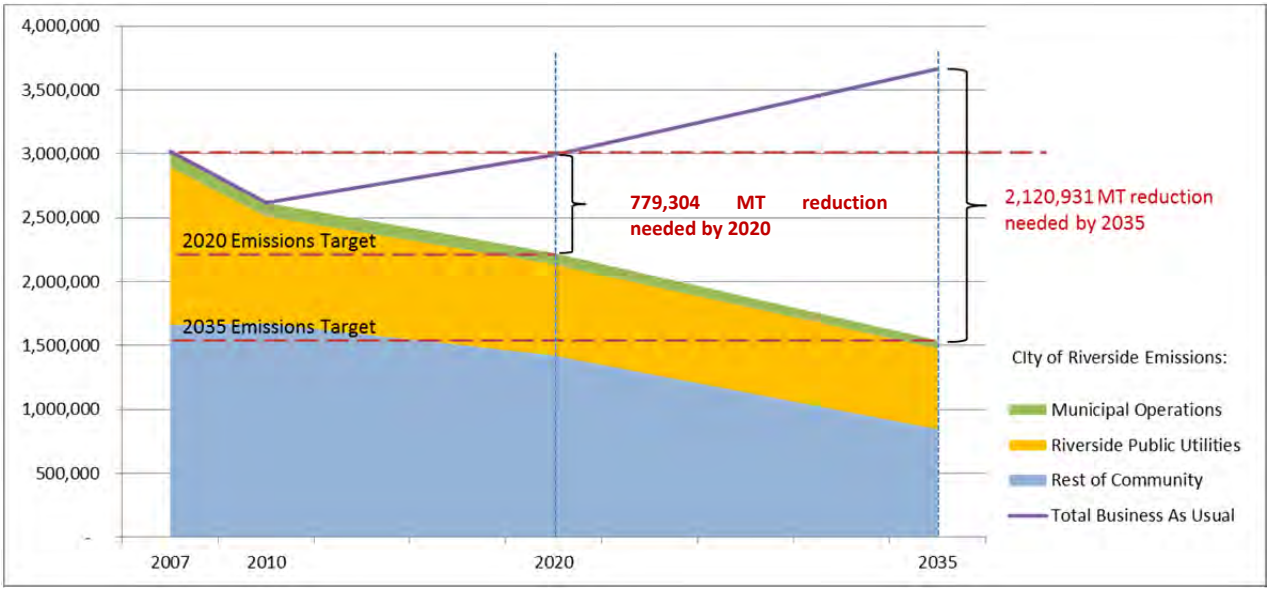
## 2020 Target

The City is committed to the 2020 target for City of Riverside in the WRCOG Subregional CAP. The RRG-CAP will remain consistent with that target of 2,224,908 MT $CO_2e$ per year, which is 26.4% below the City's 2007 baseline and 15% below 2010 emissions. This represents a reduction of 779,304 MT $CO_2e$ from the 2020 BAU forecast. The communitywide emissions reduction target for 2020 is depicted graphically in **Figure B.2-11**, which depicts what community emissions would look like through the year 2035 if sufficient reductions were achieved at the same percentage across all sectors.

## 2035 Target

The Subregional CAP suggests a goal for 2035 equivalent to 49 percent below baseline emissions. This is derived from a straight-line interpolation of the state-wide AB 32 goal and Executive Order (EO) S-3-05, which aims for 80% below 1990 levels by 2050.[5] Using this approach, the City of Riverside is setting its 2035 GHG emissions goal to 49% below the 2007 baseline, which is equivalent to 1,542,274 MT $CO_2e$ per year. This represents a reduction of 2,120,931 MT $CO_2e$ from the 2035 BAU forecast. The community-wide emissions reduction target for 2035 is also depicted graphically in Figure 2-11.

**Figure B.2-11: City of Riverside GHG Reduction Targets for 2020 and 2035 (values in metric tons $CO_2e$)**




[5] 2035 is the midpoint between 2020 and 2050. The 49% reduction is equivalent to 40% below 1990 levels (an additional 40% below 1990 levels = 0.6 x (0.85 x baseline) = 51% of baseline, equivalent to a 49% reduction)

## MUNICIPAL OPERATIONS EMISSIONS

Though the municipal operations emissions are a subset of the emissions from the overall community, a reduction target for municipal operations is appropriate because many of the measures included in the RRG-CAP apply to facilities or operations under the direct control of the City, and because the City will continue to lead by example in meeting the state's GHG emissions goals. The municipal emissions targets below do not include emissions from the RPU, since those emissions are included in the communitywide target, and they far outweigh emissions from other sources in the Municipal Inventory affected by the policies and operations of City departments that control those sources.[6]

### 2020 Target

Applying the 15% reduction criteria to the City's 2007 baseline emissions from municipal operations (excluding RPU) results in a 2020 target of 108,163 MT $CO_2e$, representing a reduction of 4,075 MT $CO_2e$ from the 2020 BAU forecast.

### 2035 Target

Applying the 49% reduction criteria to the City's 2007 baseline emissions from municipal operations (excluding RPU) results in a 2035 target of 64,898 MT $CO_2e$, representing a reduction of 57,628 MT $CO_2e$ from the 2020 BAU forecast.

[6] Note: The Subregional Climate Action Plan does not set targets for municipal operations emissions.

# CHAPTER B.3 REDUCTION MEASURES

## PROCESS AND OVERVIEW

The emissions forecasts described in Chapter 2 of the Riverside Restorative Growthprint Climate Action Plan (RRG-CAP) illustrate the need for the City to implement strategies to reduce GHG emissions by 2020 and beyond. This chapter discusses how the City will achieve its 2020 and 2035 reduction targets through anticipated reductions from State and Federal legislation, measures the City has committed to in the Western Riverside Council of Governments (WRCOG) Subregional Climate Action Plan (Subregional CAP), and additional local measures that the City will implement.

The RRG-CAP expands upon the efforts of the WRCOG Subregional CAP, employing local measures to help the City achieve its GHG reduction target for 2035. The process of developing the WRCOG Subregional CAP included ongoing coordination and information sharing among participating jurisdictions. The WRCOG Planning Directors' Technical Advisory Committee (PD TAC) served as the primary technical working group. The PD TAC met regularly over the course of three years to discuss the Subregional CAP and provide feedback. Perspectives from jurisdictions participating in the Subregional CAP and those in the subregion who had already prepared a local CAP were shared. In addition, WRCOG staff met individually with each participating jurisdiction to review emissions inventories, discuss potential emissions reduction measures and participation levels, and review Draft Versions of the Subregional CAP. Regular presentations were made to the WRCOG Public Works Committee, TAC, and Executive Committee (all committees include representatives from the City of Riverside) to keep jurisdictional staff, management officials, and elected leaders informed.

To further develop local GHG reduction measures for the RRG-CAP, the City conducted a more detailed assessment of local strategies and actions related to the measures in the Subregional CAP, expanding the discussion and analysis with respect to implementation (for post-2020 in particular), costs and funding, performance metrics, and local co-benefits. Some new measures were added, many of which support the

subregional measures. In addition, the discussions identify local economic opportunities that represent points of integration with the Riverside Restorative Growthprint Economic Prosperity Action Plan (RRG-EPAP), which supports local, regional, and global GHG reductions through local entrepreneurship.

The Green Accountability Performance (GAP) Committee, a group of dedicated volunteers that together ensure the successful implementation of the City's Green Action Plan, served as the primary technical working group for the RRG-CAP. The GAP met quarterly over the course of a year to discuss the RRG-CAP and provide feedback, predominantly on the reduction measures.

In addition, the City conducted community outreach that included several public presentations and meetings to inform and involve residents and stakeholders in the plan development and decision-making process. Presentations and updates were made to the Greater Riverside Chamber of Commerce Economic Development Council to gather input from the local business community and further develop synergy between the RRG-CAP and RRG-EPAP planning efforts. The City also engaged with University of California, Riverside (UCR) by presenting to the Chancellor's Committee on Sustainability Executive Committee and conducting interviews with key UCR staff responsible for implementation of UCR's Long Range Development Plan, Sustainability Plan and Carbon Neutral Plan. UCR shared their best practices and lessons learned. These discussions were particularly informative in refining reduction measures and developing the RRG-CAP implementation and monitoring plan. **Appendix C** provides a comprehensive summary of the above mentioned meetings and presentations.

## COORDINATION WITH THE RRG-EPAP

The City recognizes that achieving the deep GHG reductions needed to reach its 2035 GHG reduction target will depend on market transformations that value clean energy and low-carbon solutions to meeting the everyday needs of its residents and businesses. The companion document to the RRG-CAP, the RRG-EPAP is intended to accelerate market penetration of new technologies and service solutions that reduce energy

demand, electrify vehicle fleets, and decarbonize electricity and fuel supplies. This directly supports state policy, as expressed by the AB 32 Scoping Plan and the Governor's Office of Planning and Research (OPR) *Environmental Goals and Policy Report*, which calls for commitments to support innovation and entrepreneurial business enterprises that can greatly reduce GHG emissions at the state and local levels. The RRG-EPAP represents a plan to steer investment and promote local entrepreneurial activity to achieve deep GHG reductions locally, but also to the development of technologies that can be exported to the rest of the state throughout the world to reduce GHG emissions globally.

# SUMMARY OF REDUCTIONS

## STATE AND FEDERAL REDUCTIONS

In addition to local measures that City of Riverside will implement within the city, significant emissions reductions are achieved through the efforts of federal, state, and regional programs. State and federal emissions reductions are primarily achieved through regulations, such as efficiency standards for passenger vehicles (e.g., Pavley I standards), reduction in carbon content of transportation fuels (e.g., the Low Carbon Fuel Standard), and minimum renewable energy supply requirements for utilities (e.g., the Renewables Portfolio Standard). Measures regulated and implemented by the state and federal government achieve reductions without additional action by the city. That is, even if vehicle miles traveled (VMT) within the city remain constant over time, resulting GHG emissions would decrease because as new vehicles are purchased, they would in general be more GHG-efficient than those they replace.

Some state and federal programs also require local action within communities. The California Green Building Standards Code (CALGreen) requires, at a minimum, that new buildings and renovations throughout California meet certain design standards. New residential and commercial buildings must meet certain baseline efficiency and sustainability standards. Additional voluntary building code provisions, known as Tier 1 and Tier 2 requirements, can be adopted locally, providing even greater energy savings and emissions reductions.

The Water Conservation Act of 2009, known as SB X7-7, requires the State to reduce urban per capita water use 20% by 2020. Regional Urban Water Management Plans provide strategies and create incentives to achieve these targets, but regional and local implementation strategies vary and consumer participation is necessary to realize water use reductions. Local implementation strategies typically include tiered pricing or water budget-based (i.e., pricing water according to the amount consumed); water-efficient landscape requirements for water and irrigation management, planting location, and plant materials; and incentives where a regional or local utility pays for turf grass removal and replacement with efficiently-irrigated landscaping.

## REGIONAL REDUCTIONS

Regional programs are those developed or administered at a level of government above the local jurisdiction but below the state. These programs often are more responsive to local context than statewide programs. They require local participation but do not require local administration to achieve GHG reductions.

The WRCOG HERO Program, described in Chapter 1, is a regionally-administered program that offers financing options for home and business owners to retrofit or install energy-efficient, water conservation, and/or renewable energy generating products. This program is voluntary and therefore also up to individuals to implement, but regional administration lowers the burden to local governments and has already led to demonstrable reductions in the subregion since the HERO Program's inception in 2011.

WRCOG also administers the Transportation Uniform Mitigation Fee (TUMF) Program. The TUMF Program establishes a funding source to mitigate the cumulative regional transportation impacts of new development on regional arterials. TUMF fees are collected locally, and WRCOG works with its member agencies to identify priority projects to fund using fee revenues in order to reduce subregional transportation impacts caused by development. Facilitating movement on roads, by encouraging non-motorized transportation, increasing access to transit, or easing congestion on critical roadways may lead to GHG reductions. Therefore, TUMF can fund projects that meet this objective. Because the project relies on locally-collected fees, available funding depends on the economic vitality and development opportunities in the region.

A number of other transportation-related programs and projects under the primary control of the Riverside Transit Agency (RTA), Riverside County Transportation Commission (RCTC), California Department of Transportation (Caltrans), and other transportation entities are being implemented to reduce GHG emissions. The long-term planning of major transportation infrastructure is not under the City of Riverside's direct control; however, the City participates in transportation planning decisions in a way that benefits the subregion. The City of Riverside is in direct control of land uses, which can dictate how future transit is shaped. Individuals also play an important role in how they choose to move throughout the subregion; therefore, while the City does not implement these programs, local input is critical to their success. Additional projects anticipated to reduce the City's GHG emissions include California High Speed Rail, Metrolink expansion, express lanes, congestion pricing, goods movement measures, high frequency transit service, and electric vehicle infrastructure implementation.

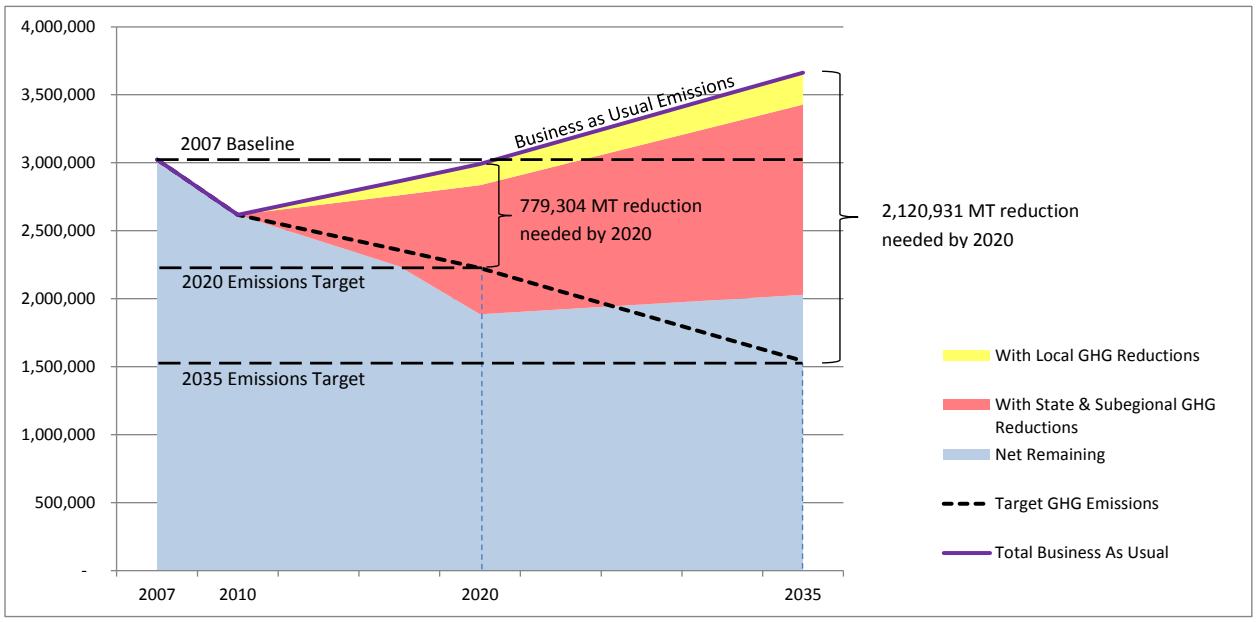
Federal, state and regional measures in the RRG CAP are organized into four major sectors, similar to the emissions inventory:

- Energy – including electricity and natural gas consumption
- Transportation and Land Use
- Water
- Solid Waste

Through federal, state, and regional measures implemented at the subregional level, the City of Riverside anticipates reductions of 949,572 $MTCO_2e$ and 1,398,918 $MTCO_2e$ from the City's 2020 and 2035 BAU emissions forecasts. **Figure B.3-1** shows the impact

that the RRG-CAP measures have on reducing GHG reductions from business-as-usual projections of community-wide GHG emissions.

**Figure B.3-1: City of Riverside GHG Reductions Achieved through State, Regional, and Local Measures**




## LOCAL REDUCTIONS

While federal, state, and regional measures are critical to meet emission reduction goals, local government programs and policies, as well as choices made by the City's local residents and business owners, will determine the City's ability to achieve the overall emissions reduction targets for 2020 and 2035. Through outreach campaigns, incentives, zoning changes, ordinances, and changes in local government operations, the City will achieve the additional local reductions identified in the RRG-CAP.

Local reduction measures in the RRG-CAP are organized into four major sectors, similar to the emissions inventory:

- Energy – including electricity and natural gas consumption
- Transportation and Land Use
- Water
- Solid Waste

Through locally-implemented measures, the City of Riverside anticipates reductions of 189,399 $MTCO_2e$ and 275,273 $MTCO_2e$ from the City's 2020 and 2035 BAU emissions forecasts, respectively, as illustrated in **Figure B.3-1**. This is more than enough to reach the City's 2020 target, but falls short of the 2035 target by approximately 446,740 $MTCO_2e$.

## MEASURE DESCRIPTION AND ANALYSIS

Individual measures were evaluated to identify the greatest opportunities for GHG reduction that can be achieved with minimum cost. For each measure included in the RRG-CAP, a general description is provided, along with a timeframe and specific actions that the City is taking (or intends to take) to implement the measure. For those measures included in the WRCOG Subregional CAP, the City of Riverside's participation level is referenced (e.g., Silver, Gold, or Platinum), and the 2020 annual GHG reduction estimates in the RRG-CAP are consistent with those in the Subregional CAP.

Estimates of the 2035 reductions for each measure are an added component of the RRG-CAP. Recognizing that the RRG-EPAP is an essential component of achieving the deep reductions needed to reach the 2035 emissions target, the description of each local measure assesses its synergy with the RRG-EPAP, and provides a general discussion of how implementation can boost local economic activity.

Each local measure was evaluated using the following criteria:

- GHG Reduction Potential (MT CO2e/year): This is quantified for each measure in terms of metric tons of carbon dioxide equivalents achieved annually by the target year.
- Synergy with RRG-EPAP (high, medium, low): Assessment of the opportunities linked to clean technologies, new business concepts and infrastructure project that hold the most promise for entrepreneurship in Riverside.
- Relative Cost Effectiveness (high, medium, low): Assesses the potential GHG reduction versus the relative upfront costs to the City and ongoing staff resources needed for implementation. Also, whether the measure represents a good use of public funds.
- Ease of Implementation (high, medium, low): Considers consistency with other City planning efforts and ease of implementation with respect to current City operating patterns/paradigms; whether the measures can be incorporated into the way the City and the private sector does business without major negative impacts; whether there are technological, regulatory and/or legal and regulatory barriers to implementation.

*What is a metric ton of $CO_2e$?*

**GHG emissions are reported as metric tons (MT) of $CO_2e$. Emitting 1 MT $CO_2e$ is equal to the following:**

- **102 gallons of gasoline**
- **41 propane cylinders used for home barbecues**
- **One month's worth of energy used in a house**

**In contrast, reducing 1 MT $CO_2e$ would require:**

- **Growing 25 tree seedlings for 10 years**
- **Recycling 600 pounds of waste instead of throwing it away**

Note: Equivalencies are approximate and are adapted from: http://www.epa.gov/cleanenergy/energy-resources/calculator.html

## GHG REDUCTIONS

The GHG reduction potential of each measure is quantified based on the assumption that past trends will continue into the future (e.g., energy consumption, VMT) and standard methods and assumptions recommended by the State (e.g., CAPCOA 2010). For voluntary programs, the level of participation anticipated was developed using case studies and evidence of success with similar programs.

## PROGRESS METRICS

For locally implemented measures in particular, monitoring emissions and reporting reductions will be necessary to validate the success of the measures or to identify measures that are not achieving anticipated reductions. Metrics for monitoring progress are provided for individual measures, although periodic re-inventorying of local government and community-wide emissions will be needed to validate progress.

## LOCAL ECONOMY AND OTHER COMMUNITY BENEFITS

CAP measures often have benefits that go beyond reducing GHG emissions. The Riverside CAP is designed to integrate with the RRG-EPAP, which will help entrepreneurs and investors bring innovative GHG-reducing products, services, and technologies to market that will benefit the City, the region, and the world at large. Entrepreneurial Opportunity Areas (EOAs) that are synergistic with CAP measures are identified, and a discussion is provided on how the measure offers opportunity to local businesses and entrepreneurs and investors. Many measures offer financial co-benefits such as providing development and retrofitting incentives, or reducing energy use and lowering utility bills; others improve public health by encouraging walking and biking or reducing air pollution. Some measures preserve natural resources by consuming and wasting less; while others increase mobility through alternative transportation measures. The following icons are used to identify co-benefits that the City can achieve by implementing local GHG reduction measures.

**Energy** **Public Health** **Local Jobs** **Resources** **Local Mobility** **Placemaking**

# STATE AND REGIONAL MEASURES

**Table B.3-1** lists the state and regional measures included in the Subregional CAP and provides a breakdown of the GHG reduction potential for these measures, for the City of Riverside and for the WRCOG subregion.

**Table B.3-1: 2020 and 2035 Reductions from State and Regional Measures**

| State and Regional Measures by Sector | | 2020 WRCOG (MT $CO_2e$/yr) | 2020 Riverside (MT $CO_2e$/yr) | 2035 Riverside (MT $CO_2e$/yr) |
|---|---|---|---|---|
| SR-1 | Renewables Portfolio Standard | 434,606 | 363,096 | 372,020 |
| SR-2 | 2013 California Building Energy Efficiency Standards (Title 24, Part 6) | 30,923 | 19,156 | 62,927 |
| SR-3 | HERO Residential Program | 71,649 | 38,681 | 64,964 |
| SR-4 | HERO Commercial Program | 10,079 | 6,618 | 86,276 |
| SR-5 | Edison Energy Action Plans | 9,182 | N/A | N/A |
| ***Energy Subtotal*** | | ***547,257*** | ***427,551*** | ***586,187*** |
| SR-6 | Pavley & Low Carbon Fuel Standard | 1,095,555 | 429,447 | 694,841 |
| SR-7 | Metrolink Expansions | 23,074 | 9,045 | 11,289 |
| SR-8 | Express Lanes | 60,864 | 23,858 | 29,779 |
| SR-9 | Congestion Pricing | 3,246 | 1,272 | 1,588 |
| SR-10 | Telecommuting | 40,576 | 15,905 | 19,853 |
| SR-11 | Goods Movement | 22,688 | 8,893 | 10,811 |
| SR-12 | Electric Vehicle Plan and Infrastructure | 81,152 | 31,811 | 39,705 |
| ***Transportation Subtotal*** | | ***1,327,155*** | ***520,232*** | ***807,866*** |
| SR-13 | Construction and Demolition Waste Diversion | 3,574 | 1,789 | 4,865 |
| ***Solid Waste Subtotal*** | | ***3,574*** | ***1,789*** | ***4,865*** |
| **TOTAL REDUCTIONS from State and Regional Measures** | | **1,877,986** | **949,572** | **1,398,918** |

**Note:** Total may not add up due to rounding.

## STATE AND REGIONAL ENERGY MEASURES

The following are state and regional measures that are expected to reduce GHG emissions associated with the energy sector.

### Measure SR-1: Renewables Portfolio Standard

*Utilities must secure 33% of their power from renewable sources by 2020.*

**2020 GHG Reduction Potential:** 363,096 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 372,020 MT $CO_2e$/yr

Through a series of increasingly stringent bills first enacted in 2002, California has placed requirements on electric utilities to procure a portion of their energy from renewable sources. The standard, known as the Renewables Portfolio Standard (RPS), applies to investor-owned utilities, publicly-owned utilities, electricity service providers, and community choice aggregators. Therefore, Riverside Public Utilities (RPU) must meet these targets:

- 20% of retail sales from renewables by 2013
- 25% of retail sales from renewables by 2016
- 33% of retail sales from renewables by 2020
- 40% of retail sales from renewables by 2035[1]

RPU exceeded the 2013 target, achieving 23% of retail sales by qualifying renewables and is well on its way to meeting these targets. Prior to 2007, RPU began positioning itself to achieve significant reductions in GHG emissions associated with its electricity portfolio by shifting its resource mix from carbon intensive sources to renewable sources. In 2003, RPU was one of the first electric utilities in California to voluntarily procure renewable resources (the Salton Sea geothermal resource in Imperial Valley and the Wintec wind resource in Palm Springs) to meet a portion of Riverside's electric power needs. This commitment accelerated in 2005 when RPU amended its contract with Salton Sea geothermal resource to more than double its procurement of renewable energy. To further its commitment to clean power, RPU terminated its power purchase agreement with Deseret Generation and Transmission Cooperative for Hunter and Bonanza coal generating plants in Utah at the end of 2009. These changes in the City's electricity portfolio, which occurred primarily in the 2009-2010 timeframe, led to a reduction in communitywide emissions of more than 13% from 2007 to 2010, and additional reductions through the year 2012. While not mandated at this time, the City intends to continue to reduce its carbon portfolio beyond 2020 to include 40% renewables by 2035.

[1] There is currently no RPS requirement for a percentage increase beyond the 2020 target.

## Local Economic Opportunities

*Synergistic EOA: RPU Clean Technology Funding*

The RPS is generating business opportunities by ensuring a growing market for low-carbon energy. Qualifying renewable energy sources applicable to Riverside include solar thermal electric, photovoltaics, wind, biomass, geothermal electric, municipal solid waste, energy storage, anaerobic digestion, small hydroelectric, biodiesel, and fuel cells using renewable fuels.

A local opportunity for RPU includes arranging power purchase agreements (PPA) and financing photovoltaics (PV) on private property. A PPA is a financial arrangement in which a third-party developer (i.e., RPU) owns, operates, and maintains the PV system, and a host customer (i.e., local property owner) agrees to site the system on its roof or elsewhere on its property and purchases the system's electric output from the solar services provider for a predetermined period. This financial arrangement allows the host customer to receive stable, and sometimes lower cost electricity, while the solar services provider acquires valuable financial benefits such as tax credits and income generated from the sale of electricity to the host customer. PPA arrangements enable the host customer to avoid the high up-front capital costs, system performance risk, and complex design and permitting processes and can be cash flow positive from the day the system is commissioned.

Local renewables research and development opportunities exist in partnership with the UCR. UCR has a recently adopted mandate to achieve carbon neutrality by 2025, which poses an even greater need for utilizing renewables for its energy needs. See local measure E-5 for more information on UCR's carbon neutral program.

## Other Community Co-Benefits

# Measure SR-2: 2013 California Building Energy Efficiency Standards (Title 24, Part 6)

*Mandatory energy efficiency standards for buildings.*

**2020 GHG Reduction Potential:** 19,156 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 62,927 MT $CO_2e$/yr

Building energy efficiency standards are designed to ensure new and existing buildings achieve energy efficiency and preserve outdoor and indoor environmental quality. The 2013 California Building Energy Efficiency Standards (Title 24, Part 6) are listed in the California Code of Regulations. These standards began in 1978 and are updated every 5 years. The 2013 standards differ from the 2008 standards by requiring usage of less energy for lighting, heating, cooling, ventilation, and water heating. Buildings are also required to be solar-ready, allowing for easier and less expensive installation of photovoltaic or solar thermal panels in the future. The California Energy Commission estimates that the 2013 standards will result in residential construction that is 25% more efficient and nonresidential construction that is 30% more efficient than the 2008 standards. The new standards went into effect on July 1, 2014.

The California Energy Efficiency Strategic Plan (CEESP), published in 2008, established a goal that all new residential buildings will be zero net energy (ZNE) by 2020, and all new commercial buildings will be ZNE by 2030. Renewable energy is likely to play a major part in meeting that those goals, but Title 24 will continue to impose more rigorous energy efficiency requirements over time. Measure SR-2 conservatively assumes that Title 24 will require a 30% improvement in energy efficiency over the current (2013) standard by 2035; it does not account for the renewable energy contribution toward ZNE, as that is accounted for by other RRG-CAP measures. Note that the state has not yet established the rules or defined how renewable energy sources are accounted for in determining ZNE status of a building or a set of buildings.

## Local Economic Opportunities

*Synergistic EOA: Green Building Standards*

Requirements for more energy efficiency buildings creates business opportunities for new or existing contractors specializing in green building practices related to energy efficiency. Additional opportunities may exist for local businesses that specialize in energy efficient lighting, heating, cooling, ventilation, and water heating solutions and/or equipment.

## Other Community Co-Benefits

# Measure SR-3: HERO Residential Program

*Financing for homeowners to make energy efficient, renewable energy, and water conservation improvements.*

**2020 GHG Reduction Potential:** 38,681 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 64,964 MT $CO_2e$/yr

The HERO Program is a public-private partnership administered by WRCOG, offering financing to homeowners in the subregion for the installation of energy efficient, renewable energy, and water conservation improvements. This property assessed clean energy (PACE) financing program offers a continually expanding list of eligible products for financing and an ever-growing cadre of trained contractors who can assist property owners with selecting and installing eligible products. The HERO program is helping Riverside Public Utilities (RPU) meet its obligation under California's Assembly Bill 2021, which requires public energy utilities (including RPU) to reduce energy use by its customers by 10% over 10 years (to 2020). It also supports RPU's commitment to expanding solar installations in the City as an administrator or Senate Bill 1 (SB 1) that funds Governor Schwarzenegger's Million Solar Roofs initiative, with statewide goals to install 3,000 megawatts of solar energy systems, and establish solar energy systems as a viable mainstream option for residential buildings.

Products eligible for HERO Financing include, but are not limited to:

- Energy audits
- Insulation of attics, floors, walls, and home perimeter
- Lighting upgrades
- Drip and weather-based irrigation systems
- Rainwater catchment systems
- Pool pumps and heaters
- Energy-efficient windows
- Solar PV panels
- Air sealing and weatherization
- Cool roof system
- Cool wall coatings

This award-winning program is offered to eligible home owners in the City of Riverside who wish to participate. WRCOG's Residential Program partner, Renovate America, collects data regarding participation, energy savings, renewable energy installation, job creation, and economic development by jurisdiction in the subregion. Since program inception in 2011, more than 3,400 Riverside homeowners have been approved to fund over $123 million in eligible renewable energy, energy efficiency and water efficiency projects. Nearly 2,000 projects, totaling approximately $33 million, have been completed for Riverside homeowners through the WRCOG HERO Program.

WRCOG will continue to partner with Renovate America to track ongoing participation and energy savings on a monthly and annual basis. Emissions reduction estimates for this CAP were calculated based on program participation assumptions developed by Renovate America. Since its inception in 2011, the HERO program has funded more than $175 million worth of eligible projects, and created more than 1,300 jobs. The program's growth has led to energy savings, GHG reductions, water conservation, and local job creation in each of its participating communities. The HERO program has also been an award-winning model for other PACE programs, earning recognition from various industry organizations including the Southern California Association of Governments, the U.S. Green Building Council, the Urban Land Institute, and the Governor of California.

## Local Economic Opportunities

*Synergistic EOA: Energy and Water Upgrades for Homes*

The HERO Program provides business opportunities to Riverside contractors. As of July 2014, 230 contractors in the City of Riverside were registered with the HERO Program and eligible to install solar, HVAC, windows and doors, roofing, water and other projects to HERO customers. The products installed have saved local residential customers over $1.8 million. Since its inception in 2011, the HERO Program has created 359 local jobs in the City of Riverside resulting in over a $73 million economic impact to the community including indirect, direct and induced economic benefit.

Local research and development opportunities exist to develop and add to the more than 900,000 home energy, water efficient, and renewable energy systems products eligible for HERO financing.

## Other Community Co-Benefits

# Measure SR-4: HERO Commercial Program

*Financing for business owners to make energy efficient, renewable energy, and water conservation improvements.*

**2020 GHG Reduction Potential:** 6,618 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 86,276 MT $CO_2e$/yr

The HERO Program is a public-private partnership administered by WRCOG, offering financing to business owners in the subregion for the installation of energy efficient, renewable energy, and water conservation improvements. This PACE financing program offers a continually expanding list of eligible products for financing and an ever-growing cadre of trained contractors who can assist property owners with selecting and installing eligible products. The HERO program is helping Riverside Public Utilities (RPU) meet its obligation under California's Assembly Bill 2021, which requires public energy utilities (including RPU) to reduce energy use by its customers by 10% over 10 years (to 2020). It also supports RPU's commitment to expanding solar installations in the City as an administrator of Senate Bill 1 (SB 1) that funds Governor Schwarzenegger's Million Solar Roofs initiative, with a statewide goal to install 3,000 megawatts of solar energy systems, and establish solar energy systems as a viable mainstream option for commercial buildings.

Products eligible for HERO Financing include, but are not limited to:

- Energy audits
- Insulation of attics, floors, walls, and home perimeter
- Lighting upgrades
- Drip and weather-based irrigation systems
- Rainwater catchment systems
- Pool pumps and heaters
- Energy-efficient windows
- Solar PV panels
- Air sealing and weatherization
- Cool roof system
- Cool wall coatings

This award-winning program is offered to eligible property owners in the WRCOG subregion who wish to participate. WRCOG's Commercial Program partner, Samas Capital, collects data regarding participation, energy savings, renewable energy installation, job creation, and economic development by jurisdiction in the subregion.

## Local Economic Opportunities

*Synergistic EOA: Energy and Water Upgrades for Businesses*

The HERO Program provides business opportunity to local Riverside contractors. As of July 2014, 230 contractors in the City of Riverside were registered with the HERO

Program and eligible to install solar, HVAC, windows and doors, roofing, water and other projects to HERO customers.

Local research and development opportunities exist to develop and add to the more than 900,000 home energy, water efficient, and renewable energy systems products eligible for HERO financing.

## Other Community Co-Benefits

## STATE AND REGIONAL TRANSPORTATION MEASURES

The following are state and regional measures that are expected to reduce GHG emissions associated with the transportation sector.

### Measure SR-6: Pavley and Low Carbon Fuel Standard

*Requirements for vehicles to use cleaner fuels.*

**2020 GHG Reduction Potential:** 429,447 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 694,841 MT $CO_2e$/yr

In 2002, California adopted AB 1493, referred to as "Pavley I", which directed CARB to develop fuel-efficiency standards for passenger vehicles in California by 2005. Through a series of rulings, CARB and the federal government agreed on federal standards that began in 2009 and increase through 2016. CARB and the federal government are currently finalizing fuel-efficiency standards that continue to become increasingly-stringent from 2017 through 2025. Building from Pavley 1, Executive Order S-1-07, known as the Low Carbon Fuel Standard (LCFS), requires the carbon-intensity of California's transportation fuel to be reduced by at least 10% by 2020.

#### Local Economic Opportunities

*Synergistic EOA: Clean Vehicles and Charging/Fueling Stations*

The opportunities created by this measure occur in the development of new technology for vehicles and fueling facilities. Meeting the LCFS and Pavley goals will require the testing and deployment technologies such as improved batteries for electric cars, more efficient gasoline engines, and fuel cells. These vehicles will also require charging stations or fueling stations. The research facilities at UCR can participate in the development and testing of these technologies. Additionally, entrepreneurs wanting to research and develop components associated with these technologies will likely want to locate near UCR to take advantage of their faculty and student body, leading to synergies between the research and implementation. There is the potential to create a clean-tech hub proximate to UCR to facilitate further progress in the area.

#### Other Community Co-Benefits

# Measure SR-7: Metrolink Expansion

*Additional Metrolink transit service provided to Western Riverside County.*

**2020 GHG Reduction Potential:** 9,045 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 11,289 MT $CO_2e$/yr

Identified in SCAG's 2012 RTP/SCS, the Metrolink Perris Valley Line will be extended from Riverside to Perris in Western Riverside County, allowing for alternative transportation, reducing VMT and GHG emissions in Western Riverside County. Service along this route is expected to begin in 2015.

The Perris Valley Line is anticipated to have four stations, with the first station to be located near Columbia Avenue within the Hunter Park industrial area in the northern portion of the City of Riverside. According to the Riverside County Transportation Commission (RCTC), this station location would provide access to the Hunter Park, Highgrove, and Grand Terrace areas. Additionally, the Hunter Park area is home to the UC Riverside College of Engineering, Center for Environmental Research and Technology (CE-CERT).

## Local Economic Opportunities

*Synergistic EOAs: Eco Business Zone; Clean-Tech Incubator*

Local economic opportunities associated with this measure include development or redevelopment opportunities associated with the Metrolink station. The current land uses around the station are primarily commercial and light industrial. Rail stations can be catalysts for higher density development such as higher density office. Occupants of these projects often tend to prioritize access to transit stations when deciding on locations. Another opportunity is related to the marketing of future development projects or businesses such as CE-CERT. Proximity to the train station could be used to attract businesses with younger workers, who may prefer to commute via transit instead of driving. Marketing collateral for buildings that are adjacent to transit stations tends to promote the proximity as a selling point for buyers and renters.

## Other Community Co-Benefits

# Measure SR-8: Express Lanes

*Additional express lanes added along major freeways in Western Riverside County.*

**2020 GHG Reduction Potential:** 23,858 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 29,779 MT $CO_2e$/yr

SCAG's analysis of critical corridors found inter-county trips account for over 50% of all trips. Ongoing congestion issues—and therefore increased idle time and GHG emissions—have led to SCAG proposing increasing the network of express lanes that connect counties, including Riverside County. Extension of express lanes along State Route-91 (SR-91) and Interstate-15 (I-15) would be operational by 2017 and 2020 respectively, and would lead to reduced congestion according to regional transportation modeling. The SR-91 extension project is currently under construction. The I-15 Toll Express Lanes from State Route-60 (SR-60) to Cajalco Road has entered the preliminary engineering phase, and the anticipated opening year is 2020.

The primary effect of these express lanes would be to reduce the travel time to the City of Riverside along the SR-91, which may make areas within the City more attractive for those currently commuting via the SR-91 to Orange and Los Angeles Counties. These express lanes may also reduce the travel time for those commuting into the City of Riverside from areas west of the City such as Corona and locations in Orange County.

## Local Economic Opportunities

The primary local economic benefit of the express lanes would be as an incentive for additional development in Riverside, particularly along SR-91 because of a reduction in travel time between work and housing locations. The City could look for opportunities to intensify development/redevelopment along the SR-91 Corridor to accommodate additional housing and employment locations. These express lanes could also be used to market specific sites which are adjacent to the freeway because of this reduced travel time.

## Other Community Co-Benefits

# Measure SR-9: Congestion Pricing

*Expansion of the toll lanes along the SR-91.*

**2020 GHG Reduction Potential:** 1,272 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,588 MT $CO_2e$/yr

Transportation demand management (TDM) consists of methods used to encourage transportation other than single-occupancy vehicle travel at peak traffic times. TDM strategies are generally categorized as "soft" or "hard" strategies. Soft mechanisms are incentive-based and include measures like preferential parking for carpoolers, while hard mechanisms are associated with pricing or an enforceable policy or ordinance.

Congestion pricing is a hard TDM strategy examined by SCAG through its Express Travel Choices Study. Pricing mechanisms may include toll lanes/roads or mileage-based user fees, which discourage automobile traveling by increasing travel costs. Currently an expansion of the toll lanes on SR-91 is planned to continue these toll lanes through Corona and into Riverside.

The effectiveness of congestion pricing reflects the regional share of VMT reduction associated with this strategy, in addition to local actions. This approach accounts for the high degree of out-commuting that currently occurs in Western Riverside County as residents travel to jobs in Los Angeles, San Bernardino, and Orange Counties.

This measure would have limited application to the City of Riverside given the regional nature of its effectiveness.

## Local Economic Opportunities

There are no specific economic opportunities associated with this measure given its regional application.

## Other Community Co-Benefits

# Measure SR-10: Telecommuting

*Work arrangement in which employees do not commute to a central place of work.*

**2020 GHG Reduction Potential:** 15,905 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 19,853 MT $CO_2e$/yr

Telecommuting is a soft TDM mechanism that has increased considerably over the past decade. According to SCAG, telecommuting could increase even more by 2020 (to 5% of workers in the region) and 2035 (to 10% of workers), from the current 2.6% that currently telecommute. By telecommuting, GHG emissions associated with vehicles no longer on the road are reduced, as are idling or congestion-related emissions from vehicles remaining on the road. Similar to Measure SR-9: Congestion Pricing, this strategy reflects the regional share of TDM strategies that may be implemented on a regional level given the high degree of out-commuting that occurs in Western Riverside County.

Telecommuting would be applicable to the City of Riverside, particularly for large employers such as UC Riverside, AT&T and The Press Enterprise. The City could encourage telecommuting by providing informational material to large employers, describing the advantages of telecommuting.

Additional TDM strategies implemented by local employers are accounted for in the RRG-CAP local measures.

## Local Economic Opportunities

*Synergistic EOAs: Eco Business Zone; Clean-Tech Incubator*

There are two main opportunities presented by telecommuting as it relates to the City of Riverside. First, major regional employers may consider if there are opportunities to set up satellite offices or locations where workers can telecommute in a collaborative environment. These facilities would be similar to executive suite office buildings, of which there are several already in the City of Riverside. Second, the City may want to expand the coverage of any publicly provided wireless internet system (Wi Fi or equivalent), given that a significant percentage of telecommuting occurs spontaneously in café's, coffee shops, and public gathering places. For example, the City could provide high quality internet access in the downtown, where people already gather. These people may then choose to patronize adjacent shops and restaurants during their time.

## Other Community Co-Benefits

# Measure SR-11: Goods Movement

*Efficient movement of goods through inland Southern California.*

**2020 GHG Reduction Potential:** 8,893 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 10,811 MT $CO_2e$/yr

Southern California is a major hub for importing and exporting goods. SCAG estimates that over $2 trillion in cargo was moved across the region in 2010 alone, much of which travels through inland Southern California, including Western Riverside County. However, the many warehouses and distribution facilities employ non-passenger vehicles that contribute to GHG emissions. At the state level, more standards are being implemented to increase vehicle efficiencies and the 2012 RTP/SCS and AQMD are supporting greater penetration of low-emission trucks in the region. While goods will continue to be moved to support local and regional economies, electrification and other low-emission technologies installed in vehicles can reduce the GHG emissions of goods movement. The GHG reductions estimated here account for the region's "share" of SCAG and AQMD's anticipated investments and the effect of the investment on GHG emissions. These investments include both policies as well as physical improvements such as "truck climbing" lanes on State Route-60 (SR-60), funded by RCTC.

## Local Economic Opportunities

A primary local economic opportunity of efficient goods movement is the research and development of new technologies which would reduce GHG emissions from freight vehicles. This research could be conducted by entrepreneurs in conjunction with faculty and staff at UC Riverside at facilities such as CE-CERT. This topic, along with innovative vehicle and fuel technologies identified in SR-6, SR-12 and T-19 could be facilitated by encouraging businesses to locate in areas proximate to CE-CERT by providing various incentives.

## Other Community Co-Benefits

# Measure SR-12: Electric Vehicle Plan and Infrastructure

*Facilitate electric vehicle use by providing necessary infrastructure.*

**2020 GHG Reduction Potential:** 31,811 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 39,705 MT $CO_2e$/yr

SCAG has developed a regional plug-in electric vehicle (PEV) readiness plan, and WRCOG has a similar subregional plan for PEV readiness. Together, these plans identify viable locations for charging stations, changes to development codes, and other strategies to encourage the purchase and use of electric vehicles. PEV chargers are already being installed in the WRCOG subregion. Through these plans and outreach efforts, alternative-fuel vehicles will be promoted as one strategy to reduce GHG emissions associated with passenger vehicles. This measure is anticipated to reduce nearly 82,000 MT CO2e in participating WRCOG jurisdictions by 2020.

For the City of Riverside, this measure would be implemented by providing both public and private charging facilities and also by updating development codes to encourage or facilitate charging stations.

## Local Economic Opportunities

*Synergistic EOAs: Clean Vehicles and Charging/Fueling Stations; Eco Business Zone; Clean-Tech Incubator*

Similar to other regional measures, UC Riverside could be a focus for research into new vehicle and fuel technologies, as discussed in SR-6, SR-11 and T-19. In addition, the need to install charging facilities at locations throughout the City will create a demand for service businesses and persons with the requisite skills. There may be benefit to developing facilities for training persons in the installation and maintenance of these charging stations (similar to training facilities for solar installation).

## Other Community Benefits

## STATE SOLID WASTE MEASURES

The following state measure is expected to reduce GHG emissions associated with the solid waste sector.

### Measure SR-13: Construction & Demolition Waste Diversion

*Meet mandatory requirement to divert 50% of C&D waste from landfills by 2020 and exceed requirement by diverting 75% of C&D waste from landfills by 2035.*

**2020 GHG Reduction Potential:** 1,789 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 4,865 MT $CO_2e$/yr

Recycling construction and demolition materials reduces GHG emissions by removing material from landfills that would otherwise generate methane. Construction and demolition (C&D) debris can include lumber, drywall, metals, masonry, carpet, plastic, and other materials. Buildings that are deconstructed, as opposed to demolished, are carefully disassembled and component parts are recycled or locally repurposed and reused. C&D waste recycling is a component of green building construction as it reduces the need to harvest and transport new raw construction materials in addition to reducing landfill methane emissions from the decomposition of organic components.

Effective July 1, 2014, CALGreen, the state's Green Building Standards Code, requires jurisdictions to divert a minimum of 50% of their nonhazardous C&D waste from landfills. Reductions for the year 2020 assume that 100% of new construction and applicable retrofit projects meet the minimum diversion rates established by the State. For 2035, this measure assumes that C&D waste diversion would increase to 90% for new construction and retrofit projects. This increase is in line with GAP Goal 6.A which aims to develop measures to encourage that a minimum of 90% of recoverable waste from all construction sites be recycled throughout Riverside by 2015, beginning with 40% in 2010 and increasing by 10% each year thereafter.

#### Local Economic Opportunities

*Synergistic EOAs: Waste Reduction and Diversion; Buy and Produce Local Initiative; Green Building Standards*

Increased C&D waste diversion presents opportunities and resources for local businesses that specialize in materials reuse and upcycling. In addition, increased diversion targets would create additional business for new or existing contractors specializing in building deconstruction and other green building practices related to waste management.

## Other Community Co-Benefits

# LOCAL REDUCTION MEASURES

**Table B.3-2** lists the Subregional CAP measures and local measures, providing a breakdown of the GHG reduction potential for each measure.

**Table B.3-2: 2020 and 2035 Reductions from Local Measures**

| Local Measures by Sector | | 2020 Reductions (MT $CO_2e$/yr) | 2035 Reductions (MT $CO_2e$/yr) |
|---|---|---|---|
| E-1 | Traffic and Street Lights | 549 | 4,153 |
| E-2 | Shade Trees | 96 | 841 |
| E-3 | Local Utility Programs – Electricity | 32,197 | 43,491 |
| E-4 | Renewable Energy Production on Public Property | Supporting | Supporting |
| E-5 | UC Riverside Carbon Neutral Program | 32,959 | 32,959 |
| E-6 | Riverside Public Utilities Technology Grants | Supporting | Supporting |
| ***Energy Subtotal*** | | ***65,801*** | ***81,444*** |
| T-1 | Bicycle Infrastructure Improvements | 15,905 | 20,889 |
| T-2 | Bicycle Parking | 2,168 | 2,889 |
| T-3 | End of Trip Facilities | 1,119 | 1,491 |
| T-4 | Promotional Transportation Demand Management | 909 | 1,212 |
| T-5 | Traffic Signal Coordination | 51,693 | 68,754 |
| T-6 | Density | 1,259 | 1,887 |
| T-7 | Mixed-Use Development | 769 | 1,153 |
| T-8 | Pedestrian Only Areas | 1,399 | 1,824 |
| T-9 | Limited Parking Requirements for New Development | 17,482 | 24,757 |
| T-10 | Bus Rapid Transit Services | 1,399 | 2,330 |
| T-11 | Voluntary Transportation Demand Management | 2,185 | 3,095 |

| Local Measures by Sector | | 2020 Reductions (MT $CO_2e$/yr) | 2035 Reductions (MT $CO_2e$/yr) |
|---|---|---|---|
| T-12 | Accelerated Bike Plan Implementation | 3,496 | 4,951 |
| T-13 | Fixed Guideway Transit | - | 13,981 |
| T-14 | Neighborhood Electric Vehicle Programs | 3,496 | 4,660 |
| T-15 | Subsidized Transit | 3,496 | 4,951 |
| T-16 | Bike Share Program | 210 | 280 |
| T-17 | Car Share Program | 2,797 | 3,728 |
| T-18 | SB 743 as Alternative to LOS | 2,028 | 2,703 |
| T-19 | Alternative Fuel and Vehicle Technology and Infrastructure | 5,245 | 6,991 |
| T-20 | Eco-Corridor | Supporting | Supporting |
| ***Transportation Subtotal*** | | ***111,811*** | ***172,526*** |
| W-1 | Water Conservation and Efficiency | 10,748 | 10,748 |
| ***Water Subtotal*** | | ***10,748*** | ***10,748*** |
| SW-1 | Yard Waste Collection | 468 | 1,238 |
| SW-2 | Food Scrap and Paper Diversion | 571 | 9,317 |
| ***Solid Waste Subtotal*** | | ***1,039*** | ***10,555*** |
| A-1 | Local Food and Agriculture | Supporting | Supporting |
| **TOTAL LOCAL ACTION REDUCTIONS** | | **189,399** | **275,273** |

## LOCAL ENERGY MEASURES

The following are local measures that can be implemented to reduce GHG emissions associated with the energy sector.

### Measure E-1: Traffic and Street Lights

*Replace traffic and street lights with high-efficiency bulbs.*

**2020 GHG Reduction Potential:** 549 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 4,153 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP: | Medium |
| Relative Cost Effectiveness: | Medium (Requires grant funding or assistance from RPU, City staff time and promotional materials) |
| Ease of Implementation: | High |
| Responsibility: | Public Works Department, in conjunction with RPU |
| Objectives: | By 2020: Convert 50% of traffic lights and 1% of street lights to high-efficiency bulbs<br>By 2035: Convert 100% of traffic lights and street lights to high-efficiency bulbs |
| Progress Indicators and Metrics: | By 2035: Expect 1.26 million kWh/year in savings from Streetlights and Traffic Signals/Controllers subsector of Local Government GHG Inventory |
| Local Co- Benefits: | Lower energy bills; reduced maintenance costs; generates work for local contractors (green jobs) |
| Alignment with Other City Efforts: | Supports all of the City's energy efficiency goals by reducing energy consumption |

Similar to many household light fixtures, traffic lights are typically illuminated with inefficient incandescent bulbs. Street lights commonly use high-pressure sodium (HPS)

bulbs, which also produce light inefficiently. Newer lighting technology, such as light-emitting diodes (LEDs), last significantly longer than traditional incandescent or HPS bulbs, and use much less energy to perform the same task. The City of Riverside will have replaced 50% of their traffic signals and 1% of their street light fixtures with LEDs or other high-efficiency bulbs by 2020. By 2035 the City estimates that 100% percent of both traffic lights and street lights will have been converted to high-efficiency bulbs. Upgrading these fixtures would both lower municipal utility costs and reduce maintenance costs associated with bulb replacement.

## Local Economic Opportunities

The City can contract with local installers to complete the full retrofit of all fixtures. The City may include a preference in their contract for products of more local manufacturing companies, if available. In addition, the City may consider partnering with UC Riverside to replace outdoor lighting on campus roads and in campus parking lots.

The City may partner with UC Riverside or local green technology firms that are researching and developing new traffic and streetlight technology, and potentially develop a pilot program to be implemented in the potential eco-corridor/green enterprise zone, as further discussed in Measure T-20 and the Economic Prosperity Action Plan.

## Other Community Co-Benefits

# Measure E-2: Shade Trees

*Strategically plant trees at new residential developments to reduce the urban heat island effect.*

**2020 GHG Reduction Potential:** 96 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 841 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP | Low |
| Relative Cost Effectiveness: | Medium (City staff time and promotional materials) |
| Ease of Implementation: | High |
| Responsibility: | Community Development and Public Works Departments in conjunction with RPU |
| Objectives: | By 2020: 6,000 new shade trees shall be planted<br>By 2035: 18,800 additional new shade trees shall be planted |
| Progress Indicators and Metrics: | By 2020: 12,200 new shade trees planted<br>By 2035: 18,800 new shade trees shall be planted representing one tree for every new residential unit built |
| Local Co-Benefits: | Lower energy bills; generates work for local contractors (green jobs) |
| Alignment with Other City Efforts: | GAP Goal 12b to plant at least 3,000 shade trees on private property annually |

Planting additional trees in urban environments has a number of benefits, including lowering peak-load energy demands during the hottest months, enhancing the visual aesthetic of a community, and naturally sequestering carbon dioxide. Properly selected and located shade trees can help keep indoor temperatures low, thereby reducing air conditioner demands and utility costs. Trees can also provide shade for parking lots and other paved areas, reducing the urban heat island effect communitywide. As part of the City's Urban Forestry Program, the Free Shade Tree program offers RPU customers a coupon for the purchase of a qualifying shade tree that can be redeemed at one of

four local nurseries in Riverside. In addition to lower energy costs, RPU customers can also receive a rebate on their energy bill for planting up to five shade trees in a year. As a participant in the WRCOG Subregional CAP, the City has committed to planting one shade tree per new residential unit.

## Local Business Opportunities

The City could expand the Free Tree program to partner with additional local nurseries. The City could leverage its nursery partnerships to increase shade tree education and program promotion from within each nursery.

RPU could share data on energy use with researchers studying the impacts of shade trees on building energy and the urban heat island effect.

## Other Community Co-Benefits

# Measure E-3: Local Utility Programs -Electricity

*Financing and incentives for business and home owners to make energy efficient, renewable energy, and water conservation improvements.*

**2020 GHG Reduction Potential:** 32,197 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 43,491 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Subregional |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP | High |
| Relative Cost Effectiveness: | Medium (City staff time and promotional materials) |
| Ease of Implementation: | Medium |
| Responsibility: | Community Development in conjunction with RPU |
| Objectives: | By 2020: RPU saves 87.2 million kWh/yr<br>By 2035: RPU saves 131.5 million kWh/yr |
| Progress Indicators and Metrics: | Continued implementation of existing RPU programs |
| Local Co-Benefits: | Lower energy and water bills; generates work for local contractors (green jobs) |
| Alignment with Other City Efforts: | Supports state legislative efforts, including SB 1037, AB 2021, and SB 1 |

This measure quantifies the beneficial impacts of the various energy savings programs that Riverside Public Utilities (RPU) provides to its customers. These programs are required as part of SB 1037, but also help RPU achieve its 1% per year reduction by 2020 as required by AB 2021, and support the state's SB1 solar energy commitments. This measure assumes that RPU continues to reduce its energy use by 1% per year through 2035. RPU offers a selection of rebates and other incentives to assist property owners (residential and commercial) with the installation of energy- and water-saving products. The following list provides a sample of RPU programs currently offered:

- Domestic Time-of-Use Tiered Rate Plan: Offers special rates for customers who manage their energy use by switching some uses to off-peak hours.

- Whole House Rebate Program: Rebate increase for customers participating in two or more energy and/or water efficiency programs; up to 250% of listed rebate for maximum participation.
- ENERGY STARTM Appliances and Devices: Rebates for purchasing Energy Star refrigerators, AC units, dishwashers, clothes washer, ceiling fans, and televisions.
- Residential Photovoltaic Rebate Program: Provides financial incentives to RPU electric customers who purchase and install photovoltaic systems.
- Tree Power Rebates: Credited towards utility bill for planting up to five trees per year.
- Weatherization: Rebates are available for attic and exterior wall insulation, whole house fans, attic fans (solar and electric), duct insulation and sealing, window film, and Cool Roof coatings or products.
- Pool & Spa Pump Rebate: Installing qualifying multi-flow or variable-speed pool pumps with appropriate controllers (two speed pumps do not qualify) on in-ground pools or spas.
- Pool Pump Billing Credit: Five dollar ($5) credit towards bill for using pool pump during off-peak hours.
- Air Conditioning Incentives: Rebates to residential customers for installation of new high energy-efficient air conditioning systems or heat pumps, or replace old units.
- Energy Audit Tool: Online audit tool for residential or commercial RPU customers.
- Lighting Retrofit Outreach: Promotes installation of high efficiency light bulbs.
- Green Power Premium: Helps RPU purchase renewable energy.
- Direct Install: Helps small business customers lower their utility bills by installing energy and water efficiency upgrades at low or no cost.
- Lighting Rebate: Incentives for commercial customers who replace older, inefficient lighting with the most energy-efficient fixtures; includes daylighting and occupancy sensors, along with solar tubes and sky lighting

RPU has entered into a Master Inter-Utility Agreement (Agreement) with the Southern California Gas Company to jointly undertake various programs aimed at reducing natural gas, water, and electricity usage by customers who use both utilities' services. The Agreement provides a method for a collective approach to energy efficiency and resource savings and allows for more effective and efficient program implementation. Under the Agreement, new programs may arise for customers in the joint service territory that would increase energy savings while dividing and reducing the cost of program implementation and marketing for both utilities.

## Local Economic Opportunities

*Synergistic EOAs: Energy and Water Upgrades for Home or Business; Eco Business Zone*

The programs offered by RPU generate business for local retailers and contractors who supply and install the various energy efficient fixtures that are covered under RPU's rebates. Several of the rebates offered by RPU can only be redeemed at local businesses. The City can leverage relationships with local contractors to promote program participation. As more efficient technologies continue to develop, RPU can create new programs to incentivize their installation.

## Other Community Co-Benefits

# Measure E-4: Renewable Energy Production on Public Property

*Large scale renewable energy installation on publicly owned property and in public rights of way.*

**2020 GHG Reduction Potential:** Supporting Measure

**2035 GHG Reduction Potential:** Supporting Measure

| | |
|---|---|
| WRCOG Participation Level: | NA |
| Implementation Status: | Within 2-3 years |
| Synergy with RRG-EPAP: | High |
| Relative Cost Effectiveness: | Medium |
| Ease of Implementation: | Medium |
| Responsibility: | Public Works and RPU |
| Objectives: | By 2020: Complete feasibility study<br>By 2035: Install priority projects identified in feasibility study |
| Progress Indicators and Metrics: | Number of feasibility/pilot studies and projects implemented per year |
| Local Co-Benefits: | Increase public health; creates research and development and local business opportunities |
| Alignment with Other City Efforts: | Supports GAP Goal 1 to increase use of clean energy to 50% by 2020 and Goal 3 to install at least 20 MW solar PV by 2020 |

This measure encourages the City to seek opportunities to install renewable energy projects on public property, public facilities and in public rights of way. Projects could include solar photovoltaic projects, wind energy, and other emerging energy generation technologies. These projects could include large scale installations on land that the City owns that cannot be used for other purposes, or small scale (and even temporary) installations, such as solar powered trash cans, solar powered lighting, and small scale wind turbines.

The City should work with RPU to complete a feasibility study that identifies opportunities to install both large and small scale renewable energy projects on public property, public facilities and in the public right of way. The study should also identify partners in the community that are developing more advanced large and small scale renewable energy systems that could be installed as a pilot project. The Study should identify priority projects that the City could implement by 2020, and additional projects to implement by 2050, that would contribute to the City's GHG reduction.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

The City could partner with UC Riverside or green technology firms seeking to research and develop new renewable energy generating technologies. The City could partner on various pilot projects and focus efforts in the proposed eco-corridor/green enterprise zone(s) (see Measure T-20), where installed technologies could be accompanied by informational signs to explain the technology and its benefits to those interested.

## Other Community Co-Benefits

# Measure E-5: UCR Carbon Neutrality

*Collaborate with UCR to achieve a carbon neutral campus.*

**2020 GHG Reduction Potential:** 32,959

**2035 GHG Reduction Potential:** 32,959

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP: | High |
| Relative Cost Effectiveness: | Medium |
| Ease of Implementation: | Medium |
| Responsibility: | UCR and RPU |
| Objectives: | By 2025: Achieve a carbon neutral campus<br>By 2035: Maintain a carbon neutral campus |
| Progress Indicators and Metrics: | Number of feasibility/pilot studies and projects implemented since 2007 |
| Local Co-Benefits: | Increase public health; improve air quality; lowers energy bills; creates research and development and local business opportunities |
| Alignment with Other City Efforts: | Supports GAP Goal 1 to increase use of clean energy to 50% by 2020 and Goal 3 to install at least 20 MW solar PV by 2020 |

In 2007, the Chancellor of UCSF signed the American College and University President's Climate Commitment (ACUPCC) to complete an emissions inventory, set target dates and interim milestones for becoming climate-neutral, take steps to reduce GHG emissions, and prepare public progress reports. As an intermediate target, UCOP established the goals of reducing GHG emissions to 2000 levels by 2014; 1990 levels by 2020; and achieving climate neutrality as soon as possible after reaching the 2014 and 2020 reduction targets. More recently, UCR committed to achieving climate neutrality by the year 2025. These goals pertain to Scope 1 and Scope 2 emissions of the six Kyoto greenhouse gases originating from sources specified in the ACUPCC, as well as Scope 3 emissions from business airline travel and commuting by UCSF staff and students. The Regents' policy specifies that these goals will be pursued while maintaining the primary research and education mission of the University.

This measure encourages RPU and the City of Riverside to collaborate with UCR to achieve their carbon neutrality goals. RPU and UCR are partnering on a number of projects to advance clean energy technology and low-carbon solutions including polymer-zeolite nanocomposite high-temperate proton-exchange-membrane (PEM) for Fuel Cells; the control of NOx (nitrogen oxides), Sox (sulfur oxides), and particulate matter in biological filters; Southern California –Research Institute for Solar Energy; and clean automated electric power, heating and cooling from urban waste.

This is considered a supporting measure until the University's carbon neutrality goals can be more specifically defined with respect to energy savings.

## Local Economic Opportunities

*Synergistic EOAs: RPU Clean Technology Funding; Clean-Tech Incubator*

The City can partner with UC Riverside to achieve carbon neutrality, by implementing new technologies as pilot studies and showcasing successes to other institutions and businesses interested in reducing their carbon footprint. Possible joint activities identified at the Green Leadership Conference in February 2014 include the creation of an eco-corridor or green enterprise zone adjacent to the UCR campus (see Measure T-20); mobile solar on vacant city lands (see Measure E-4); waste to energy for converting organic waste into biogas; pilot on-site water retention and treatment at UCR; and simply continuing to partner and host innovative conferences and seminars.

## Other Community Co-Benefits

# Measure E-6: RPU Technology Grants

*RPU grant programs to foster research, development and demonstration of innovative solutions to energy problems.*

**2020 GHG Reduction Potential:** Supporting Measure

**2035 GHG Reduction Potential:** Supporting Measure

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP: | High |
| Relative Cost Effectiveness: | Medium |
| Ease of Implementation: | High |
| Responsibility: | RPU |
| Objectives: | By 2020: N/A<br>By 2035: N/A |
| Progress Indicators and Metrics: | Number of grants issued since 2007 |
| Local Co-Benefits: | Creates research and development and local business opportunities |
| Alignment with Other City Efforts: | Supports and implements energy policies and programs outlined in the Seizing Our Destiny report. |

RPU offers energy technology grant programs to help foster the development of innovative solutions to energy problems. The Custom Energy Technology Grant is available for small business customers to fund the research, development, and demonstration of innovative energy technologies that are unique to that particular business or industry's specific manufacturing techniques or processes. Another program, the Energy Innovations Grant, is available for post-secondary institutions focusing on the science and technology advancements in the energy sector.

Targeted research areas include:

- Building end-use efficiency
- Environmentally preferred advanced generation
- Renewables generation
- Energy-related environmental research
- Strategic energy research

- Electric transportation

This is considered a supporting measure until the resulting technologies and advancements in the energy sector that result from these grants can be more specifically defined with respect to energy savings and GHG reduction potential.

## Local Economic Opportunities

*Synergistic EOAs: Energy and Water Upgrades for Home or Business; Clean-Tech Incubator ; Eco Business Zone; Global Markets*

This measure is included as one of the ten EOAs in the RRG-EPAP. These grant programs are another resource to attract businesses in the "green" fields to the City. This measure could be part of an incentive package available as part of a potential eco-corridor/green enterprise zone, as further discussed in Measure T-20 and the RRG-EPAP.

## Other Community Co-Benefits

## LOCAL TRANSPORTATION MEASURES

The following are local measures that can be implemented to reduce GHG emissions associated with the transportation sector.

### Measure T-1: Bicycle Infrastructure Improvements

*Expand on-street and off-street bicycle infrastructure, including bicycle lanes and bicycle trails.*

**2020 GHG Reduction Potential:** 15,905 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 20,839 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP: | Medium |
| Relative Cost Effectiveness: | Medium ($200,000 at 2020 for maintaining additional bicycle facilities. Total capital cost for the full completion of the City's Bicycle Master Plan is approximately $30M. Pro-rata share of City's Bicycle Master Plan would therefore be $15M) |
| Ease of Implementation: | Medium |
| Responsibility: | Community Development and Public Works Departments |
| Objectives: | By 2020: Achieve a 50% increase in bicycle lane mileage from baseline levels.<br>By 2035: Achieve a 75% increase in bicycle lane mileage from baseline levels. |
| Progress Indicators and Metrics: | Percent increase in bicycle lane mileage from 2010 baseline |
| Local Co-Benefits: | Health, recreation and mobility benefits; improved air quality; generates work for local contractors |
| Alignment with Other City Efforts: | Bicycle Master Plan; Draft city-wide bicycle design guidelines; consistent with regional Active Transportation Programs and SCAG's RTP/SCS. |

By providing more bicycle lanes and better connections between existing bicycle lanes, Riverside can increase the viability of bicycling as an emission-free commute option. Several WRCOG jurisdictions have adopted or are preparing bicycle master

plans. Implementing these plans will increase alternative transportation options in the sub-region and can reduce vehicle miles traveled and congestion for vehicles. Community health benefits from increased bicycling include improved air quality and exercise.

The City of Riverside completed a Bicycle Master Plan in 2007 and has been implementing the Plan's recommendations. As an example, City recently completed a "green" or painted bike lane in the Downtown area. Given the City's terrain and climate, there are significant opportunities to encourage cycling by residents, visitors, and employees.

## Local Economic Opportunities

*Synergistic EOAs: Expand Bicycle Infrastructure; Eco Business Zone*

One significant opportunity in the City would be the creation of a bike friendly district, such as was done in the City of Long Beach. This bike friendly district would have extensive bicycle facilities, bike shops, and business which support cycling. For example, businesses could specifically advertise that they allow for bicycles to park at the business. This bike friendly district would also create additional foot traffic, which would be conducive to more having more patrons at restaurants, café's, and shops. One likely application would be in the Downtown, where a nexus of bicycle facilities and supportive land uses could be easily achieved.

## Other Community Co-Benefits

# Measure T-2: Bicycle Parking

*Provide additional options for bicycle parking.*

**2020 GHG Reduction Potential:** 2,168 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 2,889 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Synergy with RRG-EPAP: | Low |
| Relative Cost Effectiveness: | High (Cost for bicycle parking facilities assumed to be associated with private development that would install the bicycle parking is sites develop or redevelop) |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division |
| Objectives: | By 2020: Amend zoning to require provision of bike parking for all multi-family or mixed-use projects consisting of a mix of residential, retail, and office space. |
| Progress Indicators and Metrics: | Number of new bike parking spaces added since 2010. |
| Local Co-Benefits: | Health, recreation, and mobility benefits; improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; Draft city-wide bicycle design guidelines. |

Safe and convenient bicycle parking is a relatively low-cost action that leads to a demonstrated shift from automobile use to bicycle use. Helping business owners understand the potential benefits of bicycle parking and requiring new development projects to include bike racks as a condition of approval can facilitate implementation of this measure.

The City is current developing Citywide Bicycle Design Guidelines, which will address bicycle parking as sites develop and redevelop.

## Local Economic Opportunities

*Synergistic EOAs: Expand Bicycle Infrastructure; Green Building Standards; Eco Business Zone*

Bicycle parking would provide many of the same benefits as with T-1. Ample bike parking allows bicyclists to park their bikes in public area, providing them with opportunities to patronize nearby businesses.

## Other Community Co-Benefits

# Measure T-3: End of Trip Facilities

*Encourage use of non-motorized transportation modes by providing appropriate facilities and amenities for commuters.*

**2020 GHG Reduction Potential:** 1,119 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,491 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | High (Limited cost to the City since any incremental costs associated with these facilities would be related to the development or redevelopment of individual sites) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Public Works Department; Community Development Department, Planning Division |
| Objectives: | By 2020: Amend zoning code to require installation of end-of-trip facilities for new commercial buildings greater than 50,000 square feet. |
| Progress Indicators and Metrics: | Number of development projects installing end-of-trip facilities since 2010 |
| Local Co-Benefits: | Health, recreation, and mobility benefits; improved air quality; generates work for local contractors |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; Draft city-wide bicycle design guidelines |

End-of-trip commuter facilities further incentivize alternative transportation modes, such as walking and biking. Within the City of Riverside, this measure would require larger commercial buildings (new construction only) to provide end of trip facilities including showers, changing areas and bicycle storage, which will encourage persons to walk and bike to their employment locations.

## Local Economic Opportunities

*Synergistic EOAs: Expand Bicycle Infrastructure; Green Building Standards; Eco Business Zone*

This measure may generate work for local contractors who would be required to install these facilities into new commercial buildings and local businesses who want to manufacture such products.

## Other Community Co-Benefits

# Measure T-4: Promotional Transportation Demand Management

*Encourage Transportation Demand Management strategies.*

**2020 GHG Reduction Potential:** 909 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,212 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Silver |
| Implementation Status: | In Progress |
| Relative Cost Effectiveness: | High ($35,000 based on the likelihood that an existing staff member would be assigned this task in lieu of existing duties. This cost may also cover some additional costs to the City related to publications, materials, and other promotional activities. Approximately $25,000 would reflect offsetting staff costs and another $10,000 would be for promotional materials) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division and Public Works |
| Objective: | By 2020: Train an existing staff person to promote TDM strategies to existing businesses. |
| Progress Indicators and Metrics: | Number of jurisdictions with full-time or part-time staff promoting TDM programs to be established through an annual survey conducted by WRCOG. |
| Local Co-Benefits: | Health, recreation, and mobility benefits; improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; consistent with SCAG's RTP/SCS. |

Transportation demand management (TDM) describes strategies to reduce demand for roadway travel, particularly in single-occupancy vehicles. TDM strategies can include both "carrot" and "stick" approaches to change travel behavior patterns. Specific examples include preferential parking for carpoolers and parking pricing.

While SCAG offers regional approaches such as high-occupancy vehicle lanes, this measure focuses on efforts by individual existing business owners in the WRCOG sub-region to develop TDM strategies, such as parking "cash out" programs and allowing telecommuting. Several TDM strategies can be offered; often, multiple programs can enhance one another rather than being redundant. In addition to reducing GHG emissions, TDM strategies often ease congestion and improve air quality.

Although TDM strategies have application within the larger region, this measure would focus on City actions needed to support TDM within private businesses. Chapter 19.880 of the City's Municipal Code includes regulations for TDM. Trip reduction plans to reduce work-related vehicle trips by six and one-half percent from the number of trips related to the project are required for all new developments or businesses generating one hundred or more employees. A combination of strategies may be included in the plan to achieve the required vehicle reduction targets including but not limited to, alternative work schedules/flex-time; preferential parking for carpool vehicles; rideshare vehicle loading areas; vanpool vehicle accessibility; bus stop improvements; on-site child care facilities; and on-site amenities such as cafeterias, restaurants, automated teller machines and other services that would eliminate the need for additional trips, etc. The City would designate and train a staff person to proactively market these TDM strategies and ensure enforcement of the Municipal Code, particularly at larger businesses where these strategies are the most effective. There would be limited applicability of this measure to employment centers such as UC Riverside where TDM measures are already applied.

## Local Business Opportunities

*Synergistic EOA: Eco Business Zone*

There are limited local business opportunities related to this measure.

## Community Benefits

# Measure T-5: Traffic Signal Coordination

*Incorporate technology to synchronize and coordinate traffic signals along local arterials.*

**2020 GHG Reduction Potential:** 51,693 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 68,754 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | Medium (Annual cost to the City may be as much as $1M per year. City 2011-2015/2016 CIP has allocated approximately $600,000 for traffic signal coordination and maintenance. With additional signals coordinated throughout the City, there will be a greater need to maintain the system) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | Medium |
| Responsibility: | Public Works Department |
| Objective(s): | By 2020: Achieve a 75% increase in arterials roads that have coordinated traffic signals.<br>By 2035: Achieve a 90% increase in arterials roads that have coordinated traffic signals. |
| Progress Indicators and Metrics: | Percentage of arterial roads with signal coordination from 2010 baseline. |
| Local Co-Benefits: | Increased mobility; improved air quality |
| Alignment with Other City Efforts: | N/A |

Traffic signal coordination describes a method of timing groups of traffic signals along an arterial to provide smooth movement of traffic with minimal stops. This technique reduces motorist stops and delays, lowers the amount of fuel need to move a certain distance, and reduces GHG emissions. Signal coordination also lessens congestion and resulting tail pipe emissions, which reduces GHG emissions and improves air quality.

The City of Riverside has an extensive traffic management system which includes coordination along major corridors, video cameras, and an integrated traffic management center in City Hall.

## Local Economic Opportunities

As the City extends traffic signal coordination to additional roadways, there are significant opportunities for local contractors, particularly those who are experienced in these types of projects. Retrofitting an existing corridor to accommodate signal coordination can sometimes require excavating work, installing conduit, repairing sidewalks as necessary, and installing items like cameras and traffic signal controllers. Given the work required, large scale signal coordination projects often have budgets in the hundreds of thousands or even millions of dollars. Local contractors could bid on these projects, which would benefit the City economy and its residents directly.

## Other Community Co-Benefits

# Measure T-6: Density

*Improve jobs-housing balance and reduce vehicle miles traveled by increasing household and employment densities.*

**2020 GHG Reduction Potential:** 1,259 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,887 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status: | 2015 |
| Relative Cost Effectiveness: | High (Cost to the City would only accrue when supporting documents such as the General Plan, Development Code, etc.) are updated or modified) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division; Economic Development Department |
| Objective(s): | By 2020: Achieve a 10% increase in community-wide household and employment density over baseline conditions.<br>By 2035: Achieve a 15% increase in community-wide household and employment density over baseline conditions. |
| Progress Indicators and Metrics: | Percentage change in community-wide household and employment density from 2010 baseline. |
| Local Co-benefits: | Increased health and mobility; improved air quality. |
| Alignment with other City efforts: | GAP Goal10A to apply urban planning principles that encourage high density, mixed-use, walkable/bikeable neighborhoods; GAP Goal 14 to decrease VMT; General Plan 2025; Specific Plan and Zoning Code updates; consistent with SCAG's RTP/SCS. |

Density describes the number of people, jobs, or housing units in a given area. Increasing density generally results in shorter distances between locations, making transit and non-motorized transportation options such as walking and biking more

viable. GHG emissions associated with vehicle miles traveled (VMT) are reduced as more individuals choose alternative transportation modes. Increases in density must generally fit within assumptions of a jurisdiction's General Plan, although amendments can be made to increase density in certain areas.

The City is undergoing a specific plan and Zoning Code update with the goal of re-envisioning much of the commercial, office and industrial zoned properties throughout the City that encompasses nearly 20% of the City area. As part of this effort, the City may create incentives for higher-density development, particularly along major transit corridors.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

There may be opportunities for local contractors, who would be involved in the higher density development that may be envisioned as part of the specific plan and Zoning Code updates; though these contractors would likely be involved in new construction regardless of this measure.

## Other Community Co-Benefits

# Measure T-7: Mixed-Use Development

*Provide for a variety of development types and uses.*

**2020 GHG Reduction Potential:** 769 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,153 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Silver |
| Implementation Status: | In progress |
| Relative Cost Effectiveness | High (Cost to the City would only accrue when supporting documents such as the General Plan, Development Code, etc. are updated or modified) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division |
| Objectives: | By 2020: Achieve a 5% improvement in the jobs/housing ratio over baseline conditions.<br>By 2035: Achieve a 10% improvement in the jobs/housing ratio over baseline conditions. |
| Progress Indicators and Metrics: | Percentage change in jobs/housing ratio within new development areas from 2010 baseline. |
| Local Co-Benefits: | Increased health and mobility; improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; GAP Goal 10A encourage high density, mixed-use, walkable/bikeable neighborhoods; General Plan 2025; Specific Plan and Zoning Code updates; consistent with SCAG's RTP/SCS. |

Development can occur in many forms, ranging from single-family homes on large plots of land to multi-family housing with high vertical construction for residential areas, and single-use to multi-use zoning for commercial properties. While land development choices are typically made at the household or business level, recent studies show that individuals are more frequently demanding higher-density, multi-use regions that are more walkable. Most WRCOG jurisdictions have identified portions of their communities where future higher-density development is desirable. Such development reduces both

VMT and GHGs, as individuals can accomplish many tasks in a single mixed-use area. This also can improve community health by encouraging bicycling and walking, improve air quality by reducing tailpipe emissions, and increase the community's sense of place.

For the WRCOG subregion, mixed-use development is classified as having at least three of the following features either on-site or within ¼ mile:

- Residential development;
- Retail development;
- Park;
- Open space; or
- Office.

Within the City of Riverside, there are significant opportunities for mixed-use, particularly within the Downtown Core area. There is already a mix of retail, housing, and office within the Downtown and additional mixed-use development will only improve the current mix of uses.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

There may be opportunities for local contractors, who would be involved in the construction of these buildings; though these contractors would likely be involved in new construction regardless of this measure.

## Other Community Co-Benefits

# Measure T-8: Pedestrian-Only Areas

*Encourage walking by providing pedestrian-only community areas.*

**2020 GHG Reduction Potential:** 1,399 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,824 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Relative Cost Effectiveness | Low (Cost associated with this measure would be for any additional maintenance and other services (police, cleaning, etc.) |
| Synergy with RRG-EPAP: | Medium |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division |
| Objectives: | By 2020: Designate one additional major activity center as permanent pedestrian-only area.<br>By 2035: Designate one additional major activity center as permanent pedestrian-only area |
| Progress Indicators and Metrics: | Change in the number of temporary or permanent pedestrian-only zones from 2010 baseline. |
| Local Co-Benefits: | Increased health, recreational, and mobility; improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; General Plan 2025; Specific Plan and Zoning Code updates. |

Also referred to as an urban non-motorized zone, a pedestrian-only area restricts certain portions of a central business district or major activity center to non-motorized transportation.

There is one current pedestrian only zone in the City, which is located in the Downtown. The City could choose to expand this area or designate another area in the City to operate as a pedestrian only area.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

An additional or expanded pedestrian only area could create opportunities for local businesses who provide food, drink, and shopping. The current pedestrian only area in the Downtown is next to numerous restaurants and shops which are heavily patronized by the employees, visitors, and residents. Pedestrian only areas could be prioritized within the proposed eco-corridor/green enterprise zone.

## Other Community Co-Benefits

# Measure T-9: Limit Parking Requirements for New Development

*Reduce requirements for vehicle parking in new development projects.*

**2020 GHG Reduction Potential:** 17,482 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 24,757 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In Progress |
| Relative Cost Effectiveness: | High (Cost to the City would only accrue when parking code requirements in the Municipal Code are updated. Absent cost associated with this update, no incremental cost would accrue to the City) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division |
| Objectives: | By 2020: Amend zoning to reduce parking requirements by 25% for non-residential development.<br>By 2035: Amend zoning to reduce parking requirements by 33% for non-residential development. |
| Progress Indicators and Metrics: | Change in the number of WRCOG jurisdictions who have amended their parking requirements to reduce parking spaces required within new development or redevelopment areas from 2010 baseline. |
| Local Co-Benefits: | Increased health and mobility; improved air quality. |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; Specific Plan and Zoning Code updates. |

Limiting parking requirements for new development in certain areas may encourage alternative individual transportation choices, but caution should be taken to minimize

the resulting incentive to travel to more distant locations with plenty of parking. This can be accomplished by:

- Eliminating (or reducing) minimum parking requirements;
- Creating maximum parking requirements; and
- Implementing shared parking.

Limiting parking requirements would encourage modes of transportation other than single-occupancy vehicles, thereby reducing VMT and GHG emissions. If these alternative transportation modes include walking and biking, mobility and health benefits would also be realized.

The City's current Zoning Code authorizes a reduction in the number of required parking spaces for mixed-use development and/or stand-alone uses in mixed-use zones subject to the approval of a shared parking arrangement. In addition, the Zoning Administrator may grant a mixed-use parking reduction credit of up to 15 percent of the total required number of spaces where there are multiple uses in a complex with different operating characteristics, such as day time office and nighttime commercial entertainment oriented uses. Another factor in favor of granting a credit is proximity to a transit stop.

The City's future specific plan and Zoning Code updates will provide an opportunity for the City to comprehensively review its parking requirements and further incorporate state of the art techniques such as shared parking, parking cash out, and other specific strategies.

## Local Economic Opportunities

*Synergistic EOAs: Green Building Standards; Eco Business Zone*

Reducing parking requirements, particularly if it is tailored to specific areas within the City, has the potential to incentivize certain types or forms of development within sub-areas of the City. For example, this strategy is likely to be most effective in the more dense areas of the City such as the Downtown Core. Local land owners and developers within these areas could benefit as a reduction in parking requirements will reduce cost of development by reducing the need to provide parking areas on site. Additionally, land may be freed up for buildings as the City reduces parking requirements.

## Other Community Co-Benefits

# Measure T-10: High Frequency Transit Service

*Implement bus rapid transit service in the subregion to provide alternative transportation options.*

**2020 GHG Reduction Potential:** 1,399 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 2,330 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status: | 2016 |
| Relative Cost Effectiveness: | N/A- Any incremental cost associated with this measure would accrue to RTA as the transit operator. |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | High |
| Responsibility: | Public Works Department in conjunction with RTA |
| Objectives: | By 2020: Work with RTA to offer high frequency transit service within one (1) corridor.<br>By 2035: Work with RTA to offer high frequency transit service within two (2) corridors. |
| Progress Indicators and Metrics: | Number of corridors in which high frequency transit service has been implemented since 2010 baseline. |
| Local Co-Benefits: | Increased mobility and improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; GAP Goal 14 to decrease VMT; General Plan 2025; Specific Plan and Zoning Code updates; consistent with SCAG's RTP/SCS and Statewide Cap & Trade program. |

The WRCOG subregion is one of the fastest growing areas in California. As more residents and employees occupy the area, there will be increased need to move people efficiently in and out of the area. A high frequency transit system such as bus rapid transit (BRT) would provide an alternative to constructing more roadways and allow commuters and residents additional transportation options. Jurisdictions participating in this measure have an objective to work with RTA to identify corridors where BRT service would provide an effective and logical transportation option.

The City of Riverside has several corridors where BRT service could be implemented including University Avenue and Magnolia Avenue. As these corridors may be prioritized for the proposed Streetcar, BRT could represent either an interim solution prior to the construction of the Streetcar or as a complement to the Streetcar.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

The implementation of BRT along selected corridors within the City could serve as a way to direct future development to areas which have higher densities and supporting non-motorized facilities (sidewalks and bike lanes). Landowners along these corridors may see an increase in value and there may be opportunities for developers to redevelop parcels to transit supportive uses such as offices and multi-family housing.

## Other Community Co-Benefits

# Measure T-11: Voluntary Transportation Demand Management

*Encourage employers to create TDM programs for their employers.*

**2020 GHG Reduction Potential:** 2,185 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 3,095 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status: | Ongoing |
| Relative Cost Effectiveness: | N/A - Any additional costs associated with this measure would accrue to building owners, building operators, and other private parties |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division |
| Objectives: | By 2020: 25% of employees within the City participate in voluntary TDM programs.<br>By 2035: 33% of employees within the City participate in voluntary TDM programs. |
| Progress Indicators and Metrics: | Percent change in the number of employees participating in voluntary TDM programs since 2010. |
| Local Co-Benefits: | Increased health and mobility; improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT |

TDM describes strategies to reduce demand for roadway travel, particularly in single-occupancy vehicles. TDM strategies can include both "carrot" and "stick" approaches to change travel behavior patterns. Specific examples include preferential parking for carpoolers and parking pricing.

While SCAG offers regional approaches such as high-occupancy vehicle lanes, this measure focuses on efforts by individual existing business owners in the WRCOG subregion to develop TDM strategies, such as parking "cash out" programs and allowing telecommuting. Several TDM strategies can be offered; often, multiple programs can enhance one other rather than being redundant. In addition to reducing GHG emissions, TDM strategies often ease congestion and improve air quality.

Within the City of Riverside, these strategies would be applied by individual employers in conjunction with Measure T-4 (Promotional TDM). Larger employers would be encouraged to offer TDM programs to their employees. The City would act as a resource for local businesses who may need technical assistance, example programs, and other related items.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

There limited local business opportunities related to this measure.

## Other Community Co-Benefits

# Measure T-12: Accelerated Bike Plan Implementation

*Accelerate the implementation of all or specified components of a jurisdiction's adopted bike plan.*

**2020 GHG Reduction Potential:** 3,496 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 4,951 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | Medium - $100,000 at 2020 for maintaining additional bicycle facilities beyond Measure T-1. Total capital cost for the full completion of the City's Bicycle Master Plan is approximately $30M. Pro-rata share of City's Bicycle Master Plan would therefore be $7.5M. |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | Medium |
| Responsibility: | Community Development and Public Works Departments |
| Objectives: | By 2020: 75% of all bike facility miles identified in the City's Bike Plan shall be installed<br>By 2035: 100% of all bike facility miles identified in the City's Bike Plan shall be installed |
| Progress Indicators and Metrics: | Percent change in the number of bicycle facility miles installed since 2010. |
| Local Co-Benefits: | Increased health, recreation and mobility; improved air quality |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; Bicycle Master Plan; Draft city-wide bike design guidelines; consistent with regional Active Transportation Program and SCAG's RTP/SCS. |

Several jurisdictions within WRCOG are currently implementing existing Bicycle Master Plans and/or Trails Plans. These plans outline a series of on-street and off-street facilities to increase bicycle use within the community. This measure addresses accelerated implementation of these Master Plans to provide additional facilities by 2020 beyond those identified in Measure T-1.

The City is currently implementing their bicycle plan, as described in Measure T-1. One recent implementation action was to designate "green" bicycle lanes along Brockton Avenue in the Downtown.

## Local Economic Opportunities

*Synergistic EOAs: Expand Bicycle Infrastructure; Eco Business Zone*

The primary economic benefit would occur through the creation of a Bicycle Friendly District as noted in T-1.

## Other Community Co-Benefits

# Measure T-13: Fixed Guideway Transit

*By 2020, complete feasibility study and by 2025 Introduce a fixed-route transit service in the jurisdiction.*

**2020 GHG Reduction Potential:** 0 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 13,981 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | Low - Feasibility study assumed to be complete by 2020. No additional expenses assumed until fixed-guideway system is operational. |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | Low |
| Responsibility: | Community Development and Public Works Departments |
| Objectives: | By 2020: Complete feasibility study for a fixed-guideway system.<br>By 2035: Implement a fixed-guideway transit system |
| Progress Indicators and Metrics: | Annual community-wide fixed guideway transit ridership. |
| Local Co-Benefits: | Increased health and mobility; economic opportunities |
| Alignment with Other City Efforts: | Riverside Reconnects Streetcar Feasibility Study; GAP Goal 14 to decrease VMT; consistent with SCAG's RTP/SCS and the statewide Cap & Trade program. |

This measure applies specifically to the City of Riverside's efforts on the "Riverside Reconnects" Streetcar feasibility study that would determine the economic feasibility of a future Streetcar alignment. This Streetcar would provide fixed-route transit service through the City of Riverside, providing access to major destinations such as the University of California, Riverside, Downtown Riverside, and other major destinations throughout the city. The City would plan, design, construct, and operate the streetcar.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

There are significant local business opportunities related to the Streetcar. Streetcars have a demonstrated history of increasing land values along parcels adjacent to the lines. That increase in value often occurs concurrent with additional development and redevelopment, as with other communities where Streetcars have implemented. Similar to other measures, the Streetcar provides the ability for the City to direct growth to areas of the City with existing infrastructure.

## Other Community Co-Benefits

# Measure T-14: Neighborhood Electric Vehicle Programs

*Implement development requirements to accommodate Neighborhood Electric Vehicles and supporting infrastructure.*

**2020 GHG Reduction Potential:** 3,496 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 4,660 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status | In progress |
| Relative Cost Effectiveness: | Medium ($100,000- Based on cost for additional signage and education program, which might require additional staff resources or retasking of existing staff) |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | Medium |
| Responsibility: | Community Development and Public Works Departments |
| Objectives: | By 2020: Adopt a comprehensive NEV program including signage for NEVs and an educational program related to NEV use.<br>By 2035: Adopt a comprehensive NEV program including signage for NEVs and an educational program related to NEV use. |
| Progress Indicators and Metrics: | Implementation of NEV program |
| Local Co-Benefits: | Increased mobility and improved air quality |
| Alignment with Other City Efforts: | Four City Electric Vehicle Plan; GAP Goal 14 to decrease VMT |

Neighborhood electric vehicles (NEVs) emit fewer GHGs than traditional passenger vehicles and reduce local air pollution. NEVs generally are used in areas with speed limits of 35 miles per hour or less for relatively short (less than 30 miles) trips. This measure

introduces development requirements for signage and educational programs related to the use of NEVs consistent with state regulations.

Within the City of Riverside, NEV's can address short-distance trips, which may be difficult to complete by walking or biking. Therefore, NEV's would be a complement to the Streetcar, the BRT, or other strategies which additional connectivity is required and the use of a personal automobile would be problematic or otherwise undesirable.

## Local Economic Opportunities

*Synergistic EOAs: Clean Vehicles and Charging/Fueling Stations; RPU Clean Technology Funding; Eco Business Zone*

The local business opportunity associated with this measure would likely occur at facilities where NEV's may park or otherwise congregate. For example, if the City were to install NEV charging stations or parking lots, those facilities could attract a high level of foot traffic. This level of foot traffic could then support restaurants, cafes, and shops similar to other strategies such as T-1.

## Other Community Co-Benefits

# Measure T-15: Subsidized Transit

*Increase access to transit by providing free or reduced passes.*

**2020 GHG Reduction Potential:** 3,496 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 4,951 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Platinum |
| Implementation Status: | In Progress |
| Relative Cost Effectiveness: | Low ($1M per year, assuming expansion of passes beyond those already offered to students at locations such as UCR) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | RTA, UCR and City |
| Objectives: | By 2020: Provide subsidized or discounted transit passes to 2% of residents, students, and employees living, working or going to school in the community.<br>By 2035: Provide subsidized or discounted transit passes to 2.5% of residents, students, and employees living, working or going to school in the community |
| Progress Indicators and Metrics: | Change in the number of discounted transit passes provided per total residents, students and employees living, working, or going to school in Riverside since 2010. |
| Local Co-Benefits: | Increased mobility and improved air quality |
| Alignment with other City efforts: | Riverside Go-Transit Bus Pass Subsidy Program; City-Pass Program; GAP Goal 14 to decrease VMT |

One approach to increase transit use within a jurisdiction is lowering the cost of using transit. Within Western Riverside County, the typical approach has been to provide reduced cost transit passes such as those provided by several universities. This approach is generally targeted at groups such as students or seniors who may lack access to vehicles.

Within the City of Riverside, the primary recipients of discounted transit passes currently are students and staff at UC Riverside, who are able to ride RTA buses to and from campus for free.

## Local Economic Opportunities

*Synergistic EOA: Eco Business Zone*

There limited local business opportunities related to this measure.

## Other Community Co-Benefits

# Measure T-16: Bike Share Program

*Create nodes offering bike sharing at key locations throughout the City.*

**2020 GHG Reduction Potential:** 210 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 280 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | 2015 |
| Relative Cost Effectiveness: | Medium (Based on assumption that private vendor operates bike share as turnkey operation, as is done with other larger cities currently) |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | Low |
| Responsibility: | Community Development Department, Planning Division |
| Objectives: | 2020: Complete pilot study for bike sharing and install four bike sharing station in the City of Riverside<br>2035: Install bike sharing in eight or more locations in the City of Riverside |
| Progress Indicators and Metrics: | Number of bike sharing stations in the City of Riverside |
| Local Co-benefits: | Increased health and mobility; improved air quality |
| Alignment with other City efforts: | GAP Goal 14 to decrease VMT; Air Quality Improvement Fund |

Bike sharing allows users to rent bicycles for a nominal fee, use them on a temporary basis, and then return the bicycle to either the same location or another designated location. Bike sharing allows a person to use a bicycle on a temporary basis, removing the need to purchase and own a bicycle. Bike sharing is becoming increasingly common in larger Cities such as Chicago and New York, where they serve as a usual adjunct to transit. Bike sharing is most often run by third-party vendors, who are responsible for maintaining and operating the system. These vendors typically set up stations where bikes are rented and returned. The number of stations would vary based on the size of the system.

In the City of Riverside, bike sharing would most likely be implemented in either the Downtown, transit stations or in areas with high density and mix of uses such as along University Avenue. The City of Riverside is currently conducting a pilot study on bike sharing, using grant funding. This pilot study will explore implementing bike sharing at one or more locations in the City.

In June 2014, the City Council approved a Bike Share project that will provide four bicycle stations at key destinations linking Downtown to the Metrolink Station and the University of California, Riverside to promote bicycle usage. The estimated cost including design is $303,000. The City was approved for $240,000 in grant funds if the City will provide a $63,000 match.

## Local Economic Opportunities

*Synergistic EOAs: Expand Bicycle Infrastructure; Eco Business Zone; Buy and Produce Local Initiative*

Bike sharing stations can be operated through private, turn-key vendors or through public-private partnerships. Business opportunities related to bike sharing would generally revolve around those locations in which bike sharing stations are implemented. Those stations often generate a certain level of economic activity such as small restaurants, cafes, shops, and other similar uses.

## Other Community Co-Benefits

# Measure T-17: Car Share Program

*Offer Riverside residents the opportunity to use car sharing to satisfy short-term mobility needs.*

**2020 GHG Reduction Potential:** 2,797 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 3,728MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In progress at UC Riverside |
| Relative Cost Effectiveness: | High (Based on assumption that car share program is operated privately by vendor. Car share program would therefore be a turnkey operation with no cost or revenue accruing to City) |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division and Public Works |
| Objectives: | 2020: Install one location in the City of Riverside where car sharing is available.<br>2035: Develop two locations in the City of Riverside where car sharing is available. |
| Progress Indicators and Metrics: | Number of car sharing stations in the City of Riverside |
| Local Co-Benefits: | Improve air quality and mobility |
| Alignment with Other City Efforts: | GAP Goal 14 to decrease VMT; Air Quality Improvement Fund |

Similar to bike sharing, car sharing allows persons to rent cars for short periods of time. Unlike traditional rental cars, car sharing may be used only for one trip or one day instead of multi-day periods. Also, car sharing often requires less effort than traditional rental cars. Obtaining a car at a location might require only the use of a smart phone app unlike the more extensive rental car process. Car sharing stations are also much smaller than traditional rental car locations, in which only 4-5 cars might be available at one time. Similar to bike sharing, car sharing also typically occurs through a third party vendor who will operates and maintains the facility.

There is an existing car sharing station at UC Riverside. This strategy would involve the deployment of car sharing to additional locations in the City. Potential locations could include the three Metrolink Stations in the City (two existing plus one proposed) and the Downtown.

## Local Economic Opportunities

*Synergistic EOAs: Eco Business Zone; Buy and Produce Local Initiative*

Business opportunities related to car sharing would generally revolve around those locations in which car sharing stations are implemented. Those stations often generate a certain level of economic activity such as small restaurants, cafes, shops, and other similar uses. Car sharing is often co-located with transit, bike sharing, and other similar uses.

## Other Community Co-Benefits

# Measure T-18: SB 743- Alternative to LOS

*Use SB 743 to incentivize development in the downtown and other areas served by transit.*

**2020 GHG Reduction Potential:** 2,028 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 2,703 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In Progress |
| Relative Cost Effectiveness: | High (No additional cost to City unless supporting documentation such as traffic study guidelines are updated during this time frame) |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division & Public Works Department, Traffic Engineering Division |
| Objectives: | 2020: Develop guidelines to direct development to Downtown and other desired locations<br>2035: Develop guidelines to direct development to Downtown and other desired locations |
| Progress Indicators and Metrics: | Development of new City guidelines for traffic studies and CEQA which encourage development in high priority areas such as Downtown and those areas served by transit. |
| Local Co-Benefits: | Increased health and mobility; improved air quality |
| Alignment with Other City Efforts: | Complies with SB 743 |

SB 743 removes Level of Service (LOS) as an analysis metric under CEQA. Instead, the Vehicle Miles Traveled (VMT) is used as the primary evaluation criteria to determine traffic impacts. The primary purpose of this effort is to avoid penalizing in-fill development, which often generates LOS impacts in urbanized areas with limited opportunities where such impacts are not easily mitigated.

For the City of Riverside, the primary benefits of SB 743 will occur as development and redevelopment occurs in areas such as the Downtown, where a traditional traffic analysis would likely generate a long list of intersection and roadway impacts based on the application of LOS criteria. As such, the use of VMT instead of LOS could reduce traffic impacts for projects in the Downtown. The City could potentially apply the provisions of SB 743 to streamline or incentivize development in the Downtown. This streamlining will change how the City evaluates traffic impacts under CEQA.

## Local Economic Opportunities

The local business opportunity associated with this measure would be associated with new development. Land owners in areas could benefit from additional development, leading to higher land prices. Contractors could also benefit as they are hired to build new buildings and redevelop existing buildings. The economic benefits for this strategy would likely be similar to T-8 and T-9.

## Other Community Co-Benefits

# Measure T-19: Alternative Fuel & Vehicle Technology and Infrastructure

*Promote the use of alternative fueled vehicles such as those powered by electric, natural gas, biodiesel, and fuel cells by Riverside residents and workers.*

**2020 GHG Reduction Potential:** 5,245 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 6,991 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In Progress |
| Relative Cost Effectiveness: | Medium (Assumes that City costs for alternative fueled vehicle infrastructure is limited to lower cost items such as electric vehicle charging stations and costs are offset through the use of grants from CARB, the Air District, and other agencies.) |
| Synergy with RRG-EPAP: | Medium |
| Ease of Implementation: | Medium |
| Responsibility: | Community Development Department, Planning Division & Public Works Department, Traffic Engineering Division |
| Objectives: | 2020: Install 10 alternative fuel vehicle charging or filling stations throughout the City<br>2035: Install 20 alternative fuel vehicle charging or filling stations throughout the City |
| Progress Indicators and Metrics: | Number of alternative fueled vehicle stations installed |
| Local Co-Benefits: | Improved air quality |
| Alignment with Other City Efforts: | Consistent with Statewide Cap & Trade, Air District Air Quality Management Plan, SCAG SCS/RTP |

The State of California, SCAG, the Air District, and other agencies have been aggressively promoting the use of alternative fueled vehicles which use other power sources besides gasoline. Plug-in hybrids and electrically powered vehicles are available from many of the major car manufacturers as of 2015. Other available technologies include hydrogen, compressed natural gas (CNG), fuel cells, and biodiesel.

While there are ongoing programs to incentivize the purchase of these vehicles using funding from sources such as Cap and Trade, there is also a significant need to provide fueling stations for these vehicles since they derive their power from facilities other than typical gasoline service stations. As such, the City of Riverside can play a significant role by building and maintaining these alternative vehicle fueling stations.

A likely implementation strategy would be for the City to provide these fueling stations in conjunction with other City facilities. For example, the City provides electric vehicle charging stations at City Hall and could provide them within public parking garages. Additionally, the City could provide hydrogen fueling facility if they were to build one for City. The City currently provides public access to a CNG fueling facility for City vehicles.

## Local Economic Opportunities

*Synergistic EOAs: RPU Clean Technology Funding; Eco Business Zone; Clean-Tech Incubator*

Local business opportunities would occur as these facilities are constructed. There would be opportunities for local contractors to install these facilities, which could require extensive electrical or other infrastructure work. Additionally, there will be opportunities to work with local innovators and researchers at facilities such UC Riverside as new technology is developed and deployed.

## Other Community Co-Benefits

# Measure T-20: Eco- Corridor / Green Enterprise Zone

*Create a geographically defined area(s) featuring best practices in sustainable urban design and green building focused on supporting both clean-tech and green businesses.*

**2020 GHG Reduction Potential:** Supporting Measure

**2035 GHG Reduction Potential:** Supporting Measure

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In Progress |
| Relative Cost Effectiveness: | Medium (Cost to prepare sustainable development and design standards/ performance measures for the defined area including incentive package for attracting businesses and development) |
| Synergy with RRG-EPAP: | High |
| Ease of Implementation: | Medium |
| Responsibility: | Community Development Department, Planning Division and Economic Development Department |
| Objectives: | 2020: Form Eco-Corridor/Green Zone - define location/area, develop performance standards/guidelines to direct development and incentivize businesses.<br>2035: Promote and manage Eco-Corridor/Green Zone. |
| Progress Indicators and Metrics: | Development and promotion of an Eco-Corridor/Green Business Zone |
| Local Co-Benefits: | Increased health and mobility; improved air quality |
| Alignment with Other City Efforts: | Seize our Destiny report and Job Creation Strategy |

Eco-Corridors/Green Business Zones are districts where neighbors, community institutions, and businesses join with city leaders and utility providers to set and meet ambitious sustainability performance goals, co-develop and implement innovative district-scale projects and track the results over time. A defined Eco-Corridor/Green Business Zone would create comprehensive policy and implementation strategy at the

city level and accelerate district-scale sustainability by integrating building and infrastructure projects with community and individual action. It is a new model of public-private partnership that emphasizes innovation and deployment of district-scaled best practices to create a neighborhood/district of the future – resilient, vibrant, resource efficient and just.

Technologies and strategies for enhancing district sustainability include smart grid, district energy and water management, bike sharing, rainwater harvesting, green streets, zero waster programs, district composting, water to energy, safe routes to school, tree planting campaigns, transportation demand management, car sharing, bike lanes, sidewalk improvements, urban agriculture, public art, green maps, multi-modal transit and resource sharing. Many of these strategies are reflected as reductions measures in the Riverside CAP and could be scaled to a district level with higher performance goals. A potential location for an Eco-Corridor/Green Business Zone in Riverside is the Magnolia-University Avenue corridor, known as the "L-Corridor", which connects the Downtown to the UCR campus.

## Local Economic Opportunities

*Synergistic EOAs: multiple, including Global Markets*

This measure represents one of the key EOAs in the RRG-EPAP, and it is synergistic with most of the other EOAs. The economic benefits of this measure create competitive and livability advantages to the defined area/district while providing long-term value for existing businesses and creative job opportunities. Potential opportunities and outcomes include improved environmental performance, local deployment of emerging technologies, equitable distribution of investments, improved community participation, new patterns of behavior, economic benefits for local businesses and job creation. Clean-tech and green businesses can be incentivized through a dedicated Green Business Program, enterprise zone incentives, and special showcasing opportunities. As recommended in the EPAP, a physical incubator office could be located within the district/zone to offer counsel, funding resources, office space and R&D lab space to clean-tech companies looking to launch and grow with Riverside as their base.

## Other Community Co-Benefits

## LOCAL WATER MEASURES

The following local measure is expected to reduce GHG emissions associated with the water sector.

### Measure W-1: Water Conservation and Efficiency

*Reduce per capita water use by 20% by 2020.*

**2020 GHG Reduction Potential:** 10,748 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 10,748 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | High |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | RPU in conjunction with Community Development Department, Planning Division |
| Objectives: | Prior to 2020: Reduce per capita water use by 10% from baseline level by 2015<br>2020: Reduce per capita water use by 20% |
| Progress Indicators and Metrics: | N/A |
| Local Co-Benefits: | N/A |
| Alignment with Other City Efforts: | Complies with SBX7-7 |

SB X7-7 is part of a California legislative package passed in 2009 that requires urban retail water suppliers to reduce per-capita water use by 10% from a baseline level by 2015, and to reduce per-capita water use by 20% by 2020. GAP Goal 16 directly aligns with SB X7-7. In Southern California, energy costs and GHG emissions associated with the transport, treatment, and delivery of water from outlying regions are high. Therefore, the region has extra incentive to reduce water consumption. While this is considered a state measure, it will be up to the local water retailers, jurisdictions, and water users to meet these targets. A number of policies have been established at the local level within

the subregion requiring more efficient use of water, including landscape ordinances that require native or low-irrigation landscaping. Water retailers also offer resources that incentivize purchase of high-efficiency appliances and provide information on best management practices, landscaping, and the use of recycled and gray water systems.

While emissions reductions associated with water conservation efforts are likely, the emissions inventories conducted for the WRCOG Subregional CAP did not include a water emissions sector. To be conservative in estimating the RRG-CAP's emissions reduction potential, reductions associated with this measure are not quantified here. Future WRCOG and City of Riverside emissions inventory updates may include a separate water emissions sector, in which case it would be appropriate to estimate the reduction potential of water conservation efforts.

Current efforts by the City that aid in implementing this measure include adoption of the City's Water Efficient Landscape Ordinance (Riverside Municipal Code Chapter 19.570) in compliance with AB 1881 in 2009 and pending Draft Water Efficient Landscape Design Guidelines. Other related Ordinances include Recycled Water Ordinance (RMC Chapter 14.28) and Water Conservation Ordinance (RMC Chapter 14.22). All of these efforts and more are outlined in the City's Urban Water Management Plan.

## Local Economic Opportunities

*Synergistic EOAs: Energy and Water Upgrades for Home or Business; Green Building Standards; Eco Business Zone*

There is a wide array of products on the market that aim to enhance water use efficiency for households and businesses. RPU offers incentives for the installation of products that reduce water use, including low-flow shower heads, high efficiency toilets, and drip irrigation systems. RPU also offers incentives for installing water efficient landscaping, such as drought tolerant native plants, and for replacing grass areas with artificial turf. The City can partner with local vendors and installers to increase promotion of its incentive programs, while also increasing local business.

There are endless opportunities in the research and development of new water savings technologies, and the promotion of existing but less common technologies, as water scarcity and security continue to be a primary concern for California.

## Other Community Co-Benefits

## LOCAL SOLID WASTE MEASURES

The following are local measures that can be implemented to reduce GHG emissions associated with the solid waste sector.

### Measure SW-1: Yard Waste Collection

*Provide green waste collection bins community-wide.*

**2020 GHG Reduction Potential:** 468 MT $CO_2e$/yr

**2035 GHG Reduction Potential:** 1,238 MT $CO_2e$/yr

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | Low (Coordination with contracted waste hauler) |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Public Works |
| Objectives: | By 2020: Provide residential green waste bins for collection and transport to an organic waste processing facility.<br>By 2035: Continue to provide yard waste collection services. |
| Progress Indicators and Metrics: | Achievement of 95% diversion of residential yard waste from landfill waste stream by 2020. |
| Local Co-Benefits: | Public health benefits, increase life of landfill |
| Alignment with Other City Efforts: | Aligns with GAP Goal 6 to implement programs to reduce waste by 75% by 2020. |

The City will continue to offer green waste collection bins for residential yard waste. Diverting yard waste from landfills helps to extend the life of the City's contracted landfills. In addition, grass clippings and leaves can be composted into nutrient-rich topsoil amendments, and branches can be chipped into mulch for reuse in

landscaping. Removing beneficial organic materials from landfills also helps avoid the creation of landfill methane, a potent GHG.

## Local Economic Opportunities

*Synergistic EOA: Buy and Produce Local Initiative*

This measure represents a continuation of current services. Opportunities for local composting and mulching services may exist for local service providers.

## Other Community Co-Benefits

# Measure SW-2: Food Scrap and Compostable Paper Diversion

*Divert food and paper waste from landfills by implementing commercial and residential collection program.*

**2020 GHG Reduction Potential: 571 MT CO2e/yr**

**2035 GHG Reduction Potential: 9,317MT CO2e/yr**

| | |
|---|---|
| WRCOG Participation Level: | Gold |
| Implementation Status: | Implement targeted commercial composting program through 2020.<br>Accept residential food scraps in waste bins by 2020.<br>Implement mandatory commercial composting by 2020. |
| Relative Cost Effectiveness: | Low |
| Synergy with RRG-EPAP: | Medium |
| Ease of Implementation: | High |
| Responsibility: | Public Works |
| Objective(s): | Prior to 2020: 20% of businesses divert 90% of compostable waste from landfills<br>By 2035: Accept residential food scraps in waste bins so that 90% of residents and businesses divert 75% of compostable waste. |
| Progress Indicators and Metrics: | 20% of businesses divert 90% by 2020<br>90% of residents and businesses divert 75% by 2035 |
| Local Co-benefits: | Public health benefits, increase life of landfills |
| Alignment with other City efforts: | Aligns with GAP Goal 6 to implement programs to reduce waste by 75% by 2020. |

Food scraps are unwanted cooking preparation and table scraps, such as banana peels, apple cores, vegetable trimmings, bones, egg shells, meat, and pizza crusts.

Compostable paper, sometimes called food-soiled paper, usually comes from the kitchen and is not appropriate for paper recycling due to contamination. Materials such as stained pizza boxes, uncoated paper cups and plates, used coffee filters, paper food cartons, napkins, and paper towels are all compostable paper. Food scraps alone represent nearly 20% of total landfilled solid waste statewide. Diverting these organic items from landfills helps to reduce landfill methane gas generation, and can help prolong the lifespan of area landfills.

The City would work with its waste hauler to accept food scraps and organic waste in residential green waste bins by 2020. The City would also implement a pilot food scrap and organic waste composting program to be implemented by businesses in special focus areas that could include eco-corridor/geen enterprise zone(s), and other businesses throughout Riverside that are interested in participating. By 2035 the City would extend the commercial composting program to all businesses in Riverside.

## Local Economic Opportunities

*Synergistic EOAs: Buy and Produce Local Initiative; Eco-Corridor*

A market could be created or tapped into for recycling and re-purposing of materials to promote diversion of food and other solid waste from landfills. Specifically, the measure could create opportunities for businesses specializing in composting, and training companies to reduce their landfill waste by diverting compostable waste.

## Other Community Co-Benefits

## LOCAL AGRICULTURE MEASURES

The following are local measures that can be implemented to reduce GHG emissions associated with the agricultural sector.

### Measure A-1: Local Food and Agriculture

*Promote local food and agricultural programs.*

**2020 GHG Reduction Potential: Supporting Measure**

**2035 GHG Reduction Potential: Supporting Measure**

| | |
|---|---|
| WRCOG Participation Level: | N/A |
| Implementation Status: | In progress |
| Relative Cost Effectiveness: | Low |
| Synergy with RRG-EPAP: | Low |
| Ease of Implementation: | High |
| Responsibility: | Community Development Department, Planning Division; Public Works Department, Parks and Recreation |
| Objective(s): | N/A |
| Progress Indicators and Metrics: | Number of new community gardens since 2007; Acres of Ag land preserved since 2007 |
| Local Co-benefits: | Public health, local economic, benefits, energy reduction from local transport |
| Alignment with other City efforts: | Aligns with GAP Goal 18 to implement programs to create a 5% increase in community participation in and community gardening programs aimed at reducing population obesity; aligns with GrowRIVERSIDE program |

Conventional food production is recognized as one of the nation's largest sources of environmental degradation. Globally, one-third of greenhouse gas emissions result from the food system, when accounting for importation, soil degradation and deforestation. While not captured in a traditional sector-based greenhouse gas emissions inventory, choosing more sustainable and less-carbon intensive food yields significant individual and collective benefit.

How we spend our food dollars, as individuals, businesses, and as a city, can improve the quality of life in our community, and in the communities where our food is produced. Eating locally produced, fresh food, and choosing grains, fruits, and vegetables instead of meat, has the dual benefits of lowering greenhouse gas emissions associated with food production and improving health.

The City of Riverside and local growers maintain more than 1,000 acres of citrus groves. As Riverside continues to grow, so does local pride for the City's rich agricultural history and consumer demand for healthful local foods. Eleven percent of the total acreage of the city is designated for agricultural use, unparalleled for a Southern California city of its size. Riverside can support sustainable, local, and organic food through its own purchasing, and by helping to make sustainable food more accessible to its residents. The City can reduce carbon emissions from food by promoting its thriving Farmers Markets and limiting municipal purchasing of meat and dairy products.

Riverside is taking steps to create a sustainable food ecosystem of innovation, entrepreneurship and investment through its annual GrowRIVERSIDE conference which provides a platform to examine the city's initial steps to build its local food system as well as explore through keynotes, plenary discussions and breakout sessions, the agricultural methodologies and business models to further strengthen the community, environment and economy.

## Local Economic Opportunities

*Synergistic EOAs: Buy and Produce Local Initiative; Eco-Corridor*

Economic opportunities that existing with this measure include:

- Production – Increasing local food production in a sustainable manner; Economically viable urban farming business models; Innovative growing technologies;
- New Business Creation – Creating new farming enterprises and food businesses; creating additional capacity in the form of new farmers and agricultural entrepreneurs;
- Local Food Sales and the Marketplace – Understanding what buyers want; investigation of the various local food sales channels; and
- Community Impact – Local food access for all; food policy to benefit community, economy and environment; health impact.

## Other Community Co-Benefits

# CHAPTER B.4 MEETING POST-2020 TARGETS

## MOVING FORWARD

Successful implementation of the Riverside Restorative Growthprint Climate Action Plan (RRG-CAP) will enable the City of Riverside (City) to surpass its community-wide GHG emissions target for 2020, but more aggressive action by the City, the WRCOG sub-region, and the state is needed to reach the 2035 target. In addition to the measures in Chapter 3, reductions of nearly half a million metric tons of $CO_2e$ will be needed to close the gap. **Figure B.4-1** depicts graphically the expected impact of current RRG-

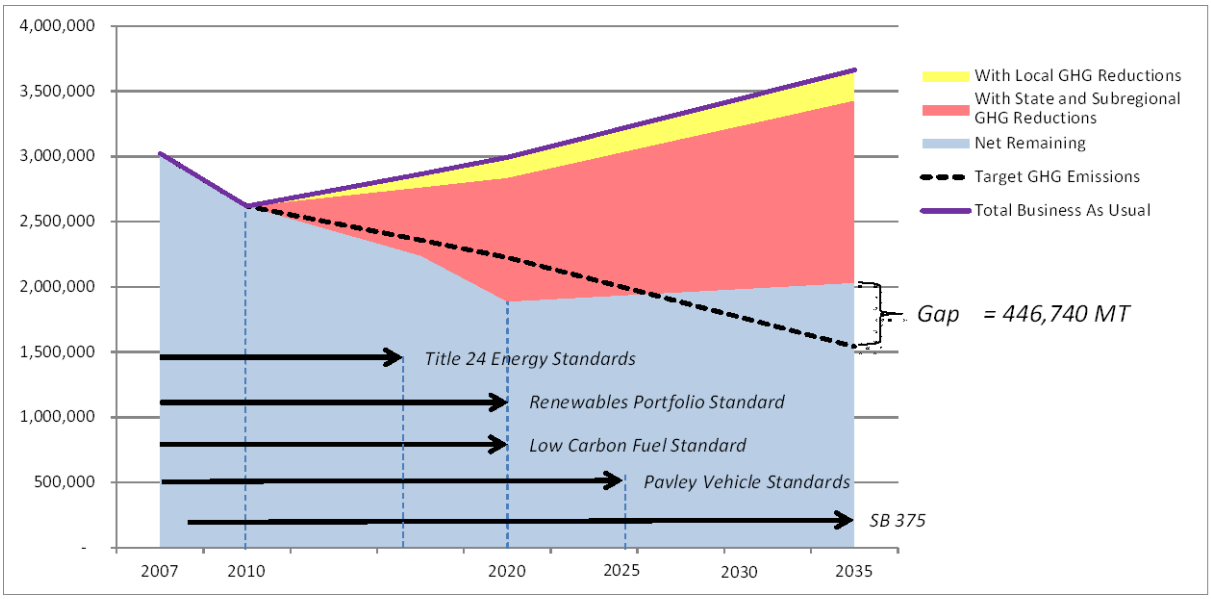



**Figure B.4-1: Impact of Chapter 3 Reduction Measures on GHG Targets**

CAP measures through the year 2035, showing that the measures are sufficient to keep the City on track with meeting its long-term GHG reduction goal until approximately 2026. After that point, a gap emerges between needed reductions and expected reductions, which steadily grows until reaching a deficit of approximately 446,740 MT CO2e.

As Figure B.4-1 shows, state and sub-regional measures provide the bulk of GHG emission reductions in the RRG-CAP through 2020 and beyond. As indicated by recent policy developments and pronouncements by the state, we can reasonably expect this trend to continue. With the exception of SB 375, the RRG-CAP planning horizon extends beyond the time horizon addressed by the most influential state policies and regulations aimed at reducing GHG emissions. **Table B.4-1** summarizes these state measures, which all grew out of the first AB 32 Scoping Plan of 2008. While SB 375 is designed to increasingly reduce transportation emissions through 2035, the rest of the state measures, as currently legislated, achieve a steady state of GHG reduction impact well before then. As described in the following section, it is highly likely that the state of California will expand its current regulations and GHG reduction programs in the coming years to strengthen the ability of the state as a whole to reach its long-term climate protection targets.

**Table B.4-1: Time Horizon of Current State GHG Measures**

| State Policy or Regulation | Sector / Source | Planning Horizon |
|---|---|---|
| Title 24 | Title 24: Building energy standards | 2017 |
| Renewables Portfolio Standard (RPS) | Electricity: 33% renewables by 2020 | 2020 |
| Low-Carbon Fuel Standard (LCFS) | Vehicle fuels: 10% reduction in fuel carbon by 2020 | 2020 |
| Pavley Vehicle standards | Transportation: Vehicle efficiency standards through 2025 | 2025 |
| SB 375 – Sustainable Communities Strategies (SCS) | Transportation and Land Use | 2035 |

Additional action at the state and subregional level is critical to the City's ability to attain its long-term GHG targets. However, the City recognizes its vital role in closing the emissions reduction gap through more aggressive local action that is synergistic with state action. The following discussion explains how reaching the state's long term climate protections goal (80% below 1990 GHG emissions levels by 2050) will require a coordinated effort across all levels of government and all sectors of the economy. Analysis of two policy scenarios helps illustrate the challenge and identify possible solutions.

# CLOSING THE GAP

In support of its long-term climate protection goals, the state of California has been evaluating potential pathways to achieving deep economy-wide GHG reductions since the passage of AB 32 in 2006. Numerous developments in policy, technology and markets must occur for the state to achieve an economy-wide 80% reduction in GHG emissions by the year 2050 (relative to 1990). Potential pathways for achieving the state's long term goals are presented in recent policy documents including the Climate Change Scoping Plan Update (CARB, 2014) and technical reports by the California Energy Commission (CEC), California Public Utilities Commission (CPUC) and the California Independent System Operator (CAISO).

## 2014 CLIMATE CHANGE SCOPING PLAN UPDATE

Building on CARB's initial Climate Change Scoping Plan of 2008, the 2014 Update establishes a broad framework for continued emission reductions beyond 2020, across all sectors of the economy, to reduce GHG emissions to 80 percent below 1990 levels by 2050. Achieving reductions of this magnitude requires a continuation of existing policies as well as new strategies and policies to significantly scale market adoption of new technologies. The Scoping Plan Update identifies six sectors that must undergo profound transformation in order for the state to meet its 2050 goal:

1. Energy
2. Transportation (Vehicles/Equipment, Land Use, Fuels, and Infrastructure)
3. Agriculture
4. Water
5. Waste Management
6. Natural and Working Lands

Already, public and private investment in the six sectors listed above has reaped broad economic benefits for the state along with significant GHG reductions. Energy policies in particular have enabled the state to emerge as the national leader in both clean energy jobs and clean energy investment. Title 24 and other energy standards have saved Californians $74 billion in energy costs since 1977. California has the fourth lowest per-capita energy-related GHG emissions in the country and produces on average twice as much economic value for every unit of electricity used. The Scoping Plan Update references multiple studies that show how businesses in the U.S. could collectively cut energy-related GHG emissions by more than 20 percent by 2020, and generate hundreds of billions of dollars in net savings.[1]

Current state polices, including SB 375, Cap and Trade, the state's Zero Emission Vehicle (ZEV) standards, and the LCFS, are aimed toward reducing per-capita fuel costs and GHG emissions from light-duty vehicles and fuel use by about 30 percent from current levels in 2020, and by about 50 percent in 2035. Many of the technologies needed to decrease fossil-fuel dependency of mobility solutions are cost-competitive and available today. As technologies improve and supporting infrastructure becomes available, costs will come down, accelerating the uptake of low-carbon transportation systems and saving consumers money that will be re-directed elsewhere into the

[1] California Air Resources Board (CARB), 2014: First Update to the Climate Change Scoping Plan, May 2014, p. 27

economy.

Market transformation is a recurring theme of the Scoping Plan Update, which acknowledges targeted investment and state supported infrastructure will be needed to establish commercial markets for low-carbon solutions to grow to the scale required. Convergence of technologies and market objectives is needed across multiple sectors, requiring integrated planning among dozens of state agencies and closely coordinated efforts with locally-driven GHG reduction efforts, such as the RRG-CAP. Following are just a few examples of where cross-cutting issues will drive coordination of investment, policy and planning:

- Electrification in the transportation and building sectors must coincide with decarbonization of electricity supply. New electricity loads from these sectors, as well as increasing levels of renewable generation, will change the operational requirements of the electricity grid, which in turn affects emissions and operations for electric transportation.
- Changes in the energy sector will affect the water and agricultural sectors due to the significant amount of energy used to move water throughout the state and the important and evolving role of hydropower in the electricity system.
- Green and net zero energy buildings create new accounting requirements and interactions between utilities and customers and buildings and the electricity grid.
- The growing role of bioenergy for transportation fuels, heat production, and electricity generation will impact the agricultural, natural lands, water, and waste management sectors.
- All of this will have direct or indirect effects on land use that will require integrated planning and a closely coordinated effort with locally driven GHG emission reduction initiatives.

## SUPPORTING TECHNICAL STUDIES

Providing support to the statewide goal of reducing emissions 80% below 1990 levels by the year 2050 are several technical studies, including the CEC report *Scenarios for Meeting California's 2050 Climate Goals*[2] and the California State Agencies' PATHWAYS Project, commissioned by CARB, the CEC, CPUC, and CAISO to evaluate the feasibility and cost of a range of GHG reduction scenarios in California.[3]

The PATHWAYS study evaluated several potential paths for reducing GHG emissions in California using existing technologies and assuming a continuation of current lifestyles and economic growth. The scenarios explore the potential pace at which emission reductions can be achieved as well as the mix of technologies and practices that could be used to reduce GHG emissions 80% by 2050.

The study found that successfully reducing California's GHG emissions requires significant progress on all of the following:

[2] Wei, Max; Jeffrey Greenblatt: Sally Donovan; James Nelson; Ana Mileva; Josiah Johnston; Daniel Kammen. (University of California, Berkeley and Lawrence Berkeley National Laboratory). 2013. *Scenarios for Meeting California's 2050 Climate Goals*. California Energy Commission. Publication number: CEC-500-YYYY-XXX.

[3] Energy and Environmental Economics (E3), Summary of the PATHWAYS Project: Long-term Greenhouse Gas Reduction Scenarios, available at https://www.ethree.com/documents/**E3_Project**_Overview_20150127.pdf, accessed on April 13, 2015.

- Increasing the achievement of energy efficiency in buildings and transportation;
- Switching to lower carbon fuel sources in buildings and transportation;
- Producing lower carbon electricity;
- Producing lower carbon liquid or gaseous fuels; and
- Reducing non-energy GHGs.

The PATHWAYS study also found that under "base-case cost assumptions" the average household direct cost to implement these strategies would be $8 per month in 2030. This estimate includes all direct effects, including changes in the average household's cost of transportation fuel, electricity and natural gas bills as well as the incremental capital outlays on energy efficiency and low-carbon vehicles. If all commercial and industrial costs are assumed to be passed on to households, the average household cost impact is expected to be $12 per month in 2030 relative to current policy.

Consistent with the PATHWAYS study in many respects, the CEC study found that achieving the state's 2050 target will require aggressive energy efficiency, clean electricity, low carbon biofuels, and large-scale electrification of light duty vehicles, and building and industrial heating. The CEC study concludes that the transition to a low-carbon economy will require "supporting policies such as tightening existing policies in the buildings and electricity sector and developing effective policies to decarbonize building and industry heating and address the non-energy sector. Sustained technology development is required to scale up and reduce costs of existing technologies (e.g., batteries for ZEV, low carbon biofuels). Finally, greater integration of sectors is needed to achieve the long-term climate target (e.g., coordinated planning, regulation, and research across transportation, electricity sector, buildings, and industry sectors)."

## STATE POLICY DIRECTION

The state is clearly confronting the 2050 challenge head on. In his 2015 Inaugural Address, Governor Jerry Brown proposed three ambitious goals to be accomplished by 2030:

1. Increase from one-third to 50 percent our electricity derived from renewable sources;
2. Reduce today's petroleum use in cars and trucks by up to 50 percent; and
3. Double the efficiency of existing buildings and make heating fuels cleaner.

Governor Brown soon backed this up with Executive Order (EO) B-30-15, which establishes a new "interim" target to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030. EO B-30-15 requires the California Air Resources Board (CARB) to update the Climate Change Scoping Plan to reflect this target and for all State agencies to take climate change into account in their planning and investment decisions, giving priority to actions that both build climate preparedness and reduce GHG emissions.

These developments are designed to keep the state on track to meet the ambitious goals set by former Governor Schwarzenegger's Executive Order S-3-05 of 80 percent below 1990 levels by 2050.

## PROPOSED LEGISLATION

To achieve the Governor's goals, two pieces of legislation were introduced in early 2015 that would codify GHG reduction targets post-2020 and enact law to ensure these targets are fully implemented.

### Senate Bill 32 (Pavley)

On December 1, 2014, Senator Pavley introduced SB 32 requiring CARB to adopt a statewide GHG emission limit equivalent to 80% below the 1990 level to be achieved by 2050. The bill authorizes CARB to adopt interim GHG emission level targets for 2030 and 2040. The bill explicitly expresses "the intent of the Legislature for the Legislature and appropriate agencies to adopt complementary policies that ensure long-term emission reductions adopted that advance all of the following:

- Job growth and local economic benefits in California;
- Public health benefits for California residents, particularly in disadvantaged communities;
- Innovation in technology and energy, water, and resource management practices; and
- Regional and international collaboration to adopt similar GHG emissions reduction policies."

SB 32 would codify former Governor Schwarzenegger's Executive Order No. S-5-05 2050 emission reduction targets. If signed into law, this bill will remove any uncertainty with regard to the long-term emission reductions for the state that have created long-term planning uncertainty for local governments and regional planning entities.

### Senate Bill 350: Golden State Standards 50-50-50 (de León and Leno)

SB 350 will implement new state standards "50-50-50" benchmarks by raising California's renewable portfolio standard from 33% to 50%, striving for a 50% reduction in petroleum use and increasing energy efficiency in buildings by 50% by the year 2030. SB 350 will make these standards permanent, trackable, and enforceable by enacting them into law and building on the accountability mechanisms already in existence to ensure they are fully implemented.

# LOCAL SCENARIOS

The City of Riverside, with a coordinated RRG-CAP and RRG-EPAP effort, is well-positioned to leverage opportunities created by emerging state and regional policies and programs. Riverside can meet its 2035 GHG emissions target through various combinations of state, subregional, and local actions, while opening up new opportunities for local business growth. Once the state has adopted a mid-term target (e.g., 2030) and released its plan for reaching that target, the role of local action will be more defined, and Riverside will be well-positioned to take advantage of state assistance and emerging funding opportunities. In lieu of an updated Climate Change Scoping Plan, the Governor's EO B-30-15 along with recent policy and technology developments suggest that the greatest potential for additional reductions in the City of Riverside is represented by the following strategies:

- Reduce vehicle miles traveled (VMT)
- Low-carbon fuels and vehicles (e.g., biofuels; electric vehicles)
- Low-carbon electricity (e.g., renewables)
- Energy efficiency

Figure B.4.2 shows conceptually how the City's 2035 GHG reduction gap can be closed with a mix of these four strategies. With a municipally owned utility (RPU) and local control over land use, the City has the ability to directly control or influence three of these four strategies. Only "Low Carbon Fuels and Vehicles" is largely beyond the influence of the City, but even that strategy is dependent on local support to some extent (e.g., local infrastructure is needed for widespread electric vehicle adoption), while City programs have the potential to speed the development and adoption of critical technologies (e.g., RRG-CAP Measure E-6: RPU Technology Grants). The following two scenarios explore the planning implications for City of Riverside when differing assumptions are made about state policy development, local land use changes, local energy policy, technological advancements, and market developments. One scenario emphasizes technological development and market transformation, realms over which the state can exert much more influence than local governments, while the other scenario emphasizes local land use changes, where local governments retain control. Most likely, the future will be represented by a mix of the two scenarios. Scenario analysis, however, is valuable in considering the range of outcomes that can be expected.

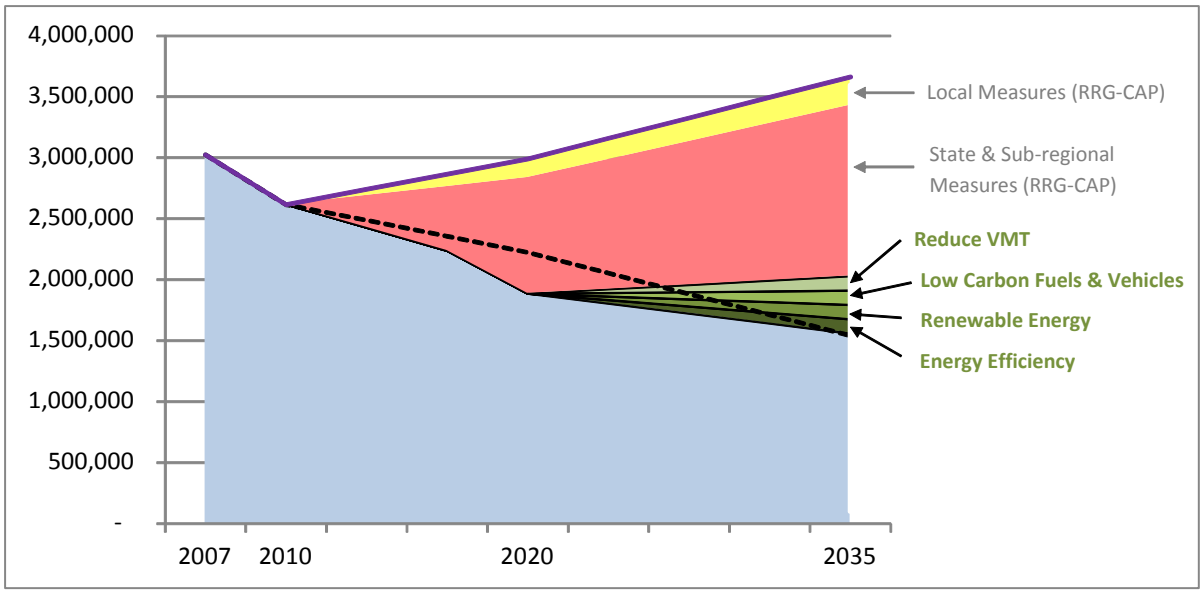



**Figure B.4-2: Strategies for Closing the Gap to Reach 2035 Target**

State and local governments share responsibility in meeting the state's long-term GHG emissions goals. The RRG-CAP is designed to support and leverage state policy and programs, while positioning the City for funding that will enable full implementation of the RRG-CAP's local GHG reduction measures. The RRG-CAP currently emphasizes implementation of near-term actions that will enable the City to meet its 2020 target,

while identifying the long-term strategies that can reduce the GHG intensity of the local economy and the City's land use patterns, so that emerging state and regional policies for GHG reduction can achieve maximum effectiveness locally.

The RRG-CAP provides a policy framework and a strong foundation for developing the more aggressive reduction measures needed to achieve longer term GHG targets consistent with state goals. As state planning evolves, the City will better understand what needs to happen at the local level to support and enhance state action. Anticipating a General Plan Update within the next few years, the City expects land use policy to be driven in large measure by the need to reduce GHG emissions associated with development and transportation.

## SCENARIO 1: EMPHASIS ON TECHNOLOGY AND MARKET TRANSFORMATION

Scenario 1 emphasizes GHG reduction strategies that are dependent on state policy, rather than local policy: namely, technology and market development. Since the transportation sector is the largest contributor to local GHG emissions (and to state emissions as well), any viable scenario for meeting long-term targets must achieve deep reductions in transportation-related emissions. Building energy, which contributes almost as much as transportation to local emissions, must also be addressed. Scenario 1 assumes that the state will continue to aggressively expand its mandates for motor vehicle efficiency and low-carbon fuels, while expanding its mandate for renewable energy, speeding technological development and market transformation. Under this scenario, it is reasonable to assume that the City's 2035 target will largely depend on state action, with the City providing support through a continuation or gradual intensification of policies and measures that are in the current RRG-CAP.

**Key State Actions:**

- Advanced vehicle efficiency standards that go beyond Pavley II standards
- Stricter requirements for low carbon fuels
- Policies that promote electrification of the transportation and building sectors
- Policies that drive technological advancement in energy storage and transmission grid optimization
- Coordinated research, planning, and regulation across sectors
- More stringent renewables portfolio standard: mandate for electric utilities to achieve 50% to 60% renewables by 2035
- More stringent Title 24 energy efficiency standards for new buildings (e.g. net zero energy requirement for residential buildings)
- Programs and incentives to improve building energy efficiency in existing buildings (e.g., Cap & Trade funding directed toward low-income housing)

**Key Local Actions:**

- RPU to achieve 50% to 60% renewables in electricity mix by 2035
- City to secure and dedicate funding and staff resources for local energy efficiency programs
- City to support low carbon vehicle/fuel infrastructure (e.g., publically accessible EV charging stations)

- City to incentive or require lower VMT associated with land use development, through transit-oriented development, parking restrictions, and transportation management programs
- City to enforce the state's increasingly stringent energy and green building standards
- Enhance water conservation

## SCENARIO 2: EMPHASIS ON LOCAL LAND USE CHANGES

Scenario 2 assumes either that state policy won't force technological change and market transformation, or that the technology and market development for low-carbon fuels and vehicles will not occur fast enough to enable the major reductions in transportation emissions assumed for Scenario 1. If technology cannot reduce transportation emissions, then reducing VMT is the viable alternative. Significant reductions in VMT will require major changes in land use along with supportive transit systems to reduce dependency on the single-occupancy automobile. Local governments will be incentivized or required to reduce VMT associated with new development (i.e., continuing the trend started with SB 375), resulting in more focused, compact development with higher densities/intensities, a mix of uses, and located near high quality transit.

Specifically, Riverside would need to achieve a 30% increase in community-wide household and employment density (Measures T-6 and T-7). To accomplish this, new development would be refill - infill and redevelopment as opposed to greenfield development. Future growth would need to be directed toward the Magnolia-University Avenue corridor and around existing transit stations (La Sierra, Downtown and Hunter Park Metrolink stations). These areas are identified as a High Quality Transit Areas (HQTA) in SCAG's 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). A HQTA is generally a walkable transit village or corridor, consistent with the adopted RTP/SCS, that has a minimum density of 20 dwelling units per acre and is within a ½ mile of a well-serviced transit stop with 15-minute or less service frequency during peak commute hours. These areas are walkable and transit-oriented places where most daily needs are located within walking, biking, or short driving distance from homes. Future housing would include a varying mix of townhome and multi-family options. Meanwhile, improvements in energy efficiency and greater use of renewable energy will still be needed to achieve long term GHG targets. Since the transformation of energy markets has seen steady progress since adoption of AB 32, this scenario assumes a continuation of that progress, aided by state policy.

**Key State Actions:**

- Regional land use and transportation policy and funding streams that further incentivizes transit system development and VMT reduction through transit-oriented development and other land use strategies;
- More stringent renewables portfolio standard: mandate for electric utilities to achieve 50% to 60% renewables by 2035
- More stringent Title 24 energy efficiency standards for new buildings (e.g. net zero energy requirement for residential buildings)
- Programs and incentives to improve building energy efficiency in existing buildings (e.g., Cap & Trade funding directed toward low-income housing)

**Key Local Actions:**

- Same as Scenario 1, but with additional action to aggressively pursue local land use policies and zoning changes that significantly reduce VMT; specifically, future growth would need to be directed toward identified HQTAs including the Magnolia/University Avenue corridor and Metrolink stations. The land use mix and development density within these HQTAs would need to increase significantly (minimum 20 du/ac) to achieve a 30% increase in household-employment densities.

## SCENARIO ANALYSIS

Both scenarios represent feasible paths to achieving local GHG emissions reductions consistent with state policy and the City's 2035 target. Under either scenario, it is assumed that City energy policy will remain in line with, if not more aggressive than, the energy goals called for in the Governor's EO B-30-15 and SB 350. Riverside Public Utility (RPU) will need to commit to increasing the renewables portion of their electricity portfolio, and pledge to more aggressive year-over-year efficiency improvements than the current objective of 1% per year (Measure E3: Local Utility Programs). By increasing renewables to 50% of the power mix and boosting the annual efficiency target to 2% per year for the 15 years following 2020, the City could further reduce GHG emissions by as much as 206,000 MT $CO_2e$ per year by 2035.

The land use and transportation measures in Chapter 3 support the Governor's ambitious transportation-related GHG goal (reduce current petroleum use in cars and trucks by 50 percent) by steering the City toward more efficient networks, better transit solutions, and infrastructure that supports electric vehicles. Regional measures supporting the MetroLink expansion, telecommuting, goods movement, and ZEV infrastructure will contribute to meeting the Governor's goal, while local measures promoting compact, mixed use, transit-oriented development, as well as boosting transportation demand management, active transportation, car sharing, and more efficient local transit, will enhance the effectiveness of state policy and investment geared toward GHG reduction.

The current CAP measures related to land use and transportation are expected to reduce emissions approximately 1 million MT $CO_2e$ by 2035, which represents a 37% reduction relative to the City's 2010 inventory. By maximizing the effectiveness of local land use and transportation measures, as described in Scenario 2, the City can expect to reduce transportation-related emissions by up to 150,000 MT CO2e per year by 2035. Even combined with the locally-implemented energy measures described above, this is still not enough to close the 446,730 MT CO2e gap. For the City to reach its 2035 target, contribution from state and sub-regional programs is needed. By applying principles of smart growth, and promoting green technology and green enterprise zones, the RRG-CAP and EPAP will improve the jobs-housing balance and provide a foundation for maximizing the local effectiveness of expected state and subregional policy developments.

# FUNDING TRENDS

The RRG-CAP and EPAP will position Riverside to take advantage of emerging funding opportunities, including:

**The Greenhouse Gas Reduction Fund**

In order to help achieve the goals established in AB 32, the California ARB adopted a regulation to establish a cap-and-trade program that places a "cap" on the aggregate GHG emissions from entities responsible for roughly 85 percent of the state's GHG emissions. As part of the cap-and-trade program, the ARB conducts quarterly auctions where it sells emission allowances. These auctions are likely to generate billions of dollars in state revenue over the coming years. Through the state budget process, Cap-and-Trade auction proceeds are appropriated from the Greenhouse Gas Reduction Fund (GGRF) to state agencies and programs. Two categories under the Cap-and-Trade program will receive multi-year funding allocations: 1) Transit, Housing, and Sustainable Communities (35%); and 2) High-Speed Rail (25%). The remaining 40% of Cap-and-Trade funds will be subject to the annual budget process for other program areas.

The Governor's 2014-15 budget appropriated $832 million in auction revenue to various state programs, including programs related to sustainable communities, clean transportation, energy efficiency, natural resources, and waste diversion, with set-asides for projects benefiting disadvantaged communities. Specifically, in FY 2014-15, the GGRF provides funding for 11 programs organized into three investment categories, as shown in **Table B.4-2.** The GGRF will increase over time as the statewide GHG emissions cap comes down and action revenue increases. The FY 2015-16 budget is expected to appropriate more than $2 billion to the GGRF.

**Table B.4-2: Cap and Trade Expenditure Plan (Dollars in Millions)**

| Investment Category | Department | Program | 2014-15 |
|---|---|---|---|
| **Sustainable Communities & Clean Transportation** | High-Speed Rail percent | Authority High-Speed Rail Project | $250 |
| | State Transit Assistance | Low Carbon Transit Operations Program | $25 |
| | Caltrans Transit & Intercity Rail | Capital Program | $25 |
| | Strategic Growth Council | Affordable Housing & Sustainable Communities Program | $130 |
| **Energy Efficiency & Clean Energy** | Air Resources Board | Low Carbon Transportation | $200 |
| | Department of Community Services & Development | Energy Efficiency Upgrades/Weatherization | $75 |
| | Energy Commission | Energy Efficiency for Public Buildings | $20 |
| | Department of Food & Agriculture | Agricultural Energy & Operational Efficiency | $15 |
| **Natural Resources & Waste Diversion** | Department of Fish and Wildlife | Wetlands and Watershed Restoration | $25 |
| | Department of Forestry and Fire Protection | Fire Prevention & Urban Forestry Projects | $42 |
| | Cal Recycle | Waste Diversion | $25 |
| **Total** | | | **$832** |

A continuing focus on disadvantaged communities is an essential underpinning of the State's efforts to fight climate change. Senate Bill 535 (De León) requires state and local agencies to make significant investments that improve California's most vulnerable communities. That investment comes from the proceeds of quarterly cap-and-trade auctions held by CARB. Under SB 535, one-quarter of the proceeds of the cap-and-trade auctions are to be used for the benefit of the State's disadvantaged communities, including at least 10% to be invested directly in those communities. To inform the overall process under SB 535, the State is using CalEnviroScreen (California Communities Environmental Health Screening Tool), a science-based tool that identifies communities most burdened by pollution from multiple sources and most vulnerable to its effects.

### SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Funding Programs

Allocating an equitable share of Cap and Trade funds to transportation and sustainable communities strategy implementation is a top legislative priority for the Southern California Association of Governments (SCAG). These critical funding programs are expected to help local jurisdictions, including the City of Riverside, and SCAG's partners implement the RTP/SCS.

The Affordable Housing and Sustainable Communities (AHSC) program is intended to further the regulatory purposes of AB 32 and SB 375 by investing in projects that reduce GHGs by creating more compact, infill development patterns, integrating affordable housing, encouraging active transportation and mass transit usage, and protecting agricultural land from sprawl development.

As shown in Table in 4.2, the Budget Act of 2014 appropriates $130 million from the Greenhouse Gas Reduction Fund (GGRF) to develop and implement the AHSC. Accompanying legislation (SB 862) apportions 20 percent of GGRF annual proceeds to the AHSC beginning in FY 2015-16.

SCAG's Sustainability Program combines technical assistance for integrated land use and transportation planning with new Green Region initiative assistance aimed at local sustainability and Active Transportation assistance for bicycle and pedestrian planning efforts. All SCAG-member local jurisdictions, including the city of Riverside, are eligible for funding for nearly any planning project that meets local needs and is consistent with the regional Sustainable Communities Strategy. The 2013-2014 Sustainability Program emphasizes projects that make measurable progress toward implementation of the RTP/SCS. Seventy-three (73) Sustainability Planning Grant Projects totaling over $2.5 million are underway. This program provided the funding for the Riverside Restorative Growthprint.

### Active Transportation Program funding

The California Active Transportation Program (ATP) was created by Senate Bill 99 and Assembly Bill 101 to encourage increased use of active modes of transportation, such as biking and walking, as well as to ensure compliance with the federal transportation authorization Moving Ahead for Progress in the 21st Century (MAP-21). The goals of the Active Transportation Program are to:

- Increase the proportion of trips accomplished by biking and walking.
- Increase the safety and mobility of non-motorized users.
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals as established pursuant to Senate Bill 375 (Chapter 728, Statutes of 2008) and Senate Bill 391 (Chapter 585, Statutes of 2009).
- Enhance public health, including reduction of childhood obesity through the use of programs including, but not limited to, projects eligible for Safe Routes to School Program funding.

- Ensure that disadvantaged communities fully share in the benefits of the program.
- Provide a broad spectrum of projects to benefit many types of active transportation users.

Funds awarded through the ATP program are selected by the State (60% of total funds) as well as regional MPOs (40% of total funds). The California Transportation Commission (CTC) is expected to issue the 2015 Call for Projects of approximately $300 million programmed in three fiscal years starting 2016/17 and ending 2018/19. This includes approximately $70 million that SCAG will program as part of the Regional or MPO component. ATP program funds may be eligible to implement RRG-CAP measures T-1, T-2, T-3, T-12, and T-16.

# SYNERGIES WITH THE RRG-EPAP

Together, the RRG-CAP and EPAP identify opportunities to link economic development with GHG emission reduction activities. The RRG-EPAP puts forth policies and strategies that support sustainable infrastructure, increase community connections, and foster smart growth. The RRG-EPAP's top 10 Entrepreneurial Opportunity Areas (EOAs) directly support RRG-CAP implementation by identifying areas where the City can grow its local economy while reducing GHG emissions. The table below identifies where there are important synergies between the RRG-CAP and EPAP, indicating where the City should focus its efforts in leveraging funding, and policy and program developments by the state subregional entities like WRCOG to achieve further GHG reductions.

**Table 4-3: CAP-EPAP Synergies**

| EPAP EOA | Synergistic CAP Measures | Local Economic Opportunity | GHG Reduction Synergy |
|---|---|---|---|
| **1.** Energy and Water Upgrades for Home or Business | W-1: Water Conservation<br>E-3: Local Utility Programs<br>SR-3: Residential HERO Program<br>SR-4: Commercial HERO Program | High | High |
| **2.** Green Building Standards | T-1: Expand Bicycle Infrastructure<br>T-9: Limiting Parking Requirements for New Development<br>W-1: Water Conservation<br>SR-2: Title 24<br>SR-13: Construction & Demolition (C&D) Requirements | High | High |
| **3.** Clean Vehicles and Charging/Fueling Stations | T-14: Neighborhood EV Programs<br>T-19: Alternative Fuel and Vehicle Technology and Infrastructure<br>SR-6: Clean Vehicle and Low Carbon Fuel Standards<br>SR-12: EV Plan and Infrastructure | High | High |

| | | | |
|---|---|---|---|
| **4.** RPU Clean Technology Funding | E-5: UC Riverside Carbon Neutrality<br>T-14: Neighborhood EV Programs<br>SR-1: Renewables Portfolio Standard | High | High |
| **5.** Waste Reduction and Diversion | SW2: Food Scrap and Paper Diversion<br>SR-13: Construction & Demolition (C&D) Requirements | Medium | Medium |
| **6.** Expand Bicycle Infrastructure | Bicycle Programs (Measures T-1, T-2, T-3, T-12 and T-16 | Medium | Medium |
| **7.** Eco Business Zone | T-1: Bicycle Infrastructure Improvements<br>T-6: Increase Development Densities<br>T-7: Mixed Use Development<br>T-8: Implement Pedestrian Only Areas<br>T-14: Neighborhood EV Programs<br>T-16: Bike Share Program<br>T-17: Car Share Program<br>T-20: Eco-corridor/Green Enterprise Zone<br>E-3: Local Utility Programs<br>E-4: Renewable Energy on Public Property<br>W-1: Water Conservation<br>SW2: Food Scrap and Paper Diversion<br>SR-6: Clean Vehicle and Low Carbon Fuel Standards<br>SR-7: MetroLink Expansion | High | Medium |
| **8.** Clean-Tech Incubator | E-5: UC Riverside Carbon Neutral Program<br>T-16: Bike Share Program<br>T-17: Car Share Program<br>T-20: Eco-corridor/Green Enterprise Zone<br>SR-6: Clean Vehicle and Low Carbon Fuel Standards<br>SR-7: MetroLink Expansion | High | Medium |
| **9.** Buy and Produce Local Initiative | A-1: Local Food and Agriculture<br>T-16: Bike Share program<br>T-20: Eco-corridor/Green Enterprise Zone<br>SW-1: Yard Waste Collection<br>SW2: Food Scrap and Paper Diversion<br>SR-13: Construction & Demolition (C&D) Requirements | Medium | Low |
| **10.** Global Markets | E-6: Riverside Public Utilities Technology Grants<br>T-20: Eco-corridor/Green Enterprise Zone | High | High |

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# CHAPTER B.5 IMPLEMENTATION & MONITORING

## PROGRAM OVERVIEW

Successful implementation of the Riverside Restorative Growthprint Climate Action Plan (RRG-CAP) measures laid out in Chapter 3 will enable the City to exceed its 2020 GHG reduction target, and achieve substantial progress toward meeting the much more aggressive 2035 GHG reduction target. This chapter outlines how the City will monitor the progress of the subregional and local measures to reduce community-wide GHG emissions. In some cases, turning strategies and measures into actual emission reductions will require new programs, City staff time for administration and promotion activities, and effective management systems for tracking and monitoring program implementation. Coordination between City departments and collaboration with residents, businesses, regional organizations, and other government agencies will be needed to ensure that programs are well-managed and cost-effective.

Community involvement is an essential component of the RRG-CAP implementation process, as many strategies depend on the active participation of residents and businesses. The City will be making a concerted effort to develop and strengthen community education and awareness through various promotional programs. These efforts will be monitored for their cost-effectiveness in influencing residents, businesses, and visitors to reduce their personal carbon footprints. The City's web site and social media programs will continue to be the primary means of communicating news and progress regarding RRG-CAP implementation and soliciting feedback from the community and other stakeholders.

### ADMINISTRATION

The City will pursue assistance from the Western Riverside Council of Governments (WRCOG) for staffing and administrative support at the subregional level, particularly in

implementing subregional programs such as the Transportation Uniform Mitigation Fee (TUMF), HERO Programs, and Clean Cities Coalition. The City and WRCOG will also work to align these programs, and future subregional initiatives, with the goals established in the RRG-CAP, where applicable.

The City will appoint a "RRG-CAP Coordinator" to oversee the successful implementation and tracking of local RRG-CAP reduction strategies. The RRG-CAP Coordinator will primarily be responsible for coordinating across municipal departments to gather data, report on progress, track completed projects, and ensure that scheduling and funding of upcoming projects is discussed at key meetings. The RRG-CAP coordinator may also participate in development review process for new projects and assisting Planning Department staff in determining whether development projects are consistent with the RRG-CAP.

The RRG-CAP Coordinator will coordinate with WRCOG as needed to support implementation of subregional measures and to support the Subregional CAP effort in general. **Table B.5-1** describes the anticipated responsibilities for WRCOG and the local RRG-CAP Coordinator.

**Table B.5-1: Local and Subregional CAP Implementation Responsibilities**

| WRCOG | RRG-CAP Coordinator |
|---|---|
| Secure financing to implement subregional GHG reduction measures (i.e., grants) | Secure long-term financing to implement local GHG reduction measures |
| Coordinate meetings among member jurisdictions, regional partners and stakeholders | Coordinate meetings amongst local community stakeholders |
| Serve as the external communication hub to regional climate action organizations including California Air Resources Board (CARB), South Coast Air Quality Management District (SCAQMD), and Southern California Association of Governments (SCAG) | Serve as the communication hub to the community and local stakeholders |
| Conduct public outreach to inform the community of the subregion's climate action planning efforts | Submit annual reports to governing bodies |
| Develop a protocol for monitoring the effectiveness of emissions reduction programs | Utilize tool developed by WRCOG to report and document emission reduction progress |
| Establish guidelines and develop a tool for reporting and documenting emissions reduction progress | Use City's Monitoring tool to document emissions reduction progress |
| Submit annual reports to the WRCOG Executive Committee and member agency governing bodies | Submit annual reports to City Manager |
| Develop a protocol for utilizing the real-time information collected through the verification process to modify and revise existing reduction programs | Manage the revision of the RRG-CAP at least every 5 years |
| Track state and federal legislation and its applicability to member jurisdictions | Track state and federal legislation and its applicability to Riverside |

# IMPLEMENTATION COMPONENTS

The City is responsible for initiating the local actions to reduce emissions, but success for many measures will ultimately depend on State and regional implementation as well as public participation. As noted above, WRCOG will lead implementation of the subregional measures, assisting in identifying funding, establishing partnerships, and tracking and monitoring subregional progress. Tasks that require active promotion may require updates to the City, WRCOG, and other member jurisdiction's websites, distribution of physical promotional materials, and other active outreach activities. The City will partner with WRCOG on public outreach, including public forums, workshops, and meetings to foster an open public input and commenting process. Collaboration and coordination with transportation agencies (e.g., Riverside Transit Agency (RTA), Riverside County Transportation Commission [RCTC]) will be essential to improving and increasing transit ridership, and enhancing mobility and transportation efficiency through better planning.

**Table B.5-2** provides a summary of implementation components for all of the measures described in Chapter 3, including implementation timeframe, the City department tasked with implementation, and information on the following aspects where relevant.

## Cost-benefit Analysis

The measure descriptions in Chapter 3 include simple cost estimates for program development and execution. For some measures, detailed cost estimates or program designs may be necessary to assess the cost-effectiveness of various implementation options and to identify City budget and staffing needs. Cost-benefit analysis should 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. Certain capital improvements, particularly those identified in Land Use/Transportation measures, will need to be added to the Capital Improvement Plan (CIP) and/or facility master plan programs used by the implementing agency.

## City Ordinance and Code Updates

Some local reduction measures represent a modification to existing codes or ordinances, while others may require new codes or ordinances. WRCOG developed a "plug and play" implementation toolkit of specific general plan policy language and zoning ordinance text to facilitate local implementation of the GHG reduction and climate adaptation measures in the Subregional CAP. The model "best practices and programs" aspect of the toolkit includes, those related to sustainable development, energy, water, transportation, stormwater management, building reuse, and waste reduction.

## Implementation Partners

Coordination with external agencies, the University of California Riverside (UCR), and the private sector is critical for the success of many strategies, including RPU's energy conservation and renewable energy programs, City-approved solid waste haulers for waste reduction actions, RPU for water saving actions, and other local jurisdictions for work-sharing partnerships designed to take advantage of the common goals across the

WRCOG subregion. Relevant partnerships with utilities, private sector entities, outside agencies, and other stakeholders are noted in the in the RRG-CAP measure description.

### Implementation Timeframe

The majority of RRG-CAP measures are already being implemented. For those that are not, the anticipated calendar year for initiation is provided. Actual implementation start dates may depend on a variety of factors, including availability of funding and City staff time, community priorities, evolving state regulations, and changing environmental demands.

### Funding

The GHG reduction measures in Chapter 3 were formulated with an understanding that the City has limited staff time and financial resources to implement them. The costs for implementation include the creation or promotion of voluntary programs, continuing administration of those programs, coordination and outreach with other government agencies and businesses, and—in some cases—exploration or study of potential legislative or regulatory mechanisms not yet codified. A few strategies require up-front capital expenditures by local agencies. The City will use a combination of staff time, grant funding, direct spending, and collaboration with other agencies and organizations to achieve RRG-CAP goals. Table 5-2 provides a summary of implementation considerations for each measure. Details on current and emerging funding opportunities are provided in the next section.

**Table B.5-2: RRG-CAP Implementation Summary Table**

| ID # | Measure Name | Responsible Agency or Department | Timeframe | Cost-benefit Analysis needed? | Code update needed? | Implementation Partners |
|---|---|---|---|---|---|---|
| SR-1 | Renewables Portfolio Standard | RPU | Through 2025 | No | No | State |
| SR-2 | 2013 California Building Energy Efficiency Standards (Title 24, Part 6) | State | Next update in 2016 | No | No | City as enforcement agency |
| SR-3 | HERO Residential Program | RPU | Ongoing | Ongoing | No | WRCOG |
| SR-4 | HERO Commercial Program | RPU | Ongoing | Ongoing | No | WRCOG |
| E-1 | Traffic & Street Light Program | Public Works | In progress | Ongoing | No | RPU |
| E-2 | Shade Trees | Public Works | In progress | No | No | Community Development and RPU |
| E-3 | Local Utility Programs | RPU | In progress | Ongoing | No | Community Development Department |
| E-4 | Renewable Energy on Public Property | Public Works | 2017 | Yes | Yes | UC Riverside and RPU |
| E-5 | UC Riverside Carbon Neutral Program | UC Riverside | In progress | N/A | No | RPU |
| E-6 | Riverside Public Utilities Technology Grants | RPU | In progress | Ongoing | No | UC Riverside |
| SR-6 | Pavley + LCFS (State Measures) | State | Through 2025 | N/A | No | |
| SR-7 | Metrolink Expansion | RCTC | In progress | Ongoing | No | WRCOG |
| SR-8 | Express Lanes | RCTC | In progress | Ongoing | No | SCAG |
| SR-9 | Congestion Pricing | RCTC | In progress | Ongoing | No | SCAG |
| SR-10 | Telecommuting | RCTC | In progress | No | No | WRCOG and SCAQMD |
| SR-11 | Goods Movement | RCTC | In progress | Ongoing | No | WRCOG and SCAG |
| T-1 | Bike Infrastructure (bike lanes) | Community Development | In progress | Yes | No | Public Works Department |

| ID # | Measure Name | Responsible Agency or Department | Timeframe | Cost-benefit Analysis needed? | Code update needed? | Implementation Partners |
|---|---|---|---|---|---|---|
| T-2 | Bike Parking & Amenities | Community Development | In progress | No | Yes | Public Works Department |
| T-3 | End of Trip Facilities | Community Development | In progress | Yes | Yes | Public Works Department |
| T-4 | Promotional TDM | Community Development | In progress | Ongoing | No | Public Works Department |
| T-5 | Traffic Signal Coordination | Public Works | In progress | Ongoing | No | Economic Development Department |
| T-6 | Density | Community Development | 2015 | No | Yes | WRCOG and SCAG |
| T-7 | Mixed-Use Development | Community Development | In progress | No | Yes | Economic Development Department, WRCOG and SCAG |
| T-8 | Implement Pedestrian Only Areas | Community Development | In progress | Yes | Yes | Public Works and Economic Development Departments |
| T-9 | Limiting Parking Requirements for New Development | Community Development | In progress | No | Yes | |
| T-10 | Implement BRT Service | Public Works | 2016 | Yes | No | Riverside Transit Agency (RTA) |
| T-11 | Voluntary TDM | Community Development | In progress | No | No | RCTC, WRCOG and SCAG |
| T-12 | Accelerated Bike Plan Implementation | Community Development | In progress | Yes | No | Public Works Department |
| T-13 | Fixed Guideway Transit | Community Development | In progress | In progress | No | Public Works Department |
| T-14 | NEV Programs | Community Development | In progress | Yes | Yes | Public Works Department, WRCOG |
| T-15 | Subsidized Transit | Community Development | In progress | In progress | No | Riverside Transit Agency (RTA) and UC Riverside |
| T-16 | Bike Share program | Community Development | 2015 | Yes | Yes | UC Riverside (in progress on-site); Public Works Department |

| ID # | Measure Name | Responsible Agency or Department | Timeframe | Cost-benefit Analysis needed? | Code update needed? | Implementation Partners |
|---|---|---|---|---|---|---|
| T-17 | Car Share Program | Community Development | 2020 | Yes | No | UC Riverside (in progress there); Public Works Department |
| T-18 | SB 743 as Alternative to LOS | Community Development | In progress | No | Yes | Public Works Department; Traffic Engineering Division |
| T-19 | Alternative Fuel Technology/Infrastructure | RPU | In progress | No | Yes | Community Development Department, Planning Division |
| T-20 | Eco-Corridor / Green Enterprise Zone | Community Development | 2020 | Yes | Yes | Economic Development and Public Works Departments, UC Riverside |
| SR-13 | Construction & Demolition (C&D) Requirements | CalRecycle | In progress | No | No | City approved solid waste haulers |
| SW-1 | Yard Waste Collection | Public Works | In progress | No | No | City approved solid waste haulers |
| SW-2 | Food Scrap and Paper Diversion | Public Works | 2020 | No | No | City approved solid waste haulers |
| W-1 | SB-7X-7 | RPU | In progress | No | No | Community Development Department |
| A-1 | Local Food and Agriculture | Community Development | In progress | No | Yes | Economic Development, UC Riverside |

## POTENTIAL FUNDING SOURCES

**Table B.5-3** presents a summary of funding and financing options available at the time this document was prepared. Some funding sources are not necessarily directed towards a jurisdiction, but to a larger regional agency such as WRCOG, SCAG, a Joint Powers Authority (JPA), or a waste services provider serving multiple jurisdictions. WRCOG and 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 at the local level. Leveraging financing sources is one of the most important roles the City and WRCOG can play in partnering to implement many of the GHG reduction measures.

As with most cities, internal funding sources are limited at the City of Riverside for RRG-CAP implementation. In some cases the City can appropriate funding from general sources or make changes in its fee schedules, utility rates, and other sources as needed to support implementation of GHG reduction measures. Many outside funding sources including state and federal agencies, as outlined in the next section, are available. The City should pursue these and other emerging funding sources as a part of its implementation efforts.

**Table B.5-3: Potential Funding Sources to Support RRG-CAP Implementation**

| **Federal Funds** | |
|---|---|
| Energy Efficient Mortgages | ▪ The Federal Housing Administration (FHA) offers an Energy Efficient Mortgage Loan program that assists current or future homeowners with lowering their utility bills. This would be accomplished by enabling homeowners to incorporate the cost of adding energy-efficient improvements into their home mortgage. Energy efficient upgrades could be chosen that would allow owners to realize net monthly savings. The goal is to provide owners additional financing for energy efficiency upgrades at a discounted interest rate. |
| Moving Ahead for Progress in the 21st Century (MAP-21) | ▪ Federal funding through the MAP-21 program is administered through the state and regional governments. MAP-21 funding is administered through Caltrans, MPOs (SCAG in Southern California) and RTPAs (RCTC in Riverside County). Most of the funding programs are transportation versus recreation oriented, with an emphasis on reducing auto trips and providing an intermodal connection. In most cases, MAP-21 provides matching grants of 50 to 100%. |
| Safe Routes to Schools | ▪ Safe Routes to Schools is an international movement focused on increasing the number of children who walk or bike to school by funding projects that remove barriers to doing so. These barriers include a lack of infrastructure and non-infrastructure projects, safety, and limited programs that promote walking and bicycling. In California, two separate Safe Routes to School programs are available at both the state and federal level, and both programs fund qualifying infrastructure projects. |

| | |
|---|---|
| American Recovery and Reinvestment Act (ARRA) Community Partnerships | ▪ Federal funding for local energy efficiency programs is available. Funding for energy efficiency has been provided to the California Department of Community Services and Development, which has dispersed funds locally through the Community Action Partnership of Riverside County. The Partnership provides free home weatherization and other energy assistance resources to low-income and elderly citizens of Riverside County. Programs include the Low-Income Home Energy Assistance Program and the Weatherization Assistance Program. |
| **State Funds** | |
| California Air Resources Board (CARB) | ▪ CARB offers several grants, incentives, and credit programs to reduce on-road and off road transportation emissions. Residents, businesses, and fleet operators can receive funds or incentives depending on the program.<br><br>The following programs can be utilized to fund local measures:<br>o Low Carbon Transportation Program (GGRF)<br>o Air Quality Improvement Program (AB 118)<br>o Carl Moyer Program – Voucher Incentive Program<br>o Goods Movement Emission Reduction Program (Prop 1B Incentives)<br>o Loan Incentives Program<br>o Lower-Emission School Bus Program/School Bus Retrofit<br>o Replacement Account (Prop 1B and EPA Incentives) |
| California Energy Efficiency Financing | ▪ For years, the California Energy Commission (CEC) has provided a loan program that supports local government energy retrofits and some new construction projects. Since 1979, more than $272 million has been allocated to more than 773 recipients, as of 2012. The program provides low interest loans for feasibility studies and the installation of cost-effective energy projects in schools, hospitals, and local government facilities. The loans are repaid out of the energy cost savings and the program finances lighting, motors, drives and pumps, building insulation, heating and air conditioning modifications, streetlights and traffic signal efficiency projects, and certain energy generation projects, including renewable energy projects and cogeneration. Loans can cover up to 100% of project costs and there is a maximum loan amount of $3 million. |
| California Department of Resources Recycling and Recovery (CalRecycle) | ▪ CalRecycle grant programs allow jurisdictions to assist public and private entities in management of waste streams.<br>▪ Incorporated cities and counties in California are eligible for funds.<br>▪ Program funds are intended to:<br>o Reduce, reuse, and recycle all waste.<br>o Encourage development of recycled-content products and markets. |

| | |
|---|---|
| | o Protect public health and safety and foster environmental sustainability. |
| Strategic Growth Council (SGC) | ▪ In September 2008, California Senate Bill 732 created the Strategic Growth Council, which is a cabinet level committee whose tasks include coordinating the activities of member state agencies to assist state and local entities in the planning of sustainable communities and meeting AB 32 goals, including administration of the Affordable Housing & Sustainable Communities Program (AHSC). |
| California Transportation Commission (CTC) | ▪ The California Active Transportation Program (ATP) was created by Senate Bill 99 and Assembly Bill 101 to encourage increased use of active modes of transportation, such as biking and walking, as well as to ensure compliance with the federal transportation authorization MAP-21. Funds awarded through the ATP program are selected by the State (60% of total funds) as well as SCAG. ATP program funds may be eligible to implement RRG-CAP measures T-1, T-2, T-3, T-12, and T-16. |
| California Department of Food & Agriculture (CFDA) | ▪ The Agricultural Energy & Operational Efficiency (GGRF) program is an environmental farming program to provide incentives to farmers whose practices promote energy efficiency. Funds may be eligible to implement RRG-CAP measures A-1. |
| State Funding for Infrastructure | ▪ The state's Infill Infrastructure Grant Program may potentially be used to help fund measures that promote infill housing development.<br>▪ Grants can be used for gap funding for infrastructure improvements necessary for specific residential or mixed-use infill development projects. |
| Existing Capital Improvement Program | ▪ State and federal funds would most likely continue to local governments, builders, and homeowners in the following forms:<br>o Grants<br>o Transportation and transit funding<br>o Tax credit and rebate programs<br>o The Capital Improvement Program can be utilized for measures relating to traffic or transit. |

**Private and Non-Governmental Support**

- Community-based non-profits, local businesses, and investor owned utilities should be considered as resources for direct and indirect support, including funding, for program activation and operations.
- Private investors may provide funding to local governments. For example, energy service companies can finance the up-front investments in energy efficiency, reimbursed by the local government over a contract period. Private companies may finance solar power installations, and then recoup their investment by selling the resulting power to the building owner.

# MONITORING AND REPORTING

Regular monitoring provides concrete data to document the City's progress in reducing GHG emissions. The RRG-CAP Coordinator will present an annual memorandum or report card to the City Manager summarizing progress implementation of RRG-CAP measures. The report will evaluate the successes and challenges in meeting the City's GHG reduction goals (as they become known or apparent), provide the status of implementing actions for each reduction measure in the Plan (e.g., initiated, ongoing, completed), assess the effectiveness of each measure, and recommend adjustments to programs or tactics as needed. The annual report will also assess whether the City's actual growth and development is consistent with the forecasts made in the RRG-CAP. The annual report will also be periodically (i.e., annually) presented to City Council, Planning Commission, Green Action Plan (GAP) Committee, WRCOG's Executive Committee and other stakeholders as needed.

## GHG Inventory Updates

An update of the City's GHG inventory will be completed biennially (every other year) at minimum; If appropriate, the City shall modify the geographic scope of the inventory, along with emissions baseline and targets as necessary. Inventory updates will encompass all inventory sectors (utility energy, direct access energy, on-road transportation, solid waste, wastewater, and water), and include a comparison to baseline GHG emissions (2007) and analysis of trends over time.

## RRG-CAP Revisions

A comprehensive revision of the RRG-CAP should occur at least every five years to monitor progress of GHG reductions against the 2020 and 2035 targets, to account for the impact of new legislation and state programs on GHG targets and emissions reductions, and to adjust programs as needed to reach the targets. With the California Governor's recent Executive Order B-30-15 to cut state-wide GHG emissions to 40% below 1990 levels by 2030, it is widely expected that the state will soon codify post-2020 GHG reduction targets and enact new laws and programs to ensure those targets are met. Targeted investment and state supported infrastructure will be needed to establish commercial markets for low-carbon solutions to grow to the scale required. These developments will greatly enhance the ability of the City of Riverside to meet its long-term GHG reduction goals.

## Tracking Implementation and GHG Emissions Reductions from Local Measures

City staff will report RRG-CAP implementation progress using benchmarks and metrics that serve to gauge reduction implementation and associated GHG reductions. A monitoring tool has been developed to track implementation of the most impactful RRG-CAP measures and to annually estimate the GHG reductions associated with implementation. The tool simplifies the monitoring task by using progress indicators to estimate the annual GHG reductions associated with the twelve most significant RRG-CAP measures, which collectively account for approximately 92% of the total emissions reductions expected from all locally controlled measures in the RRG-CAP.[1] **Table B.5-4** lists the implementation metrics that the monitoring tool uses to estimate the GHG

[1] Note: As summarized in Table 5-2, the RRG-CAP contains 7 measures that are controlled or implemented at the state or sub-regional level and 25 locally implemented measures.

reduction impacts of each measure. **[Note to Reviewer: this image is a placeholder; we will insert screenshot of RRG-CAP tool once developed.]**

**Figure B.5-1: Tracking and Implementation Tool**

**Table B.5-4: Monitoring Metrics for Top 12 Locally Implemented GHG Reduction Measures**

| ID | Strategy Name | Annual Target Reductions (MT CO2e) | | Progress Indicators and targets | Indicator Data Source |
|---|---|---|---|---|---|
| | | by 2020 | by 2035 | | |
| SR-1 | Renewables Portfolio Standard | 363,096 | 372,020 | Percent of retail sales from qualifying renewables | RPU |
| T-5 | Traffic Signal Coordination | 51,693 | 68,754 | Percentage of arterial roads with signal coordination from 2010 baseline.<br>• By 2020: Achieve a 75% increase.<br>• By 2035: Achieve a 90% increase | Public Works Department |
| SR-3 | WRCOG HERO Program - Residential | 38,681 | 64,964 | • $ invested<br>• cumulative kWh savings<br>• jobs created | HERO program administrator |
| E-3 | Local Utility Programs | 32,197 | 43,491 | Assumes that RPU continues to reduce community energy use by 1% per year through 2035:<br>• By 2020: RPU saves 87.2 million kWh/yr<br>• By 2035: RPU saves 131.5 million kWh/yr | RPU |
| SR-12 | E-Vehicle Plan + Infrastructure | 31,811 | 39,705 | • Number of publically available EV stations<br>• Number of registered EVs in the City | Public Works, RPU |
| E-5 | UC Riverside Carbon Neutral Program | 25,000 | 32,959 | Track UCR's % toward goal; from their annual inventory | UC Riverside |
| T-9 | Limiting Parking Requirements for New Development | 17,482 | 24,757 | • By 2020: Amend zoning to reduce parking requirements by 25% for non-residential development.<br>• By 2035: Amend zoning to reduce parking requirements by 33% for non-residential development. | Community Development Department, Planning Division |
| T-1 | Bike Infrastructure (bike lanes) | 15,905 | 20,889 | • Percent increase in bicycle lane mileage from 2010 baseline<br>• By 2020: Achieve a 50% increase<br>• By 2035: Achieve a 75% increase | Public Works Department in conjunction with Planning |
| SR-10 | Telecommuting | 15,905 | 19,853 | • Percent increase in regional TDM strategies implemented on a regional level | RCTC, WRCOG, Economic Development Department |
| W-1 | SB-7X-7 (Water conservation) | 10,748 | 10,748 | Reduce per capita water use by 20% (from 2010 baseline) | RPU |
| SR-7 | Metrolink Expansion | 9,045 | 11,289 | • Opening of Perris Valley Line with service beginning in 2015 | RCTC |
| SR-4 | WRCOG HERO Program - Commercial | 6,618 | 86,276 | $ invested, cumulative kWh savings, jobs created | HERO program administrator |
| | ***Total of Top 12 Measures*** | ***258,582*** | ***Represents 92% of GHG reductions from all locally controlled measures by 2020*** | | |

## Tracking Progress of State and Subregional Measures

The RRG-CAP relies heavily on GHG reductions from Subregional and state level measures. Close monitoring of the real gains being achieved by state programs will inform the City whether adjustments to locally implemented measures are needed in order to achieve GHG reduction targets. The City will work with WRCOG to track the success of the other six RRG-CAP measures (not included in the top 12 above) being led by the state and/or WRCOG:

- SR-2: Title 24 Energy Efficiency Standards
- SR-6: Pavley vehicle standards and the Low Carbon Fuel Standard (LCFS);
- SR-8: Freeway express lanes
- SR-9: Congestion Pricing
- SR-11: Good Movement
- SR-13: Construction and Demolition Waste Requirements

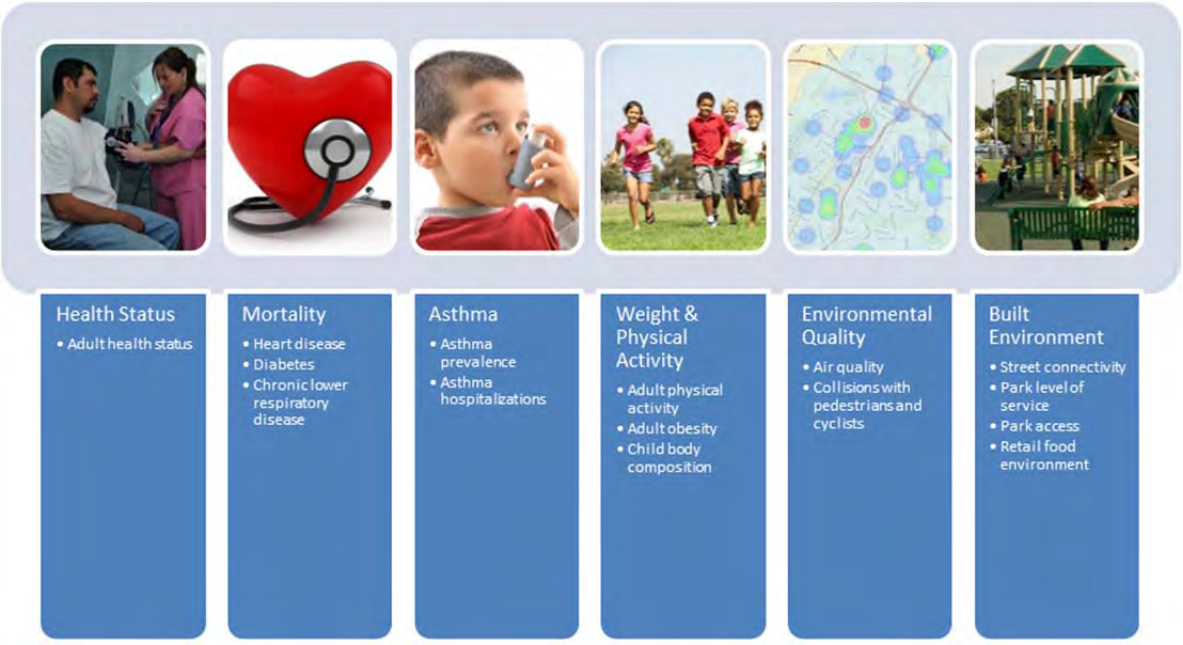
## Economic and Health Indicators

Through the WRCOG Subregional CAP implementation process, the City is currently developing economic and health indicators and trends that are relevant to RRG-CAP implementation, such as home prices, energy prices cost per kWh on solar installations, unemployment rates, and real wage increases. Linking such indicators to the implementation of RRG-CAP measures can improve the potential for public support and funding. The City will continue work with WRCOG, the County of Riverside and other regional agencies to identify and develop measurable health outcome indicators for each subregional RRG-CAP measure. Indicators will be used to identify co-benefits of the RRG-CAP, establish priorities, develop target resources, create benchmarks, and track progress towards community objectives.

Specifically, health indicators will be used in the assessment of the Subregional CAP and RRG-CAP using baseline data to measure progress towards subregional health targets. Indicators will provide information regarding the welfare of residents and help guide decision making to improve quality of life in the subregion and City. The indicators can be used to track health outcomes and guide policy and programmatic initiatives. Additional use of health indicators can provide supporting information for grant applications and other opportunities that fund health initiatives at a range of scales.

Fifteen health indicators have been selected by the WRCOG Health Subcommittee with the primary factor being the connection to greenhouse gas (GHG) reductions in order to demonstrate the health co-benefits of implementing RRG-CAP and other sustainability measures. The health indicators selected, such as physical activity and collision data, are indicators that may be impacted by GHG mitigation measures. For example, RRG-CAP measures to improve pedestrian and bicycle infrastructure may increase physical activity, improve weight status, and reduce rates of mortality for certain diseases. Health indicators fall into six major categories: health status, mortality, asthma, weight and physical activity, environmental quality, and the built environment.

**Figure B.5-1: Subregional CAP Health Indicators**



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