12

Sustainability and Resilience

CHAPTER 12

Sustainability and Resilience

Sustainability and resilience are both important to the future of Fontana. The State of California is a national and global leader in planning for sustainable and resilient communities, and these state efforts are already making Fontana more sustainable and resilient. Fontana can build on state and private initiatives to make the city a leader in the Inland Empire, with a resource- and cost-efficient community and government. This will keep Fontana competitive into the 21st century.

In this element, sustainability and resilience is focused especially on resource efficiency and planning for climate change. However, the reality is that sustainability and resilience are broader concepts that are increasingly embedded in a wide range of community values and activities—health, transportation, land use, open space preservation, and infrastructure—and reflected in the General Plan elements on these topics.

A. Community and Neighborhoods in the Fontana Forward Vision and Principles

VISION

- We have become one of the healthiest and most sustainable cities in San Bernardino County. We have taken many steps to improve our health indicators, which meet and, increasingly, surpass state averages. Our local infrastructure is resource-efficient and well-maintained. We work with our water and energy providers to establish the highest possible levels of resource conservation and efficiency

PRINCIPLES

Pursue high-quality development by making public investments a model of excellent design, and maintain high-quality design standards for new development.

Connect people and places by providing safe and efficient transportation choices, including pedestrian, bicycle, and transit opportunities, along with well-maintained streets, to connect people to city destinations.

Pursue sustainability and resilience by making resource-efficient choices to conserve water, energy, and materials, improve air quality, and adjust to changing conditions.

B. Goals and Policies

GOALS	POLICIES
Fontana is a regional leader in sustainability and resilience with an effective "Sustainable Fontana" program.	• Support establishment of a "Sustainable Fontana" program.
City government facilities and operations are models of resource efficiency.	• Incorporate goals for resource efficiency in municipal facilities and operations into the City Code. • Continue organizational and operational improvements to maximize energy and resource efficiency and reduce waste.
Renewable sources of energy, including solar and wind, and other energy-conservation strategies are available to city households and businesses.	• Support measures that permit small-scale wind and solar installations and other renewable options with appropriate regulations.
Fontana meets the greenhouse gas reduction goals for 2030 and subsequent goals set by the state.	• Continue to collaborate with SBCTA on greenhouse gas inventories and climate action planning.
Fontana is an Inland Empire leader in energy-efficient energy development and retrofits.	• Promote energy-efficient development in Fontana. • Meet state energy-efficiency goals for new construction.
Green building techniques are used in new development and retrofits.	• Promote green building through guidelines, awards and nonfinancial incentives.
Conservation of water resources with best practices such as drought-tolerant plant species, recycled water, greywater systems, has become a way of life in Fontana.	• Continue to promote and implement best practices to conserve water.

C. Findings and Challenges

EXHIBIT 12.1 **ECOSYSTEM SERVICES**

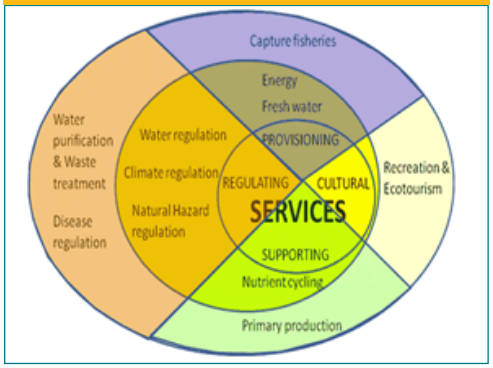


Diagram based on the Millenium Ecosystem Assessment (see Project Nereida at Nereidas-tech.eu/millennium-ecosystem-assessment/).

- **Sustainability.** A simple definition of sustainability is based on managing resources so that they continue to be available in the future: meeting the needs of present generations without compromising the ability of future generations to meet their own needs. The corollaries are to practice resource-efficiency, promote healthy environmental systems and habitats, and support conditions for continued ecosystem services. Ecosystem services are environmental systems that make continued life possible on earth: provision of water and food; regulating systems, such as flood management, air purification, and disease control; nutrient cycling; and the cultural importance of nature and habitat.

- **Resilience.** Resilience is not only the ability to respond and recover from stresses and shocks, such as heat, drought, or earthquakes and other hazard events. It means that a community is able to anticipate the impacts of stresses and hazards and to reduce overall vulnerability. While the City has a Local Hazard Mitigation Plan, these plans tend to be focused on emergency management. Resilient communities anticipate, learn and adapt to changing conditions and risks; they plan to limit their impacts; and they use adaptation strategies that integrate all community systems—civic, environmental, social and economic—to support recovery and growth.

EXHIBIT 12.2 **THE "TRIPLE BOTTOM LINE"**

The "triple bottom line" of sustainability. Source: http://changeincontext.com/wp/wp-content/uploads/2016/05/Triple-Bottom-Line

- **Air quality.** Like the rest of California, Fontana has experienced an improvement in air quality, but still experiences significant pollution. Sources of air pollution include electric utilities using nonrenewable resources; transportation; buildings; manufacturing processes; natural disasters (such as wildfires); and climate change. Since 2000, fine particulate pollution has been reduced by about 50 percent and levels of ground-level ozone, (summertime smog), have been reduced by about 35 percent in the Inland Empire.

  Nevertheless, ozone and fine particulate levels are among the highest in the U.S., partially because of geography. Winds from the west push smog toward San Bernardino and Riverside counties, where the mountains contain it. To meet federal standards for ground-level ozone, emissions of a key pollutant, nitrogen oxides, will have to be further reduced by about two-thirds. [1]

  Living near a major road has been found to have adverse health impacts. A 2010 review of over 700 studies from around the world found that traffic pollution

[1] Josie Gonzales, "Air quality has improved dramatically in Inland Empire, but more work needs to be done," Fontana Herald, January 2, 2015, citing data from the South Coast Air Quality Management District

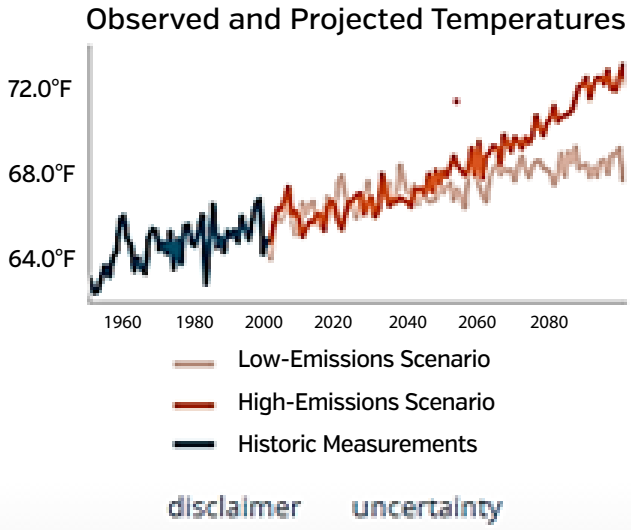
causes asthma attacks in children, and may cause a wide range of other effects including: the onset of childhood asthma, impaired lung function, premature death and death from cardiovascular diseases, and cardiovascular morbidity. The area most affected, the study concluded, was roughly 0.2 to 0.3 miles (300 to 500 meters) from the highway.[2] The American Lung Association's State of the Air 2016 report gave San Bernardino County an F for ozone; an F for 24-hour particle pollution; and a Fail for annual particle pollution.[3]

- **Climate change.** The State of California has an ambitious plan for addressing climate change. It is focusing especially on reducing greenhouse gas emissions to 40% below 1990 levels by 2030 through increasing renewable electricity production to 50%; reducing petroleum use in vehicles by 50%; doubling energy efficiency savings at existing buildings; and other initiatives. Through the California Clean Energy Jobs Act (Proposition 39 (K-12) Program), ten FUSD schools received over $7 million for energy efficiency and solar generation projects.

  Fontana will potentially be affected not only by direct climate change impacts within its own borders, but by indirect impacts resulting from changes taking place in the mountains, the deserts, and the coast. The major projected impact of climate change in Fontana is expected to be more days of extreme heat over longer periods. As an example, by 2070, Riverside is expected to double the annual number of days over 95 degrees (from 43 to 82 days, or almost a quarter of the days in a year.)

EXHIBIT 12.3 **PROJECTED FONTANA WARMING THROUGH 2100**

Historical Average	64.8°F	(n/a)
Low-Emissions Scenario	68.5°F	+3.7°F
High-Emissions Scenario	71.4°F	+6.6°F



Source: www.Cal-adapt.org

Increasing temperatures can affect Fontana in multiple ways:[4]

> More days of extreme heat increase health risks, especially for vulnerable populations, such as children and elderly persons. Increased heat also induces higher levels of ground level ozone, resulting in poor air quality with associated health risks.

> Higher temperatures over longer periods will affect the electrical grid. The

[2] http://www.lung.org/our-initiatives/healthy-air/outdoor/air-pollution/highways.html
[3] www.stateoftheair.org; for methodology, see http://www.lung.org/our-initiatives/healthy-air/sota/key-findings/methodology-and-acknowledgements.html.
[4] California Climate Change Center, Third Assessment: "Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California."

demand for electricity for air conditioning will grow. Transmission lines lose 7-8 percent of their capacity during heat waves—while the demand is higher. Key transmission corridors in Greater Los Angeles are vulnerable to increased frequency of wildfire.

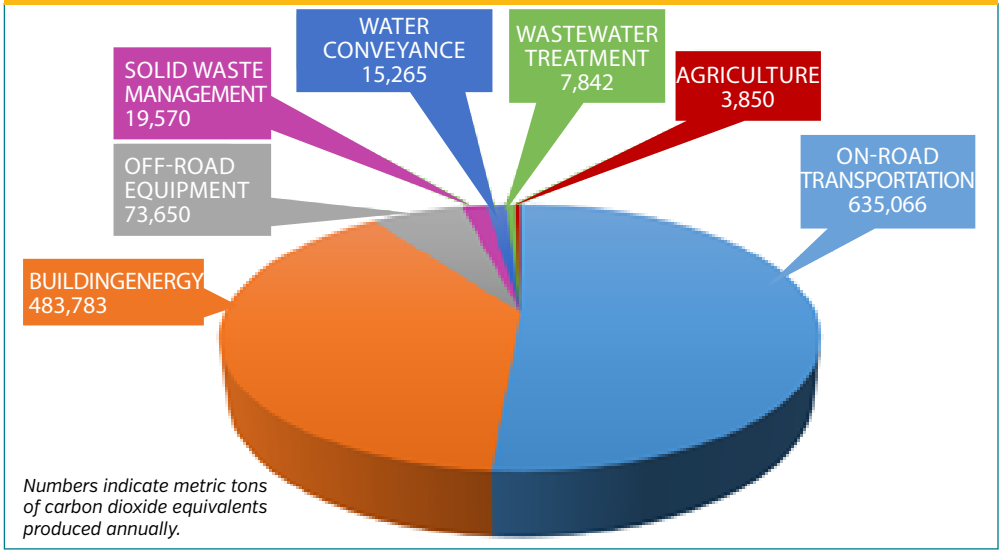
> Higher temperatures and droughts will reduce snow pack, resulting in less availability of water.

> More and more dangerous wildfires also result from earlier snowmelt, higher temperatures and longer dry periods over a longer fire season. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning.

> Less frequent but more extreme storms can also result from warmer storms bringing large amounts of moisture from the Pacific Ocean into the state.

- **Greenhouse Gas Emissions.** California law SB 375 focuses on reducing greenhouse gas (GHG) emissions. Greenhouse gases are carbon dioxide, methane, nitrous oxide, perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons. The major sources of GHG in Fontana are on-road transportation (39%) and buildings (51%) according to a 2008 SANBAG inventory. Fontana is already reducing GHG by converting lighting to LED and implementing GHG performance standards included in state building codes for new development. Additional reductions are expected to come from energy savings in wastewater treatment and water conveyance through the IUEA and FWP, utility system upgrades in equipment and infrastructure, and Smart Bus technology implemented by Omnitrans. Incorporation of land use strategies, such as walkable communities and transit-oriented development, from this General Plan update will also help reduce GHG. Transportation modeling of the land use plan performed for this General Plan shows a decline in vehicle miles traveled, which results in lower GHG emissions.

EXHIBIT 12.4 **SOURCES OF GREENHOUSE GASES PRODUCED IN FONTANA**



Numbers indicate metric tons of carbon dioxide equivalents produced annually.

Source: Fontana Draft Climate Action Plan, 2015

- **California Energy-Efficiency Goals.** California is working toward buildings

that produce as much energy as they consume over the course of a year through high levels of energy efficiency and the use of clean, on-site renewable power generation, typically solar photovoltaic. The Statewide Energy Efficiency Strategic Plan, created by the California Public Utilities Commission, aims to reach this goal for all new residential buildings in 2020 and for all new commercial buildings in 2030. Fontana was the site of Meritage, the first development in the state built to reach this goal in all homes of the subdivision.

EXHIBIT 12.5 **CALIFORNIA 2016 ENERGY EFFICIENCY STANDARDS FOR RESIDENTIAL BUILDINGS**

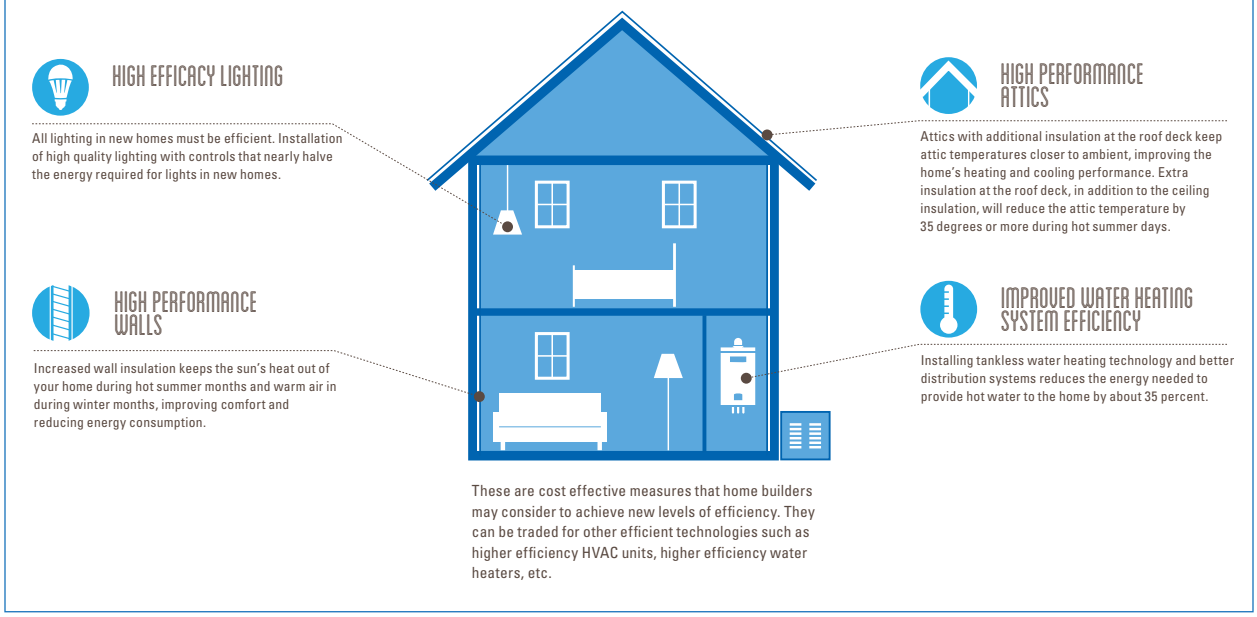
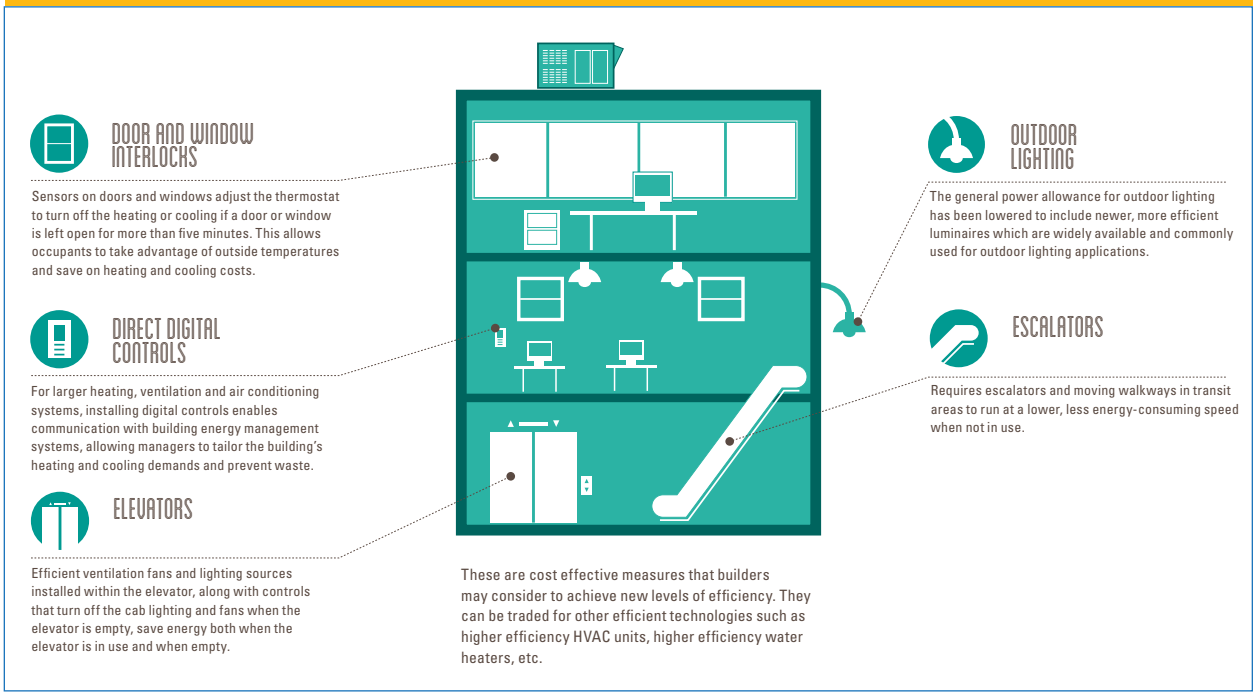


EXHIBIT 12.6 **CALIFORNIA 2016 ENERGY EFFICIENCY STANDARDS FOR NON-RESIDENTIAL BUILDINGS**



Source: California Energy Commission

D. What the Community Said

Public opinion survey:

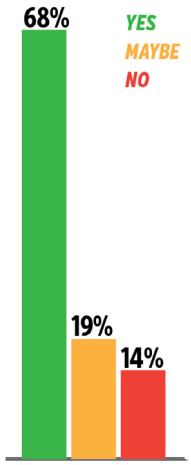
- 82% of respondents ranked "Require environmentally-friendly building and development practices" as a high or medium priority for the future.

Workshop and meeting input:

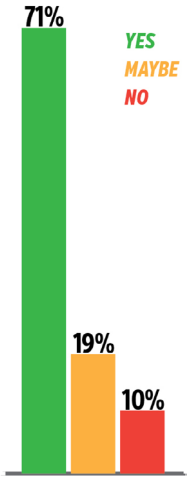
- Promote community green building.
- Focus on sustainability for the future.
- Wi-Fi friendly, walk friendly, bike friendly
- Clean energy usage; greenhouse gas reduction
- Reduce our footprint; focus on healthy community.

Workshop keypad polling:

I would like Fontana to meet the greenhouse gas reduction targets in the draft Climate Action Plan.



I would like Fontana to be known as an energy-efficient community.



I would like to see a "Sustainable Fontana" program just like we have a "Healthy Fontana" program.

I would like Fontana to be known in the region as a leader in sustainability, resilience, and energy efficiency.

E. Policies and Actions to Achieve the Goals

Goal 1: Fontana is a regional leader in sustainability and resilience with an effective "Sustainable Fontana" program.

POLICY

- Create a Sustainable Fontana program that promotes green practices in government and in the community.

ACTIONS

A. Designate an existing or new staff member to be the sustainability leader in city government to promote interdepartmental sustainability work.

   ▶ Create an interdepartmental committee to develop a framework for Sustainable Fontana. It should involve the following departments and divisions: Planning; Engineering; Public Works; Economic Development; and Community Services.

B. Establish a "Sustainable Fontana" program to coordinate City government resource-efficiency efforts and promote private initiatives and opportunities.

   ▶ Use the Healthy Fontana model to create a program that provides leadership, information, and programs for residents and businesses, and creates partnerships with other organizations. Just as the Healthy Fontana

program has made Fontana a leader in promoting a healthy community, a Sustainable Fontana program will serve as a way to coordinate planning and implementing of sustainability and resilience across City government and raise awareness among residents and businesses of how they can participate in making Fontana a more resource-efficient community, bringing health and economic benefits.

C. Consider using the STAR Communities rating system to identify goals and validate and support implementation of best practices in some or all of the activities for community sustainability.

   - The STAR system offers the possibility of certification to benchmark progress against national standards and peer cities. More than 40 communities across the nation have become STAR-certified including the City of Riverside.[5]

D. Identify grant opportunities for sustainability and resilience activities, including public awareness activities.

E. Create a web page for Sustainable Fontana with a dashboard that is updated at least twice a year to show how Fontana is making progress towards meeting the goals.

[5] https://reporting.starcommunities.org/communities/27-riverside-california

EXHIBIT 12.7 **THE STAR COMMUNITIES RATING SYSTEM**

BUILT ENVIRONMENT	CLIMATE & ENERGY	EDCONOMY & JOBS	EDUCATION, ARTS & COMMUNITY	EQUITY & EMPOWERMENT	HEALTH & SAFETY	NATURAL SYSTEMS
Ambient noise and light	Climate adaptation	Business retention & development	Arts & culture	Civic engagement	Active living	Green infrastructure
Community water systems	Greenhousegas mitigation	Green market development	Community cohesion	Civil & human rights	Community health & health system	Invasivespecies
Compact & complete communities	Greening the energy supply	Local economy	Educational opportunity & attainment	Environmental justic	Emergency prevention & response	Naturalresource protection
Housing affordability	Industrial sector resource efficiency	Quality jobs & living wages	Historic preservation	Equitable services & access	Food access & nutrition	Outdoor air quality
Infill & redevelopment	Resource-efficient buildings	Targeted industry development	Social&cultural diversity	Humanservices	Indoor air quality	Water in the environment
Public spaces	Resource-efficient public infrastructure	Workforce readiness	—	Poverty prevention alleviation	Natural & human hazards	Working lands
Transportation choices	Waste minimization	—	—	—	Safe communities	—

The STAR rating system is divided into seven thematic goal areas. Adapted from www.starcommunities.org.

Goal 2: Government facilities and operations are models of resource efficiency.

POLICIES

- Incorporate goals into the City Code for resource efficiency in municipal facilities and operations.
- Continue organizational and operational improvements to maximize energy and resource efficiency and reduce waste.

ACTIONS

A. Form a city government task force to audit all practices for energy and resource efficiency and procurement policies.

B. Require that all capital projects be evaluated for resource-efficiency, sustainability and resilience values and give preference to energy efficient design, materials and equipment in public facilities and infrastructure.

C. Use the Envision infrastructure planning and rating system described in Chapter 10 to evaluate capital projects.

D. Write RFPs and vendor contracts to give preference to resource-efficient and non-toxic design, materials and equipment.

E. Expand the use of renewable energy sources for City operations.

   ▶ Options include: installation of solar power wherever possible for City operations: purchase of renewable energy through the Green Tariff or community solar programs; as vehicles are retired from the City fleet, replace them with electric, CNG or similarly energy-efficient vehicles.

F. Establish green procurement policies.

   ▶ Add requirements for resource-efficient and non-toxic procurement policies for the city.

Goal 3: Renewable sources of energy, including solar and wind, and other energy-conservation strategies are available to city households and businesses.

POLICY

- Promote renewable energy programs for government, Fontana businesses, and Fontana residences.

ACTIONS

A. Evaluate a Community Choice Aggregation (CCA) Program for Fontana.

   ▶ The City is studying a CCA program through which the City of Fontana would buy and sell power, aggregating customers to procure power that is typically less expensive and cleaner that that available from the utility. The utility would continue to manage the grid and bill customers.

B. Promote renewable energy options as described in Chapter 10.

C. Ensure that appropriate zoning and design standard regulations are in place as needed to provide for domestic solar and wind installations.

   ▶ Zoning and design standards should allow renewable energy installations while at the same time being sensitive to preservation of aesthetic character in neighborhoods.

Goal 4: Fontana meets the greenhouse gas reduction goals for 2030 and subsequent goals set by the state.

POLICY

- Continue to collaborate with SBCTA, infrastructure agencies, and utilities on greenhouse gas reduction studies and goals.

ACTIONS

A. Build on baseline research completed for greenhouse gas reduction to set local goals and meet state goals.

B. Work with regional agencies to meet any future state goals for GHG reductions.

Goal 5: Green building techniques are used in new development and retrofits.

POLICY

- Promote green building through guidelines, awards and nonfinancial incentives.

ACTIONS

A. Establish a residential "cool roofs" program to reduce air conditioning costs and the urban heat island effect.

   ▶ Cool roofs have reflective colors or materials to reduce concentration of heat. Currently they are more common on commercial and industrial buildings. Summer temperatures can rise to 150 degrees or more on standard roofs. Cool roofs can reduce the heat by 50 degrees or more. The Cities of Los Angeles and Chula Vista, among others, have adopted Cool Roof ordinances

B. Encourage retrofits of whole house fans for existing buildings.

   ▶ New houses are now required by code to have these fans, and it is a relatively inexpensive retrofit for existing houses to reduce heat.

C. Establish an annual award for green development projects, including retrofits, in Fontana.

   ▶ Collaborate with an organization such as the American Institute of Architects Inland California chapter or the US Green Building Council to develop an awards program.

Goal 6: Fontana is a leader energy-efficient development and retrofits.

POLICY

- Promote energy-efficient development in Fontana.
- Meet or exceed state goals for energy-efficient new construction.

ACTION

A. Provide incentives for energy-efficient residential and non-residential construction.

   ▶ Incentives could include discounts on permit fees and streamlining.

Goal 7: Conservation of water resources with best practices such as drought-tolerant plant species, recycled water, greywater systems, has become a way of life in Fontana.

POLICY

- Continue to promote and implement best practices to conserve water.

ACTION

A. See strategies in Chapter 10.

F. Getting Started

ACTION	RESPONSIBLE PARTY
Create a Sustainable Fontana program to coordinate energy- and resource-efficiency, non-toxic, and anti-pollution programs and procurement.	City Manager's office
Audit city operations and practices for sustainability and resilience.	City Manager's office