

## CHAPTER

# 2

# Sustainability and Economic Vitality

One of the challenges of the General Plan update is how to ensure sustainability over the long-term for the community. The *Existing Conditions Report* provide the basis for a discussion of policy issues related to sustainability, compiling information for the community and the GPURC to use in the planning process and increasing awareness and knowledge to inform choices and clarify tradeoffs.

This section of the report introduces the concept of sustainability and how it would apply to the General Plan Update. In this context, sustainable development is not only about the “natural” environment, but also about the “built” environment; it is not only about animals and plants, but also about people; it is not about making buildings cost more, but about designing systems so Visalia’s quality of life can be assured over the long-term.

To present this information in a systematic way, this section:

- Explains what sustainability is in terms that are easy for everyone to understand;
- Describes how the General Plan can help achieve sustainable development, and where, in subsequent chapters of this report, additional detail is provided;
- Summarizes how well Visalia is doing today in relative to some key indicators which can be used in evaluating General Plan land use alternatives and policies; and
- Introduces issues and leadership opportunities for consideration as the General Plan update process progresses.

Becoming a sustainable community will require an integrated approach to planning and development that fully examines all costs (long and short term) and balances those against the long term environmental and social needs of the community.

## 2.1 What is Sustainability?

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### Broad Definitions

The 1970 National Environmental Policy Act (NEPA) formally established as a national goal the creation and maintenance of conditions under which humans and nature “can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans.” A decade later, the concept of “sustainable development” appeared in a 1981 White House Council on Environmental Quality report: “The key concept here is sustainable development. If economic development is to be successful over the long term, it must proceed in a way that protects the natural resource base of developing countries.” Shortly after in 1983, the United Nations World Commission on Environment and Development addressed growing concerns about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development. From this commission came one of the most commonly-accepted definitions of sustainable development: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>1</sup>

Sustainability is also often described in terms of carrying capacity, or the population size of a species that the environment can sustain indefinitely. From this perspective, achieving sustainability has been described as “improving the quality of human life while living within the carrying capacity of supporting eco-systems.”<sup>2</sup>

### Organizing Frameworks

#### *The Three-legged Stool*

Beyond simply definitions though, since the 1970s people have also been trying to “operationalize” sustainability; to identify a set of actions that will achieve the intended goals of sustainability. One of the most enduring ideas emanating from the formative years of the sustainable development movement is the “three-legged stool” metaphor. As people set about explaining the multi-dimensional aspects of a more sustainable future, they would often evoke the three legged stool as an example to explain their idea. In this simple construct, each leg of the stool needs to be the same size and given the same level of attention, in order to ensure the stool stands up. The premise is that one cannot support the stool on one leg, or two legs, or a series of legs different in size.

As the metaphor goes, this is the case with sustainability. Sustainability cannot be achieved by focusing on one ‘leg’ to the detriment of the others. All three legs must be addressed in a balanced manner. While thought leaders, cities and even private companies adapt the three legs to meet their unique needs (e.g., in the business world, “companies aiming for sustainability need to perform not against a single, financial bottom line but against the triple bottom line”<sup>3</sup>), over time, most definitions of sustainability have come to include some variation of the following three spheres of

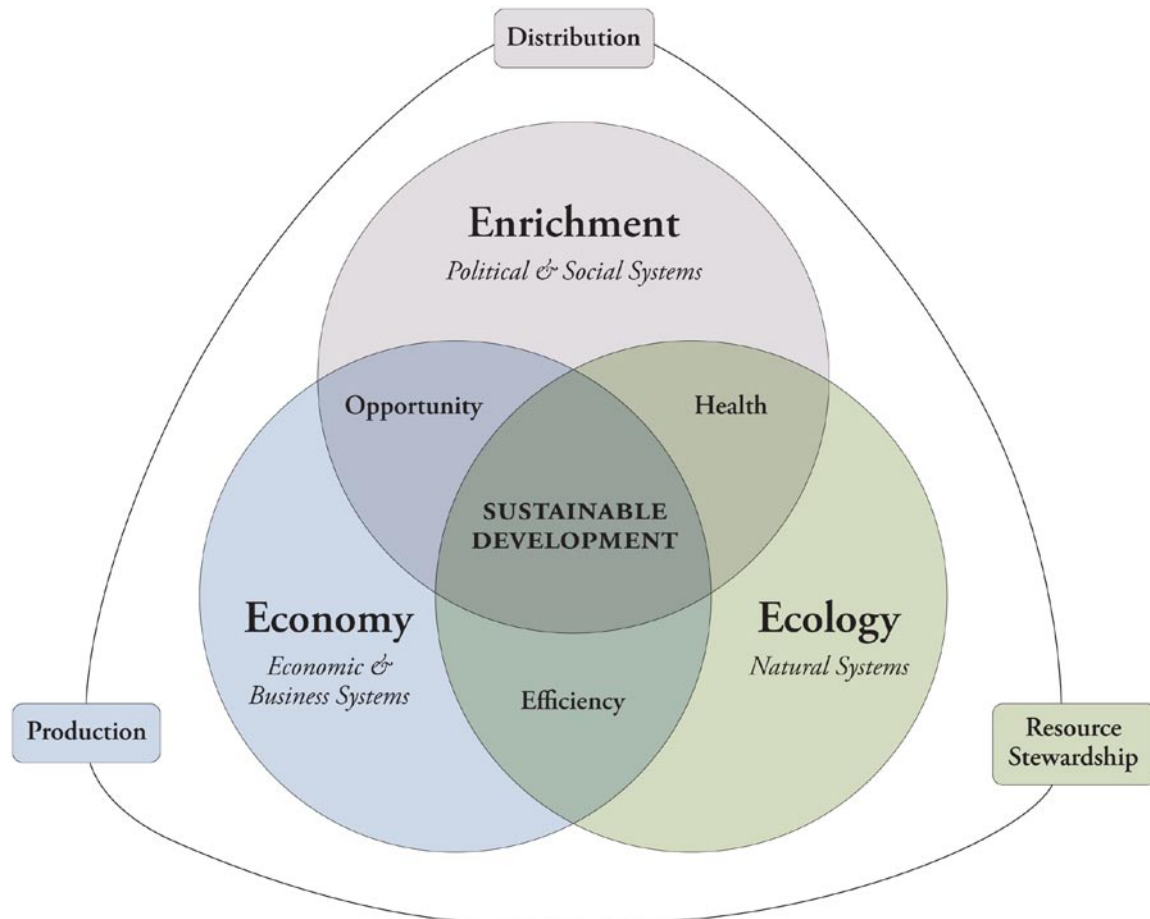
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<sup>1</sup> World Commission on Environment and Development, 1987.

<sup>2</sup> The World Conservation Union, et al., 1991.

<sup>3</sup> Term coined by John Elkington in 1994, used by the World Business Council on Sustainable Development, Sustainable Measures, <http://www.sustainablemeasures.com>

influence, sometimes called the “three Es of sustainability” or the “triple E” approach: ecology, economy, and enrichment.



### *Ecology*

Ecological or environmental conservation is what most people think of when they hear the term sustainability. It is the branch of sustainable development that concerns itself with natural systems and natural resources; it proposes that human activity is sustainable when it does not disrupt the ability of natural (living and non-living) systems to function. The ecological perspective is historically known for its concern about endangered species and habitats, contamination of water bodies and other forms of pollution that damage aquatic ecosystems, the destruction of non-renewable resources, and a generalized environmental conservation approach. The ecological or environmental approach to sustainability attempts to monitor, protect, and re-establish the physical health of the natural environment. The ecological aspect of sustainability has evolved, however, to encompass an understanding that protecting these “natural environment” systems often has social or “human” costs and implications.

### *Economy*

Economics became a concern to environmentalists when efforts to preserve habitats and natural resources throughout the world confronted the competing priorities of people who needed those same resources to survive. The economic component of sustainability is also part of the argument for

businesses to change harmful practices. Though the phrase and concept of “triple bottom line” first evolved as an approach to business management, the concern for economics was never simply about the financial profit of an organization. Rather, sustainability requires economics to encompass the ability of an organization, community, or government to improve economic stability and vitality on a local, regional, and even national scale.

### *Enrichment*

The enrichment element of sustainability, also known as “equity,” typically refers to the distribution of costs and benefits across all members of society, and speaks to the basic needs of humans for fulfillment—including safety and security as well as access to a community where people feel they belong and can participate. There is both a fundamental human rights argument for equity in development—one that distinguishes these goals from other economic or environmental optimization prerogatives—as well as a procedural argument that claims that true sustainable development cannot be achieved without the participation of all segments of society and the fair distribution of benefits and opportunities. Commonly-used terms are social justice or environmental justice, names for movements seeking to prevent gentrification, displacement of low income communities, or the unequal negative public health impact of development decisions. Often, equity conflicts are the result of a “Not in My Back Yard” (NIMBY) perspective coupled with the generally low political participation of lower-income or minority communities.

### *Smart Growth*

During the 1980s and 1990s new policies and concepts emerged in an attempt to make the concept of sustainable development more tangible to planners and communities. Smart Growth is one of the most enduring of these early concepts, guided by 10 basic principles based on the experience of communities around the nation striving to create and maintain great neighborhoods. These principles are:

- Mix land uses;
- Take advantage of compact building design;
- Create a range of housing opportunities and choices;
- Create walkable neighborhoods;
- Foster distinctive, attractive communities with a strong sense of place;
- Preserve open space, farmland, natural beauty, and critical environmental areas;
- Strengthen and direct development towards existing communities;
- Provide a variety of transportation choices;
- Make development decisions predictable, fair, and cost effective; and
- Encourage community and stakeholder collaboration in development decisions.

### *Green Development*

Concurrent with the rise of smart growth was the evolution of the concept of green development. Green development was in many ways easier to implement because it was about buildings, which are more discrete, typically easily measurable in terms of water and energy, and the result of a very quantitative design process (i.e. calculation of square feet, cost, energy loads, and water demands). Green development initially focused on designing and constructing buildings to be more energy and water efficient. Over time, the concept grew to include a broader range of design attributes including indoor environmental quality and attention to supporting other important community values such as natural lands conservation, increasing transit use, and reducing stormwater pollutants. Though there are many examples of green development standards today, the most well-known in the U.S. is LEED™ - Leadership in Energy and Environmental Design. Focused on new building construction when it was first released in 1996, LEED has since gone on to provide other tools for rating a variety of building types and even neighborhoods.

### *The Ecological Footprint*

Yet another rubric created for understanding sustainability is the ecological footprint. A concept first introduced in 1992, it is generally understood as an estimate of the amount of biologically productive land and sea area needed to regenerate (if possible) the resources a human population consumes and to absorb and render harmless the corresponding waste produced, given prevailing technology and current understanding. Using this assessment approach, it is possible to estimate roughly how many planet Earths it would take to support humanity if everyone on the planet attained a certain standard of living. According to the World Wildlife Fund, if everyone in the world lived as the average American does today, we would require the equivalent of five planet Earths to sustain our way of life. Likewise, if everyone in the world lived as the average European does today, we would still require the equivalent of three planet Earths to sustain our way of life.

## **2.2 Key Arenas of Sustainability**

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Building on these organizing frameworks, coupled with the emerging themes described by stakeholders and the public, five key arenas of sustainability are suggested for consideration in the General Plan update:

- Economic Development, Equity, and Opportunity
- Energy and Water Resource Management
- Environmental Stewardship and Conservation
- Sustainable and Safe Transportation
- Health and Quality of Life

In the following paragraphs, each key arena is described and placed in the context of State, county, and local issues and concerns.

## Economic Development, Equity, and Opportunity

Economic development, equity, and opportunity are critical to an overall program for sustainability because they speak to the basic economic and social conditions under which all community members—families, employees, business owners, property owners, and others—make decisions for their lives and experience what Visalia has to offer. Without economic opportunity, people and businesses migrate elsewhere; without access to a good education, affordable housing, safe and well-paying jobs, and basic community services, community members struggle to contribute to their own families' well-being and that of the community at large. It is hard to focus on “saving the environment” if one lacks these basic necessities of life.

### Jobs

First and foremost, a sustainable economy depends on the availability of jobs suitable to a wide variety of workers and providing a wide variety of goods and services to residents. This business diversity is important for providing the best opportunities for residents to live and work in the same area, to meet day-to-day needs for errands, and to ensure stability in the event that one sector is affected by local, regional, or national economic turmoil.

Similar to the broader nationwide trends, Visalia's economy is based on distribution and agriculture, as well as manufacturing, education, and healthcare. Other significant occupations include social assistance, management, and professional jobs. Overall, the San Joaquin Valley has fared even worse than California as a whole during the current economic downturn, with an average unemployment rate exceeding 15 percent from 2009 through the first quarter of 2010. This stems in part from the Valley's position at the epicenter of the foreclosure crisis as well as the overall structure of its economy, which tends to experience relatively high unemployment even during periods of growth. However, as of January 2010, the City's unemployment rate of 11.6 percent was below the countywide average of 18.3 percent and the California average of 12.5 percent. The median household income in Visalia (\$54,000) exceeds that of Tulare County (\$44,000) as a whole but falls below the California average (\$61,000).

According to the American Community Survey, between 2006 and 2008, 32 percent of persons under 18 were living in poverty in Tulare County, the worst performance in the State. Visalia itself fared somewhat better during that period, with 21 percent of persons under 18 living in poverty, but this is still higher than the State and national averages, both around 18 percent.

*For more information about Visalia's current economic and market conditions, see Chapter 3.*

### Housing

Also crucial to community sustainability is the availability of housing options appropriate for a variety of income levels, household sizes, and life stages. A mismatch between local wages and housing prices can cause a spatial mismatch between where people live and where they work, which is likely to increase traffic on local roads, decrease time that families spend together, and incur other unforeseen costs associated with a long commute. It is also critical for communities to consider the health impacts of housing as a component of overall sustainability, because air and water pollution sources, building materials, and even sources of noise near housing can have a large, detrimental impact on those residents.

In 2000, approximately 25.6 percent of households in Visalia, or 10,852 households, had very low- or low-incomes; a much lower share than the county (33.3 percent) or state (39.2 percent). Of the lower income households in Visalia, about 60 percent were renters, and 40 percent were owners. A “moderate cost burden” is defined as gross housing costs between 31 and 50 percent of gross income. A “severe cost burden” is defined as gross housing costs exceeding 50 percent of gross income. For renters, gross housing costs include rent paid by the tenant plus utilities. For owners, housing costs include mortgage payment, taxes, insurance, and utilities. Approximately one-third of all households in Visalia had a housing cost burden greater than 30 percent in 2000. This rate is slightly less than Tulare County (33.2 percent) and California (34.5 percent). Only 14.7 percent of all households in Visalia had a housing cost burden greater than 50 percent in 2000 compared to 14.7 percent and 15 percent for Tulare County and California, respectively. However, as of the 2006-2008 American Community Survey, as many as 43 percent of Visalia households were paying 30 percent or more of gross income on housing costs, which suggests housing has become even less affordable since 2000.

*For more information about housing needs and conditions, see the recently updated General Plan Housing Element.*

### Education

Educational opportunities increase community sustainability by ensuring that local residents can train to qualify for higher wages, promotional potential, and new job opportunities. A high standard for basic education helps to ensure young people have options as they get older, and local sources of relevant continuing education help to ensure that professionals can excel in their work without moving away.

The base annual performance index (API) summarizes a school's, a district's, or the State's performance on the spring Standardized Testing and Reporting Program and California High School Exit Examination. It serves as the baseline score, or starting point, of performance. The API is on a scale of 200 to 1000. Visalia Unified School District has raised its high school average by about 18 percent between 2002 and 2008, from an average of 624 in 2002 to 737 in 2008. Visalia is home to fewer high school drop-outs and more college graduates than the County, but ranks below the State in overall educational attainment, especially in terms of the proportion of residents holding a bachelor's degree or greater (21 percent compared to 30 percent State-wide).

*For more information about educational services and opportunities, see chapters 3 and 7.*

## Energy and Water Resource Management

### Energy Demand and Renewable Energy

Among states, California is the second largest consumer of energy, second only to Texas. However, California's per capita energy consumption is low, in part due to mild weather that reduces energy demand for heating and cooling, and in part due to the government's energy-efficiency programs. Petroleum and natural gas supply most of the energy consumed in California. Petroleum products provide approximately 46 percent of the state's energy demand, and natural gas provides approximately 29 percent. In 2008, 10.6 percent of all electricity in California came from renewable resources such as wind, solar, geothermal, biomass, and small hydroelectric facilities. Large hydroelectric plants generated another 11 percent of statewide electricity.

According to data recently gathered by the City, Visalia’s electricity demand exceeded 700,000 megawatt-hours (MWh) in 2000, or about 7.7 MWh per capita. Natural gas use in 2000 was 33.4 million therms, or 980,000 MWh representing 10.7 MWh per capita.

*For more information about energy supply, demand, and renewable sources, see Chapter 7.*

### **Water Demand, Conservation, and Recycling**

Water is one of the most basic and critical resources for life. Water provides habitat and sustenance for plants and animals; irrigates landscapes for aesthetics and crops for consumption and export; washes everything from dishes to clothes to cars; is used as a coolant in industrial manufacturing processes; fights fires; is used for recreation; and is even an inspiration to art. In California, as in many other parts of the world, fresh water is also becoming scarce as growing populations demand more of it and new buildings and roads simultaneously reduce its quality and availability. Water rights and access have been a source of concern in the western United States for centuries. The practice of importing drinking water has become less politically acceptable because of the transportation impacts and equity issues associated with it. A sustainable water supply for Visalia is one that can meet the needs of the community without jeopardizing regional wildlife, habitats, agriculture, or other ecosystem functions, now and in the future.

The surface water quality of the Kaweah River Delta system is considered to be excellent and typical of Sierra Nevada snowmelt runoff. Water quality of the groundwater that underlies the project area is also considered excellent for domestic and agricultural uses. Groundwater is currently the only source of drinking water for Visalia residents.

According to the County General Plan, the Kaweah River is the major source of recharge to the Kaweah sub-basin. The State Department of Water Resources estimates natural recharge to be 62,400 acre-feet per year. There are approximately 286,000 acre-feet of applied water recharged into the sub-basin, and an unknown amount of artificial recharge. Annual urban and agricultural extraction is estimated to be 58,800 acre-feet and 699,000 acre-feet, respectively, contributing to the “overdraft” condition.

In order to protect water quality, the City operates and maintains a vast municipal storm drainage system that consists of drainage channels, 23 detention and retention basins, 33 pump stations and 250 miles of pipe. Historically, runoff was disposed of by directing it to the natural creeks, rivers and irrigation ditches that flow through the city. To mitigate the increased runoff due to urbanization, the City has invested thousands of dollars in the purchase of land and the construction of new permanent retention basins. The waterways described above have historically been used for flood control, storm water conveyance, riparian, and recreational uses.

*For more information about water supply and demand, and Visalia’s overall hydrology, see chapters 7 and 8.*

## **Environmental Stewardship and Conservation**

### **Air Quality**

The unique combination of elements in the atmosphere makes Earth suitable for life—human, plant, and animal. Air pollution threatens these living systems by changing the chemical makeup of the

atmosphere. Air pollution comes from many different sources, such as factories, power plants, dry cleaners, cars, buses, trucks and even windblown dust and wildfires. Air pollution can threaten the health of human beings, trees, lakes, crops, and animals, as well as damage the ozone layer and buildings. Air pollution also can cause haze, reducing visibility in national parks and wilderness areas.

Visalia is within the San Joaquin Valley Air Basin, a low, flat area bordered on the east by the Sierra Nevada Mountains, on the west by the Coast Ranges, and on the south by the Tehachapi Mountains. These topographic features restrict air movement through and out of the air basin, making the basin particularly susceptible to pollutant concentration over time. Currently, the in the basin ozone and particulate matter levels are above federal and state standards, with particularly severe conditions related to ozone.

*For more information about Visalia's air quality, see Chapter 8.*

### Greenhouse Gases

Another kind of air pollution is greenhouse gases (GHGs), which are gases that trap heat in the Earth's atmosphere. These gases play a critical role in determining the Earth's surface temperature, so too much of them can cause the earth surface temperature to rise beyond historically "normal" fluctuation. This change in the average climate of the earth, measured by wind patterns, storms, precipitation, and temperature, is called climate change. Because it is hard to remove GHGs from the atmosphere once they are there, emissions of GHGs can cause the earth's temperature to continue to rise for a long time, even after emission rates themselves are reduced. Accelerating climate change has the potential to cause a number of tangible, adverse impacts in California, including but not limited to: a shrinking Sierra snowpack that could threaten the state's water supply; public health threats caused by higher temperatures and more smog; damage to agriculture and forests due to reduced water storage capacity, rising temperatures, increasing salt water intrusion, flooding, and pest infestations; critical habitat modification and destruction; eroding coastlines; increased wildfire risk; and increased electricity demand.

According to a preliminary draft GHG emissions inventory prepared for the City in May 2010, in 2000 the Visalia community was responsible for about 1.1 million metric tons of carbon dioxide equivalent emissions (CO<sub>2</sub>e), suggesting a per capita emissions rate around 12.5 metric tons that year, slightly lower than the California average. In 2007, through the "Cool Cities" pledge, part of the U.S. Mayors Climate Protection Agreement, the City set a goal of reducing citywide emissions to 7 percent below 1990 levels by 2012. In 2008, the City also became a partner in the San Joaquin Valley Clean Energy Organization (SJVCEO), non-profit organization serving the eight-county region.

The City has already undertaken some community-scale measures resulting in reduced GHG emissions relative to the 2000 base year. These measures range from the expansion of the City's Bicycle Plan to the implementation of a commercial compost program. Taken together, these measures are an excellent first step towards significant reductions of GHG emissions, accounting for 41,802 metric tons CO<sub>2</sub>e reduction, or over 3 percent towards reduction goal of 15 percent below 2008 emissions level by 2020; however, more will need to be done.

*For more information about GHG emissions in Visalia, see Chapter 8.*

### *Land Management, Habitats, and Wildlife*

Natural habitats and wildlife in Visalia provides numerous benefits to the human community. Ecosystem services include: pollination of flowering plants and fruit-bearing trees; filtration of water runoff; natural balancing and management of pest insect and animal populations; topsoil preservation and rejuvenation; and flood mitigation. Overall, natural diversity is the best protection an ecosystem has against deterioration and malfunction, and a healthy ecosystem will help achieve many of the City’s goals. Protecting natural habitats ties back to air quality goals as well. Nature preserves and other areas that remain in a natural state—such as grasslands, wetlands, or forest—serve as carbon “sinks” trapping carbon from the atmosphere. While disturbance of these areas releases carbon into the atmosphere, protecting them or enhancing them through additional planting prevents release of carbon and can increase capacity for carbon capture in the future.

Several rivers and creeks flowing from the Sierra Nevada Mountains have created a watershed landscape within Visalia. The city was historically dominated by oak forest and emergent and riparian wetlands. Today, however, much of the original forest is gone, but scattered valley oaks still exist in and around the city and along watercourses, creating riparian corridors with other riparian trees. The biological resources within Visalia are centered on the areas of Valley Oak Woodland and the riparian and wetland habitats associated with the waterways that flow through the Planning Area. Additionally, one parcel in the western portion of the planning area, near the town of Goshen, has historically contained a vernal pool which provided habitat for federally listed vernal pool fairy shrimp and western spadefoot. Also known to occur in and around the planning area is the federal Endangered and State Threatened species San Joaquin Kit Fox. In addition, Tulare County is one of the most productive agricultural counties in the nation, and these agricultural lands form a perimeter around Visalia, serving both economic and ecological purposes.

*For more information about biological and open space resources, see chapters 7 and 8.*

### *Waste Stream*

Though waste is generally understood to be unwanted materials or substances, it is difficult to define specifically what waste is. Items that some people discard have value to others. In nature there is no waste; most “waste” produced by one species is invariably used as food, fuel, or shelter by another. The paradigm “cradle to cradle”<sup>4</sup> contends that in natural systems, waste is “food”. In cradle to cradle production, every element that goes into the process can be retrieved at the end of its use and become a healthy input (a “nutrient” or “food”) into another production process. In cradle to cradle production all material inputs and outputs are seen either as technical or biological nutrients. Technical nutrients can be recycled or reused with no loss of quality and biological nutrients can be composted or consumed. In the cradle to cradle model, all waste is good because all waste is “food” for other processes.

While it has been customary to dispose of a great deal of waste through landfilling and incineration, it is now possible for humans to reduce, reuse, or recycle the vast majority, if not all, of our waste. Diverting waste from landfills can substantially reduce the greenhouse gas emissions related to waste disposal processes. Recycling and waste prevention programs reduce the energy and transportation

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<sup>4</sup> According to L. Hunter Lovins in his essay “Rethinking Production” (*State of the World 2008: Innovations for a Sustainable Economy*), the phrase was coined by Walter R. Stahel in the 1970s and popularized by William McDonough and Michael Braungart in their 2002 book *Cradle to Cradle: Remaking the Way We Make Things*.

needed to manufacture and ship resource-intensive products and packaging. Composting food and yard waste reduces the amount of methane—a greenhouse gas—produced in landfills. Communities near landfills increasingly face health consequences from air and water contamination, particularly from landfills that are poorly constructed and operated. Furthermore, as populations increase we are running out of land in which to place new landfills at the same time that we are generating more waste.

In 1989, California enacted the Integrated Waste Management Act, which required all cities and counties to implement programs to reduce landfill tonnage by 25 percent by the end of 1995, and 50 percent by the end of 2000. In 2009, the City's Solid Waste Divisions recorded a waste collection rate of 3.1 pounds per person per day (PPD), down from 4.1 PPD in 2006. Today, Visalia salvages approximately 1,150 tons of recyclables and 2,500 tons of green waste per month in residential and commercial operations. These figures, however, belie the sheer magnitude of California's burgeoning disposal problem. Increases in the rate of recycling over the past 15 years have been largely offset by significant increases in per capita waste generation. In 2008, more than 40 million tons of wastes were disposed in California—a two million ton increase over 1998 levels. In 2009, AB 737 amended the Integrated Waste Management Act to require CalRecycle to adopt programs to increase statewide diversion to 75 percent by 2020.

*For more information on solid waste disposal, diversion, reuse, and recycling, see Chapter 7.*

## Sustainable and Safe Transportation

Transportation systems provide the backbone of human economic and social activity. They may move people and goods as little as a few feet or around the world and beyond. Transportation systems provide critical goods such as food and fuel, as well as necessary contact with friends and relatives across a more dispersed, interconnected world.

Sustainable transportation is most frequently discussed in terms of reducing greenhouse gas emissions; with 41 percent of statewide GHG emissions coming from the transportation sector (30 percent in Visalia), regional and local planning agencies are looking for ways to reduce how often and how far people drive. Sustainable transportation, though, also makes sure that everyone can get where they need to go, regardless of their age, income, or ability. A sustainable transportation strategy focuses not on how best to move cars around, but how best to help people do the things they want to do:

- Increased access to goods and services for all ages and abilities;
- Improved air quality and fewer health problems through reduced particulate levels and smog;
- Increased physical activity levels with improvements in fitness and health for all ages;
- Fewer and less fatal accidents related to motor vehicles;
- Reduced stress from traffic congestion; and
- Household cost savings from reduced fuel and vehicle maintenance expenses.

### *Mobility*

From a mobility perspective, circulation system design and improvements are about increasing people's access to goods, services, and community networks and helping people get where they need to go. This means thinking about all the ways people and goods move around, and finding through the General Plan update the best combination of methods to improve mobility. Sustainable mobility is thus about managing, reducing, and avoiding congestion by emphasizing multi-modal options that, in turn, support economic, social, and cultural productivity.

Within the commuting segment of workers, the number of those commuters driving alone has increased every year, but proportionally decreased to the number of citywide workers. Visalia commuters chose to carpool slightly less, on average, than the statewide averages. Public transportation use, however, is significantly lower than the State average. Travel times for commuters are also shorter than the State average. Only one roadway segment is currently operating at an unacceptable level of service: Mineral King Avenue from Main Street to Lovers Lane.

*For more information on mobility indicators, see Chapter 6.*

### *Connectivity*

Another aspect of sustainable transportation is concerned with the integration of transportation and land use in order to achieve high levels of non-motorized travel and transit use, reduced vehicle trips, and shorter average trip length, all while providing a high level of accessibility. Slightly different from mobility, connectivity is less about network management, and more about land uses and infrastructure on the ground, such as roadway networks, sidewalks, bikeways, paths, and the way these physical infrastructure systems connect with one another.

Besides standard sidewalks that have been developed in residential and non-residential areas, several bike/pedestrian facilities are found throughout Visalia. For instance, there are the St. Johns Parkway, Mill Creek, Goshen Avenue, and other multi-use trails. Visalia Unified School District and the City of Visalia are also actively involved in pursuing federal and state Safe Routes to School (SR2S) grants that promote adequate pedestrian facilities in neighborhoods near schools.

From a bicyclist's perspective, Visalia is an attractive place to ride. First, the level terrain and quiet tree-shaded side streets offer comfort and safety. Second, the size of the city makes practically all parts accessible within a 30-minute ride. In addition to the bicycle routes the City has built, Visalia offers bicycle racks on buses for most of the Visalia Transit fleet. The bicycle racks extend the bicycle's range and offer connections to the cities of Woodlake, Tulare, Exeter and Farmersville. Visalia has several challenges, though, when it comes to developing future bicycle facilities, including relatively extreme temperature in the summer, auto-dominated roadways, and limited connecting facilities.

### *Health and Safety*

Also critical to a sustainable transportation system is that it is designed, operated, maintained, and managed to reduce serious injuries and fatalities, promote active living, and lessen exposure to air and noise pollution.

In terms of traffic accidents, the total number of traffic accidents in Visalia is declining from year to year. Accidents started at 2,523 in 2007, declining to 2,320 in 2008 and 2,281 in 2009 according to the Police Department. In 2009, this represents a traffic accident rate of 18.4 per thousand people.

In general, a majority of the accidents occur at interchanges along the State Route 198 corridor and Mooney Boulevard.

Traffic is also the primary source of ambient noise. The current noise element of the General Plan establishes goals and policies to limit community exposure to excessive noise levels, and identifies noise sources and land use compatibility guidelines. The General Plan also requires an acoustical analysis if existing or projected future noise exposure exceeds 65 dB, Ldn, or if interior noise levels resulting from offsite noise are estimated to exceed 45 dBA.

*For more information on transportation and noise, see chapters 6 and 8, respectively.*

## Health and Quality of Life

This key arena has the potential to provide the distinction between simply “green” community development and community development that is productive and thriving.

### Neighborhood Quality

A critical aspect of community sustainability is the ability of a place to attract, retain, and satisfy residents and visitors. This satisfaction is sometimes difficult to measure, but often relates to a diverse combination of experiences such as affordability of housing, quality of services, quality of jobs, the character of neighborhoods, and perceptions of safety. Often, these individual factors come together in people’s minds as an overall sense of community “feel”.

In 2010, Visalia has a population of over 125,000; yet, an overwhelming number of residents identify Visalia as a “small town,” or as a growing city that has maintained its “small town feel.” This shared sentiment is testament to the City’s success in maintaining the quality attributes of a neighborly, close-knit community even in the face of rapid growth. Visalia is a relatively free-standing city, surrounded almost completely by agricultural lands and natural open space. While some edges of the city are well defined by physical features, development primarily in the form of residential subdivisions feathers out into these agricultural areas, often resulting in an indistinct urban edge. Current planned development projects, including several new residential subdivisions, park space, and public facilities, continue this development pattern. Closely guiding the design and location of new development will provide the opportunity to establish a more defined development edge that respects the city’s natural and agricultural heritage. As Visalia continues to add population over the next 20 years, the extent to which it can continue developing livable, desirable neighborhoods and commercial areas that reflect these values will be critical.

*For more information about land use and community character, see Chapter 4.*

### Crime and Perceptions of Safety

Both the reality and the perception of safety are critical components to overall community quality of life, and have a big impact on the experience of being in a community, as well as resident and business decisions to locate, and stay, in a community. Crime, both real and perceived, can have social costs such as community and family disruptions associated with incarceration, and reduced community interaction and visible foot traffic in areas perceived to be dangerous. Crime and perceived danger can also have economic costs, associated with fewer regular customers, shorter

business hours, fewer out-of-town visitors, and the expenses of security procedures such as surveillance systems and repairs to property subject to vandalism, theft, or other criminal damages.

The physical features, layout, and design of many aspects of neighborhoods can influence crime prevention and other crime-related outcomes, such as neighborhood deterioration and residents' overall fear of crime. Relevant features of the built environment include housing design, block layout, land use and circulation patterns, resident-generated territorial features (like street closures or community gardens), and physical deterioration.<sup>5</sup> Sometimes land uses themselves are associated with crime. For example, a study of more than 500 ZIP codes in California found that an increase in the number of take-out alcohol retailers corresponded with an increase in the rate of violence.<sup>6</sup>

Although Visalia is generally regarded as a relatively safe community, some areas, such as the Oval and eastern Visalia, have been challenged by gang activity and other crimes, and public safety is a high priority for residents. Overall, the City's crime rate is on par with the County as a whole, but about twice the average for California. Currently, the City's per-capita crime rate is comparable to Fresno. How the General Plan could help reduce this and make the community safer will be a challenge, but one that is of high importance to local residents.

The Visalia Police Department does not adhere to national service standards in terms of officers per thousand residents, or incident response time standards, but its effectiveness is noteworthy given staffing and budget constraints. In 2008, the Department reported that its response times were under 15 minutes for 85 percent of all calls, and the average response time for Priority 1 calls was 4.2 minutes.<sup>7</sup>

*For more information about safety services and crime, see Chapter 7.*

### Public Health

Most people are familiar with the ways we measure and maintain personal health: doctor visits, a blood pressure check, a trip to the dentist. From a General Plan perspective, however, we are concerned with the larger arena of public health—ways that policy and programs can create better health outcomes for the entire community. The sustainability initiatives previously described provide extensive support for improving community-level health. For example, sustainable transportation policies that provide biking and pedestrian transit options for all ages increase physical activity. Likewise, policies that promote clean air will, by their very nature, improve health outcomes for the community.

According to the California County Health Status Profiles 2010, Tulare County ranked among the worst in California in the 2006-08 time period for death rates due to homicide (ranked 55 of 58 counties), diabetes (51 of 58), cerebrovascular disease (51 of 58), chronic liver disease and cirrhosis (51 of 58), and motor vehicle crashes (50 of 58). Other important health indicators for Tulare County include births to young mothers (aged 15-19), for which Tulare County ranks 55 of 58, with

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<sup>5</sup> Taylor, R. and A. Harrell, 1996.

<sup>6</sup> Gruenewald, P., 2006.

<sup>7</sup> City of Visalia Police Department, 2010.

over 61 live births to mothers in that age group per 1,000 females in the same age group. This compares to a state average of 37 and a national average of 43.

In the 2007 California Health Interview Survey (CHIS), more than half of adult respondents in Tulare County reported engaging in either none or less than the recommended amount of daily physical activity. Furthermore, the prevalence of obesity among adult respondents in Tulare County was 31 percent, and 46 percent of teens were found to be obese or at risk for being overweight.

## 2.3 Measuring Sustainability

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With the evolution of sustainability came the need to verify the claims of communities and developers that their efforts were leading to a more sustainable condition. The objective of many of today's green rating methods is to separate out projects and policies that result in true sustainability from those initiatives that are simply "greenwash." While many of these programs have (sometimes high) costs associated with official "certification", they nonetheless provide useful metrics which communities can apply to development decision-making, and many of the suggested development standards make good economic sense. Examples of popular US programs include:

### LEED™ for Neighborhood Development

As LEED's building certification program gained momentum, it became apparent that a need existed to look at more than just buildings and evaluate entire neighborhoods for their level of sustainability. This came from the recognition that a green building in the wrong location or on an unsustainable site is not really very green. As a result, LEED for Neighborhood Development (LEED-ND) is now available for use in evaluating and certifying new development that includes tracts of land and multiple buildings. It is composed of four main sections including Smart Location and Linkage, Neighborhood Pattern and Design, Green Infrastructure and Buildings and Innovation and Design Process.

### One Planet Living

One Planet Living is a certification program designed to guide development that creates communities with a one-planet ecological footprint. In other words, if all humans on the earth were to live according to this standard, we would all be able to do so without exhausting non-renewable resources and without requiring some people to live at a lower standard of living than others. Originating in the U.K., the One Planet Living framework consists of 10 guiding principles—zero carbon, zero waste, sustainable transport, local and sustainable materials, local and sustainable food, sustainable water, natural habitats and wildlife, culture and heritage, equity and fair trade, and health and happiness.

### STARS Community Rating System

The STARS Community Rating System is a new rating method being developed jointly by ICLEI and USGBC for the benefit of existing communities and their leadership. Using a similar methodology to LEED, the program provides communities a consistent tool for evaluating progress and success relative to peer communities in the sustainability arena. It will also provide a recognizable award where leadership can receive recognition for their accomplishments in creating more

sustainable communities. The model follows the ‘triple bottom line’ structure of Environment, Economy and Society, with each major group containing several sub-sections for evaluation.

## Using Indicators to Measure Sustainability

For the General Plan to impact the long term sustainability of the community, it should advance a set of indicators—key measurements and benchmarks that can be regularly assessed and monitored as a way to determine how well the city is progressing in achieving its sustainability goals. For purposes of the General Plan update process, these indicators will first and foremost inform the development and prioritization of General Plan policies—evaluating existing policies as well as proposed new ones. These indicators may also play a role in ranking the performance of alternative plans and informing the development of a preferred plan alternative. Subsequent to the development of the updated General Plan, these indicators and the data collected through monitoring will highlight which adopted policies are making a difference and which are not, so that useful adjustments can be made.

## 2.4 Emerging Issues and Planning Options

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Visalia is making considerable progress on meeting environmental conservation and stewardship objectives laid out in the current General Plan. More could be done to address emerging issues and ensure overall community sustainability through leadership opportunities.

### Emerging Issues

Emerging issues are those issues that Visalia will need to tackle aggressively in order to move in a sustainable development direction. These include:

- **Urban form**, to ensure a balance of complimentary residential and non-residential uses, access to services, and preservation of important agricultural and environmental resources;
- **Water supply**, to ensure adequate quality and quantity in a groundwater basin that is already in overdraft condition;
- **Jobs**, to ensure a living wage for local workers and a robust overall economic future, and if possible to reduce the need for workers to commute elsewhere;
- **Quality of life**, to ensure that children stay in Visalia after college, and that there continue to be health, education, social, and cultural resources for existing and future residents.

### Leadership Opportunities

At the same time that the City is implementing policies and programs for a more sustainable future, Visalia also has the potential to continue its leadership role in the Central Valley as the ‘go-to’ town for advancing progressive strategies toward a more sustainable outcome. Leadership opportunities are those areas where Visalia—due to its location, unique urban form, or community values—can put in

place sustainable development models for other communities to emulate. As it is early yet in the General Plan update process, leadership opportunities are only touched upon in very preliminary form. Later on, with more community input, this list of leadership opportunities will be revised, expanded, and elaborated upon in the form of potential General Plan policies.

### *Opportunity 1: Financial Incentives and Support for Energy and Water Efficiency*

#### *Industrial and Commercial Buildings*

Visalia has approximately 15 million square feet of industrial facilities, 1.3 million square feet of office space, and 4 million square feet of retail. The draft Climate Action Plan, which was recently completed for the City, suggests that the industrial and commercial (office + retail) sectors contribute 49 percent of the community's GHGs, of which 30 percent is attributable to electricity use. Therefore, these three building categories' electricity use generates 14.7 percent of the community's total GHGs. By targeting the energy efficiency of these three non-residential building types, the City can make big strides toward environmental sustainability, while dealing with a smaller number of property owners who control large amounts of square footage. These building improvements will also result in energy cost savings for businesses in the longer-term.

Given the City's concern for long-term water resource management, a combined energy and water efficiency program such as Sonoma County's SCEIP program (<http://www.sonomacountyenergy.org/>) could be delivered concurrently.

Targeted non-residential energy efficiency improvements might include lighting efficiency upgrades; cool roof strategies, especially for large roof plate buildings; building information systems management (i.e. unoccupied room sensors, etc.); increased building cooling system efficiency; combined heat and power for industrial processes; solar thermal water heaters; and photovoltaic energy systems.

Targeted non-residential water efficiency improvements might include onsite water reclamation and reuse facilities; low flow fixture replacement; low water use/ native landscape installation; smart irrigation controller installation; and high efficiency irrigation systems.

Note that recent challenges in the private capital markets have made PACE bonds inaccessible to most commercial users. Visalia could assume a groundbreaking leadership role by adopting a PACE bond scheme consistent with AB 811, and then creating a revolving mechanism to guarantee loans, so first mortgage holders do not preclude the program funding for building upgrades.

#### *Residential Buildings and Title 24 Standards*

According to the recently completed inventory of emissions, the residential sector contributes 20 percent of Visalia's GHGs, of which 47 percent is attributed to electricity use, and the balance attributed to natural gas used for heating, hot water, and cooking. By targeting the energy efficiency efforts toward the City's 42 percent of housing stock built before 1980 (prior to adoption of Title 24 Energy Efficiency standards in 1978) the greatest impact can be achieved through targeting the least energy-efficient existing properties.

As a General Plan implementation action, the City could develop the resource support (clearinghouse for energy and water efficient resources, home efficiency auditing capacity, contractor verification and certification) and access needed to innovative funding mechanisms. A comprehensive effort that

provides homeowners with centralized know-how and low cost capital would make renovation at these smaller scales possible.

Targeted residential energy efficiency improvements might include lighting efficiency upgrades; cool roofs or radiant barriers; whole house fans; improved building insulation; tankless or high efficiency hot water heaters; Energy Star appliances; solar thermal water heaters, or photovoltaic energy systems.

Targeted residential water efficiency improvements might include low flow fixture replacement; low water use/native landscape installation; smart irrigation controller installation; high efficiency irrigation systems; rainwater catchment systems; or graywater reuse systems.

### *Opportunity 2: Organic Waste Reduction and Reuse*

Another General Plan initiative would be to develop a comprehensive approach to closed-loop organic waste collection, composting and use, to remove organics from the waste stream and rebuild local soils.

Visalia is currently expanding its curbside pickup of combined green and food waste for composting by Tulare County Compost and Biomass (TCC+B). Currently, the City is producing 55,000 tons of green waste, which is composted by TCC+B into an estimated 28,000 tons of compost. However, much of this compost is trucked out of the area for use in agricultural fields.

The City is expanding its collection to include post-consumer food products from residential areas, and can continue this expansion to include commercial/institutional sources to increase both the yield of compost and reduce the amount of organics going to the landfill. Secondly, the City could institute the use of locally-produced compost in all City landscape operations to return the resource to its source. A combination of community education and communication programs on quantities, benefits and increased success of the community's green/ organic diversion, compost creation and local use would help to complete the loop.

### *Opportunity 3: Partnerships with Agencies, Institutions, and Service Providers*

Partnerships with service providers such as Cal Water or Southern California Edison, as well as institutes of higher learning such as the College of the Sequoias, could be arranged to create a protocol for collecting, monitoring, and reporting necessary data over the long term. These partnerships would help to ensure an accurate understanding of the impact of policy approaches, keep Visalia closely connected to best practices in critical sustainability arenas, as well as provide new "green sector" educational opportunities, training, and network exposure. One of the opportunities which could be pursued through partnerships would be the implementation of a "smart grid" in Visalia, delivering electricity from suppliers to consumers using two-way digital technology to control appliances at consumers' homes to save energy, reduce cost, and increase reliability and transparency.

### *Other Opportunities*

Another initiative would be for the General Plan update to establish highly visible, symbolic programs that illustrate, on a daily basis, Visalia's commitment to sustainability. Programs that could be considered include installation of renewable energy production (Wind or PV) on public buildings or sites in key, visible areas; installation of electric charging or CNG refill stations for alternative fuel vehicles; broad implementation of an alternative fuel carshare program similar to CityCarshare or

ZipCar to shift public perceptions about car ownership; and policy commitment to a minimum level of green building standard for all public buildings.

Regardless of which approaches are chosen, a portfolio of sustainability programs in the General Plan should be carefully crafted based on a benefit-cost analysis, as well as less quantifiable value such as its contribution to education, community image and visibility, and market transformation related to sustainability. To realize the most benefit from any program, it should be coupled with a clear process for monitoring, measuring, and improving results over time.

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